DILLON CONSULTING

City of Brantford

Master Fire Plan

Final Report

June 2019 – 18-7634

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Acronyms, Abbreviations, Definitions

Acronyms and Abbreviations	Definitions
A.S.&E.	Academic Standards and Evaluation
A.H.J.	Authority Having Jurisdiction
A.N.S.I.	American National Standards Institute
A.O.D.A.	Accessibility for Ontarians with Disabilities Act
A.P.C.O.	Association of Public Safety Communications Officials
A.T.O.	Assistant Training Officer
B.C.I.N.	Building Code Identification Number
B.F.D.	Brantford Fire Department
C.A.D.	Computer Aided Dispatch
C.A.F.C.	Canadian Association of Fire Chiefs
C.B.R.N.E.	Chemical, Biological, Radiological, Nuclear, and Explosive
C.E.M.C.	Community Emergency Management Coordinator
C.F.A.I.	Commission on Fire Accreditation International
C.F.E.I.	Certified Fire and Explosion Investigators
C.F.S.E.M.	Comprehensive Fire Safety Effectiveness Model
C.F.O.	Chief Fire Official
C.F.P.O.	Chief Fire Prevention Officer
C.N.	Canadian National
C.O.	Carbon Monoxide
C.P.	Canadian Pacific

Acronyms and Abbreviations	Definitions
C.P.C.	Commission on Professional Credentialing
C.P.S.E.	Centre for Public Safety Excellence
C.R.A.	Community Risk Assessment
C.R.R.P.	Community Risk Reduction Plan
C.T.O.	Chief Training Officer
D.C.A.	Development Charges Act
D.F.C.	Deputy Fire Chief
E.C.G.	Emergency Control Group
E.I.O.	Emergency Information Officer
E.&R.	Establishing & Regulating
E.M.C.P.A.	Emergency Management and Civil Protection Act
E.M.O.	Emergency Management Ontario
E.M.P.M.	Emergency Management Program Manager
E.M.S.	Emergency Medical Service
E.O.A.G.	Emergency Operations Advisory Group
E.O.C.	Emergency Operations Centre
E.R.P.	Emergency Response Plan
E.V.T.	Emergency Vehicle Technician
F.P.P.A.	Fire Prevention and Protection Act
F.U.S.	Fire Underwriters Survey™
G.I.S.	Geographic Information Systems
G.T.A.	Greater Toronto Area
H.C.A.C.C.	Hamilton Central Ambulance Communications Centre
H.I.R.A.	Hazard Identification Risk Assessment

Acronyms and Abbreviations	Definitions
I.A.F.F.	International Association of Firefighters
I.C.S.	Incident Command System
I.D.H.L.	Immediately Dangerous to Health
I.F.S.A.C.	International Fire Service Accreditation Congress
I.F.S.T.A.	International Fire Service Training Association
I.M.S.	Incident Management System
I.T.	Information Technology
J.H.S.C.	Joint Health and Safety Committee
K.C.B.	Kelton, Chertow & Boyd Inc
M.C.S.C.S.	Ministry of Community Safety and Correctional Services
M.F.P.	Master Fire Plan
M.T.O.	Ministry of Transportation
M.W.	Megawatt
N.F.P.A.	Nation Fire Protection Association
N.I.S.T.	National Institute of Standards and Technology
O.A.F.C.	Ontario Association of Fire Chiefs
O.B.C.	Ontario Building Code
O.C.I.O.	Office of the Chief Information Officer
O.F.C.	Ontario Fire Code
O.F.M.E.M.	Office of the Fire Marshal and Emergency Management
O.F.S.S.	Ontario Fire Service Standards
O.H.S.A.	Occupational Health and Safety Act
O.G.	Operational Guideline

Acronyms and Abbreviations	Definitions
P.C.C.	Private Career Colleges
P.D.A.	Physical Demands Analysis
P.F.S.G.	Public Fire Safety Guideline
P.M.C.V.I.	Periodic Mandatory Commercial Vehicle Inspections
P.T.S.D.	Post-Traumatic Stress Disorder
R.I.T.	Rapid Intervention Team
R.M.S.	Records Management System
R.O.	Routine Order
R.T.C.	Regional Training Centres
S.C.B.A.	Self-Contained Breathing Apparatus
S.N.E.C.	Six Nations Elected Council
S.O.G.	Standard Operating Guidelines
S.O.P.	Standard Operating Procedure
S.R.A.	Simplified Risk Assessment
S.W.O.C.	Strengths, Weaknesses, Opportunities, and Challenges
T.A.P.P.-C.	The Arson Prevention Program for Children
T.G.	Technical Guideline
T.R.A.	Tiered Response Agreement
T.S.E.	Technical Systems Engineer
U.S.	United States
U.T.V.	Utility Task Vehicle
E.M.S.	Emergency Medical Services
T.S.S.A.	Technical Standards & Safety Authority
W.E.T.T.	Wood Energy Transfer Technology

Executive Summary

This **Master Fire Plan** (M.F.P.) was developed to provide Council with a strategic framework for the delivery of fire protection services within the City of Brantford over the next ten-year community planning horizon. The findings and recommendations contained within this M.F.P. have been informed by a **Community Risk Assessment** (C.R.A.) that was developed as a companion document to assess the existing fire risk within the community. Together these documents present a comprehensive analysis of the existing fire risks within the community, and the existing fire protection capabilities of the Brantford Fire Department (B.F.D.).

The C.R.A. and M.F.P. have been developed in consideration of the municipality's legislative requirements as contained within the **Fire Protection and Prevention Act, 1997** (F.P.P.A.), and the **Occupational Health and Safety Act, R.S.O. 1990** (O.H.S.A.). In addition, current industry best practices as defined by the Office of the Fire Marshal and Emergency Management (O.F.M.E.M.) and leading industry organizations such as the National Fire Protection Association (N.F.P.A.) have been utilized to guide and inform the recommendations presented.

Under the leadership of the Fire Chief, the B.F.D. senior management team currently oversees the delivery of a wide range of fire protection services through the application of the **Comprehensive Fire Safety Effectiveness Model** (C.F.S.E.M.) supported by the O.F.M.E.M. The C.F.S.E.M. prioritizes a strategy referred to as the "**three lines of defence**." These include:

i. **Public Education and Prevention;**
ii. **Fire Safety Standards and Enforcement; and**
iii. **Emergency Response (Fire Suppression)**

Within the Province of Ontario the **"three lines of defence"** model has proven to be an effective strategy in reducing the number of fire-related fatalities and injuries, and reducing the overall impacts of fire while enhancing the safety of firefighters. In addition to options and recommendations this M.F.P. will present **"strategic priorities**" that are intended to form the guiding principles in Council's decision making process with respect to the delivery of fire protection services, and optimize the use of the **"three**

lines of defence" model in providing the most effective and efficient level of fire protection services, with the most value to the community.

The information presented within this M.F.P. will highlight the emphasis that the B.F.D. places on public fire safety education. The **role of the public** in maintaining working **Smoke Alarms** in their home, having a **Carbon Monoxide Alarm** and practicing **Home Escape Planning** are all core elements of a comprehensive community fire safety plan.

The analyses within this M.F.P. identify the current fire prevention and public education programs and services that the B.F.D. provide in applying the first two lines of defence strategy, including the application of fire safety standards and fire code enforcement. Recommendations are presented within this M.F.P. to seek Council's support to further optimize these programs and services that have been identified as a strategic priority. Specifically, this strategy is intended to further target optimizing the current fire inspection program in high risk, and high-rise building occupancies, and provide a dedicated staff resource to further develop and implement the department's public education program.

Another theme within this M.F.P. will be the implementation of strategies to enhance the internal monitoring and evaluation of all programs and services provided by the department. These strategies will align with municipal best practices that support the use of performance benchmarks to establish and monitor service levels on a regular basis.

As of July 1, 2019 all municipalities in Ontario will be required to complete a Community Risk Assessment as prescribed by the new **Ontario Regulation 378/18 - Community Risk Assessment.** With the support of Council this master fire planning process has proactively prepared the City to comply with this new legislation. Assessing community fire risk is an important element of understanding the local needs and circumstances, as required by the F.P.P.A., which can then be aligned to the service levels established by the municipality. The results of the C.R.A. have been utilized to directly inform the analysis of the fire protection services across divisions, with particular connections to fire prevention, training and emergency response (e.g. suppression) and to directly inform the recommendations within this M.F.P.

Subject to Council's consideration, this M.F.P. is intended to inform the development of clear goals and objectives for each of the programs and services provided by the B.F.D.

to be included within an updated **Establishing and Regulating By-law**. This includes a clear description of the intended service level, process for implementation and requirements for the ongoing monitoring and reporting to Council and the community.

List of Recommendations

Administration

Council Recommendations:

Council Recommendation #1: That the strategic priorities identified within the proposed Master Fire Plan be adopted to form the strategic framework for the delivery of fire protection services within the City of Brantford, including:

i. The sustained use of a Community Risk Assessment to determine the fire safety risks within the City of Brantford as the basis for developing clear goals and objectives for all fire protection and emergency services provided by Brantford Fire Department;

ii. Where applicable, the optimization of the first two lines of defence (including public education and fire prevention, and the utilization of fire safety standards and fire code enforcement) to provide a comprehensive fire protection program within the City; and,

Emphasis on strategies that support the sustainability of fire protection and emergency services to provide the most effective and efficient level of services resulting in the best value for the community.

Operational Recommendations:

Operational Recommendation #1: That subject to Council's consideration and approval of the proposed Master Fire Plan that the Establishing and Regulating By-law be updated and presented to Council for approval.

Operational Recommendation #2: That the Fire Chief implement a regular process for the review of all applicable fire protection services by-laws.

Operational Recommendation #3: That an appointment by-law be prepared and presented to Council for approval to appoint the Deputy Fire Chief – Operations.

Operational Recommendation #4: That an appointment by-law be prepared and presented to Council for approval to appoint the Deputy Fire Chief – Support Services.

Operational Recommendation #5: That consideration be given to reviewing and updating the existing job descriptions of all Brantford Fire Department full-time staff.

Operational Recommendation #6: That a comprehensive review of the existing work space at Station 1 (Headquarters) be conducted to identify options for improving the work space functionality of this facility to accommodate the existing and future staffing resource needs of this Station.

Operational Recommendation #7: That consideration be given to developing a Fire Protection Agreement with the Six Nations of the Grand River for the delivery of fire protections services to any lands located within the City boundary.

Operational Recommendation #8: That technology solutions be investigated and implemented to provide simultaneous notification to the Brantford Fire Department from the Hamilton Central Ambulance Communications Centre.

Operational Recommendation #9: That consideration be given to implementing common technology solutions and operating systems to support the existing Fire Dispatch Agreement with the Six Nations of the Grand River.

Operational Recommendation #10: That the Brantford Fire Department consider establishing a committee of staff assigned to review and update all Standard Operating Policies and Standard Operating Guidelines on a regular basis as referenced within the proposed Master Fire Plan.

Operational Recommendation #11: That consideration be given to expanding the use of GIS technology to assist the department in monitoring performance and conducting trend analysis.

Operational Recommendation #12: That a policy be developed and implemented to define the required records management procedures and retention practices of the Brantford Fire Department.

Fire Prevention

Council Recommendations:

Council Recommendation #2: That subject to Council's consideration and approval of an Implementation Plan that the proposed fire inspection cycles included within the proposed Master Fire Plan be approved and included within the proposed Fire Prevention Policy.

Council Recommendation #3: That subject to Council's consideration and approval of an Implementation Plan that the proposed public education cycles included within the proposed Master Fire Plan be approved and included within the proposed Fire Prevention Policy.

Council Recommendation #4: That the City prioritize the hiring of a dedicated full-time Fire and Life Safety Educator as proposed by the Master Fire Plan.

Operational Recommendations:

Operational Recommendation #13: That those positons within the department that are designated as Chief Fire Officials be confirmed through a formal delegation of authority report.

Operational Recommendation #14: That the Fire Chief develop a strategy for all Fire Inspectors and staff assigned to public education to attain and sustain professional qualifications presented within the proposed Master Fire Plan.

Operational Recommendation #15: That By-law No. 215-80 be rescinded, and that the current Fire Prevention Policy be updated for consideration and approval by Council and inclusion within the proposed updated Establishing and Regulating By-law as an appendix.

Operational Recommendation #16: That consideration be given to expanding the current activities reporting of the Fire Prevention Division to Council as referenced within the proposed Master Fire Plan.

Operational Recommendation #17: That consideration be given to developing a policy for responding to all fire inspection requests, and complaints as referenced within the proposed Master Fire Plan.

Operational Recommendation #18: That consideration be given to rescinding Policy 3.5 Solid Fuel Burning Appliances-Inspection Procedures and revising By-law No. 188-2017 to remove reference to performing this type of service.

Operational Recommendation #19: That consideration be given to discontinuing the practice of conducting W.E.T.T. inspections.

Operational Recommendation #20: That Policy 3.14-Fire Investigations be revised to include establishing certifications and qualifications for personnel conducting fire investigations.

Operational Recommendation #21: That Policy 3.19- Contacting Ontario Fire Marshal Investigator be updated to reflect the criteria for notification of the O.F.M.E.M. as set out in Fire Marshal's Directive 2015-02.

Operational Recommendation #22: That the department review the benefits of utilizing computer software to conduct fire suppression pre-plans, the need for further coordination of pre-planning efforts and prioritizing high risk occupancies.

Operational Recommendation #23: That consideration be given to formalizing the roles and responsibilities of City departments to conduct plans review as referenced within the proposed M.F.P.

Operational Recommendation #24: That the B.F.D. implement a process for tracking performance indicators to assess the existing and future workload within the fire inspection area to support the need for additional resources in this area as indicating within the proposed M.F.P.

Operational Recommendation #25: That the annual leasing costs for sustaining the fire department presence at the Children's Safety Village be considered a priority for the Brantford Fire Department.

Operational Recommendation #26: That in consultation with the City's Communication Division and Council consideration be given to the utilization of enhanced public education including social media, and enforcement related to home smoke alarms and carbon monoxide legislation compliance.

Operational Recommendation #27: That consideration be given to enhancing the existing child/youth fire safety education program to target all children in the 0-14 age category as presented within the proposed Master Fire Plan.

Professional Qualifications and Standards

Operational Recommendations:

Operational Recommendation #28: That consideration be given to further enhancing the current Five Year Training Program by adding performance goals and objectives to be included within a consolidated Operating Guideline defining the departments training program.

Operational Recommendation #29: That consideration be given to developing agreements with neighbouring communities and/or the private sector for the provision of more highly qualified technical rescue services as referenced within the proposed M.F.P.

Operational Recommendation #30: That consideration be given to expanding the use of on-line training opportunities as a component of the proposed Comprehensive Training Program for all members of the B.F.D.

Operational Recommendation # 31: That the B.F.D. continue to evaluate strategies to deliver practical training including investigating opportunities with other stakeholders for a B.F.D. Training Facility.

Operational Recommendation #32: That the B.F.D. further develop the current Company Officer training initiatives into a comprehensive Officer Development Program.

Operational Recommendation #33: That the B.F.D. consider developing a defined succession plan to guide the career development of all members of the Brantford Fire Department.

Suppression

Council Recommendations:

Council Recommendation #5: That Council approve the proposed fire suppression performance benchmarks presented within the proposed Master Fire Plan as the

performance planning targets for the delivery of fire suppression services within the City of Brantford.

Council Recommendation #6: That consideration be given to increasing the minimum number of firefighters on duty from the existing 19 to 21 in order to increase the staffing of the Aerial assigned to Station 1 as presented within the proposed Master Fire Plan.

Operational Recommendations:

Operational Recommendation #34: That the B.F.D. review the data collection process and identify strategies for enhancing the fire suppression emergency response data collection process as presented within the proposed Master Fire Plan.

Operational Recommendation #35: That consideration be given to revising the current Emergency Call-Back procedure as described within the proposed Master Fire Plan.

Operational Recommendation #36: That the B.F.D. consider the ability of the department to attain the Superior Tanker Shuttle Accreditation for the City of Brantford.

Emergency Management

Operational Recommendations:

Operational Recommendation #37: That the Fire Chief be directed to prioritize the identification of options to replace the existing primary and alternate Emergency Operations Centres including enhanced technology capabilities as recommended by the 2018 Flood Event Report.

Operational Recommendation #38: That the city continue to prioritize the training of E.O.C. members with respect to their roles and responsibilities as required in the Emergency Management and Civil Protection Act.

Fleet, Facilities and Equipment

Operational Recommendations:

Operational Recommendation #39: That consideration be given to developing a Facilities Asset Management Plan for all fire stations as identified within the proposed M.F.P.

Operational Recommendation #40: That the department investigate options for implementing a work order/ inventory management system within the Fleet Facilities and Equipment Division as referenced in the proposed Master Fire Plan.

Communications

Operational Recommendations:

Operational Recommendation #41: That consideration be given to developing an on duty supervisory position within the Communications Centre.

Operational Recommendation #42: That consideration be given to implementing an alternative option for the provision of back filling the Communications Dispatchers.

Operational Recommendation #43: That priority be placed on ensuring that all staff assigned responsibility for dispatching fire department personnel and resources are trained and certified to N.F.P.A. 1061 Standard for Professional Qualifications for Public Safety Telecommunications Personnel – Levels I and II.

Operational Recommendation #44: That once all communications centre personnel have been trained and certified to N.F.P.A. 1061 Levels I and II, that the City consider investigating further partnerships to provide fire communications and dispatch services to other jurisdictions as a source of revenue generation.

1.0 Introduction

Initiating the planning process presented within this Master Fire Plan (M.F.P.) is consistent with **Public Fire Safety Guideline (P.F.S.G.) 03-02-13 – Master Planning Process for Fire Protection Services** as a strategic blueprint to assist Council in defining the **"needs and circumstances"**[1] as referenced within the **Fire Protection and Prevention Act, 1997** (F.P.P.A.). Within the fire service in Ontario this planning process is also recognized as an industry best practice in assessing a community's fire protection needs based on a ten-year community planning horizon.

The primary focus of the analyses contained within this M.F.P. is to provide a comprehensive review of the current fire protection services provided by the Brantford Fire Department (B.F.D.) in comparison to the City's legislative requirements as per the **Fire Protection and Prevention Act 1997** (F.P.P.A.) and **Occupational Health and Safety Act, R.S.O. 1990** (O.H.S.A.). This analysis will be informed by comparisons to current industry guidelines authored by the Office of the Fire Marshal and Emergency Management (O.F.M.E.M.), industry standards authored by the National Fire Protection Association (N.F.P.A.) and our knowledge of current fire service best practices.

The analyses within this M.F.P. will also be informed by the findings of the Community Risk Assessment (C.R.A.) created as a stand-alone document, but included for ease of reference as **Appendix A** to this Master Fire Plan. In May 2018, the Ministry of Community Safety and Correctional Services (M.C.S.C.S.) adopted **Ontario Regulation 378/18 Community Risk Assessment** under the F.P.P.A., which requires every fire department to complete a Community Risk Assessment. The C.R.A. includes nine mandatory profiles that are intended to inform decisions about the provision of fire protection services within a community.

In our experience the application of the **"three lines of defence"** strategy highlights the importance of recognizing that there are options to developing an effective community fire safety plan. Although emergency response (i.e. fire suppression) may be needed, there are other approaches that can be applied as elements of a broader community

[1] Fire Protection and Prevention Act 1997, Part II Responsibility for Fire Protection Services, Municipal Responsibilities 2.(1) (b)

risk reduction strategy. These approaches can have a positive impact on reducing the need for emergency response (i.e. fire suppression) and optimizing public safety within the community.

1.1 Fire Department Overview

Operating out of four stations, the Brantford Fire Department employs 134 full time employees in Administration, Suppression, Professional Qualifications & Standards, Fleet, Facilities & Equipment, Fire Prevention and Communications divisions. The B.F.D. is overseen by a Fire Chief, who is supported by a Deputy Fire Chief - Support Services, Deputy Fire Chief – Operations, Administrative Assistant and a Support Services Assistant. Recently, a full time Technical Systems Engineer (I.T. Specialist) was added to the staffing complement. The responsibilities of the former Community Emergency Management Coordinator position were realigned, and the role of an Emergency Management Program Manager was recently developed in partnership with the County of Brant.

In addition to providing fire suppression services, the B.F.D. conducts fire safety inspections, enforces the Ontario Fire Code, facilitates public education events, and performs a number of specialty rescue services, including: water and ice rescue, Hazardous Materials (HazMat) response, emergency medical services and auto extrication.

1.2 Related Plans and Reports

This M.F.P. has been developed with consideration of several related plans and reports which are summarized below.

1.2.1 Fire Service Review (2016)

In 2016 the City retained Kelton, Chertow & Boyd Inc. (K.C.B.) to conduct a review of the Brantford Fire Department. The scope of this review examined the organizational structure and operations of the B.F.D. in providing fire protection services. The findings of the K.C.B. review include a wide range of recommendations related to the organizational structure of the department, polices and guidelines, service levels and opportunities for enhancing the effectiveness of the services being provided. The K.C.B. review also recommended that the City should consider updating the Master Fire Plan.

With the exception of this master fire planning process all recommendations of the K.C.B. review have been implemented. Since the release of the K.C.B. review there has also been a change in leadership within the B.F.D. at the Fire Chief and Deputy Fire Chief levels. Where applicable the findings and recommendations of the K.C.B. review will be utilized to inform the analysis presented within this M.F.P.

1.3 Municipal Overview

The City of Brantford is located in Southwestern Ontario and is adjacent to the neighbouring population centres of Paris, Burford, St. George and Six Nations of the Grand River Reserve (Ohsweken). According to the 2016 Census (Statistics Canada), the population of Brantford (City) was 97,496, representing a 4.1% increase from the 2011 total population of 93,650. The City's Official Plan projects that the population is expected to grow to an estimated 139,000 by 2031. In an effort to manage this growth, the City recently purchased three parcels of land for employment and residential uses from the County of Brant. The City's expanded area now includes a current (2019) population of 102,000. The expansion lands present challenges relating to servicing and access that will be discussed within this M.F.P.

Brantford is located in close proximity to the 400 series highways which have played an integral role in the development of the City's key industries. Brantford has a strong manufacturing sector which accounts for a significant portion of the local employment base with key industries that manufacture food products, plastics, chemicals, machinery and provide warehouse distribution. Wilfred Laurier University and Conestoga College are fast-growing campuses within the community that provide education and employment to the City and surrounding areas.

Brantford is an evolving, strategic, forward-thinking municipality that fosters partnership through collaboration and citizen engagement. The City has also been proactive in developing and implementing emergency management programs and plans with the collaboration of local first responders and agencies capable of addressing emergencies that arise within the community.

1.3.1 Brantford Simplified Risk Assessment

The City's most recent Simplified Risk Assessment (S.R.A.) was completed in 2017. The S.R.A. includes a demographic profile, building stock profile, local and provincial fire loss

profiles, information analysis and evaluation, as well as sections regarding areas of concern for priority setting and the implementation of solutions. Municipal fire loss statistics included in the S.R.A. indicate that residential fires in Brantford are the community's greatest fire concern, the majority of which were caused by open flame tools or by articles belonging to smokers. The S.R.A. suggests obtaining more accurate statistics, tracked according to each ward of the City, might be of value moving forward in the development of public education programs.

The information presented within this M.F.P. will identify that the requirement to develop a Simplified Risk Assessment has now been replaced with the new **Ontario Regulation 378/18 Community Risk Assessment.**

1.3.2 Verdicts of Coroner's Juries (2016 and 2017)

Mandated under the Coroners Act, 1990, coroners specialize in death investigation for certain deaths as identified under the Act. In Ontario, the Office of the Chief Coroner has a mandate to: "…**serve the living through high quality death investigations and inquests to ensure that no death will be overlooked, concealed or ignored. The findings are used to generate recommendations to help improve public safety and prevent deaths in similar circumstances**".[2]

As a result of a fatal fire in 2012 in Whitby, and a second fatal fire in the Town of East Gwillimbury in 2013, the Office of the Chief Coroner initiated an inquest to determine the events surrounding the fire-related deaths that occurred. It included various aspects related to fire safety, before and during a fire incident, and local emergency services response to a fire. The intent of an inquest such as this is designed to focus public attention on the circumstances of a death through an objective examination of facts. The findings of this inquest resulted in 33 recommendations, including increased training and qualifications for those responsible for fire prevention, public education and dispatching activities.

[2] Ministry of Safety & Correctional Services. Office of the Chief Coroner. February 8, 2016. http://www.mcscs.jus.gov.on.ca/english/DeathInvestigations/office_coroner/coroner.html (accessed November 2016)

A second inquest was initiated by the Office of the Chief Coroner in May 2017 into the deaths of Adam Brunt, a 30 year old firefighting student, and Gary Kendall, a 51 year old firefighter, who both died during ice rescue training courses. The separate incidents that claimed the lives of Brunt and Kendall occurred five years apart, however, the training instructor was the same in both tragedies. The incidents led to the fifteen jury recommendations.

More recently, a third inquest was initiated by the Office of the Chief Coroner into the deaths of Matthew Robert Humeniuk, Michael Isaac Kritz, Stephanie Joelle Bertrand, Kathryn Missen who died of either natural or accidental deaths following 911 calls.

Our review of these recommendations and their relevance to this fire master planning process highlight the importance of the "three lines of defence" identified within this F.M.P. In our view, each of the recommendations is important and relate to enhancing public safety. Recommendations made as a result of the Whitby/East Gwillimbury Inquest are provided for reference as **Appendix B – Verdict of Coroner's Jury** to this report.

2.0 Applicable Legislation, Guidelines, Standards and Industry Best Practices

In addition to the Community Risk Assessment, the analysis and findings of this master fire planning process have been informed by the applicable legislation including the Fire Protection and Prevention Act, 1997 (F.P.P.A.) the Occupational Health and Safety Act (O.H.S.A.), industry guidelines authored by the Office of the Fire Marshal and Emergency Management (O.F.M.E.M.), industry standards authored by the National Fire Protection Association (N.F.P.A.) and Dillon's knowledge of current industry best practices as garnered from our experience in working with other municipalities across Canada.

2.1 Fire Protection and Prevention Act, 1997 (F.P.P.A.)

Within the Province of Ontario, the relevant legislation for the operation of a fire department is contained within the Fire Protection and Prevention Act, 1997. While all legislation should be read and understood in its entirety, the following are applicable sections of the F.P.P.A. for reference purposes.

Table 1: F.P.P.A. Definitions – Part I

PART I	DEFINITIONS
Definitions	1.(1) In this Act, **"fire chief"** means a fire chief appointed under section 6 (1), (2) of (4); ("chef des pompiers") **"fire code"** means the fire code established under Part IV; ("code de prevention des incendies") **"fire department"** means a group of firefighters authorized to provide fire protection services by a municipality, group of municipalities or by an agreement made under section 3; ("service d' incendie") **"Fire Marshal"** means the Fire Marshal appointed under subsection 8 (1); ("commissaire des incendies") **"fire protection services"** includes fire suppression, fire prevention, fire safety education, communication, training of persons involved

PART I	DEFINITIONS
	in the provisions of fire protection services, rescue and emergency services and the delivery of all those Services; (“services de protection contre les incendies”) **“municipality”** means the local municipality as defined in the Municipal Act, 2001; (“municipalite”) **“prescribed”** means prescribed by regulation (“prescript”) **“regulation”** means a regulation made under this Act; (“reglement”) **“volunteer firefighter”** means a firefighter who provides fire protection services either voluntarily or for a nominal consideration, honorarium, training or activity allowance; (“pompier volontaire”)
Application of definition of firefighter	(3) The definition of firefighter in subsection (1) does not apply to Part IX. 1997, c. 4, s. 1 (2)
Automatic aid agreements	(4) For the purposes of this Act, an automatic aid agreement means any agreement under which, (a) a municipality agrees to ensure the provision of an initial response to fires and 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 other 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 other emergencies occurring in the part of the other municipality. 1997, c. 4, s. 1 (4)

Table 2: F.P.P.A. Definitions – Part II

PART II	RESPONSIBILITY FOR FIRE PROTECTION SERVICES
Municipal responsibilities	2.(1) Every municipality shall (a) establish a program in the municipality which must include public education with respect to fire safety and certain components of fire prevention, and (b) provide such other fire protection services as it determines may be necessary in accordance with its needs and circumstances.
Services to be provided	(3) In determining the form and content of the program that it must offer under clause (1)(a) and the other fire protection services that it may offer under clause (1)(b), a municipality may seek the advice of the Fire Marshal
Automatic aid agreements	(6) A municipality may enter into an automatic aid agreement to provide or receive the initial or supplemental response to fires, rescues and emergencies.
Review of municipal fire services	(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.
Failure to provide services	(8) If a municipality fails to adhere to the recommendations made by the Fire Marshal under subsection (7) or to take any other measure that in the opinion of the Fire Marshal will remedy or reduce the threat to public safety, the Minister may recommend the Lieutenant Governor in Council that a regulation be made under subsection (9).
Regulation	(9) Upon the recommendation of the Minister, the Lieutenant Governor in council may make regulations establishing standards for fire protection services in municipalities and requiring municipalities to comply with the standards.

PART II	RESPONSIBILITY FOR FIRE PROTECTION SERVICES
Fire departments	(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. 1997, c. 4, s. 5 (1)
Same	(2) Subject to subsection (3), the council of a municipality may establish more than one fire department for the municipality. 1997, c. 4, s. 5 (2)
Exception	(3) The council of a municipality may not establish more than one fire department if, for a period of at least 12 months before the day this Act comes into force, fire protection services in the municipality were provided by a fire department composed exclusively of full-time firefighters. 1997, c. 4, s. 5 (3)
Same	(4) The councils of two or more municipalities may establish one or more fire departments for the municipalities. 1997, c. 4, s. 5 (4)
Fire chief, municipalities	6. (1) If a fire department is established for the whole or part of a municipality or for more than one municipality, the council of the municipality or the councils of the municipalities, as the case may be, shall appoint a fire chief for the fire department.
Same	(2) The council of a municipality or the councils of two or more municipalities may appoint a fire chief for two or more fire departments.
Responsibility to council	(3) A fire chief is the person who is ultimately responsible to the council of a municipality that appointed him or her for the delivery of fire protection services
Powers of a fire chief	(5) The fire chief may exercise all powers assigned to him or her under this Act within the territorial limits of the municipality and within any other area in which the municipality has agreed to provide fire protection services, subject to any conditions specified in the agreement.

Table 3: F.P.P.A. Definitions – Part III

PART III	FIRE MARSHAL
Appointment of Fire Marshal	8 (1) There shall be a Fire Marshal who shall be appointed by the Lieutenant Governor in Council.

PART III	FIRE MARSHAL
Powers of Fire Marshal	9.(1) the Fire Marshal has the power, (a) 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; (b) to issue directives to assistants to the Fire Marshal respecting matters relating to this Act and the regulations; (c) to advise and assist ministries and agencies of government respecting fire protection services and related matters; (d) to issue guidelines to municipalities respecting fire protection services and related Matters; (e) to co-operate with anybody or person interested in developing and promoting the principles and practices of fire protections services; (f) to issue long service awards to persons involved in the provision of fire protection services; and (g) to exercise such other powers as may be assigned under this Act or as may be necessary to perform any duties assigned under this Act.
Duties of Fire Marshal	9.(2) It is the duty of the Fire Marshal, (a) to investigate the cause, origin and circumstances of any fire or of any explosion or condition that in opinion of the Fire Marshal might have caused a fire, explosion, loss of life, or damage to property; (b) to advise municipalities in the interpretation and enforcement of this Act and the regulations; (c) to provide information and advice on fire safety matters and fire protection matters by means of public meetings, newspaper articles, publications, electronic media and exhibitions and otherwise as the Fire Marshal considers available; (d) 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; (e) to maintain and operate a central fire college;

PART III	FIRE MARSHAL
	(f) to keep a record of every fire reported to the Fire Marshal with the facts, statistics and circumstances that are required under the Act; (g) to develop and maintain statistical records and conduct studies in respect of fire protection services; and (h) to perform such other duties as may be assigned to the Fire Marshal under this Act.

2.2 Occupational Health and Safety Act (O.H.S.A.)

The **Occupational Health and Safety Act, R.S.O. 1990** requires every employer to, "take every precaution reasonable in the circumstances for the protection of the worker." The O.H.S.A. provides for the appointment of committees, and identifies the "Ontario Fire Services Section 21 Advisory Committee" as the advisory committee to the Minister of Labour with the role and responsibility to issue guidance notes to address firefighter-specific safety issues within Ontario.

Where 20 or more workers are regularly employed at a workplace, the O.H.S.A. requires the establishment of a Joint Health and Safety Committee (J.H.S.C.). The committee must hold regular meetings including the provision of agendas and minutes. Firefighter safety must be a high priority in considering all of the activities and services to be provided by a fire department. This must include the provision of department policies and procedures, or Departmental Policies (D.P.s) that are consistent with the direction of the O.H.S.A. Section 21 Guidance Notes for the fire service.

2.3 Office of the Fire Marshal & Emergency Management (O.F.M.E.M.)

As indicated within the F.P.P.A., the duties of the Office of the Fire Marshal and Emergency Management include responsibilities to assist municipalities in the interpretation of the Act, to develop training and evaluation systems and enforcement of the Act and its regulations. The O.F.M.E.M. has developed **Public Fire Safety Guidelines** (P.F.S.G.s) to assist municipalities in making informed decisions to determine local "**needs and circumstances**"[3] and achieve compliance with the F.P.P.A. At this time

[3] Source: Fire Protection and Prevention Act – Part II Responsibility for Fire Protection Services – Municipal Responsibilities – Section 2.(1) (b)

the O.F.M.E.M. is conducting a comprehensive review of all P.F.S.G. During this review process, the O.F.M.E.M. has informed the fire service that the current P.F.S.G.s may be referred to for reference purposes.[4] As such, where applicable this M.F.P. will identify relevant P.F.S.G.s for reference.

2.4 National Fire Protection Association (N.F.P.A.)

The **National Fire Protection Association** (N.F.P.A.) is an international non-profit organization that was established in 1896. The organization's mission is to reduce the worldwide burden of fire and other hazards on the quality of life by providing and advocating consensus, codes and standards, research, training, and education. With a membership that includes more than 70,000 individuals from nearly 100 nations, N.F.P.A. is recognized as one of the world's leading advocates of fire prevention and an authoritative source on public safety.

N.F.P.A. is responsible for 300 codes and standards that are designed to minimize the risk and effects of fire by establishing criteria for building, processing, design, service, and installation in the United States, as well as many other countries. It's more than 200 technical code and standard development committees are comprised of over 6,000 volunteer seats. Members vote on proposals and revisions in a process that is accredited by the American National Standards Institute (A.N.S.I.).

Over the past decade the Ontario fire service has been transitioning to the use of N.F.P.A. standards to guide many of the services they provide. An example of this would be the transition process from the previous Ontario Fire Services Standards to the N.F.P.A. Professional Qualifications (N.F.P.A. Pro-Qual) Standards announced by the O.F.M.E.M. in 2014. Where applicable, this M.F.P. will identify the specific N.F.P.A. standards that have been referenced.

2.5 Industry Best Practices

Dillon's fire and emergency services team remains current with industry best practices through a range of strategies that include attending conferences offered by the

[4] Ministry of Community Safety and Correctional Services - Public Fire Safety Guidelines http://www.mcscs.jus.gov.on.ca/english/FireMarshal/FireServiceResources/PublicFireSafetyGuidelines/OFM_Guidelines.html

Canadian Association of Fire Chiefs (C.A.F.C.) the Ontario Association of Fire Chiefs (O.A.F.C.) and by participating in educational session's offered by leading fire service organizations such as the N.F.P.A. to supplement our experience within the fire service. Our team is also exposed to a wide variety of policies and procedures and innovative practices through working with our municipal clients across the country. Our knowledge of current industry best practices is also informed by the following research and background information.

2.5.1 National Institute of Standards and Technology (N.I.S.T.)

The National Institute of Standards and Technology was founded in 1901 as a non-regulatory agency within the United States (U.S.) Department of Commerce. N.I.S.T.'s mission is to promote U.S. innovation and industrial competitiveness by advancing measurement science, standards, and technology in ways that enhance economic security and improve our quality of life.

In April of 2010, N.I.S.T. released their Technical Note #1661 "Report on Residential Fireground Field Experiments" reflecting a collaborative research analyses conducted by leading fire service agencies. The analyses within this report investigated the effects of varying crew sizes, apparatus arrival times and response times on firefighter safety, overall task completion and interior residential tenability using realistic residential fires.

The result of a similar study identified in Technical Note #1797 "Report on High-Rise Fireground Field Experiments" was released in April 2013 that assessed the deployment of firefighting resources to fires in high-rise buildings. These studies are both examples of the technical research and analyses that is taken into consideration in order to develop and update the N.F.P.A. standards referenced within this M.F.P.

2.5.2 Province of Ontario – Three Lines of Defence

Under the leadership of the O.F.M.E.M. the Province of Ontario has developed what is known as the "Comprehensive Fire Safety Effectiveness Model" that includes a fire protection planning strategy known as the "**Three Lines of Defence**". The analysis within this F.M.P. seeks to optimize the utilization of the three lines of defence components including:

I. **Public Education and Prevention:**

Educating residents of the community on means for them to fulfill their responsibilities for their own fire safety is a proven method of reducing the incidence of fire. Only by educating residents can fires be prevented and can those affected by fires respond properly to save lives, reduce injury and reduce the impact of fires;

II. **Fire Safety Standards and Enforcement:**
Ensuring that buildings have the required fire protection systems, safety features, including fire safety plans, and that these systems are maintained, so that the severity of fires may be minimized;

III. **Emergency Response:**
Providing well trained and equipped firefighters directed by capable officers to stop the spread of fires once they occur and to assist in protecting the lives and safety of residents. This is the failsafe for those times when fires occur despite prevention efforts.

2.5.3 Commission on Fire Accreditation International (C.F.A.I.)

The Centre for Public Safety Excellent (C.P.S.E.) serves as the governing body for the two organizations that offer accreditation, education and credentialing: the Commission on Fire Accreditation International (C.F.A.I.) and the Commission on Professional Credentialing (C.P.C.).

The Commission on Fire Accreditation International (C.F.A.I.) defines itself through its Mission: "to assist the fire and emergency service agencies throughout the world in achieving excellence through self-assessment and accreditation in order to provide continuous quality improvement and the enhancement of service delivery to their communities."

The objective of the C.F.A.I. program is to define an accreditation system that is a credible, achievable, usable, and realistic model. The ultimate C.F.A.I. goal is to provide an accreditation process to improve the abilities of municipalities to both understand and recognize their respective community fire risks, provide balanced public/private involvement in reducing these risks and improve the overall quality of life for community members using the accreditation model. Of importance to this master fire planning process is the C.F.A.I. strategy that seeks to achieve "**continuous improvement**" in the delivery of fire protection services.

2.5.4 Province of British Columbia – Structural Firefighters Competency and Training Playbook

The Office of the Fire Commissioner in British Columbia, in consultation with the Fire Chiefs' Association of British Columbia, and the British Columbia Fire Training Officers Association has developed the **Structure Firefighters Competency and Training Playbook**[5] (Playbook). In our view, the most recent addition, amended in May of 2015, reflects a further example of best practices within the fire service industry.

The Playbook is applicable to all fire services personnel within the Province of British Columbia as defined by their Fire Services Act. The principles of the Playbook indicate that it is the direct responsibility of the "authority having jurisdiction" (A.H.J.) to declare its firefighting service level. The declared fire suppression service level must then be established as a formal policy (by-law, policy or contract) and be fully reflected in operating guidelines within the fire department.

The service levels from which an A.H.J. may choose include: Exterior Operations Service Levels, Interior Operations Service Levels, and Full Service Level. In our view the Playbook provides valuable insight into identifying the options for fire suppression services that the City of Brantford may consider as part of this master fire planning process.

[5] Source: https://www2.gov.bc.ca/assets/gov/public-safety-and-emergency-services/emergency-preparedness-response-recovery/embc/fire-safety/playbook.pdf

3.0 Master Fire Planning Process

The development of this Master Fire Plan has been informed by **P.F.S.G. 03-02-13 Master Planning Process for Fire Protection Services**. This includes analysis of community fire risk and future community growth. The efficiency and effectiveness of each division within the Brantford Fire Department have been analyzed, along with emergency response and station locations, staffing resources and deployment procedures, fire protection and education programs, apparatus and all related requirements, and service agreements. In our view the guiding principles of P.F.S.G. 03-02-13 including the following are applicable to this master fire planning process:

- "The residents of any community are entitled to the most effective, efficient and safe fire services possible;" and
- "Those responsible must work within these parameters in making recommendations for improving municipal fire services."

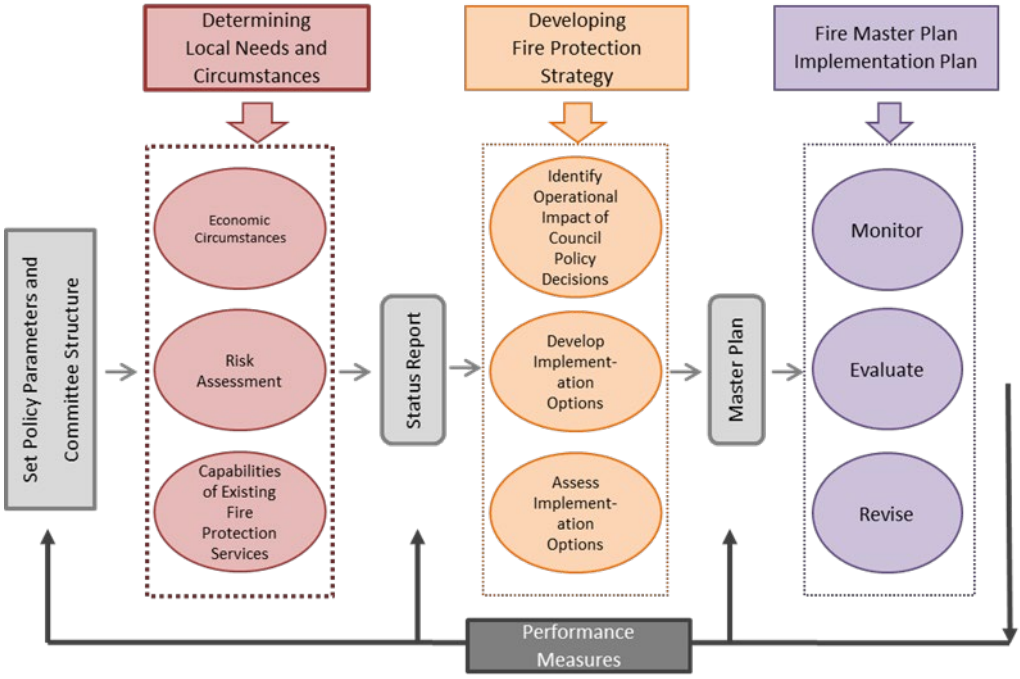
This master fire planning process has also been informed by **P.F.S.G. 01-01-01 Fire Protection Review Process** that identifies a number of factors to be considered in conducting the fire protection review process including:

- "The overall objective of any fire protection program is to provide the optimum level of protection to the community, in keeping with local needs and circumstances;"
- "Extensive research has demonstrated that there are a variety of factors that will have an impact on the fire department's capacity to fulfill this objective;"
- "Conversely, there are many different options that a municipality may pursue to improve the efficiency and effectiveness of its fire protection system;"
- "Local circumstances will have a profound effect on which factors are most important for any one municipality, and what options are available for its fire protection system;"
- "Selecting among these options is an extremely complex task;" and

- "Success will require a combination of specialized expertise in fire protection, and a thorough appreciation of your municipality's economic, social and political circumstances."

Figure 1 reflects the framework for developing a Master Fire Plan for optimizing public fire safety.

Figure 1: Master Fire Plan Framework



3.1 Analysis and Recommendations

This Master Fire Plan has been informed by the findings of the Community Risk Assessment and comprehensive analyses of the current fire protection services provided by the Brantford Fire Department. This Master Fire Plan is intended to provide Council and senior staff with a strategic planning tool to assist in the decision making process for providing fire protection service over the next 10-year community planning horizon.

Options and recommendations are presented for Council's consideration and approval to clearly communicate the level of fire protection services to be provided to the community, including (where applicable) proposed performance measures for ongoing monitoring and evaluation of the services to be provided.

To provide guidance and clarity around approval and implementation of the recommendations presented within this plan a classification system has been included to identify the recommendations as either "**operational**" or "**council**" that are defined as follows:

Operational Recommendations: These include recommendations that can be administered and implemented within the current authority assigned to the Fire Chief. In some cases this may require the Fire Chief to prepare further documentation and internal reporting to Council for approval. An example of this is updating the current Establishing and Regulating By-law. This is a process that can be led by the Fire Chief, and senior corporate staff and through normal reporting be brought to Council for consideration and approval.

Council Recommendations: These include recommendations that require the consideration and approval of Council related to a potential operating or capital financing impact or to inform a municipal policy decision including setting a municipal service level or where further direction to corporate staff may be needed.

3.2 Strategic Priorities

The purpose of this Master Fire Plan is to provide Council and senior staff with a strategic framework to assist in making decisions regarding the provision of fire protection services. This M.F.P. has been prepared with regard for the legislated and regulatory responsibilities of the municipality as contained within the **Fire Protection and Prevention Act, (1997)** and the **Occupational Health and Safety Act, R.S.O. 1990.**

Emphasis has been placed on the use of current industry best practices including current guidelines and standards as those authored by the Office of the Fire Marshal and Emergency Management and the National Fire Protection Association. One of the primary roles of the O.F.M.E.M. is to provide assistance to municipalities through the provision of information and processes to support determining the fire protection services a municipality requires based on its local needs and circumstances as defined by the F.P.P.A.

In our experience, the master fire planning process is intended to provide a strong focus on developing and implementing strategies for providing the most effective and efficient delivery of fire protection services that provide the most value to a community.

Through the experience of our clients, we have found that identifying guiding principles, or strategic priorities, to guide the decision making process is a valuable tool for a municipal Council when considering the recommendations of a Master Fire Plan.

Our analyses in preparing this Master Fire Plan, including our review of the 2016 Fire Services Review, related reports and plans, current operations of the B.F.D., and knowledge of current industry best practices have been utilized to identify the following strategic priorities for Council's consideration as part of this Master Fire Plan process.

Council Recommendation #1: That the strategic priorities identified within the proposed Master Fire Plan be adopted to form the strategic framework for the delivery of fire protection services within the City of Brantford, including:

i. The sustained use of a Community Risk Assessment to determine the fire safety risks within the City of Brantford as the basis for developing clear goals and objectives for all fire protection and emergency services provided by Brantford Fire Department;

ii. Where applicable, the optimization of the first two lines of defence (including public education and fire prevention, and the utilization of fire safety standards and fire code enforcement) to provide a comprehensive fire protection program within the City; and

iii. Emphasis on strategies that support the sustainability of fire protection and emergency services to provide the most effective and efficient level of services resulting in the best value for the community.

3.3 Internal Stakeholder Consultation

At the time of project initiation the City's Project Team included the Fire Chief, two Deputy Fire Chiefs, Mechanic, Chief Training Officer, Chief Fire Prevention Officer and the Support Services Assistant. At the onset of the project a Project Initiation meeting was held with the City's Project Team to review the scope of work and methodology for the project. Following this meeting interviews were held with a variety of department staff, to garner their feedback into the Strengths, Weaknesses, Opportunities and Challenges (S.W.O.C.) within the B.F.D.

Interviews were held with the following members of the B.F.D.:

- Fire Chief;
- Deputy Fire Chief of Operations;
- Deputy Fire Chief of Support Services;
- Chief Training Officer;
- Chief Fire Prevention Officer;
- Mechanic; and
- Brantford Professional Firefighters' Association Executive.

3.3.1 Brantford Professional Firefighters Association – Local 460

As part of the stakeholder consultation process a meeting was facilitated with members of the Executive of the Brantford Professional Firefighters Association – Local 460. A similar S.W.O.C. analysis framework formed the discussion in order to garner the feedback from the Association into the current administration and operations of the B.F.D. The Association Executive, led by the President, provided some valuable insight into the Association's key areas of concern including:

- Staff development;
- Desire to reinstate the smoke alarm program;
- Desire to implement shift trainers;
- Interest in creating a public educator position as an opportunity for suppression;
- Concern about the current call-back system; and
- Lack of engagement of newer firefighters.

3.3.2 City Senior Management Team

As part of the internal stakeholder consultation program, interviews were also held with members of the City's Senior Management Team including the Chief Administrative Officer (C.A.O.), General Manager(s), City Treasurer and Director of Human Resources individually. These meetings included a brief explanation describing the master fire planning process and key objectives of the M.F.P., followed by the S.W.O.C. format discussion. Feedback was provided by City staff to inform the local needs and circumstances of providing fire protection services within the City of Brantford.

3.4 External Consultation

A Community Information Open House was facilitated by members of Dillon's project team on May 13, 2019 that also included representation by the fire departments senior management team. Display boards were present to inform the general public about the community risk assessment and fire master planning process. A power point presentation (attached as **Appendix C**) was also facilitated by Dillon's Project Manager to provide those in attendance with an overview of the municipality's legislated responsibilities, community responsibilities, and the scope of this project.

Opportunity was provided for members of the public to ask questions of Dillon and fire department staff. Attendance included nine members of the general public and two members of the Brantford Professional Firefighters Association.

4.0 Administration Division

The Administration Division of the Brantford Fire Department includes the Fire Chief, Deputy Fire Chief, Support Services, Deputy Fire Chief Operations, Administrative Assistant, Support Services Assistant, Technical Systems Engineer and Emergency Management Program Manager, as displayed in **Figure 2** and **Table 4**.

The Administration Division's core functions include:

- Providing leadership and strategic direction for the Fire Department;
- Planning/organizing/directing and controlling activities and resources;
- Delivering fire protection services exceeding community needs and circumstances;
- Providing advice and information to C.A.O. and Council;
- Managing capital and operating budgets;
- Overseeing procurement /payroll/accounts payable and receivable;
- Negotiating and administering agreements with other municipalities;
- Establishing policy and procedures;
- Providing and monitoring records and information management;
- Ensuring legislative compliance;
- Managing human resources for the department;
- Directing and conducting research and development;
- Monitoring and evaluating department performance; and
- Leading and striving for continuous improvement.

This section of the M.F.P. describes the roles and responsibilities of the current staff resources available within the Administration Division to achieve these core functions. This section also presents the current department organizational structure, vision and mission, by-laws and agreements, policies and guidelines, records management, performance measures and proposed strategic priorities.

4.1 Establishing and Regulating By-law

An Establishing, Maintaining, and Operating By-law, (commonly referred to as an "Establishing and Regulating By-law" or "E & R By-law"), should provide clear and

accurate policy direction as to how a municipal council intends its fire protection services to operate. The O.F.M.E.M. provides a description of the primary issues to be addressed, as well as a template for developing such a by-law within **P.F.S.G. 01-03-12 Sample Establishing and Regulating By-law**. The key features of such a by-law as identified by the O.F.M.E.M. include:

- General functions and services to be provided;
- The goals and objectives of the department;
- General responsibilities of department 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; and
- Authority to effect necessary department operation.

Research into preparing this M.F.P. indicates that the City's 'Establishing and Regulating' By-law, for the provision of fire protection services, was last approved in 2002. As a result, this by-law does not respond to all of the primary issues identified by the O.F.M.E.M., including identifying the current organizational structure of the B.F.D., or identifying the level of fire protection services approved by Council. The current Establishing and Regulating By-law indicates the Fire Chief's title is Fire Chief/Community Fire Safety Officer, which is inconsistent with the most recent job description and the Appointment By-law for the position.

It is not uncommon for changes to occur within the organization and operation of a fire department that incrementally shift away from the foundation of an Establishing and Regulating By-law. Changes within the department, such as organizational change impacting roles and responsibilities, or revisions to operating procedures that impact fire protection service levels, may result in a need to update the E & R By-Law. These decisions need to consider whether the by-law provides the authority for the change. Implementing a regular process to review the potential impact of changes or updates within the department on the Establishing and Regulating By-law is considered proactive and best practice.

Operational Recommendation #1: That subject to Council's consideration and approval of the proposed Master Fire Plan that the Establishing and Regulating By-law be updated and presented to Council for approval.

Operational Recommendation #2: That the Fire Chief implement a regular process for the review of all applicable fire protection services by-laws.

4.2 Department Vision, Mission, and Values Statements

The O.F.M.E.M. identifies the importance of fire department vision and mission statements as core components to be considered in the master fire planning process. P.F.S.G. 03-02-13 "Master Planning Process for Fire Protection" identifies that mission statements are intended to be short, clear and powerful in defining an organization's purpose and primary objectives. They are intended to express why the organization exists to both internal and external stakeholders. A mission statement should identify what an organization does, who it does it for, and how it does it. In contrast vision statements, although also defining an organization's purpose, are intended to express the future goals and objectives. A vision statement should identify a vision for the future that all individuals within the department can work towards. Vision statements can often remain the same while mission statements can evolve as the organization changes.

The Brantford Fire Department's current mission statement reads as follows:

"To promote and protect the health and well-being of the community, including people, property and the environment through progressive education, prevention and emergency response services.

To continually pursue and advance a professional level of excellence recognized as a model for the Fire Service."

This M.F.P. presents a number of strategic priorities for Council's consideration in delivering fire protection services in the future. These strategic priorities place significant emphasis on the utilization of a community risk assessment, and the optimization of the "**three lines of defence**" to guide the delivery of all fire protection services. In our view, the current mission statement of the B.F.D. aligns with the "**three**

lines of defence". At this time the department is developing a communication plan and branding strategy to further communicate the department's mission statement.

4.3 Existing Department Organizational Structure

The current organizational structure of the B.F.D. was recently revised to include the new position Technical Systems Engineer. As a result, the organizational structure presented within this M.F.P. has been revised to include this new position as illustrated in **Figure 2**.

The total staffing complement approved by Council includes 134 staff, listed in **Table 4**.

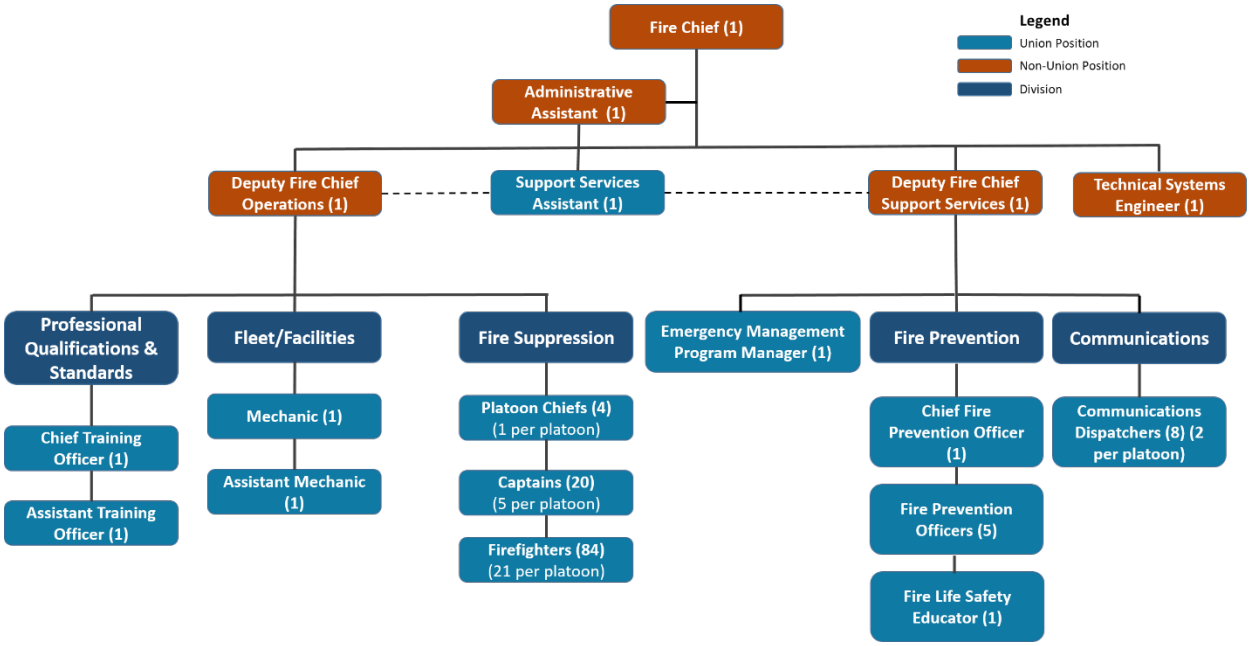
Table 4: Brantford Fire Department Staffing Compliment

Position within Division	Number of Approved Positions within the B.F.D.
Administration Division	**Positions**
Fire Chief	1
Deputy Fire Chief, Operations	1
Deputy Fire Chief, Support Services	1
Administrative Assistant	1
Support Services Assistant	1
Technical Systems Engineer	1
Emergency Management	**Positions**
Emergency Management Program Manager	1
Suppression Division	**Positions**
Platoon Chiefs	4
Captains	20
Firefighters	84
Professional Qualifications & Standards Division	**Positions**
Chief Training Officer	1
Assistant to the Training Officer	1
Fleet, Facilities & Equipment Division	**Positions**

Position within Division	Number of Approved Positions within the B.F.D.
Mechanic	1
Assistant Mechanic	1
Communications Centre Staff	**Positions**
Communications Centre staff	8
Total	**134**

Figure 2 displays the current staffing complement, as well as the differentiation between union and non-union positions.

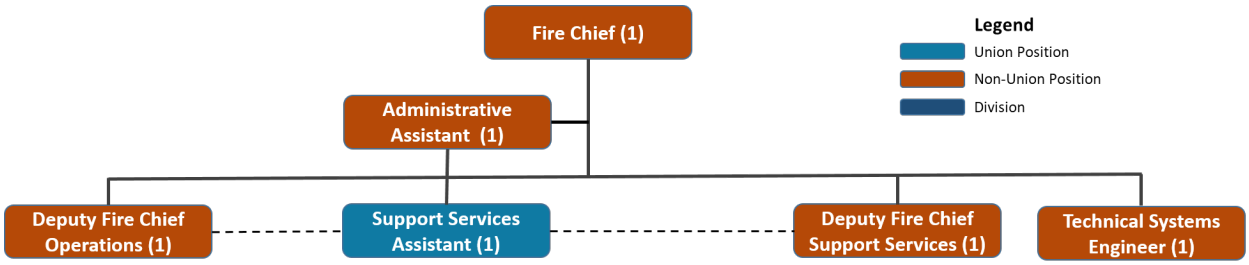
Figure 2: Brantford Fire Department's Current Organizational Structure



4.4 Existing Administration Staff Resources

As described in the preceding section, the Administration Division consists of the Fire Chief, two Deputies, Administrative Assistant, Support Services Assistant, Technical Systems Engineer and Emergency Management Program Manager. The Administration Division is shown in **Figure 3**.

Figure 3: Existing Administration Division Staffing and Structure



4.4.1 Fire Chief

The Fire Chief is responsible for the leadership, direction and overall operations of the Fire Department and reports to the Chief Administrative Officer (C.A.O.). The Fire Chief was appointed by Council through By-Law #168-2016 on January 3, 2017. The duties of the Fire Chief are described in the most recent job description for this position dated September 2016.

The Fire Chief is to:

- Coordinate the activities of the Divisions within the Fire Department;
- Prepare, administer, monitor, and coordinate the budgetary requirements and needs of the Department;
- Monitor and review programs, procedures, practices, and services for effectiveness and implement modifications when necessary;
- Develop, implement, and monitor department policies and procedures as well as rules and regulations;
- Forecast, plan, and implement future needs and direction, including staffing, succession planning, programs, equipment, vehicle, stations, and service delivery;
- Liaise with Council and other City departments and agencies;
- Coordinate and implement Human Resources needs – dispute/conflict resolution, staff discipline, hiring, promotions, attendance management, and labour/management relations;
- Coordinate, supervise, and direct emergency incident operations;
- Coordinate Administrative functions of the Department – records management and report writing;

- Monitor the conduct and effectiveness of staff and take corrective action where applicable, as well as recognize good performance;
- Promote and implement good customer service practices – answer and address issues of concern from citizens and other agencies and departments;
- Conduct, review, and implement risk management initiatives to mitigate liability to the City;
- Review, make recommendations, and take appropriate actions in the emergency planning and operations of the City;
- Liaise with the Office of the Fire Marshal and Emergency Management to ensure their needs concerning the City and the Department are met;
- Prepare and present reports and recommendations as required to Senior City Staff, Commissioners, and Council concerning issues pertinent to the Fire Department and the City; and
- Other duties as assigned.

4.4.2 Deputy Fire Chiefs

The Fire Chief is supported by two Deputy Fire Chiefs. The Deputy Fire Chief of Operations is responsible for overseeing Suppression, Training and Mechanical Divisions, while the Deputy Fire Chief of Support Services is responsible for overseeing Fire Prevention, Emergency Management and Communications Divisions. The role of the Deputy Fire Chiefs is to oversee the day-to-day functions of their respective divisions and support the Fire Chief in the overall operation of the B.F.D.

4.4.2.1 Deputy Fire Chief – Operations

The Deputy Fire Chief - Operations, assists the Fire Chief with the overall operation of the Fire Department and assumes command and management of the department in the Chief's absence similar to the Deputy Fire Chief of Support Services. This position is directly responsible for overseeing the delivery of the department's Professional Qualifications & Standards, Fleet/Facilities and Fire Suppression divisions according to the B.F.D.'s most recent organizational chart.

A job description for the Deputy Fire Chief position dated September 2, 2011 describes the following duties:

- Assist the Chief in overall operations of the Fire Department and assume command and management of the Department in the Chief's absence;
- Perform incident command at emergency operations by gathering pertinent information and developing appropriate strategies including assessing staffing and apparatus requirement;
- Review and evaluate all emergency responses daily;
- Manage the fire department personnel through effective leadership, evaluation, monitoring, communications, and planning so that all staff functions, including fire suppression, fire prevention, communications, training and mechanical divisions are handled effectively and efficiently;
- Participate in Human Resources functions for the department, including screening applicants, reviewing test results, and selecting candidates, as well as ensure compliance with the Occupational Health and Safety Act;
- Facilitate the development and implementation of fire department plans and programs by setting goals, objectives, and strategies, and developing, reviewing, and revising action plans;
- Assist in the Capital and Current Budget processes through forecasting, developing, presenting , and monitoring the Department budget;
- Investigate and submit reports to the Fire Chief when violations of regulations or neglect of duty occurs;
- Assist in the requisition of and purchasing process of vehicles, equipment, and supplies for all matters relating to the department;
- Promote and facilitate public relations, public education, and media relations;
- Maintain discipline and compliance with legislation by enforcing Municipal By-laws, Federal and Provincial Act and Codes and Standards as well as other legislation affecting the general operations of the Fire Department;
- Recommend, develop, and administer departmental policies and procedures as well as rules and regulations;
- In consultation with the Fire Division Heads, ensure that all personnel are performing to professionally recognized standards in fire suppression, fire prevention, health and safety, training, and other Department related matters;

- Ensure that all training and examinations are carried out in the proper manner so that all personnel are receiving appropriate and progressive training, as well as the opportunity for advancement;
- Assist the Fire Chief with the implementation, review and organization of the Emergency Measures Plan;
- Attend courses, seminars, and meetings to ensure the Department is well versed in all changing legislation, issues, and data as it relates to the Fire Department; and
- Other duties as assigned.

While the description does include the primary duties and responsibilities of the D.F.C. it does not contain any reference to the specific functions of operations for which the 'Deputy Fire Chief – Operations' position is directly responsible only that the D.F.C. "is responsible for commanding and managing departmental divisions…"

Operational Recommendation #3: That an appointment by-law be prepared and presented to Council for approval to appoint the Deputy Fire Chief – Operations.

4.4.2.2 Deputy Fire Chief – Support Services

The Deputy Fire Chief - Support Services also reports to the Fire Chief and assumes equal responsibility in carrying out the Deputy Fire Chief duties described in the general job description outlined above. This individual oversees three divisions: Emergency Management, Fire Prevention and Communications. While the job description includes the primary responsibilities of this general position, it does not contain any references to the specific functions carried out by each Deputy Fire Chief pertaining to the respective divisions. Subject to Council's consideration and approval of this Master Fire Plan there may also be a need to consider further revisions to this job description to align with the proposed strategic priorities for delivery of fire protection services. It is our recommendation that once the position is filled, the successful candidate be appointed under by-law.

Operational Recommendation #4: That an appointment by-law be prepared and presented to Council for approval to appoint the Deputy Fire Chief – Support Services.

4.4.3 Administrative Assistant

The job description of the Administrative Assistant was last updated in 2007. This position reports directly to the Fire Chief and is responsible for providing confidential executive administrative support to the Fire Chief and Deputy Fire Chiefs.

An overview of the roles and responsibilities of this position as described with the current job description include the following:

- Generally assist the Fire Chief and Deputy Chiefs with confidential clerical duties;
- Type, record, file, and distribute confidential letters, memos, reports, and other documents;
- Answer and screen incoming calls for the Chief and Deputy Chiefs, and direct calls as appropriate;
- Make appointments, reservations, and arrangements for the Chief and Deputy Chiefs including meetings, events, conferences, and seminars;
- Attend confidential Fire Department related meetings as required by the Chief and take, prepare, and distribute minutes;
- Assist the Chief with the preparation, development, distribution, presentation, and administration of the Department's annual budget;
- Receive and review correspondence to the Department and the Chief and deliver accordingly;
- Maintain confidential department records and personnel files;
- Maintain an inventory of departmental office supplies;
- Perform public relations on behalf of the Corporation and the Department;
- Handle inquiries from the general public as well as other agencies;
- Maintain and update the Department's various manuals, guides, and policy books as required by the Chief; and
- Make arrangements for Departmental events, functions, meetings, and other social gatherings as required by the Chief.

Through our data review process, we identified references to this position as both the "Executive Assistant" and "Administrative Assistant". This position was recently confirmed as the "Administrative Assistant" and therefore all references should be revised to this title.

4.4.4 Support Services Assistant

The most recent job description for Support Services Assistant dated 2016 outlines the following responsibilities:

- Obtain information and assist customers;
- Perform clerical duties including answering inquiries to the prevention and administration offices;
- Maintain the petty cash fund;
- Coordinate and ensure statistics for the fire department are accurately collected and recorded and develop any corresponding reports;
- Maintain filing systems, graphic design of fire department advertising and educational materials;
- Perform accounts payable function including the preparation of invoices, purchase requisitions and reports;
- Submit statistics from the CriSys system to the Office of the Fire Marshal;
- Obtain information from the Ontario Provincial Police with respect to motor vehicle accidents and invoice the Ministry of Transportation; and
- Maintain and process the list of cheques or cash received by the fire prevention division.

At the time of initiating this master fire planning process this position was vacant. As such many of the roles and responsibilities of this position had temporarily been shifted to other administrative staff. This position has since been filled. In our view as this positon evolves consideration should be given to its ability to further support the fire prevention division. This M.F.P. identifies the importance of ongoing monitoring and evaluation of the programs and services provided by the department. The delivery of fire inspections and public education programs are core elements of these services. The implementation of this M.F.P. and the proposed fire inspection and public education cycles will require more extensive administrative support. In our view this position is well aligned to support that function.

4.4.5 Technical Systems Engineer

The Technical Systems Engineer (T.S.E.) reports to the Fire Chief in coordination with the Manager of I.T. Infrastructure Services and Support. The job description for the T.S.E. position is dated August 16, 2018 and includes the following duties:

- Provides technical support/maintenance for all Fire Department information and communications technology;
- Coordinate with Corporate I.T. to ensure performance optimizations of all network, security, communications and information technology;
- Provide system support, administration, problem management and resolutions, data extraction and analysis to produce and present meaningful reports;
- Vendor management for fire specific systems;
- Research new technologies, analyzes current fire software solutions and recommend future technology strategies;
- Design and support system integration solutions with other fire services;
- Perform the role of project leader for any new fire solution implementations;
- Direct solution life-cycles; implement system processes, procedures and functionality and manage the system;
- Collaborates with stakeholders in developing project plans including: specifications, scope, tasks, methodology, schedules, communication, and evaluation processes;
- Review and implements the release of notes for main application upgrades, interpret and communicate impact to the affected business; and
- Develops training materials and manuals and trains staff in the use of the communications equipment, as required.

In our view the addition of the Technical Systems Engineer is needed to assist the department in mitigating existing gaps in the use of technology across the department. This includes enhancing the department's ability to monitor and improve existing performance, and where applicable assist to introduce and implement new performance indicators. Further, the T.S.E. will provide real time response to equipment and communication issues that may have been previously impacted fire department

response. As the technology available to fire departments continues to evolve, the value of a dedicated staff resource, such as a Technical Systems Engineer, has become increasingly important.

4.4.6 Staff Job Descriptions

Our review identified a number of variations in the level of detail and definition of the job descriptions available within the department for all current full time staff. In our experience this is not uncommon, particularly when new positions have been added, or roles and responsibilities of existing staff have been revised. As such we are recommending that consideration be given to reviewing and where applicable revising the existing job descriptions for all B.F.D. full-time staff.

Operational Recommendation #5: That consideration be given to reviewing and updating the existing job descriptions of all Brantford Fire Department full-time staff.

4.5 Administrative Workspace

The Administration Division currently operates out of the Brantford Fire Department Headquarters (Station 1), located at 60 Clarence Street.

In addition to two fire suppression crews, headquarters also houses personnel in the following divisions:

- Administration;
- Communications;
- Fire Prevention;
- Fleet, Facilities & Equipment;
- Professional Qualifications & Standards; and
- Emergency Management.

Figure 4: Brantford Headquarters, Source: B.F.D. Website

The administrative workspace for the B.F.D. includes separate offices for the Fire Chief, two Deputy Fire Chiefs, Chief Fire Prevention Officer, and shared space for the Technical Systems Engineer and Emergency Management Program Manager on the upper floor of the building. Also located on the upper floor, Fire Prevention division staff share a common office space. The Administrative Assistant and Support Services Assistant share the reception area at Headquarters. The building is protected with a controlled entry system. Payments from the public are made at the reception area of the upper floor. The building is equipped with an elevator and an accessible washroom.

In addition to the Communications Centre and the Emergency Operations Centre (E.O.C.) the Professional Qualifications and Standards division staff are located on the ground floor occupying a shared office space. The current space at the Headquarters station provides workspace, meeting space, and storage to support the administrative functions of the department. Our review indicates that the Headquarters station has reached its maximum capacity to accommodate the work space needs of the current staff assigned to this facility. There is a need to consider options such as relocation of the E.O.C. to another facility, decentralization of fire prevention staff, and transitioning to electronic file storage to facilitate a re-engineering of the existing space to provide a more functional work space for the staff assigned to this station.

Operational Recommendation #6: That a comprehensive review of the existing work space at Station 1 (Headquarters) be conducted to identify options for improving the work space functionality of this facility to accommodate the existing and future staffing resource needs of this Station.

4.6 Municipal By-laws

The Municipal Act, R.S.O. 1990 requires a municipality to enact a number of by-laws to operate a municipality and specifically their fire department. In addition to meeting this legislative responsibility by-laws provide the community with important information

regarding the level of service that a municipality intends to provide. By-laws also provide municipal staff with the authorization to provide these services, as well as the responsibility to achieve the prescribed service level. By-laws common to a municipal fire service include the establishing and regulating by-law, appointment by-laws, and fees for service by-laws.

4.6.1 By-law No. 168-2016 – Appointment of Fire Chief

By-law No. 168-2016, effective January 3, 2017, pertains to the appointment of the Fire Chief. Having appointment by-laws are consistent with the provisions of the F.P.P.A. in order for a council to designate the individuals assigned to these positions and to provide them with the authority to fulfill their roles and responsibilities as designated by the F.P.P.A.

The findings of this M.F.P. recommend that appointments by-laws be developed and presented to Council for consideration and approval for the two Deputy Fire Chief positions, in addition to the existing appointment by-law for the Fire Chief.

4.6.2 By-law No. 188-2017 - Fees for Services

The City of Brantford applies fees for various fire protection services consistent with those of industry best practices. P.F.S.G. 04-80-01 Fees for Services identifies three types of fees to be considered for fire protection services including:

1. Traditional or generally accepted service fees:

   - Services which are currently being charged to users by many fire departments and generally accepted by the public. Several of these fees should be encouraged as they have the potential to improve public fire/life safety;

2. Competitive or increased risk management service fees:

   - Services which some municipalities have chosen to provide along with a charge. In evaluating the service and fee charges municipalities may want to consider the impact on private enterprise, if it exists, and the potential increase of risk or liability.

3. Service fees may be inappropriate if they do not meet the above principles for the following reason:

- Imposing a fee may cause the public to hesitate in calling for fire department assistance during a real or perceived emergency. The negligence of one resident should not have an adverse impact on another (e.g. Failure to notify the fire department could lead to the fire extending to a neighbouring property).

By-law No. 52-2019 was recently approved by Council permitting the City to apply a fee or charge to recover costs incurred by the City. Schedule 32 of this By-law refers to the various services and activities for which the Brantford Fire Department may recover costs. Our review indicates that the current schedule for rates and fees has been updated to include new fees for false alarms.

In our experience the department may want to consider further rates and fees in the future for services such as the review and approval of Fire Safety Plans, Risk and Safety Management Plans for propane facilities, cost recovery for demolition during investigations or for providing fire extinguisher training. In our experience these are common fees charged by fire departments in Ontario.

4.6.3 By-law No. 127-2017 – Burning Regulation By-law

By-law No. 127-2017, known as the "Burning Regulation By-law" is dated September 26, 2017 is a by-law to prescribe times for setting fires and precautions to be observed to prevent the spread of fires. The by-law was recently updated to reflect changes in the municipal boundary adjustment area and to permit those residents to continue with the same open air burning regulations previously in place with the County, during a phase in period.

Article 2.4.4.4. of Division B of the Ontario Fire Code prohibits open air burning unless it is approved (by the Chief Fire Official) or the burning consists of a small, confined fire that is supervised at all times and used to cook food on a grill or barbecue. In our view, By-law No. 127-2017 reflects the current industry best practices in this area.

4.6.4 By-law No. 215-80 Fire Prevention

Our review of By-law No. 215-80 indicates that it was last updated on December 22, 1980. As a result a large portion of the contents of this By-law are not consistent with the departments current practices and other Bylaws such as By-law No. 188-2017 - Fees for Services.

The analysis within this Master Fire Plan will present further information related to developing a "**Fire Prevention Policy**". This will include a recommendation to replace By-law No. 215-80

4.6.5 By-law No. 12-88 Group Homes Registration

As the title implies, the Group Homes Registration By-law requires owners and operators of certain care occupancies including but not limited to group homes, nursing homes and long term care facilities to register with the City Clerk. By-law No. 12-88 is dated January 18, 1988.

Ontario Regulation 364/13: Mandatory Inspection-Fire Drill In Vulnerable Occupancy and Fire Marshal's Directive 2014-001: Registry of Vulnerable Occupancies, require that care, care and treatment and registered retirement homes be inspected, execute a witnessed fire drill scenario and that certain information about the facility be added to a provincial registry on an annual basis by the fire department. Although not all facilities subject to the City's Group Homes Registration By-law will be classified as care, care and treatment or registered retirement homes, it is assumed that the City Clerk's department (as registrar under the By-law) and the Fire Prevention Division (responsible under the Regulation and Directive) share information for the purpose of ensuring all facilities within the City are identified and meet both local and provincial requirements with respect to fire safety.

4.6.6 By-law No. 12-2007 Fireworks

This by-law is dated February 19, 2007 and is known as By-law No. 12-2007. The by-law sets out the dates when fireworks may be made available for purchase, permitting requirements as well as a prohibition on the use of fire crackers. Our review indicates that the department is currently in the process of updating this by-law for presentation to Council in the near future.

4.6.7 By-law No. 144-88 Fire Route

The City of Brantford's Fire Route By-law No. 144-88 sets out parking violations with respect to fire routes and fire hydrants. Our review indicates the Fire Route By-law is in keeping with industry best practices.

4.6.8 By-law No. 83-2012 Mutual Aid

By-law No. 83-2012 authorizes the Brantford Fire Department to respond to emergencies outside of its municipal boundaries to assist neighbouring fire departments on a reciprocating basis. The Mutual Aid Agreement and By-law will be discussed in greater detail in **Section 4.7.1** of this M.F.P.

4.7 Agreements

Within the fire department there are multiple approaches to sharing services or procuring services including mutual aid, automatic aid, and fire protection agreements. The following types of agreements utilized by the B.F.D. were identified.

4.7.1 Mutual Aid Agreement

Mutual aid agreements are predetermined plans that allow a participating fire department to request assistance from a neighbouring fire department. Public Fire Safety Guideline 04-05-12 "Mutual Aid", provided by the O.F.M.E.M. identifies the information required to develop and approve these agreements.

There are two main scenarios when mutual aid agreements are enacted:

1. A fire department may ask for mutual aid assistance when it is at the scene or has information that immediate assistance is required.
2. Fire departments may immediately request a simultaneous response from a participating fire department where distance and/or conditions dictate.

The Brantford Fire Department is an active participant in the Brant County Mutual Aid Plan. This mutual aid plan forms an integral component of the province wide fire service mutual aid system. The current mutual aid agreement is authorized by By-law No. 83-2012 dated August 27, 2012. The other parties to the current mutual aid agreement include the Brant County and Six Nations of the Grand River. Recent boundary changes

between the City of Brantford and Brant County may require the Mutual Aid Agreement to be revised, identifying jurisdictional boundary adjustments.

One of the more challenging factors of an effective mutual aid system are differences in operating procedures, fire suppression equipment and communication technologies present within the participating fire departments. Recent leadership changes have led to a renewed spirit of cooperation and collaboration amongst the mutual aid partners in Brant County, as is evidenced by agreements for the joint use of a training facility operated by the Six Nations Fire Department and the fire dispatching agreement.

Our review indicates that the B.F.D. is a leader in supporting the use of mutual aid with its neighbouring communities. This represents current industry best practices in providing an efficient and effective fire protection model for the City of Brantford.

4.7.2 Automatic Aid Agreements

In contrast to mutual aid agreements, automatic aid agreements are programs designed to provide and/or receive assistance from the closest available resource, regardless of municipal boundaries, on a day-to-day basis. P.F.S.G. 04-04-12 “Automatic Aid” describes the concept of these types of agreements.

The advantage of implementing an automatic aid program is that the person/persons experiencing the emergency receive fire services from the closest available provider (municipality) by supplying seamless integrated fire suppression services through the elimination of traditional municipal service boundaries. Automatic aid agreements provide benefits such as:

- An enhancement of the level of public safety;
- A reduction of the critical element of time between the commencement of a fire and the application of an extinguishing agent to the fire by dispatching the closest available fire suppression resources;
- The reduction of life, property and environmental losses; and
- The improvement of public and fire-fighter safety.

Automatic Aid Agreements are typically created between two neighbouring communities to reduce initial response times by deploying firefighters from the closest fire station, regardless of municipal boundaries; to deploy additional firefighters to

enhance the depth of response capabilities of the requesting fire department; or alternatively, to request a specific type of apparatus such as a tanker or an aerial apparatus to support the response of the requesting fire department.

We confirmed through the data collection process that the City of Brantford does not currently participate in any formalized automatic aid agreements. In our experience, automatic aid agreements provide municipalities with a very effective strategy to enhance their fire suppression initial response and depth of response capabilities, particularly in the areas of the community surrounding municipal borders.

Implementing an automatic aid agreement, particularly within an environment bound by Collective Agreements including contracting out language can be a challenging task. Implementation can also be challenging if the utilization of automatic aid is one sided and not reciprocal whereby each of the participating municipalities is receiving similar benefit.

In our view, these challenges should not outweigh the benefits of an effective automatic aid agreement that can enhance public and firefighter safety through ensuring the seamless automatic response of the closest available fire suppression response. Further analyses and discussion of automatic aid is included with **Section 8 (Suppression Division)** of this M.F.P.

4.7.3 Fire Protection Agreements

The City is not currently party to any Fire Protection Agreements as per subsection 2(5) of the Fire Protection and Prevention Act, 1997, S.O. 1997 c.4. Fire Protection Agreements authorize the Fire Chiefs of both municipalities to request and provide fire protection service to each other's territorial jurisdictions. The agreement also outlines the authority of the Fire Chiefs to accept, refuse, or offer assistance as well as to withdraw from providing assistance. Both Fire Chiefs are required, per the agreement, to provide a report to the respective Councils on the nature of the services that have been provided or declined. The agreement also outlines a fee for assistance which indicates that a department may charge the requesting department a fee based on the Ontario Ministry of Transportation's fee scale for providing municipal fire services.

Fire Protection Agreements may also provide an opportunity for neighbouring jurisdictions to work together to provide specialty rescue services to each other rather

than both departments maintaining staff resourcing, training and equipment necessary to provide the service.

Our review indicates that there are Six Nations of the Grand River lands located within the existing City boundary that are serviced by the B.F.D. In this instance a fire protection agreement should be developed to fully define the services to be provided.

Operational Recommendation #7: That consideration be given to developing a Fire Protection Agreement with the Six Nations of the Grand River for the delivery of fire protections services to any lands located within the City boundary.

4.7.4 Tiered Response Agreement (Brant County)

The Brantford Fire Department and Brant County Ambulance Service are parties to a Tiered Response Agreement dated August 4, 2017. This agreement defines the emergency medical levels of service that the Brantford Fire Department will provide in the context of the County-based provision of ambulance services. Council recently approved a change in level of service for medical responses to better reflect B.F.D. training and medical interventions. The fire department agrees to respond to medical emergencies within the City of Brantford when tiered by the Hamilton Central Ambulance Communications Centre (H.C.A.C.C.) in accordance with specific response criteria, outlined in 'Appendix A' of the agreement.

The H.C.A.C.C. will notify Brantford Fire for:

- All motor vehicle collisions to which E.M.S. responds to Code 4 or when fire, fuel spill, entrapment or multiple patients have been reported at the scene;
- Any incident where fire, hazardous materials (carbon monoxide, chemicals, gasoline, diesel fuel, propane etc.) entrapment, structural hazards or any rescue needs (water, ice, confined space, rope, trench or industrial) has been reported;
- For all fire scene requests where a patient or unknown patient (s) have been reported;
- Absence of Breathing/Cardiac Arrest;
- Unconsciousness/Unresponsive/Seizures;
- Choking (includes hands on neck);

- Chest pain/Heart Problems, but only if combined with breathing problems;
- Primary Assessment is Unknown;
- Overdose;
- Penetrating Trauma; and
- Allergic Reactions.

The Brantford Fire Department is to be tiered by H.C.A.C.C. within 60 seconds of determining whether or not the call satisfies the criteria listed above. Fire emergencies, or any emergency declared under the City of Brantford Municipal Emergency Response Plan, will take precedence over any requests for tiered response. The agreement is renewed automatically on an annual basis unless otherwise terminated by either party in writing.

Our review indicates that there are opportunities to further enhance the efficiency of the call taking and dispatching process through the implementation of simultaneous notification that could be achieved through computer aided dispatch transfer technology.

Operational Recommendation #8: That technology solutions be investigated and implemented to provide simultaneous notification to the Brantford Fire Department from the Hamilton Central Ambulance Communications Centre.

4.7.5 Emergency Management Service Agreement (2018)

As previously discussed in this M.F.P., the City of Brantford and Brant County are parties to an agreement for emergency management services managed by a shared Emergency Management Program Manager. Time worked is divided equally between the two jurisdictions. The City is the employer, retaining discretion in human resources related matters for this employee. Under this agreement, the City is responsible for providing all services, personnel, labour, equipment and materials required to perform emergency management services.

4.7.6 Fire Dispatch Agreement – Six Nations of the Grand River

The B.F.D. operates a dispatch centre that provides for emergency call taking and emergency dispatching of all 911 calls for the City of Brantford. Through a formal agreement signed August 7, 2018, the B.F.D. also provides these services to the Six

Nations of the Grand River as represented by the Six Nations Elected Council (S.N.E.C.) for a fixed annual sum. Under this agreement the B.F.D. will provide the Six Nations of the Grand River with the following services:

- Communication services;
- Maintaining open lines of communication regarding improving fire communications and addressing issues by holding meetings with representatives from S.N.E.C. Fire and Emergency Services and Brantford Fire Department;
- Storing copies of electronic files as provided by S.N.E.C. and allow for access as required; and
- Ensuring that the Brantford Fire Department is capable of producing electronic incident reports to S.N.E.C.

As per the terms of this agreement, the City of Brantford does not currently accept responsibility for the maintenance of any electronic files. Further consideration and investment in common technology solutions and operating systems would be beneficial to enhancing the efficiency and effectiveness of this agreement.

Operational Recommendation #9: That consideration be given to implementing common technology solutions and operating systems to support the existing Fire Dispatch Agreement with the Six Nations of the Grand River.

4.7.7 Collective Agreement

The most recent collective agreement between the Corporation of the City of Brantford and the Brantford Professional Firefighters Association came into effect January 1, 2017 and remained in effect until December 31, 2018. The purpose of the agreement is to establish a mutually satisfactory relationship between the Corporation and the employees. This includes the provision of procedures for handling grievances, establishing working conditions, hours of work, and salaries. The 2018 Municipal/N.F.P.P. Fire Protection profile submitted by the City on June 19, 2018 indicates the B.F.D. has three management positions which are not unionized.

4.8 Development Charges

The City of Brantford collects and administers development charges in compliance with the Development Charges Act (D.C.A.). The D.C.A. was recently amended by the Smart Growth for Our Communities Act, 2015 which received Royal Assent on December 3, 2015. The D.C.A. enables the City of Brantford to impose fees on development and re-development to cover the increased cost of providing physical and social services due to population growth. Under the D.C.A., fire protection services are one of the non-discounted municipal services. This enables municipalities to fully recover the cost of growth-related increases in services (as opposed to funding through municipal revenue streams). Municipalities recover costs by enacting development charges by-laws.

By-law 38-2014 32-2019 outlines the City's current City-Wide Development Charges. The current development charge by-law is under review through the implementation of the City is planning to undertake a new Development Charges Background Study in 2020 as new growth related projects related to the boundary expansion lands are expected to be identified in a number of master plan updates currently underway. The findings of this M.F.P. will inform the background study in determining the eligible capital projects (fire stations), apparatus and equipment.

4.9 Policies and Procedures

The fire service utilizes policies to ensure that all personnel are trained and able to perform the required tasks to safely and effectively deliver fire protection services that provide for operational consistency and continuity.

P.F.S.G. 04-69-13 "Co-ordination, Development, Approval, and Distribution of Standard Operating Guidelines for Various Disciplines", describes the intent of Operating Guidelines that can be summarized as to:

- Enhance safety;
- Increase individual and team effectiveness;
- Improve training efficiency;
- Improve orientation for entry-level staff;
- Improve risk management practices;
- Prevent/ avoid litigation;
- Create objective post-incident evaluations; and

- Permit flexibility in decision making.

The B.F.D. has an extensive list of policies and procedures that provide direction to staff within the various divisions of the department, including, Administration, Communications, Emergency Management, Fleet, Fire Prevention, Facilities & Equipment and Professional Qualifications & Standards divisions. These guidelines are available in hard copy for all B.F.D. staff. Some of the current policies require updating to reflect changes in the leadership of the Department and legislated changes.

In our experience this is not uncommon within the fire service due to other workload priorities and the speed at which revisions to legislation, regulations and practices are evolving within the fire service. Although these challenges are real, it must be recognized that the department and the City will be held accountable to their legislative requirements to maintain the accuracy of this documentation at all times.

In our experience the development of a formal committee with a mandate to oversee the development of these documents, as well as initiating a regular review process, has proven to be effective in sustaining the department's legislative requirements. In our view, this strategy should be considered with priority given to the findings of this M.F.P. and all Section 21 Guidance Notes where applicable.

Operational Recommendation #10: That the Brantford Fire Department consider establishing a committee of staff assigned to review and update all Standard Operating Policies and Standard Operating Guidelines on a regular basis as referenced within the proposed Master Fire Plan.

4.10 Departmental Communication

Clear and consistent communication within the department supports the efficient and effective delivery of B.F.D. services. The K.C.B. Report indicated that the department would benefit from the engagement of a mediator/facilitator to assist fire administration and the firefighters association in "establishing a more harmonious and productive relationship." Discussions with department staff and the firefighters' association during the stakeholder engagement process indicate that departmental communication has improved significantly since the K.C.B. Report.

A further recommendation from the K.C.B. Report suggested increased messaging from the B.F.D. to stakeholders, including the public, Council and the senior management team. Again, through the corporate and departmental stakeholder engagement process, it was evident communication has improved in this regard.

4.11 Annual Reports

The O.F.M.E.M.'s "Optimizing Public Fire Safety" model recognizes the importance of ongoing monitoring, evaluation, and revisions to the fire protection services approved by Council. Fire services across the province have utilized Annual Reports to Council as a tool to provide a high degree of accountability and transparency on behalf of the Fire Chief in reporting to the community and Council on the level of fire protection services provided. This regular reporting process is also an ideal opportunity to report on key performance indicators, update the Community Risk Assessment and fire related by-laws. The process can also provide further value in identifying changes or trends within the community.

During the process to prepare this M.F.P. the department completed its 2018 Annual Report. Our review indicates that the format has been changed to encompass the updated public reporting requirements found in **Ontario Regulation 379/18: Public Reports** and to incorporate the recommendations of the K.C.B Report, which encouraged the B.F.D. to highlight public education programs and campaigns. The recommendations of this M.F.P. include additional proposed performance benchmarks and analytics that subject to approval should be considered for inclusion in the department's future annual reports. This would provide the opportunity to enhance the value of the annual report by providing additional trend analysis to identify evolving gaps in service or areas where additional programs or services should be considered.
Brantford Post-Traumatic Stress Disorder (P.T.S.D.) Prevention Plan

There is an increased risk of first responders to suffer from Post-Traumatic Stress Disorder due to the nature of their work. Under the Supporting Ontario's First Responders Act, there is a presumption that a diagnosis of P.T.S.D. for certain workers is work related. The City of Brantford, as an employer of workers covered by the Supporting Ontario's First Responders Act, is required to have a Post-Traumatic Stress Disorder Prevention Plan. Under the Act, details relating to the Plan are to be shared within the workplace in an effort to prevent P.T.S.D. Our research into this M.F.P.

indicates that the City of Brantford has established Post-Traumatic Stress Disorder (P.T.S.D.) Prevention Plan. The plan outlines the signs, symptoms and risk factors associated with P.T.S.D. and the various responsibilities assigned to various staff within the B.F.D. for the prevention, intervention and recovery of those affected. The program identifies programs and initiatives to support members of both the B.F.D. and Brantford Police Service including, but not limited to mental and physical wellness programs, Critical Incident Stress Management Teams and Employee Assistance Programs. Our review suggests the Plan is comprehensive and in keeping with industry best practices.

4.12 Brantford Post-Traumatic Stress Disorder (P.T.S.D.) Prevention Plan

There is an increased risk of first responders to suffer from Post-Traumatic Stress Disorder due to the nature of their work. Under the Supporting Ontario's First Responders Act, there is a presumption that a diagnosis of P.T.S.D. for certain workers is work related. The City of Brantford, as an employer of workers covered by the Supporting Ontario's First Responders Act, is required to have a Post-Traumatic Stress Disorder Prevention Plan. Under the Act, details relating to the Plan are to be shared within the workplace in an effort to prevent P.T.S.D. Our research into this M.F.P. indicates that the City of Brantford has established Post-Traumatic Stress Disorder (P.T.S.D.) Prevention Plan. The plan outlines the signs, symptoms and risk factors associated with P.T.S.D. and the various responsibilities assigned to various staff within the B.F.D. for the prevention, intervention and recovery of those affected. The program identifies programs and initiatives to support members of both the B.F.D. and Brantford Police Service including, but not limited to mental and physical wellness programs, Critical Incident Stress Management Teams and Employee Assistance Programs. Our review suggests the Plan is comprehensive and in keeping with industry best practices.

4.13 Departmental Records Management

An important component of fire department administration is overseeing records management and reporting. Records management plays a role in every division of a department for a variety of reasons including, but not limited to, operations emergency response, firefighter training records, as well as measuring the effectiveness of fire prevention and public education programs.

P.F.S.G. 04-60-12 “Records Management” provides a comprehensive overview of an effective and efficient records management program that includes the appropriate use and protocol by division of the records management systems in place; record retention schedules; standards for record quality; protocols for record security and integrity of hard-copy and electronic records; and outline other applicable codes, standards or industry best practices that apply (e.g., Municipal Act, 2001, Municipal Freedom of Information and Protection of Privacy Act, 1990).

Departmental and corporate interviews revealed there is an existing gap regarding the data management system. We discovered that department personnel are using a variety of software, although there does not appear to be an overall system that is being utilized by all divisions. Within the prevention division, records are kept in a number of different formats and programs and a need to transition to electronic storage.

The B.F.D. recognizes the importance and value of comprehensives and integrated records management practices. The senior management team also recognizes the need to enhance the use of these software programs through broader training and utilization. Our review suggests staff training and an integrated data management system is needed to increase department efficiency. Further development of GIS technology within the department would also further enhance the ability of this Division to conduct more comprehensive tracking and analysis of performance and evolving trends.

Operational Recommendation #11: That consideration be given to expanding the use of GIS technology to assist the department in monitoring performance and conducting trend analysis.

In addition to meaningful analytics and trend analysis, industry best practices indicate the need for comprehensive policies and procedures to be in place to direct the records management practices of a fire department. The analyses within this M.F.P. identifies a need to develop a comprehensive policy to define the required records management practices for B.F.D. service including required records, retention schedules and performance expectations.

Operational Recommendation #12: That a policy be developed and implemented to define the required records management procedures and retention practices of the Brantford Fire Department.

4.14 Administration Division Summary and Recommendations

Under the leadership of the Fire Chief, the B.F.D. senior management team is comprised of three non-unionized positions. The Emergency Management Program Manager reports directly to the Deputy Chief of Support Services but has no role in the management and administration of the B.F.D. The senior management team oversees unionized staff operating from five divisions that support, provide training for and deliver a wide range of fire and rescue services.

The 2016 Fire Services Review identified the need for ongoing assessment of the B.F.D. organizational structure to meet the needs of this growing department. At that time, computer skill training and support staff resources in information technology were identified as areas in need of additional resources. The analysis within this M.F.P. continues to support these resource needs. In addition, this M.F.P. proposes a number of additional performance benchmarks intended to assist the senior management team in monitoring, managing and identifying evolving trends.

In our view, to achieve the proposed strategic priorities included within this M.F.P. and implementation of the proposed recommendations, the hiring of the Technical Systems Engineer is crucial and should be considered a priority for the B.F.D.

As a result of the review of the Administration Division, the following recommendations are presented for Councils consideration and approval:

Council Recommendations:

1. **That the strategic priorities identified within the proposed Master Fire Plan be adopted to form the strategic framework for the delivery of fire protection services within the City of Brantford, including:**

   I. **The sustained use of a Community Risk Assessment to determine the fire safety risks within the City of Brantford as the basis for developing clear goals and objectives for all fire protection and emergency services provided by Brantford Fire Department;**

   II. **Where applicable, the optimization of the first two lines of defence (including public education and fire prevention, and the utilization of fire**

safety standards and fire code enforcement) to provide a comprehensive fire protection program within the City; and

III. **Emphasis on strategies that support the sustainability of fire protection and emergency services to provide the most effective and efficient level of services resulting in the best value for the community.**

Operational Recommendations:

1. **That subject to Council's consideration and approval of the proposed Master Fire Plan that the Establishing and Regulating By-law be updated and presented to Council for approval.**
2. **That the Fire Chief implement a regular process for the review of all applicable fire protection services by-laws.**
3. **That an appointment by-law be prepared and presented to Council for approval to appoint the Deputy Fire Chief – Operations.**
4. **That an appointment by-law be prepared and presented to Council for approval to appoint the Deputy Fire Chief – Support Services.**
5. **That consideration be given to reviewing and updating the existing job descriptions of all Brantford Fire Department full-time staff.**
6. **That a comprehensive review of the existing work space at Station 1 (Headquarters) be conducted to identify options for improving the work space functionality of this facility to accommodate the existing and future staffing resource needs of this Station.**
7. **That consideration be given to developing a Fire Protection Agreement with the Six Nations of the Grand River for the delivery of fire protections services to any lands located within the City boundary.**
8. **That technology solutions be investigated and implemented to provide simultaneous notification to the Brantford Fire Department from the Hamilton Central Ambulance Communications Centre.**
9. **That consideration be given to implementing common technology solutions and operating systems to support the existing Fire Dispatch Agreement with the Six Nations of the Grand River.**
10. **That the Brantford Fire Department consider establishing a committee of staff assigned to review and update all Standard Operating Policies and Standard**

Operating Guidelines on a regular basis as referenced within the proposed Master Fire Plan.

11. **That consideration be given to expanding the use of GIS technology to assist the department in monitoring performance and conducting trend analysis.**
12. **That a policy be developed and implemented to define the required records management procedures and retention practices of the Brantford Fire Department.**

5.0 Community Risk Assessment Overview

In May 2018, the Ministry of Community Safety and Correctional Services (M.C.S.C.S.) adopted **Ontario Regulation 378/18 – Community Risk Assessment** under the Fire Protection and Prevention Act (F.P.P.A.), which requires every fire department to complete a Community Risk Assessment (C.R.A.). The C.R.A. is intended to inform decisions about the provision of fire protection services within a community.

The process of assessing community fire risk is receiving increased attention within the fire protection industry in North America. The methodology included within a C.R.A. is fundamental to the development of a strategic Master Fire Plan (M.F.P.). Assessing community fire risk is an important element of informing the understanding of local needs and circumstances as required by the F.P.P.A. which can then be aligned to the service levels established by the municipality. The results of a C.R.A. directly inform the recommendations within this M.F.P. and are used to identify existing service gaps across divisions, with particular connections to fire prevention, training and emergency response (e.g. suppression).

The City of Brantford Community Risk Assessment is attached as an appendix to this M.F.P. (**Appendix A**) and outlines the methodology and sources of information used to assess community fire risk in the City of Brantford. The analysis and results of the assessment are described based on three primary report sections: profile assessments; Geographic Information System (G.I.S.) risk model; and future growth considerations.

The methodology to develop the C.R.A. can be broken down into three broad stages that begin with data collection (Stage 1). This is followed by Stage 2 which includes analyses within the context of the nine mandatory profiles included within **Ontario Regulation 378/18 – Community Risk Assessment**. The analyses results and conclusions are then identified as either a "**key risk**" or a "**key finding**". Within the context of this C.R.A., a "**key risk**" is an analysis outcome for which there is sufficient and appropriate information to inform an assessment of fire risk based on probability and consequence. The analyses and information available provides the opportunity to quantify the fire risk through a risk assignment process that concludes there is an existing fire related risk to the community. This is referred to as a risk assignment process where a risk level of high, moderate, or low is assigned. In simple terms, risk is defined as:

Risk = Probability x Consequence

Similar to a key risk, a "**key finding**" is a risk related conclusion of the analysis that will inform service levels and other strategies. However, it is not put through the risk assignment process, in part because there is not sufficient quantitative data to do so. For example, a number of "**key findings**" included within the C.R.A. are those identified through mapping analysis which more meaningfully illustrate a spatial priority area.

The third and final stage of the C.R.A. brings all of the risk assessment outcomes together and frames how they can be used through three layers to inform this Master Fire Plan.

5.1 Key Risks

Risk is defined as the product of probability and consequence. Of the risk analysis outcomes presented throughout the C.R.A. some have been labelled as a "**key risk**".

Within the C.R.A. these risks have risk levels assigned. This informs the M.F.P. in two ways: first, it will help guide the prioritization of the fire risk analysis outcomes when it comes to the development of and implementation of the Master Fire Plan; and second, it informs the risk model developed for assessing emergency response capabilities. The findings of this layer are presented within this M.F.P. in the table format:

C.R.A. Key Risks Analysis Outcomes	C.R.A. Identified Risk Level
Identified Key Risk	Low/Moderate/High

5.2 Risk Categorization

When it comes to aligning service levels with risks that define local needs and circumstances, it is important to recognize that not all risk analysis outcomes align with the services provided by a fire department in the same way. For this reason, within the C.R.A., the risk outcomes – "**key risks**" and "**key findings**" - are categorized based on how they can be used to inform the activities, strategies, and services provided by B.F.D. This categorization is then directly used within this Master Fire Plan. The categories used for this process are based on the three lines of defence: Public Fire Safety Education; Fire Safety Standards and Enforcement, and Emergency Response and presented in similar table format:

C.R.A. Key Risks/Key Findings Analysis Outcomes	Line of Defense For Consideration
Identified Key Risk or Key Finding	1st, 2nd, or 3rd Line of Defence

6.0 Fire Prevention Division

The minimum legislative requirements for the delivery of fire protection services are outlined within the F.P.P.A., and include "**Establish a program in the municipality which must include public education with respect to fire safety and certain components of fire prevention**"[6] and "**Provide such other fire protection services as it determines may be necessary in accordance with its needs and circumstances**."[7]

To further assist municipalities in understanding the definition of what the minimal acceptable fire prevention and public education programs are, the O.F.M.E.M. developed P.F.S.G. 04-40-03 and 04-40-12 Selection of Appropriate Fire Prevention Programs. Although these P.F.S.G.s are currently under review, they continue to provide valuable insight into identifying the minimal acceptable fire prevention and public education programs including:

- Simplified Risk Assessment;
- A smoke alarm program;
- Fire safety education material distributed to residents/occupants; and
- Inspections upon complaint, or when requested to assist with code compliance.

In our view, one of the reasons that the O.F.M.E.M. is currently conducting a review of all P.F.S.G.s is to update them to reflect changes to applicable legislation impacting the delivery of fire prevention and public education programs. Examples of these changes include revised smoke alarm requirements, new carbon monoxide alarm requirements and the new regulation requiring all municipalities to develop a Community Risk Assessment.

The analysis within this section has been informed by our knowledge of the current applicable legislation including the new Ontario Regulation 378/18: Community Risk Assessments, the applicable P.F.S.G.s developed by the O.F.M.E.M., and the applicable standards developed by the N.F.P.A. Collectively, this information is applied within this

[6] Fire Protection and Prevention Act, 1997 Part II, Section 2. (1) (a)
[7] Fire Protection and Prevention Act, 1997 Part II, Section 2. (1) (b)

F.M.P. in defining the local "**needs and circumstances**", as required by the F.P.P.A., for the delivery of fire prevention and public education programs within the City of Brantford.

Integrating risk analysis into the master fire planning process, as provided by the new **Ontario Regulation 378/18: Community Risk Assessment**, empowers a municipality with the opportunity to assess alternative community risk reduction strategies. These may include options such as enhancing a fire inspection program within a specific building occupancy classification; developing a specific public education program for an identified at risk demographic with the community, such as seniors; or introducing local requirements for residential sprinklers. These types of risk reduction strategies recognize that there are proactive alternatives to increasing fire suppression capability within a community.

Evaluating community risk and identifying risk reduction strategies is also consistent with the optimization of the "**three lines of defence**" and the strategic priorities of this M.F.P. that include:

i. The sustained use of a Community Risk Assessment to determine the fire safety risks within the City of Brantford as the basis for developing clear goals and objectives for all fire protection and emergency services provided by Brantford Fire Department; and

ii. Where applicable the optimization of the first two lines of defence including public education and fire prevention, and the utilization of fire safety standards and fire code enforcement to provide a comprehensive fire protection program within the City.

In our view these strategies respond to the findings of the most recent Fire Underwriters Survey (F.U.S.) dated February 28, 2017 that indicate "The area where a significant amount of points are available was determined to revolve around Fire Prevention/Public Education activities".[8]

[8] Fire Underwriters Survey correspondence to the City of Brantford, dated February 28, 2017

6.1 Key Functions of the Brantford Fire Prevention Division

Key functions of the Brantford Fire Prevention Division are described in the Divisional Overviews, Position Responsibilities, General and House Rules, Code of Conduct, Workplace Violence and Security Policy By-law (By-law #78-2002). As referenced in the By-law, the division is responsible for conducting the following operations:

- Inspection of buildings as required by applicable legislation; enforcement of by-laws and federal and provincial Acts;
- Examination and approval of building plans;
- Maintenance of department files, records and equipment;
- Maintenance of records as they pertain to fire alarms and reports, inspections, investigations and complaints;
- Compilation of fire loss statistics; administering fire prevention and educational programs; and
- Fire investigations.

6.2 Fire Prevention and Public Education Services

The fire prevention and public education services provided by the City of Brantford should be guided by the legislative requirements and current industry best practices. Primarily these include the Ontario **Comprehensive Fire Safety Effectiveness Model and N.F.P.A. 1730 Standard on Organization and Deployment of Fire Prevention Inspection and Code Enforcement, Plan Review, Investigation, and Public Education Operations to the Public (2016 Edition).**

6.2.1 Ontario Comprehensive Fire Safety Effectiveness Model

The Comprehensive Fire Safety Effectiveness Model (C.F.S.E.M.) developed under the leadership of the O.F.M.E.M. included consultation with fire services and Fire Chief across the province. This model includes the "**three lines of defence**" and recognises that the optimization of their strategies can have a positive impact in optimizing public safety within a community.

The first two lines of defence are applicable to assessing the fire prevention and public education services currently provided by the B.F.D. in response to the identified "**key**

risks" and "**key findings**" identified by the Community Risk Assessment. The first two lines of defence are defined as follows:

> **"I. Public Education and Prevention:**
> Educating residents of the community on means for them to fulfill their responsibilities for their own fire safety is a proven method of reducing the incidence of fire. Only by educating residents can fires be prevented and can those affected by fires respond properly to save lives, reduce injury and reduce the impact of fires; and
> **II. Fire Safety Standards and Enforcement:**
> Ensuring that buildings have the required fire protection systems, safety features, including fire safety plans, and that these systems are maintained, so that the severity of fires may be minimized."

Information reported by the O.F.M.E.M. indicates that from 2012 to 2016 the number of fire losses in Ontario, described as any structure fire with an injury, fatality or dollar loss reported, have declined from 7,496 in 2012 to 7,169 in 2016 resulting in a decrease of 4.6%.[9] This occurred during a period of time when the population and number of structures across Ontario continued to grow.

Through engagement with fire chiefs across the province and staff from the O.F.M.E.M., there is consensus that the efforts of fire departments dedicated to optimizing the first two lines of defence are largely responsible for reducing fire losses and improving the overall level of fire protection within the community.

6.2.2 N.F.P.A. 1730: Standard on Organization and Deployment of Fire Prevention Inspection and Code Enforcement, Plan Review, Investigation, and Public Education Operations to the Public (2016 Edition)

N.F.P.A. has recently finalized the **N.F.P.A. 1730 Standard on Organization and Deployment of Fire Prevention Inspection and Code Enforcement, Plan Review, Investigation, and Public Education Operations**. The stated purpose of the standard is to "specify the minimum criteria addressing the effectiveness and efficiency of the fire

[9] Source: "Fire Loss in Ontario 2012–2016." MCSCS Website, Last Modified: May 14, 2018 : https://www.mcscs.jus.gov.on.ca/english/FireMarshal/MediaRelationsandResources/FireStatistics/OntarioFires/FireLossesCausesTrendsIssues/stats_causes.html

prevention organization functions of fire prevention inspection and code enforcement, plan review, investigation, and public education operations by fire departments and other organizations based on an approved community risk reduction plan".[10] The standard establishes its criteria through five main chapters:

1) Community Risk Assessment;
2) Fire Prevention Inspection and Code Enforcement Activities in Existing Occupancies;
3) Plan Review;
4) Investigations; and,
5) Public Education Programs.

In addition to the analysis of community risk the N.F.P.A. 1730 standard identifies the benefits of a Community Risk Reduction Plan (C.R.R.P.) that is utilized to identify and develop risk mitigation strategies. Examples of risk mitigation strategies would include considering options such as enhanced fire inspection activities, plans review, investigations, and public education programs. For example, the N.F.P.A. 1730 standard identifies a minimum fire inspection frequency cycle which could be refined based on the local context.

The analysis and methodology included within this M.F.P. integrates the intent of developing a C.R.R.P. as referenced within N.F.P.A. 1730. Where applicable this M.F.P. will present risk mitigation strategies to optimize the use of the "**three lines of defence**" in response to the findings of the C.R.A. to enhance the existing fire prevention and public education programs and services. This strategy recognizes the value of both fire prevention and public education programs within a community fire protection plan, and that fire suppression services may be impacted by longer travel times, or the limits of the department's fire suppression capabilities.

6.3 Existing Fire Prevention and Public Education Staff Resources

As a division providing fire prevention and public education services to a growing community, senior management of the Fire Prevention Division is provided by the

[10] Source: "Organization and Deployment of Fire Prevention Inspection and Code Enforcement, Plan Review, Investigation and Public Education Operations," N.F.P.A. 1730, page 4.

Deputy Fire Chief of Support Services. Within the Division, the Chief Fire Prevention Officer (C.F.P.O.) is responsible for the delivery of all programs and services provided. The C.F.P.O. is supported by a six Fire Prevention Officers, who each have administrative, fire inspection and public education roles and responsibilities. The reporting structure for the Fire Prevention is shown in **Figure 5**.

Figure 5: Existing Fire Prevention Division Staffing and Structure

6.3.1 Chief Fire Prevention Officer (C.F.P.O.)

The Chief Fire Prevention Officer oversees six prevention staff within the Fire Prevention Division. According to **Policy 1.1: Divisional Overviews, Position Responsibilities, General & House Rules, Code of Conduct, Workplace Violence and Security Policy**, the Chief Fire Prevention Officer is responsible for "the overall operations of the Fire Prevention Division and any other responsibilities or duties assigned by the Chief or Deputy Chief". C.F.P.O. duties include the following:

- Supervise Fire Prevention staff by assigning and coordinating all division activities and reviewing their work by receiving, reading and processing reports and recommendations and that the department is in compliance with the rules and regulations pertaining to the Workplace Hazardous Materials Information System (W.H.M.I.S.);
- Enforce Municipal Bylaws, Federal and Provincial Acts, other acts and legislation or parts thereof, in respect to Fire Prevention, Investigation and Education;
- Make recommendations on disciplinary matters, up to and including dismissal. Participate in the grievance procedure as required;
- Cause an information to be laid with the appropriate authority for any infraction under the applicable legislation;
- Review reports of company in-service Fire Prevention inspections;
- Prepare a yearly budget for the Fire Prevention Division and an Annual Report to the Fire Chief of the division activities;
- Investigate and submit written reports to the Chief or Deputy Chief when violations of regulations and neglect of duty occurs;
- Act as assistant to the Fire Marshal as per Provincial Regulations;
- When a member of the team is responsible for the recruitment of Fire Prevention Officers, this position participates in the screening of applications, review of test results, interviewing and selecting new recruits;
- Conduct annual performance reviews on Fire Prevention staff as per Department Policy. Makes recommendations on re-classification through the ranks. Coaches for improved performance;
- Schedule vacations, approve overtime and other time off for Fire Prevention staff, as per Department Policy;
- Ensure Fire Incident Investigations are conducted in accordance with department guidelines. Contact the Ontario Fire Marshal's Office as required by provincial guidelines. Represent the department in dealings with insurers, property owners, provincial agencies on matters subsequent to a fire occurrence;
- Participate in developing new departmental policies and procedures relating to fire department operations. Train staff. Ensure delivery of

training programs to all firefighters to meet departmental objectives and legislative compliance;

- Review fire and occurrences reports, summarizing the data to critique the effectiveness of, and suggest improvements to fire prevention services;
- Oversee all public education programs. Provide direction and guidance to Fire Prevention Officers in the design and delivery of these programs;
- Respond to enquiries by the public. Attend public meetings as required; and,
- Perform other duties as assigned or directed by the Chief, Deputy Chief.

The job description states that in the absence of the C.F.P.O., the above duties shall be carried out by the senior person on duty, qualified to act in the C.F.P.O. position. In addition to overseeing the Division, the C.F.P.O. is responsible for conducting investigations and overseeing all public education programs.

6.3.2 Fire Prevention Officers

The Brantford Fire Department's Fire Prevention Division includes six full-time Fire Prevention Officers. As per Policy 1.1, fire prevention officers are to fulfill the following responsibilities:

- Carry out routine fire prevention inspections as assigned and report their findings and make recommendations to improve fire safety in buildings and premises based upon Municipal bylaws and Provincial Statutes and Regulations where he has been given specific authority;
- Shall enforce Municipal Bylaws, Federal and Provincial Acts, other acts and legislation or parts thereof, in respect to Fire Prevention, Investigation and Education;
- Make investigations of fire scenes in order to determine the cause and origin of fire;
- Shall participate in fire prevention educational activities instructing the public in the hazards and prevention of fire;
- Co-operate with other civic and provincial officials in matters pertaining to fire safety when it is expedient for public safety;
- Act as assistant to the Fire Marshal as per Provincial Regulations;

- Shall exercise tact and diplomacy in the performance of their duties and at all times display sound judgment; and,
- Shall perform other duties as directed or assigned by the Chief, Deputy Chief, Chief Fire Prevention Officer or their designate.

6.3.3 Public Education - Fire and Life Safety Educator

At this time the department does not have a dedicated Fire and Life Safety Educator. The roles and responsibilities for delivering the department's public education program is currently being led by one of the Fire Prevention Officers with support from the other inspectors. In our experience, a dedicated Fire Life Safety Educator would enable the B.F.D. to develop and deliver targeted public education programs and initiatives in keeping with the risks identified in the Community Risk Assessment, and enable Fire Prevention Officers to focus on inspections, enforcement and investigations. The Senior Management Team's commitment to public education and engagement is evident in this interim staffing model.

6.4 Training Standards and Qualifications – Fire Prevention/Public Education Division Staff

The topic of training standards and certification for fire department personnel has been a major subject of interest within the fire service in Ontario for the past decade.

In April 2013 the O.F.M.E.M. announced that the Ontario fire service would be adopting the National Fire Protection Association Professional Qualifications (N.F.P.A. Pro-Qual) Standards to replace the previous Ontario Fire Services Standards (O.F.S.S.). The previous O.F.S.S. had been developed by the Ontario Fire Chiefs Association (O.A.F.C.) in partnership with the O.F.M.E.M. to provide guidance to the training and qualifications of fire department staff. Together these competency-based standards were applied in developing a comprehensive provincial fire service training program that included a firefighter curriculum, Fire Prevention Officer Diploma program, Company Officer Diploma program, and a Training Officer Diploma program.

In January of 2014, the O.F.M.E.M. distributed Communique 2014 – 04 to the Ontario fire service reflecting the grandfathering and transition process to the use of the newly adopted N.F.P.A. Pro-Qual Standards. A "**Grandfathering Policy**" was integrated into the transition to the N.F.P.A. Pro-Qual Standards process "in order to exempt anyone from

having to start over in any program and in order to give recognition for training and education already completed and for experience already gained".[11]

In May 2018, the Ministry of Community Safety and Correctional Services (M.C.S.C.S.) adopted **Ontario Regulation 379/18 – Firefighter Certification** under the Fire Protection and Prevention Act (F.P.P.A.) that required every fire department to complete mandatory certification of fire service personnel involved in fire suppression including technical rescue services , communications (fire dispatch) fire prevention, public education and training. On October 5, 2018 this regulation was revoked.

Ontario Regulation 379/18 – Firefighter Certification reflected the recommendations of an inquest into two fatal fires in Whitby and East Gwillimbury. On April 29th, 2016 the verdict of that inquest recommended to the Ministry of Community Safety and Correctional Services "To make a Regulation, pursuant to clause 78(1)9k) of the Fire Protection and Prevention Act, requiring mandatory certification and training, to recognized industry standards, for all personnel (as defined in the Fire Protection and Prevention Act) whose primary job function is to perform: 1(fire inspections, 2) public education, and/or 3) communications (call-taking/dispatch)" .[12]

Our research indicates that the required training and qualifications identified within **Ontario Regulation 379/18 – Firefighter Certification** is consistent with those included within the N.F.P.A. Pro-Qual Standards. As such, fire services across the Province are continuing to transition to the use of the N.F.P.A. Pro-Qual Standards recognising that this is not mandatory, and does not require certification as required by the **Ontario Regulation 379/18 – Firefighter Certification**. Use of the N.F.P.A. Pro-Qual Standards referenced in **Table 5** remain the current industry best practices in Ontario.

[11] Source: O.F.M.E.M. 2013 Grandfathering Policy http://www.mcscs.jus.gov.on.ca/english/FireMarshal/FireServiceResources/Communiques/OFM_Com_2014-04at.html

[12] Source: Ministry of Solicitor General, Verdict of coroner's Jury, https://www.mcscs.jus.gov.on.ca/english/Deathinvestigations/Inquests/Verdictsandrecommendations/OCCInquestHarrisonTowieTwiddyandDunsmuir.html

Table 5: N.F.P.A. NFPA Pro-Qual Standards

Position	Applicable N.F.P.A. Standard
Fire Inspector	**N.F.P.A. 1031 – Standard for Professional Qualifications for Fire Inspector and Plans Examiner**
Plans Examiner	**None**
Fire Investigator	**N.F.P.A. 1033 – Standard for Professional Qualifications for Fire Investigator**
Fire and Life Safety Educator (Public Education)	**N.F.P.A. 1035 – Standard for Professional Qualifications for Fire and Life Safety Educator, Public Information Officer, and Juvenile Firesetter Intervention Specialist**

6.4.1 N.F.P.A. 1031 – Standard for Professional Qualifications for Fire Inspector and Plans Examiner.

At a minimum, all staff resources conducting fire inspections should have the skills and competencies included within the **N.F.P.A. 1031 – Fire Inspector Level I**. Fire inspections involving more complex issues and requiring interpretation of various legislation and codes are recommended to have the Level II designation. In our experience, successful completion of courses in addition to N.F.P.A 1031 Level I and II requirements, including Ontario Fire Code Parts 2 and 6, Part 4, Parts 3 and 5, Part 9, Courtroom Procedures, and Effective Inspections of Commercial Cooking Equipment, are necessary to ensure Fire Prevention Division staff are trained to competently perform their role within the City of Brantford.

Table 6 summarizes the different fire inspector designations included within the NFPA 1031 standard.

Table 6: N.F.P.A. - 1031 Standard Fire Inspector Designations

Fire Inspector	N.F.P.A. 1031 Standard
Fire Inspector I	An individual at the first level of progression who has met the job performance requirements specified in

Fire Inspector	N.F.P.A. 1031 Standard
	this standard for Level I. The Fire Inspector I conducts basic fire inspections applies codes and standards.
Fire Inspector II	An individual at the second or intermediate level of progression who has met the job performance requirements specified in this standard for Level II. The Fire Inspector II conducts most types of inspections and interprets applicable codes and standards.
Fire Inspector III	An individual at the third and most advanced level of progression who has met the job performance requirements specified in this standard for Level III. The Fire Inspector III performs all types of fire inspections, plans review duties, and resolves complex code-related issues.

6.4.2 N.F.P.A. 1033 – Standard for Professional Qualifications for Fire Investigator

Staff responsible for conducting fire investigations should have the skills and competencies included in **N.F.P.A. 1033- Standard for Professional Qualifications for Fire Investigator**. The Ontario Fire College and Regional Training Centres currently offer five day N.F.P.A. 1033 course which adheres to **N.F.P.A. 921- Guide for Fire and Explosions Investigations**. Although the course is currently offered in the Province within the Fire College program, our experience is that the waiting lists are substantial. Fire investigations are discussed in greater detail in **Section 6.11.6** of this M.F.P.

Table 7: N.F.P.A. 1033 Standard for Professional Qualifications for Fire Investigator

Fire Investigator	N.F.P.A. 1033 Standard
Fire Investigator	An individual who has demonstrated the skills and knowledge necessary to conduct, coordinate and complete fire investigations.

6.4.3 N.F.P.A. 1035 – Standard for Professional Qualifications for Fire and Life Safety Educator, Public Information Officer, and Juvenile Firesetter Intervention Specialist.

At a minimum, all staff resources responsible for developing and delivering public education programs should have the skills and competencies included within the NFPA 1035 – Fire and Life Safety Educator I. The current organizational structure includes all fire prevention division staff delivering public education programs.

Table 8 summarizes the different public education designations included within the NFPA 1035 standard.

Table 8: N.F.P.A. 1041 – Standard for Fire Instructor Designations

Fire Instructor	N.F.P.A. 1041 Standard
Fire Instructor I	A fire service instructor who has demonstrated the knowledge an ability to deliver instruction effectively from a prepared lesson plan, including instructional aids and evaluation instruments, adapt lesson plans to the unique requirements of the student and authority having jurisdiction; organize the learning environment so that learning and safety are maximized; and meet the record-keeping requirements of the authority having jurisdiction.
Fire Instructor II	A fire service instructor who, in addition to meet Instructor I qualifications, has

Fire Instructor	N.F.P.A. 1041 Standard
	demonstrated the knowledge and ability to develop individual lesson plans for a specific topic including learning objective, instructional aids, and evaluation instruments; schedule training sessions based on overall training plan of authority having jurisdiction; and supervise and coordinate the activities of other instructors.
Fire Instructor III	A fire service instructor who, in addition to meeting Instructor II qualifications; has demonstrated the knowledge and ability to develop comprehensive training curricula and programs for the use by single or multiple organizations; conduct organization needs analyses; design record keeping and scheduling systems; and develop training goals and implementation strategies.

To summarize, those individuals responsible for delivery of instruction from a prepared lesson plan are to be trained to Fire Instructor I. Those responsible for delivery and development of lesson plans for specific topics are to be trained to Fire Instructor II, while those with responsibility for the development of entire programs, goals and strategies are to be trained to Fire Instructor III.

6.4.4 N.F.P.A. 1041 – Standard for Fire Service Instructor Professional Qualifications

N.F.P.A. 1041- Standard for Fire Service Instructor Professional Qualifications sets out three classifications of Fire Instructor namely: Fire Instructor I, Fire Instructor II and Fire Instructor III. The differences in the classifications are identified in **Table 9** below.

Table 9: N.F.P.A. 1041 – Standard for Fire Instructor Designations

Fire Instructor	N.F.P.A. 1041 Standard
Fire Instructor I	A fire service instructor who has demonstrated the knowledge an ability to deliver instruction effectively from a prepared lesson plan, including instructional aids and evaluation instruments, adapt lesson plans to the unique requirements of the student and authority having jurisdiction; organize the learning environment so that learning and safety are maximized; and meet the record-keeping requirements of the authority having jurisdiction.
Fire Instructor II	A fire service instructor who, in addition to meet Instructor I qualifications, has demonstrated the knowledge and ability to develop individual lesson plans for a specific topic including learning objective, instructional aids, and evaluation instruments; schedule training sessions based on overall training plan of authority having jurisdiction; and supervise and coordinate the activities of other instructors.
Fire Instructor III	A fire service instructor who, in addition to meeting Instructor II qualifications; has demonstrated the knowledge and ability to develop comprehensive training curricula and programs for the use by single or multiple organizations; conduct organization needs analyses; design record keeping and scheduling systems; and develop training goals and implementation strategies.

To summarize, those individuals responsible for delivery of instruction from a prepared lesson plan are to be trained to Fire Instructor I. Those responsible for delivery and development of lesson plans for specific topics are to be trained to Fire Instructor II, while those with responsibility for the development of entire programs, goals and strategies are to be trained to Fire Instructor III.

6.4.5 Chief Fire Official Delegation

The Fire Chief, who by virtue of his/her position is also the Chief Fire Official (C.F.O.), may choose to delegate some of his/her responsibilities under the F.P.P.A. to support the efficiency of operations and for continuity in operations during an absence or leave.

Industry best practices indicate that this delegation of authority should be provided in writing.

Fire department personnel who are tasked with certain delegated responsibilities, such as approving fire safety plans, should typically be assistants to the Fire Marshal and formally delegated as Chief Fire Officials (C.F.O.). Those who perform duties under F.P.P.A. sections 14, 19 and 20 should also be formally appointed to do so. Information collected through the data collection process for this M.F.P. indicates that all Fire Prevention Division staff members hold assistant to the Fire Marshal cards. The C.F.P.O. has also been delegated the authority to approve fire safety plans under Policy 3.14 Fire Safety Plans.

In our experience, Deputy Fire Chiefs who have acquired requisite knowledge and experience, may also be delegated C.F.O. authority with responsibilities beyond approving fire safety plans, as specified under the F.P.P.A. and the Ontario Fire Code. This is a practice that the B.F.D. may want to consider as the Deputy Fire Chiefs are required to act in the role of Fire Chief in his/her absence. Our research indicates that at the present time the Fire Chief has not formally delegated the authority as a Chief Fire Official in writing.

Operational Recommendation #13: That those positons within the department that are designated as Chief Fire Officials be confirmed through a formal delegation of authority report.

6.4.6 Public Services Health and Safety Association (P.S.H.S.A.) Chief Fire Official Training

It is important to note that recent legislated changes require all Chief Fire Officials approving Fire Safety Plans for buildings containing care occupancies, care and treatment occupancies or retirement homes, successfully complete mandatory training as approved by the Fire Marshal. At this time, the only training that has been approved is offered through Public Services Health and Safety Association. Information provided by the B.F.D. as part of the data collection process indicates the Chief Fire Prevention Officer and two Fire Prevention Officers have successfully completed this training, which in our view meets the needs of the department in order to address the legislative requirements.

6.4.7 Building Code Identification Number (B.C.I.N.)

Having appropriate qualifications and certifications has always been an important consideration to mitigating risk for the City. In consideration of the 2016 Verdict of Coroner's Jury, establishing clear expectations for training and certification to ensure competency has become even more important.

Fire department personnel who are appointed as building inspectors for the purpose of conducting Ontario Building Code (O.B.C.) plan reviews or inspections involving components of fire suppression and detection systems, firefighting and fire safety are required to complete O.B.C. General Legal and Fire Protection examinations and obtain a Building Code Identification Number (B.C.I.N.). While this training is not required for all fire safety inspections, it does provide the same immunity from liability afforded to building inspectors. We confirmed through the data collection process that B.F.D. fire prevention personnel have not participated in this training to date. Building plans review is discussed in further detail in **Section 6.11.8**. of this M.F.P.

6.5 Existing Fire Prevention Division Training and Qualifications

The current O.F.M.E.M. Grandfathering Database information provided by the B.F.D. identifies six individuals who have been certified to **N.F.P.A. 1031, Standard for Professional Qualifications for Fire Inspector and Plan Examiner, 2014 Edition, Level 1**. Five individuals were grandfathered through knowledge attained at formal training courses, while the sixth individual was grandfathered through experience, having a minimum of five years' experience in performing a fire prevention role. The current O.F.M.E.M. Grandfathering Database for the B.F.D. identifies five individuals having completed the N.F.P.A. Fire Inspector, Level II Gap course that has been developed to provide additional training to fire prevention staff responsible for performing plans review. As shown in **Table 10**, some fire prevention personnel have successfully completed specialized training relating to commercial cooking equipment inspections and courtroom procedures. **Table 10** summarizes the current training and qualifications of the staff resources assigned to delivering fire prevention and public education programs and activities.

Table 10: Current Fire Prevention Staff Resource Qualifications

Position	N.F.P.A. 1031 Level I	N.F.P.A. 1031 Level II	N.F.P.A. 1041 Level I	N.F.P.A. 1041 Level II	N.F.P.A. 1035 – P.I.O.	N.F.P.A. 1035 – Educator	N.F.P.A. 1033	Effective Inspections of Commercial Cooking Equipment	Courtroom Procedures
Chief Fire Prevention Officer (C.F.P.O)	YES	YES	YES	NO	YES	YES	NO	NO	YES
Fire Prevention Officer 1 (Acting C.F.P.O.)	YES	YES	YES	YES	YES	YES	YES	YES	YES
Fire Prevention Officer 2	YES	YES	YES	YES	YES	YES	NO	YES	YES
Fire Prevention Officer3	YES	YES	YES	NO	YES	YES	NO	YES	YES

Position	N.F.P.A. 1031 Level I	N.F.P.A. 1031 Level II	N.F.P.A. 1041 Level I	N.F.P.A. 1041 Level II	N.F.P.A. 1035 – P.I.O.	N.F.P.A. 1035 – Educator	N.F.P.A. 1033	Effective Inspections of Commercial Cooking Equipment	Courtroom Procedures
Fire Prevention Officer4	YES	YES	YES	YES	YES	YES	NO	YES	YES
Fire Prevention Officer 5	YES	YES	YES	NO	YES	YES	NO	YES	YES
Fire Prevention Officer 6	YES	YES	NO	NO	NO	NO	YES	YES	YES

6.6 Proposed Fire Prevention Division Training and Qualifications

Based on our review of the applicable the N.F.P.A. Pro-Qual Standards and our knowledge of current industry best practices **Table 11** outlines the recommended training and qualifications for those staff assigned to develop and deliver the B.F.D. public education and fire prevention services. These recommendations recognize that in some instances specific training and qualifications are not currently readily available such as the N.F.P.A. 1031 – Fire Inspector Level III. When the training for these higher standards becomes available it should be made accessible to department senior staff such as the Deputy Fire Chief – Support Services and Chief Fire Prevention Officer.

Table 11: Proposed B.F.D. Public Education and Fire Prevention Professional Qualification Standards

Divisional Task	Proposed Professional Qualifications
Public Education Program Design and Evaluation	**N.F.P.A. 1035 - Fire and Life Safety Educator Level II**
Public Education Program Implementation	**N.F.P.A. 1035 - Fire and Life Safety Educator Level II**
Media Interviews and Advisories Fire Inspections	**N.F.P.A. 1035 - Public Information Officer** **N.F.P.A. 1031 – Fire Inspector Level II**
Investigations	**N.F.P.A. 1033 – Investigator**
Fire Safety Plan Approval	As approved by the O.F.M.E.M.
Plan Examiner	**N.F.P.A. 1031 – Plan Examiner Level II**

In our view, the achievement and maintenance of these proposed professional qualifications should be considered a job performance requirement for those roles and responsibilities where applicable.

Operational Recommendation #14: That the Fire Chief develop a strategy for all Fire Inspectors and staff assigned to public education to attain and sustain professional qualifications presented within the proposed Master Fire Plan.

6.7 Division Workspace

As discussed in the Administration Section of this M.F.P., Fire Prevention Division staff currently operates from B.F.D. Headquarters. The division personnel share an open concept office space. The C.F.P.O. has a private office, in close proximity to staff, enabling indirect supervision of the staff and workspace.

Paper filing is located around the perimeter of the open office space, with fire investigation equipment stored in the basement F.P.O. lock up area. There is an identified need for the department to further transition to the use of electronic data storage. There are times when private office space would be ideal for staff to discuss sensitive or confidential matters on the phone relating to a fire safety inspection or investigation. The current open format of the workspace does not provide options for such privacy. In general, the workspace is currently meeting the needs of the division. This M.F.P. includes a recommendation to conduct a comprehensive review of the existing work space at Station 1 (Headquarters) to identify options for improving the work space functionality of this facility to accommodate the existing and future staffing resource needs of this Station.

6.8 Fire Prevention Policy

The components or framework of a Fire Prevention Policy are provided in P.F.S.G. 04-45-12 “Fire Prevention Policy.”

An example of the purpose of a fire prevention policy includes:

- To establish policies and procedures for fire department personnel for fire prevention, public education programs and activities as a primary means of protecting lives and property from fire; and
- To maintain compliance with the minimum fire prevention and public education activities as required by the Fire Protection and Prevention Act, 1997.

A Fire Prevention Policy should also identify the following fire prevention and public education programs and activities such as:

- Fire inspection activities;
- Fire code enforcement;

- Fire and life safety education;
- Fire investigation and cause determination;
- Fire loss statistics; and
- Fire department operational guidelines identifying how, when and where activities will be conducted.

Our research indicates that the existing By-law No. 215-80 contains many of the primary elements of the recommended Fire Prevention Policy. The analysis within this M.F.P. presents a more detailed analysis of the department's current fire prevention and public education programs and activities. It is recommended that this information and the proposed recommendations for enhancing the department's fire prevention and public education programs and activities be utilized to update the Fire Prevention Policy and utilized to replace By-law No. 215-80.

Subject to considering the recommendations of this M.F.P. a draft of the proposed Fire Prevention Policy should be presented to Council for consideration, approval and inclusion within the recommended updated Establishing and Regulating By-law.

Operational Recommendation #15: That By-law No. 215-80 be rescinded, and that the current Fire Prevention Policy be updated for consideration and approval by Council and inclusion within the proposed updated Establishing and Regulating By-law as an appendix.

6.9 Fire Prevention and Public Education Policies

Operational guidelines, policies and procedures are an integral component to providing specific direction to all staff in how, when and where department activities will be conducted. Fire Prevention Division activities are guided by numerous policies. The names of these documents and their respective dates (date of revision or creation as applicable) are summarized in **Table 12**.

The B.F.D. has a number of policies and procedures relating to fire prevention activities, all of which have been updated within the last three years. The policies and procedures in place for this division include references to current standards and legislation, and in our view reflect current industry best practices.

Table 12: Existing Fire Prevention Policies and Procedures

Number	Policy or Procedure	Development Date	Revised Date	Approved Date
3.1	Ontario Fire Code Inspection Procedure	2001/07/16	2016/01/22	2016/02/22
3.2	Inspection Orders Issued Under Section 21 of the F.P.P.A.	2000/03/01	2013/01/10	2016/02/22
3.5	Solid Fuel Burning Appliance – Inspection Procedure	2001/03/01	2009/01/31	2016/02/22
3.7	Service Station Inspection	2000/03/01	2011/01/04	2016/02/22
3.8	Business Licences – Municipal Code chapters 326 &329	2000/03/01	2014/01/09	2016/02/22
3.9	Disposal of Hazardous Waste	2000/03/01	2011/01/04	2016/02/22
3.10	Application to Demolish/Remove Structure	2000/03/01	2014/01/09	2016/02/22
3.11	Unsafe Buildings/Hazardous Conditions	2000/03/01	2007/01/31	2016/02/22
3.13	Chip Wagons & Hot Dog Carts	2000/03/01	2007/01/31	2016/02/22
3.14	Fire Safety Plans – Ontario Fire Code Section 2.8	2000/03/01	2013/01/09	2016/02/22
3.16	Ontario Building Code – Building Department	2000/03/01	2012/01/09	2016/02/22
3.17	Open Air Burning	2000/03/01	2005/01/31	2016/02/22
3.18	Contacting Fire Prevention	2000/03/01	2012/01/09	2016/02/22
3.19	Contacting Ontario Fire Marshall Investigator	2001/02/14	2011/01/10	2016/02/22
3.21	Security Key Boxes	2000/03/01	2009/01/31	2016/02/22
3.23	Incident Reports	2000/03/01	2013/01/09	2016/02/22

Number	Policy or Procedure	Development Date	Revised Date	Approved Date
3.26	Brantford Fire Department Fire Extinguishers	2000/03/01	2016/07/11	2016/07/11
3.29	Fire Protection Systems – Notice to Building Owners	2000/03/01	2007/06/07	2016/02/22
3.32	Designated Fire Route and Signs	2000/03/01	2009/01/31	2016/02/22
3.33	Fire Safety Plans – International Villages	2000/03/01	2014/01/09	2016/02/22
3.34	Technical Standards & Safety Act TSSA Tank Installation or Disuse – Aboveground and Underground	2000/03/01	2003/10/15	2016/02/22
3.35	Fireworks Display – Outside (Municipal Code Chapter 348)	2000/03/01	2015/07/30	2016/02/22
3.36	Theatrical Pyrotechnic Display (Indoor & Outdoors)	2000/03/01	2015/07/30	2016/02/22
3.37	Open Flames	2000/03/01	2014/01/09	2016/02/22
3.38	Juvenile Fire-Setters	2000/03/01	2003/10/15	2016/02/22
3.40	Occupant Loads (Assembly Use)	2000/03/01	2014/01/09	2016/02/22
3.41	Fire Investigations	2000/03/01	2014/01/09	2016/02/22
3.46	Fixed Extinguishing Systems	2000/03/01	2014/01/09	2016/02/22
3.49	Residential Sprinklers	2000/03/01	2014/01/09	2016/02/22
3.50	Fire Prevention Officer Cell Phones	2011/07/18	2014/01/09	2016/02/22
3.51	Fire Prevention Officers – Notifying Communications of Location	2012/03/15	-	2016/02/22
3.51R	Fire Prevention Officers – Notifying Communications of Location	2012/03/15	2018/01/03	2018/01/09

Industry best practices and the O.F.M.E.M. support the need for extensive policies and procedures to ensure all department programs and activities are being delivered as approved by the Fire Chief and authorized by Council. Policies, particularly in the area of fire prevention and public education activities and programs, are necessary to define performance goals and objectives to inform trend analyses to inform ongoing monitoring of these services. Guidelines are also important tools for training of staff, and a regular review cycle helps to ensure that the procedures are meeting current best practices and applicable legislation.

6.10 Fire Prevention Division Activity and Workload Tracking

N.F.P.A. 1730 Standard on Organization and Deployment of Fire Prevention Inspection and Code Enforcement, Plan Review, Investigation, and Public Education Operations further supports the use a Fire Prevention Policy (as described in the preceding section). A comprehensive Fire Prevention Policy reflects current industry best practices to establish the level of service to be provided by the Fire Prevention Division, including specific objectives for public education, inspections, code enforcement, plan review, and investigations. N.F.P.A. 1730 also supports the use of personnel and resource tracking in order to determine needed resources to meet the established level of service. It is not uncommon that fire departments do not have a sense of the capability of their current resources to meet service levels due to a lack of data and tracking of historic effort. This is commonly compounded by the lack of performance measures in place against which to track workload effort.

To determine resource needs N.F.P.A. 1730 presents example tracking tables for fire prevention inspection and code enforcement, plan review, investigations, and public education. The example tracking tables include information like separating inspections by occupancy type, identifying the number of facilities in use, task time, inspection frequency, and resulting total time. Other tables include similar information including number of tasks, time per task, commute time, other time (including administrative functions), and a resulting total.

Tracking and reporting for the B. F.D. Fire Prevention Division activities have historically been completed at a high level with reporting presented in the Annual Reports. This includes the number of inspections per year, number of public education events, number of investigations completed, the number of plans examinations completed, file

searches completed, fireworks training and permits provided, and municipal licenses provided. In our experience, this historical practice recognizes the importance the B.F.D. has placed on communicating to Council and the community. In our opinion, there would be value in collecting and tracking further data with respect to fire prevention and public education initiatives in order to enhance the current reporting process. This could include collecting the following information:

- Number of Part I Offence Notices issued;
- Number of Part III Charges filed;
- Number of Ontario Fire Code convictions registered;
- Number/percentage of properties inspected in compliance at time of inspection;
- Number/percentage of inspections that led to Fire Safety Inspection Orders being issued;
- Number of Fire Safety Inspection Orders issued;
- Number of re-inspections required per property;
- Breakdown (by number/percentage) of properties inspected by O.B.C. occupancy type;
- Breakdown (by number/percentage) of enforcement options used throughout the year;
- Number of Orders to Close, Authorizations to Close and Immediate Threat to Life issued;
- Percentage/number of occupancies inspected that were/were not compliant with smoke alarm legislation; and
- Percentage of occupancies/number inspected that were/were not compliant with carbon monoxide legislation.

This list is not intended to be exhaustive, but to provide samples of the types of data that the N.F.P.A. 1730 standard has identified.

Operational Recommendation #16: That consideration be given to expanding the current activities reporting of the Fire Prevention Division to Council as referenced within the proposed Master Fire Plan.

6.11 Existing Fire Inspection Program

A fire inspection program is a key element of the first two lines of defence. The B.F.D. is complying with its legislative requirements for conducting fire inspections by providing fire inspections based upon receipt of a request or a complaint and completing annual inspections of care occupancies, care and treatment occupancies and retirement homes.

6.11.1 Request or Complaint Inspections

On receipt of a request or a complaint the B.F.D. initiates a process to comply with its legislative requirements. Our research and consultation with senior department staff indicates that the current process is driven by the historical practices of the department.

To enhance the department practices in regards to fire safety inspections, it is recommended that the B.F.D. develop a policy for responding to complaints and requests for fire inspections in keeping with the requirements of O. Reg. 365/13: Mandatory Assessment of Complaints and Requests for Approval and Fire Marshal's Directive 2014-03: Inspections of All Buildings. In our view, this could be achieved by documenting the department's current process in a policy that defines the steps to be followed once a request or complaint is received including the time frame for responding.

Operational Recommendation #17: That consideration be given to developing a policy for responding to all fire inspection requests, and complaints as referenced within the proposed Master Fire Plan.

6.11.2 Enhancing Fire Safety in Occupancies Housing Vulnerable Ontarians, Ontario Regulation 150/13

Ontario Regulation 150/13 - Enhancing Fire Safety in Occupancies Housing Vulnerable Ontarians was filed on May 9, 2013. This regulation introduced amendments to the Ontario Fire Code (O.F.C.) that came into force on January 1, 2014. The O.F.M.E.M. led the development of this new regulation in consultation with a Technical Advisory Committee of industry experts. This regulation is intended to enhance fire safety in occupancies that house vulnerable occupants. The legislation applies to care, care and treatment and retirement homes that are regulated under the Retirement Homes Act.

In addition to Ontario Regulation 150/13- Enhancing Fire Safety in Occupancies Housing Vulnerable Ontarians, Ontario Regulation 364/13 – Mandatory Inspection – Fire Drill In Vulnerable Occupancy requires that a fire inspector observe a fire drill scenario representing the facility's lowest staffing complement (as approved by the Chief Fire Official (C.F.O.)), conducts a fire safety inspection (utilizing the Annual Inspection Checklist which forms part of O.F.M.E.M. Directive 2014-002 as a minimum level of inspection), and then updates the O.F.M.E.M.s Vulnerable Occupancy Registry, as appropriate. In addition, there is also a requirement for mandatory training for C.F.O.s responsible for approving fire safety plans as mentioned previously in this section.

The fire inspection cycles presented within this M.F.P. include the requirements for the annual inspection of each building affected by this legislation. **Table 13** presents the **"key risks"** identified by the Community Risk Assessment related to the current vulnerable occupancies and vulnerable populations in the City of Brantford.

Table 13: Key Risks – Vulnerable Occupancy Related

C.R.A. Key Risks Analysis Outcomes	CRA Identified Risk Level
There are a total of 38 vulnerable occupancies in Brantford.	High Risk
W. Ross MacDonald School for the Blind presents unique life-fire safety risks.	High Risk

6.11.3 Existing Fire Inspection Cycles

Policy 3.1 Ontario Fire Code Inspection Procedure provides Fire Prevention Division staff with direction as to the procedure to follow when conducting a fire safety inspection, including the issuance of fire safety inspection orders and guidance relating to continued non-compliance.

The B.F.D.'s current fire inspection cycle is presented in **Table 14**. As the table shows, the B.F.D. conducts request, complaint and routine fire safety inspections, prioritizing occupancies considered to have higher levels of risk. Depending on the type of

occupancy and inspection these inspections may be completed by fire prevention or on duty fire suppression staff.

Table 14: Current Brantford Fire Department Inspection Capacity

Occupancy Classification	Buildings	Estimated Number of Properties	Inspection Type	Inspection Frequency	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Various	Various	175	Complaint Inspection	Upon Receipt of complaint	175	175	175	175	175	175
Various	Various	110	Request Inspection	Upon Receipt of request	110	110	110	110	110	110
Group A – Assembly	Schools	52	Routine Inspection	Annually – alternating between Prevention and Suppression	Crew - 52	52	Crew - 52	52	Crew - 52	52
Group A – Assembly	Public Halls (not including the schools listed above)	45	Routine Inspection	Annually – alternating between Prevention and Suppression	45	Crew - 45	45	Crew - 45	45	Crew - 45
Group A – Assembly	Licensed Daycares	31	Routine Inspection	Annually - Prevention	31	31	31	31	31	31
Group A – Assembly	Large Bar/Restaurants	21	Routine Inspection	Every two years – Prevention	14	7	14	7	14	7
Group A – Assembly	Churches	68	-	-	-	-	-	-	-	-
Group A – Assembly	Restaurants – remaining	145	-	-	-	-	-	-	-	-

Occupancy Classification	Buildings	Estimated Number of Properties	Inspection Type	Inspection Frequency	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Group B – Institutional	Police Station, Jail, Courthouse, Superior Court Building	5	Routine Inspection	Annually – Prevention	5	5	5	5	5	5
Group B – Institutional	Hospital, nursing homes, homes for special care	31	Routine Inspection	Annually – Prevention	31	31	31	31	31	31
Group C – Residential	High-rise Apartment	17	Routine Inspection	Annually - Prevention	17	17	17	17	17	17
Group C – Residential	3-6 storey apartments	98	Routine Inspection	Every Two years – Prevention	49	49	49	49	49	49
Group C – Residential	9.5 buildings not covered above	420	Routine Inspection	Every six years – Prevention	70	70	70	70	70	70
Group C – Residential	Retirement homes	9	Routine Inspection	Annually – Prevention	9	9	9	9	9	9
Group C – Residential	Boarding, Lodging and Rooming Houses	13	Routine Inspection	Annually - Prevention	13	13	13	13	13	13
Group C – Residential	Hotels/motels	12	Routine Inspection	Annually – Prevention	12	12	12	12	12	12

Occupancy Classification	Buildings	Estimated Number of Properties	Inspection Type	Inspection Frequency	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Group D – Business and personal services & Group E – Mercantile	All Group D & E	2387	Routine Inspection	After a fire incident	6	6	6	6	6	6
Group F – Industrial	Al industrial	-	Routine Inspection	After a fire incident	14	14	14	14	14	14
Group F – Industrial	Salvage yards	5	Routine Inspection	Annually – Prevention	5	5	5	5	5	5
Group F – Industrial	Industrial – high-hazard	28	Routine Inspection	Annually – Prevention	28	28	28	28	28	28
Group F – Industrial	Industrial – remaining	315	-	-	-	-	-	-	-	-

Table 15 presents the **"key risks"** identified by the Community Risk Assessment related to the current building stock and O.B.C. classification types in the City of Branford.

Table 15: Key Risks – O.B.C. Classification Related

C.R.A. Key Risks Analysis Outcomes	CRA Identified Risk Level
Group C – Residential occupancies account for 95.4% of the City's building stock.	Moderate

6.11.4 Wood Energy Transfer Technology (W.E.T.T.) Inspections

Policy 3.5 Solid Fuel Burning Appliance – Inspection Procedure provides guidance to fire prevention division staff performing inspections and re-installations of solid fuel burning appliances and chimneys. Under City of Brantford By-law 188-2017, the B.F.D. is authorized to charge for these inspections. Fire prevention personnel have not been trained or certified to perform W.E.T.T. inspections.

In our experience, many jurisdictions have elected not to perform W.E.T.T. inspections for liability reasons. Our desktop research suggests there are a number of insurance companies and private contractors in the Brantford area who perform W.E.T.T. inspections. In our view, the B.F.D. should consider discontinuing the practice of conducting W.E.T.T. inspections. It should also be noted that Policy 3.5 indicates a fire safety inspection order for a property with concealed assemblies relating to a solid fuel appliance is to include a requirement for the property owner to have an inspection performed by a W.E.T.T. certified technician. In our experience, this requirement has resulted in Fire Safety Inspection Orders being rescinded by the O.F.M.E.M.

Operational Recommendation #18: That consideration be given to rescinding Policy 3.5 Solid Fuel Burning Appliances-Inspection Procedures and revising By-law No. 188-2017 to remove reference to performing this type of service.

Operational Recommendation #19: That consideration be given to discontinuing the practice of conducting W.E.T.T. inspections.

6.11.5 Fire Safety Enforcement

Historically, enforcement was not commonly used by municipalities working with property owners to achieve compliance with the Ontario Fire Code. This trend is changing across the province with the support of the O.F.M.E.M., in part through its May 2012 Technical Guideline O.F.M.T.G. 01-2012 "Fire Safety Inspections and Enforcement." This technical guideline is intended to assist municipalities in efficiently and effectively meeting fire safety and enforcement responsibilities.

Dillon's review of this guideline indicates that it supports the direction of the first two lines of defence as a means to optimize the level of fire protection services within a community. The technical guideline provides municipalities with strategies, particularly related to enforcement of the Ontario Fire Code in situations where achieving compliance has or may be more difficult to achieve. **Policy 3.02 Inspection Orders Issued** under Section 21 of the F.P.P.A. refers fire prevention staff to O.F.M.T.G. 01-2012, although through the internal interview process we learned enforcement options utilized by fire prevention division personnel has typically been restricted to Fire Safety Inspection Orders. It was suggested this may be due to a lack of familiarity with Part I tickets, Orders to Close and other enforcement options.

In our experience, there is substantial value to utilizing a variety of techniques to assist a property owner achieve compliance with the Ontario Fire Code. Engaging and educating the public about its responsibility to comply with the O.F.C. is often enough to bring about compliance, however, there are instances where enforcement may be necessary.

Representatives from the O.F.M.E.M. are available to facilitate training sessions relating to enforcement options available to municipalities. Host fire departments are encouraged to invite neighbouring fire prevention staff, an option the B.F.D. may choose to consider in an effort to work with and learn from other jurisdictions. There can be substantial value in hearing about the successes and challenges of others in similar roles. Because these types of sessions are typically hosted in municipally-owned facilities, the costs to the host fire department are typically quite low. The B.F.D. may want to consider contacting the O.F.M.E.M. and hosting a fire safety educational workshop with neighbouring communities.

6.11.6 Fire Investigations and Cause Determination

Investigating the origin and cause of a fire is the legislated responsibility of a municipal fire service. N.F.P.A. 1033 Standard for Professional Qualifications for Fire Investigators sets outs the required skills and knowledge (Job Performance Requirements or J.P.R.s) to competently conduct fire scene investigations, although there are a variety of training course offerings currently available to fire service professionals. Two B.F.D. Fire Prevention Officers have completed this training, while other F.P.O.s within the Fire Prevention Division are Certified Fire and Explosion Investigators (C.F.E.I.) or have completed training at the Ontario Fire College relating to fire investigations and fire cause determination. In our experience, this depth of training provides the B.F.D. with robust investigative capabilities.

Through the internal engagement process of this Master Fire Plan, we learned the Brantford Fire Department intends to move towards training and certifying all Fire Prevention staff to N.F.P.A. 1033, rather than C.F.E.I.

Where fires meet specific criteria, the local fire service is required to notify the Office of the Fire Marshal and Emergency Management. The criteria and process for this notification is contained in Fire Marshal's Directive 2015-02, which was updated in July 2015 to include the requirement to notify the O.F.M.E.M. in the event of a fire of any size in a vulnerable occupancy. B.F.D. Policy 3.19 -Contacting Ontario Fire Marshal Investigator requires updating to be current with Fire Marshal's Directive 2015-02.

The review completed for this M.F.P. indicates that B.F.D. Policy 3.14- Fire Investigations describes the department's activities in this regard. Policy 2.08 Fire Watch/Scene Watch-Investigations provides personnel with direction relating to integrity and continuity of a scene for investigation and/or to secure the scene for the safety of fire fighters, outside agencies and the public.

At the current time the department does not have a defined on-call schedule for fire prevention staff to conduct fire investigations. In part, this is associated with the varying skills and experience of the current fire inspectors to conduct an investigation, and the frequency of investigations. The department would benefit from updating Policy 3.14-Fire Investigations to identify the minimum required certification and qualification to conduct a fire investigation, and consider including strategies such as mentoring and

coaching for existing staff to gain further experience through partnering with more qualified and experienced staff.

Operational Recommendation #20: That Policy 3.14-Fire Investigations be revised to include establishing certifications and qualifications for personnel conducting fire investigations.

Operational Recommendation #21: That Policy 3.19- Contacting Ontario Fire Marshal Investigator be updated to reflect the criteria for notification of the O.F.M.E.M. as set out in Fire Marshal's Directive 2019-001.

6.11.7 Fire Safety Plans

Fire Safety Plans are required for select occupancy types identified in Section 2.8.1.1.1 of the Ontario Fire Code. The O.F.C. also details the content requirements of a fire safety plan. The requirements include emergency procedures in the case of a fire, such as use of the fire alarm system, notifying the fire department, and instruction and evacuation of building occupants. Fire safety plans must also designate supervisory staff, and details relating to fire drills, control of fire hazards and maintenance of building facilities.

While approved by the Chief Fire Official, the plans are utilized primarily by the occupants. Fire safety plans provide an avenue for training in the case of a fire incident; for example, care providers at a long term care facility would be informed and trained to know their role and responsibility during an evacuation.

As mentioned previously in this M.F.P., Ontario Regulation 150/13 requires that as of January 1, 2017, Chief Fire Officials responsible for approving fire safety plans must successfully complete a training program that is acceptable to the Fire Marshal.

Brantford Fire Department Policy 3.14- Fire Safety Plans sets out the procedure to be followed by Fire Prevention Division staff when reviewing and approving fire safety plans. Under the policy the Chief Fire Prevention Officer is directed to issue approval letters as a Chief Fire Official for the purposes of approving fire safety plans. Approved fire safety plans are shared with communications staff and platoon chiefs are responsible for reviewing the plans with shift officers regularly.

6.11.8 Pre-Planning

In comparison to a fire safety plan, the process of pre-planning within the fire service is intended to provide a proactive awareness within fire departments about key building features, possible hazard and other pertinent characteristics about an existing occupancy. Pre-planning is typically conducted by on duty fire suppression crews with information provided from a variety of sources, including data available through the City, information gathered from the building owner, and site visits. The value of a building pre-plan is having site specific information available to fire suppression crews in advance of responding to an emergency incident.

The purpose of pre-plans are to assist fire suppression staff with increasing their awareness of the site hazards and formulating a tactical plan while responding to the incident. Recently departments have been implementing the use of computer software to assist in the development of pre-plans, and to garner more efficient access to the pre-plans while responding to a fire. In our experience, there is also significant value to coordinating pre-planning efforts between Suppression, Communications, Prevention and Training Divisions as well as other City departments in developing consistent and comprehensive plans. Priority should also be given to occupancies identified as having a high risk as identified by the C.R.A.

Operational Recommendation #22: That the department review the benefits of utilizing computer software to conduct fire suppression pre-plans, the need for further coordination of pre-planning efforts and prioritizing high risk occupancies.

6.11.9 Plans Review

Approval of plans for new construction or site alternations from the perspective of fire protection is a critical component of fire prevention. The degree of plans review performed by a fire prevention division varies between jurisdictions. Building plans can be reviewed for sprinkler, fire alarm and detection, and suppression systems; and site plan and subdivision approval for items affecting fire services, such as fire department access and water supply.

Through the internal stakeholder consultation process we learned staff training relating to plans review is limited and there is a heavy reliance on the City's building

department. In our experience there is tremendous value to fostering a collaborative relationship between the building department and fire departments in a jurisdiction. The benefits of working collectively to achieve compliance with the Ontario Building Code and the Ontario Fire Code is a core element of an overall community safety plan.

Building plans review involves the evaluation of design plans before construction begins and can be related to actual construction or to a new manufacturing process. Plans review includes evaluating architectural, structural, mechanical, electrical, and/or fire protection drawings to ensure compliance with a variety of codes and standards, including the Ontario Building Code.

While some fire departments opt to employ plans examiners and technologists to ensure thorough and technical plans review, others choose to rely on the expertise provided within the municipality's building department. Ensuring staff are qualified to perform the determined level of plans review is imperative. Determining the level of plans review performed by fire prevention divisions is a decision that requires discussion and collaboration between the fire, building and legal departments. The plans review process within a municipality is intended to ensure proper construction and appropriate built in fire protection systems, which are vital to both building occupant and first responder safety.

Fire department involvement before construction begins may prevent issues with design specific to fire protection systems and features that can be difficult and cost prohibitive to correct at a later stage in the project. These issues may also be addressed through a strong relationship and clear expectations between the building and fire departments within a municipality. Based our experience, we recommend that a written policy, guideline or Memorandum of Understanding, which clearly outlines the responsibilities of building and fire department personnel for plans review can be developed.

There are also instances when the fire department may issue a fire safety inspection order for work to be carried out on a building or system that requires a building or change of use permit. Fire department personnel issuing fire safety inspection orders are required under the Fire Protection and Prevention Act to provide a copy of the order to the Chief Building Official.

Staffing levels and qualifications may assist a jurisdiction in determining the level of involvement of fire department staff. To be involved with the plans review process, fire department personnel do not necessarily require technical training. Personnel with knowledge of fire service operational needs are typically capable of providing a basic level review. However, in jurisdictions where plans review is considered a key function of the fire department, ensuring staff are qualified to perform plans review is necessary. We would encourage the B.F.D. to continue to engage City's building department as appropriate, relying on the expertise and qualifications of the building department to provide technical plans review. If at some point in the future the City determines the B.F.D. are to play a more technical role in plans review, staff qualifications and workload would need to be re-examined.

Operational Recommendation #23: That consideration be given to formalizing the roles and responsibilities of City departments to conduct plans review as referenced within the proposed M.F.P.

6.12 Proposed Fire Inspection Cycle

Our review indicates that the B.F.D. has established a proactive fire inspection program that includes responding to the legislative requirements for request and complaint inspections. The departments also utilizes routine inspections that are based on the historical fire risks present.

The proposed fire inspection cycle recognizes that, in some instances, fire inspections are required as part of the corporate business licence process, whereas others represent legislative requirements. It is recommended that subject to consideration and approval, the proposed fire inspection cycle be included within the department's fire prevention policy to identify fire inspection service level for the City of Brantford.

Table 16: Proposed Fire Inspection Cycle

Occupancy Classification	Buildings	Proposed Fire Inspection Cycle
Group A – Assembly	Schools, Recreation Centres (Arenas), Curling/Golf Centres	Annual
Group A – Assembly	Licensed Properties, Nursery/Day Care Facilities, Churches, Special Occasion	Annual
Group B – Care or Detention	B2, B3, and Retirement Homes	Annual
Group B – Care or Detention	Other Group B	Annual
Group C – Residential	Apartments regulated by Part 9.3 of the O.F.C.	1-2 Years
Group C – Residential	Apartments regulated by Part 9.5 of the O.F.C.	1-2 Years
Group C – Residential	Apartments regulated by Part 9.8 of the O.F.C.	1-2 Years
Group C – Residential	Hotels, Motels, and occupancies regulated bv Part 9.9 of the O.F.C.	3-4 Years
Group C – Residential	Home Inspection Program	Annually
Group D - Business	Business and Personal Services Occupancies	Upon Request/Complaint
Group E - Mercantile	Mercantile Occupancies	3-4 Years
Group F - Industrial	Factories and Complexes	1-2 Years

Council Recommendation #2: That subject to Council's consideration and approval of an Implementation Plan that the proposed fire inspection cycles included within the proposed Master Fire Plan be approved and included within the proposed Fire Prevention Policy.

6.13 Proposed Fire Prevention Staff Resource Plan

The analysis within this M.F.P. identifies that the B.F.D. has established an effective and proactive fire prevention program. Prior to considering the need for additional fire prevention staff resources the department would benefit from developing an in-depth workload analysis in this area. N.F.P.A. 1730 Standard on Organization and Deployment of Fire Prevention Inspection and Code Enforcement, Plan Review Investigation, and Public Education Operations contains a framework methodology for assessing the workload and fire inspection staff resources required by a fire department. In our view the department would benefit from considering this type of workload assessment and the introduction of performance indicators as part of developing a business case for additional fire prevention staff.

Based on our experience in assessing similar sized communities, with similar fire risk and planned community growth, we expect that the proposed work load analysis will identify a need for an additional fire inspector within the short-term (i.e. 1- 3 years) horizon of the implementation of this plan.

Operational Recommendation #24: That the B.F.D. implement a process for tracking performance indicators to assess the existing and future workload within the fire inspection area to support the need for additional resources in this area as indicating within the proposed M.F.P.

6.14 Existing Public Education Programs and Activities

Educating the public on fire safety is an important component of the Fire Prevention Division's efforts. Past practice and experience has shown that expanding and enhancing public education efforts can be an effective strategy to mitigate emergency call volume and increase the overall level of fire safety within a community. The department does not currently have a dedicated Fire and Life Safety Educators position. The department's public education program is currently being overseen by the Chief Fire Prevention Officer and primarily being delivered by one of the Fire Inspectors who has been tasked with this role on an interim basis.

Current department public education programs and initiatives advertised on the department's website include:

- Brant T.A.P.P.-C.;

- Community Events;
- Fire Prevention Week;
- Older and Wiser;
- Risk Watch;
- School Lecture Program;
- World Series of Fire Safety;
- Station Tours; and
- Hot Summer Nights.

Building on the proactive programs and partnerships in place, there is an opportunity to further define objectives for public education. Implementing goals and objectives for conducting public fire safety education activities and programs is consistent with responding to the strategic priorities identified within this M.F.P. This would include developing regularly scheduled public education programs and activities (cycles) for providing fire safety education to the various occupancy classifications identified in the Community Risk Assessment. Developing a cycle provides the opportunity to prioritize the delivery of fire safety education programs based on the results of the C.R.A. specifically for vulnerable demographics identified. Dillon's research into developing fire safety program delivery cycles looked at the relevant N.F.P.A. standards, P.F.S.G.s and industry best practices. **Table 17** reflects the public education work plan developed by the B.F.D.

Table 17: Public Education Plan

Initiative	Target Demographic	Description (as provided by the B.F.D.)	Delivery
Programs			
Smoke Alarms Save Lives	Neighbourhood Residents from a fire incident	Suppression crews go door to door to check the status of smoke alarms and Carbon Monoxide alarms in an area where a fire	Q1-4

Initiative	Target Demographic	Description (as provided by the B.F.D.)	Delivery
		incident has occurred.	
Kindergarten Fire Safety Program	Kindergarten students	Fire safety education provided at the Children's Safety Village targeting specific grades	Q1-2
Grade 2 Fire Safety Program	Grade 2 students	Fire safety education provided at the Children's Safety Village targeting specific grades	Q3-4
Grade 4 Fire Safety Program	Grade 4 students	Fire safety education provided at the Children's Safety Village targeting specific grades	Q2
Grade 6 Fire Safety Program	Grade 6 students	Fire safety education provided at the Children's Safety Village targeting specific grades	Q1
TAPP-C (Arson Prevention Program)	Child or Teen involved in fire setting incident	Education on good fire safety practices delivered to a child or teen involved in fire setting presented by either suppression or prevention staff including a total of three sessions (one at the youth's home and two at the B.F.D.)	Q1-4

Initiative	Target Demographic	Description (as provided by the B.F.D.)	Delivery
Fire Extinguisher Training	Adults	Education and information presented on the safe use of fire extinguishers followed by hands-on training provided on location.	Q2-3
Foster Parent Training	Potential foster parents	Information is provided on proper placement of fire protection devices and fire escape planning; this training was made mandatory by Brant Family and Child Services as part of their sign off process for potential foster parents.	Q1-4
Laurier Brantford Residence 'Don' Training	Student residence supervisors	Information about general fire prevention, fire protection devices and escape planning, information and training on the use of fire extinguishers given in partnership with Laurier Brantford's fire prevention team provided to resident supervisors.	Q3

Initiative	Target Demographic	Description (as provided by the B.F.D.)	Delivery
Fire Safety for older adults	Older adults	Information is dispersed at senior's groups and retirement home on fire safety for older adults.	Q1-4
Coalitions			
Remember When Coalition	Seniors	The fire department provides training to the Victorian Order of Nurses (VON) who then deliver fire safety information and messaging to their clients.	Q1-4
Brantford Hoarding Coalition	Homeowners with hazardous fuel loads from the accumulation of materials	The fire department works together with the coalition partners to provide information on the hazards associated with hoarding.	Q1-4
SAFE Brantford	General Public	A community crime prevention initiative whereby fire safety information and statistics are provided to the coalition upon request.	Q1-4
Brant Community Response Team	Citizens at elevated risk	The fire department serves as a tertiary member of the response team and	Q1-4

Initiative	Target Demographic	Description (as provided by the B.F.D.)	Delivery
		provides fire safety information when appropriate for the citizen at risk.	
Campaigns			
Fire Prevention Week	General Public	Information on general fire safety and specific information related to the year's Fire Prevention Week theme is delivered to the public using a variety of mediums (in-person on location, station open house, print communication and social media messaging).	Q4
Carbon Monoxide Awareness Week	General Public	Education provided on the dangers of carbon monoxide and the need for adequate detection	Q4
Push the Button	General Public	Residents are encouraged to test their smoke alarms as part of campaign to raise awareness about the importance of early detection.	Q4

Initiative	Target Demographic	Description (as provided by the B.F.D.)	Delivery
Emergency Preparedness Week	General Public	Information regarding emergency preparedness is delivered to the community during this week.	Q2
Participation in Community Events			
Children's Safety Day	General Public	General fire safety information is provided at this annual event at the Children's Safety Village	Q2
CARP Senior Showcase	Older Adults	An annual event hosted by the Canadian Association of Retired Persons Brantford chapter through which the fire department distributes fire safety information to older adults.	Q2
Laurier Brantford Orientation	Laurier Brantford students	Fire safety and escape planning is provided to young adults living on their own for the first time.	Q3

The B.F.D. has also identified other initiatives to ensure that key fire prevention messages are communicated to public throughout the year. As identified in the public education plan, these fire risk reduction messages can be communicated through station sign boards (located at stations 1, 3 and 4), overhead street banners at various

locations throughout the City, social media via the fire department's Twitter account and Facebook page, and the overall increased presence of fire suppression crews at various public events.

The existing programs demonstrate recognition of the benefits of a proactive public education program to mitigate the risk of a fire event. Such an approach to public education is especially valuable in a growing community. A focus on public education and fire prevention can directly reduce emergency call volume and increase overall level of fire protection within a community. The current programs also reflect best practices whereby public education activities are targeted to key demographics. Findings from the Community Risk Assessment's demographic profile analysis indicate that individuals 14 years of age and younger represent 18% of the City's total population and seniors 65 years and older account for an additional 17% of the City's population. These figures are slightly higher than the provincial averages for these age groups. Continuing to prioritize public education and prevention programming to target these two age categories is warranted and will be discussed in **Section 6.16**, Proposed Public Education Programs.

During the data collection process to inform this Master Fire Plan, the department was able to provide data relating to the number of educational activities and events the B.F.D. attended and the number of hours spent on education in total for 2016. The K.C.B. report provides some additional statistics on the B.F.D.'s public education efforts for 2013 and 2014. Analysis of this information shows that the number of hours spent on educational activities within the department increased substantially between 2013 and 2016. The total number of hours spend on education in 2013 was 381.5, while the total hours spent in 2016 was 694.5. The 2016 Fire Services Review also includes the number of hours spent on educational activities by fire suppression crews.

Challenges in providing consistent data relating to activities and effort for prevention and education programs and initiatives are typical across fire departments in Ontario. Most often this is the result of an absence in efficient and effective data collection and analysis tools or records management systems. In our view there is a need to improve the tracking and delivery of public education activities, materials and required resources within the Fire Prevention Division. An integrated records management system would be an asset to the Fire Department for the collection of more consistent statistical data regarding its educational activities.

6.14.1 Children's Safety Village of Brant

Since 2005, the Brantford Fire Department has utilized the Children's Safety Village of Brant to educate school aged children in grades 2, 4 and 6. More recently, a curriculum for Junior and Senior Kindergarten classes was developed. Materials have been developed by Fire Prevention Division staff in collaboration with area school boards.

Figure 6: Children's Safety Village of Brant-Photo provided by B.F.D.

Topics addressed include fire prevention, smoke alarms, home escape planning, cooking safety, candle safety, home hazards, dangerous materials, seasonal fire safety and carbon monoxide and burn prevention. Teachers can schedule B.F.D. facilitated sessions through the safety village webpage. The B.F.D. and the City of Brantford Police Department work in partnership to deliver a collaborative program for grade 6 students.

Through the internal consulation process of this M.F.P. it was learned that the funding strategy for the Children's Village of Brant has recently changed. Both the B.F.D. and the City of Brantford Police Department have agreed to lease space from the safety village to maintain the existing facility. It is anticipated that other partners within the City, County and surrounding area will also contribute to ensure the safety village continues to operate. The high proportion of youth ages 0-14 in the City identified in the C.R.A. suggests programming such as that currently offered at the fire safety village is appropriate in this community.

Operational Recommendation #25: That the annual leasing costs for sustaining the fire department presence at the Children's Safety Village be considered a priority for the Brantford Fire Department.

6.14.2 Distribution of Fire Safety Information

PFSG 04-40C-03 Distribution of Public Fire Safety Education Materials was developed by the O.F.M.E.M. to assist municipalities in interpreting the requirements of the

F.P.P.A. This review indicates that the B.F.D. distributes a wide range of fire safety information that includes the utilization of web-based information, social media forums, and the distribution of hard copy fire safety information/pamphlets. In our view, the current practices of the B.F.D. reflect those of current industry best practices and include the following initiatives.

6.14.2.1 Department Website

The department's recently updated website, located at http://www.brantfordfire.ca provides valuable information related to home fire safety, smoke alarms, carbon monoxide alarms and community programs offered by the B.F.D. In our experience, the department's website represents an industry best practice in distributing fire safety information to a broad range of demographics within the community.

6.14.2.2 Hard Copy Fire Safety Information

Printed fire safety information is provided by the department as part of formal programs and activities and attending public events. This includes distributing pamphlets and fire safety information related to smoke alarms, home escape planning and carbon monoxide detectors. The department also provides tours of the fire stations on a regular basis as part of its public education programing that also includes the distribution of fire safety information based on the demographic participating in the tour.

6.15 Smoke Alarms Save Lives Door to Door Program and Carbon Monoxide Alarm Program

Under the authority of the Fire Protection and Prevention Act, 1997, the Ontario Fire Code requires a working smoke alarm to be installed on each level of a dwelling unit as well as outside of all sleeping areas. Responsibility for installation and maintenance of the smoke alarm lies with the owner/landlord. To assist the fire department in fulfilling its responsibility for the provision of a smoke alarm program Public Fire Safety Guideline 04-40B-03 outlines the objectives of an effective program.

These objectives include all or a combination of the following:

- ✓ Providing smoke alarm and home fire escape planning information;
- ✓ Promoting regular testing and maintenance of smoke alarms;

- ✓ Providing or replacing smoke alarms and/or batteries;
- ✓ Encouraging residents to regularly maintain their smoke alarms;
- ✓ Educating residents about the legal requirements for smoke alarms;
- ✓ Enforcement of all legislation relating to smoke alarms;
- ✓ Effectively tracking and evaluating your smoke alarm program;
- ✓ Modifying the program where necessary to ensure success.

As of 2015, property owners and tenants in residential buildings containing: a fuel-burning appliance or fireplace within their suite, have an attached garage or have a fuel-burning appliance associated with building services not located within a residential suite, must install and maintain carbon monoxide alarms as required by the Ontario Fire Code. Generally this means that a carbon monoxide alarm must be installed adjacent to each sleeping area of the residence. As the F.P.P.A. has also been revised to address "unsafe levels of carbon monoxide" the fire service has been tasked with monitoring compliance with this legislation. Recent experience has shown that fire departments are amending their Smoke Alarm Programs to include carbon monoxide alarms as well.

The Brantford Fire Department has two policies directly related to smoke alarms and carbon monoxide detector programs, namely Policy 2.26 and Policy 2.26B. These policies are summarized below:

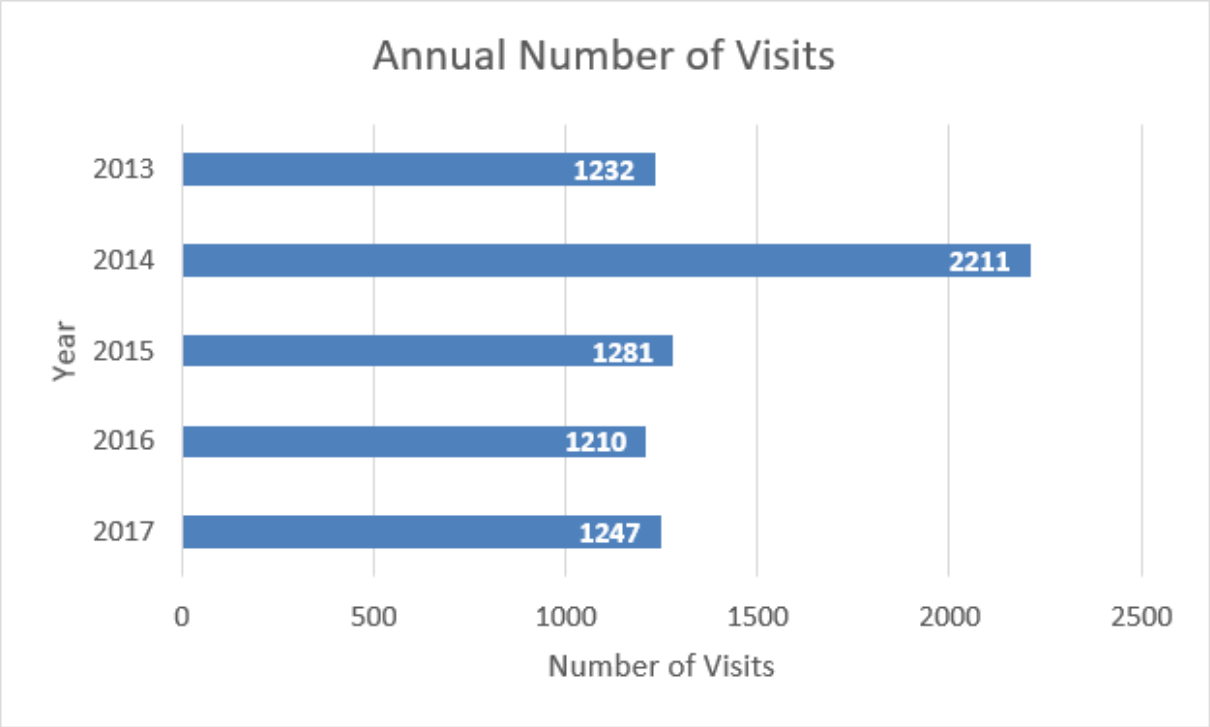
Policy 2.26 – Smoke Alarms Save Lives Door to Door Program describes the scope, procedures and parameters for conducting the program. The smoke alarm program is intended to fulfill legislative requirements established by the O.F.C., as well as to educate occupants on the importance of installing and maintaining a working smoke alarm. The policy indicates that the program is a cooperative effort between all divisions of the Brantford Fire Department, and establishes the Platoon Chiefs are responsible for monitoring the program and ensuring the entry of the program's statistics in the computer database.

Policy 2.26B Carbon Monoxide Alarm Program seeks to educate the public on the benefits of a working carbon monoxide alarm and monitor compliance with the O.F.C.

Statistical information related to the programs have been provided by the department and include a record of the number of dwelling visits for the years 2013 to 2017 and the quantity of smoke alarms, carbon monoxide alarms and batteries that were installed on

those visits. The total number of visits for a five year period is depicted in **Figure 7**. The number of alarms and batteries installed is shown in **Table 18**.

Figure 7: "Smoke Alarms Save Lives" Program Visits (2013-2017)



Source: B.F.D.

Program statistics indicate that of the 1,247 total visits for the year 2017, persons were not at home 22% of visits, verbal compliance without entry accounts for 13%, while entry was gained during 65% of the visits.

Table 18: Smoke Alarms, Carbon Monoxide Alarms and Batteries Installed (2013-2017) (Source: B.F.D.)

Installed	2013	2014	2015	2016	2017
Smoke Alarm(s)	250	280	185	166	231

Installed	2013	2014	2015	2016	2017
Carbon Monoxide Alarm(s)	134	317	203	202	267
Batteries	n/a	256	151	135	111

The number of smoke and carbon monoxide alarms installed between the years of 2013 and 2017 is not insignificant. While the number of batteries installed declined substantially between 2014 and 2017, the number of alarms installed has not. While the work of the B.F.D. in this regard is commendable, the numbers indicate public behaviour is not changing as a result of the current public education efforts in this area. In our view the City should consider implementing a more proactive, and coordinated communication strategy in this area that considers alternative communication strategies such as social media, and a more enforcement based approach to smoke and carbon monoxide alarm compliance. In our experience, working with the City's Communication Division to educate the public about the monetary penalties for non-compliance is an important component of this type of strategy.

Operational Recommendation #26: That in consultation with the City's Communication Division and Council consideration be given to the utilization of enhanced public education including social media, and enforcement related to home smoke alarms and carbon monoxide legislation compliance.

6.16 Proposed Public Education Programs and Cycles

In terms of enhancing the current public education programs and activities and optimizing the first two lines of defence, there are two key priorities: enhance and expand public education programs; and establish a public education cycle that is prioritized based on risk.

6.16.1 Enhanced Child/Youth Education Program

The department currently prioritizes the delivery of its public education programming to children in Grades two, four and six. This program typically targets a demographic of children between the ages of 7 to 11, depending on their birth date. The findings of the

C.R.A. indicate that 18% of Brantford's current population (2016 Census) is comprised of children/youth between the ages of 0 to 14. While only 1% higher than that of the province, the proportion of children aged 0-14 living in Brantford is significant. **Table 19** identifies the **"key risks"** related to children/youth between the ages of 0 to 14.

Table 19: Identified Key Risks – Related to Children/Youth

C.R.A. Key Risks Analysis Outcomes	Line of Defense for Consideration
Children aged 14 years and under, account for 18% of the City's total population.	1st Line of Defense

Findings of the C.R.A. support the development of enhanced public education programming that also targets children/youth aged 0-6 and those from 12-14 . This would reflect current industry best practices that target formalized public education programs for children/youth while they are still in the elementary level school system. Teaching children/youth fire safety education during their early development years has proven to be an effective strategy towards changing human behaviour as they age. Other emergency services across the province such as the police services have utilized this strategy to educate children/youth through programs such as the Drug Abuse Resistance Education (D.A.R.E.) program.

The implementation of this program will require further consideration of the available resources in the Fire Prevention Division. This will be discussed within the proposed organizational structure of the department to be presented in later section of this Master Fire Plan.

Operational Recommendation #27: That consideration be given to enhancing the existing child/youth fire safety education program to target all children in the 0-14 age category as presented within the proposed Master Fire Plan.

6.16.2 Enhanced Adult Fire Safety Program

The Brantford Fire Department has developed effective programs designed specifically for the senior demographic within the City through partnerships with the Victorian Order of Nurses (Remember When Coalition) and the Canadian Association of Retired Persons in Brantford (C.A.R.P. Senior Showcase). **Table 20** identifies the **"key risks"**

included within the C.R.A. related to the evolving senior's population within the community. This analysis indicates that seniors (individuals 65 years of age or older) represent 17% of the City's total population, very similar to the proportion of youth within the City, as discussed in the previous section. Additionally, 28% (2016 Census) are between the ages of 45 and 64, indicating a large proportion of the City's population are moving towards the senior's demographic of 65 or over.

Table 20: Identified Key Risks – Related to Adults

C.R.A. Key Risks Analysis Outcomes	Line of Defense for Consideration
Based on the 2016 Census, seniors represent 18% of the total population of the City of Brantford.	1st Line of Defense
The total population of Brantford includes a component of 28% of people between the ages of 45 and 64 who are aging towards the seniors demographic of 65 years and older.	1st Line of Defense

In our view, this information supports the need to consider developing a dedicated adult/seniors fire safety education program. The B.F.D. has shown the capacity to develop community partnerships to support many of its programs. Enhancing existing community relationships and investigating additional partnerships may also be an effective strategy for consideration towards developing and implementing the proposed adult/seniors fire safety education program.

As referenced in the previous section, the implementation of this program will also require further consideration of the available resources in the Fire Prevention Division. This will be discussed within the proposed organizational structure of the department to be presented in later section of this Master Fire Plan.

6.17 Proposed Public Education Cycle

Building on the proactive programs and partnerships in place, there is an opportunity to further define objectives for public education. Implementing goals and objectives for conducting public fire safety education activities and programs is consistent with responding to the strategic priorities identified within this M.F.P. This would include developing regularly scheduled public education programs and activities (cycles) for

providing fire safety education to the various occupancies classifications identified in the Community Risk Assessment. Developing a cycle provides the opportunity to prioritize the delivery of fire safety education programs based on the results of the C.R.A. specifically for vulnerable demographics identified.

Dillon's research into developing fire safety program delivery cycles looked at the relevant N.F.P.A. standards, P.F.S.G.s and industry best practices. **Table 21** reflects the proposed public fire safety education activities and program delivery cycles utilizing the Ontario Building Code (O.B.C.) occupancy classifications. These are presented to form a component of the proposed performance objectives for each of formalized public education programs identified above.

It is recommended that subject to consideration and approval, the proposed public education cycle be included within the department's fire prevention policy to identify public education service level for the City of Brantford.

Table 21: Proposed Public Safety Education Activities and Programs Delivery Cycle Objectives

Occupancy Classification (O.B.C.)	Buildings	Proposed Fire Safety Program Delivery Cycle Objectives
Group A – Assembly	Schools, Recreation Centres (Arenas), Curling/Golf Centres	1 – 2 Years
	Licensed Properties, Nursery/Day Care Facilities, Churches, Special Occasion Permits	1 – 2 Years
Group B – Care or Detention	B2, B3, and Retirement Homes	Annual

Occupancy Classification (O.B.C.)	Buildings	Proposed Fire Safety Program Delivery Cycle Objectives
Group C – Residential	Apartments regulated by Part 9.3 of the O.F.C. Apartments regulated by Part 9.5 of the O.F.C. Apartments regulated by Part 9.8 of the O.F.C. Hotels, Motels, and occupancies regulated by Part 9.9 of the O.F.C. Home Inspection Program	1 -2 Years 1 – 2 Years 1 – 2 Years 3 – 4 Years Annually
Group D - Business	Business and Personal Services Occupancies	Upon Request/Complaint
Group E - Mercantile	Mercantile Occupancies	3 – 4 Years
Group F - Industrial	Factories and Complexes	3 – 4 Years

Recognizing the enhanced public education programs and cycles to sustain the City's legislated responsibilities, it is recommended that the proposed Fire Prevention Policy include the following formalized programs that include performance objectives to define the goals and objectives of each program and report on the number of activities conducted annually within each program including:

- Media releases and public safety announcements;
- Smoke alarm, C.O. alarm, and home escape planning;
- Public fire and life safety events and displays;
- Awareness and targeted education programs, such as students, seniors, and fire-safe living; and
- Fire Prevention Week, community event activities.

Council Recommendation #3: That subject to Council's consideration and approval of an Implementation Plan that the proposed public education cycles included within the proposed Master Fire Plan be approved and included within the proposed Fire Prevention Policy.

6.18 Proposed Public Education Staff Resource Strategy

The analysis within this M.F.P. and the proposed strategic priorities include that **"Where applicable the optimization of the first two lines of defence including public education and fire prevention, and the utilization of fire safety standards and fire code enforcement to provide a comprehensive fire protection program within the City".** The department has recognized the importance and value of public education by assigning one of the Fire Prevention Officers with the responsibility to deliver the department's current public education program on an interim basis. This is discussed further in **Section 6.3.3**.

Based on the findings of the C.R.A. this M.F.P. proposes the implementation of additional public education programs targeted at children, youth and adults. The plan also proposes a cycle for the delivery of the proposed public education program. It is recommended that the City prioritize the hiring of a dedicated full-time Fire and Life Safety Educator (additional F.T.E.) with the skills and competencies defined within the N.F.P.A. 1035 - Fire and Life Safety Educator Level II standard.

Council Recommendation #4: That the City prioritize the hiring of a dedicated full-time Fire and Life Safety Educator as proposed by the Master Fire Plan.

6.19 Records Management and Technology

Currently, Fire Prevention Division records are kept in a variety of different software programs including SharePoint, Access and CriSys. Hardcopies of all documentation relating to fire safety inspections are stored in a paper file system in the fire prevention division work space.

The current fire inspection program includes an inspection checklist that is used by F.P.O.s while in the field, as the divisional staff has been directed to prepare their notes and correspondence in the field in an effort to reduce travel to and from headquarters. While personnel have modified the inspection program in-house, neither the issued iPads, nor the inspection templates used are ideal, requiring redundant and inefficient data entry processes. Compliance is not tracked and the checklist utilized by division staff during fire safety inspections does not populate a report. The iPads are becoming slow and less reliable. Replacement of the iPads with a rugged device or laptop/tablet hybrid, designed for field work, should be considered a priority for the department.

Ideally, the devices should be equipped with WiFi, a camera, battery capacity for 8-10 hours minimum, preferably with a dual battery or exchangeable battery.

Through the internal engagement component of the Master Fire Plan process, we learned the current fire prevention computer software is only being used by the Division to document fire cause determination. There was debate whether further training would be helpful to more fully utilize the current computer software, or whether the department may be better served by investing in a newer more fully integrated computer software. Concerns related to the support available from the current software supplier were also raised. The use of a fully integrated computer software program, enables fire department staff of all divisions to streamline the required documentation processes.

One of the functions of the new position of the Technical Systems Engineer is to research both software and hardware solutions for the department. It is our understanding that investigating technologies will be a key focus for the Technical Systems Engineer in the short term.

6.20 Fire Prevention Division Summary and Recommendations

The analysis presented within this Master Fire Plan confirms that the City of Brantford is currently achieving its legislative requirements identified within the Fire Protection and Prevention Act for the delivery of public education and fire prevention programs. Sustaining and enhancing the fire prevention and public education programs provided by the B.F.D. should be considered a key element of the City's growth strategy. This is supported by the recommended strategic priorities presented within this M.F.P including:

"Where applicable, the optimization of the first two lines of defence including public education and fire prevention, and the utilization of fire safety standards and fire code enforcement to provide a comprehensive fire protection program within the City."

This M.F.P. has been informed by the findings of a Community Risk Assessment that was commissioned by the City in recognition of the new Ontario Regulation 378/18: Community Risk Assessment that comes into force on July 1, 2019. In our view commissioning the completion of the C.R.A. as a component of this master fire planning process further confirms the City's commitment to strategic community planning.

In response to the **"key risks"** and **"key findings"** identified by the Community Risk Assessment the analysis and recommendations for the Fire Prevention Division identify the opportunity for the B.F.D. to further enhance its fire prevention and public education programs including proposed delivery cycles. Recommendations are also presented that align with the proposed strategic priorities of the M.F.P. including new proposed public education programs targeting vulnerable demographics within the community including children and seniors.

Our review of the Fire Prevention Division suggests staff have received considerable training relating to fire prevention and investigations. Training related to the Ontario Building Code and enforcement options available under the F.P.P.A., as well as broader Chief Fire Official delegation for the C.F.O. is recommended. This M.F.P. includes a recommendation to implement a process for tracking performance indicators to assess the existing and future workload within this division. In our experience this process will be extremely beneficial to staff and Council in further understanding the staff resource needs to deliver the proposed fire prevention and public education programs to a growing community. In our view there is an existing identifiable need to prioritize the hiring of a dedicated full-time Fire and Life Safety Educator with the skills and competencies to deliver the proposed public education program that has been developed based on the findings of the C.R.A.

The following recommendations are presented for Council's consideration and approval regarding Fire Prevention and Public Education:

Council Recommendations:

2. **That subject to Council's consideration and approval of an Implementation Plan that the proposed fire inspection cycles included within the proposed Master Fire Plan be approved and included within the proposed Fire Prevention Policy.**
3. **That subject to Council's consideration and approval of an Implementation Plan that the proposed public education cycles included within the proposed Master Fire Plan be approved and included within the proposed Fire Prevention Policy.**
4. **That the City prioritize the hiring of a dedicated full-time Fire and Life Safety Educator as proposed by the Master Fire Plan.**

Operational Recommendations:

13. **That those positions within the department that are designated as Chief Fire Officials be confirmed through a formal delegation of authority report.**
14. **That the Fire Chief develop a strategy for all Fire Inspectors and staff assigned to public education to attain and sustain professional qualifications presented within the proposed Master Fire Plan.**
15. **That By-law No. 215-80 be rescinded, and that the current Fire Prevention Policy be updated for consideration and approval by Council and inclusion within the proposed updated Establishing and Regulating By-law as an appendix.**
16. **That consideration be given to expanding the current activities reporting of the Fire Prevention Division to Council as referenced within the proposed Master Fire Plan.**
17. **That consideration be given to developing a policy for responding to all fire inspection requests, and complaints as referenced within the proposed Master Fire Plan.**
18. **That consideration be given to rescinding Policy 3.5 Solid Fuel Burning Appliances-Inspection Procedures and revising By-law No. 188-2017 to remove reference to performing this type of service.**
19. **That consideration be given to discontinuing the practice of conducting W.E.T.T. inspections.**
20. **That Policy 3.14-Fire Investigations be revised to include establishing certifications and qualifications for personnel conducting fire investigations.**
21. **That Policy 3.19- Contacting Ontario Fire Marshal Investigator be updated to reflect the criteria for notification of the O.F.M.E.M. as set out in Fire Marshal's Directive 2015-02.**
22. **That the department review the benefits of utilizing computer software to conduct fire suppression pre-plans, the need for further coordination of pre-planning efforts and prioritizing high risk occupancies.**
23. **That consideration be given to formalizing the roles and responsibilities of City departments to conduct plans review as referenced within the proposed M.F.P.**
24. **That the B.F.D. implement a process for tracking performance indicators to assess the existing and future workload within the fire inspection area to**

support the need for additional resources in this area as indicating within the proposed M.F.P.

25. **That the annual leasing costs for sustaining the fire department presence at the Children's Safety Village be considered a priority for the Brantford Fire Department.**
26. **That in consultation with the City's Communication Division and Council consideration be given to the utilization of enhanced public education including social media, and enforcement related to home smoke alarms and carbon monoxide legislation compliance.**
27. **That consideration be given to enhancing the existing child/youth fire safety education program to target all children in the 0-14 age category as presented within the proposed Master Fire Plan.**

7.0 Professional Qualifications & Standards Division

The B.F.D. is responsible for ensuring that all personnel receive the training necessary to meet the legislative requirements of the Fire Protection and Prevention Act, 1997 and the Occupational Health and Safety Act. The analysis within this section focuses on the delivery of training to the Suppression Division staff.

Dillon's experience and knowledge of the Ontario fire service indicates that firefighter training is an area that has come under a high level of scrutiny over the few past decades. The results of numerous inquests and investigations have concluded that firefighter training must be considered a priority for municipalities, in their role as employer, as fire service leaders, and as supervisors. The analysis within this section first presents a discussion around training standards and the options fire departments have in providing training. It then presents a discussion of training standards, specifically within the context of B.F.D. This is followed by an examination of the processes, programs, and resources currently in place in regards to training. This includes: division organization and staffing, training standards, annual training program, specialized training, live fire training, online training, company officer training and records management.

This master fire planning process has presented the importance of assessing community fire risk as a component of determining the appropriate level of fire protection services to be provided. The information and analysis within this section will present the importance of linking the applicable training requirements of the Professional Qualifications & Standards and Suppression Division staff with the level of fire suppression services to be provided by the B.F.D.

7.1 Division Key Functions

Key functions within the division highlighted by the B.F.D. include:

- providing resources and training materials;
- administering lesson plans;
- administering safety training;

- maintaining training records;
- reviewing and revising existing training programs and processes; and
- Investigating new procedures and equipment.

7.2 Training Standards and Qualifications

As referenced within **Section 6.4 -Training Standards and Qualifications – Fire Prevention Division Staff,** the N.F.P.A. Pro-Qual Standards are currently recognized as industry best practices within the Province of Ontario.

Table 22 illustrates the O.F.M.E.M.'s determination of concordance between the previous Ontario Fire Service Standards and the representative N.F.P.A. Pro-Qual Standards for all firefighters (full-time and part-time) and Training Division staff.

Table 22: Concordance of Ontario and N.F.P.A. Standards for Firefighters and Training Division Staff

Previous Ontario Standard	N.F.P.A. Pro-Qual Standards
Ontario Firefighter Curriculum	**N.F.P.A. 1001 Standard – Level I and Level II**
Company Officer Diploma Program	**N.F.P.A. 1021 Standard – Level I, Level II and Level III**
Training Officer Diploma Program	**N.F.P.A. 1041 Standard – Fire Instructor Level I and Level II**

The N.F.P.A. standards are intended to identify the required training for an individual to attain a recognized qualification related to a specific position's roles and responsibilities within the fire service. The N.F.P.A. training standards and related qualification do not consider, or require certification. Certification is completed by third party organizations such as the International Fire Service Accreditation Congress (I.F.S.A.C.) or the Fire Service Professional Qualifications System (ProBoard) which provide independent evaluation to measure individual performance as set by the standards. In Ontario, the legislation that requires an employer to train its staff is the Occupational Health and Safety Act.

To provide the training to attain the qualifications identified within these standards, there are several options available to departments including: Ontario Fire College (O.F.C.) and Regional Training Centres (R.T.C.s), outside or third party training, in-house training and out of province training opportunities.

7.2.1 Ontario Fire College and Regional Training Centres

One option is to enroll staff in training courses at the O.F.C. The O.F.C. is operated by the Office of the Fire Marshal and Emergency Management under the authority of the Ministry of Community Safety and Correctional Services. Courses are scheduled on an annual basis and offered at the O.F.C. in Gravenhurst and various R.T.C.s across the province. Course fees are affordable, but given high levels of interest by the 449 fire departments in Ontario, it can be challenging to enroll more than a few candidates in each program. This poses challenges for departments requiring training for a large number of candidates. This issue is further compounded as wait lists at the O.F.C. have increased for a variety of reasons in recent years. Courses generally run Monday to Friday, making overtime, travel costs and backfilling position requirements a notable budgetary consideration.

7.2.2 External or Third Party Training Organizations

A further option for training is to hire an external organization or individual qualified to teach a particular N.F.P.A. standard to deliver this training to department personnel. Because this training can be offered locally, there is greater scheduling flexibility, reducing overtime and eliminating travel costs.

Recent Coroner jury recommendations involving training exercise fatalities in Point Edward and Hanover, Ontario have identified the need to develop a provincially approved certification process for all trainers, including private, government and regulatory bodies. As such, municipalities should consider their due diligence in utilizing external organizations or individuals to provide training.

7.2.3 In-House Training

A third option is for the department to train and qualify its own instructing staff to an N.F.P.A. standard and then have this staff resource deliver the training in-house. Curriculum development and the work associated with staying current with the standards is time consuming and staff intensive, requiring a level of expertise that may

not be available within a fire department. However, the in-house option does provide opportunity for training to incorporate department specific considerations (e.g. operating guidelines, community risks, etc.) as well as greater flexibility with respect to scheduling, reducing the need for overtime, backfilling and eliminating travel time.

Currently, the O.F.C. is exploring an option of approving learning contracts whereby fire services may train using O.F.C. course materials, which provides the benefit of certification-ready courses without the cost of course development by the fire service and approval by the O.F.M.E.M. However, the audit process for courses delivered under learning contracts is still immature.

7.2.4 Out of Province Training

Out of province learning opportunities provide an additional training option. While travel costs may make this option cost prohibitive, there are some courses that are not yet offered in Ontario (e.g., N.F.P.A. 1031 Level III, Plans Examiner I and II, and N.F.P.A. 1041 Level III) that may be beneficial for staff.

7.2.5 Certification

Once qualification is obtained using one of options outlined above, the fire department may want to consider certification of their training curriculum. In circumstances where certification is desired, the curriculum must be approved by the O.F.M.E.M.'s Academic Standards and Evaluation (AS&E) section. Curriculum that has been approved by the AS&E can then be used repeatedly to train firefighters in the same or other jurisdictions within the province. In Ontario, a fire department can contact the O.F.M.E.M. to schedule a certification evaluation to a particular N.F.P.A. standard. The certification process is then governed by I.F.S.A.C. and ProBoard with the O.F.M.E.M. as the certifying organization in Ontario.

In many cases, successful qualification to an N.F.P.A. standard for the knowledge portion requires a 60% score and the ability to satisfactorily demonstrate skills described in the standard. For certification, the knowledge score requirement is typically 70%, making it a more stringent evaluation of training and skills development. Determining the type of training or standards to be used and whether to qualify or certify staff are all considerations for the fire department.

In summary, fire services in Ontario have multiple ways to train and qualify staff, with certification regulated by the Province. It is important to note that while neither qualification nor certification are required by legislation at this point in time, recent inquests involving issues with fire prevention and firefighter training have highlighted the importance of qualification and certification as industry best practices. It is reasonable to anticipate and prepare for regulation addressing the lack of legislated requirement to train and certify to N.F.P.A. standards.

7.3 Training Standards and Qualifications – Professional Qualifications & Standards Division

The B.F.D. recognizes the importance of training and utilizes the N.F.P.A. Pro-Qual Standards as the foundation for informing the training program for all staff. The B.F.D. also utilized the O.F.M.E.M. **"Grandfathering Policy"** to seek qualification for a number of department staff. This resulted in fire department personnel being recognized as qualified to N.F.P.A. 1041 Fire Service Instructor, N.F.P.A. 1021 Fire Officer, N.F.P.A. 1031 Fire Inspector, N.F.P.A. 1035 Fire Life Safety Educator and N.F.P.A. 1001 Firefighter standards. The B.F.D. grandfathering documentation was reviewed as part of the data collection process for this M.F.P. Details relating to the number of firefighters grandfathered to N.F.P.A. standards are included as **Appendix D** to this F.M.P.

7.4 Existing Professional Qualifications and Standards Division Staff Resources

The Professional Qualifications and Standards Division within the Brantford Fire Department is currently under the direction of the Deputy Fire Chief of Operations. The Chief Training Officer (C.F.O.), Assistant to the Training Officer (A.T.O.) Training Co-ordinators (referred to in **Policy 6.1 Trainer Co-ordinator/Training Schedules**) form the Professional Qualifications and Academic Standards Division. Professional Qualifications and Standards Division Staff structure is presented in **Figure 8**.

Figure 8: Existing Training Division Staffing and Structure

7.4.1 Chief Training Officer (C.T.O.)

The Chief Training Officer reports to directly to the Deputy Chief of Operations and is responsible for the training and education of all Brantford Fire Department personnel. The C.T.O. develops, coordinates and delivers training programs, assesses the performance of fire service personnel, monitors and evaluates training programs to ensure they remain current and meet the needs of the department, and also performs supervisory and administrative functions specific to the training division, including completing reports and maintaining training records and files.

7.4.2 Assistant to the Training Officer (A.T.O.)

The Assistant to the Training Officer assists the C.T.O. and performs similar function to the C.T.O. with the exception of Senior Management responsibilities. The A.T.O. reports directly to the C.T.O.

7.4.3 Training Co-ordinators

In addition to the C.T.O. and the A.T.O, the B.F.D. utilizes Training Co-ordinators to deliver training to fire suppression personnel. **Policy 6.1 Trainer Co-ordinator/Training Schedules** explains Acting Platoon Chiefs/Senior Captains are assigned the role of Training Co-ordinators of each Platoon at the discretion of the Platoon Chief. Responsibility for ensuring there are adequate numbers of qualified personnel to drive

apparatus is assigned to Training Co-ordinators under Policy 6.1 Trainer Co-ordinator/Training Schedules. Policy 6.1 also sets out the requirement of a minimum of three hours of training for each 24 hour shift, and one class per month relating to safety issues.

7.5 Annual Training Plan

Developing and delivering an annual training program for the Suppression Division is a legislated requirement of the City. The annual training program must provide the required training to achieve and sustain the required skills and competencies to provide the Council approved service operations levels, and address an employer's responsibilities as defined by the Occupational Health and Safety Act, specifically the Section 21 Guidance Notes for Firefighters.

As referenced in this M.F.P., all levels of service provided by the B.F.D. should be clearly defined by Council through an Establishing & Regulating By-law. In addition to the basic firefighting requirements, the By-law should clearly establish service levels for technical rescues which directly influences specialized training programs and related division staff resource needs. As described previously in the Administration Division section, the existing E & R By-law does not identify the current service levels of the B.F.D.

In addition to responding to relevant standards, curriculum and health and safety requirements, a comprehensive annual training program should include the following core functions:

- Identification of training needs in relation to services provided;
- Coordination/ scheduling of theoretical and practical training;
- Monitoring and evaluation in relation to outcomes achieved;
- Ongoing evaluation in relation to industry best practices and legislative requirements;
- Oversight of program objectives and records management; and
- Ongoing assessment of program delivery for efficiency and effectiveness.

Current industry best practices to ensure a department is achieving these requirements involve the formulation and monitoring of an annual training plan. The B.F.D. currently utilizes a five year training plan to outline the scheduling of the various training programs and activities planned during a five year period.

7.5.1 B.F.D. Five Year Training Plan

The B.F.D.s five year training plan for the period of 2018 to 2022 provides training schedules and objectives for firefighters, fire officers and the Professional Qualifications and Standards Division. Firefighter training includes the following:

- First Responder Certification;
- Emergency Medical Responder Certification;
- N.P.P.A. 1002- Standard for Fire Apparatus Driver/Operator Professional Qualifications;
- N.F.P.A. 1006- Standard for Technical Rescue Personnel Professional Qualifications, including Core Operations, Vehicle rescue, Ice Water, Rope Rescue, Bus Rescue, Swift Water, Confined Space, Trench Rescue, Heavy Truck Rescue, Structural Collapse);
- N.F.P.A. 1072- Standard for Hazardous Materials/Weapons of Mass Destruction Emergency Response Personnel Professional Qualifications, Operations and Technician levels
- N.F.P.A. 1403- Standard on Live Training Evolutions; and
- N.F.P.A. 1021- Standard for Fire Officer Professional Qualifications, Level I.

Fire officer training includes the following under the five year plan:

- Blue Card Certification;
- N.F.P.A. 1006- Standard for Technical Rescue Personnel Professional Qualifications, including Core Operations, Vehicle rescue, Ice Water, Rope Rescue, Bus Rescue, Swift Water, Confined Space, Trench Rescue, Heavy Truck Rescue, Structural Collapse);
- N.F.P.A. 1072- Standard for Hazardous Materials/Weapons of Mass Destruction Emergency Response Personnel Professional Qualifications;
- Media training (Chief Officers);
- N.F.P.A. 1521- Standard for Fire Department Safety Officer Professional Qualifications;
- N.F.P.A. 1021- Standard for Professional Qualifications for Fire Officers, Level II;
- N.F.P.A. 1031-Standard for Professional Qualifications for Fire Inspector and Plan Examiner, Level 1;

- N.F.P.A. 1041 – Standard for Fire and Emergency Services Instructor – Level I

The five year training plan for the Professional Qualifications and Standards Division consists of:

- N.F.P.A 1006- Standard for Technical Rescue Personnel Professional Qualifications, including Core Operations, Rope Rescue, Confined Space, Trench Rescue, Structural Collapse), Train the Trainer;
- N.P.P.A. 1002- Standard for Fire Apparatus Driver/Operator Professional Qualifications;
- N.F.P.A. 1072- Standard for Hazardous Materials/Weapons of Mass Destruction Emergency Response Personnel Professional Qualifications, Technician Level Train the Trainer;
- N.F.P.A. 1031-Standard for Professional Qualifications for Fire Inspector and Plan Examiner, Level I, development; and
- Emergency Medical Responder, Train the Trainer.

The five year training plan provides a framework for progression for personnel to develop as a firefighter and eventually a fire officer, including captain and platoon chief exam opportunities. Consideration should be given to developing one comprehensive training program for the department that includes specific performance goals and objectives for each program.

Operational Recommendation #28: That consideration be given to further enhancing the current Five Year Training Program by adding performance goals and objectives to be included within a consolidated Operating Guideline defining the departments training program.

7.6 Technical Rescue Training Program

In addition to basic firefighting training, the department must also consider the training needs associated with technical rescues services, such as automobile extrications. Technical rescues are considered those services that require a higher standard of training. The health and safety requirements for firefighters during technical rescue operations can be high. The level of training required should be established through the

identified service levels for each technical rescue service approved by Council and included within the Establishing and Regulating By-Law.

The three levels of training as established in **N.F.P.A. 1670 Standard on Operations and Training for Technical Search and Rescue Incidents** are:

1. Awareness Level – reflecting the minimum capability of organizations;
2. Operations Level – reflecting the capability of organizations to respond, use equipment, and apply techniques to support and perform a technical rescue; and
3. Technician Level – reflecting the capability of organizations to not only provide the Operational Level services but also to coordinate, perform, and supervise a technical rescue.

Sustaining the high degree of training for all firefighters participating in these responses, including qualifications, in order to safely and efficiently provide these specialty technical rescue programs to the City of Brantford, requires substantial training resources. This includes proper training equipment, props, and opportunities for a range of services (e.g., vehicles for auto extrication). Personnel must also be available to deliver the specialty programs. In part because these resource implications are linked to the identified service levels, it is important that service levels for technical rescues are approved by Council and align with community risk. Although the current Establishing and Regulating By-law does not identify service levels for technical rescues, the City's 2018 Municipal/N.F.P.P Fire Protection Profile, submitted to the Office of the Fire Marshal and Emergency Management on June 21, 2018, identifies the following service levels as those provided by the B.F.D.

Table 23: B.F.D. Technical Rescue Services

Service	Service Level
Hazardous Materials Response	Operations
Water/Ice Rescue	Technician
Confined Space Rescue	Level not specified
High Angle Rescue	Level not specified

Service	Service Level
Auto Extrication	Level not specified

In our experience the financial commitments related to training personnel, and to procure and maintain the necessary equipment required to conduct specialty rescue responses need to be balanced with the desire to reduce the identified risk and liability to both personnel and the public.

Historically, the Brantford Fire Department, and many other fire departments have contracted with third parties to provide Train the Trainer opportunities, enabling in-house staff to become instructors for specialty rescue programs. In the past, the Brantford Fire Department has contracted with 'Advance Rescue' to train staff, in turn providing training to other personnel. This approach can be a cost effective strategy, eliminating the need for staff to travel to the Ontario Fire College or Regional Training Centre and reducing overtime costs. In our view the inquests into two separate firefighter training deaths have highlighted concerns relating to third party contractors and the need for the B.F.D. to continue its due diligence with respect to contractors' qualifications and lesson and safety plans in place for training sessions.

7.6.1 Hazardous Materials (HazMat) Response

As previously stated, the 2018 Municipal/N.F.P.P. Fire Protection Profile currently identifies the level of service for Hazardous Materials Response as operations level, indicating that in addition to providing response, the B.F.D. is to be prepared to use equipment, and apply techniques to support and perform a technical rescue. This level of response requires personnel and equipment capacity and capability on a 24/7/365 basis for a Hazardous Materials Response. Industry best practice relating to the training requirements to perform HazMat response at an operations level begins by successfully completing a one day Hazardous Materials Awareness program. Following successful completion of the awareness level training, individuals are required to participate in four days of training in HazMat Operations, in addition to successfully completing practical sign offs and theoretical examinations. Hazardous Materials Operations Level training is currently offered by Professional Qualifications and Standards Division personnel to all B.F.D. personnel.

As outlined above, the current level of training requires, at minimum five full days of training (one for awareness level and four for operations level), and additional time for sign-offs and testing. In our view it is important to recognise the level of effort and staff resources required to delivery this program.

7.6.2 Water Related Technical Rescues

There has been significant attention drawn to the delivery of water rescue as a result of a recent Coroner's inquest related to a firefighter training exercise. The recommendations of the May 2017 inquest recommended that all swift water rescue training be put into abeyance until such time as the 15 recommendations of the jury have been addressed. The 2018 Municipal/NFPP Fire Protection Profile indicates the B.F.D. currently performs water rescue and ice to the Technician level.

The findings of a May 2017 Coroner's Inquest highlight the need for stringent training requirements for firefighters to facilitate any type of rescue where water or ice is present. The presence of these elements present conditions that warrant very careful consideration of the services the B.F.D. should be providing, however, as identified in the Community Risk Assessment, the Grand River runs through the City, drawing both residents and non-residents to water related activities. In our view, the presence of the Grand River necessitates a water rescue team. The O.F.M.E.M. emergency response codes do not specifically identify a surface water rescue. As such the Community Risks Assessment did not identify water rescue as a key risk.

Policy 2.36 -Fire Operations near Water provides direction when firefighting operations are necessary near open water. The direction includes personnel not involved in firefighting wearing a Personal Floating Device (P.D.F.) when within 15 feet of a water source. Requirements relating to tethering in slippery or sloped conditions are also identified under the policy.

Policies 2.37 and 6.19- Ice/Water Rescue provide personnel with direction that shore based rescue is the preferred method of rescue relating to water. Personnel are directed to adhere to the Talk, Reach, Throw, Row and Go approach, using boat based operations (row) only when the situation necessitates and no other rescue method can safety and successfully be accomplished; and using a go rescue as an absolute last resort for water rescue. The policy also sets out the protocol for downgrading a rescue to a

recovery mode, including the Incident Commander's determination that the safety of on scene personnel is jeopardized or there is no reasonable chance of victim survival.

7.6.3 Trench Rescue and Confined Space Entry and Rescue

Policies 2.42 and 6.21- Trench Rescue provide guidance for operations involving trench rescue, while **Policies 2.41 and 6.20 - Confined Space Entry and Rescues** provides guidance for operations involving entry into a confined space for rescue or recovery. The policies set the minimum level of training for both trench rescue and confined space rescue as awareness level, but neither policy limits the level of service provided for either specialty rescue. The policies state: "The minimum level of training is not to be interpreted to mean that this Department will only respond with "Awareness" capabilities. Without Council approved levels of service, the Incident Commander may be forced to make difficult decisions at an emergency scene, at a time when the stakes may be very high. Including approved levels of service in the Establishing and Regulating By-law ensures there are the expectations and responsibilities of both the City and the Fire Department are recognized.

7.6.4 Technical Rescue Summary

As referenced in the preceding sections, providing technical rescue services requires a high degree of training and competency. As such it is very important that a municipal Council determine the level of technical services to be provided, and that the department training program support those levels of service. More recently municipalities across the province have been attempting to develop partnerships with neighbouring communities and/or contracting these services from other suppliers. For example, **Policy 4.6 Rescue Calls from Brantford Power** indicates the Brantford Power has retained E.H.S. Canada Inc. of Smithville to manage incidents involving confined spaces.

The C.R.A. identifies the high probability of an automobile accident occurring that may require the fire department to conduct an extrication of a person that is trapped in a vehicle. In our view this supports the need for the B.F.D. to be highly trained in auto extrication (technician). The findings of the C.R.A. also identify the presence of the Grand River and the potential for a water, or ice related incident occurring. As such there is sufficient probability of an incident that the B.F.D. should be trained and prepared to respond and conduct water/ice rescue at the technician level.

Based on the findings of the C.R.A. and our experience the B.F.D. should further consider the utilization of agreements with neighbouring communities and public/private partnerships for the other technical rescues identified. This strategy would still require members of the B.F.D. to be trained to a minimum of the awareness or operational level, but provide access to other agencies for more highly technical rescues that occur less frequently. **Table 24** presents the proposed level of technical rescue services to be provided by the B.F.D.

Table 24: Proposed Technical Rescue Services

Service	Service Level	External Services Partnership/Agreement
Hazardous Materials Response	Operations	Technician
Water/Ice Rescue	Technician	n/a
Confined Space Rescue	Operations	Technician
High Angle Rescue	Operations	Technician
Auto Extrication	Technician	n/a

Operational Recommendation #29: That consideration be given to developing agreements with neighbouring communities and/or the private sector for the provision of more highly qualified technical rescue services as referenced within the proposed M.F.P.

7.6.5 Brantford Airport

The Brantford Airport is located outside of City's boundaries, in very close proximity to Brantford. In our view, there is value in training with the County of Brant Fire Department to ensure personnel have familiarity with the expectations of an airport response. Policy 2.14 Brantford Airport/Aircraft Emergencies addresses protocol in the event of an aircraft or airport emergency.

7.6.6 Live Fire Training

The purpose of live fire training is to provide realistic fire training simulations under safe and controlled conditions. Live fire training exercises are intended to simulate the actual

fire conditions that a firefighter may encounter and simulate heat, humidity, restrict vision and smoke conditions. This type of training is also very beneficial for firefighters, and particularly fire officers, such as captains, to better understand fire behaviour (including identifying evolving smoke conditions as they may relate to the potential for fire extension or conditions such as a "flashover").

To obtain live fire training, personnel attend the Six Nations Fire and Emergency Services Training Academy, the Ontario Fire College or one of the Regional Training Centres with a live fire training capability. The O.F.M.E.M. also supports the Ontario fire service by providing training on a regional basis. Industry best practices indicates that firefighters should be participating in live fire training exercises at a minimum on an annual basis, and where available as often as possible. This type of hands on training and exposure to heat and smoke conditions should be considered as a mandatory element of a comprehensive training program.

Live fire training is delivered in the spring and fall each year, following N.F.P.A. 1403-Standard on Live Training Evolution, and Section 21 Firefighter's Guidance Note 7-5: Live Fire Training Considerations for Acquired Structures, both of which are considered best practices.

7.6.7 Online Training

Access to online training programs can provide greater flexibility in delivering content within a comprehensive training program. On-line training for the B.F.D. is currently limited to Behavioural Health and Wellness and Fire Ground Survival courses offered in an on-line format by the International Association of Fire Fighters and Pipeline training provided by Enbridge Gas.

In our view, there is value to incorporating e-learning into a fire department's Professional Qualifications and Standards Division, such as instructional videos demonstrating proper use of a new piece of equipment, a way in which to share a lecture or lesson that has been previously recorded, or using an on-line forum to encourage personnel to engage on a particular topic.

Many on-line learning platforms maintain a record of the courses completed. Used in conjunction with a fire department records management system, many on-line learning program provide a documented training record for all fire department personnel. These

courses can be self-delivered or supervised and delivered by qualified instructors. On-line learning options provide the opportunity for both full time and part time personnel with flexible access, whether on shift or at home. Courses contain learning activities and materials presented in a logical, familiar fashion. Use of technology such as this would allow the B.F.D. to build and customize its own training course content, with some systems allowing courses to be shared with other fire departments. We are familiar with programs for all firefighter and company officer subjects and has been revised to reflect the transition to the N.F.P.A. firefighter training programs adopted by the O.F.M.E.M. The Technical Systems Engineer position would be well positioned to investigate on-line training options on behalf of the B.F.D.

Operational Recommendation #30: That consideration be given to expanding the use of on-line training opportunities as a component of the proposed Comprehensive Training Program for all members of the B.F.D.

7.6.8 Training Facilities

The B.F.D. does not currently have a dedicated training facility that is designed to specifically meet the training needs of the B.F.D. As such the department relies on access to other facilities to deliver the departments training program. For example, the department utilizes the Six Nations Fire and Emergency Services Training Academy to facilitate live fire training. The department also utilizes a vacant property within the City as a space to provide outdoor training opportunities and the City's Emergency Operations Centre to provide classroom training.

These options have served the department well, and have provided a cost effective alternative for delivering the departments training program. In our view this should not restrict the department from seeking new, or additional partnerships to enhance access to training facilities in the future.

Operational Recommendation # 31: That the B.F.D. continue to evaluate strategies to deliver practical training including investigating opportunities with other stakeholders for a B.F.D. Training Facility.

7.7 Company Officer Training

The fire service is a paramilitary organization that relies on a rank structure to manage the roles and responsibilities of the organization and the operational services it delivers.

This structure needs to include an appropriate span of control in order to be efficient and effective.

A sufficient number of Company Officers are also required to ensure the function of incident command can be implemented at all emergency scenes, and depending on the incident action plan, have sufficient additional officers to facilitate other roles such as sectoring of the scene, and Safety Officer.

Municipalities are required to ensure a sufficient number of supervisors (officers) are trained to oversee the workforce. Within the Occupational Health and Safety Act, Part III, Duties of Employers and Other persons, Section 12, subsection (2) states that: "Without limiting the strict duty imposed by subsection (1), an employer shall,"(c) when appointing a supervisor, appoint a competent person;"

As an employer, the City of Brantford is legislated by this section of the O.H.S.A. to ensure that all supervisors, which includes the role of incident commander, be competent.

The O.H.S.A. defines a "competent person" to mean a person who:

(a) "is qualified because of knowledge, training and experience to organize the work and its performance,
(b) is familiar with this Act and the regulations that apply to the work, and
(c) has knowledge of any potential or actual danger to health or safety in the workplace."

While the B.F.D. recognizes the importance of a sufficient number of company officers, the consultation process in developing this Master Fire Plan identified a need to enhance the existing Company Officer training program. Company Officer training is currently focused on the promotional process for new Company Officers and Officers advancing through the rank system. Company Officer training does not occur on a regular basis to ensure skills and competencies are retained, and new or advanced training is provided.

Industry best practices reflect that a Company Officer training program should be ongoing as an element of a broader Officer Development Program. This strategy further supports the need for Company Officers to have a diverse set of skills and competencies that in addition to required fire suppression qualifications include **N.F.P.A. 1041 –**

Standard for Fire and Emergency Services Instructor – Level I, **N.F.P.A. 1031-Standard for Professional Qualifications for Fire Inspector Level 1 and N.F.P.A. 1035 - Fire and Life Safety Educator Level 1**.

Operational Recommendation #32: That the B.F.D. further develop the current Company Officer training initiatives into a comprehensive Officer Development Program.

7.7.1 Incident Command Training

Incident Command Training is considered a core element of Company Officer Training. Guidance Notes to protect the health and safety of firefighters are developed by the Ontario Fire Service Section 21 Advisory Committee and distributed by the Ministry of Labour. **Firefighters Guidance Note #2-1 – Incident Command** reflects the importance of having an Incident Command System. This guidance note references a number of recognized systems including the **"Phoenix Fireground Command System"** which was developed by Alan V. Brunacini, the former Fire Chief of the Phoenix Fire Department.

Incident Command System (I.C.S.) is designed to positively affect the outcome of an emergency scene operation and the health and safety of firefighters. These systems can have a dramatic effect on the efficiency and effectiveness of the emergency response and safety on the emergency scene. This includes all incidents that the fire department may respond to including the fireground, hazardous materials incidents, automobile extrications, water/ice rescues and any other incident the fire department responds to where emergency responders and apparatus must be coordinated.

Incident command should be established by the first arriving officer and be sustained until the emergency is mitigated. The Incident Commander (officer) is responsible for all aspects of managing the emergency incident including developing an **"Incident Action Plan**" and managing all operations on scene. This includes:

- Establish immediate priorities, especially the safety of responders, other emergency workers, bystanders, and people involved in the incident;
- Stabilize the incident by ensuring life safety and managing resources efficiently and cost effectively;
- Determine incident objectives and strategies to achieve the objectives;
- Establish and monitor incident organization;

- Approve the implementation of the written or oral Incident Action Plan; and
- Ensure adequate health and safety measures are in place.

In addition to setting out the responsibilities of the Incident Commander, **Policy 2.2 Incident Management System** describes the functions of command, provides fireground objectives and identifies benchmarks. The B.F.D. is currently utilizing the Blue Card training program to facilitate its incident command training.

7.7.2 Blue Card Command

B.F.D. personnel are enrolled in the Blue Card Fire Command training program once they become acting captains. One member of the department has completed the one-week instructor program, enabling the B.F.D. to train officers in house representing a cost effective efficient strategy to providing this incident command training. The department current five year training plan includes Blue Card training for ten captains in 2018 and five captains in each of years 2019-2020, with additional training if required to be completed in subsequent years.

The Blue Card Command program is based on the work of Fire Chief Brunacini and is of one of the most widely utilized programs in the fire service. The program utilizes both on-line and in-class simulation training which focuses primarily on Incident Command training for structural fire responses, but is applicable to all emergency incident responses. The review completed for this M.F.P. identified that this current approach to the provision of incident command training is serving the department well.

7.8 Respiratory Protection Program

The B.F.D. has a comprehensive Respiratory Protection Program that includes reference to the applicable O.H.S.A. Section 21 Guidance Note #4-9 Respiratory Protection Program. The Respiratory Protection Program is described in Policy 1.18R Respiratory Protection Program which provides direction relating to the care, maintenance and inspection of Self Contained Breathing Apparatus (S.C.B.A.).

7.9 Succession Planning

Similar to most medium to large fire full-time fire departments, the current B.F.D. approach to succession planning in essentially aligned with the promotional policies

outlined in the Collective Agreement to occur annually. Departments across the province are finding that they would benefit from a more proactive approach to succession planning. Such an approach could include developing a clear framework of skills and experience required for each position within the department. To expose staff to these opportunities, formal mentoring programs, job shadowing, cross training, or secondments are all options. In addition, a proactive succession plan helps assure senior staff and elected officials that there are trained and skilled candidates available in the event vacancies occur within the department.

Operational Recommendation #33: That the B.F.D. consider developing a defined succession plan to guide the career development of all members of the Brantford Fire Department.

7.10 Division Resource Plan and Staff Qualifications

In our view, the current organizational structure of the division provides sufficient staff resourcing to meet the current training needs of the department. Our review indicates that Professional Qualifications and Standards Division staff has sufficient qualification and certification to continue delivering training to B.F.D. personnel.

ALL staff resources delivering firefighter training should have the skills and competencies included within the N.F.P.A. 1041 – Instructor Level I. It is Dillon's interpretation of the N.F.P.A. 1041 standard that the City of Brantford should have at least one staff resource with the Instructor Level II accreditation. Currently, both the Chief Training Officer and Assistant Training Officer have been qualified to N.F.P.A. 1041, Level II.

7.11 Professional Qualifications and Standards Summary and Recommendations

As referenced within this M.F.P. the fire service is undergoing a significant change through the transition to the N.F.P.A. Pro-Qual Standards. This change is impacting historical training programs, including additional training requirements for all department staff, and specifically those staff resources involved in firefighting. Other factors such as ongoing discussions regarding mandatory certification within the fire

service, and Coroner inquest recommendations have heightened the awareness of due diligence in this area on behalf of fire department and municipalities.

Our review of the training activities and resources has identified the following recommendations for consideration:

Operational Recommendations:

28. **That consideration be given to further enhancing the current Five Year Training Program by adding performance goals and objectives to be included within a consolidated Operating Guideline defining the departments training program.**
29. **That consideration be given to developing agreements with neighbouring communities and/or the private sector for the provision of more highly qualified technical rescue services as referenced within the proposed M.F.P.**
30. **That consideration be given to expanding the use of on-line training opportunities as a component of the proposed Comprehensive Training Program for all members of the B.F.D.**
31. **That the B.F.D. continue to evaluate strategies to deliver practical training including investigating opportunities with other stakeholders for a B.F.D. Training Facility.**
32. **That the B.F.D. further develop the current Company Officer training initiatives into a comprehensive Officer Development Program.**
33. **That the B.F.D. consider developing a defined succession plan to guide the career development of all members of the Brantford Fire Department.**

8.0 Fire Suppression Division

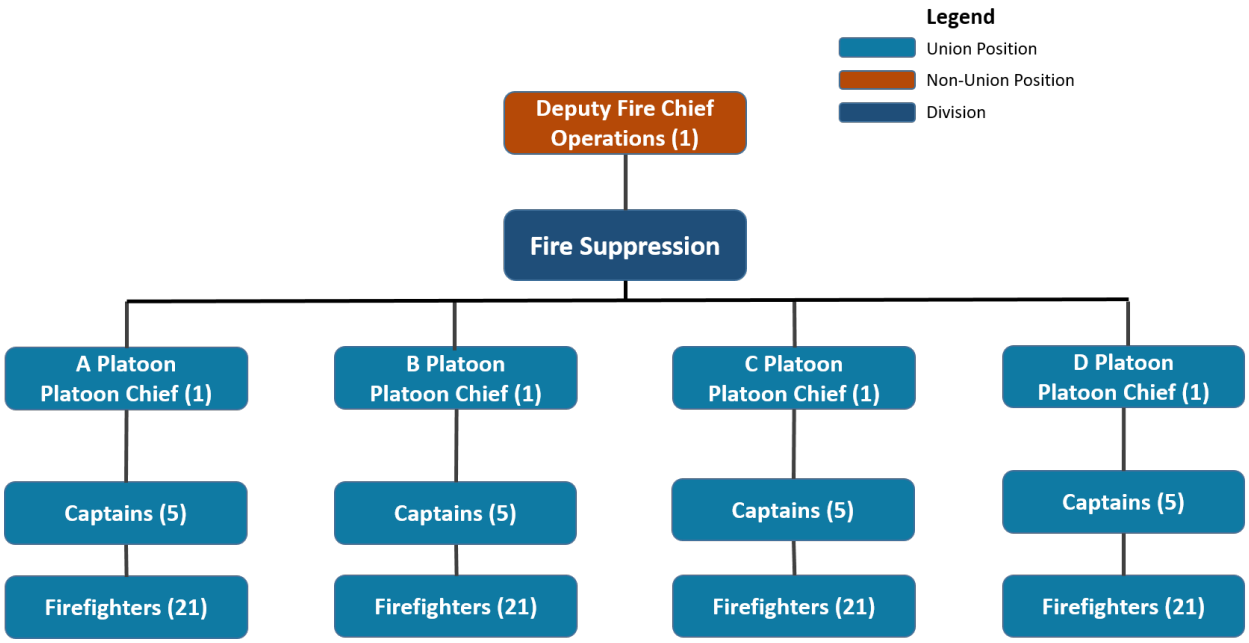
The Deputy Fire Chief of Operations is responsible for overseeing the management of the Fire Suppression Division. This division provides emergency response services including fire suppression, emergency medical, technical rescue, motor vehicle collision, and hazardous materials incident responses.

The review of this division assesses the operational staffing, resources and practices including fire stations, performance objectives, related industry best practices, deployment practices, calls for service, and emergency response performance. This assessment will compare the existing fire suppression capabilities of the B.F.D. (existing conditions) with the planned future growth and proposed community development (future conditions) in order to develop recommendations for the services provided by this Division.

The analysis within this report utilizes the findings of the C.R.A. and the optimization of the first two lines of defence (identified by the O.F.M.E.M.'s Comprehensive Fire Protection Model) as a strategy towards providing a cost effective and efficient level of fire protection services to the community. The B.F.D. Fire Suppression Division utilizes a four platoon system, with each of the four platoons consisting of a Platoon Chief, five Captains, and 21 firefighters.

Existing staffing and structure for the Fire Suppression Division are displayed in **Figure 9** below:

Figure 9: Existing Fire Suppression Division Staffing and Structure



8.1 Industry Best Practices and Performance Measures Review

The following section identifies industry best practices related to fire and emergency services operations. These practices will be compared to the existing B.F.D. performance. This plan includes recommendations to revise the existing performance measures in order to improve the effectiveness of B.F.D.

8.1.1 Importance of Time with Respect to Fire Growth

Time is a critical component with respect to the growth of a fire and the success of intervention by firefighters. Research conducted by the O.F.M.E.M. and National Research Council of Canada indicates that a fire in a non-sprinkler residential occupancy can spread from the room where the fire originates in ten minutes or less. Tests have shown that the fire can extend from the room of origin in as little as three minutes, under fast fire growth conditions.

Fire growth rates, defined by the Society of Fire Protection Engineers as slow, medium and fast, are listed in **Table 25**. The fire growth rates are measured by the time it takes for a fire to reach a one megawatt (MW) fire. This is roughly equivalent to an upholstered chair burning at its peak. A two MW fire is approximately equal to a large upholstered sofa burning at its peak.

Table 25: Time to Reach 1 MW and 2 MW Fire Growth Rates in the Absence of Fire Suppression

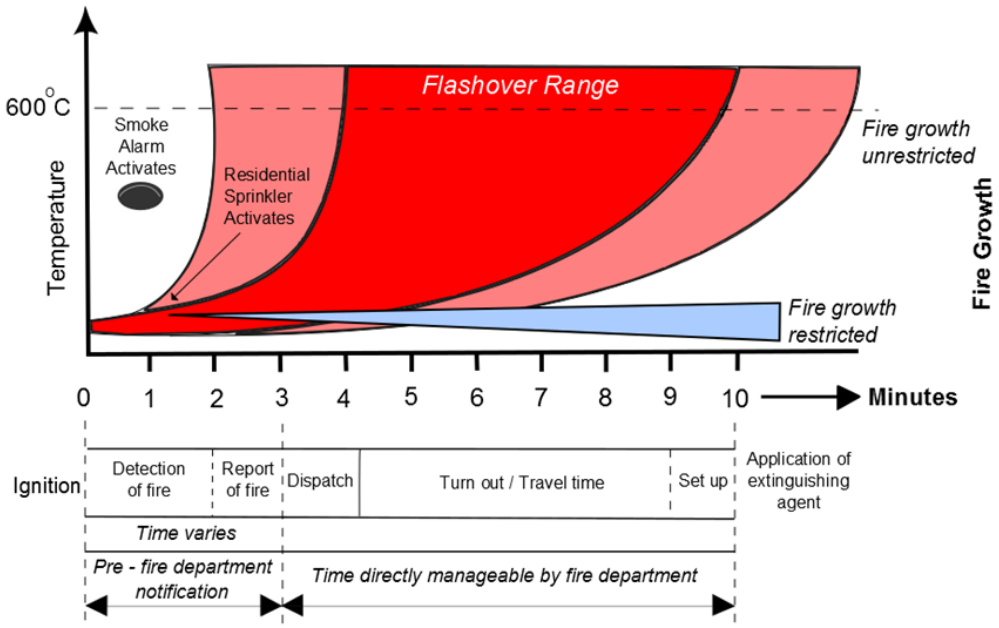
Time to Reach 1 MW and 2 MW Fire Growth Rates in the Absence of Fire Suppression

Fire Growth Rate	Time in Seconds to Reach 1MW	Time in Seconds to Reach 2 MW
Slow	600 seconds	848 seconds
Medium	300 seconds	424 seconds
Fast	150 seconds	212 seconds

(Source: "Operational Planning: An Official Guide to Matching Resource Deployment and Risk", Office of the Fire Marshal and Emergency Management, January 24, 2011, p. 4).

Within the ten-minute time period, flashover conditions can occur. Flashover occurs when the combustible items within a given space reach a temperature that is sufficiently high for them to auto-ignite. The graph in **Figure 10** highlights the importance of the first two lines of defence, including early detection actions of the occupants. Early detection occupant actions include working smoke alarms, home escape planning, and prompt notification of the fire department. The success of firefighting intervention, given the exponential increase in fire temperature and the potential for loss of property/loss of life with the progression of time, further support the importance of public education and prevention programs.

Figure 10: Example Fire Propagation Curve



Reference: Fire Underwriters Survey "Alternative Water Supplies for Public Fire Protection: An Informative Reference Guide for Use in Fire Insurance Grading" (May 2009) and NFPA "Fire Protection Handbook" (2001)

The fire propagation curve reflects the importance of time during the Detection 'detection – report' stage. This is the time period not impacted by any actions by the fire department. The time period controlled by the fire department begins when the call is initially received by dispatch and includes several other components leading up to the initiation of intervention by fire operations staff.

Understanding factors such as "growth rate" and "time" in terms of how quickly a fire can reach a critical stage such as flashover are important considerations in assessing fire operations performance targets. For example, where areas of the community may have extended response times due to long travel distances, (i.e., in excess of ten minutes), the potential for the fire to have spread from the room of origin or to have already reached a flashover state will be significantly higher.

In these situations, consideration should be given to the first two lines of defence, including the provision of more public education and fire prevention activities as a means to inform the public on how to be prepared and react in the event of a fire.

8.2 Current Fire Suppression Guidelines, Industry Standards and Industry Best Practices

Within Ontario there is no specific legislated standard that a community must achieve with regard to the type of firefighter (career/part-time/volunteer) or the number of firefighters required to respond to any given incident. The F.P.P.A. does require that a municipal Council assess their level of resources based on determining its "local needs and circumstances."

Over the past decade there has been a transition within the fire service industry across North America to the utilization of community risk-based analysis. Community risk-based analysis is used to determine the appropriate level of firefighter deployment based on the critical tasks to be performed to effectively, efficiently and safely conduct fire suppression operations.

The O.F.M.E.M. is the agency responsible for fire protection within the Province of Ontario, and the N.F.P.A. is the most highly recognized fire service association in North America. These agencies cumulatively represent the authorities for identifying an appropriate set of performance targets for the Brantford Fire Department.

8.2.1 National Fire Protection Association (N.F.P.A.)

As introduced in **Section 2.4.,** the National Fire Protection Association (N.F.P.A.) develops and manages a series of codes and standards which guide service delivery across North American. The following standards relate to the delivery of fire suppression services by a full-time fire service, such as the B.F.D.

8.2.1.1 N.F.P.A. 1710 Standard (2016 Edition)

N.F.P.A. 1710 "Standard for the Organization and Deployment of Fire suppression Operations, Emergency medical Operations, and Special Operations to the Public by Career Fire Departments" provides a resource for determining and evaluating the number of career firefighters required based upon recognized industry best practices.

N.F.P.A. 1710 is a standard that is designed for larger municipalities that, as a result of many factors, are operating their fire department utilizing primarily career firefighters. Relevant references from N.F.P.A. 1710 include the following:

- This standard applies to the deployment of resources by a fire department to emergency situations when operations can be implemented to save lives and property; and
- The standard is a benchmark for most common responses and a platform for developing the appropriate plan for deployment of resources for fires in higher hazard occupancies or more complex incidents.

The N.F.P.A. references support the strategic priority of saving lives and property, as well as recognizing the standard as a "benchmark" for determining the appropriate level of resources based on the complexity and level of risk present. This standard identifies the minimum deployment of firefighters based on the following deployments:

- Initial Arriving Company;
- Single-Family Dwelling Initial Full Alarm Assignment;
- Open-Air Strip Shopping Center Initial Full Alarm Assignment;
- Apartment Initial Full Alarm Assignment; and
- High-Rise Full Alarm Assignment.

8.2.2 Initial Arriving Company – "Initial Response"

Initial response is consistently defined in the fire service as the number of firefighters initially deployed to respond to an incident. Fire service leaders and professional regulating bodies have agreed that until a sufficient number of firefighters are assembled on-scene, initiating tactics such as entry into the building to conduct search and rescue, or initiating interior fire suppression operations are not safe practices. If fewer than four firefighters arrive on scene, they must wait until a second vehicle, or additional firefighters arrive on scene to have sufficient staff to commence these activities.

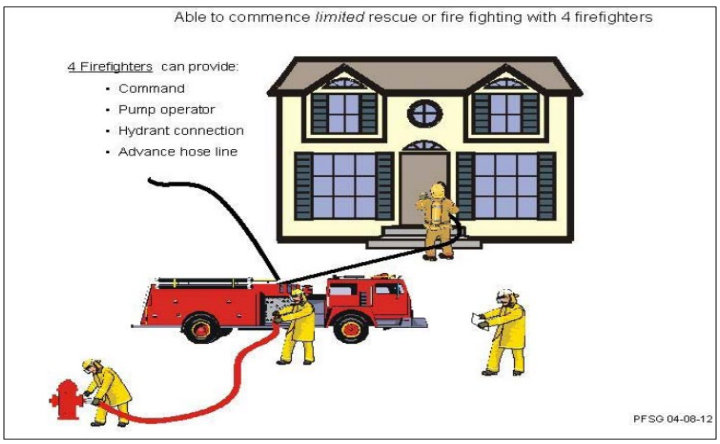
N.F.P.A. 1710 refers to the 'Initial Arriving Company' as an 'Engine Company' and further defines the minimum staffing level of an Engine Company as four firefighters whose primary functions are to pump and deliver water and perform basic firefighting at fires, including search and rescue.

An initial response of four firefighters once assembled on-scene is typically assigned the following operational functions. The officer in charge shall assume the role of Incident Commander; one firefighter shall be designated as the pump operator; one firefighter

shall complete the task of making the fire hydrant connection; and the fourth firefighter shall prepare an initial fire attack line for operation.

The assembly of four firefighters on the fire scene provides sufficient resources to safely initiate some limited fire suppression operations. This first crew of four firefighters is also able to conduct the strategic operational priority of "size-up" whereby the officer in-charge can evaluate the incident and where necessary, request an additional depth of resources that may not have been dispatched as part of the initial response. Fire scene responsibilities of an initial response are highlighted in **Figure 11**.

Figure 11: Initial Response Fire Scene Responsibilities



(Office of the Fire Marshal, Ontario, Public Fire Safety Guideline 04-08-12, December, 2001.)

8.2.3 Single-Family Dwelling Initial Full Alarm Assignment – "Depth of Response"

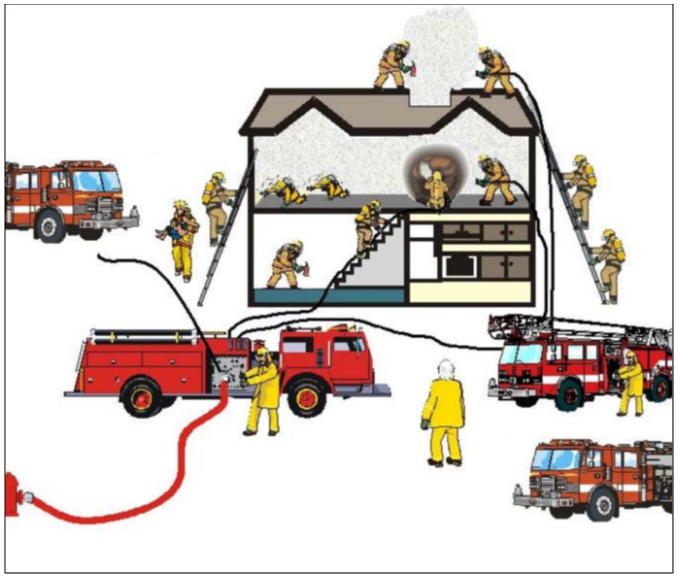
In comparison to the initial response, depth of response relates to the "total" number of firefighters initially assigned to an incident. Depth of response is also commonly referred to as "First Alarm" or "Full Response." For example N.F.P.A. 1710 defines "Initial Full Alarm Assignment" as "Those personnel, equipment, and resources ordinarily dispatched upon notification of a structure fire."

This standard utilizes the example of a fire risk scenario in a 2,000 square foot, two-storey single-family dwelling without a basement and with no exposures present. This represents a typical home of wood frame construction located in a suburban neighbourhood having access to a municipal water supply including fire hydrants.

Within this M.F.P., this occupancy would be classified as a 'Group C - Residential Occupancy' (relating to a moderate risk).

It is very important to recognize that depth of response is referring to the **"total"** number of firefighters initially assigned to an incident. The total number of firefighters assigned to an incident can vary based on the type of occupancy and the level of risk present. Fires involving occupancies that have been assigned a higher level of risk may require a higher number of firefighters as part of the initial depth of response.
The N.F.P.A. 1710 standard for depth of response to the fire risk scenario presented is 14 firefighters arriving on scene within eight minutes of travel time, 15 if an aerial device is to be used. The N.F.P.A. 1710 fire scene responsibilities for depth of response including an aerial are highlighted in **Figure 12.**

Figure 12: Depth of Response Fire Scene Responsibilities



Shown including an aerial device – 15 firefighters) Modified from the Office of the Fire Marshal, Ontario, Public Fire Safety Guideline 04-08-12, December, 2001.

As listed in the Fireground Critical Tasks, the critical tasks for a moderate level risk include:

- Incident Command / Accountability (1 firefighter)
- Pump Operator (1 firefighter)
- Two Attack Lines (4 firefighters)
- Search and Rescue (2 firefighters)

- Forcible Entry (1 firefighter)
- Water supply (1 firefighter)
- Initial Rapid Intervention Team (2 firefighters)
- Ventilation (2 firefighters)
- Laddering - Aerial – (additional 1 firefighter, optional)

8.2.4 Open-Air Strip Shopping Centre Initial Full Alarm Assignment – Depth of Response

The 2016 Edition of N.F.P.A. 1710 utilizes the examples of an Open-Air Strip Shopping Centre Initial Full Alarm Assignment, and an Apartment Initial Full Alarm Assignment both of which require an initial minimum deployment of 25 firefighters and 26 if an aerial is required. Within this M.F.P. these deployments represent the minimum initial depth of response to a high risk occupancy. This includes building occupancy types such as an identified vulnerable occupancy as described by **Ontario Regulation 150/13.**

The N.F.P.A. 1710 standard for depth of response to this type of fire risk scenario is 25 firefighters arriving on scene within eight minutes of travel time, 26 if an aerial device is to be used.

8.2.5 High-Rise Initial Full Alarm Assignment – Depth of Response

High-rise buildings pose unique risks for fire suppression. The 2016 Edition of the N.F.P.A. 1710 standard introduces specific considerations and targets for response time and staffing levels for fire incidents in high-rise buildings. This standard recommends a travel time of 610 seconds (10 minutes and 10 seconds) or less for the deployment of suppression staff to a high-rise fire incident. Recommended staffing levels are outlined based on critical fire-scene tasks, totaling 39 firefighters for an initial full alarm assignment to a fire suppression incident at a high-rise building. The timelines and staffing levels correspond to the challenges related to vertical response and specific operational requirements for structural firefighting in high-rises.

Prior to the development of this standard, municipalities had begun to create their own guidelines and/or procedures to follow during a high-rise fire. The common guidelines or procedures found revolve around how to ascend a building when the fire service elevators are not working and how long it will take and how many firefighters or apparatuses are required to arrive at high-rise building fires.

8.2.5.1 Vertical Response Times

High-rise structure fires are unique in the method of fire suppression, as detailed in a publication by the N.F.P.A. called Structural Firefighting: Strategy and Tactics[13]. When a fire is located above the eighth floor exterior suppression methods are no longer effective. In these cases fire suppression is mainly undertaken inside the building. Firefighters create a staging floor; usually two floors below the fire floor. Firefighter will travel to and from the staging area and the fire floor or evacuation floors. The staging area is the location of all safety and suppression equipment needed to combat the fire. Firefighters must get this equipment to the staging area. When fire service access elevators cannot be used firefighters climb the stairs with the equipment. Even in the best conditions climbing the stairs takes time. The average vertical response time, average time it takes for a firefighter to climb the stairs, is shown in **Table 26**. To climb to the tenth floor it would take a firefighter on average three minutes and seven seconds.

Table 26: Vertical Response

Floors	Average Time per Floor in Seconds
1-10	20.8
11-20	27.8
21-30	33.6
31-40	45.9
41-48	59.0
Source: Structural Firefighting: Strategy and Tactics	

[13] Sanders, Russell E. "Chapter 12: High-Rise Buildings." *Structural Firefighting: Strategy and Tactics*. By Bernard J. Klaene. Second ed. Sudbury Massachusetts: Jones and Bartlett, 2008. 297-327. PDF.

Ascending with equipment can be physically exhausting. When fire service access elevators cannot be used additional alarms must be ordered to set-up stairway support to ensure firefighters have enough stamina for fire suppression after ascending. Stairway support is a system to carry equipment to the staging area. A firefighter is usually positioned every two floors and ascends two floors with equipment where the next firefighter pick up the equipment. This gives each firefighter a rest period during their two floors descend.

8.3 PFSG 04-08-10 Operational Planning: An Official Guide to Matching Resource Deployment and Risk

PFSG 04-08-10 was released by the O.F.M.E.M. in January 2011 and includes a "Critical Task Matrix" to assist municipalities in determining the level of fireground staffing capabilities based upon low, moderate, high and extreme risks. The Critical Task Matrix is defined by the O.F.M.E.M. as:

"The critical Task Matrix is based on the Incident Management System (IMS). It will assist in identifying fireground staffing capabilities based upon low, moderate, high and extreme risk levels within your community. The Office of the Fire Marshal (OFMEM) has identified the critical tasks from the Incident Management System that are used during fireground operations. These tasks are consistent with applicable legislation, industry best practices and the Ontario Fire College Curriculum."

The matrix further recognizes that within the I.M.S. that:

- Upon arrival and rapid size-up, the incident commander can upgrade or downgrade response;
- Crews can be reassigned to other tasks once original assignments are complete;
- Response protocols can be established with specific risk levels used to assist with pre-planning to obtain more resources based on the escalating nature of the emergency;
- Fire departments perform rescue and building personnel conduct evacuations according to their approved fire safety plans; and
- Some tasks will never be assigned based on the tactical approach chosen by the incident commander (offensive versus defensive).

The Critical Task Matrix provides a lower and upper range of the number of firefighters required to respond for each of the four risk levels. The actual number of firefighters within each range is based upon analysis of actual fires, the Occupational Health and Safety Act Section 21 Guidance Notes affecting firefighters, and industry best practices. **Appendix F** reflects the P.F.S.G. 04-08-10 Critical Task Matrix.

The O.F.M.E.M. Critical Task Matrix indicates that the lower and upper level incident response range to effectively, efficiently and safely conduct fire suppression operations to safely complete the tasks associated with a fire in moderate risk (low-rise Group C - Residential occupancy) would be 16 to 43 firefighters.

In comparison, the matrix indicates that the lower and upper level incident response range to effectively, efficiently and safely conduct fire suppression operations tasks associated with high risk occupancy (e.g., Group B – Care or Detention occupancy) would be 36 to 83 firefighters.

8.3.1 Province of British Columbia – Structure Firefighters Competency and Training Playbook

The Office of the Fire Commissioner in British Columbia, in consultation with the Fire Chiefs Association of British Columbia, and the British Columbia Fire Training Officers Association has developed the **Structure Firefighters Competency and Training Playbook** (B.C. Playbook).

In our view the most recent addition amended in May of 2015 provides valuable insight into determining the level of fire operations services to be provided by a municipality including those in Ontario. In further support of the O.F.M.E.M. Public Fire Safety Guidelines and N.F.P.A. standards, the B.C. Playbook identifies three specific fire suppression service levels for Council's consideration in developing the City of Brantford's fire operations service levels. In addition to response times, and the number of firefighters responding, the B.C. Playbook links the training qualifications of firefighters to fire operations service levels.

The Playbook is applicable to all fire services personnel within the Province of British Columbia as defined by their **Fire Services Act.** The principles of the Playbook indicate that it is the direct responsibility of the "Authority Having Jurisdiction" (A.H.J.) to declare its firefighting service level. The declared fire operations service level must then be

established as a formal policy (by-law, policy or contract) and be fully reflected in operating guidelines within the fire department.

The Playbook identifies the following service levels from which an AHJ may choose.

8.3.1.1 Exterior Operations Service Level

Exterior Operations Level fire service firefighters shall not enter any building, vehicle dumpster or other object if an Immediately Dangerous to Health (I.D.H.L.) atmosphere is present. If an I.D.L.H. atmosphere is present, Exterior Operation firefighters shall only engage in external fire operations activities. Operational Guidelines that restrict them to Exterior Operations must be written and enforced by the department, even though they may possess equipment that would otherwise permit them to respond at a higher level.

On occasion where the department responds to a simple incident and an I.D.L.H. atmosphere does not yet exist, it is reasonable to address the issue from inside the structure. However, if an I.D.L.H. atmosphere develops or the fire progresses beyond the object of origin, or the environment or structure become compromised in any way, all firefighters must immediately withdraw to the exterior and combat the situation from the outside. Where the I.D.L.H. atmosphere no longer exists as a result of fire suppression operations or otherwise, subject always to an appropriate risk assessment by the Incident Commander, it may be appropriate for members of an Exterior Operations Service Level department to enter the structure.

Where there is a potential risk of an I.D.L.H. atmosphere developing, or risk from smoke or particulate matter when conducting external operations (including overhaul), Self-Contained Breathing Apparatus (S.C.B.A.) must be worn in accordance with WorkSafe B.C. requirements.

8.3.1.2 Interior Operations Service Level

Interior Operation Fire Departments may engage in internal fire suppression activities within simple structures or objects such as a vehicle, single family dwelling or other small structure. Interior Operations may also include larger or more complex structures that the A.H.J. has assessed and pre-planned for, such that it determines that structure to be safe for Internal Operations qualified firefighters. Firefighters must be trained specifically to the risks associated with these structures.

Interior Operations Level fire services will have Operational Guidelines, that must be written and enforced by the department, that describe advanced training in fire operations activities that allow for a calculated fire attack within permitted structures and objects.

Interior Operations must be undertaken in accordance with the requirements of WorkSafe B.C. (including, in particular, S. 31.23 of the Occupational Health and Safety Regulation). The Incident Commander must recognize the need, and staff appropriately, for a Rapid Intervention Team (R.I.T.) with trained firefighters following the WorkSafe B.C. requirements.

8.3.1.3 Full Service Level

Full Service Operations Fire Departments are equipped and have completed the appropriate training identified in this Playbook to provide a full spectrum of fire services. These services are based on the Competencies included within the N.F.P.A. 1001 Firefighter Standard and relevant N.F.P.A. Fire Officer Standards.

Full service fire departments will have Operational Guidelines that must be written and enforced by the department, that describe advanced training in fire operations activities.

These fire departments are organized such that the suppression activities that occur are based on response protocols which include the appropriate staffing levels, and number and type of apparatus on scene.

8.4 Summary of Fire Suppression Guidelines and Standards

The analysis within the preceding sections of this review considers performance benchmark elements for providing fire suppression emergency response services including:

- **Applicable Firefighter Suppression Training Benchmarks:** Fire suppression service levels including exterior operations, interior operations and full service operations (e.g. B.C. Playbook) determined by firefighter training qualifications; and
- **Applicable Fire Suppression Performance Benchmarks:** Guidelines and standards relating to the number of firefighters required for both initial response and depth

of response including performance benchmarks for deploying firefighters to effectively and safely mitigate a fire situation.

This master fire planning process recognizes the importance of applicable firefighter suppression training and fire suppression performance benchmarks. Where applicable they will be applied to the existing and proposed fire suppression options presented within this M.F.P. In our view this strategy is required in order to provide Council with comparable benchmarks to assist in determining the level of fire suppression services to be provided based on an analyses of local **"needs and circumstances"** for the delivery of fire protection services.

8.4.1 Applicable Firefighter Suppression Training

In our view the B.C. Playbook provides valuable insight into current industry best practices that link the importance of matching the required firefighter suppression training level to the fire suppression deployment performance benchmarks being targeted. Our research indicates that the current firefighter training program within the City of Brantford is based on the skills and competencies included within the N.F.P.A. 1001 and 1002 Firefighter Standards and relevant N.F.P.A. Fire Officer Standards as referenced within the B.C. Playbook.

This M.F.P. recommends that the B.F.D. continue to utilize the N.F.P.A. 1001 and 1002 Firefighter Standards and relevant N.F.P.A. Fire Officer Standards as the foundation for the department's Comprehensive Annual Training Program. Based on this approach our findings indicate that the B.F.D. is fully capable of providing the Full Service Operations Level of fire suppression response as defined within the B.C. Playbook.

8.4.2 Proposed Fire Suppression Performance Benchmarks

Within the urban area of the City, the N.F.P.A. 1710 standard provides valuable insight into the performance benchmarks that include the number of firefighters responding, travel time, percentile of performance objective and type of risk present. In comparison, P.F.S.G. 04-08-10 provides an indication of the range of firefighters that would be required based on the fire risks present. **Table 28** presents a comparison of the firefighter deployments reference in N.F.P.A. 1710 and P.F.S.G. 04-08-10 based on the fire risk present. The N.F.P.A. 1710 deployments include an aerial device and exclude the medic requirements.

Table 27: Comparison of N.F.P.A. 1710 and P.F.S.G. 04-08-10 Risk Deployment

Defined Urban Area Response Type	N.F.P.A. 1710	P.F.S.G. 04-08-10
Initial Response – Low Risk	4	4 to 13
Depth of Response – Moderate Risk	14	16 to 43
Depth of Response – High Risk	26	36 to 83
Depth of Response – High-Rise High Risk	39	N/A

The analysis indicates that the N.F.P.A. 1710 minimum number of firefighters requirements are typically at the lower range of those identified in P.F.S.G. 04-08-10, however, the N.F.P.A. 1710 standard includes additional performance benchmarks for response time and a 90th percentile performance level not contained within P.F.S.G. 04-08-10.

For the purposes of providing Council with the most applicable and consistent assessment of fire suppression performance this M.F.P. has utilized the N.F.P.A. 1710 "Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Career Fire Departments" as the applicable performance benchmark for assessing the number of firefighters required for initial response and depth of response to fire suppression incidents within the urban area of the City.

Understanding the relationship between the minimum number of on-duty firefighters at all times, and the applicable fire suppression performance benchmarks is a critical element of this master fire planning process. **This is of particular importance to informing Council's decision-making process with respect to assessing the existing and future number of full-time firefighters employed by the B.F.D.** This master fire planning process has identified that the current firefighter deployment model of the B.F.D. includes a minimum on-duty complement of 19 firefighters at all times. As such the B.F.D. currently relies on the call back of off duty firefighters and/or mutual aid to assemble the minimum number of firefighters required for a fire in a defined high risk, or high-rise high risk occupancy. The B.F.D. also proactively targets these type of

occupancies within the current fire inspection and public education programs to reduce the probability of a fire in these types of occupancies.

Table 29 presents the proposed fire suppression deployment benchmarks for the delivery of fire suppression services within the City of Brantford. The Community Risk Assessment identifies that the City is predominantly comprised of an urbanized area surrounded by a border of geography that is more rural in nature. Intensification of the urbanized area is a core element of the community's future growth, as well as some further greenfield development. The proposed fire suppression performance benchmarks are based on the B.F.D.'s current minimum firefighter staffing and on our knowledge of the City, and its proposed ten-year community planning projections.

The proposed fire suppression performance benchmarks also recognize the proposed strategic priorities presented within this M.F.P. including:

"Where applicable the optimization of the first two lines of defence including public education and fire prevention, and the utilization of fire safety standards and fire code enforcement to provide a comprehensive fire protection program within the City; and

Emphasis on strategies that support the sustainability of fire protection and emergency services that provide the most effective and efficient level of services resulting in the best value for the community".

The analysis within this M.F.P., and the proposed fire prevention inspection and public education program recommendations, support the concept of risk reduction as a core element of developing the optimal community fire protection plan that does not focus solely on the delivery of fire suppression services. As such the proposed fire suppression performance objectives focus on the findings of the C.R.A. that indicate 95.4% of the City's building stock is Group C- Residential Occupancies representing a moderate risk level. The proposed fire prevention inspection and public education cycles focus on the higher risk occupancy types by implementing risk reduction strategies.

Table 28: Proposed Fire Suppression Performance Benchmarks

Response Type	Proposed Fire Suppression Performance Benchmarks
Initial Response	Four firefighters arriving on scene within a four minute travel time to 90% of fire suppression incidents.
Depth of Response	Fifteen firefighters arriving on scene within an eight minute travel time to 90% of the moderate risk fire suppression incidents.

Council Recommendation #5: That Council approve the proposed fire suppression performance benchmarks presented within the proposed Master Fire Plan as the performance planning targets for the delivery of fire suppression services within the City of Brantford.

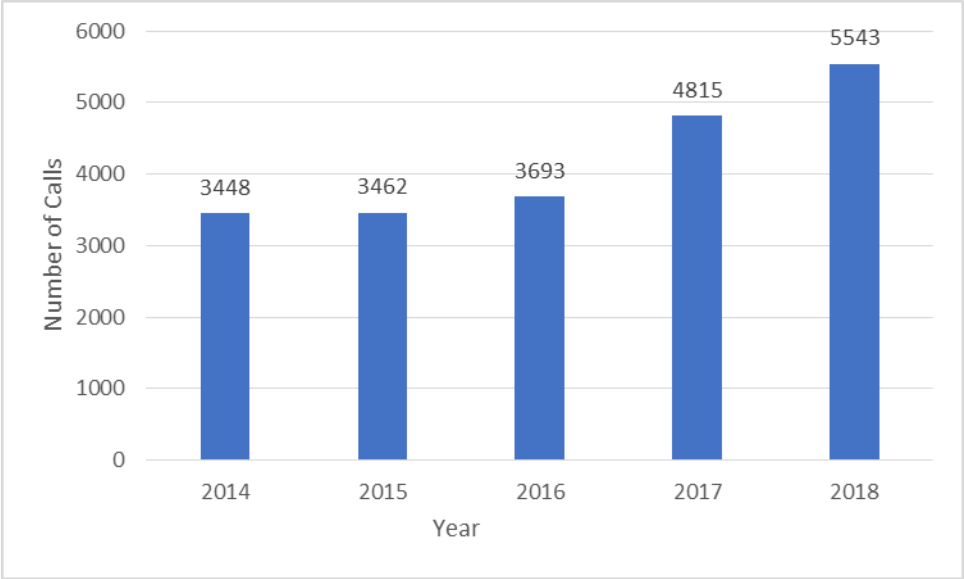
8.5 Historic Emergency Response Performance (Fire Suppression)

The results of the analysis of emergency response statistics and time assessment (response capabilities) of the Brantford Fire Department (B.F.D.) is presented within this chapter. This analysis is based on incident data collected by the department for the period from January 1, 2014 to December 31, 2018.

8.5.1 Annual Call Volume

The annual call volume provides a high level understanding of the probability of incidents occurring within Brantford. A summary of the total number of calls within the City from 2014-2018 is shown in **Figure 13**. Overall, the number of calls responded to by the B.F.D. has increased substantially throughout the five year timeframe, with the lowest number of calls received in 2014 and the highest in 2018. The most dramatic increase in call volume occurred between 2016 and 2017. O.F.M.E.M. summary reports indicate the increase in volume between 2016 and 2017 is due to an increase in medical calls. The average annual call volume based on this five year timeframe is 4,192 calls per year.

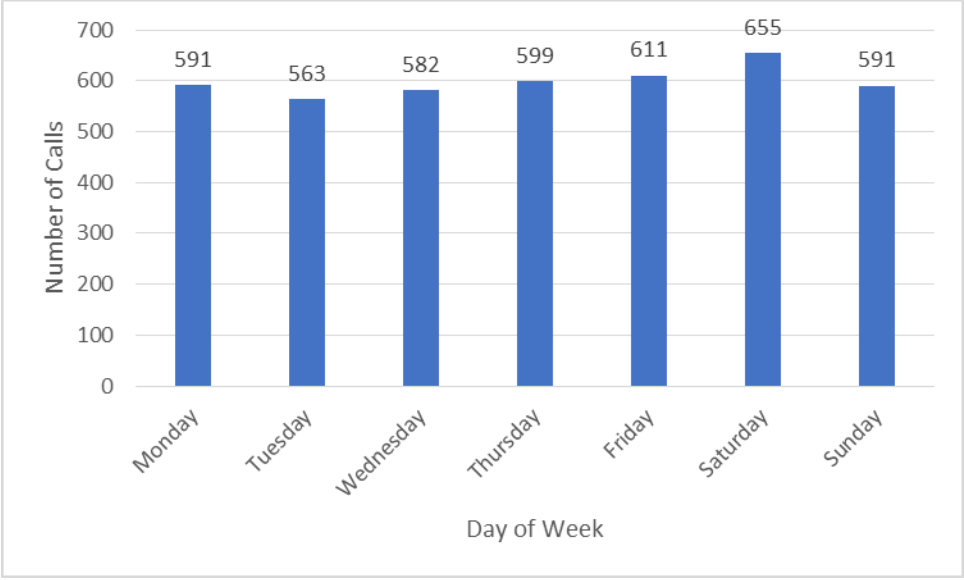
Figure 13: Annual Call Volume (2014-2018)



8.5.2 Average Call Volume by Day of Week

Average call volume by day of week is shown in **Figure 14** for the period of 2014-2018. Over this period, the B.F.D. experienced consistent call levels throughout the week with the highest average call volume occurring on Saturdays, and the lowest average call volume occurring on Tuesdays. The difference between the highest and lowest average call volumes is 92 calls.

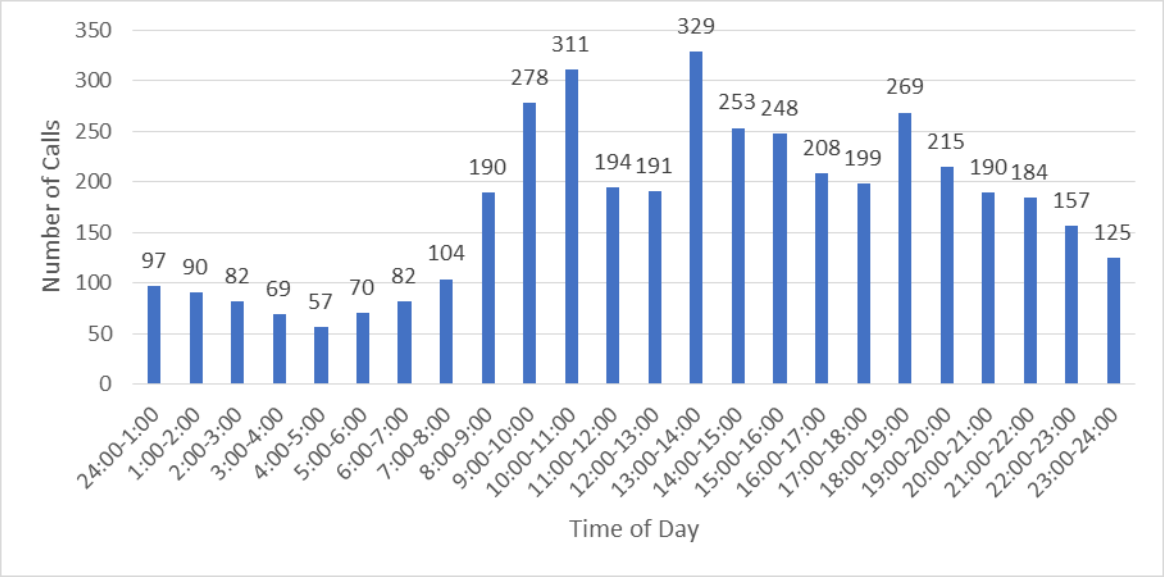
Figure 14: Call Volume by Day of Week (2014-2018)



8.5.3 Average Call Volume by Time of Day

Figure 15 indicates that, on average, there is a lower occurrence of calls between midnight and 7a.m. This trend of low call volume takes place when the majority of the population is typically asleep. Call volume is higher between the hours of 9a.m. and 11a.m. and from 1p.m. to 6p.m.

Figure 15: Call Volume by Time of Day (2014-2018)

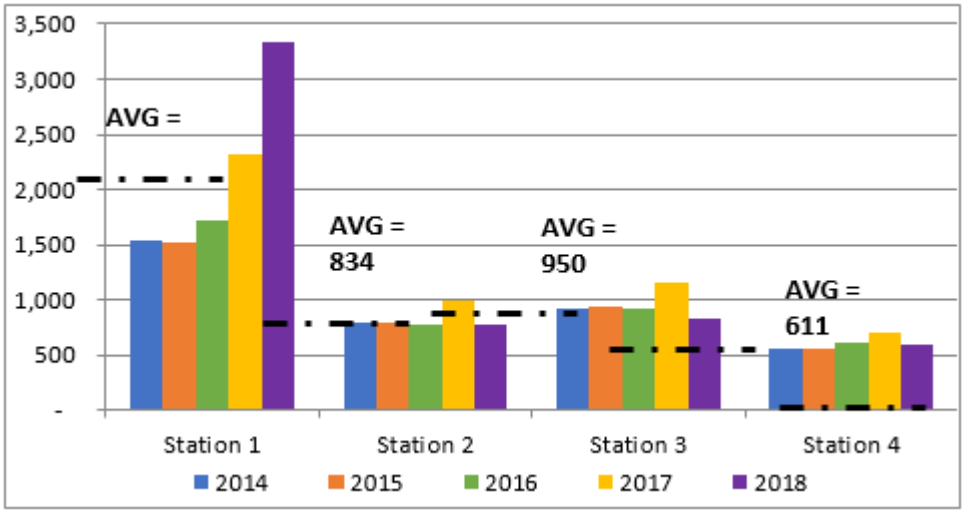


8.5.4 Average Annual Call Volume by Station

Emergency calls result in a specific station being dispatched depending on the location of the call. The spatialized nature of calls results in different call volumes by station. An analysis of call volume by station provides insight into station workloads, as well as the volume of incidents, in relation to the current initial response station coverage areas.

Figure 16 illustrates that for the period from 2014-2018 the average annual call volume by station was 1,100 per year. Station 1 accounted for the highest proportion of calls with an average annual volume of 2,004. Station 4 experienced the lowest average call volume at 611 calls per year.

Figure 16: Annual Call Volume by Station



8.5.5 Total Response Time

Response times are measured and analyzed according to percentile ranking (i.e. percentage of responses meeting a specified timeframe). The 90th percentile (i.e. where 90% or 90 out of 100 responses meet a specific response time target) is a common industry best practice for reporting and understanding emergency first responder performance. Fire and emergency services commonly measure and report 90th percentile response time data for system planning and resource deployment purposes.

Within the fire service, **Total Response Time** is calculated by assessing three primary factors that include the following:

Total Response Time = Dispatch Time + Turnout Time + Travel Time

8.5.5.1 Dispatch Time

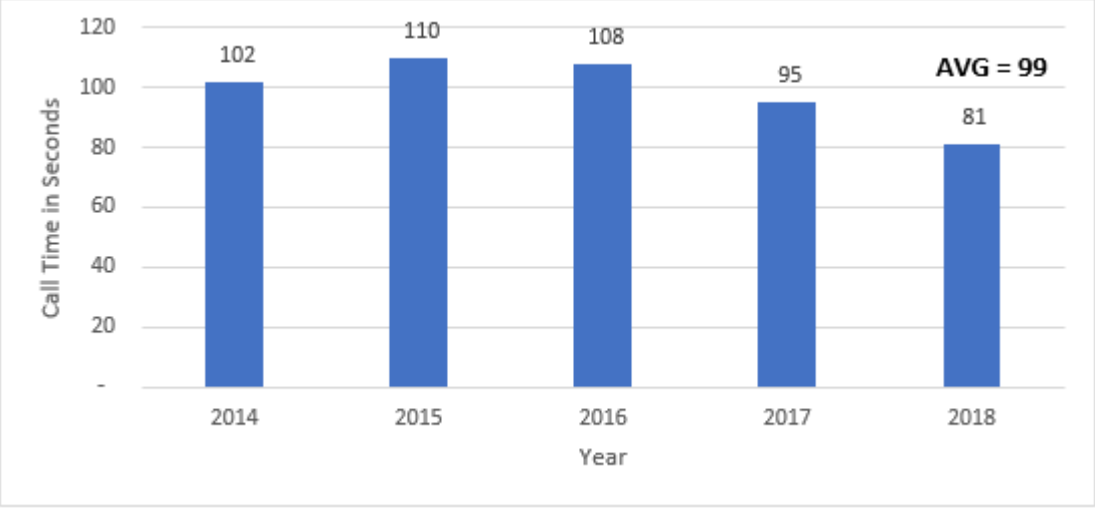
The B.F.D. operates its own fire emergency call taking (alarm answering) and fire dispatching (alarm processing) centre. The applicable performance benchmarks for assessing these services is contained within the **N.F.P.A. 1221 – Standard for the Installation, Maintenance, and Use of Emergency Services Communications Systems** (2016) that includes the following:

"<u>Emergency Alarm Processing / Dispatching</u>: A process by which an alarm answered at the communications centre is transmitted to emergency response facilities (E.R.F.s) or the emergency response units (E.R.U.s) in the field."[14]

N.F.P.A. 1221 is an industry best practice for dispatch time requirements. It requires that 95% of alarms received on emergency lines shall be answered within 15 seconds, and 99% of alarms shall be answered within 40 seconds. It requires processing of the alarm call (dispatching) to be completed within 64 seconds, for 90% of all calls (90th percentile), and within 106 seconds for 95% of calls. This means that 90 out of 100 calls are required to be dispatched within 64 seconds and that 95 out of 100 calls must be dispatched within 106 seconds.

The B.F.D. Communications Division completes the fire department's call handling and dispatching. **Figure 17** presents the analysis of all call types occurring for the period of 2014-2018. The historical call data for all calls between 2014 and 2018 was used to assess the dispatch times for the B.F.D. Based on the N.F.P.A. standard, the 90th percentile aggregate dispatch times for the B.F.D. for the five year period 2014-2018 is 99 seconds for fire calls which is 35 seconds longer than the standard. However, there is a notable improvement that occurred in 2018 that has resulted in the department reducing its dispatch times.

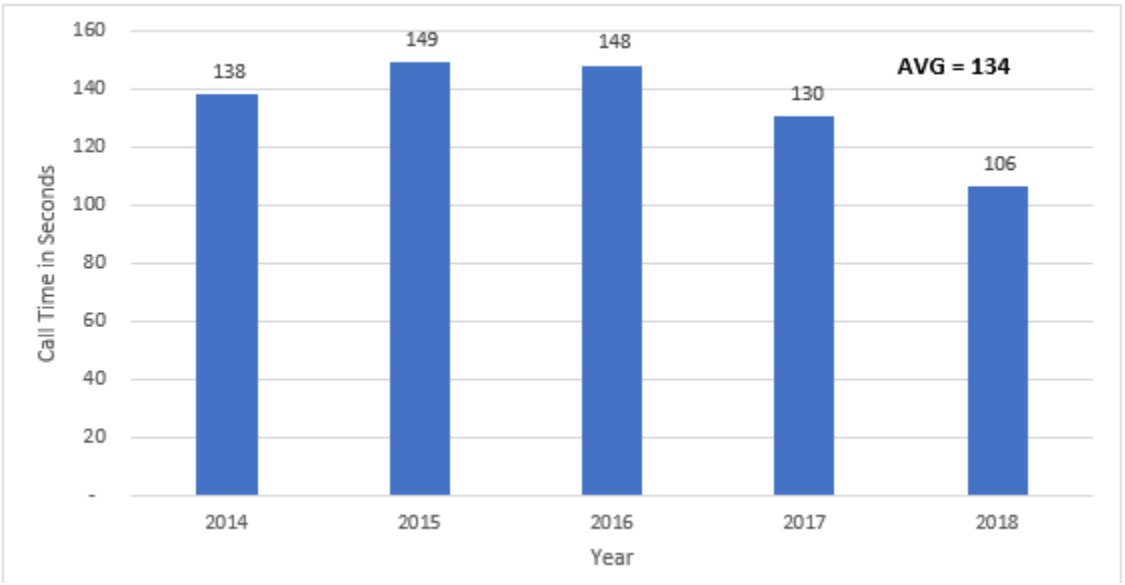
Figure 17: 90th Percentile Dispatch Times (2014-2018)



[14] N.F.P.A. 1221 2016 Edition

As shown in **Figure 18**, the 95th percentile aggregate dispatch times for the B.F.D. the period of 2014-2018 is 134 seconds) compared to the N.F.P.A. Standard of 106 seconds. This analysis shows the same improvement in dispatch time as the 90th percentile analysis with times improving in 2018. Overall, this analysis indicates that the B.F.D. is working towards attaining the 90th and 95th percentile performance benchmarks.

Figure 18: 95th Percentile Dispatch Times (2014-2018)



8.5.5.2 Turnout Time

Turnout time is defined within the by the N.F.P.A. 1710 Standard for Organization and Deployment of Fire Suppression Operations by Career Fire Departments as:

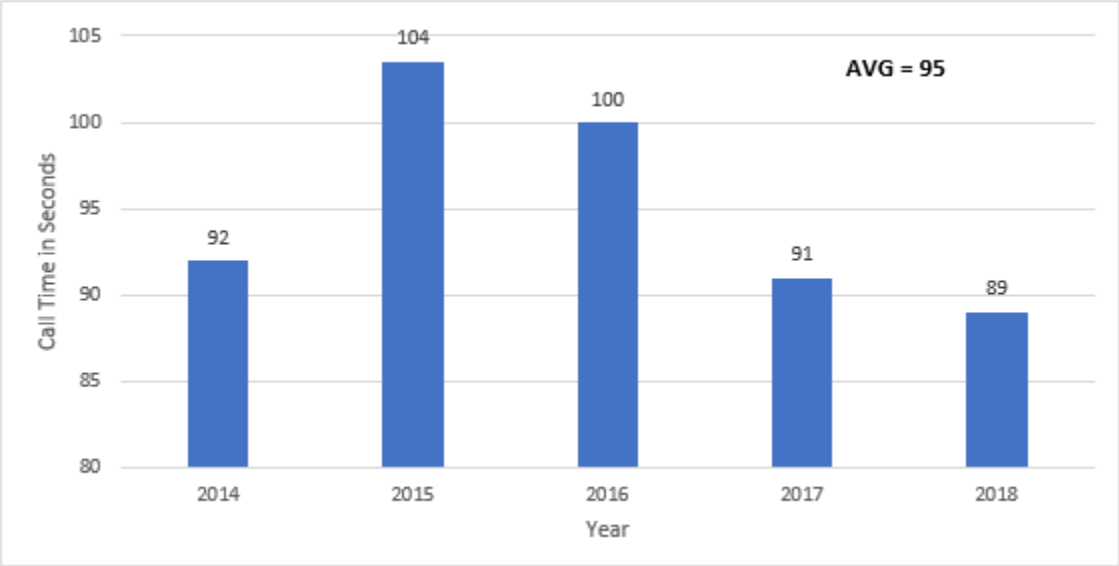
"the time interval that begins when the emergency response facilities (ERFs) and emergency response unit (ERUs) notification process begins by either an audible alarm or visual annunciation of both and ends at the beginning point of travel time."[15]

This standard identifies a benchmark of 80 seconds or less for 90 percent of all fire-related incidents. The general industry definition of firefighter turnout time is defined as the preparation time required between the emergency call being received at the fire station and the time the truck and firefighters leave the station. **Figure 19** presents a

[15] N.F.P.A. 1710 Standard 2016 Edition

summary of B.F.D. historical turnout times for the period of 2014-2018 in comparison to the recommended N.F.P.A. 1710 performance benchmark of 80 seconds.

Figure 19: 90th Percentile Turnout Times (2014-2018)



The B.F.D. historical aggregate 90th percentile turnout time for the time period 2014-2018 was 95 seconds, 15 seconds higher than the N.F.P.A. standard. The analysis indicates that there was a significant improvement in 2017 and 2018 that resulted in a reduction in the turnout time of the on-duty firefighters. However, the department continues to exceed the N.F.P.A. benchmark of 80 seconds. Turnout time is one of the three key elements that impact total response time. As such, improving firefighter turnout time should be further emphasised within updated operating guidelines and accountability that includes ongoing monitoring of this performance benchmark.

8.5.5.3 Travel Time

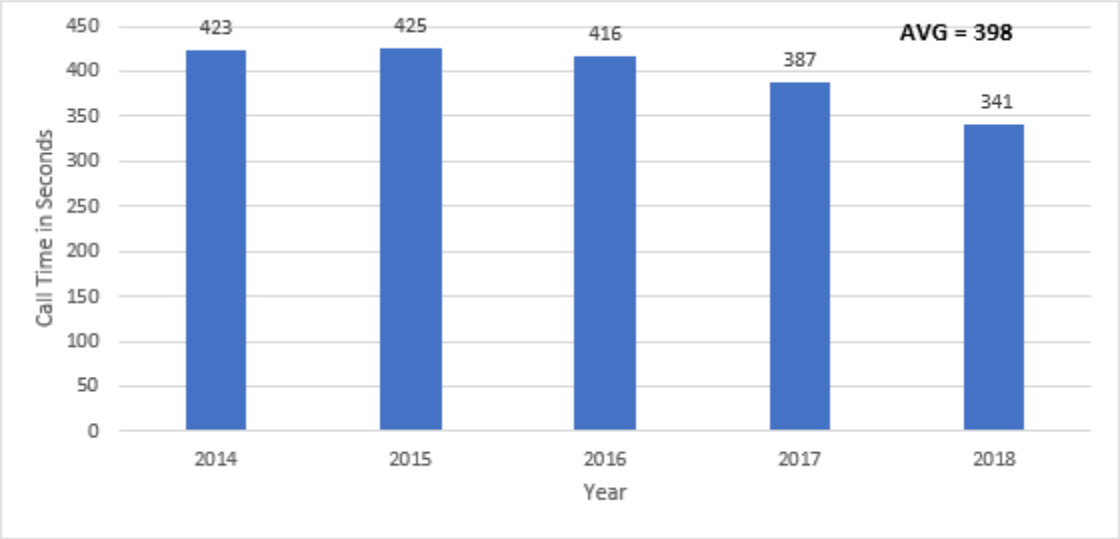
Travel time is defined within the by the N.F.P.A. 1710 Standard for Organization and Deployment of Fire Suppression Operations by Career Fire Departments as:

"The time interval that begins when a unit is enroute to the emergency incident and ends when the unit arrives at the scene."

The N.F.P.A. 1710 performance measure requires meeting a travel time of 240 seconds (four minutes) for the first arriving engine company (four firefighters) on-scene for 90% of calls (90th percentile). **Figure 20** presents a summary of historical 90th percentile

B.F.D. travel times for the first arriving vehicle (initial response) for the period 2014-2018. This includes an assessment of all calls identified as "emergency" B.F.D. response types. The historic aggregate 90th percentile initial response travel time of the B.F.D. for the initial arriving apparatus was 398 seconds, exceeding the N.F.P.A. standard by 158 seconds.

Figure 20: 90th Percentile Initial Response Travel Time (2014-2018)



This analysis indicates that the B.F.D. has historically exceeded the 240 second performance benchmark for the initial responding apparatus. **Figure 20** above indicates that there has been some improvement in travel time of the first responding apparatus in 2016 to 2018. We believe the improvement in travel times may be associated with the implementation of traffic signal pre-emption within the City of Brantford.

8.5.5.4 Total Response Time (Initial Response)

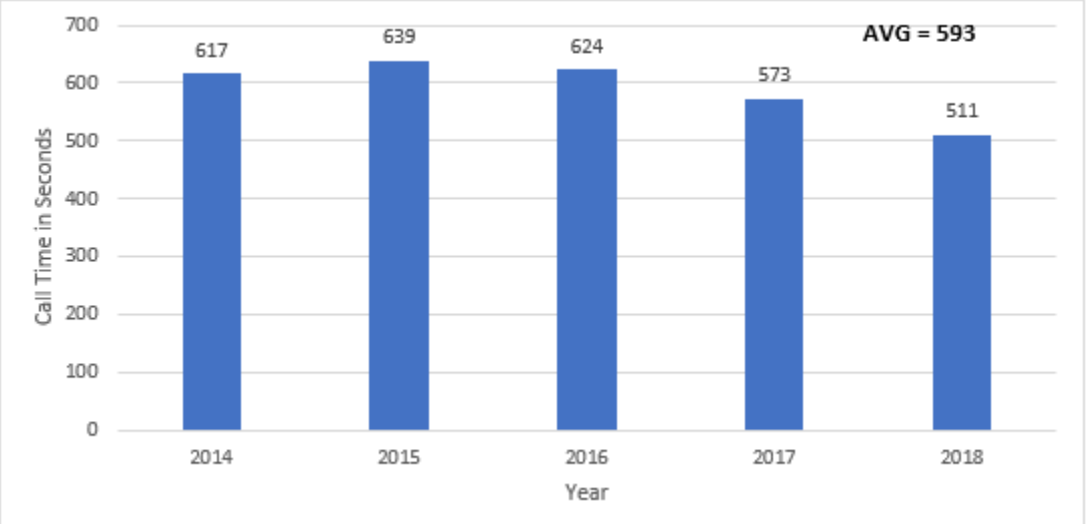
Total response time is defined within the N.F.P.A. 1710 Standard for Organization and Deployment of Fire Suppression Operations by Career Fire Departments as:

"The time interval from the receipt of the alarm at the public safety answering point (PSAP) to when the first emergency response unit is initiating action or intervening to control the incident."

Total response time includes the dispatch time, turnout time and travel time components of an emergency response. **Figure 21** presents a summary of historical total

response times for the first arriving apparatus. This includes an assessment of all B.F.D. response types. The total response performance measure for initial response is the total sum of dispatch time, turnout time and travel time. This equates to a 90th percentile aggregate total response time of 593 seconds for the first arriving apparatus. This highlights that each component, whether dispatch time, turnout time or travel time, impacts the total response time.

Figure 21: Total Response Time (2014-2018)



Overall, total response time has been reduced significantly from 2014 to 2018. It is important to aim to meet the performance benchmarks for each of these components in order to provide the best level of service for the overall emergency response.

8.6 Applicable Community Risk Assessment - Key Risks & Key Findings

The C.R.A. identifies both "Key Risks" and "Key Findings" that should be considered as part of assessing emergency response (fire suppression) deployment coverage in determining the local needs and circumstances, as well as the level of service provided by the municipality. **Table 30** illustrates the identified "Key Risks" applicable to the analysis of the existing fire suppression services provided by the B.F.D.

Table 29: C.R.A. Key Risks

CRA Key Risks	THIRD LINE OF DEFENCE
Analysis Outcomes	For consideration within the proposed Emergency Response
The Grand River presents a water and ice risk which may require specialty rescue.	✓
The City of Brantford is intersected by the Grand River, which is crossed by a number of bridges as well as Highway 403. Should an incident impact a bridge or multiple bridges, access to the other side of the bridge may be restricted.	✓
29% of the City's total property stock consists of attached dwellings.	✓
Group C – Residential occupancies account for the 95.4% of the City's building stock.	✓
W. Ross MacDonald School for the Blind presents unique high fire life-safety risks.	✓
The City has identified 38 registered vulnerable occupancies within Brantford.	✓
The City has identified 17 occupancies with a height in excess of 18 metres, which are defined as high-rise buildings according to the Ontario Building Code.	✓
Group C – Residential occupancies account for 61% of structure fires within the City.	✓

CRA Key Risks	THIRD LINE OF DEFENCE
Group F – Industrial occupancies account for 17% of structure fires within the City.	✓
The majority of fatalities and injuries between the period of 2013-2017 occurred within Group C – residential occupancies.	✓
31% of reported fires for the period of 2013-2017 were attributed to the misuse of ignition source.	✓
During the period from 2013-2017 there were smoke alarms present but did not operate in 19% of the incidents the B.F.D. responded to in Group C-Residential Occupancies.	✓
The most common known source of ignition for fires within the City is due to open flame tools/smokers articles at 23%.	✓
Of the fires occurring in the City between 2013 and 2017, the leading cause of intentionally set fires was due to acts of vandalism at 9%, higher than the province by 7%.	✓
Of the technical rescue type services, vehicle extrication is the most common type with a total of 59 calls over the five year period (2013-2017) or about 12 calls annually on average.	✓
Vehicle collisions account for 73% of rescue calls within the City of Brantford or 138 calls per year on average.	✓

Table 31 illustrates the identified "Key Findings" to the analysis of the existing fire suppression services provided by the B.F.D.

Table 30: C.R.A. Key Findings

CRA Key Findings	THIRD LINE OF DEFENCE
Analysis Outcomes	For consideration within the proposed Emergency Response
Group D &E- Business & Mercantile occupancies represent 1.8% of Brantford's total building stock.	✓
Group F – Industrial occupancies represent 1.6% of the City's total building stock.	✓
61% of the City's structural dwelling types are single-detached homes.	✓
Buildings identified as high-rise buildings are distributed throughout the City's downtown area.	✓
There are a number of identified heritage buildings within Brantford, with many located in the downtown area along Brant Avenue.	✓
The proportion of structure fires within the City during the years 2013-2017 is lower when compared against provincial statistics during the same time period (59% vs. 66%).	✓
Other occupancies not classified within the O.B.C. account for 10% of structure fires within the City.	✓
The annual emergency call volume for the period 2014-2018 indicates an average of 4,192 emergency calls per year.	✓
Analysis of call volume by day of week for the period of 2014-2018 indicates that the highest proportion of calls occurs on	✓

CRA Key Findings	THIRD LINE OF DEFENCE
Saturdays, while the lowest average call volume occurs on Tuesdays.	
Analysis of average call volume by time of day for the period of 2014-2018 indicates that the highest call volume occurs between 9a.m. and 11a.m. and 1p.m. and 6p.m.	✓
Based on O.F.M.E.M. Response Types, B.F.D. call volumes are comprised of 9% more false fire calls, 5% more C.O. false calls, and 5% more property fires/explosions call than the Province.	✓
The B.F.D. responds to 15% fewer medical calls than the Province.	✓
The second most prevalent rescue call relates to persons trapped in an elevator.	✓
The percentage of lone-parent families is slightly higher in the City compared to the Province (21% versus 17%).	✓
The 2016 Census data of educational attainment of people aged 15+ the City may have a higher degree of fire risk related to the disposable income available to purchase and maintain fire safety items such as smoke alarms.	✓
The 2016 Census data of decile groups indicates that the City may have a higher degree of fire risk related to the disposal income available to purchase and maintain fire safety items such as smoke alarms.	✓
There are shifts in student and commuter populations throughout the year; this population shift may impact the demand for fire protection services.	✓

CRA Key Findings	THIRD LINE OF DEFENCE
The geographical layout and size of the City, which includes the recent boundary adjustment of 33% more land, may result in extended emergency response times to some of locations within the B.F.D.'s coverage area.	✓
There are several at-grade crossings within the City which have the potential to delay fire response to key areas of the City.	✓
The City of Brantford's acquisition of undeveloped lands from the County of Brant has increased the overall response area of the B.F.D. and potential of fires related to a mix of wood lots, brush and grass, barn fires, and rural urban interface.	✓
Large open spaces within the City's boundaries may impact emergency response travel times.	✓
Top hazards for the City of Brantford as identified through the annual Hazard Identification and Risk Assessment Process include: tornado, freezing rain/ice storm, windstorm, snowstorm/blizzard, flood – river.	✓
Analysis of the existing Community Services Partners Profile indicates the availability of a wide range of community partners to support the community in response to a major incident.	✓
The City is currently considering a Water Servicing Strategy for the Tutela Heights Development Area that considers the required water flow for firefighting.	✓

CRA Key Findings	THIRD LINE OF DEFENCE
Analysis of the existing Public Safety Response Profile indicates the availability of an integrated emergency response including police, fire, and ambulance resources.	✓

8.7 Existing Fire Suppression Deployment Capabilities

This section presents the assessment of the existing fire suppression deployment capabilities of the B.F.D. based on an in-depth analysis of its historical deployment capabilities for the period from January 1st 2014 to December 31st 2018.

This includes G.I.S. modelling analysis of the existing initial response and depth of response capabilities of the B.F.D. in comparison to the proposed fire suppression performance objectives identified in **Table 32.**

Table 31: Proposed Fire Suppression Performance Benchmarks

Response Type	Proposed Fire Suppression Performance Benchmarks
Initial Response	Four firefighters arriving on scene within a four minute travel time to 90% of fire suppression incidents.
Depth of Response	Fifteen firefighters arriving on scene within an eight minute travel time to 90% of the moderate risk fire suppression incidents.

8.7.1 Modelling Methodology

Esri's Network Analyst tool was used to create a model of the City's current road network and simulate the fire suppression response coverage of the B.F.D. to navigate the City's road network.

G.I.S. layers were provided by the City for the existing road network. Relevant base road information, such as road length and road classification, was extracted from the G.I.S. data. The historic call locations for structure fires, vehicle fires and medical calls (emergency call) for the period from January 1st 2014 to December 31st 2018 were

utilized to calibrate the model. These types of calls represent incidents where the department operating guidelines require the use of all emergency lights and warning systems therefore representing the most consistent and expedited type of responses. These emergency calls were then added to the network and coded based on travel time to reach the call. An iterative process was applied to adjust the speeds throughout the road network to calibrate the model to reflect historic travel times and emergency response performance of first responding units for all calls with an emergency response code.

Table 33 summarizes the modelled speeds for the existing current road network. The calibrated model is then used to assess the applicable fire suppression performance benchmarks.

Table 32: Model Calibration

Posted Speed Limit (km/hr)	Modelled Speed (km/hr)
40	25
50	34
60	40
70	50
80	70
100	90

The calibrated road network, combined with the station locations, was used to build graphical “service area polygons” around each station. These polygons represent the emergency response coverage each station can provide in the specified amount of time (i.e. initial response coverage). Using the number of staff at each station, the polygon coverage can also represent the number of firefighters able to respond in a set amount of time (i.e. depth of response coverage).

8.7.2 Existing Fire Suppression Deployment Model

The existing minimum on duty staffing deployment model by station and apparatus is illustrated in **Table 34**.

Table 33: Existing Minimum Firefighter Deployment Model

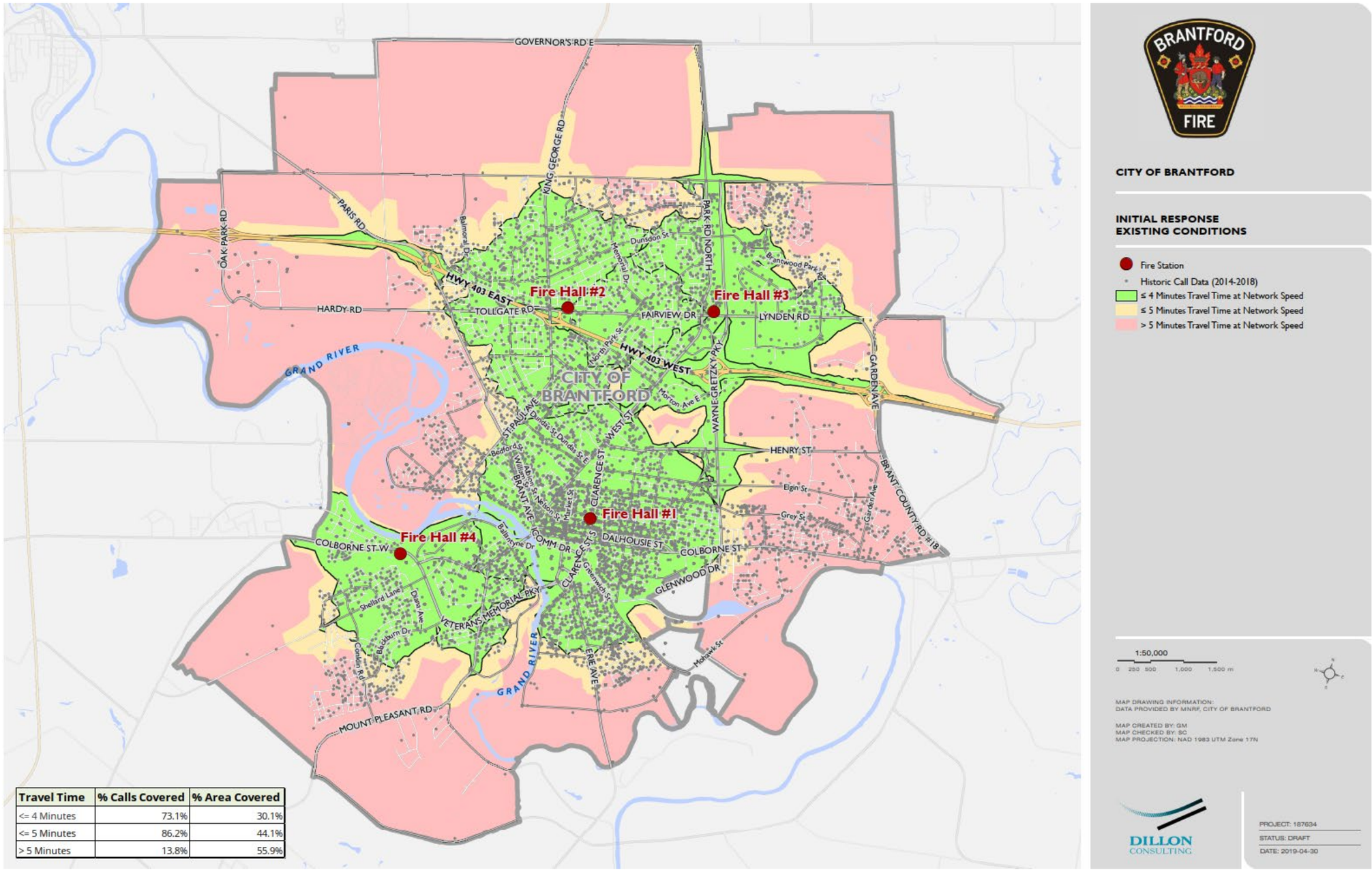
Station	Apparatus	Minimum On Duty Staffing
1	Platoon Chief	1
	Pump	4
	Aerial	2
2	Pump	4
3	Quint	4
4	Pump	4
Minimum # of Firefighters on Duty		**19**

8.7.3 Existing Initial Response Capabilities

Figure 22 illustrates the existing initial response capabilities of the B.F.D. in comparison to the proposed initial response performance objectives of **"Four firefighters arriving on scene within a four minute travel time to 90% of fire suppression incidents".** This analysis indicates that based on the location of the historical emergency calls for the period from January 1st 2014 to December 31st 2018 the B.F.D. was able to deploy four firefighters arriving on-scene within four minutes of travel time to 73.1% of the historical calls representing 30.1% of the City's geography (B.F.D. Response Area).

This model identifies the high concentration of emergency calls (shown as black dots) in the Station 1 response area that represents an average emergency call volume of 2,004 calls per year. The distribution of calls in the other station response districts is relatively equal. This model identifies those areas that are outside of the B.F.D.'s existing four minute travel time capabilities that represent the remaining 26.9% of historical calls. These calls are located in areas of the City where longer travel times are present as a result of the existing road network. This is common in most municipalities and highlights the importance of fire prevention and public education in those areas of the community that do have longer travel time.

Figure 22: Initial Response Existing Conditions



Travel Time	% Calls Covered	% Area Covered
<= 4 Minutes	73.1%	30.1%
<= 5 Minutes	86.2%	44.1%
> 5 Minutes	13.8%	55.9%

BRANTFORD FIRE

CITY OF BRANTFORD

INITIAL RESPONSE EXISTING CONDITIONS

- Fire Station
- Historic Call Data (2014-2018)
- ≤ 4 Minutes Travel Time at Network Speed
- ≤ 5 Minutes Travel Time at Network Speed
- > 5 Minutes Travel Time at Network Speed

1:50,000

0 250 500 1,000 1,500 m

MAP DRAWING INFORMATION:
DATA PROVIDED BY MNRF, CITY OF BRANTFORD

MAP CREATED BY: GM
MAP CHECKED BY: SC
MAP PROJECTION: NAD 1983 UTM Zone 17N

DILLON CONSULTING

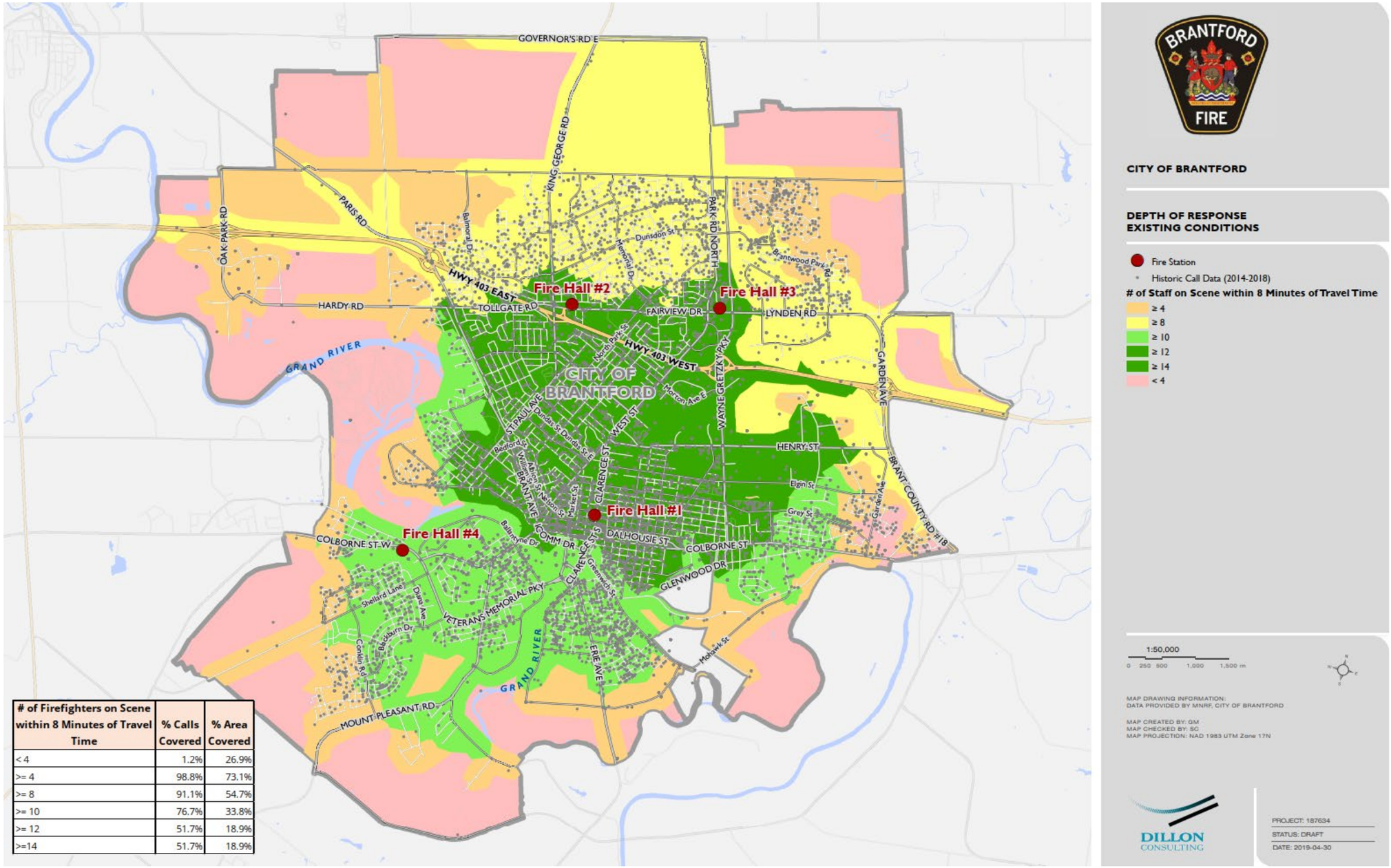
PROJECT: 187634
STATUS: DRAFT
DATE: 2019-04-30

8.7.4 Existing Depth of Response Capabilities

Figure 23 illustrates the existing initial response capabilities of the B.F.D. in comparison to the proposed depth of response performance objectives of **"Fourteen firefighters arriving on scene within an eight minute travel time to 90% of fire suppression incidents".** This analysis indicates that based on the location of the historical emergency calls for the period from January 1st 2014 to December 31st 2018 the B.F.D. was able to deploy 14 firefighters arriving on-scene within eight minutes of travel time to 51.7% of the historical calls representing 18.9% of the City's geography (B.F.D. Response Area).

This model illustrates that the B.F.D. is currently able to deploy the proposed N.F.P.A. 1710 depth of response of 14 firefighters within eight minutes of travel time to a large portion of the core area of the City. As a result of the current deployment model, the area within the City where 14 firefighters can respond within eight minutes of travel time is the same as where 12 firefighters (typically a three-truck response) can respond within eight minutes of travel time. This model also illustrates that the department is currently able to deploy eight firefighters (typically representing a two-truck response) within eight minutes of travel time to 91.1% of the historical call locations.

Figure 23: Depth of Response Existing Conditions



# of Firefighters on Scene within 8 Minutes of Travel Time	% Calls Covered	% Area Covered
< 4	1.2%	26.9%
>= 4	98.8%	73.1%
>= 8	91.1%	54.7%
>= 10	76.7%	33.8%
>= 12	51.7%	18.9%
>=14	51.7%	18.9%

8.7.5 Summary of Existing Deployment Capabilities

In our experience, attaining the 90th percentile performance objective referenced within the N.F.P.A. fire suppression deployment standards can be a significant challenge for most municipalities. As such this performance measure is more commonly referred to as a "target" as proposed within this M.F.P. than a defined performance benchmark. Determining the applicable, or preferred level of ongoing performance is intended to be defined by the "local needs and circumstances" of each community as referenced by the F.P.P.A. and considered by Council. Factors such as affordability and public expectations should be used to inform this decision making process.

In our experience the existing initial response capabilities of the B.F.D. that indicate it is able to deploy four firefighters arriving on-scene within four minutes of travel time to 73.1% of the historical calls is very comparable to other similar size communities with similar fire risk. Implementing strategies to improve this performance to a range closer to the 75th percentile would be more reflective of current industry best practices.

The existing depth of response capabilities of deploying 14 firefighters within an eight minute travel time to 51.7% of the historical call locations is also very comparable to other similar size communities with similar fire risk. Implementing strategies to improve this performance to a range closer to the 75th percentile would also be more reflective of current industry best practices.

8.8 Proposed Fire Suppression Deployment Options

The proposed fire suppression deployment options apply the strategy of seeking "continuous quality improvement" as supported by the Commission on Fire Accreditation International. The analysis within this M.F.P. identifies that the existing fire suppression deployment model of the B.F.D. would benefit from strategies to improve the initial response and depth of response performance capabilities of the B.F.D. to a range closer to the 75th percentile to be more reflective of current industry best practices.

The following options are presented for Council's consideration to apply the strategy of "continuous quality improvement" in delivering the most effective and efficient level of fire suppression services that provide the most value to the community.

8.8.1 Enhanced Data Collection

In our experience the analysis of performance benchmarks relies on the quality of the data inputs related to the performance. Fire suppression deployment analysis includes three key data elements including dispatch time, turnout time and travel time. The current trend within the industry is to implement an automatic, or electronically time stamped process to implement the data. For example, historically the time at which a fire truck leaves the fire station to travel to an emergency incident has been communicated by the Captain in charge of the apparatus to the dispatcher via a radio communication. This manual process can have a significant impact on both the "turn out time" and the "travel time" of that apparatus. As a result this manual process can have an impact on determining the initial response and depth of response performance of a fire department.

In our view the B.F.D. would benefit from a comprehensive review of the current emergency response data input process, and a review of technology solutions to fully automate this process. This may include the optimization of current technology, or the need for a different technology solution.

Operational Recommendation #34: That the B.F.D. review the data collection process and identify strategies for enhancing the fire suppression emergency response data collection process as presented within the proposed Master Fire Plan.

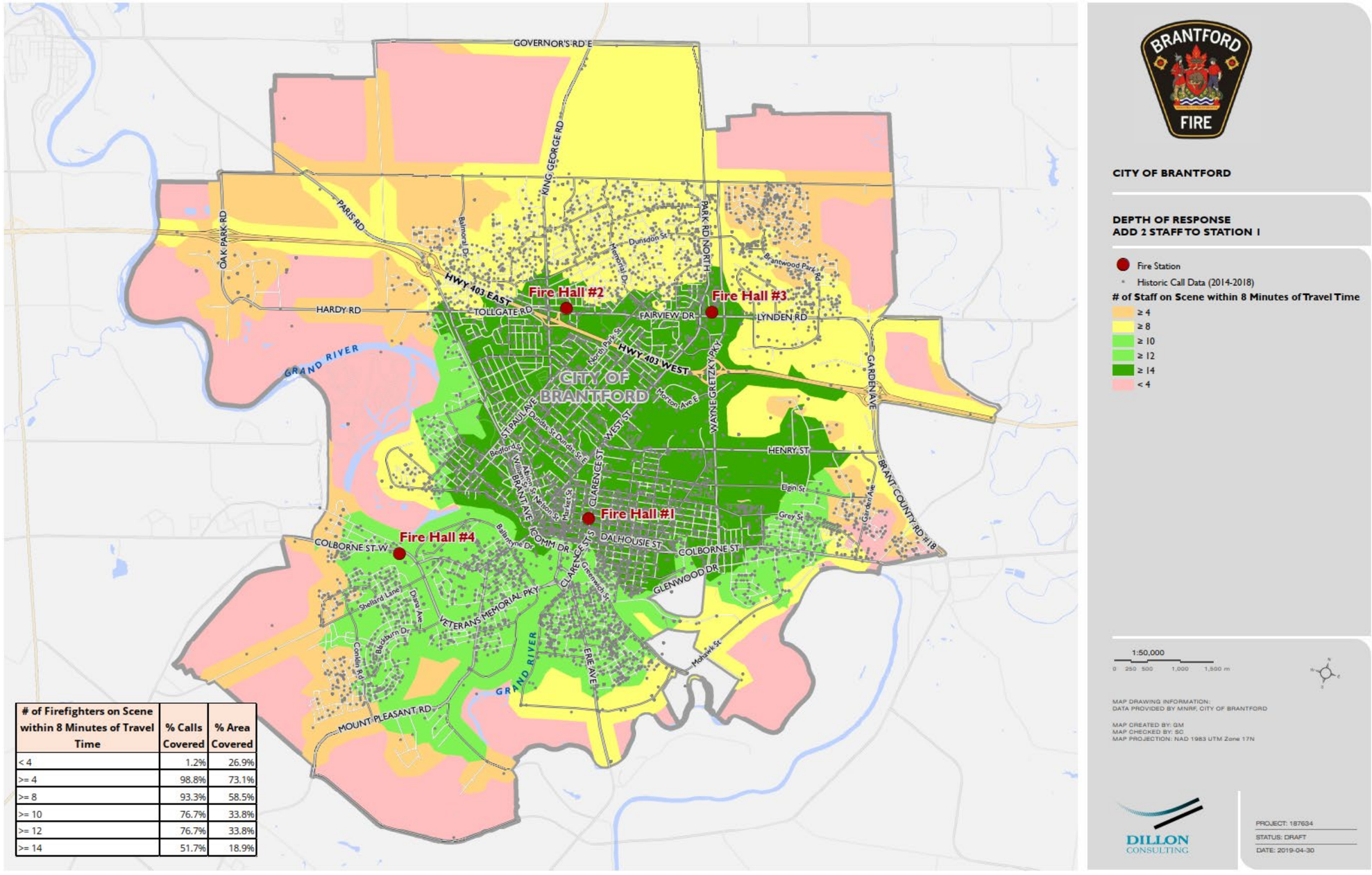
8.8.2 Revised Minimum Staffing of Aerial at Station 1

The existing minimum staffing of the aerial apparatus at Station 1 includes two full-time firefighters. The analysis of the historical call volume for the period from January 1st 2014 to December 31st 2018 indicates that the average annual call volume from Station 1 is approximately 2,004 calls per year. As the most centrally-located station in the downtown area this indicates that this station is responding to approximately five to six calls per day. This creates a high degree of probability that emergency calls could occur at the same time. For example, the pump from Station 1 could be occupied at an emergency call when another emergency call in Station 1's response district occurs.

In the event that the pump assigned to Station 1 is committed at an emergency call, the next closest emergency response apparatus in the Station 1 response district would be the aerial that is also assigned to Station 1. With the current minimum staffing level of two firefighters assigned to the Station 1 aerial, it would not function as an initial

response unit on its own. With a minimum staffing of four firefighters assigned, the aerial could respond to a second emergency call as the initial responding vehicle and complete the same operational tasks as that of the pump. This would provide an increase in the capability to respond to corresponding / overlapping calls in Station 1's response area. The initial response performance of the aerial at Station 1 would be equal to that of the pump from Station 1, as modelled in existing conditions. Staffing the aerial at Station 1 with a minimum of four firefighters at all times would also incrementally improve the overall depth of response capabilities of the B.F.D. The depth of response modelling of this scenario is shown in **Figure 24**.

Figure 24: Depth of Response Revised Minimum Staffing of Station 1 Aerial



# of Firefighters on Scene within 8 Minutes of Travel Time	% Calls Covered	% Area Covered
< 4	1.2%	26.9%
>= 4	98.8%	73.1%
>= 8	93.3%	58.5%
>= 10	76.7%	33.8%
>= 12	76.7%	33.8%
>= 14	51.7%	18.9%

Figure 24 illustrates that by increasing the minimum number of firefighters on duty from the existing complement of 19 to the proposed minimum complement of 21 firefighters in order to increase the staffing of the aerial assigned to Station 1 from the existing deployment of two firefighters to the proposed deployment of four firefighters improves the depth of response capabilities of the B.F.D for assembling eight firefighters (typically two trucks) on scene within eight minutes of travel time from the historical 91.1% of calls covered to 93.3% and improves the results of achieving 12 firefighters (typically three trucks) on scene within eight minutes of travel time from the historical 51.7% of calls covered to 76.7% of historic calls covered. Although this does not change the coverage of assembling 14 firefighters within eight minutes of travel time, it does provide incremental improvement of the department's depth of response performance and aligns with the strategy of continuous improvement.

It is recommended that Council consider increasing the minimum number of firefighters on duty from the existing complement of 19 to the proposed minimum complement of 21 firefighters in order to increase the staffing of the aerial assigned to Station 1 from the existing minimum of two firefighters at all times to the proposed minimum of four firefighters at all times. This would require hiring eight additional full-time firefighters with an estimated annual operating budget impact of approximately one million dollars. Through the application of the "continuous quality improvement" strategy this recommendation could be implemented over a two-year period that included the hiring of four additional firefighters in each year with an estimated annual operating budget impact of $500,000 per year.

Council Recommendation #6: That consideration be given to increasing the minimum number of firefighters on duty from the existing 19 to 21 in order to increase the staffing of the Aerial assigned to Station 1 as presented within the proposed Master Fire Plan.

8.8.3 Revised Emergency Call-Back Process

The B.F.D. currently relies on an Emergency Call-Back Procedure for calling off-duty firefighters to return to work when required during an emergency incident. This procedure was last updated and approved on March, 21st 2016. The implementation of this procedure must first be approved by the Fire Chief, Deputy Chief or their designate.

It is then implemented by the on-duty Platoon Chief and on-duty Communications Division staff.

This procedure prioritizes the call back of those firefighters on the platoon who have had the most hours off and who live within a 50 kilometre radius of the City. This procedure relies on a manual process of contacting the off-duty firefighters by telephone and logging entries onto a form when they agree to return to work. The on-duty Platoon Chief has the authority to initiate the emergency call-back under the following conditions:

i. Minimum number of firefighters on duty is less than 19;
ii. All suppression staff are actively involved in emergency operations;
iii. No station or crew would be available to respond to another incident in less estimated time than it would be to have off duty staff return to duty; and
iv. The Chief or Deputy Chief is notified as soon as practical that the call-back has been initiated.

In a municipality such as Brantford the off-duty full-time firefighters are a key element of the department's depth of response capabilities. In the absence of utilizing this resource the only alternative to assemble additional firefighters at as scene is through the activation of the Mutual Aid Agreement. In our view, consideration should be given to updating this procedure and implementing the use of further technology solutions to provide efficiencies and enhance its effectiveness. Areas for consideration to enhance the effectiveness of this procedure should include;

- Identifying and prioritizing the alerting of those off-duty firefighters that are immediately available to respond within a prescribed time frame;
- Implementing a technology solution for the alerting of off-duty firefighters to respond; and
- Consideration of a more prescribed timeline for the implementation of the procedure that does not rely on estimated times.

The efforts to review this procedure should focus on the importance of this highly trained "pool" of B.F.D. members that are familiar with the City's fire risks, and firefighting equipment. Where possible this procedure should prioritize the most effective and efficient process for alerting and assembling these off duty firefighters to supplement the depth of response capabilities of the B.F.D.

Operational Recommendation #35: That consideration be given to revising the current Emergency Call-Back procedure as described within the proposed Master Fire Plan.

8.8.4 F.U.S. Tanker Shuttle Accreditation

The Fire Underwriters Survey (F.U.S.) oversees a program referred to as the Tanker Shuttle Accreditation. This is a program that recognises the ability of a municipal fire department to provide an alternative water supply to be used for firefighting purposes in the absence of a municipally operating water supply system. F.U.S. recognises both a "standard" and "superior" level of service. To be credited for the "standard" tanker shuttle program a fire department must be able access an alternative water supply 24 hours per day and 365 days per year. It must then have the ability to refill tankers from the alternative water supply using drafting techniques that requires a pump with a minimum capacity of 450 L.P.M. (100 I.g.p.m.) at 275-415 k.P.a. (40-60 p.s.i.).

The "superior" tanker shuttle accreditation must meet all of the requirements specified for Standard Tanker Shuttle Service and must exceed those requirements in several key areas including:

- The fire department must be able to prove through testing that the specified requirements of Superior Tanker Shuttle Service can be met;
- For personal lines insurance, the fire department must be able to deliver a flow rate of not less than 950 LPM (200 IGPM) within 5 minutes of arriving at the test site with the first major piece of apparatus (wheel stop);
- For commercial lines insurance, the fire department must be able to deliver a flow rate of not less than 1900 LPM (400 IGPM) within 5 minutes of arriving at the test site with the first major piece of apparatus (wheel stop);
- The fire department must be able to deliver the flow rate which will be accredited within 10 minutes of arriving at the test site with the first major piece of apparatus (wheel stop); and
- The volume of water available for firefighting must be adequate to sustain the accredited flow rate for a duration in accordance with the Fire Underwriters Survey Water Supplies for Public Fire Protection.

There are many existing areas of the City that would benefit from the B.F.D. participating in the F.U.S. tanker shuttle accreditation process. This benefit would recognise the ability of the B.F.D. to provide alternative water supplies for firefighting,

and possibly a reduction in fire insurance rates for those occupancies that may be applicable. In our experience the B.F.D. would require the support of neighbouring fire services to achieve this accreditation through the development of an automatic aid agreement to supply additional tanker trucks. This is a common practice in many rural, non-municipal water system areas of the province.

Operational Recommendation #36: That the B.F.D. consider the ability of the department to attain the Superior Tanker Shuttle Accreditation for the City of Brantford.

8.9 Community Growth Strategy

The evaluation of providing fire protection services (fire suppression) to the two areas of the City that are being considered for future community growth was included within the scope of this master fire planning process. The two proposed community growth areas include the proposed Tutela Heights Development Area, and the proposed North Brantford Development Area.

8.9.1 Proposed Tutela Heights Development Area

The Tutela Heights development area is located in the south eastern area of the City within the area of Mount Pleasant Road, Phelps Road and Tutela Heights Road. Initial response fire suppression services are currently provided to this area from Fire Station 4 located at 400 Colborne Street West. In 2018 the City completed a Water Servicing Strategy[16] that identified the need for water supply upgrades to meet the current and future fire flow requirements for this area.

This area is outside of the current four minute travel time capabilities of the initial responding apparatus from Station 4. This area is currently partially covered by a depth of response capability of ten firefighters within an eight minute travel time. This area currently receives a similar level of fire suppression services as can be found in the area of the City bordered by Park Street North, Elgin Street, Garden Avenue and Colborne Street.

In Summary, the existing fire protection services (fire suppression) provided to the proposed Tutela Heights Development Area are consistent with many of the other areas

[16] Tutela Heights Water Servicing Strategy – June 2018 – Blue Plan Engineering

of the City that are located outside of the existing four minute travel time coverage capabilities of the B.F.D. Any proposed further development of this area could be serviced by the existing fire suppression capabilities of the B.F.D. including the prioritization of fire prevention and public education initiates such as the legislative requirements for working smoke alarms and carbon monoxide alarms, and the preparation and practicing of home escape planning. As identified, the City is aware of the existing and future fire flow requirements to service this area.

8.9.2 Proposed North Brantford Development Area

The proposed North Brantford Development Area includes an Option "A" and "B" land use model, and within each of these land use models there are also two road network options. In order to understand both the existing capabilities, and optional scenarios for the B.F.D. to provide fire suppression services to these areas, a comprehensive analysis of each land use and road network option was completed. At the time of conducing our analysis only the proposed arterial and collector road networks were available from the City.

For comparative analysis purposes this evaluation considers the initial response capabilities of the B.F.D. to provide four firefighters on scene within four minutes of travel time. As these are proposed community growth areas this analysis does not consider the historical percentage of emergency calls covered.

Scenario #1 assesses the existing initial response capabilities of the B.F.D. from the existing fire station locations, whereas **Scenario #2** assesses the potential initial response capabilities of the B.F.D. if Fire Station 3 was to be relocated to the area of Wayne Gretzky Parkway and Dunsdon Street. **Table 35** presents the findings of this analysis. Outputs from the G.I.S. models of each scenario and option are provided within **Appendix E.**

This analysis indicates that based on the proposed road network the B.F.D. would be able to provide an initial response of four firefighters within a four minute travel time from the existing fire station locations to a portion of the proposed development area north of Powerline Road and bordering Park Road North. In comparison the relocation of Station 3 would result in a larger percentage of area covered extending east and west along Powerline Road and north bordering Park Road North to Governors Road.

Table 34: Proposed North Brantford Development Area Analysis

Fire Station Location	Land Use Option	Initial Response	Figure #	Initial Response % of Area Covered (City-Wide)
Scenario #1 Existing Fire Station Locations	Employment & Community Area Option 1	Road Network Option 1A	4	31.2%
		Road Network Option 1B	5	31.2%
	Employment & Community Area Option 2	Road Network Option 2A	6	31.1%
		Road Network Option 2B	7	31.1%
Scenario #2 Relocate Fire Station #3	Employment & Community Option 1	Road Network Option 1A	8	32.4%
		Road Network Option 1B	9	31.2%
	Employment & Community Option 2	Road Network Option 2A	10	32.9%
		Road Network Option 2B	11	32.9%

In summary, the existing fire protection services (fire suppression) provided to the proposed North Brantford Development Area are also consistent with many of the other areas of the City that are located outside of the existing four minute travel time coverage capabilities of the B.F.D. The proposed development of this area could be serviced by the existing fire suppression capabilities of the B.F.D. including the prioritization of fire prevention and public education initiates, such as the legislative

requirements for working smoke alarms and carbon monoxide alarms, and the preparation and practicing of home escape planning.

Alternatively, the existing Station #3 is nearing the end of its predicted life cycle. As the future projected community growth plan is completed and moves further towards implementation the City may wish to consider the relocation of Station #3 further north towards the proposed community growth area. Further analysis of this strategy should be considered at the mid-point (5-year) life of this M.F.P.

8.10 Fire Suppression Division Summary

The analysis of the historical fire suppression capabilities of the B.F.D. in comparison to the proposed fire suppression performance benchmarks indicate that the existing fire suppression capabilities are similar to what would be found within a comparable sized community with similar fire risk. Options to further enhance the fire suppression capabilities of the B.F.D. are presented within this M.F.P. by applying a "continuous quality improvement" strategy. These options are recommended to prepare the B.F.D. for sustaining and enhancing the delivery of fire suppression services within a growing community, including intensification of the downtown area.

Analysis of the existing depth of response capabilities of the B.F.D. indicates that based on the current minimum on-duty staffing of 19 firefighters the department would be unable to assemble the total number of firefighters identified by the applicable N.F.P.A. standard for responding to a fire in a defined high risk occupancy requiring a deployment of 26 firefighters, or a high-rise high risk occupancy requiring a deployment of 39 firefighters. This challenge is not uncommon in municipalities of similar size and fire risk as the City of Brantford. In response to this challenge this M.F.P. proposes the optimization of the first two lines of defence as a proposed strategic priority including"

"Where applicable the optimization of the first two lines of defense including public education and fire prevention, and the utilization of fire safety standards and fire code enforcement to provide a comprehensive fire protection program within the City"

This M.F.P. includes recommendations to further enhance the fire prevention inspection process and public education programming specifically targeting both high risk and high-rise high risk occupancies as risk reduction/mitigation strategies recognising the existing depth of response limitations of the B.F.D. This M.F.P. also includes recommendations

to further enhance the operational depth of response capabilities of the B.F.D. Our review of the fire suppression capabilities and resources has identified the following recommendations for consideration:

Council Recommendations:

5. **That Council approve the proposed fire suppression performance benchmarks presented within the proposed Master Fire Plan as the performance planning targets for the delivery of fire suppression services within the City of Brantford.**
6. **That consideration be given to increasing the minimum number of firefighters on duty from the existing 19 to 21 in order to increase the staffing of the Aerial assigned to Station 1 as presented within the proposed Master Fire Plan.**

Operational Recommendations:

34. **That the B.F.D. review the data collection process and identify strategies for enhancing the fire suppression emergency response data collection process as presented within the proposed Master Fire Plan.**
35. **That consideration be given to revising the current Emergency Call-Back procedure as described within the proposed Master Fire Plan.**
36. **That the B.F.D. consider the ability of the department to attain the Superior Tanker Shuttle Accreditation for the City of Brantford.**

9.0 Emergency Management

As per the scope of requirements for this master fire planning process, all aspects of the fire department, including its emergency management program were assessed. The legal framework for managing emergencies in Ontario is established in the Emergency Management and Civil Protection Act (E.M.C.P.A.). It is complemented by Ontario Regulation 380/04 (Standards), which lays out the minimum standards required by municipalities and provincial ministries for emergency management programs.

9.1 Emergency Management Legislation and Regulation in Ontario

Under the Act, the Solicitor General has authority to make regulations setting standards for the development, implementation and maintenance of emergency management programs required by communities. It further requires every municipality, minister of the Crown and designated agency, board, commission and other branch of government ensure that their emergency management programs and emergency plans conform to the standards set within the Act. There are six main standards of which each municipality is required to fulfill under the Act. **Table 36** outlines these standards as they are referenced in Part II of Ontario Regulation 380/04.

Table 35: Municipal Standards (Source: E.M.C.P.A.)

Municipal Standard	Description
Emergency Program Coordinator	Every municipality shall designate an employee of the municipality or a member of the council as its emergency management program coordinator. This individual is required to co-ordinate the development and implementation of the municipality's emergency management program within the municipality to complete training as determined appropriate by the Chief, Emergency Management Ontario.
Emergency Management Program Committee (E.M.P.C.)	Every municipality shall have an emergency management program committee. This committee is required to advise the council on the development and implementation of the municipality's emergency

Municipal Standard	Description
	management program and conduct an annual review of the municipality's emergency management program
Municipal Emergency Control Group (E.C.G.)	Every municipality shall have a municipal emergency control group. This Group directs the Emergency Response Plan (E.R.P.) in the event of an emergency, adjusting procedures and recommending improvements to the E.R.P. as it determines necessary after training exercises or actual emergency incidents
Emergency Operations Centre (E.O.C.)	Every municipality shall establish an emergency operations centre to be used by the municipal emergency control group in an emergency. It is activated and staffed by the E.C.G. during emergency events. It is to be equipped with appropriate equipment and technology, including a means of providing effective communications during an emergency.
Emergency Information Officer (E.I.O.)	Every municipality shall designate an employee of the municipality as its emergency information officer. This individual ensures that accurate information about the emergency is communicated with both the public and the media.
Emergency Response Plan (E.R.P.)	The emergency plan that a municipality is required to formulate under subsection 3 (1) of the Act shall consist of an emergency response plan. Every municipality is required to conduct training programs and exercises to ensure the readiness of those responsible for the emergency plan. The plan is to be reviewed on an annual basis.

9.2 Emergency Management – City of Brantford

9.2.1 Emergency Management Program Manager (E.M.P.M.)

As previously mentioned, the City of Brantford recently entered into a partnership with the County of Brant to hire an Emergency Management Program Manager. The Emergency Management Program Manager is responsible for the following:

- Ensures Emergency Operations Centers are in a continuous state of readiness in the event of an emergency through ongoing planning training and awareness initiatives;
- Supports both the City and County municipal Emergency Management programs including the sharing of tools best practices, training and exercises;
- Creates and maintains municipal emergency response plans and recovery plans;
- Develops and maintains municipal Hazard Identification, Risk Assessment (HIRA) and Critical Infrastructure lists;
- Coordinates linkages with the local municipalities, critical infrastructure providers and/or non-government (volunteer) organizations to increase collaboration, improve interoperability and enhanced emergency program alignment;
- Manages and coordinates activities in support of the Emergency Management Program Committee;
- Promote Emergency Preparedness for all citizens through an annual Public Awareness Campaign, community workshops, presentations to interest groups and stakeholders, school-based and media-based public education programs any other means available;
- Works with agencies such as EMS, Fire, Police and Red Cross; and
- Develops and writes technical reports and plans, briefs, position papers and committee reports as directed.

The Emergency Management Program Manager position is a full time position (35 hours per week). The time worked is to be divided equally between the two jurisdictions, with the City retaining ultimate discretion with respect to hiring and disciplinary matters. The term of the agreement is two years and includes provision for training, memberships and cost of living increases. During the engagement process of this M.F.P., we learned the new Emergency Management Program Manager position had been filled by a candidate with significant experience in an emergency services capacity. The cooperative nature of this working relationship between the County of Brant and the

City is aligned with current municipal best practices for shared services providing cost-effective solutions for communities.

Emergency Management Program Manager reports to the Community Emergency Management Coordinators of the City of Brantford and the County of Brant. The E.M.P.M. is responsible for the development, implementation, coordination and maintenance of the comprehensive Emergency Management Program for the City and the County.

At the time of preparing this M.F.P. the City's Emergency Management Plan was under review with a planned update scheduled for the 4th quarter of 2019 including updates to the Emergency Management Program Committee, Municipal Emergency Control Group and Emergency Response Plan.

9.2.2 Emergency Management Program Committee

The City of Brantford's E.M.P.C. is comprised of:

- Chief Administrative Officer;
- General Manager of Public Health, Safety and Social Services;
- General Manager of Public Works Commission;
- Brantford Police Chief;
- Brantford Fire Chief;
- City Clerk;
- Emergency Information Officer; and
- Community Emergency Management Coordinator.

9.2.3 Municipal Emergency Control Group

The City of Brantford Emergency Plan outlines the roles and responsibilities of those individuals responsible for directing and managing operations and for providing support and resources to the emergency site. The City designated this group as the Emergency Operations Advisory Group (E.O.A.G.) which is the Municipal Emergency Control Group required by the E.M.C.P.A.

9.2.4 Emergency Information Officer (E.I.O.)

As required by the E.M.C.P.A., the Emergency Information Officer ensures that accurate information about the emergency is communicated with both the public and the media.

The City of Brantford is currently utilizing the Director of Communications and Community Engagement as the Media Liaison Officer. In this individual's absence, Council will appoint an alternate as the E.I.O. This individual is responsible for advising the E.O.A.G. on matters as they relate to public or media information and for the provision of information updates to the media and general public.

9.2.5 Emergency Response Plan

The City of Brantford Emergency Plan establishes a framework for responding to emergency situations within the community. In accordance with legislative requirements outlined in the Emergency Management and Civil Protection Act (E.M.C.P.A.), the Emergency Plan was enacted through By-Law Number 11-2013 and serves as a tool to assist emergency personal and users of the plan in their collective response efforts. It is consistent with Incident Management System (I.M.S.) structure (which provides standardized organizational structures, functions, processes and terminology for use at all levels of emergency response in Ontario). It also serves as a guideline that outlines the roles and responsibilities or each team member when preparing for, mitigating, responding to and recovering from emergencies and disasters. Complementary to the primary document, there are a number of confidential appendices solely accessible to internal agencies and may be disseminated to external agencies upon the City's discretion.

9.2.6 Municipal Compliance

Each municipality is responsible for demonstrating their compliance with the annual requirements set out in the E.M.C.P.A. The Office of the Fire Marshall and Emergency Management has launched an online compliance submission tool to assist municipalities with this legislated responsibility. During the annual review of the Emergency Management Program, the E.M.P.C. can confirm the completion of an emergency response plan, annual training, annual exercise, public education programs, municipal hazard identification and risk assessment and a critical infrastructure list.

The City is currently awaiting confirmation from the Ministry of Correctional Service and Community Safety that the City was compliant with the Emergency Management and Civil Protection Act for 2018.

9.2.7 2018 Flood Event

In the early hours of February 21, 2018 an ice jam upstream of Parkhill Dam had released sending water surges downstream. The emergency notification system of the Emergency Management Plan and Program was activated requiring all Emergency Operations Advisory Group (E.O.A.G.) personnel to report to the Emergency Operations Centre. An evacuation area was established and power and gas utilities were disconnected to this area. The City declared the event an emergency through the appropriate official channels and continued to monitor water levels. Efforts to inform the public were undertaken consistently throughout the response and recovery phase of the event, including holding regular press conferences through local media sources, establishing a call center for public inquiry, and social media was used as a tool to provide regular updates to information. In the recovery phase of the event, the City contacted the Insurance Bureau of Canada in order to hold two information sessions for Brantford residents regarding their insurance claims and the E.O.A.G. developed a waste management strategy to further assist those living in the affected area.

In the May, 2018 report received by Council entitled February 2018 Flooding Event, a review of the emergency response effectiveness was provided highlighting a number of successes and recommendations to improve the current state of the emergency program and plan. Based on the findings of this report, successes identified include a strong communications plan, effective and timely decision making, collaboration and information sharing among all parties involved and sound incident management plans. These successes facilitated an effective response to the flood event and contributed to mitigating the event's impacts upon the community.

Recommendations made to improve the emergency management program and plan focused on five areas:

- Emergency Management Program/Plan;
- Communications;
- Technology;
- Emergency Operations Centre; and
- Training.

9.2.8 Emergency Operations Centre

The 2018 flooding event highlighted the need for a larger and better equipped Emergency Operations Center (E.O.C.). Three recommendations made in the February 2018 Flood Event report for consideration included:

- Conducting a facility needs assessment to identify a suitable site location for a larger more suitable primary and secondary E.O.C. pursuant to E.M.C.P.A.;
- Implement entry control technology and procedures to restrict access and enhance safety and security of the E.O.C.; and
- Research and implement technology solutions to ensure E.O.C. has appropriate computer and communications technology, alternative power, resources and redundancies to operate effectively during extended emergency operations.

Our observations of the current E.O.C. are consistent with the recommendations from the 2018 flooding event. We are aware through discussions with the Fire Chief in preparing this M.F.P. that identifying options to address the E.O.C. are a priority for the City. To further support the importance of responding to these recommendations and developing a strategy to replace the existing E.O.C. we have included the following recommendation.

Operational Recommendation #37: That the Fire Chief be directed to prioritize the identification of options to replace the existing primary and alternate Emergency Operations Centres including enhanced technology capabilities as recommended by the 2018 Flood Event Report.

9.2.9 Annual Training

The E.M.C.P.A. requires municipalities in Ontario to conduct emergency training and an emergency exercise on an annual basis as part of the overall emergency management program. Training programs are available through Emergency Management Ontario based on E.M. best practices and principles across Ontario. E.M.O. administers courses in the areas of Incident Management Systems, Exercise Program Management, Note Taking, Community Emergency Management Coordinator training. In addition, function specific emergency management training is currently taking place with the County of Brant and our emergency management support agencies to ensure interoperability and consistency in the City's response plan.

Operational Recommendation #38: That the city continue to prioritize the training of E.O.C. members with respect to their roles and responsibilities as required in the Emergency Management and Civil Protection Act.

9.3 Emergency Management Summary and Recommendations

As the City and surrounding area continues to grow, the need for a comprehensive Emergency Management Program is highlighted to ensure our community is prepared and resilient when faced with a disaster. The City is required to meet the requirements set out in the Emergency Management and Civil Protection Act and its regulations. The City's approach to Emergency Management should not only meet the requirements but to exceed them by adopting a best practices through their organization, including partnering agencies, to prevent, mitigate, prepare for, respond to and recover from risks that the community faces. The following Emergency Management recommendation supports the need to ensure a safe, healthy and resilient community.

Operational Recommendations:

37. **That the Fire Chief be directed to prioritize the identification of options to replace the existing primary and alternate Emergency Operations Centres including enhanced technology capabilities as recommended by the 2018 Flood Event Report.**
38. **That the City continue to prioritize the training of E.O.C. members with respect to their roles and responsibilities as required in the Emergency Management and Civil Protection Act.**

10.0 Fleet, Facilities and Equipment Division

The Fleet, Facilities and Equipment Division reports to the Deputy Fire Chief of Operations. This division is managed on a daily basis by the Mechanic, who is assisted by an Assistant Mechanic. Both are Emergency Vehicle Technician (E.V.T.) and licenced mechanics. This division is responsible for the maintenance, repair and purchasing of the department's major fire apparatus, equipment and small vehicles as well as facility repairs and maintenance.

The analyses within this section outline the department apparatus and equipment and other functions of the division including replacement plans, maintenance, and records management.

10.1 Division Key Functions

The B.F.D.'s Mechanical Division operates from a maintenance facility located at Headquarters. The existing maintenance area has a height restriction that requires the Aerial to be taken to Station 4 when some servicing is required. The workspace for maintenance activities includes an indoor mechanics pit which allows the mechanic to gain access to all areas of the vehicle. Within the current workspace there is limited areas for storage of tools and inventory. This M.F.P. recommends that a comprehensive review of the existing work space at Station 1 (Headquarters) be conducted to identify options for improving the work space functionality of this facility to accommodate the existing and future staffing resource needs of this Station. This includes the workspace allocated for the Mechanical Division.

Key functions of the Division include:

- Annual certification of all firefighting apparatus;
- Self-Contained Breathing Apparatus (S.C.B.A.) testing / maintenance / repairs;
- Equipment and maintenance repair for both small equipment and large equipment;
- Preventative maintenance and repair of all major fire apparatus and small vehicles;
- Co-ordination of ladder testing / pump testing / rust proofing;
- Ordering / returning mechanical parts and supplies;

- Coordinating and facilitating building maintenance and repairs at all stations; and
- Inventory and parts control.

In addition to these key functions the Mechanic is responsible for:

- Prioritization of emergent and non-emergent repairs to apparatus;
- Records management for all major fire apparatus, equipment and small vehicle maintenance;
- Operating and capital budget recommendations; and
- Developing major fire apparatus and equipment specifications.

These functions are completed following the **N.F.P.A. 1901 Standard for Automotive Fire Apparatus, and the N.F.P.A. 1911 Standard for the Inspection, Maintenance, Testing, and Retirement of In-Service Emergency Vehicles.** This practice is consistent with current industry best practices and provincial requirements, including conducting Periodic Mandatory Commercial Vehicle Inspections (P.M.C.V.I.s) of apparatus.

Depending on the nature of required apparatus repairs, the Mechanic has the ability to outsource specialized repairs requiring or inspections of fire suppression and rescue equipment to external qualified technicians. This division is also responsible for maintenance of the Self Contained Breathing Apparatus (S.C.B.A.), fire hose repair and all smaller equipment. Firefighter protective clothing repair and inspections are contracted out to an external company.

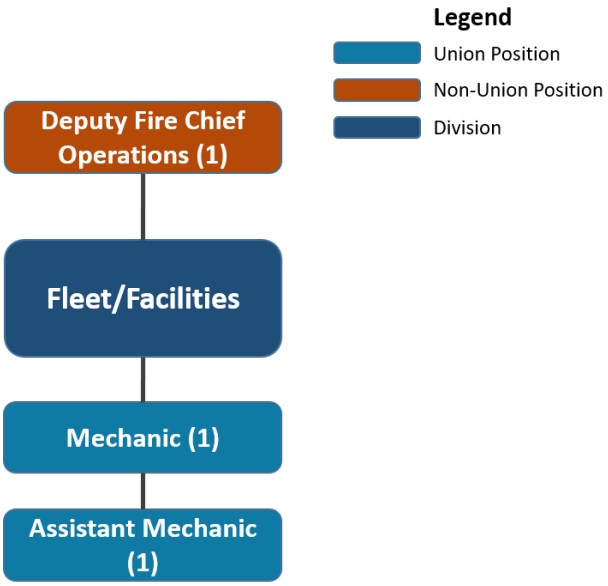
10.2 Existing Fleet, Facilities and Equipment Division Staff Resources

The Brantford Fire Department has one Mechanic and one Assistant Mechanic. The Mechanic reports directly to the Deputy Fire Chief - Operations and is primarily responsible for overseeing all preventative maintenance and repairs on the B.F.D. apparatus and equipment. In addition to these key functions the Mechanic is responsible for:

- The prioritization of emergent and non-emergent repairs to apparatus;
- Records management for all major fire apparatus;
- Equipment and small vehicle maintenance;
- Coordination of building maintenance;
- Operating and capital budget recommendations; and
- Developing major fire apparatus and equipment specifications.

An Assistant Mechanic is to support the Mechanic in the daily operations of the Mechanical Division, including building maintenance, preventative maintenance, inspections of vehicles, and overall is to ensure that all apparatus is in good working condition. The staff structure of the Fleet, Facilities and Equipment Division is illustrated in **Figure 25**.

Figure 25: Existing Fleet, Facilities and Equipment Division Staffing and Structure



10.3 Fire Stations

The B.F.D. currently operates out of four fire stations strategically located throughout the City. This section provides a description for all existing stations. To address the fire service delivery needs of the local community, the City of Brantford retained outside services to conduct a Fire Station Location Analysis following the recommendations of the Fire Station 2 Site Selection Committee with consideration given to future fire response demands following the City's recent land acquisition.

Table 37 outlines the three Policies that address station maintenance.

Table 36: Department Policies for Station Maintenance

Policy Number	Policy Title
1.33	Department Supplies- Requisitions
5.5	Station Inspections
5.11	Station Overhead Doors
6.9	Workplace Safety Inspections

10.3.1 Station 1: 60 Clarence Street (Headquarters)

Constructed in 2000, Station #1 (Headquarters) houses the Administration, Mechanical, Communications, Fire Prevention, Professional Qualifications and Standards and Emergency Management Divisions. The City's Emergency Operations Centre (E.O.C.) is found on the second floor, along with a board room and the administrative offices for all six divisions of the B.F.D., including common workspace for the Fire Prevention Division, and separate officers for the Fire Chief, two Deputies, Chief of Fire Prevention, Chief Training Officer and Assistant Training Officer, Administrative Assistant and Support Services Assistant as well as the Emergency Management Program Manager. The Fire Prevention area includes male and female bathrooms (with showers). The building has an elevator that travels between all three floors and has an accessible bathroom. The station has five truck bays, with three having drive-thru capability. The Station includes a platoon chief's office ,a captain's office a dormitory/training room, kitchen with common area, a training office, control room (with three work stations and kitchen) and male/female locker rooms (with showers). Station 1 is equipped with Jordair breathing air compressor and fill station, Unimac gear extractor and two Ram air gear dryers. The basement is used to store bunker gear. Additionally there are two storage rooms, one used for station supplies and the other for fire prevention and public education materials. The Fleet, Facilities and Equipment Division office is found on the ground floor. Gym equipment is kept in the apparatus bays.

10.3.2 Station 2: 311 St. Paul Avenue

Built in 1960, Station 2 is a one-storey building and includes two bays (with drive-thru capability). There is a captain's office, small kitchen (which includes a sitting area), locker room (which also functions as a sleeping area), and a shared male/female washroom that includes one shower. Bunker gear is stored off of the floor on the basement level. Bunker gear and general storage as well as a residential washer and dryer are found in the basement. The garage includes an exercise area, two pumper/rescue apparatus and a diesel exhaust extraction system. There are two storage sheds outside and adequate parking.

Plans to replace Station 2 have been undertaken by the City. The current plans include a one storey, approximately 10,600 square foot station, with drive thru capacity for fire apparatus and parking spaces for visitors and staff. The project was originally expected to be completed in late 2019, however more recent estimates have been updated to the 2nd quarter of 2020.

10.3.3 Station 3: 7 Lynden Road

Constructed in 1975, Station 3 has two drive through bays and includes a captain's office, study room, common dormitory, a kitchen with common sitting area, a bathroom, separate electrical, and storage rooms. The roof was recently replaced (2017). An outside storage shed has a new roof (2018). Station 3 is equipped with a remote generator, force air furnace, central air conditioning, Unimac gear extractor, Ram air gear dryer, hose tower, residential washer and dryer, Jordair breathing air compressor and fill station, Nederman exhaust system. This fire hall does not have a basement. The upper floor is used to storage bunker gear and houses a mechanical room. Gym equipment is kept on the apparatus floor. Station#3 has ample parking.

10.3.4 Station 4: 400 Colborne Street West

Built in 2005, this Station 4 is one storey and includes two bays (with drive-thru capability) which houses one pumper/rescue apparatus. There is ample storage space within the hall in addition to a captain's office, a common room, spacious modern kitchen, a patio area, one locker room, separate female and male washrooms (both with showers) and separate laundry room. Bunker gear is stored in a separate, ventilated room and there is an exercise area in the garage. This station is A.O.D.A. compliant, there is a backup generator and a decent amount of parking. Station 4 is equipped with a stand-alone natural gas generator, forced air furnace and central air conditioning, Unimac gear extractor, Ram air gear dryer, Jordair breathing air compressor and fill station, residential washer/dryer, hose tower, outdoor storage shed and ample parking.

10.3.5 Station/Facility Repair and Renewal

Our review of the current capital budget, fire station conditions including the repair and renewal process did not identify any ongoing funding, or specific process for managing the ongoing life cycle of the existing fire stations. These facilities reflect a significant capital investment on behalf of the City. Our review of applicable municipal best practices indicates there is a need for a facilities asset management plan for the existing and proposed future fire stations. Based on life cycle planning an asset management plan should plan for, and provide capital funding for major renovations and/or repairs to optimize the life expectancy of these facilities. Our review indicates that the corporate Facilities and Asset Management Group may be best positioned to oversee this type of planning and funding.

Operational Recommendation #39: That consideration be given to developing a Facilities Asset Management Plan for all fire stations as identified within the proposed M.F.P.

10.4 Division Training and Certification

The department's current mechanic and assistant mechanic both hold a Master E.V.T. (Emergency Vehicle Technician) certification. They also possess a 310T Truck and Coach Technician and 310S Automotive Service Technician licenses.

This M.F.P. highlights the importance of qualifications and certifications for all fire department personnel and has highlighted recent information from the province referencing mandatory qualifications and certifications for the fire department. For mechanics this includes Emergency Vehicle Technician Certification (E.V.T.), a requirement in which the B.F.D. is prepared for.

10.5 Major Fire Apparatus

Our review of the current state of major fire apparatus indicates that the B.F.D. prioritizes the state of repair and condition of all major fire apparatus and equipment. The B.F.D. operates a major fire apparatus fleet that reflects the needs of a modern fire and rescue service the size of B.F.D. that would be expected based on the fire risks present within the community. The current major apparatus fleet assigned to the fire stations as "front-line" apparatus (meaning they are available for emergency response at all times) is listed in **Table 38**.

Table 37: Current Major Fire Apparatus

Station	Fleet #	Vehicle Description	Year Purchased	Replacement date	Replacement Cost
Station 1	FS1501	Pumper	2015	2032	$750,000
Station 1	FS0901	Sprinter	2009	2019	$120,000
Station 1	FS0601	Aerial	2006	2023	$1,500,000
Station 1	FS1101	Freightliner	2011	2030	$400,000
Station 2	FS9701	Pumper	1997	2019	$750,000
Station 2	FS0803	Spartan	2008	2025	$750,000
Station 3	FS0801	Quint	2008	2020	$1,100,000
Station 3	FS0501	Pumper	2005	2022	$750,000

Station	Fleet #	Vehicle Description	Year Purchased	Replacement date	Replacement Cost
Station 3	FS0802	Pumper	2008	2025	$750,000

In addition to the "front-line" major fire apparatus the B.F.D. maintains a fleet of reserve major fire apparatus, summarized below in **Table 39**. Reserve apparatuses are utilized in the event that a "front-line" apparatus is taken out of service for preventative maintenance and/or repairs. Major reserve fire apparatus are also available in the event of a major incident requiring additional fire suppression capacity. In these events these apparatuses are staffed by off duty firefighters who have been called in on overtime.

Table 38: Current Major Apparatus Fleet (Reserve)

Station	Fleet Number	Vehicle Description	Year Purchased
Station 2	FS9701	Pumper	1997
Station 3	FS0501	Pumper	2005

Maintaining a fleet of reserve major fire apparatus reflects current industry best practices and is supported by the Fire Insurance Underwriters as due diligence on behalf of the municipality. The term "reserve" can be interpreted to mean this apparatus may not necessarily be required. In our experience the term "service ready" is more applicable to this category of major fire apparatus. It should be recognised that this apparatus may be needed under emergency conditions to sustain the level of Council approved fire suppression services in the event of an apparatus breakdown. This apparatus also provides greater flexibility in the event of a major incident.

10.6 Small and Specialized Vehicles

In addition to the major fire apparatus the B.F.D. operates a number of small and specialized vehicles. This includes vehicles for the administrative staff (Chief and Deputies), senior Fire Suppression Division staff (Platoon Chief), Fire Prevention and Professional Qualifications and Standards Division staff (passenger vehicles), medium size pickup trucks for the Mechanical Division and a number of specialized vehicles such as the firefighter Rehab Unit, utility trailers, and an Air Light truck.

Our review indicates that all of the small and specialized vehicles are consistent with those that would be found in a large modern fire service. The B.F.D. currently replaces these vehicles based on a seven year life cycle. Small and specialized vehicles are listed in **Table 40**.

Table 39: B.F.D. Small and Specialized Vehicles

Station	Fleet #	Vehicle Description	Year Purchased	Replacement date	Replacement Cost
Station 1	FA1301	Ford Edge	2013	2020	$40,000
Station 1	FA1701	Ford Explorer	2017	2024	$40,000
Station 1	FA1702	Ford Explorer	2017	2024	$40,000
Station 1	FP1301	Ford F150 Pick Up 4x4	2013	2020	$35,000
Station 1	FP1401	GMC Sierra	2014	2021	$35,000
Station 1	FP1101	Chev Equinox	2011	2018	$35,000
Station 1	FP1601	Chev Equinox	2016	2023	$35,000
Station 1	FP0901	Chev Uplander	2009	2016	$35,000
Station 1	FP1302	Ford F 150 Pick Up 4x4	2013	2020	$35,000
Station 1	FP0801	Chev Equinox	2008	2015	$35,000
Station 1	FT1201	Chev Silverado	2012	2019	$35,000
Station 1	FM0601	Silverado	2006	2013	$35,000
Station 4	FS1102	Chev 3500	2011	2028	$60,000

10.7 Major Fire Apparatus Replacement Plan

The Fire Underwriters Survey (F.U.S.) requires that all major fire apparatus meet either the Underwriters Laboratory of Canada standard U.L.C.-S515 - 04 or the N.F.P.A. 1901 Standard for Firefighting Apparatus Construction, Equipment and Testing. FUS identifies the following major fire apparatus replacement guidelines:

- Major cities 12 – 15 years, with an additional five years in reserve;
- Medium size cities 15 years, with additional five years as back up, and five years in reserve; and
- Small municipalities 20 years, with an additional five years second line or reserve.

Current practices of the B.F.D. are to refurbish front-line engine/pumpers at the 10 to 12 year life cycle point, and then replace this apparatus at the 15 year point of the life cycle. Similarly the B.F.D. refurbishes aerial apparatus at the 12 year life cycle point and then replaces this apparatus at the 18 year life cycle point. These life cycle replacements are consistent with the FUS guidelines recognizing the quantity of emergency calls the B.F.D. responds to, total kilometres traveled and the number of hours these apparatus are in used on a daily basis. In our view the B.F.D. major apparatus replacement plan is consistent with recognized industry best practices.

10.8 Equipment

The B.F.D. is a modern fire service that requires an extensive inventory of equipment such as firefighter protective clothing (bunker gear), self-contained breathing apparatus (S.C.B.A.) firefighting hose and nozzles, ladders, automobile extrication tools and many specialized pieces of equipment required for the specialized rescue services provided. The department has a number of policies, as outlined in **Table 41** that define the regular maintenance and cleaning of this equipment. This is typically completed by the on-duty firefighters at their fire station.

Table 40: Fleet, Facilities and Equipment Division Policies

Policy Number	Policy Title
1.20	Work Requests and Lost or Damaged Equipment
1.33	Department Supplies- Requisition
1.18R	Respiratory Protection Program*
5.01	Mechanical Division

Policy Number	Policy Title
5.44	Checking and Testing of Auxiliary Power Generator- Air Compressor-Central Services & Other Stations
5.06R	Vehicle Logs
5.09	Six Month Vehicle Service and Preventative Maintenance Program
5.12	Vehicle Checks, Care & Cleanliness
6.03	Loaning of Department Equipment & Resource Materials
6.05	Cleaning and Caring of Protective Clothing

There are also pieces of equipment that require external resources to conduct regular inspection, cleaning and repairs, this includes the firefighter bunker gear that is sent to an external supplier. This requires each firefighter to have two sets of bunker gear in order to facilitate this regular inspection process required by manufacturers and recognized by the O.H.S.A.

Where life cycles and conditions warrant, equipment replacement (e.g. portable pumps, generators, ladders etc.) that are carried on, and utilized in conjunction with the major fire apparatus, replacement should coincide with the major fire apparatus capital replacement plan. For other equipment such as firefighters bunker gear, and S.C.B.A., the manufacturers' life cycle replacement plan should be applied.

As part of the review completed for this M.F.P., the above discussed equipment was visually assessed in relation to the current level of services provided by the B.F.D. and our experience with regard to firefighting equipment best practices. All of the assessed equipment appeared in good condition reflecting good care and maintenance.

10.9 Work Orders/Inventory

The Mechanical Division personnel perform preventative maintenance and repairs on equipment, small vehicles and large trucks. This includes all large apparatus, as well as support vehicles, Self-Contained Breathing Apparatus (S.C.B.A.), nozzles and hose. Our review confirms that there is currently no work order system in place to manage the repair/maintenance process. In addition, the work order and inventory process should track, and account for the use of the inventory to an assigned maintenance or repair, or the need for reordering to keep stock. Through the staff consultation process we learned that the Mechanic has done some preliminary investigation into an applicable work order/inventory system to streamline these processes. In our view, a work order/inventory system would provide efficiency for the department.

Operational Recommendation #40: That the department investigate options for implementing a work order/ inventory management system within the Fleet Facilities and Equipment Division as referenced in the proposed Master Fire Plan.

10.10 Records Management

The current records management process was identified as a challenge during the staff consultation process. The records management system for the Fleet, Facilities and Equipment division is currently limited to a paper filing system. During the staff consultation phase of this project, Fleet, Facilities and Equipment division staff expressed a willingness to adopt technology to streamline processes and records management.

This M.F.P. recommends the investigation and implementation of a work order/inventory management system to improve the efficiency and effectiveness of the current records management practices of the B.F.D. in this area.

10.11 Fleet, Facilities and Equipment Division Summary and Recommendations

The review of the Fleet, Facilities and Equipment Division within the B.F.D. indicates that many aspects of its operations reflect current best practices within the fire service in Ontario. The B.F.D. maintains an effective fleet and equipment maintenance and repair program that would be expected based on the fire risks present, and the replacement program follows industry best practices. In addition to maintaining an appropriate

"frontline" fleet of emergency response apparatuses the B.F.D. sustains a complement of reserve (service ready) apparatuses to maintain the level of service provided when an apparatus is taken out of service for repairs. However, there is opportunity to enhance the approach to records management including work orders, maintenance requests, inspections, and inventory.

Our review of the fleet, facilities and equipment division has identified the following recommendations for consideration:

Operational Recommendations:

39. **That consideration be given to developing a Facilities Asset Management Plan for all fire stations as identified within the proposed M.F.P**
40. **That the department investigate options for implementing a work order/ inventory management system within the Fleet Facilities and Equipment Division as referenced in the proposed Master Fire Plan.**

11.0 Communications

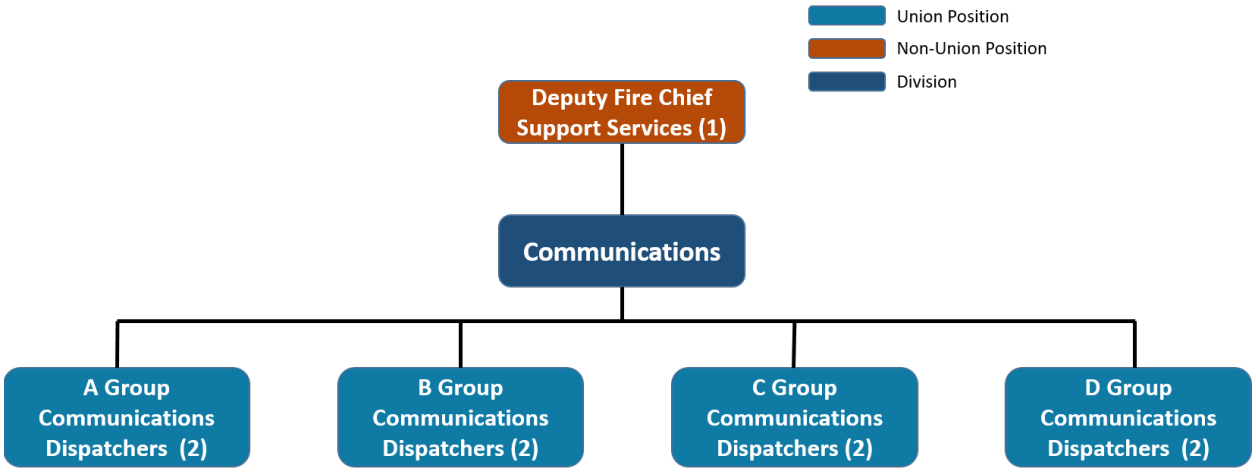
The Communications Division is responsible for receiving and recording all fire alarms, switchboard activities and other emergency calls and dispatching the proper apparatus and equipment in accordance with standard operating procedures. The eight communications dispatchers that comprise this division report to the Deputy Fire Chief of Support Services.

11.1 Existing Communications Division Staff Resources

The Communications Division is staffed with eight Communications Dispatchers. The current staffing model (presented in **Figure 26**) reflects a four platoon system. The Communications Dispatchers work a rotating ten hour day and fourteen hour night shift including two days, and then two nights, followed by four days off. City of Brantford Report PHSSS2016-57 establishes the minimum on-duty staffing level in the Communications Centre at any time is two Communications Dispatchers, in keeping with **N.F.P.A. 1221- Standard for the Installation, Maintenance and Use of Emergency Services Communications Systems**.

One communication staff member is assigned the role of call taker and the other that of dispatcher. However, when high volumes are experienced or when simultaneous 911 calls occur, the communications staff can operate in dual roles. If necessary, a firefighter will backfill when one of the Communications Centre Operators is absent due to vacation, lieu day, training, sickness or other approved absence. This staffing model provides for the delivery of communications services 24 hours per day, seven days per week and 365 days per year. The 2016 Fire Services Review compared staffing levels in Communications Centres in 11 jurisdictions of similar size to the City of Brantford. The average across the 12 municipalities (11 plus Brantford) was 9.7 operators. The City currently operates the Communications Centre with eight Operators.

Figure 26: Existing Communications Division Staffing and Structure



Supervision of the Communications Centre daily operations and Communications Dispatchers is currently provided by the on-duty Platoon Chief. Prior to the transition of all fire suppression staff to the 24 hour shift schedule the Communications Dispatchers were also members of an assigned fire suppression platoon. This supervisory model was effective as the Platoon Chief worked the same shift schedule as the Communications Dispatchers assigned to his/her platoon.

The Platoon Chiefs and Communications Centre staff now work different shift schedules. In addition to managing the on duty fire suppression staff under his/her direct responsibility and responding to emergency incidents. As such the Platoon Chiefs are not having the same level of presence and interaction with the Communications Dispatchers as they did prior to the shift change.

In our experience, this model does not reflect industry best practices. Although the Platoon Chiefs are providing the required O.H.S.A. supervisory role, there is limited direct access to them by the on-duty Communications Dispatchers. This challenge was also identified in the 2016 Fire Service Review.

Due to the nature of the work within the Communications Centre there can be times when the Communications Dispatchers may require additional direction, and or support to manage an evolving emergency incident or technology issue. Within the current supervisory model this requires contacting the on duty Platoon Chief who may already be engaged at an emergency incident. Our experience and knowledge of industry best practices in this area reflects that the role of supervisor in the Communications Centre

should operate no differently than a crew of firefighters in a fire station and therefore someone in the Centre should be assigned the roles and responsibilities of supervisor at all times. This could be achieved by creating an additional class within the Communications Division or by implementing a full time supervisory position within the Communications Division. The creation of a supervisory position will be further discussed throughout this section.

11.2 Proposed Communications Division Staff Resource Plan

The current operation of the Communication Centre is consistent with the historical staffing model utilized by fire department across Ontario. This model has served fire department and communities well, however, the evolution of the fire service including the transition to higher training requirements, service level standards and municipal liability have more recently posed cause for reconsidering this traditional staffing model. Within the City of Brantford to specific areas of staffing are identified for consideration as part of this M.F.P. process.

11.2.1 On Duty Supervision

As referenced, the on duty Communications Centre staff are currently supervised by the on duty Platoon Chief. As referenced in past studies this practice is not consistent with current industry best practices and in our view does not provided the level of supervision and direction that is required within a fire department Communications Centre, particularly during a significant emergency incident. In our view options should be considered to develop a staff resource model that includes an on duty supervisor within the Communications Centre at all times. This supervisory position should be tasked with the roles and responsibilities for overseeing all operations of the Communications Centre.

Operational Recommendation #41: That consideration be given to developing an on duty supervisory position within the Communications Centre.

11.2.2 Use of Firefighters in Communications Centre

This M.F.P. recommends that all Communications Dispatchers assigned to delivering emergency call taking and dispatching are trained and certified to the N.F.P.A. 1061 Standard for Professional Qualifications for Public Safety Telecommunications Personnel – Levels I and II. This recommendation is based on the findings of Corners Inquest

recommendations in Ontario, adoption of N.F.P. A. ProQual training standards in Ontario and ensuring due diligence on behalf of the municipality.

The ability of firefighters to achieve and sustain this level of training, skill and competency to provide back filling of full-time Communications Dispatchers in addition to the roles and responsibilities of their position is a significant challenge. In our view the B.F.D. should be considering other options for back filing the role of Communications Dispatchers. This may include the hiring of additional full-time staff, or alternatively considering the use of part-time staff to fill accommodate this need.

Operational Recommendation #42: That consideration be given to implementing an alternative option for the provision of back filling the Communications Dispatchers.

11.3 Workspace

Our analysis indicates that the current workspace within the Communications centre is meeting the needs of the department, although space is limited. The Centre provides three work stations. These work spaces have access to Computer Aided Dispatch (C.A.D.) interface; radio console; 911 software; telephone; back-up radio; and a computer with internet access. The resources provided are essential to the function of the communications centre. The current workspace includes a small kitchen area, however staff must exist the room to access washroom facilities. There is currently no capacity for the workspace for this division to grow – either as it explores opportunities for joint ventures or additional dispatch partnerships (**see Section 11.6**), or as it grows alongside the population of the City.

11.4 Division Training and Qualifications

The B.F.D. has begun to implement a process to ensure that all Communications Dispatchers are trained and qualified to perform the call-taking and dispatching requirements of the N**.F.P.A. 1061 - Standard for Professional Qualifications for Public Safety Telecommunications Personnel - Level I**. A plan for the Assistant Training Officer to complete a train-the-trainer program and then provide training in-house has been discussed, but this plan has not been fully implemented. Through the staff interview process, we learned that Job Quality Assurances (J.Q.A.s) have been developed but have not yet been implemented for Communications Dispatchers.

Although N.F.P.A. 1061 has many levels, the O.F.M.E.M., as the Authority Having Jurisdiction, is currently authorized to offer certification to Level I (call taking) and Level II (dispatching) through the International Fire Service Accreditation Congress (I.F.S.A.C.) and ProBoard Fire Service Professional Qualifications System (ProBoard). There is a Provincial Advisory Committee (PAC) for this certification standard and qualified evaluators have been working towards provincial certification for several years. Throughout that process it was determined that because there are a variety of agencies and arrangements established to provide dispatching services to fire services, requiring mandatory certification for call taking (Level I) for those fire departments that have dispatching centres will be a minimum standard throughout the Province. Although not yet required, it is anticipated that all dispatching agencies providing both call taking and dispatching services will choose certify to N.F.P.A. 1061 Level I and II as a method of performing due diligence.

Dispatching agencies within Ontario are permitted to challenge the written and practical examination for N.F.P.A. 1061, Level I, through the Office of the Fire Marshal and Emergency Management's (O.F.M.E.M.) Academic Standards and Evaluation (A.S. & E.) Unit. The process is the same for all certifications in the Province; the Fire Chief must first confirm to A.S. & E. that their members have been trained and are prepared to challenge the examinations and then request a provincial evaluator administer a written and practical examination to confirm the competency of personnel. Many jurisdictions are participating in on-line course offerings available through the Association of Public Safety Communications Officials (A.P.C.O.) International to train and prepare staff to challenge the aforementioned examination process. The Office of the Fire Marshal and Emergency Management does not currently offer a training program for communications personnel, although this was one of the jury recommendations from the East Gwillimbury/Whitby inquest summarized in the Administration Section of this M.F.P.

Operational Recommendation #43: That priority be placed on ensuring that all staff assigned responsibility for dispatching fire department personnel and resources are trained and certified to N.F.P.A. 1061 Standard for Professional Qualifications for Public Safety Telecommunications Personnel – Levels I and II.

Operational Recommendation #44: That once all communications centre personnel have been trained and certified to N.F.P.A. 1061 Levels I and II, that the City consider

investigating further partnerships to provide fire communications and dispatch services to other jurisdictions as a source of revenue generation.

11.5 Division Technology

The role of technology within a Communications Division of the department is fundamental to its function. Some common forms of technology used within communications include but are not limited to CriSys Computer Aided Dispatch (C.A.D.), radios, and records management system. The 2016 Fire Services Review identified that the B.F.D. receives technical support from external vendors and the City's Information Technology (I.T.) division. More recently, a Technical Systems Engineer has been hired as full time fire department I.T. resource to address concerns relating to 24 hours per day, seven days a week functionality and technology support related to communications equipment. The Fire Services Review also suggested the existing C.A.D. system is not being utilized to its full functionality. It is assumed, that a priority level of service for all communication centre technical needs will be established and that a comprehensive review of the C.A.D. system will be undertaken upon the hiring of a dedicated Technical Systems Engineer for the B.F.D.

Should the B.F.D. fully utilize a records management system, communications operators can access information regarding prior inspections, any complaints, or pre-planning considerations that would give addition insight into the location of the incident. One way that records would be accessed by supervisory staff is in the forms of reports. The Deputy Chief of Support Services, responsible for the Communications Division, may seek to review incidents that had extended dispatch times, to review trends in call types, or to assess division performance. It was identified as part of the review completed for this M.F.P. that there would be a benefit to enhancing division skills and knowledge in accessing historical reports and related information.

11.6 Dispatch Agreement

As discussed in **Section 4.7.6**, the City has recently entered into an agreement to provide fire communication and dispatching services to the Six Nations of the Grand. As a service provider the City must recognise the risks associated with providing these services. In our view, the associated risk can in part be mitigated by ensuring all communications centre personnel are trained and certified to N.F.P.A. 1061 Level II and

ensuring the role of supervisor is filled in the Communications Centre at all times. This further supports the need to create a supervisory position within the Division, as discussed in **Section 11.1.** Further, the City may wish to consider agreements to provide fire communication and dispatch services to other jurisdictions as a potential revenue stream, which may assist in offsetting the costs associated with a new supervisory position in the Communications Centre.

11.7 Communication Division Summary and Recommendations

Our review of this division indicates that the current supervisory roles and responsibilities should be reviewed and priority be given to training and certification for those with responsibility for dispatching fire department personnel and resources. There is the potential for the B.F.D. to generate additional revenue by providing fire communications and dispatching services to other fire departments. The City should consider both the revenue and the risk associated with providing this service, by completing a full cost benefit analysis prior to investigating further fire communications agreements. Our review of the Communications Division has identified the following recommendations for consideration:

Operational Recommendations:

41. **That consideration be given to developing an on duty supervisory position within the Communications Centre.**
42. **That consideration be given to implementing an alternative option for the provision of back filling the Communications Dispatchers.**
43. **That priority be placed on ensuring that all staff assigned responsibility for dispatching fire department personnel and resources are trained and certified to N.F.P.A. 1061 Standard for Professional Qualifications for Public Safety Telecommunications Personnel – Levels I and II.**
44. **That once all communications centre personnel have been trained and certified to N.F.P.A. 1061 Levels I and II, that the City consider investigating further partnerships to provide fire communications and dispatch services to other jurisdictions as a source of revenue generation.**

12.0 Proposed Implementation Plan

This implementation plan is intended to provide Council with an initial outline of the proposed process schedule for implementing the recommendations of the proposed Master Fire Plan. Subject to Council's consideration of the proposed Master Fire Plan it is recommended that the Fire Chief be directed to develop a comprehensive Implementation Plan for consideration by Council. Where applicable those recommendations with a financial impact would be presented to Council as part of regular corporate process to prepare the annual operating and capital budget of the City.

The proposed implementation schedule includes a range of timelines including **immediate term** (1 to 2 years) **short-term** (3 to 5 years) and **long-term** (6 to 10 years). Industry best practices indicates that a Master Fire Plan should be based on a ten-year community planning horizon, and that at the mid-point (fifth year) the plan should be reviewed to consider any revisions that may be required to address new, or revised legislation, revised community planning projections, and the implementation of the recommendations presented within this Master Fire Plan.

12.1 Council Recommendations

These include recommendations that require the consideration and approval of Council related to a potential operating or capital financing impact or to inform a municipal policy decision including setting a municipal service level or where further direction to corporate staff may be needed.

Table 42 summarizes the Council recommendations included within this proposed Master Fire Plan.

Table 41: M.F.P. Council Recommendations

No.	Recommendation	Schedule
1	That the strategic priorities identified within the proposed Master Fire Plan be adopted to form the strategic framework for the delivery of fire protection services within the City of Brantford, including: i. The sustained use of a Community Risk Assessment to determine the fire safety risks within the City of Brantford as the basis for developing clear goals and objectives for all fire protection and emergency services provided by Brantford Fire Department; ii. Where applicable the optimization of the first two lines of defence including public education and fire prevention, and the utilization of fire safety standards and fire code enforcement to provide a comprehensive fire protection program within the City; and iii. Emphasis on strategies that support the sustainability of fire protection and emergency services that provide the most effective and efficient level of services resulting in the best value for the community.	Immediate-Term
2	That subject to Council's consideration and approval of an Implementation Plan that the proposed fire inspection cycles included within the proposed Master Fire Plan be approved and included within the proposed Fire Prevention Policy.	Immediate-Term
3	That subject to Council's consideration and approval of an Implementation Plan that the proposed public education cycles included within the proposed Master Fire Plan be approved and included within the proposed Fire Prevention Policy.	Immediate-Term
4	That the City prioritize the hiring of a dedicated full-time Fire and Life Safety Educator as proposed by the Master Fire Plan.	Immediate-Term
5	That Council approve the proposed fire suppression performance benchmarks presented within the proposed Master Fire Plan as the	Immediate-Term

No.	Recommendation	Schedule
	performance planning targets for the delivery of fire suppression services within the City of Brantford.	
6	That consideration be given to increasing the minimum number of firefighters on duty from the existing 19 to 21 in order to increase the staffing of the Aerial assigned to Station 1 as presented within the proposed Master Fire Plan.	Immediate-Term

12.2 Operational Recommendations

These include recommendations that can be administered and implemented within the current authority assigned to the Fire Chief. In some cases this may require the Fire Chief to prepare further documentation and internal reporting to Council for approval. An example of this is updating the current Establishing and Regulating By-law. This is a process that can be led by the Fire Chief, and senior corporate staff and through normal reporting be brought to Council for consideration and approval. The Operational Recommendations are summarized below in **Table 43**.

Table 42: M.F.P. Operational Recommendations

No.	Recommendation	Schedule
1	That subject to Council's consideration and approval of the proposed Master Fire Plan that the Establishing and Regulating By-law be updated and presented to Council for approval.	Immediate-Term
2	That the Fire Chief implement a regular process for the review of all applicable fire protection services by-laws.	Immediate-Term
3	That an appointment by-law be prepared and presented to Council for approval to appoint the Deputy Fire Chief – Operations.	Immediate-Term
4	That an appointment by-law be prepared and presented to Council for approval to appoint the Deputy Fire Chief – Support Services.	Immediate-Term

No.	Recommendation	Schedule
5	That consideration be given to reviewing and updating the existing job descriptions of all Brantford Fire Department full-time staff.	Immediate-Term
6	That a comprehensive review of the existing work space at Station 1 (Headquarters) be conducted to identify options for improving the work space functionality of this facility to accommodate the existing and future staffing resource needs of this Station.	Immediate-Term
7	That consideration be given to developing a Fire Protection Agreement with the Six Nations of the Grand River for the delivery of fire protections services to any lands located within the City boundary.	Immediate-Term
8	That technology solutions be investigated and implemented to provide simultaneous notification to the Brantford Fire Department from the Hamilton Central Ambulance Communications Centre.	Immediate-Term
9	That consideration be given to implementing common technology solutions and operating systems to support the existing Fire Dispatch Agreement with the Six Nations of the Grand River.	Immediate-Term
10	That the Brantford Fire Department consider establishing a committee of staff assigned to review and update all Standard Operating Policies and Standard Operating Guidelines on a regular basis as referenced within the proposed Master Fire Plan.	Immediate-Term
11	That consideration be given to expanding the use of GIS technology to assist the department in monitoring performance and conducting trend analysis.	Immediate-Term
12	That a policy be developed and implemented to define the required records management procedures and retention practices of the Brantford Fire Department.	Immediate-Term

No.	Recommendation	Schedule
13	That those positons within the department that are designated as Chief Fire Officials be confirmed through a formal delegation of authority report.	Immediate-Term
14	That the Fire Chief develop a strategy for all Fire Inspectors and staff assigned to public education to attain and sustain professional qualifications presented within the proposed Master Fire Plan.	Short-term
15	That By-law No. 215-80 be rescinded, and that the current Fire Prevention Policy be updated for consideration and approval by Council and inclusion within the proposed updated Establishing and Regulating By-law as an appendix.	Immediate-Term
16	That consideration be given to expanding the current activities reporting of the Fire Prevention Division to Council as referenced within the proposed Master Fire Plan.	Short-Term
17	That consideration be given to developing a policy for responding to all fire inspection requests, and complaints as referenced within the proposed Master Fire Plan.	Short-Term
18	That consideration be given to rescinding Policy 3.5 Solid Fuel Burning Appliances-Inspection Procedures and revising By-law No. 188-2017 to remove reference to performing this type of service.	Short-Term
19	That consideration be given to discontinuing the practice of conducting W.E.T.T. inspections.	Short-Term
20	That Policy 3.14-Fire Investigations be revised to include establishing certifications and qualifications for personnel conducting fire investigations.	Immediate-Term
21	That Policy 3.19- Contacting Ontario Fire Marshal Investigator be updated to reflect the criteria for notification of the O.F.M.E.M. as set out in Fire Marshal's Directive 2015-02.	Immediate-Term
22	That the department review the benefits of utilizing computer software to conduct fire suppression pre-plans, the need for further	Immediate-Term

No.	Recommendation	Schedule
	coordination of pre-planning efforts and prioritizing high risk occupancies.	
23	That consideration be given to formalizing the roles and responsibilities of City departments to conduct plans review as referenced within the proposed M.F.P.	Short-term
24	That the B.F.D. implement a process for tracking performance indicators to assess the existing and future workload within the fire inspection area to support the need for additional resources in this area as indicating within the proposed M.F.P..	Immediate-Term
25	That the annual leasing costs for sustaining the fire department presence at the Children's Safety Village be considered a priority for the Brantford Fire Department.	Short-Term
26	That in consultation with the City's Communication Division and Council consideration be given to the utilization of enhanced public education including social media, and enforcement related to home smoke alarms and carbon monoxide legislation compliance.	Immediate-Term
27	That consideration be given to enhancing the existing child/youth fire safety education program to target all children in the 0-14 age category as presented within the proposed Master Fire Plan.	Immediate-Term
28	That consideration be given to further enhancing the current Five Year Training Program by adding performance goals and objectives to be included within a consolidated Operating Guideline defining the departments training program.	Immediate-Term
29	That consideration be given to developing agreements with neighbouring communities and/or the private sector for the provision of more highly qualified technical rescue services as referenced within the proposed M.F.P.	Short-Term
30	That consideration be given to expanding the use of on-line training opportunities as a component of	Short-term

No.	Recommendation	Schedule
	the proposed Comprehensive Training Program for all members of the B.F.D.	
31	That the B.F.D. continue to evaluate strategies to deliver practical training including investigating opportunities with other stakeholders for a B.F.D. Training Facility.	Short-term
32	That the B.F.D. further develop the current Company Officer training initiatives into a comprehensive Officer Development Program.	Immediate-Term
33	That the B.F.D. consider developing a defined succession plan to guide the career development of all members of the Brantford Fire Department.	Short-Term
34	That the B.F.D. review the data collection process and identify strategies for enhancing the fire suppression emergency response data collection process as presented within the proposed Master Fire Plan.	Short-term
35	That consideration be given to revising the current Emergency Call-Back procedure as described within the proposed Master Fire Plan.	Immediate-Term
36	That the B.F.D. consider the ability of the department to attain the Superior Tanker Shuttle Accreditation for the City of Brantford.	Short-term
37	That the Fire Chief be directed to prioritize the identification of options to replace the existing primary and alternate Emergency Operations Centres including enhanced technology capabilities as recommended by the 2018 Flood Event Report.	Short-term
38	That the city continue to prioritize the training of E.O.C. members with respect to their roles and responsibilities as required in the Emergency Management and Civil Protection Act.	Short-term

No.	Recommendation	Schedule
39	That consideration be given to developing a Facilities Asset Management Plan for all fire stations as identified within the proposed M.F.P.	Immediate-Term
40	That the department investigate options for implementing a work order/ inventory management system within the Fleet Facilities and Equipment Division as referenced in the proposed Master Fire Plan.	Immediate-Term
41	That consideration be given to developing an on duty supervisory position within the Communications Centre.	Immediate-Term
42	That consideration be given to implementing an alternative option for the provision of back filling the Communications Dispatchers.	Short-term
43	That priority be placed on ensuring that all staff assigned responsibility for dispatching fire department personnel and resources are trained and certified to N.F.P.A. 1061 Standard for Professional Qualifications for Public Safety Telecommunications Personnel – Levels I and II.	Long-Term
44	That once all communications centre personnel have been trained and certified to N.F.P.A. 1061 Levels I and II, that the City consider investigating further partnerships to provide fire communications and dispatch services to other jurisdictions as a source of revenue generation.	Long-Term

Appendix A

Community Risk Assessment

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Appendix B

Verdict of Coroner's Jury

Appendix C

Brantford Public Consultation Presentation

Appendix D

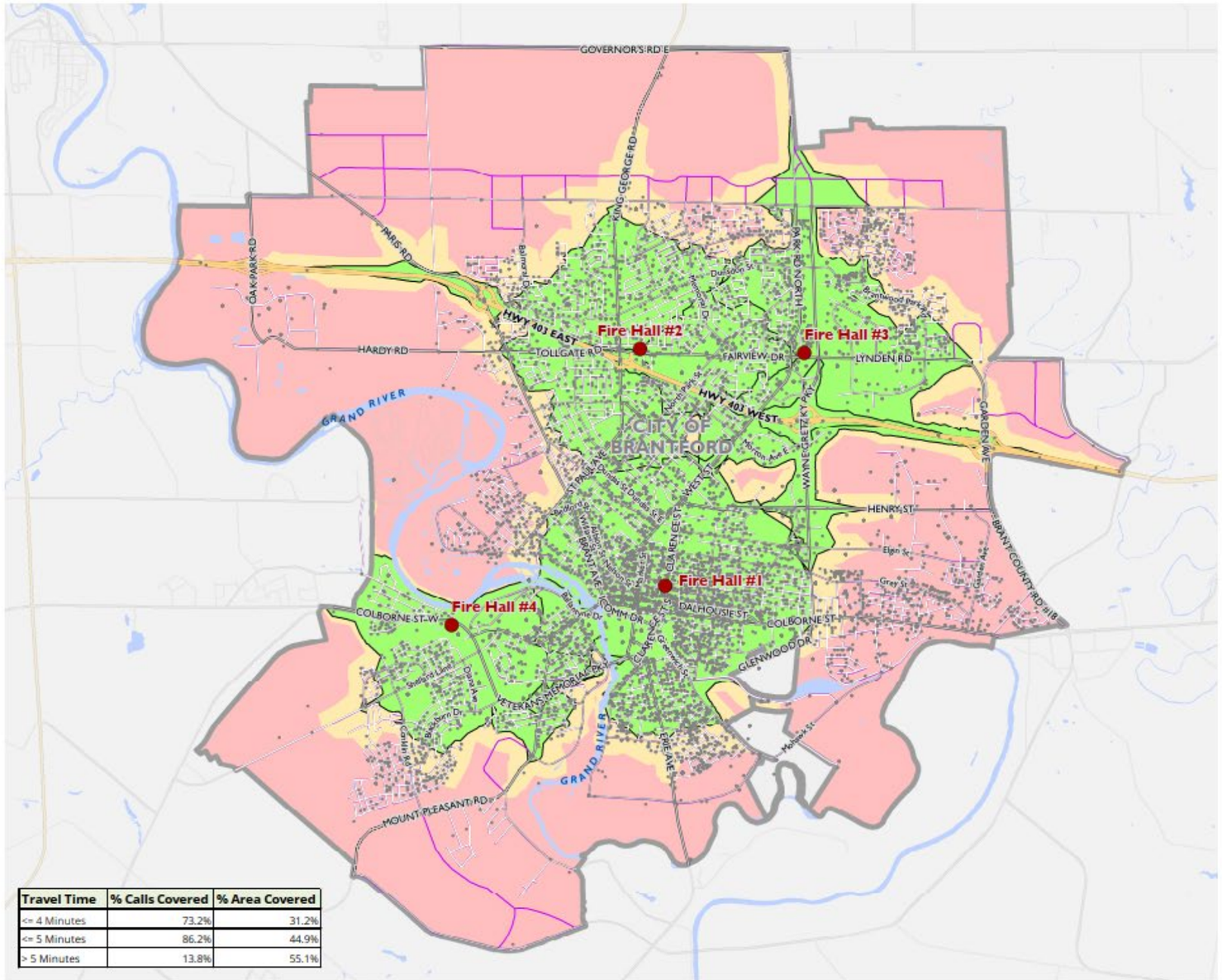
Professional Qualifications and Standards Review

DILLON CONSULTING

Appendix E

G.I.S. model Outputs

DILLON CONSULTING



Travel Time	% Calls Covered	% Area Covered
<= 4 Minutes	73.2%	31.2%
<= 5 Minutes	86.2%	44.9%
> 5 Minutes	13.8%	55.1%

FILE LOCATION: I:\GIS\187634 - Brantford Master Fire Plan\mxd\Response Modelling\Existing Initial Response Proposed 1A.mxd

BRANTFORD FIRE

CITY OF BRANTFORD

INITIAL RESPONSE
FUTURE CONDITIONS
PROPOSED ROAD NETWORK 1A

- Fire Station
- Historic Call Data (2014-2018)
- Proposed Road Network 1A
- ≤ 4 Minutes Travel Time at Network Speed
- ≤ 5 Minutes Travel Time at Network Speed
- > 5 Minutes Travel Time at Network Speed

1:50,000

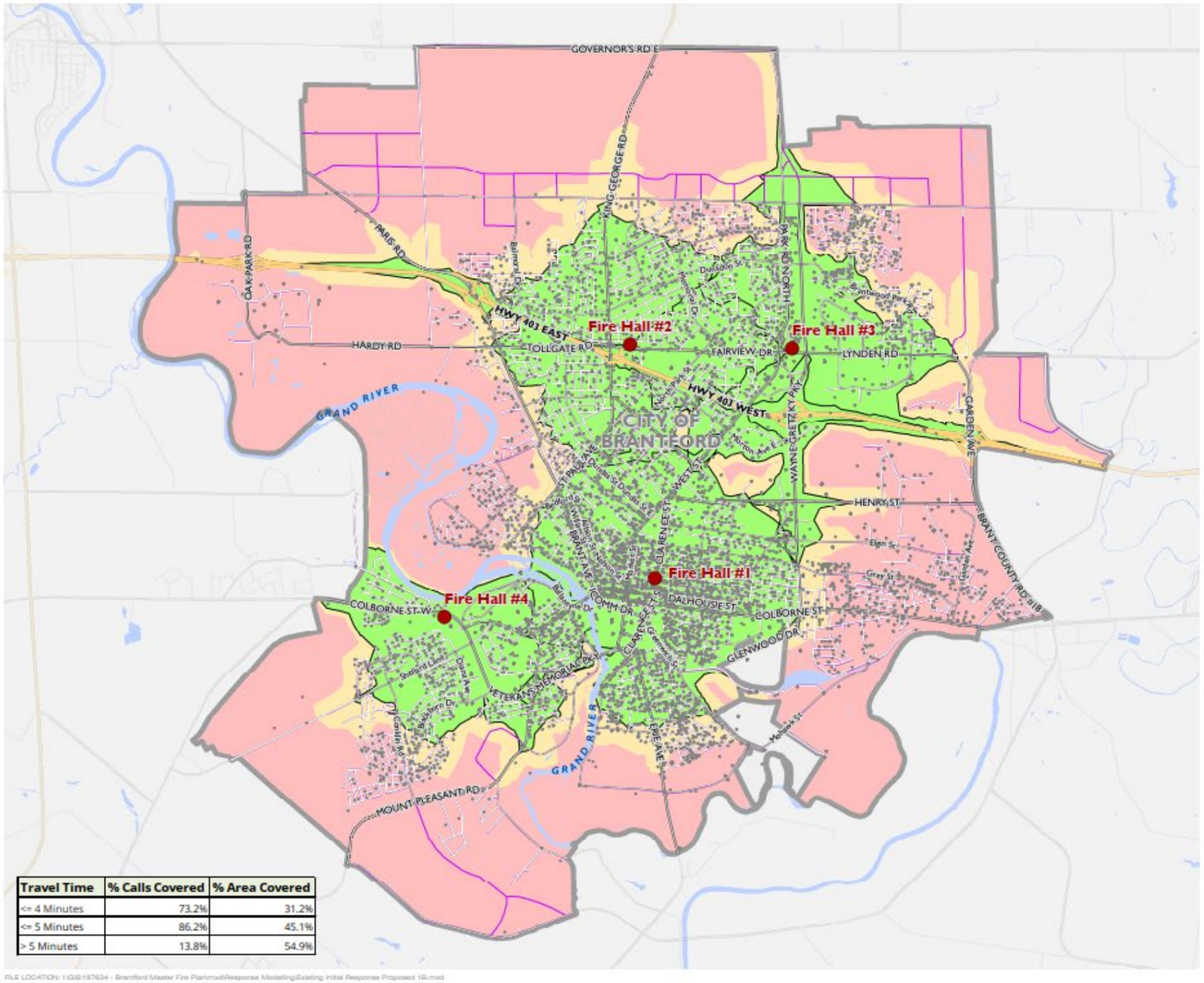
0 250 500 1,000 1,500 m

MAP DRAWING INFORMATION:
DATA PROVIDED BY MNRF, CITY OF BRANTFORD

MAP CREATED BY: GM
MAP CHECKED BY: SC
MAP PROJECTION: NAD 1983 UTM Zone 17N

DILLON CONSULTING

PROJECT: 187634
STATUS: DRAFT
DATE: 2019-04-30



Travel Time	% Calls Covered	% Area Covered
<= 4 Minutes	73.2%	31.2%
<= 5 Minutes	86.2%	45.1%
> 5 Minutes	13.8%	54.9%

FILE LOCATION: I:\GIS\187634 - Brantford Master Fire Plan\mxd\Response Modelling\Existing Initial Response Proposed 1B.mxd

BRANTFORD FIRE

CITY OF BRANTFORD

INITIAL RESPONSE
FUTURE CONDITIONS
PROPOSED ROAD NETWORK 1B

- Fire Station
- Historic Call Data (2014-2018)
- Proposed Road Network 1B
- ≤ 4 Minutes Travel Time at Network Speed
- ≤ 5 Minutes Travel Time at Network Speed
- > 5 Minutes Travel Time at Network Speed

1:50,000

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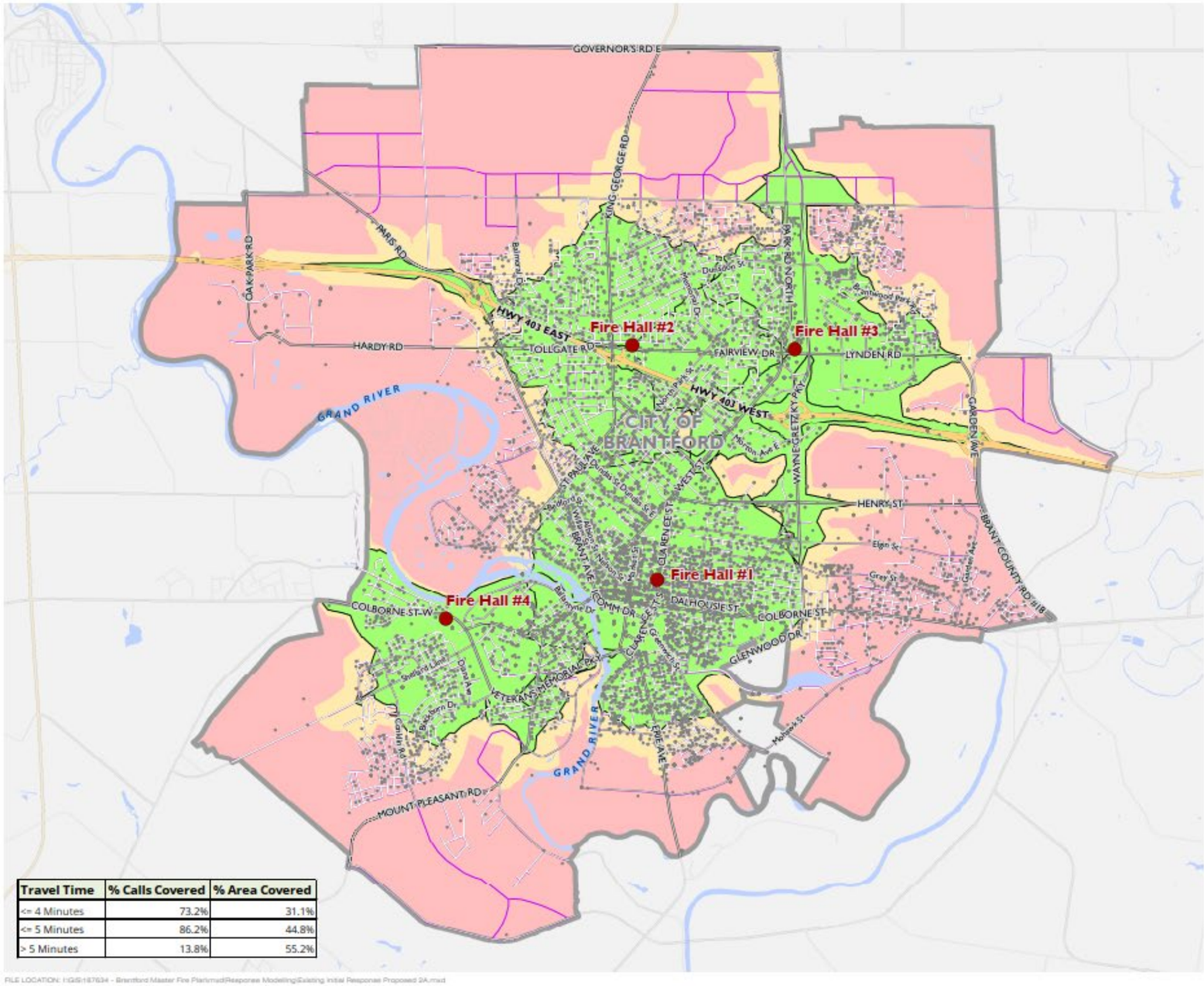
MAP DRAWING INFORMATION:
DATA PROVIDED BY MNRF, CITY OF BRANTFORD

MAP CREATED BY: GM
MAP CHECKED BY: SC
MAP PROJECTION: NAD 1983 UTM Zone 17N

DILLON CONSULTING

PROJECT: 187634
STATUS: DRAFT
DATE: 2019-04-30



Travel Time	% Calls Covered	% Area Covered
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<= 5 Minutes	86.2%	44.8%
> 5 Minutes	13.8%	55.2%

FILE LOCATION: I:\GIS\187634 - Brantford Master Fire Plan\mxd\Response Modeling\Existing Initial Response Proposed 2A.mxd

BRANTFORD FIRE

CITY OF BRANTFORD

INITIAL RESPONSE
FUTURE CONDITIONS
PROPOSED ROAD NETWORK 2A

- Fire Station
- Historic Call Data (2014-2018)
- Proposed Road Network 2A
- ≤ 4 Minutes Travel Time at Network Speed
- ≤ 5 Minutes Travel Time at Network Speed
- > 5 Minutes Travel Time at Network Speed

1:50,000

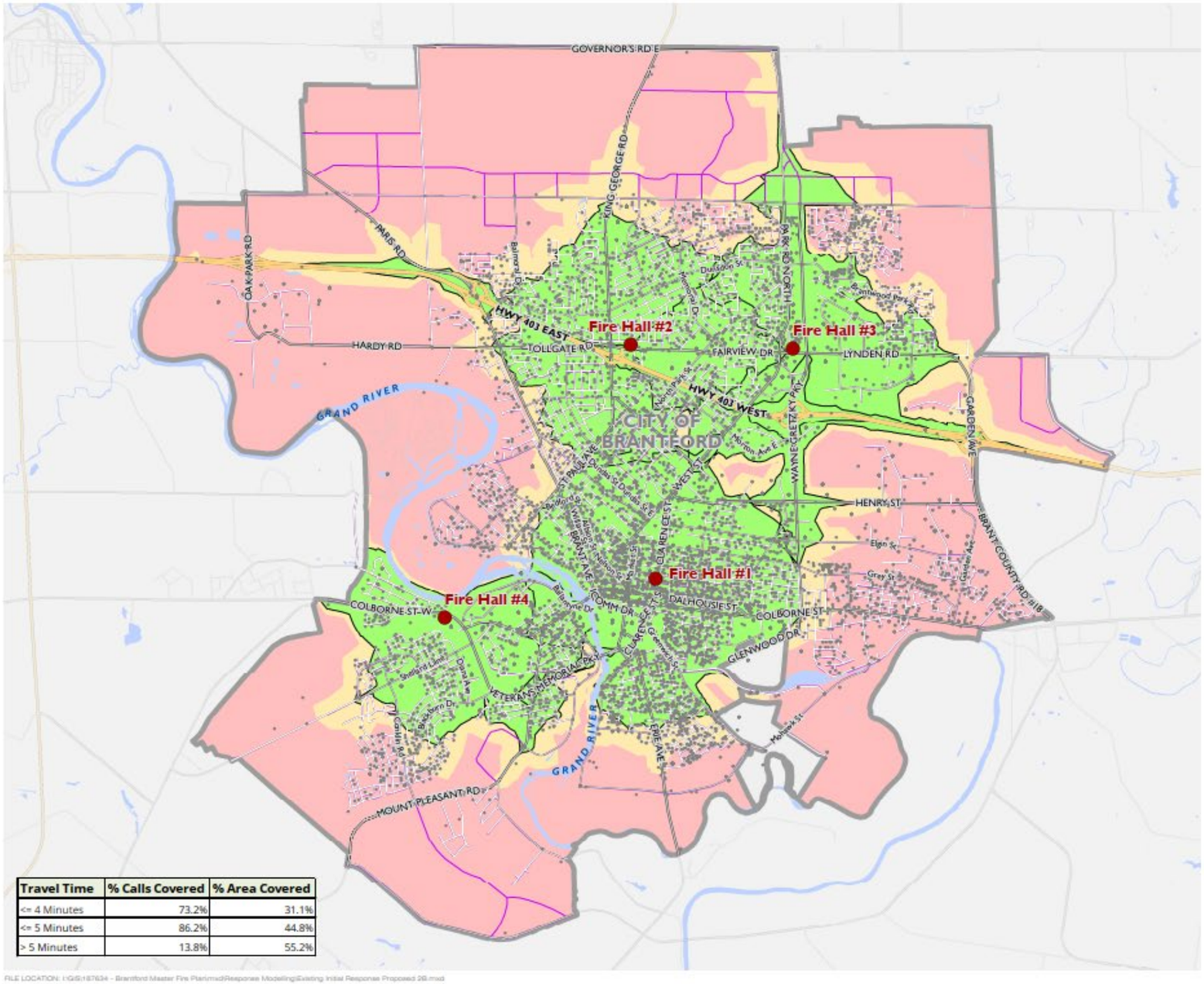
0 250 500 1,000 1,500 m

MAP DRAWING INFORMATION:
DATA PROVIDED BY MNRF, CITY OF BRANTFORD

MAP CREATED BY: GM
MAP CHECKED BY: SC
MAP PROJECTION: NAD 1983 UTM Zone 17N

DILLON CONSULTING

PROJECT: 187634
STATUS: DRAFT
DATE: 2019-04-30



Travel Time	% Calls Covered	% Area Covered
<= 4 Minutes	73.2%	31.1%
<= 5 Minutes	86.2%	44.8%
> 5 Minutes	13.8%	55.2%

FILE LOCATION: I:\GIS\187634 - Brantford Master Fire Plan\mxd\Response Modelling\Existing Initial Response Proposed 2B.mxd

BRANTFORD FIRE

CITY OF BRANTFORD

INITIAL RESPONSE
FUTURE CONDITIONS
PROPOSED ROAD NETWORK 2B

- Fire Station
- Historic Call Data (2014-2018)
- Proposed Road Network 2B
- ≤ 4 Minutes Travel Time at Network Speed
- ≤ 5 Minutes Travel Time at Network Speed
- > 5 Minutes Travel Time at Network Speed

1:50,000

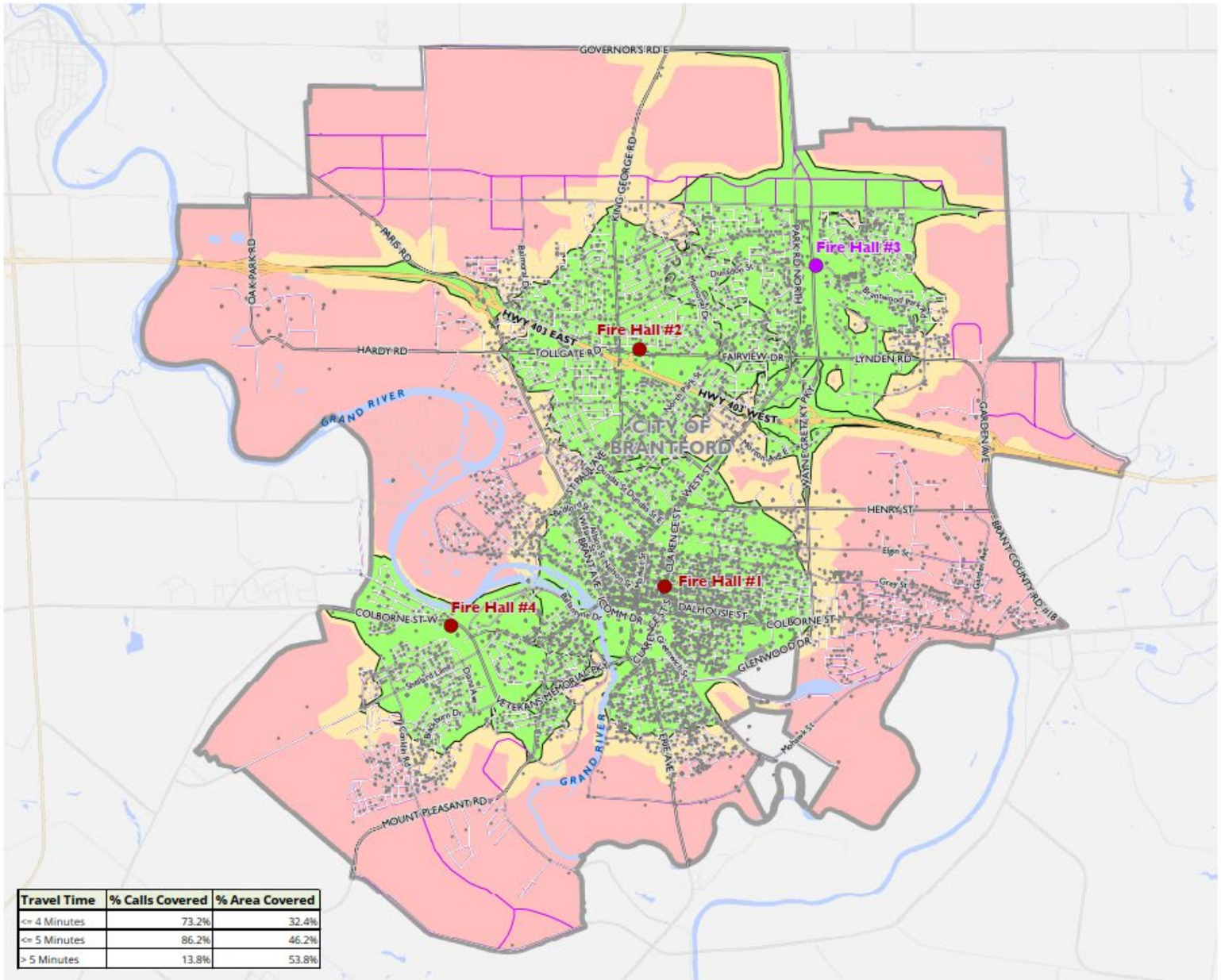
0 250 500 1,000 1,500 m

MAP DRAWING INFORMATION:
DATA PROVIDED BY MNRF, CITY OF BRANTFORD

MAP CREATED BY: GM
MAP CHECKED BY: SC
MAP PROJECTION: NAD 1983 UTM Zone 17N

DILLON CONSULTING

PROJECT: 187634
STATUS: DRAFT
DATE: 2019-04-30



Travel Time	% Calls Covered	% Area Covered
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<= 5 Minutes	86.2%	46.2%
> 5 Minutes	13.8%	53.8%

FILE LOCATION: I:\GIS\187634 - Brantford Master Fire Plan\mxd\Response Modelling\Proposed Initial Response Proposed 1A - Move Station 3.mxd

BRANTFORD FIRE

CITY OF BRANTFORD

INITIAL RESPONSE
FUTURE CONDITIONS
RELOCATE STATION 3
PROPOSED ROAD NETWORK 1A

- Existing Fire Station
- Relocated Fire Station
- Historic Call Data (2014-2018)
- Proposed Road Network 1A
- ≤ 4 Minutes Travel Time at Network Speed
- ≤ 5 Minutes Travel Time at Network Speed
- > 5 Minutes Travel Time at Network Speed

1:50,000

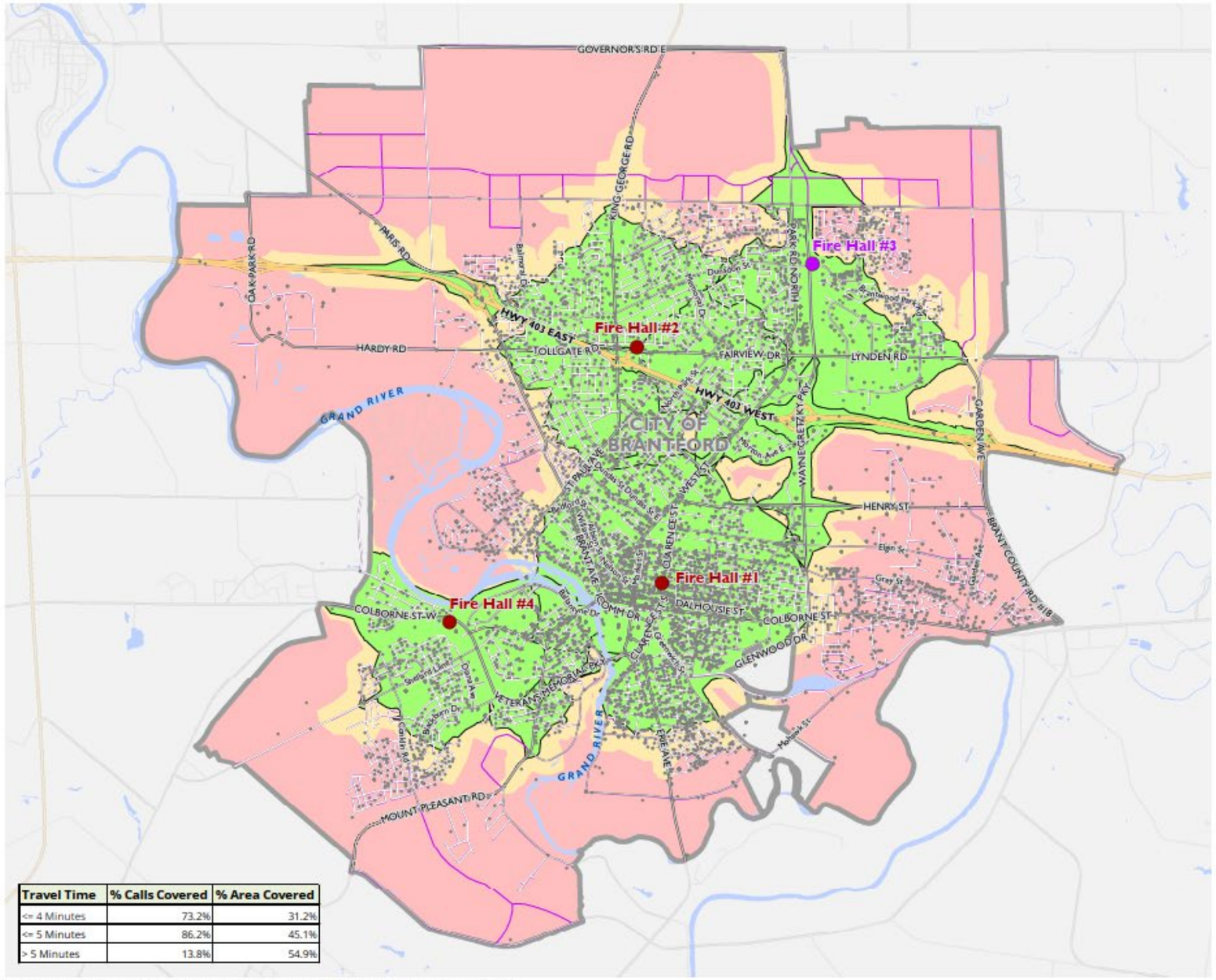
0 250 500 1,000 1,500 m

MAP DRAWING INFORMATION:
DATA PROVIDED BY MNRF, CITY OF BRANTFORD

MAP CREATED BY: GM
MAP CHECKED BY: SC
MAP PROJECTION: NAD 1983 UTM Zone 17N

DILLON CONSULTING

PROJECT: 187634
STATUS: DRAFT
DATE: 2019-04-30



Travel Time	% Calls Covered	% Area Covered
<= 4 Minutes	73.2%	31.2%
<= 5 Minutes	86.2%	45.1%
> 5 Minutes	13.8%	54.9%

FILE LOCATION: I:\GIS\187634 - Brantford Master Fire Plan\mxd\Response Modelling\Proposed Initial Response Proposed 1B - Move Station 3.mxd

BRANTFORD FIRE

CITY OF BRANTFORD

INITIAL RESPONSE
FUTURE CONDITIONS
RELOCATE STATION 3
PROPOSED ROAD NETWORK 1B

- Existing Fire Station
- Relocated Fire Station
- Historic Call Data (2014-2018)
- Proposed Road Network 1B
- ≤ 4 Minutes Travel Time at Network Speed
- ≤ 5 Minutes Travel Time at Network Speed
- > 5 Minutes Travel Time at Network Speed

1:50,000

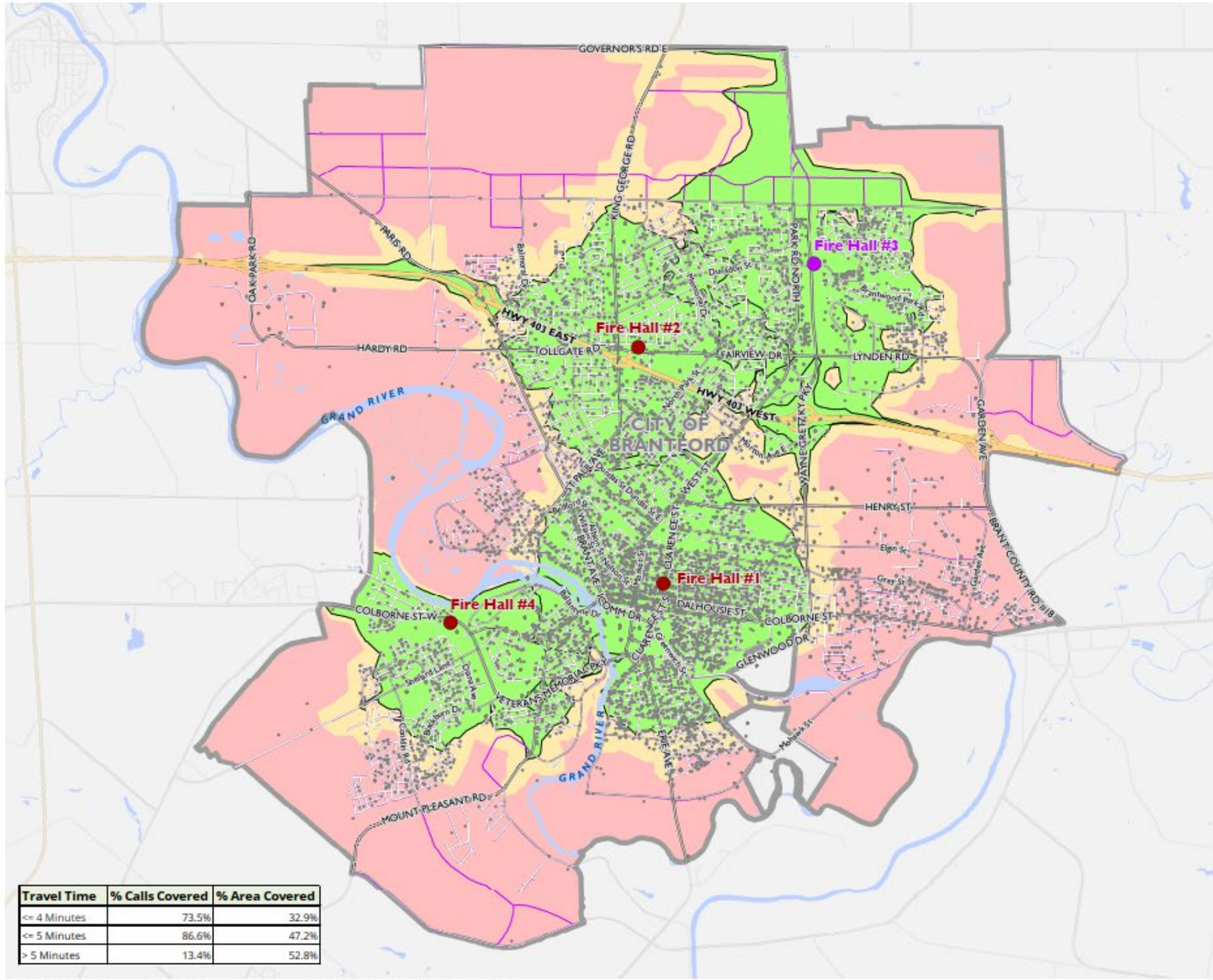
0 250 500 1,000 1,500 m

MAP DRAWING INFORMATION:
DATA PROVIDED BY MNRF, CITY OF BRANTFORD

MAP CREATED BY: GM
MAP CHECKED BY: SC
MAP PROJECTION: NAD 1983 UTM Zone 17N

DILLON CONSULTING

PROJECT: 187634
STATUS: DRAFT
DATE: 2019-04-30



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BRANTFORD FIRE

CITY OF BRANTFORD

INITIAL RESPONSE
FUTURE CONDITIONS
RELOCATE STATION 3
PROPOSED ROAD NETWORK 2A

- Existing Fire Station
- Relocated Fire Station
- Historic Call Data (2014-2018)
- Proposed Road Network 2A
- ≤ 4 Minutes Travel Time at Network Speed
- ≤ 5 Minutes Travel Time at Network Speed
- > 5 Minutes Travel Time at Network Speed

1:50,000

0 250 500 1,000 1,500 m

MAP DRAWING INFORMATION:
DATA PROVIDED BY MNRF, CITY OF BRANTFORD

MAP CREATED BY: GM
MAP CHECKED BY: SC
MAP PROJECTION: NAD 1983 UTM Zone 17N

DILLON CONSULTING

PROJECT: 187634
STATUS: DRAFT
DATE: 2019-04-30

Appendix F

P.F.S.G. 04-08-10 Critical Task Matrix

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