



The Municipality of Brighton

FIRE MASTER PLAN

Final Report

October 2013

Submitted by:



**Municipality of
Brighton**
**Fire Master Plan
Draft Report**

October 2013

Our Project: 12-6607

Prepared By:

***Dillon Consulting
Limited***

EXECUTIVE SUMMARY

This Fire Master Plan (FMP) has been developed to provide the Municipality of Brighton with a strategic framework to assist Council in making decisions regarding the provision of fire protection services based on its local needs and circumstances. This FMP has been prepared with the highest regard for the legislated responsibilities of the municipality as contained within the *Fire Protection and Prevention Act* (1997) (FPPA) and the *Occupational Health and Safety Act* (OHSA).

Significant emphasis has been placed on the use of Public Fire Safety Guidelines (PFSG) and the resources provided by the Office of the Fire Marshal, Ontario (OFM). One of the primary roles of the OFM 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. The Comprehensive Fire Safety Effectiveness Model and Fire Risk Sub-Model are examples of the OFM documents that have been utilized to prepare this FMP.

Our interpretation of Council's commitment to the community is to provide the optimal level of fire protection services as determined through the analyses of the "needs and circumstances" of the Municipality of Brighton as referenced in the FPPA, and in achieving the most cost effective and efficient level of fire protection services resulting in the best value for the community.

This FMP has been developed, and the recommendations within this plan support the strategic optimization of the three lines of defence identified within the Comprehensive Fire Safety Effectiveness Model, which are as follows:

- I. Public Education and Prevention;***
- II. Fire Safety Standards and Enforcement; and***
- III. Emergency Response.***

Optimization of the first two lines of defence has proven to be an effective strategy in reducing the impacts of fire, and fire related injuries across the province. Recently the Fire Marshal indicated that further optimization of programs targeted specifically at the first two lines of defence must be a priority for fire services within Ontario. Emergency response including fire suppression resources are a necessary tool in managing the overall fire risk within a community. However, as indicated by the Office of the Fire Marshal, preventing fires through the delivery of education and prevention programs, and utilization of the appropriate fire safety standards and enforcement strategies is the most effective means to further reduce the impacts of fire, and fire related injuries across the province of Ontario.

This report recognizes four strategic priorities for the delivery of fire protection services within the Municipality of Brighton including:

- *The identification of strategies to sustain the use of Volunteer Firefighters as the primary providers of fire protection services, and specifically fire suppression activities (firefighting) within the Municipality of Brighton;*
- *The review of current programs such as training and succession planning to identify strategies to further optimize these programs in sustaining the use of Volunteer Firefighters;*
- *The utilization of a comprehensive Community Risk Profile to determine the level of existing and projected fire safety risks within the municipality;*
- *The optimization of the first two lines of defence including public education and prevention, and the use of fire safety standards and enforcement to provide a comprehensive fire protection program within the Municipality based on the results of the Community Risk profile.*

In our view the recommendations within this FMP accurately reflect the “*needs and circumstances*” of the Municipality of Brighton as defined by the FPPA. The recommendations within this FMP include revisions to the current organizational model as an interim strategy in developing a succession plan for leading and implementing the recommendations of this FMP over the short-term (five-year) planning horizon of this plan. We are recommending that at the mid-point (five-year) term, or sooner as Council may determine that this FMP and the recommendations be re-assessed.

The development of this FMP recognizes Council’s commitment to stakeholder consultation including the Volunteer Firefighters from each station, senior municipal staff and the Project Steering Committee.

A summary of the Municipality of Brighton Fire Master Plan recommendations are provided in the following sections.

Summary of Recommendations

The following is a summary of our recommendations for each division of the Brighton District Fire Department (BDFD):

Administration:

1. Subject to the consideration and approval of this Fire Master Plan by Council a process be implemented to update the current Mission Statement of the Brighton District Fire Department to reflect the strategic direction of the municipality and as a strategy in team building and defining a shared vision for the Brighton District Fire Department.
2. Through a process of transition the position of Administrative Assistant is evolved to a full-time position within the fire department reporting directly to the Fire Chief.
3. The Fire Chief and Chief Administrative Officer be directed to investigate the potential impacts of retirement on volunteer firefighters and prepare a report for consideration by Council in regard to the potential impacts and due diligence practices on behalf of the municipality.
4. Subject to the consideration and approval of this Fire Master Plan by Council a space needs assessment be completed of the current administrative space and the impacts of the proposed organizational structure recommended.
5. The Fire Chief be directed to prepare an annual summary report including an annual update of the Community Risk Profile to inform Council on the performance of the department and to identify where new trends may be evolving, or new programs may be required to reflect best practices in sustaining a responsive and effective level of fire protection services for the community.
6. Subject to the consideration and approval of this Fire Master Plan by Council an updated Fire Department Establishing and Regulating By-Law be prepared and presented to Council for approval.
7. Formalization of a Tiered Response Agreement with the County of Northumberland be considered including the participation of the Brighton District Fire Department in responding to immediate threats to life such as cardiac arrest, stroke and heart attacks, or to incidents where the response of the County ambulance service may be longer than 10 minutes.
8. The current fire dispatch agreement be revised to include the performance measures for service delivery identified within the NFPA 1221 standard.
9. Utilization of the current records management software program be extended to all officers and additional users such as those identified within the proposed organizational structure.
10. The Fire Chief be directed to complete a review and update of all department Operating Guidelines including emphasis on compliance with the OHSA Section 21 Guidance Notes.
11. The proposed Organizational Structure of the department be approved including the implementation of:
 - i. The position of part-time Deputy Fire Chief be dissolved through the coordination of implementing the proposed organizational structure.

- ii. The position of full-time Assistant Chief – Fire Prevention be created to reflect Council's commitment to optimizing the first two lines of defence and delivery of the fire prevention service levels identified within the FMP.
 - iii. The position of full-time Assistant Chief – Training & Public Education be created to reflect Council's commitment to optimizing the two lines of defence and delivery of the fire safety program service levels identified within the FMP.
 - iv. The position of Volunteer Station Commander be created for each of the South and North stations to reflect Council's commitment to the delivery of the fire safety program service levels identified within the FMP.
 - v. The addition of one Volunteer Captain at the North Station and the addition of a Volunteer Lieutenant position at both stations to be consistent with providing a ratio of officers (supervisors) to firefighters of approximately one to five within each of the stations.
12. The new position of Assistant Chief - Training & Public Education be designated as the primary CEMC with the Fire Chief (and Assistant Chief - Fire Prevention) designated as the alternates, providing the flexibility for the Municipality to assign roles to all three in the event of an emergency.

Fire Prevention and Public Education:

1. Subject to the consideration and approval of this Fire Master Plan by Council the Fire Chief be directed to develop the proposed Fire Prevention Policy including the fire prevention and public education program service levels identified within the FMP for consideration and approval by Council as part of a new Establishing and Regulating By-Law.
2. Within the development of the proposed Fire Prevention Policy the performance measures for this division be considered in relation to a full review of all current fees charged, and subject to approval of the proposed Fire Prevention Policy that all fees for service be reviewed and revised on an annual basis to ensure that they accurately represent the fiscal realities of the services provided.

Training Division:

1. The Brighton District Fire Department endorse the Ontario Firefighters Standard and Company Officer Standard as the core curriculum for firefighter training within the Brighton District Fire Department;
2. A comprehensive annual training program be developed including specialized training based on the service levels approved by Council for specialized emergency responses.
3. Live fire training be included in the annual training program and be completed at minimum on an annual basis for all fire suppression staff.
4. Based on our review of historical calls for service and the Community Risk profile, consideration should be given to reviewing Ice/Water Rescue to include "Shore Based-Water/Ice Rescue".
5. Subject to Council approval of these service levels, the comprehensive training program be revised to reflect the provision of these service levels and the specialized training programs. Full time and volunteer firefighters should be trained, competent and, where possible, certified to respond to specialized incidents.

Suppression Division:

1. A revised depth of response protocol to deploy a minimum of 14 firefighters based on moderate risk occupancies as defined by the Community Risk Profile be implemented.
2. A process to track turnout time of the volunteer firefighters for all calls that the fire department receives be implemented to monitor the department's turnout time performance.

3. A process to track arrival times of personnel on-scene be implemented to monitor depth of response performance and response time performance more accurately.
4. The complement of volunteer firefighters within the department be increased to a minimum of 60 volunteer firefighters. This recommendation is targeted at achieving the following objectives:
 - Maintaining a minimum complement of 30 volunteer firefighters at all stations at all times;
 - Increasing the number of volunteer firefighters available during week-day daytime (normal business hours) periods at all stations;
 - Should additional applicants be available for daytime coverage it is recommended that each station increase their complement to 35.
5. The Municipality consider flexible alternatives to enhance and support daytime response of volunteer firefighters (i.e. volunteers able to respond to both stations to compliment area of work and area of residence).

Fire Station – Apparatus and Equipment:

1. Subject to consideration of the recommended organizational structure within this report we recommend that Council support the completion of a detailed facility review within the short-term horizon of the FMP to ascertain the overall current infrastructure condition, administrative and operational space needs for the fire department.
2. The Municipality and the fire department consider full implementation of the actions identified to limit the exposure of diesel emissions as an interim measure and include a detailed analysis of these systems as part of proposed new stations and facilities.
3. The fire department consider formalizing and maintaining a ‘Capital Replacement Plan’ for fleet and equipment.
4. Council direct staff to investigate the options of implementing the apparatus replacement schedule included within the Fire Master Plan including the addition of a reserve pumper as recommended.
5. The fire department initiate bunker gear replacement in 2013-2014.
6. Considerations for ladder truck/elevated stream within the department’s fleet.
7. If a consistent response of volunteers responding to the station for calls is greater than the number of seats available, the municipality should consider options for adding a passenger transport vehicle to the fleet of that station.

Communications Division:

1. The department management team identifies and implements strategies to enhance the communication and interaction across the department.
2. The TAS-Page Communications agreement be reviewed and revised to include performance measures for dispatch time performance (e.g. NFPA 1221).
3. The department expand the number of users of FIREHOUSE and install the software on additional computers within the department. Future extension of use to the volunteer officers should also be considered.

TABLE OF CONTENTS

EXECUTIVE SUMMARY..... I

TABLE OF CONTENTS V

LIST OF TABLES.....VIII

LIST OF FIGURES.....VIII

1.0 INTRODUCTION 1

1.1 Community Background..... 1

1.2 Department Background..... 2

1.3 Fire Protection and Prevention Act, 1997..... 4

1.4 Office of the Fire Marshal, Ontario 7

1.4.1 PFSG 00-00-01 “Framework for Setting Guidelines within a Provincial-
Municipal Relationship” 7

1.4.2 FSG 04-40-03 “Selection of Appropriate Fire Prevention Programs” 7

1.4.3 PFSG 04-08-10 “Operational Planning: An Official Guide to Matching Resource
Deployment and Risk” 8

1.4.4 PFSG 01-02-01 “Comprehensive Fire Safety Effectiveness Model” (CFEM) 8

1.4.5 PFSG 01-01-01 “Fire Protection Review Process”..... 10

1.5 Occupational Health and Safety Act 10

1.6 Summary..... 11

2.0 COMMUNITY RISK PROFILE..... 12

2.1 Summary of Community Risk Profile 13

3.0 ADMINISTRATION DIVISION 15

3.1 Mission Statement 15

3.2 Department Organization and Staffing..... 16

3.3 Department Management Team..... 17

3.3.1 Fire Chief 17

3.3.2 Deputy Fire Chief 18

3.3.3 Administrative Support 18

3.4 Proposed Organizational Structure..... 19

3.4.1 Part-time Deputy Fire Chief 20

3.4.2 Assistant Chief – Fire Prevention 20

3.4.3 Assistant Chief – Training & Public Education..... 20

3.4.4 Volunteer Station Commanders – South & North Stations 21

3.4.5 Officers – Supervisors..... 21

3.5 Succession Planning 22

3.6 Succession Plan..... 23

3.7 Promotional/Recruitment Process 23

3.8 Administrative Workspace (Station #1) 23

3.9 Annual Report..... 24

3.10 By-laws & Agreements 24

3.10.1 By-laws 24

3.11 Mutual Aid Agreements 25

3.12 Automatic Aid Agreements (Fire Protection Agreements)..... 25

3.13 Tiered Response Agreement 26

3.14 Dispatch Services Agreement 26

3.15	Departmental Policies and Operating Guidelines.....	27
3.16	Departmental Records Management	28
3.17	Community Emergency Management (CEM)	28
3.18	Administration Division Summary and Recommendations.....	30
4.0	FIRE PREVENTION & PUBLIC EDUCATION.....	32
4.1	Comprehensive Fire Safety Effectiveness Model	32
4.2	Existing Fire Prevention and Fire Safety Programs	33
4.3	Proposed Staffing Model	35
4.4	Fire Prevention and Fire Safety Program Priorities.....	35
4.5	Ontario Fire Code Enforcement	36
4.6	Fire and Life Safety Program.....	37
4.7	Smoke Alarm Program	38
4.8	Fire Investigation and Cause Determination.....	38
4.9	Fire Prevention and Public Education Priority Setting Worksheet	39
4.10	Fees for Service.....	41
4.11	Workspace	41
4.12	Fire Prevention/Public Education Division Summary and Recommendations.....	41
5.0	TRAINING DIVISION.....	43
5.1	Staffing and Training Sessions.....	43
5.2	Training Programs	44
5.3	Specialty Training Programs.....	44
5.4	Live Fire Training	46
5.5	Company Officer Training.....	46
5.6	Facilities & Workspace	46
5.7	Training Division Summary and Recommendations.....	46
6.0	FIRE SUPPRESSION.....	48
6.1	Importance of Time with Respect to Fire Growth.....	48
6.2	Total Response Time Assessment	50
6.3	Analyses of Fire Suppression Guidelines, Industry Standards, and Industry Best Practices	51
6.4	PFSG 04-08-10 Operational Planning: An Official Guide to Matching Resource Deployment and Risk	51
6.4.1	National Fire Protection Association (NFPA)	53
6.4.2	National Fire Protection Association (NFPA) 1710 Standard.....	53
6.4.3	Initial Arriving Company – “Initial Response”	53
6.4.4	Initial Full Alarm Assignment – “Depth of Response”	54
6.4.5	National Fire Protection Association (NFPA) 1720 Standard.....	56
6.5	Summary of Fire Suppression Guidelines, Industry Standards, and Industry Best Practices	57
6.6	Current Emergency Response Overview	60
6.7	Emergency Call Volume.....	61
6.8	Emergency Call (Incident) Types.....	62
6.8.1	Dispatch Times	65
6.8.2	Turnout Time.....	66
6.8.3	Travel Time	67
6.8.4	Total Response Times	67
6.9	Assessment of Response Coverage	68
6.9.1	Current Initial Response.....	69

6.9.2	Current Depth of Response	71
6.9.3	Future Initial Response – with Staging Area.....	72
6.10	Consideration of a Third Fire Station	74
6.11	Existing Fire Suppression Services	74
6.11.1	Current Staffing	74
6.12	Suppression Division Summary and Recommendations	75
7.0	FIRE STATIONS, APPARATUS & EQUIPMENT	76
7.1	Fire Stations	76
7.1.1	Future Station Consideration	77
7.2	Diesel Emissions	78
7.3	Apparatus and Equipment.....	78
7.4	Staffing and Responsibilities	78
7.5	Apparatus & Fleet	78
7.6	Maintenance.....	80
7.7	Fleet Replacement Plan	80
7.8	Reserve Apparatus.....	80
7.9	Major Equipment	81
7.10	Fire Station, Apparatus, & Equipment Summary and Recommendations.....	81
8.0	MUNICIPAL COMPARATORS	83
9.0	COMMUNICATIONS & TECHNOLOGY.....	87
9.1	Fire Dispatch.....	87
9.2	Internal Department Communications.....	87
9.3	Technology	87
9.4	Communications and Technology Summary and Recommendations	88
10.0	STUDY CONSULTATION	89
10.1	Steering Committee	89
10.2	Project Meetings.....	89
10.3	Stakeholder Consultation.....	89
10.4	Interviews with Steering Committee Members.....	89
10.5	Volunteer Firefighter Roundtable Sessions	89
10.6	Council Workshop Education and Training Session	90
11.0	IMPLEMENTATION PLAN	91

LIST OF TABLES

Table 1:	Fire Prevention and Public Education Activities	34
Table 2:	Proposed Municipality of Brighton Fire Inspection Services	36
Table 3:	Fire Prevention and Public Education Priority Setting Worksheet	40
Table 4:	Fire Growth Rates as Defined by Society of Fire Protection.....	49
Table 5:	NFPA 1720	57
Table 6:	Recommended Depth of Response – Municipality of Brighton	60
Table 7:	Response Types.....	61
Table 8:	NFPA 1720 Table 4.3.2 Staffing and Response Time.....	67
Table 9:	Existing Stations Descriptions	76
Table 10:	Current Stations, Apparatus & Minimum Staffing.....	77
Table 11:	Apparatus and Model Year	79
Table 12:	Fleet Replacement Plan	80
Table 13:	Municipal Comparator Group.....	84
Table 14:	Resources, Staffing and Financial Comparison	85
Table 15:	Implementation Plan.....	91

LIST OF FIGURES

Figure 1:	Existing Fire Station Locations	3
Figure 2:	Factors in a Comprehensive Fire Safety Effectiveness Model.....	9
Figure 3:	Comprehensive Model applied to a typical Fire Department	9
Figure 4:	Brighton District Fire Department Organizational Chart	16
Figure 5:	Proposed Organizational Structure.....	22
Figure 6:	OFM Fire Progression Curve.....	49
Figure 7:	PFSG 04-08-10 Critical Task Matrix	52
Figure 8:	Initial Response Fire Scene Responsibilities	54
Figure 9:	Depth of Response Fire Scene Responsibilities	55
Figure 10:	Historical Annual Call Volume (2007 - 2012).....	61
Figure 11:	Historical Call Volume by Type (2007-2012)	62
Figure 12:	Percentage of Calls by Type	63
Figure 13:	Historical Call Locations and Types	64
Figure 14:	Historical Dispatch Times by Type.....	66
Figure 15:	Historical Total Response Times by Type (2007-2012).....	68
Figure 16:	Current Initial Response Coverage Areas.....	70

Figure 17:	Historical Initial Personnel Response by Type (2009-2012)	71
Figure 18:	Historical Total Personnel Response by Type (2007-2012)	72
Figure 19:	Future Initial Response Coverage Areas - with Staging Area	73

APPENDICES

Appendix A:	PFSG 00-00-01 “Framework for Setting Guidelines within a Provincial-Municipal Relationship”
Appendix B:	PFSG 04-40-03 “Selection of Appropriate Fire Prevention Programs”
Appendix C:	PFSG 04-08-10 “Operational Planning: An Official Guide to Matching Resource Deployment and Risk”
Appendix D:	PFSG 01-02-01 “Comprehensive Fire Safety Effectiveness Model”
Appendix E:	PFSG 01-01-01 “Fire Protection Review Process”
Appendix F:	PFSG 02-03-01 “Economic Circumstances”
Appendix G:	PFSG 02-02-03 “Fire Risk Assessment”
Appendix H:	PFSG 02-04-01 “Capabilities of Existing fire Protection Services
Appendix I:	Community Risk Assessment
Appendix J:	Definitions of OFM Response Types

1.0 INTRODUCTION

The Municipality of Brighton initiated this Fire Master Plan (FMP) study to assess current and future levels of service and programs provided by the fire department. The Fire Master Plan is a strategic document that will assist the Municipality and Brighton District Fire Department with planning the delivery of fire protection services over the next ten year period with consideration for the 20 year planning horizon. Fire Master Plans are typically ten year plans, with a review of the plan conducted at the five year horizon. Completion of the FMP recognizes the continued commitment of the Municipality's Council and senior staff to providing the highest level of services and programs to the community in the most fiscally responsible and efficient manner.

This FMP provides a complete review of the current operations of the Brighton District Fire Department to assist Council in establishing key objectives for the department. The plan includes recommendations to address both short-term and long-term strategies for the Municipality, consistent with the fire master planning process outlined within the Office of the Fire Marshal, Ontario, *Shaping Fire-Safe Communities Initiative*.

The overarching goal of this report is to present a clear understanding of the existing and future requirements of the Brighton District Fire Department. Referencing best practices, including relevant standards and legislation, this report was prepared by completing an assessment of the following departmental administrative and operational components:

- Governance, legislation, by-laws and administration;
- Fire prevention and public education;
- Firefighter staffing and service agreements;
- Community risk assessment;
- Emergency response;
- Firefighter training;
- Apparatus, equipment and maintenance;
- Communications and technology; and
- Budgets and revenues.

The Fire Master Plan was developed with a broad and comprehensive stakeholder consultation program. This included a Council workshop, interviews with the fire department and municipal staff, roundtable discussion sessions with the volunteer firefighters at each of the fire stations and continuous consultation with the Municipality's Steering Committee.

1.1 Community Background

Brighton is a picturesque community located on the north shore of Lake Ontario in Northumberland County. The Municipality, as identified in its mission statement, seeks to respect its unique rural and urban heritage and maintain its "small town charm". Brighton's location along the Highway 401 corridor between Toronto and Kingston makes it a desirable place to live and do business. The Municipality's current population is approximately 10,900 people (2011 Census) experiencing an approximate 7% population growth since 2006. This growth rate has stayed relatively consistent over the past two decades. The urban community is surrounded by an abundance of natural heritage features including Presqu'île Provincial Park, rural residential areas and agricultural land to the north.

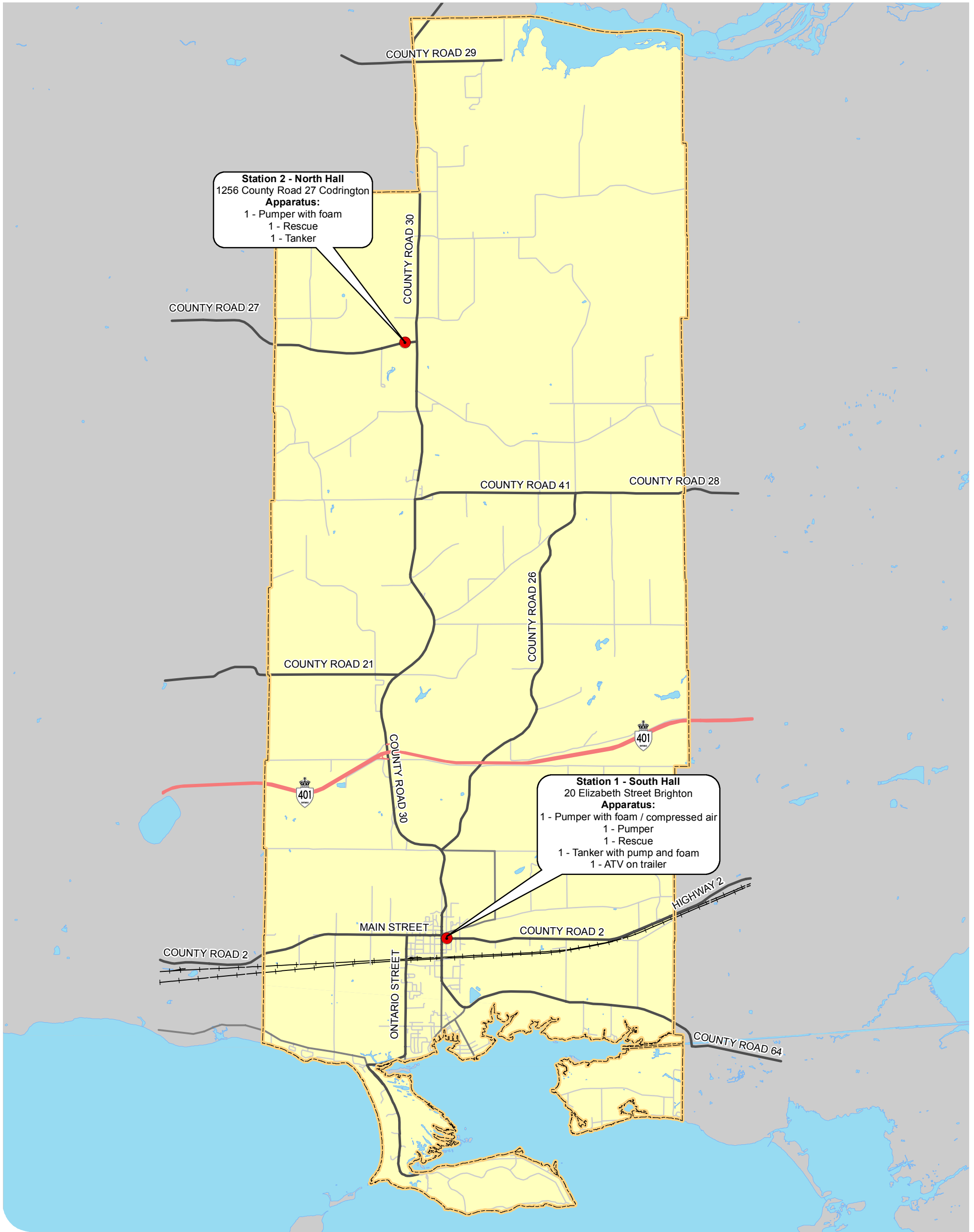
1.2 Department Background

The Municipality of Brighton provides fire protection services from two fire stations strategically located in the northern and southern areas of the community. The south station is located in the urban area, on Elizabeth Street and includes both volunteer firefighters and the administration staff of the department. The north station is situated in the rural area in Codrington on County Road 27 also staffed by volunteer firefighters. **Figure 1** shows the location of the two fire stations and their respective apparatus. The station on Elizabeth Street also houses an ambulance operated by the Northumberland County Emergency Medical Services.

The department provides fire protections services including emergency response to fires, rescues (including shore based water and ice rescues), motor vehicle collisions, medical calls and some hazardous materials incidents. The fire department protects a population of 10,900 residents within a geographical coverage area of approximately 223 square kilometres. The department also provides coverage to 16 kilometres of Highway 401 (Macdonald–Cartier Freeway) that transects the municipality.

This strong sense of community is evident in the history and tradition within each of the volunteer fire stations. Pictures and plaques mounted on station walls reflect the years of dedicated service the volunteer firefighters have provided to their reflective communities. This dedication continues in the commitment of today's volunteer firefighters as indicated by their individual and coordinated efforts to provide fire protections services to their local areas and the larger community. In our view the history of the department is a critical component in understanding the current state of the department.

Our observations confirm the desire of the volunteer firefighters to continue providing the high quality of services they have historically provided. Based on our consultation with the volunteer firefighters and our analyses of the department, strategies targeted at sustaining the current model and optimizing the training available are priorities of the volunteer firefighters.



Station 2 - North Hall
 1256 County Road 27 Codrington
Apparatus:
 1 - Pumper with foam
 1 - Rescue
 1 - Tanker

Station 1 - South Hall
 20 Elizabeth Street Brighton
Apparatus:
 1 - Pumper with foam / compressed air
 1 - Pumper
 1 - Rescue
 1 - Tanker with pump and foam
 1 - ATV on trailer



R.M. of BRIGHTON
 FIRE MASTER PLAN

STATION LOCATIONS AND RESPECTIVE APPARATUS

FIGURE #1

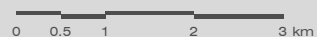
- Fire Stations
- Freeway
- Ramp
- Arterial
- Collector
- Local
- +— Railways
- Waterbody
- Municipal Boundary



MAP DRAWING INFORMATION:
 DATA PROVIDED MUNICIPALITY OF BRIGHTON

MAP CREATED BY: JJA
 MAP CHECKED BY: SLC
 MAP PROJECTION: NAD 1983 UTM Zone 17N

FILE LOCATION:
 R:\GIS\126607 - Brighon FMP\Mapping\StationMap.mxd



1.3 Fire Protection and Prevention Act, 1997

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* (FPPA). The following are applicable sections of the FPPA for reference purposes:

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 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 Municipality 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)

PART II
RESPONSIBILITIES 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.
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.

PART III FIRE MARSHALL

- Appointment of Fire Marshal** 8 (1) There shall be a Fire Marshal who shall be appointed by the Lieutenant Governor in Council.
- 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;
 - (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.

1.4 Office of the Fire Marshal, Ontario

As indicated within the FPPA the duties of the Fire Marshal include responsibilities to assist in the interpretation of the Act, to develop training and evaluation systems and enforcement of the Act and its regulations. One of these roles includes the review of compliance with the minimum requirements of a Community Fire Safety Program, which must include:

- ✓ *A smoke alarm program with home escape planning;*
- ✓ *The distribution of fire safety education material to residents/occupants;*
- ✓ *Inspections upon complaint or when requested to assist with code compliance (including any necessary code enforcement); and*
- ✓ *A simplified risk assessment.*

The OFM has developed Public Fire Safety Guidelines (PFSG) to assist municipalities in making informed decisions with regard to determining local “needs and circumstances” and achieving compliance with the FPPA.

1.4.1 *PFSG 00-00-01 “Framework for Setting Guidelines within a Provincial-Municipal Relationship”*

PFSG 00-00-01 (attached as **Appendix A**) is an example of the guidelines that have been developed. Information within the background section of this document includes the following:

“Municipalities are compelled to establish a program in the municipality which must include public education with respect to fire safety and certain components of fire prevention. The Act also states that municipalities are responsible for arranging such other fire protection services as they determine may be necessary according to their own needs and circumstances. The relationship between the province and municipalities is based on the principle that municipalities are responsible for arranging fire protection services according to their own needs and circumstances”.

As referenced in this document, guidelines represent one component of the strategy that the Ministry of Community Safety and Correctional Services proposes for public fire protection in Ontario. The strategy referenced includes:

- *Clarifying municipal responsibility for local fire protection, while protecting the provincial interest in public safety.*
- *Removing remaining legislative barriers which forestall the restructuring and reorganization of municipal fire services.*
- *Facilitating a shift in focus which places priority on fire prevention and public education as opposed to fire suppression.*
- *Providing municipalities with decision-making tools to help them provide services according to their own needs and circumstances.*
- *Facilitating more active involvement of the private sector and other community groups in fire prevention and public education through the Fire Marshals Public Fire Safety Council.*

1.4.2 *FSG 04-40-03 “Selection of Appropriate Fire Prevention Programs”*

PFSG 04-40-03 and 04-40-12 (attached as **Appendix B**) identifies the four minimum requirements of the FPPA Section 2. (1) (a) “establish a program in the municipality which must include public education with respect to fire safety and certain components of fire prevention” including:

- ✓ Simplified risk assessment;
- ✓ A smoke alarm program;
- ✓ Fire safety education material distributed to residents/occupants; and
- ✓ Inspections upon compliant or when requested to assist with code compliance.

1.4.3 *PFSG 04-08-10 “Operational Planning: An Official Guide to Matching Resource Deployment and Risk”*

PFSG 04-08-10 (attached as **Appendix C**) was developed by the OFM to assist municipalities’ in meeting their responsibilities under Section 2. (1) (b) “provide such other fire protection services as it determines may be necessary in accordance with its needs and circumstances” of the FPPA.

As stated by the OFM in PFSG “04-08-10 *Operational Planning: An Official Guide to Matching Resource Deployment and Risk*”:

“The overall public safety objective of a municipality is to provide the community with an optimal level of fire protection. Fire suppression is one aspect of the three lines of defence; the other two lines are Public Education and Prevention and Fire Safety Standards and Enforcement. A municipality needs to evaluate its existing fire suppression capabilities to ensure that it is managing all fire risk levels within the community, responding to and addressing fires that occur, and meeting public and council expectations”.

1.4.4 *PFSG 01-02-01 “Comprehensive Fire Safety Effectiveness Model” (CFEM)*

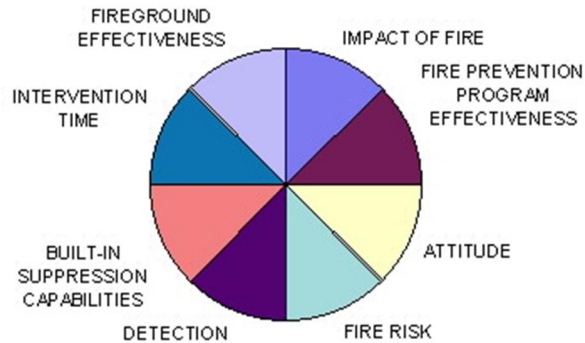
PFSG 01-02-01 (Attached as **Appendix D**) was developed by the OFM to assist communities in evaluating their level of fire safety. The model recognizes that there is more to providing fire protection services than just building fire stations, purchasing equipment and deploying firefighters. The CFEM confirms that the fire service within Ontario is in a period of change. In response to increasing public expectations and diminishing financial resources municipalities are being forced to critically assess their fire protection needs in identifying new and innovative ways to providing the most cost effective fire protection services. The following is an excerpt from PFSG 01-02-01:

“This model looks at community fire protection as the sum of eight key components, all of which impact on the fire safety of the community. Deficiencies in one of the components can be offset by enhancements in another component or components”.

The CFEM identifies that every municipality should be guided by a master or strategic plan covering a planning horizon of five to ten years. Shifting from the traditional focus of hazard identification and fire suppression response the CFEM recognizes that more comprehensive risk assessment and optimizing the use of fire prevention and control systems are part of a paradigms shift within the fire service.

Figure 2 below shows each of the factors which make up the comprehensive model. Although the chart is divided equally, each factor will in reality contribute differently to the total level of protection provided to a community.

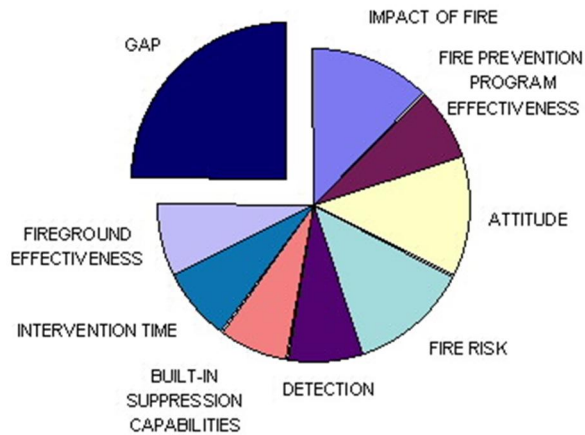
Figure 2: Factors in a Comprehensive Fire Safety Effectiveness Model



(Source: OFM PFSG 01-02-01)

Figure 3 shows how the comprehensive model can be applied to a typical fire department. The "gap" depicts the difference between the existing level of protection and the ideal.

Figure 3: Comprehensive Model applied to a typical Fire Department



(Source: OFM PFSG 01-02-01)

Utilizing the framework of the CFEM and the fire protection service assessment processes developed by the OFM the primary objective of this FMP is to identify through evidence based analyses the presence of any existing gap in fire protection services within the Municipality of Brighton.

In response to any existing gaps identified this FMP recommends strategies that are intended to optimize the use of the “*three lines of defence*” including:

I. Public Education and Prevention

II. Fire Safety Standards and Enforcement

III. Emergency Response

A further description of each line of defence includes:

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; and

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.

The Comprehensive Fire Safety Effectiveness Model emphasises the importance and value of preventing a fire. This is important from both an economic and public safety perspective, at the same time, ensuring an appropriate level of health and safety for firefighters. The model also recognizes that developing programs and providing resources to effectively implement the first line of defence (a proactive public education and prevention program) can be an effective strategy to reduce and potentially minimize the need for the other lines of defence.

1.4.5 PFSG 01-01-01 “Fire Protection Review Process”

Analysing local circumstances is a core component of the fire master planning process. PFSG 01-01-01 (Attached as ***Appendix E***) identifies the three main issues that define local circumstances including the guidelines to be utilized:

- ✓ *PFSG 02-03-01 “Economic Circumstances” (Attached as ***Appendix F***)*
- ✓ *PFSG 02-02-03 “Fire Risk Assessment” (Attached as ***Appendix G***)*
- ✓ *PFSG 02-04-01 “Capabilities of Existing Fire Protection Services (Attached as ***Appendix H***)*

Detailed analysis of these issues is included within this report to provide the background and rationale to support the recommendations of this Fire Master Plan.

1.5 Occupational Health and Safety Act

The *Occupational Health and Safety Act, R.S.O. 1990 (OHSA)* requires every employer to, “*take every precaution reasonable in the circumstances for the protection of the worker*”. The OHSA 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 firefighters-specific safety issues within Ontario.

Where 20 or more workers are regularly employed at a workplace, the OHSA requires the establishment of a Joint Health and Safety Committee (JHSC). 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 Standard Operating Procedures (SOPs) that are consistent with the direction of the *OHSA Section 21 Guidance Notes* for the fire service.

1.6 Summary

This FMP has been developed following the framework of assessing the delivery of municipal fire protection services included within the current Public Fire Safety Guidelines authored by the Office of the Fire Marshal, Ontario. Referencing best practices, including relevant standards and legislation, this FMP includes evidence-based analyses of the existing fire protections services provided by the Municipality of Brighton and identifies options for Council's consideration.

Where "gaps" in fire protection services provided by the Brighton District Fire Department may be identified through this assessment; this FMP will optimize the use of the "*three lines of defence*" to identify and recommend options for the delivery of the most cost effective; and efficient level of fire protection services; to provide the optimal level of public safety, at the same time, ensuring an appropriate level of health and safety for firefighters.

2.0 COMMUNITY RISK PROFILE

The Office of the Fire Marshal, Ontario's (OFM) *Fire Risk Sub-model*¹ introduces the importance of community risk in the following paragraph:

“Assessing the fire risk within a community is one of the seven components that comprise the Comprehensive Fire Safety Effectiveness Model. It is the process of examining and analyzing the relevant factors that characterize the community and applying this information to identify potential fire risk scenarios that may be encountered. The assessment includes an analysis of the likelihood of these scenarios occurring and their subsequent consequences.”

Community fire risks are further explained in detail within the OFM's *Fire Risk Sub-model* as follows:

“The types of fire risks that a community may be expected to encounter are influenced by its defining characteristics. For example, a “bedroom community” presents a different set of circumstances over one that is characterized as an “industrial town”. Communities that are distinguished by older buildings will pose a different set of concerns over those that are comprised of newer buildings constructed to modern building codes. Communities populated by a high percentage of senior citizens present a different challenge over ones with a younger population base.

Assessing fire risk should begin with a review of all available and relevant information that defines and characterizes your community. Eight key factors have been identified that contribute to the community's inherent characteristics and circumstances. These factors influence events that shape potential fire scenarios along with the severity of their outcomes:

- *Property Stock*
- *Building Height and Area*
- *Building Age and Construction*
- *Building Exposures*
- *Demographic Profile*
- *Geography/Topography/Road Infrastructure*
- *Past Fire Loss Statistics*
- *Fuel Load”*

Utilizing the framework provided within the OFM's *Fire Risk Sub-model* provides the opportunity to assess the potential fire risk scenarios that may be present by creating a Community Risk Profile. The profile can then be used to assess the current level of fire protection services provided, and identify where if any potential gaps exist, or areas that a municipal Council may want to consider in determining its own needs and circumstances as defined by the FPPA.

This section contains a summary of the observations from each of the categories contained within the community risk profile and assessment. The detailed Community Risk Profile is contained within **Appendix I**.

¹ Source: *Comprehensive Fire Safety Effectiveness Model, Fire Risk Sub-Model*, June 2009 Office of the Fire Marshal, Ontario

2.1 Summary of Community Risk Profile

In summary, the Municipality of Brighton represents the typical level of risk that would be found in comparable municipalities within the Province of Ontario. These include smaller urban centres surrounded by large tracts of agricultural and environmentally protected areas forming a larger community. The geography, topography and road infrastructure are also consistent with those of similar communities. The road network layout is primarily a grid pattern of arterial rural roads and local roads adjacent to Highway 401.

Within the ten year horizon of this plan significant growth is not expected. Based on current projections the community is anticipated to grow at a rate of 4.5% annually during this period.

Residential occupancies dominate the community at 75.2% of the building stock. Agriculture and farm-related buildings (not classified within the OBC) vary in size and use from small utility sheds to large livestock barns and are also very prevalent throughout the Municipality and is the second largest percentage of property stock (18.7%).

Within the province residential occupancies have historically accounted for approximately 72% of all structure fires and 86% of all fire related deaths. For the five year period from 2007 to 2011 the Municipality of Brighton reported 39 fires of which 69.2% occurred in Group C - Residential occupancies, which is slightly lower than the provincial average.

The historic downtown core, including the Downtown Business Improvement Area represents large building areas (in square footage). The inherent multi-use traditional of these downtown buildings include commercial on the ground floor with residential above. Combined these result in both life safety and fire risks that need to be considered in terms of regular inspections cycles and sustaining compliance with the Ontario Fire Code (OFC). There are no residential high-rise buildings within the Municipality. There is also two industrial areas within the Municipality; the industrial park is located along Loyalist Drive and a mixed use industrial area is located north of the railway corridor from Prince Edward Street to Ontario Street.

The demographic profile is very consistent with that of the Province of Ontario. As a primarily English speaking community the population has a slightly lower level of income but higher home ownership level than that of other communities within the province. The Municipality of Brighton is at a point whereby seniors represent approximately one of every four persons, which is likely a result of older people moving out of the city to retire. This should be considered significant in relation to the provincial statistics and when considered in relation to the number of fire deaths for this age category. The senior population should be considered a high priority in terms of their vulnerability in the event of a fire.

The Municipality also faces a minor population shift during the spring and summer months, due to the abundance of camping and trailer sites and the presence of Presqui'le Park, which brings a large number of tourists and campers to Brighton. The seasonal population can increase the population of the Municipality by up to 8,000-10,000 people, however, fire protection strategies should be accommodated as part of broader services such as pro-active fire inspections of the facilities occupied by this demographic.

Geographic Information Systems (GIS) modeling of the actual emergency calls that occurred during the period 2007 to 2012 are reflected in the Existing Conditions Risk Profile Model. This risk profile indicates that the department has been able to respond from the current fire station locations to 100% of the historic calls (all call types) located in high risk zones, 92% of the calls in moderate risk zones and 100% of the call in low risk zones within the urban area in nine minutes or less total response time. Within the rural area, the department has responded to 100% of the calls within the high risk areas, 92% of the calls within moderate risk zones and 83% of calls within low risk zones within 14 minutes or less. The GIS model was also used to approximate existing geographic coverage of the existing risk zone areas. Under existing conditions, 100% of high risk geography, 68% of the moderate risk geography and 65% of the low risk geography is covered within nine minutes of predicted total response time within the assumed urban area. This scenario also results in 81% of the high risk zones, 86% of the moderate risk zones and 72% of the low risk zones being covered within the 14 minute predicted total response time within the rural area of the municipality. The detailed methodology and results (including figures) from the GIS modeling of the Risk Profile are contained within **Appendix A**.

The Community Risk Profile will form the basis for strategically planning the fire protection plans, optimizing the three lines of defence and developing department procedures, programs and services.

3.0 ADMINISTRATION DIVISION

The Brighton District Fire Department provides fire protection services through the use of a “composite” model fire department. This includes the utilization of both full-time staff and volunteer firefighters. The department currently includes a full-time Fire Chief, part-time deputy Fire Chief, part-time Administrative Assistant and a complement of 35 volunteer firefighters, who receive compensation for calls and duties, as required on an on-call basis.

The department has a long history of providing fire protection services through the use of volunteer firefighters operating from two fire stations. The current complement of volunteer firefighters has continued this tradition of dedication and commitment to attaining a high level of efficiency and effectiveness in the services they provide to the communities located within the municipality.

The Fire Chief is directly responsible for the overall administration of the department including preparation and oversight of the department’s annual operating and capital budgets; preparation of reports to Council; purchasing of apparatus and equipment; developing and approving department operating guidelines and policies; developing and delivering training programs; and coordinating equipment maintenance.

3.1 Mission Statement

The OFM identifies the importance of a fire department mission statement within PFSG 03-02-13 “*Master Planning Process for Fire Protection.*” As a mission statement the information should identify the goals and objectives of the department, identify the primary stakeholders (volunteer firefighters) and acknowledge the types of services and commitment of the department for success.

The Brighton District Fire Department’s current mission statement is stated as:

“The primary mission of the Brighton District Fire Department is to provide a range of programs and services to protect the lives and property of the inhabitants of its coverage area from the adverse effects of fires, sudden medical emergencies or exposure to dangerous conditions created by man or nature.”

The current mission statement reflects the components of a traditional statement including generalised wording references to a range of services. Developing a FMP provides an opportunity to review the values and direction of an organization such as the Brighton District Fire Department. Recommendations within this FMP subject to their consideration and approval by Council may also be cause for adjusting the current mission statement to reflect Council’s direction.

In our experience creating a mission statement within a fire department can be an excellent team building, and vision sharing exercise. In our view creating a new mission statement for the fire department would also provide an opportunity to align the department with the strategic direction of the municipality. We recommend that developing a mission statement be utilized as a strategy in team building and defining a shared vision for the Brighton District Fire Department.

Once completed, we recommend that the Mission Statement of the department be posted in a public, visible and prominent location within both of the department’s fire stations. The statements should also be included within any formal reports and correspondence emanating from the department.

3.2 Department Organization and Staffing

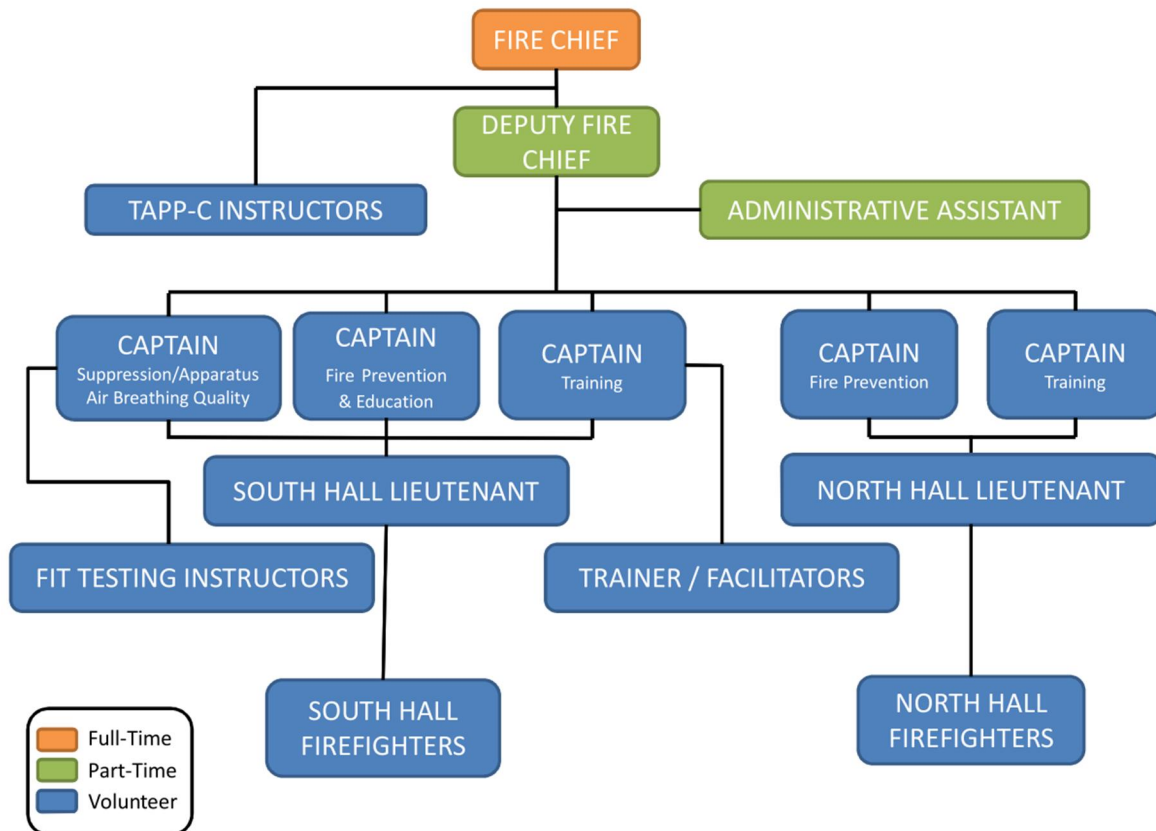
The current Brighton District Fire Department Establishing and Regulating By-Law 295-2005 provides definitions of the role of Fire Chief and Deputy Fire Chief and defines the Council approved fire department organizational structure.

The current Establishing and Regulating By-Law also identifies the divisional functions of the department under the direction of the Fire Chief. These include:

- *Division of Administration;*
- *Division of Apparatus, Equipment and Communications;*
- *Division of First Response Medical Assist;*
- *Division of Fire Suppression;*
- *Division of Rescue;*
- *Division of Fire Prevention and Education;*
- *Division of Water Land Base Rescue;*
- *Division of Training; and*
- *Division of Auto-Extrication*

The current Council approved organizational structure and reporting structure associated with these divisions is shown in **Figure 4**. In addition to the full-time Fire Chief the current Council approved staff complement includes a volunteer Deputy Fire Chief, one part-time administrative assistant, five volunteer Captains, two volunteer Lieutenants and a complement of 34 volunteer firefighters and officers.

Figure 4: Brighton District Fire Department Organizational Chart



3.3 Department Management Team

3.3.1 Fire Chief

The Fire Chief is currently the only full-time position assigned to the fire department. As the head of the fire department, the Fire Chief is responsible for the overall administration and operations of the Brighton District Fire Department, including the delivery of all Fire Protection Services. The Fire Chief reports to Council through the Municipality's Chief Administrative Officer (CAO). The Fire Chief is responsible for the following duties as per By-Law 295-2005:

- a) *“Shall have developed and published such written standard operating guidelines, general orders and departmental rules as may be necessary for the care and protection of the department, department equipment and personnel, provided that such orders and rules do not conflict with the provisions of any by-laws of the Municipality;*
- b) *Shall review periodically, the policies, guidelines and procedures of the department and may establish an Advisory Committee consisting of such members of the department as may be determined from time to time to assist in these duties and shall present any recommended changes to Council for approval;*
- c) *Shall take all proper procedures for the prevention, control and extinguishment of fires and for the protection of life and property;*
- d) *Shall enforce all municipal by-laws respecting fire prevention, and fire related matters;*
- e) *Shall adhere to the provisions of the Fire Protection and Prevention Act.”*

The responsibilities of the Fire Chief identified within the Establishing and Regulating By-Law in 2005 are consistent with those that would be expected of this position. However, since 2005 the administrative workload required of a Fire Chief to sustain and ensure that all of these responsibilities are conducted in accordance with the legislative requirements of a municipality continues to be an increasing challenge.

The current Fire Chief has utilized the resources within the department, such as the part-time Deputy Fire Chief and Volunteer Training Officer, to initiate and achieve the level of performance required across the department. In some areas, such as fire prevention and training, the current resources within the department do not have the associated technical accreditation and certification (e.g. such as someone certified in the Fire Prevention Officer Program, or similarly the Training Officer Program). In the absence of these certifications the current resources rely on their experience to develop and delivery programs within the department and the broader community.

In our view personal experience is a valuable and resourceful tool for the Fire Chief and his/her staff in overseeing the delivery of fire protection services. However, for municipalities to address their legislated requirements within the FPPA and the OHSA the fire service within Ontario has focused on the evolution towards provincial standards for activities such as firefighters, fire prevention officers and training officers. More recently the Office of the Fire Marshal, Ontario has announced that Ontario will be transitioning to the use of National Fire Protection Association standards for education. This further recognizes the importance of standards and professional accreditation.

This FMP contains recommendations to revise the organizational structure of the department and the associated certification and professional accreditation that should be considered in a number of core areas of the fire department.

3.3.2 Deputy Fire Chief

The position of Deputy Fire Chief is a part-time position that is presently allocated 21 hours per week. The current Deputy Fire Chief coordinates the scheduling of this time with the Fire Chief, which typically reflects a Monday through Wednesday schedule.

The Establishing and Regulating By-law currently defines the Deputy Fire Chief as: “*the one person appointed by Council to act in place of the Fire Chief in the Fire Chief’s absence, or in the case of a vacancy in the position of fire chief.*” The Deputy Fire Chief is responsible for the following duties as per By-Law 295-2005:

- a) *“The deputy fire chief is responsible to the Fire Chief for the activities of the divisional functions that are supervised by the deputy fire chief; and*
- b) *The deputy fire chief has the same authority and responsibility as the fire chief and shall perform all the duties of the Fire Chief in the Fire Chiefs absence.”*

The current organizational structure indicates that with the exception of the TAPP-C Instructors all other fire department resources including the part-time administrative support and volunteer officers and firefighters report directly to the Deputy Fire Chief. Based on our review this does not reflect the current practice of the department.

The Deputy Fire Chief has been assigned specific tasks and projects by the Fire Chief; however this position does not have direct responsibility for a specific division or area of service delivery. In part we believe this is due to the part-time nature of this position, and the absence of the associated certification and professional accreditation that would be affiliated with these responsibilities (e.g. fire prevention inspections).

In our view this position has served the municipality well in supporting the Fire Chief and achieving the current level of fire protection provided to the community. This FMP contains recommendations to align the fire protection services provided by the Municipality of Brighton with the direction of the OFM to optimize the use of the first two lines of defence. The recommendations also include the implementation of a revised organizational structure to remove this position from the department.

3.3.3 Administrative Support

The position of part-time administrative assistant is also allocated 21 hours per week. The current part-time administrative assistant coordinates the scheduling of this time with the Fire Chief that typically reflects a Monday through Wednesday schedule. This role also supports other municipal departments on top of the time spent helping the fire department. The key role of the shared Administrative Assistant is to provide the Fire Chief with administrative support, as required and directed. This includes such duties as:

- *Manage and maintain FIREHOUSE Software database, enter all emergency calls, inspections and inventory and firefighter activities and training;*
- *Prepare quarterly reports for the OFM on emergency calls;*
- *Prepare invoices to the MTO via the website for Hwy 401 calls;*
- *Prepare invoices for insurance companies or vehicle owners for services performed at motor vehicle accidents;*
- *Prepare invoices for incident/fire reports as requested by insurance companies;*
- *Prepare payroll records for all members of the department twice a year using reports generated from FIREHOUSE Software;*
- *Day to day reception duties (answer the office phone and direct calls);*
- *Monitor email and phone messages;*

- *Reply to inquiries from the public;*
- *Maintain filing system;*
- *Attend department meetings as required by the Fire Chief for the purpose of taking and typing the minutes of the meeting. These meetings include; Officers Committee, Fire Prevention meetings, Budget meetings, Truck Committee, General and Brigade meetings;*
- *Recording secretary for the Emergency Planning Committee;*
- *Communicator for the CEMSPI as part of the Municipal Emergency Plan;*
- *Type all letters and correspondence for the department;*
- *Create reports and administrative documents such as templates, tables, charts, etc. for the Fire Chief;*
- *Prepare monthly report from information generated from FIREHOUSE software for the Fire Chief to give to Council on activities for the month;*
- *Assist the Fire Chief and Deputy Fire Chief in administration duties; and*
- *Any other duties assigned on day to day basis pertaining to administration.*

This position provides assistance with the administration of the overall department. This includes financial accountability in assisting the Fire Chief with monitoring the operating and capital budgets as well as invoicing and revenue generation. This position also supports the Corporate Emergency Planning group and the associated administration and updating of the Corporate Emergency Plan.

There is sufficient workload to substantiate this position as full-time within the fire department. This could be achieved through an incremental increase in the number of hours available until such time as the position attains full-time status, or alternatively a direct transition to full-time.

In our view the transition of this position to full-time is directly related to the department's ability to achieve and sustain the level of fire protection services recommended by this FMP. Sustaining a commensurate level of records management and administrative function to support the new positions recommended within this FMP will be an important function of this position.

3.4 Proposed Organizational Structure

The analyses within this FMP support the importance of the following strategic priorities for the delivery of fire protection services to the Municipality of Brighton.

- *The identification of strategies to sustain the use of volunteer firefighters as the primary providers of fire protection services, and specifically fire suppression activities (firefighting) within the Municipality of Brighton;*
- *The review of current programs, such as training and succession planning to identify strategies to further optimize these initiatives to sustain the use of volunteer firefighters;*
- *The utilization of a comprehensive Community Risk Profile to determine the level of existing and projected fire safety risks within the municipality;*
- *The optimization of the first two lines of defence including public education and prevention, and the use of fire safety standards and enforcement to provide a comprehensive fire protection program within the Municipality based on the results of the Community Risk profile.*

In our view revising the current organizational structure and internal reporting process of the department are core components of aligning the department to achieve and sustain recommendations developed to respond to these priorities.

3.4.1 Part-time Deputy Fire Chief

Based on our analyses of this position its current effectiveness is limited by the part-time nature of the position and the absence of recognized accreditation and certification for the delivery of either fire prevention or training activities. The current part-time Deputy Fire Chief's level of accreditation and certification is limited to the wealth of knowledge and experience garnered within the fire service over a long career.

The current primary roles of this position include filling in for the Fire Chief in his absence, supporting the Fire Chief in managing special projects such as apparatus purchasing and maintenance, and some limited fire prevention activities.

Our analyses recommends replacing this position with two new full-time positions including requirements for accreditation and certification in the areas of fire prevention, training and public education. This would significantly benefit the department in terms of internal and external program delivery. Developing these two new positions with the ability to alternate in fulfilling the role of "Acting" Fire Chief in his absence would also benefit the overall succession planning within the department.

3.4.2 Assistant Chief – Fire Prevention

The recommendations of this FMP support the strategic priority of "*optimization of the first two lines of defence including public education and prevention, and the use of fire safety standards and enforcement to provide a comprehensive fire protection program within the Municipality based on the results of the Community Risk profile*". Implementing this strategy has proven to improve the overall level of fire protection within a community. Providing dedicated resources with the appropriate accreditation and certification is a core component of achieving success in these areas.

The organizational structure proposed identifies this position as a full-time position reporting directly to the Fire Chief. In addition to the responsibility for implementing the fire prevention service levels approved by Council this position would also have a fire suppression operational role in responding to emergencies and taking command as required.

Specific performance objectives of this position are included within the **Fire Prevention Division** section of this plan (**Section 4.0**).

We recommend that the position of full-time "*Assistant Chief – Fire Prevention*" be created to reflect Council's commitment to optimizing the first two lines of defence and delivery of the fire prevention service levels identified within the FMP.

3.4.3 Assistant Chief – Training & Public Education

The recommendations of this FMP also support the strategic priorities of

"identification of strategies to sustain the use of volunteer firefighters as the primary providers of fire protection services, and specifically fire suppression activities (firefighting) within the Municipality of Brighton" and

"The review of current programs such as training and succession planning to identify strategies to further optimize these programs in sustaining the use of volunteer firefighters".

Developing and delivering a comprehensive training program for volunteer firefighters that meets the work-life balance priorities of the volunteers while achieving the legislated responsibilities of the municipality is one of the most significant challenges facing municipalities across the province. The analyses within this FMP have assessed the opportunity to develop multiple roles and responsibilities within the proposed organizational structure.

The core competencies of the proposed “Assistant Chief – Training & Public Education” consider the opportunity for multiple roles that have the common element of delivering educational programs both internally and externally.

Similarly to the proposed position of “Assistant Chief – Fire Prevention” this position would also report directly to the Fire Chief. In addition to the responsibility for implementing the training and public education service levels approved by Council this position would also have a fire suppression operational role in responding to emergencies and taking command, as required.

Specific performance objectives of this position are included within the *Training Division* section of this plan (*Section 5.0*).

We recommend that the position of full-time “Assistant Chief – Training & Public Education” be created to reflect Council’s commitment to optimizing the two lines of defence and delivery of the fire safety program service levels identified within the FMP.

3.4.4 *Volunteer Station Commanders – South & North Stations*

The department is currently staffed with 27 volunteer firefighters and a complement of officers (Captains and Lieutenants). This FMP recommends increasing the complement of volunteer firefighters to 60 with an assignment of 30 at each station. The analyses for this recommendation are contained within the *Fire Suppression Division* section of this plan (*Section 6.0*).

The fire service relies on a formal rank structure styled after a paramilitary organization in order to maintain control and command of an emergency incident. A core component of the rank structure is the span of control, and specifically the number of direct reports (personnel) a specific officer should be considered able to supervise.

The introduction of position of Volunteer Station Commanders (exact title to be determined by the Municipality of Brighton) is consistent with establishing a command structure that aligns with the recommended complement of volunteer firefighters, and that is also consistent with the span of control and reporting structure within the overall department.

The primary role and responsibility of the proposed Volunteer Station Commanders is the oversight of their respective stations (including the station Captains, Lieutenants and firefighters) and reporting to the Assistant Chiefs. Operationally the proposed Volunteer Station Commander positions and proposed organizational structure increases the overall supervisory capacity of the department.

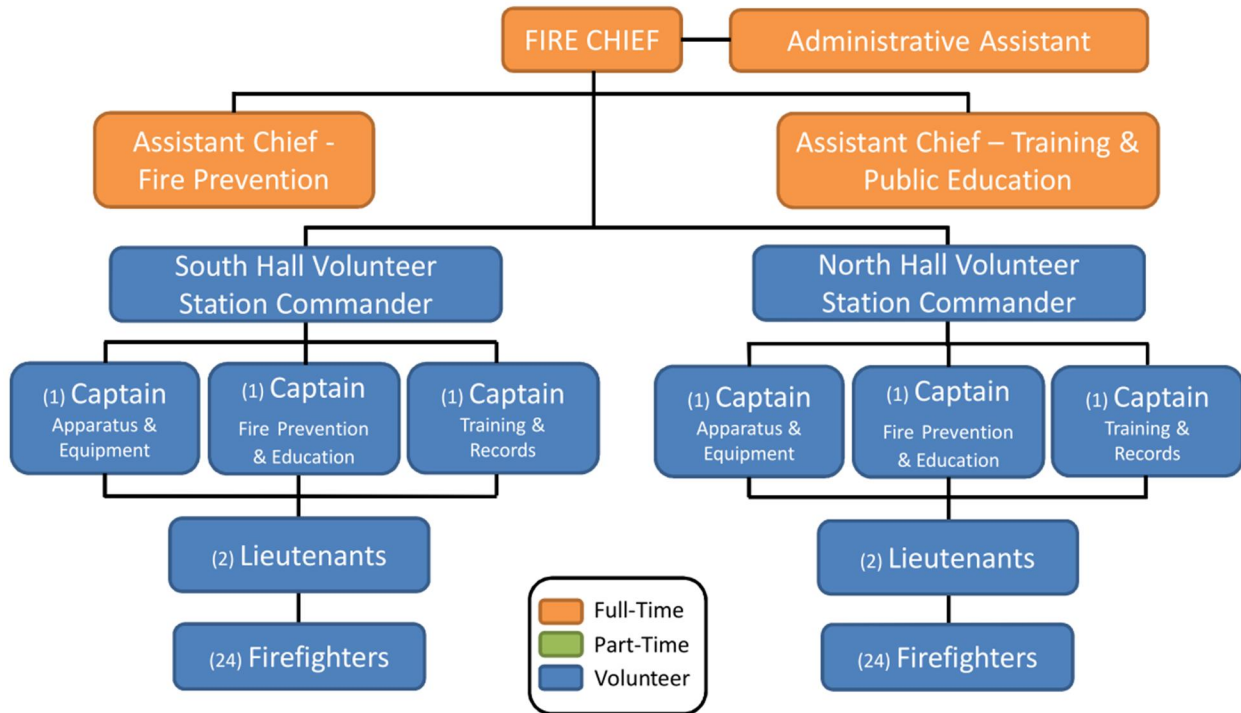
We recommend that the position of “Volunteer Station Commander” be created for each of the South and North stations to reflect Council’s commitment to the delivery of the fire safety program service levels identified within the FMP. This is indicated in the proposed organizational model shown in **Figure 5**.

3.4.5 *Officers – Supervisors*

The proposed organizational structure includes the addition of one Captain at the North Station and the addition of a Lieutenant position at both stations. This recommendation is consistent with providing a ratio of officers (supervisors) to firefighters of approximately one to four within each of the stations. Ensuring that there is a competent supervisor (officer) available as required by the OHSA is an area of due diligence and responsibility of Council.

Figure 5 below provides the proposed organizational structure for the Brighton District Fire Department.

Figure 5: Proposed Organizational Structure



3.5 Succession Planning

On March 10, 2011 a motion calling on the government of Ontario to allow mandatory retirement of firefighters at age 60 was unanimously passed (Bill 181 *Fire Protection and Prevention Amendment Act*, 2011). This new legislation currently applies only to salaried firefighters involved in front-line firefighting duties. The new law recognizes that most municipalities employing full-time (salaried firefighters) already include mandatory retirement clauses within their Collective Agreements allowing those without a two year window to negotiate a new retirement provision to align with the new legislation.

The impact of this new legislation on volunteer firefighters remains unclear and it continues to generate significant discussion across the province. Prior to this new legislation there were examples of volunteer firefighter constitutions with similar language indicating mandatory retirement at age 60. Several municipal Councils across the Province are currently evaluating their local situations and similar concerns for the health and safety of their volunteer firefighters.

An amendment to the *Workplace Safety and Insurance Act*, 1997 (WSIA), received Royal Assent on May 4, 2007, allowing the government to make regulations affecting Ontario's full-time, part-time and volunteer firefighters and fire investigators. The government subsequently implemented a regulation that identifies and sets-out the conditions and restrictions for eight types of cancer, as well as heart injuries suffered within 24 hours of fighting a fire or participating in a training exercise involving a simulated fire emergency, to be presumed to be work-related, unless shown otherwise.

The Municipality of Brighton currently has several firefighters that would be impacted by the introduction of mandatory retirement at the age of 60. One of the several options municipalities are considering is the concept of accommodating or offering those firefighters potentially impacted by mandatory retirement

other opportunities to serve the community, while remaining a valuable member of the fire service. Areas such as public education and fire prevention activities may provide opportunities to utilize the experience and dedication of these senior firefighters.

With respect to succession planning we recommend that the Municipality of Brighton further investigate the impacts of mandatory retirement of volunteer firefighters.

3.6 Succession Plan

The department does not currently have a formal succession plan. Succession plans can provide a framework of skills and experience that are required for each position within the department. For candidates seeking promotion or further responsibilities the succession plan can provide a career path to the position of their choosing.

Succession planning can also provide the CAO and Council with the knowledge that there are trained and skilled candidates available in the event vacancies occur within the department. A succession plan should be developed and implemented.

3.7 Promotional/Recruitment Process

The current promotional process begins with applications being received for the posted position. When an Officer position becomes available the position is posted for the firefighters consideration. The Hiring Committee will review all of the resumes received and a candidate is chosen. No other processes are in place.

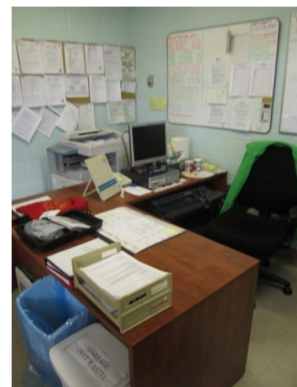
The department promotional process and volunteer recruitment process are two areas where the department would benefit from the assistance of the Municipality's human resource representative. Human resource staff with the specific skills and experience in human resource management are highly trained in areas such as recruitment and promotion and can, in our experience, be a very good resource to managing these types of processes.

Human resource professionals stay current in other forms of legislation such as human rights and hiring practices. The fire department would benefit from having this experience and skills involved more often in the human resource management functions of the fire department.

3.8 Administrative Workspace (Station #1)

Our review of the existing administrative workspace for the staff assigned to the administration division reflects a very small area that provides limited space and restricted layout to support the functions required of the positions. The current administration work space is divided into two areas including a reception area and an office for the Fire Chief.

The reception area is shared by the Administrative Assistant and the Deputy Fire Chief. There are small desk areas for each position that include computers and keyboards. The close proximity of these work areas present challenges in the form of distractions, including high noise levels during telephone conversations and a lack of privacy for confidentiality. There is limited space for file storage including space for supporting reference materials and documentation.





There is an office for the Fire Chief that is located adjacent to the reception area that must be accessed by traveling through the reception area and work space of the Administrative Assistant and Deputy Fire Chief. The Fire Chief's office is separated from the reception area by a door and primarily glass partition that provides some privacy although limited by the fact that anyone entering can be seen as well as heard through the single pane glass. Due to the limited amount of secure storage space within the station the Fire Chiefs office is utilized for storage of new equipment, training materials and supplies.

In addition to a need to address the current work space for administrative staff this FMP includes recommendations that subject to Councils consideration and approval would further increase the demand for administrative work space.

3.9 Annual Report

Ongoing evaluation and monitoring of the level of fire protection services provided by the fire department in consideration of the evolution of risk within the community are the foundation for sustaining an effective and appropriate level of service to meet the community needs. The fire department also completes and submits Annual Compliance Reports to the Office of the Fire Marshal, Ontario.

The municipality of Brighton does not currently prepare an annual report as per By-Law 295-2005, which indicates that the Fire Chief should prepare an annual report of the department. However, the Chief does prepare a monthly activity report summarizing information generated from FIREHOUSE records management system to provide to Council. The efforts required to prepare an annual summary report could be supported by the additional administrative support recommended within this plan.

It is recommended that the department prepare an annual summary report to inform Council on the performance of the department and to identify where new trends may be evolving, or new programs may be required to reflect best practices in sustaining a responsive and effective level of fire protection services for the community.

We recommend that the Community Risk Profile be updated annually and included within the fire department annual summary report. This would provide the CAO and Council with further information to monitor the services provided by the fire department and the needs of the community it serves.

3.10 By-laws & Agreements

3.10.1 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 with regard to 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.

Our review of the existing by-laws approved by the Municipality of Brighton indicates that all required by-laws are in place.

Ensuring these documents are regularly reviewed and updated to reflect any changes in service level or changes in authority are important functions. The current Fire Department Establishing and Regulating By-law (By-law Number 295-2005 "*Brighton District Fire Department Establishing and Regulating By-Law*") was passed in 2005.

Subject to Council's approval of the recommendations contained within this FMP we recommend that the current Fire Department Establishing and Regulating By-Law be updated to reflect the changes recommended.

3.11 Mutual Aid Agreements

Mutual aid agreements are predetermined plans that allow a participating fire department to request assistance from a neighbouring fire department. Public Fire Safety Guideline (PFSG 04-05-12) provided by the OFM identifies the information required to develop and approve these agreements.

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

1. *When a fire department is on-scene at an emergency, has received information that immediate assistance is required, it may ask for mutual aid assistance from a neighbouring fire department.*
2. *Where distance and/or conditions are such that a neighbouring fire department could provide a more timely response, fire departments may immediately request a simultaneous response from a participating fire department.*

Our review indicates that the Brighton District Fire Department is an active participant in the "County of Northumberland Mutual Aid Program" and the current agreement is serving the municipality well.

3.12 Automatic Aid Agreements (Fire Protection 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.

The obvious advantage of implementing an automatic aid program is the person experiencing the emergency receives fire services from the closest available provider by supplying seamless service through the elimination of artificial service boundaries. Some of the additional benefits that an automatic aid agreement provides include:

- 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 assistance;
- the reduction of life, property and environmental losses; and
- the improvement of public and firefighter safety.

The Municipality of Brighton purchases fire protection services from the City of Quinte West through a fire protection agreement including fire suppression to a defined area of Brighton (south of the Murray Canal) identified within By-Law No. 2010-03. Our review indicates that this is an appropriate agreement to provide services for this area of Brighton.

The Municipality of Brighton provides fire protection services to the City of Quinte West through a fire protection agreement including fire suppression to a defined area of the City of Quinte West (south of Highway 401 and west of Christiani Road and Bigford Road) identified within By-Law No. 10-143. Our review indicates that this agreement provides a benefit to the City of Quinte West and is appropriate for the services provided by Brighton District Fire Department.

The Municipality of Brighton provides fire protection services to the Warkworth Institution (medium-security prison) within the municipal boundaries of the Municipality of Brighton identified within By-Law No. 022-2011. Our review indicates that this is an appropriate agreement for Brighton and the facility it provides services to.

3.13 Tiered Response Agreement

Within the Province of Ontario emergency response to incidents involving medical aid by the local fire department are commonly included within a regional Tiered Response Agreement. These agreements are valuable in defining the levels of service that a fire department will provide in the context of the county based provision of ambulance services. Under the leadership of the Fire Chief the Municipality of Brighton is currently in discussion with other fire departments and the County of Northumberland with regard to developing a formal Tiered Response Agreement.

In our experience the participation of local fire departments in a coordinated system of providing medical responses through a formal Tiered Response Agreement can be a beneficial service to the community. The focus of fire service participation should be based on the training and availability of firefighters, in Brighton's situation volunteer firefighters, and the services that can result in the best value for the community.

Research indicates that emergency response times can affect the outcome of cardiac arrest, stroke and heart attacks. Intervention, by "stopping the clock" through providing on-scene defibrillation can be delivered effectively by any provider with a defibrillator including public access defibrillators, fire fighters, police services or EMS responders.

Based on our review of other similar municipalities a Tiered Response Agreement within the Municipality of Brighton should include emergency response to immediate threats to life such as cardiac arrest, stroke and heart attacks, or to incidents where the response of the County ambulance service may be longer than 10 minutes.

3.14 Dispatch Services Agreement

Dispatch services are currently provided by TAS-Page Communications of Peterborough, under a contract, fee for service agreement. The current agreement covers a two year term commencing April 1, 2011. The agreement defines the fees associated, operations, governance structure and protocols to be followed.

Best practices in Ontario for the provision of emergency call taking and dispatching reflects the use of the National Fire Protection Association (NFPA) "*1221 Standard for the Installation, Maintenance, and Use of Emergency Services Communications Systems*" as the guideline for provision of services. The current agreement does not include any performance measures for call taking and dispatching, such as those contained in the NFPA 1221 standard.

Based on our analyses the current dispatch agreement should be revised to include the performance measures for service delivery identified within the NFPA 1221 standard. Including this type of performance requirement is consistent with best practices within the fire service industry and appropriate in order to support due diligence on behalf of the municipality.

3.15 Departmental Policies and Operating Guidelines

Best practices within the Ontario fire service reflect the use of department policies as the appropriate tool to communicate specific direction to all staff. In comparison to operating guidelines, which provide a framework to guide decision making, department policies reflect more stringent and defined practices that minimizes variance from the directive given. An example of a fire department policy would be a “*Respect in the Workplace Policy*” where specific direction is given to all members of the department that reflects the policy of the department in consideration of relevant legislation governing the topic.

As a municipality Brighton utilizes corporate policies in a number of areas to provide the same clear statement of intent and direction to all staff. This is an example of an area that current workload has not allowed coordination and inclusion of relevant documentation into an ongoing communication process to be a priority for the Fire Chief. Under the leadership of the Fire Chief the alignment of department policies and operating guidelines with corporate practices and legislated responsibilities needs to be prioritized.

OFM Communiqué 2010-12 “Notification Criteria and Contact Procedures for Requests for OFM Fire Investigators” identifies the criteria for informing the OFM of fires requiring investigation by the OFM. This is a further example of an area requiring a department policy versus an operating guideline. In situations particularly in the absence of the Fire Chief, emphasis must be placed on the municipality’s due diligence and legal requirements in retaining care and control of an emergency scene until arrival of an OFM investigator. Based on our review this is an area where a department policy should be developed.

Operating guidelines (OGs) are commonly used within the fire service to establish a written statement to guide the performance or behaviour of departmental staff, whether functioning alone or in groups. PFSG 04-69-13 “Co-ordination, Development, Approval and Distribution of Standard Operating Guidelines for Various Disciplines” provides the following points to reflect the intent of OGs:

- 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.

PFSG 04-69-13 further suggests that creating and empowering a committee of fire service staff to research, develop, and draft operating guidelines can be a successful model for administering these core documents. Activities that impact firefighter safety, the most common emergency operations, or high risk operations should be the top priority for a fire and emergency service to have in place. Reviewing and updating OGs is an ongoing evolution within the fire service. Creating an OG Committee to conduct regular reviews and updates is considered to be a best practice within the Ontario fire service.

Subject to Council consideration and approval of this FMP there will be a need to conduct a review of all existing OG’s and where necessary complete revisions or develop additional OG’s to reflect all levels of service approved by Council. In our view this should be a priority for the fire department with emphasis on compliance with the OHS Act Section 21 Guidance Notes.

3.16 Departmental Records Management

The department currently uses FIREHOUSE computer software as the digital records management platform. The FIREHOUSE software includes specific records management applications for the major areas of the fire department including fire prevention and education, training, apparatus and equipment maintenance, and components of emergency response.

FIREHOUSE records management software is also being utilized to maintain training records for all members of the department. In addition to this process of managing the training records, we recommend that a practice be established to ensure each individual personally signs-off on his/her completed training sessions. This practice should also require the trainer to sign the record. This process is considered a best practice with regards due diligence in providing training evidence to authorities, such as the Ministry of Labour Ontario.

The department's administrative assistant is the only one who inputs the records into FIREHOUSE. This includes Standard Incident Reporting (SIR) data to meet OFM requirements. The Fire Chief performs reviews of records for quality and completeness prior to issuing to the OFM.

The administrative assistant is able to retrieve data and reports from the FIREHOUSE program, as requested by the Fire Chief, to prepare reports for Council or other management purposes.

The current records management software program is a well-recognized and utilized within the Ontario fire service. The program will support additional users such as those identified within the new organizational structure and should be considered in the future for extension of use to the volunteer officers as part of the departments records management system.

3.17 Community Emergency Management (CEM)

Under the Ontario *Emergency Management and Civil Protection 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 is the responsibility of every municipality, minister of the Crown and designated agency, board, commission and other branches of government to ensure that their respective emergency management plans conform to the standards set within the Act. The Act also requires every municipality to adopt the emergency management program by by-law.

Emergency Management Ontario (EMO) has developed a core emergency program, with elements focused on supporting emergency preparedness and response activities. The program requires designating an Emergency Management Coordinator (EMC), having a written emergency response plan and forming a program committee. Part II of the *Ontario Regulation 380/04* lays out the Municipal Standards for emergency management. There are six main standards, relating to:

- i. *Emergency Management Program Coordinator;*
- ii. *Emergency Management Program Committee;*
- iii. *Municipal Emergency Control Group;*
- iv. *Emergency Operations Centre;*
- v. *Emergency Information Officer; and*
- vi. *Emergency Response Plan.*

The emergency plan is designed in a generic fashion which allows it to respond to situations that are unexpected and require a coordinated response and recovery. The plan is based on a hazard identification and risk assessment (HIRA), which is a required component under the *Emergency Management and Civil Protection Act*.

The plan also includes a primary Emergency Control Group and Emergency Support Group, which consists of all of the significant stakeholders responsible for managing the community and adjacent areas. This group would be assembled, if the emergency plan is activated, to approve the decisions required to control situations that arise during an emergency.

Within the Municipality of Brighton, the fire department plays a lead role in the management and administration of the Municipal Emergency Plan. The Fire Chief is assigned the role of Community Emergency Management Coordinator (CEMC), which requires on-going leadership in maintaining, testing and training of the emergency response plan. The Emergency Management Coordinator is responsible for the overall implementation the emergency management program, and is required to report to the Ministry's emergency management program committee on his/her work. The part-time Deputy Fire Chief is currently assigned the role of alternate CEMC, and the fire department part-time Administrative Support person provides administrative support.

The Emergency Management Program for the Municipality of Brighton is established through By-law No. 257-2004. The aim of the plan is to make provision for the extraordinary arrangements and measures that may have to be taken to protect the health, safety, welfare, environment and economic health of the residents, businesses and visitors of the Municipality of Brighton when faced with an emergency.

Brighton's Emergency Management Committee meets six times a year to review the emergency plan and recommend changes to the program, as appropriate, and refer the recommendation to Council for further review and approval. A mock exercise is held annually.

Currently, the voting Emergency Management Committee members include the Mayor, the Deputy Mayor, one Councillor who is the Mayor's alternate, one Councillor, the Media Relations Officer and the Public Inquiry Officer. The non-voting committee members include:

- CAO;
- Fire Chief;
- Deputy Fire Chief;
- Director of Public Works and his alternate;
- Fire Department Administrative Assistant; as recording secretary;
- Administrative Assistant to the Mayor and CAO; as the Scribe for Emergency Planning;
- Public Inquiry Coordinator;
- A representative from the OPP; and
- A representative of EMO.

Based on our experience the position of CEMC plays an important role in a real emergency. Strictly identifying the Fire Chief as the primary CEMC has the potential to create a conflict in event of an actual emergency. The Fire Chief is often committed to an operational role within the fire department and quite often assigned as the Emergency Site Manager. Where possible we recommend that the Fire Chief be identified as the alternate CEMC for this reason. This gives the Municipality the flexibility to have the Fire Chief operate at the emergency scene or within the Emergency Operations Centre in the event of an emergency.

Included within the proposed organizational structure is the position of Assistant Chief - Training & Public Education that we suggest should be designated as the primary CEMC for the municipality. This role is well aligned with the on-going tasks of updating, maintaining, testing and conducting training for the Municipal Emergency Plan. Both the Fire Chief and proposed Assistant Chief - Fire Prevention should then be designated as alternate CEMCs. This provides the Municipality with flexibility to assign any of the three management positions (as most suitable to the specific scenario) to the operational roles of CEMC and Emergency Site Manager / Incident Commander in the event of a community emergency.

In addition to removing the role and associated workload of CEMC from the Fire Chief this strategy supports the importance of training amongst the Emergency Control Group and associated staff. The role of primary CEMC requires updating and maintaining the Community Emergency Plan as well as organizing and executing practice scenarios and sessions with the Emergency Control Group. These tasks are well suited to the skill-set of the Assistant Chief - Training & Public Education. The proposed Assistant Chief - Fire Prevention and the Fire Chief should then be designated as alternate CEMC.

3.18 Administration Division Summary and Recommendations

Under the leadership of the Fire Chief the department provides the typical fire protection services of a predominately volunteer department. The administrative functions such as monitoring key department performance measurers; operating and capital budgeting expenditures; and corporate priorities such as the Community Emergency Management Plan are challenging the current human resources of the department.

The Municipality of Brighton effectively utilizes fire protection agreements to supplement the services provided by their fire department. The fire department is also an active participant in the regional mutual aid plan and tiered response agreement.

As a result of our review and assessment of the Administration Division, we recommend that:

1. Subject to the consideration and approval of this Fire Master Plan by Council a process be implemented to update the current Mission Statement of the Brighton District Fire Department to reflect the strategic direction of the municipality and as a strategy in team building and defining a shared vision for the Brighton District Fire Department.
2. Through a process of transition the position of Administrative Assistant is evolved to a full-time position within the fire department reporting directly to the Fire Chief.
3. The Fire Chief and Chief Administrative Officer be directed to investigate the potential impacts of retirement on volunteer firefighters and prepare a report for consideration by Council in regard to the potential impacts and due diligence practices on behalf of the municipality.
4. Subject to the consideration and approval of this Fire Master Plan by Council a space needs assessment be completed of the current administrative space and the impacts of the proposed organizational structure recommended.
5. The Fire Chief be directed to prepare an annual summary report including an annual update of the Community Risk Profile to inform Council on the performance of the department and to identify where new trends may be evolving, or new programs may be required to reflect best practices in sustaining a responsive and effective level of fire protection services for the community.
6. Subject to the consideration and approval of this Fire Master Plan by Council an updated Fire Department Establishing and Regulating By-Law be prepared and presented to Council for approval.
7. Formalization of a Tiered Response Agreement with the County of Northumberland be considered including the participation of the Brighton District Fire Department in responding to immediate threats to life such as cardiac arrest, stroke and heart attacks, or to incidents where the response of the County ambulance service may be longer than 10 minutes.

8. The current fire dispatch agreement be revised to include the performance measures for service delivery identified within the NFPA 1221 standard.
9. Utilization of the current records management software program be extended to all officers and additional users such as those identified within the proposed organizational structure.
10. The Fire Chief be directed to complete a review and update of all department Operating Guidelines including emphasis on compliance with the OHSA Section 21 Guidance Notes.
11. The proposed Organizational Structure of the department be approved including the implementation of :
 - i. The position of part-time Deputy Fire Chief be dissolved through the coordination of implementing the proposed organizational structure.
 - ii. The position of full-time Assistant Chief – Fire Prevention be created to reflect Council's commitment to optimizing the first two lines of defence and delivery of the fire prevention service levels identified within the FMP.
 - iii. The position of full-time Assistant Chief – Training & Public Education be created to reflect Council's commitment to optimizing the two lines of defence and delivery of the fire safety program service levels identified within the FMP.
 - iv. The position of Volunteer Station Commander be created for each of the South and North stations to reflect Council's commitment to the delivery of the fire safety program service levels identified within the FMP.
 - v. The addition of one Captain at the North Station and the addition of a Lieutenant position at both stations to be consistent with providing a ratio of officers (supervisors) to firefighters of approximately one to five within each of the stations.
12. The new position of Assistant Chief - Training & Public Education be designated as the primary CEMC with the Fire Chief (and Assistant Chief - Fire Prevention) designated as the alternates, providing the flexibility for the Municipality to assign roles to all three in the event of an emergency.

4.0 FIRE PREVENTION & PUBLIC EDUCATION

The minimum requirements of fire prevention and fire safety education programs are outlined within the *Fire Protection and Prevention Act, 1997 (FPPA)*. The minimum required services are referenced in the following section of the FPPA:

Section 2. (1) of the *Fire Protection and Prevention Act* states:

(1) Every municipality shall,

1. *Establish a program in the municipality which must include public education with respect to fire safety and certain components of fire prevention; and*
2. *Provide such other fire protection services as it determines may be necessary in accordance with its needs and circumstances.*

PFSG 04-40-12 “*Selection of Appropriate Fire Prevention Programs*” provides further information defining the minimum acceptable level of fire prevention and fire safety education services that a municipality must provide 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.*

Assessing community risk, including existing and future risk as a result of growth within a community, allows a municipality to determine the level of fire protection services required based on local needs and circumstances. This includes the level fire prevention and public fire safety education required to comply with the minimum levels identified within the FPPA.

Integrating risk analyses into the process to determine the level of fire protection services to be provided by a municipality recognizes that there are alternatives to simply providing fire suppression services and emergency response. The introduction of sprinkler system is an example of integrating alternatives to managing the inherent risks of a building rather than simply developing a larger emergency response deployment plan.

4.1 Comprehensive Fire Safety Effectiveness Model

The Fire Prevention and Public Education services provided by the fire department are intended to optimize impact of applying the first two lines of defence identified within the Ontario Fire Protection Model including:

- I. *Public Education and Prevention***
- II. *Fire Safety Standards and Enforcement***
- III. *Emergency Response***

The first two lines of defence have been defined as:

“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 OFM indicates that from 2007 to 2011 the number of loss fires described as any fire with an injury, fatality or dollar loss reported have declined from 14,310 in 2007 to 11,501 in 2011 resulting in a decrease of 20%. This occurred during a time period when the population and number of structures across Ontario continued to grow.

Recently the Ontario Fire Marshal has indicated his support and direction to further optimize the use of the first two lines of defence as a strategic priority for the Ontario fire service. Analyses conducted by the OFM indicate the need to optimize these efforts in order to reduce fire fatalities and injuries resulting from fires, and to improve the level of fire protection across the province.

Applying these lines of defence across the community and prioritizing these programs to address areas of the community identified by the Community Risk Profile should be considered a strategic priority of this plan. For example, high priority should be given to optimizing the first two lines of defence in areas of the community where vulnerable occupants such as seniors reside. The Community Risk Profile identifies that the senior's population (over age 65) represents 24.9% of the population of the Municipality of Brighton. In comparison to the provincial statistics the same age group across the province represents 14.6% of the population. The Municipality of Brighton is approaching a point whereby seniors will represent approximately 25% of the community's population. This should be considered significant in relation to the provincial statistics and when considered in relation to the number of fire deaths for this age category.

4.2 Existing Fire Prevention and Fire Safety Programs

Utilizing the Community Risk Profile included within this report we assessed the current fire prevention and public safety programs provided by the fire department in relation to the municipality's legislative responsibilities and our understanding of best practices within the Ontario fire services

In our view the department should develop a Fire Prevention Policy that reflects the requirements of PFSG 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.*

The Fire Prevention Policy should also identify the following fire prevention and fire safety education activities such as:

- *Inspection;*
- *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.*

The Brighton District Fire Department currently has two volunteer Fire Prevention Officers (FPO) one located at each of the fire stations who also function as fire suppression Captains. Each is responsible for coordinating all fire prevention/public education activities within their respective station response area. The FPO's report to the Fire Chief or Deputy Fire Chief depending on availability and are responsible to enforce the Fire Prevention Regulations of the Municipality and Province.

The current FPO's have done well to respond to the fire prevention and public education priorities of the department based on their availability and knowledge. **Table 1** below identifies the time commitments associated with the current fire prevention and public education activities provided by the fire department.

Table 1: Fire Prevention and Public Education Activities

Activity / Program Name	Time Commitment
Annual Door to Door Smoke Alarm Campaign	4 weeks
Fire Prevention Week visit to three local public schools	61 hours
Street Fest (annual one day event on Main Street in Brighton)	6 hours
Applefest (annual fall fair over three days)	6 hours
Codrington Community Fun Day	4 hours
Hall Tours as requested by various groups	5 – 8 hours
TAPP-C Programs	As needed
Senior Groups	As needed

As required by the FPPA the department also provides fire inspections on a complaint basis and targets all foster homes, nursing and retirement homes annually. Other buildings are inspected upon request or if a complaint is received. Records of inspections are kept on file by street address or by business name, whichever applies.

4.3 Proposed Staffing Model

The analyses within this report support the implementation of a full-time *Assistant Chief – Fire Prevention* to oversee and deliver the proposed enhanced service levels targeted at the first two lines of defence. This new position would work closely with the current volunteer captains at each of the stations that are assigned fire prevention roles and responsibilities.

Working as a team this division will be able to target the delivery of fire and life safety programs identified by the Community Risk Profile. Through a process of maintaining the risk profile current on an annual basis this division will be able to identify trends and performance indicators as the community grows.

The skill specific performance objectives of a certified Fire Prevention Officer include the core competencies to complete tasks such as:

- *Assesses fire safety plans and required emergency procedures, using appropriate legislative guidelines, to ensure that, if required, plans comply with legislation and are approved and implemented;*
- *Inspects potentially hazardous properties such as abandoned buildings, industrial and storage facilities so that fire hazards are identified and eliminated, other agencies are notified of potential concerns and the property complies with fire regulations and codes;*
- *Provides and clarifies guideline documents to building owners and managers using the Ontario Fire Code to ensure consistency in the development of an effective fire safety plan;*
- *Reviews fire safety plan by reading submitted plan and visiting site to verify audit of resources so that all required objectives are addressed and required resources are provided;*
- *Identifies hazardous activities or processes such as welding, cutting, and spray painting, using legislation, regulations, codes and internal and/or external assistance such as the Office of the Fire Marshal, to ensure that these activities and processes are conducted in accordance with legal requirements and that adequate fire protection such as sprinklers, fixed extinguishing systems and/or portable fire extinguishers has been provided.*

In addition to the skill specific performance objectives of a certified Fire Prevention Officer this position should also be competent as a Company Officer as defined by the Ontario Fire Service Company Officer Standard and have the skills and experience to function as a competent senior officer in the role of Incident Commander.

4.4 Fire Prevention and Fire Safety Program Priorities

Establishing performance measures for each of the fire inspection activities provided by the department would be an effective tool for Council and the fire department to monitor the effectiveness of these activities. Utilizing the Community Risk Profile to prioritize these activities would be considered an appropriate practice in setting the goals and objectives for the Municipality's fire inspection program.

Based on our review of the Community Risk Profile, and the Municipality's legislated responsibilities, the performance measures for fire inspection services identified within **Table 2** below reflect an appropriate level of fire protection (fire inspections) for the Municipality of Brighton.

Table 2: Proposed Municipality of Brighton Fire Inspection Services

Occupancy Classification (OBC)	Buildings	Performance Measure
Group A – Assembly	Schools, Recreation Centres (Arenas), Curling/Golf Centres	Annually
Group A – Assembly	Licensed Properties, Nursery/Day Care Facilities, Churches, Special Occasion Permits	Upon Request
Group B – Institutional	Hospital, Nursing homes, Homes for Special Care	Annually
Group C – Residential	Apartments regulated by Part 9.3 of the OFC	Annually
	Apartments regulated by Part 9.5 of the OFC	Annually
	Apartments regulated by Part 9.8 of the OFC	Annually
	Hotels, Motels and occupancies regulated by Part 9.9 of the OFC	Annually
	Home Inspection Program	Upon Request
Group D - Business	Business and Personal Services Occupancies	Upon Request
Group E - Mercantile	Mercantile Occupancies	Upon Request
Group F - Industrial	Factories and Complexes	Annually

The fire inspection cycle recommended above reflects the findings of the Community Risk Profile that indicated that a large portion of the property stock (75.2%) represents Group C - Residential Occupancies and focuses the need for dedicated staff resources in this area. The priority of addressing the residential fire risk is supported by the historic data² provided by the Office of the Fire Marshal, Ontario that reports for the period from 2007 to 2011 residential fires accounted for 72% of all structure fire losses and for the period from 2002 to 2011 residential fires accounted for 85% of all fire fatalities.

The proposed fire inspection service levels also prioritize strategies that achieve “Ontario Fire Code (OFC) Compliance” for all relevant property classifications. This includes retrofitting requirements identified under ‘Part 9’ of the Ontario Fire Code for all multi-unit residential buildings.

4.5 Ontario Fire Code Enforcement

In addition to the fire inspection service levels listed above the fire department is further required by legislation to respond to requests for inspections (to assist with code compliance) or complaints. The Fire Prevention Policy recommended should include strategies such as the following to address this responsibility:

²Sources, OFM website:

http://www.mcscs.jus.gov.on.ca/english/FireMarshal/MediaRelationsandResources/FireStatistics/OntarioFatalities/FatalFiresSummary/stats_fatal_summary.html

http://www.mcscs.jus.gov.on.ca/english/FireMarshal/MediaRelationsandResources/FireStatistics/OntarioFires/FireLossesCausesTrendsIssues/stats_causes.html

- “Fire Prevention Inspections are to be conducted for all complaints received by the fire department containing reports of potential Fire Code violations and/or potential fire hazards, and for all requests for inspections to assess fire safety”.
- “Where the fire department receives a complaint on any premise or building in the municipality, the inspection shall be given priority, and conducted as soon as practical under authority of the Fire Protection and Prevention Act regardless of the frequency established in this Fire Prevention Policy”.
- “Additional Fire Prevention Inspections may be conducted of any occupancy or building as deemed necessary to address the needs and circumstances of the community or a targeted risk”.

In our view these strategies reflect effective levels of service in addressing the legislated responsibility of the municipality. Considering the addition of further wording to emphasize the department’s commitment to responding to request for inspections (to assist with code compliance) would provide further clarity of the strategies.

The OFM recently released Technical Guideline OFM-TG-01-2012 “Fire Safety Inspections and Enforcement”. An excerpt from this new guideline states that the scope is “to assist municipalities and their fire services in meeting their fire safety inspection and enforcement responsibilities in the most effective and efficient way possible, as provided by the FPPA”.

Our 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. This technical guideline provides municipalities with strategies particularly related to enforcement of the OFC in situations where achieving compliance has or may be difficult to achieve.

We recommend that this new technical guideline be reviewed by the Fire Chief and where required, be included within the development of the Operating Guidelines for fire inspections to achieve and sustain compliance with the Ontario Fire Code.

4.6 Fire and Life Safety Program

The Brighton District Fire Department acknowledges the benefits and importance of providing fire and life safety education programming to community residents. The historical data provided by the OFM report that from 2007 to 2011 the number of loss fires, described as any fire with an injury, fatality or dollar loss reported, have declined from 14,310 in 2007 to 11,501 in 2011 resulting in a decrease of 20% further supports the optimization of the first two lines of defence as a strategy to improve the overall level of fire protection within a community.

In our view priority should be given to implementing and expanding fire safety educational programs that address the vulnerable population identified within the Community Risk Profile. Seniors (over 65) currently represent 24.9% of the community population. This is a significantly higher percentage of population in comparison to the Provincial average of 14.6%. Identifying and implementing fire and life safety education programs targeted at seniors and other vulnerable groups such as children are recommended.

The OFM provides a wide variety of educational programs and resource tools to facilitate the delivery of these programs. The department currently provides educational programs based on available resources. Within the proposed Fire Prevention Policy the department should consider the following educational programs as priorities for the department:

- ✓ *Older and Wiser Program (Fire safety program for older adults)*
- ✓ *Alarmed For Life (Community smoke alarm program)*

- ✓ TAPP-C Program (Arson Prevention Program for Children)
- ✓ Kitchen Care Program
- ✓ School Program (Kindergarten through Grade 5)

These programs are considered to effectively respond to the findings of the current Community Risk Profile and together provide an appropriate level of fire and life safety education service delivery for the Municipality of Brighton.

4.7 Smoke Alarm Program

The provision of a smoke alarm program including home escape planning is a legislated responsibility of the municipality. Achieving compliance with the provincial smoke alarm requirements has been a challenge for fire departments across Ontario. As a result of many recent fire tragedies, the OFM has introduced a “zero tolerance policy” for occupancies requiring smoke alarms. The Brighton District Fire Department is currently utilizing the OFM “*Alarmed for Life Program*” to address their legislative responsibilities for providing a smoke alarm program.

The volunteer firefighters are currently delivering this program utilizing a strategy of dividing the municipality based on the emergency response districts of the two fire stations.

In addition to prioritizing the vulnerable demographics within the community, the Community Risk Profile identifies areas within the community where extended emergency response times are present due to long travel distances. These geographic areas, and specifically residential occupancies containing vulnerable demographics, should be considered a high priority for the department’s fire safety education programs such as the “*Alarmed for Life Program*” and other public education programs targeting the first line of defence.

4.8 Fire Investigation and Cause Determination

Investigating the origin and cause of a fire is a municipal fire department responsibility. Where fires meet specific criteria the local fire department can request assistance from the OFM to conduct these investigations. The criteria and process for this request are contained within *OFM Communique #2010-12*.

The proposed Fire Prevention Policy should include wording to further define the level of fire protection services for consideration by Council. For example the policy wording may state that:

“The Fire Chief and/or members of the fire department delegated by the Fire Chief shall investigate the origin and cause of all fires within the municipality” and that

“The Office of the Fire Marshall will be notified as per OFM Directives 2011-001 (Please see attached) Fatality or Serious Injury (likely to cause death), gaseous explosions, large loss fire or suspicion of arson. Fire Department Personnel will assist the OFM investigator as requested”.

Subject to the approval of this proposed Fire Prevention Policy we recommend that a specific Operating Guideline be developed and implemented to reflect the intent of the policy. The OG should further define the OFM reporting process required and the process for evaluating the investigation results and including them within updates to the Community Risk Profile.

4.9 Fire Prevention and Public Education Priority Setting Worksheet

The priority setting worksheet developed by the OFM is an effective tool utilized by fire departments to identify and monitor activities targeted at fire prevention and public education. **Table 3** is the current priority setting worksheet which reflects the recommendations of this FMP.

Table 3: Fire Prevention and Public Education Priority Setting Worksheet

Priority	Status		Effectiveness, Goals/Objectives		
Fire Safety Priority (In order of Priority)	Current fire prevention / public education programmes that address the fire safety priority		Existing programmes ensure compliance with minimum FPPA requirements?		
			Options for enhancement / improvement to address the fire safety priorities & community risk		
	Fire Prevention (Inspection) Activities	Public Education Activities	Y/N	Fire Prevention Activities	Public Education Activities
1) Children		Regular school program, fire hall tours and public events with educational material.	Y	Inspect schools & recommended assembly occupancies on annual basis.	Further enhance quality and quantity of public education programs delivered at local schools.
2) Seniors	Inspections carried out on complaint or request.	Presentations done for Seniors groups on request. Annual Smoke Alarm Program and public events with educational material.	Y	Inspect institutional occupancies & apartments on an annual basis.	Develop & deliver public education programs (e.g. Older and Wiser Program) targeting seniors within the community.
3) All Residents	Inspections carried out on complaint or request.	Annual Home Smoke Alarm Program and public events.	Y	Inspect recommended assembly occupancies on an annual basis. Inspect higher density residential (apartments, hotels, etc.) on an annual basis.	Further optimization of the “Alarmed for Life” home smoke alarm program targeting areas of the community identified by the Community Risk Profile as having extended response travel times. Target the “Alarmed for Life” program to achieve a sustainable cycle of all residents on a 3 to 4 year cycle. Further enhance community-wide public education programming, according to risk areas.
4) Industrial / Commercial	Inspections done on complaint or request.		Y	Inspect industrial occupancies annually.	Develop and deliver programs (e.g. fire extinguisher training). Deliver upon request / consider fee for service options.

4.10 Fees for Service

The Municipality of Brighton currently charges the same fees as per the Ministry of Transport guidelines for emergency services. (i.e., calls to open burns without permits, motor vehicle collisions, etc.). These are included within By-law 075-2011 including fees for certain fire inspections and reports that are reviewed on a regular basis by the Fire Chief.

As part of developing the proposed Fire Prevention Policy we recommend that a comprehensive review of all current fees for services be completed subject to the consideration and approval of this FMP by Council.

4.11 Workspace

There is currently no dedicated space for Fire Prevention activities within either of the fire stations. The recommendations of this FMP identify a dedicated staff resource for this activity that will require consideration of office space and storage space for the materials and information to support optimization of these programs.

4.12 Fire Prevention/Public Education Division Summary and Recommendations

Fire prevention, education, safety standards and enforcement programs represent the first two lines of defence within the Ontario fire protection model. Effective delivery of these programs has proven to improve public safety, reduce the financial impacts as a result of fire and improve the overall effectiveness of the community fire protection plan.

The analyses within this FMP confirms that the Municipality of Brighton currently carries out fire prevention enforcement and public fire safety education programs, within the guidelines of the *Fire Protection and Prevention Act, 1997* (FPPA), and is meeting the legislated responsibilities of the FPPA.

In our view further optimization of these programs targeting the first two lines of defence, in addition to the monitoring of their performance particularly in light of the growing percentage of the senior population, requires consideration of the current staffing model within the department. At present there are no full-time dedicated resources within the fire department with the technical skills and certification or direct responsibility for the delivery of fire prevention and public education programs.

Developing a Fire Prevention Policy for consideration and approval by Council utilizing the analyses within this FMP is recommended as a strategy to further define the policies and procedures for delivering the level of public education and fire prevention services approved by Council. Including the introduction of key performance measures such as fire inspection cycles, public education activities and the impact of the smoke alarm program will be beneficial in assisting Council in monitoring the overall effectiveness of the fire department.

As a result of our review and assessment of the Fire Prevention/Public Education Division, we recommend that:

1. Subject to the consideration and approval of this Fire Master Plan by Council the Fire Chief be directed to develop the proposed Fire Prevention Policy including the fire prevention and public education program service levels identified within the FMP for consideration and approval by Council as part of a new Establishing and Regulating By-Law;
2. Within the development of the proposed Fire Prevention Policy the performance measures for this division be considered in relation to a full review of all current fees charged, and subject to approval of the proposed Fire Prevention Policy that all fees for service be reviewed and revised on an annual basis to ensure that they accurately represent the fiscal realities of the services provided.

5.0 TRAINING DIVISION

The Brighton District Fire Department currently provides ongoing training of all aspects of firefighting including live fire training, auto extrication, first aid, CPR and training of new recruits. Training is conducted by the volunteer officers and training facilitators at each fire station. The majority of training sessions are conducted as joint training sessions including both the North Station and South Station personnel.

Based on our experience and knowledge of the Ontario fire service, firefighter training is an area that has come under a high level of scrutiny over the past decade. The results of numerous inquests and investigations have concluded that firefighter training must be considered a strategic priority for municipalities in their role as employer and fire service leaders as supervisors. The Ministry of Labour has committed significant resources to audit and support this strategic priority.

Through our direct consultation with the volunteer firefighters, the volunteer Training Officer, part-time Deputy Fire Chief and the Fire Chief in preparing this FMP we confirmed the unanimous support of the desire to enhance training programs within the department. In our view this support for enhanced firefighter training is directly related to the goal of a single unified fire department as being the number one priority of the men and women serving this department.

5.1 Staffing and Training Sessions

The Brighton District Fire Department has a volunteer training officer who is in charge of overseeing training activities for the whole department. There is a training committee who is responsible for setting up the training schedule twice a year, six months in advance. Training sessions are currently assigned and delivered by various volunteers in the department. There are six training facilitators at the South Station and three training facilitators at the North Station. The majority of the training sessions are carried out in-house. In-house training is held twice a month. The training facilitators are responsible for having the materials ready for the topic they are teaching. They are also responsible for signing off on each firefighter that completes the training session. All external training sessions are held at the Eastern Ontario Fire Academy in Norwood. The department also periodically attends training sessions being held at nearby fire departments.

Hard copies of training records are maintained for each firefighter in the department. In-house and external training sessions are also recorded in the FIREHOUSE software database.

The analyses within this report support the implementation of a full-time *Assistant Chief – Training & Public Education* to oversee and deliver the proposed enhanced training program for all Volunteer firefighters, and to enhance the public education program service levels targeted at the first two lines of defence. This new position would work closely with the current volunteer captains at each of the stations that are assigned training and public education roles and responsibilities.

The skill specific performance objectives of a certified Training / Public Education Officer include the core competencies to complete tasks such as:

- *A certificate in Adult Education from a College of Applied Arts and Technology. Individuals assigned as Training Officers are expected to have significant knowledge and skills in adult education theory in order to perform their roles; the community college certificate ensures achievement of the theory learning outcomes they need.*
- *Successful completion of applied course credits offered by the Ontario Fire College. These course credits cover the practical or applied learning outcomes required by training officers including;*
 - *OFM Trainer/Facilitator Course*

- *CO 101 Legislation/Standards or equivalent*
- *CO 201 Leadership and Communication Theory or equivalent*
- *CO 202 Practical Communications and Supervision or equivalent*
- *OFC Applied Program Development course and Applied Program Delivery course or equivalents.*

In our view the core competencies of a Training / Public Education Officer reflect similar competencies to those that an individual delivering public education programming would be anticipated to have. A good example of this would be competency in adult education, particularly as one of the target groups for enhanced public education identified by the Community Risk Profile is the seniors demographic within the community.

In addition to the skill specific performance objectives of an Assistant Chief - Training & Public Education this position should also be competent as a Company Officer as defined by the Ontario Fire Service Company Officer Standard and have the skills and experience to function as a competent senior officer in the role of Incident Commander.

5.2 Training Programs

In partnership with the Ontario Association of Fire Chiefs, the Office of the Fire Marshal, Ontario has developed training standards for firefighters and Company Officers. Each of these standards has an extensive curriculum including the theoretical and practical components of the primary functions and roles and responsibilities of these positions.

Addressing an employer's responsibilities as defined by the *Occupational Health and Safety Act* and specifically the *Section 21 Guidance Notes for Firefighters* is another mandatory component of a comprehensive annual training program.

In our view, in addition to responding to the 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 best practices and legislative requirements;*
- ✓ *Oversight of program objectives and records management; and*
- ✓ *Ongoing assessment of program delivery for efficiency and effectiveness.*

Developing and sustaining an annual training program that includes all of the core functions and addresses the health and safety responsibilities of the municipality is consistent with the strategic priority that fire services across Ontario are initiating. Implementing this strategy is also consistent with our consultation with members of the department that this must be considered a major priority.

5.3 Specialty Training Programs

In addition to basic firefighting training the department must also consider the training needs associated with specialized services. Specialized services (e.g. technical rescues) are the types of services that typically require a higher level of technical training and equipment to safely mitigate the emergency.

Our review identified that the following specialized services are currently being provided:

- Medical Responses (as per Tiered Response Agreement);
- Auto Extrication (including scene stabilization, heavy hydraulic tools, air bags);
- Ice / Water Rescue (Land Based only); and
- Hazardous Materials Response (“Awareness Level” only).

Based on our review of historical calls for service, the requirements of the OHSA, and the Community Risk Profile we are recommending that consideration be given to revising the following specialized service from:

- Ice/Water Rescue (Land Based only) to “Shore Based-Ice/Water Rescue”)

This revision would recognize the distinction of this type of specialized service as only being provided from a shore based location. This can include rescues utilizing a safety line attached (firefighter tethered) to a fixed point either on shore or a recognised rescue platform, with a dedicated firefighter monitoring and attending to the safety line. This revision eliminates the potential of a rescue being attempted in the absence of the appropriate safety provisions for firefighters.

Revising this service to reflect “Shore Based-Ice/Water Rescue” will require additional training and the purchase of some additional equipment. Based on our review there is sufficient risk within the community related to the presence of standing and moving water for Council to consider providing this service.

The current fire department Establishing and Regulating By-Law 295-2005 does not include specific reference to specialized services or technical rescues. In our view the by-law should be revised to reflect the level of services in these areas approved by Council.

Subject to Council approval of these service levels the comprehensive training program will be revised to reflect the provision of these service levels and the specialized training programs for volunteer firefighters to be competent and certified to respond to these specialized incidents. In our view this is an excellent example of area of the current department training program that will benefit significantly from providing a dedicated staff resource.

5.4 Live Fire Training

The purpose of live fire training provides realistic fire training simulations under safe and controlled conditions. With relatively low volumes of fire calls it is important that the department provides access to suppression staff to simulate safe and effective fire suppression operations in an appropriate training facility. Live fire training facilities can provide simulated heat, humidity, restricted vision and smoke conditions.

The Brighton District Fire Department currently sends new recruits to complete live fire training at the Eastern Ontario Fire Academy (EOFA) in Norwood. This centre provides access to a state of the industry training facility.

Live fire training is currently provided by the department primarily focused on new firefighter recruitment. Regular access to live fire training on a scheduled basis is not included within the current training program. Utilizing the EOFA facility or another firefighter training centre we recommend that the new comprehensive annual training program include scheduled participation by all volunteer firefighters in live fire training exercises at a minimum on an annual basis.

5.5 Company Officer Training

In 1988, 'Paradigm for Progress,' a Task Force Report to the Ontario Association of Fire Chiefs, recommended that the Professional Standards Setting Body (PSSB) be created with the mandate to develop a training, educational and certification system for the Ontario Fire Service.

The PSSB, under the auspices of the Ontario Association of Fire Chiefs (O AFC) and the Office of the Fire Marshal (OFM,) has developed and published nine Ontario Fire Services Standards. One of these is the Company Officer Standard.

The Brighton District Fire Department allows officers to attend the Company Officer courses at the EOFA in Norwood when the course is being offered or the training is completed in house in Cobourg.

5.6 Facilities & Workspace

Currently, theoretical training (classroom) is currently being conducted in a small room with limited space located at the North Station. The practical training sessions are held in the truck bay at the North Station. Occasionally a vacant building is used for some types of training such as ladders and search and rescue. There is currently insufficient space to hold training sessions at the South Station. As previously mentioned, an addition is currently being built at the North Station. Once complete, there will be sufficient room to hold training classes at the North Station. There is a need to have dedicated training space at the South Station.

5.7 Training Division Summary and Recommendations

Developing a comprehensive annual training program for the department has been identified by the volunteer firefighters, Deputy Fire Chief and the Fire Chief as a major priority. Many of the challenges the current training program is facing is the absence of dedicated staff resources available to develop, deliver and monitor a comprehensive annual training schedule. This is challenging the department to sustain an effective training program.

The department has also prioritized its desire to become one unified composite department. In our view this is an appropriate and achievable objective. Developing and implementing a comprehensive annual training schedule will assist in achieving this objective.

Ensuring the department is achieving and sustaining its legislative responsibilities as an employer, particularly in response to increasing health and safety concerns for all firefighters is an important role of a training division and training officer.

In our view implementation of the proposed position of Assistant Chief – Training & Public Education will provide the department with the dedicated staff resource to achieve the major priority identified by the department.

As a result of our review and assessment of the Training Division we recommend that:

1. The Brighton District Fire Department endorse the Ontario Firefighters Standard and Company Officer Standard as the core curriculum for firefighter training within the Brighton District Fire Department;
2. A comprehensive annual training program be developed including specialized training based on the service levels approved by Council for specialized emergency responses.
3. Live fire training be included in the annual training program and be completed at minimum on an annual basis for all fire suppression staff.
4. Based on our review of historical calls for service and the Community Risk profile, consideration should be given to reviewing Ice/Water Rescue to include “Shore Based-Water/Ice Rescue”.

Subject to Council approval of these service levels, the comprehensive training program be revised to reflect the provision of these service levels and the specialized training programs. Full time and volunteer firefighters should be trained, competent and, where possible, certified to respond to specialized incidents.

6.0 FIRE SUPPRESSION

The Municipality of Brighton shares the characteristics of many primarily rural / agricultural communities in Ontario that include small urban centres surrounded by large sections of rural geography. Providing emergency response in these rural municipalities in the form of firefighting resources that could effectively mitigate a fire in a timely manner can be difficult and challenging. Travel distances and water supply are only two factors that can impact the ability to provide this type of mitigation within an established time frame.

The Comprehensive Fire Safety Effectiveness Model recognizes the high importance of the first two lines of defence in mitigating the potential of a fire occurring. In the event a fire does occur and emergency response is required the model defines the third line of defence as:

“III. Emergency Response (Fire Suppression):

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.”

In our view the three lines of defence represent a proven model for optimizing the benefits of pro-active prevention and education programs; appropriate use of standards and code enforcement and, as the model suggests, the provision of emergency response as the ‘fail safe’ for when these efforts when incidents occur despite all efforts towards optimization of the first two lines of defence.

A core component of evaluating the overall effectiveness of providing fire suppression services includes considering a measurement-supported set of performance targets (i.e. service standards) and setting clear goals and objectives. Within Ontario there is no specific legislated standard that a community must achieve with regard to the service level or type of firefighter (career/part-time/volunteer) or the number of firefighters required to respond to any given incident. The FPPA does require that a municipal Council assess this level of resources based on determining its “*local needs and circumstances*”.

To assist in the evaluation of the level of fire suppression resources required by the Municipality of Brighton this study identified the different guidelines and standards that are currently relevant within Ontario. Through comparison of each with a typical fire scenario this analysis presents insight into the industry best practices optimizing a risk-based approach.

6.1 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 OFM and National Research Council of Canada indicates that a fire in a non-sprinklered 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 this 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 4**. The fire growth rates are measured by the time it takes for a fire to reach a 1 megawatt (MW) fire. This is roughly equivalent to an upholstered chair burning at its peak. A 2 MW fire is approximately equal to a large upholstered sofa burning at its peak.

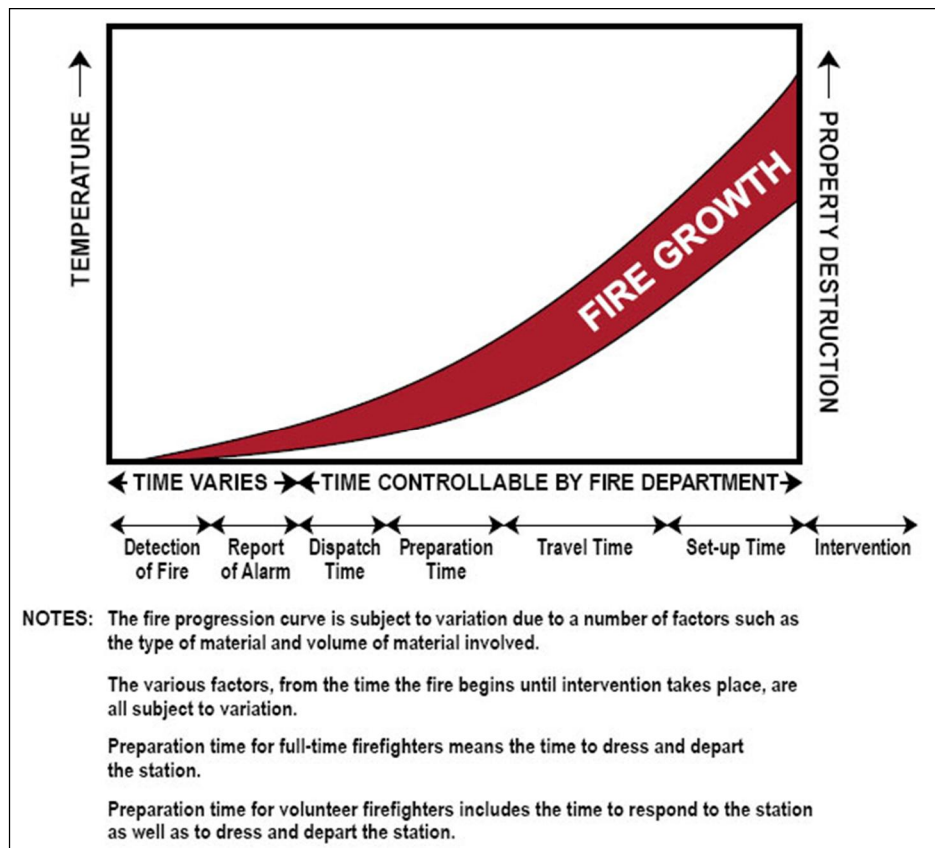
Table 4: Fire Growth Rates as Defined by Society of Fire Protection

Time to Reach 1 MW and 2 MW Fire Growth Rates in the Absence of Fire Suppression		
<i>Fire Growth Rate</i>	<i>Time in Seconds to Reach 1MW</i>	<i>Time in Seconds to Reach 2 MW</i>
Slow	600 seconds	848 seconds
Medium	300 seconds	424 seconds
Fast	150 seconds	212 seconds

Source: Office of the Fire Marshal, Ontario, 'Operational Planning: An Official Guide to Matching Resource Deployment and Risk', January 7, 2011 (www.ofm.gov.on.ca)

Within this 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 6** highlights the importance 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 (*Courtesy of the Office of the Fire Marshal, Ontario*).

Figure 6: OFM Fire Progression Curve



The fire progression curve reflects the importance of time during the “*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 suppression 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 suppression performance targets. For example, where areas of the community may have extended response times due to long travel distances, in excess of 10 minutes, the potential for the fire to have spread from the room of origin, and or 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.

6.2 Total Response Time Assessment

Measuring the total response time to an emergency call can be defined by three primary components: *dispatch time*, *turnout time*, *travel time*. Together these components make up the total response time it takes for a fire department to receive a call either from someone at the scene or with knowledge of the fire, identify the location of the emergency and dispatch appropriate vehicles and staff, travel to the scene of the incident, and set up to begin fire suppression activities. The common definitions of these three components are:

1. *Dispatch Time:* The time that it takes for the person responsible for “alarm answering”, and “alarm processing” to be able to receive the call, and dispatch the appropriate apparatus and staff to respond to the emergency.
2. *Turnout Time:* The time interval that begins from when the emergency response staff receives the required dispatch notification, and ends at the beginning point of travel time.
3. *Travel Time:* The travel time interval begins when the assigned emergency response apparatus begins the en-route travel to the emergency, and ends when the apparatus arrives at the scene.

One of the important factors to recognize with regard to these times is when the responding fire department begins to take “*care and control*” of the incident. Within PFSG 04-08-10 (*Appendix C*) the OFM describes this as:

“Once notified of an emergency, your department accepts its “care and control”. If your department handles its own call-taking and dispatching, you can see that you have care and control right from the earliest moment, when the emergency was reported. But if you hire a call-taking or dispatching or both, you do not accept care and control until sometime later. Nevertheless, the fire department has responsibility for ensuring that hired agencies manage call-taking and dispatching effectively, and in accordance with established protocols”.

Emergency 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 services commonly utilize 90th percentile response time data for system planning and resource deployment purposes.

6.3 Analyses of 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 level of service or the type of firefighter (career/part-time/volunteer) or the number of firefighters required to respond to any given incident. The FPPA requires that a municipal Council assess this 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 analyses 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.

Utilizing the findings of the Community Risk Profile contained within this FMP this section assesses the relevant PFSG authored by the Office of the Fire Marshal - Ontario, current standards of the National Fire Protection Association.

Together the OFM and NFPA represent the agencies responsible for fire protection within the Province of Ontario, the most highly recognized fire service association in North America. In our view these agencies cumulatively represent the appropriate authorities for identifying an appropriate methodology and process for determining firefighter deployment in the Municipality of Brighton.

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

PFSG 04-08-10 (*Appendix C*) was released by the OFM in January 2011 and includes a “Critical Task Matrix” to assist municipalities in determining the level of fire ground staffing capabilities based upon low, moderate, high and extreme risks. The Critical Task Matrix is defined by the OFM 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 (OFM) 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 IMS 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;*
- *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. **Figure 7** reflects the PFSG 04-08-10 (**Appendix C**) Critical Task Matrix.

Figure 7: PFSG 04-08-10 Critical Task Matrix

Fireground Critical Tasks		Low Risk		Moderate Risk		High Risk		Extreme Risk		
		LERL	UERL	LERL	UERL	LERL	UERL	LERL	UERL	
Incident Response (Note: Where zero or no number has been assigned, the task may be performed at the direction of the incident commander.)	Incident Command *	1	1	1	1	1	1	1	1	
	Pump Operator	1	1	1	1	1	1	1	1	
	Attack Line (Confine & Extinguish)	2	2	2	2	2	2	2	2	
	Additional Pump Operator(s)	0	0	0	2	2	4	4	6	
	Additional Attack Line (Confine & Extinguish) + Backup	0	0	0	4	4	8	8	12	
	Search & Rescue	0	0	2	4	2	6	2	8	
	Initial Rapid Intervention Team (IRIT)	0	0	4	6	8	16	12	22	
	Ventilation	0	2	2	2	2	4	2	8	
	Water Supply – pressurized	0	1	1	1	1	1	1	2	
	Water Supply – non-pressurized	0	3	1	4	2	6	4	8	
	Forcible Entry Team	0	0	0	0	0	1	0	1	
	Utilities	0	1	1	1	1	1	1	1	
	Laddering (Ground Ladders)	0	2	0	2	0	4	0	6	
	Laddering (Aerial or elevating device operator)	0	0	0	2	0	2	0	2	
	Exposure Protection			0	4	2	6	2	6	
	Incident Safety Officer			0	1	1	1	1	1	
	Accountability			1	1	1	1	1	1	
	Entry Control			0	2	1	4	1	4	
	Rehabilitation			0	1	1	1	1	1	
	Salvage			0	2	2	2	2	2	
	Lighting					0	2	0	2	
	Directing Occupants					0	4	0	4	
	Scribe					1	1	1	1	
	Sector Officers					1	4	1	4	
	Air Management (air refilling station, etc.)							1	2	
	Other or Additional Response Considerations	Logistics Officer								
		Administrative and/or Finance Officer								
		Planning Officer								
Evacuations (large scale)										
Communications (dispatch)										
Public Information Officer										
Overhaul										
Additional Firefighters										
Summary	Incident Response Range	4	13	16	43	36	83	49	108	
	Total Fire Department Including External									
	Fire Call Incident Response Range (+, -, within)									
Notes:										
<ul style="list-style-type: none"> • LERL = Lower Effective Response Level & UERL = Upper Effective Response Level, [together form the critical staffing range] • This tool provides a range of staffing requirements only. Actual numbers may vary depending on the fire risk that exists in the municipality. Tasks performed on fireground based on decisions made by Incident Commander. • Planning moderate, high and extreme risk occupancies/locations will further validate staffing requirements to ensure the optimum level of protection for the municipality. • Simultaneous events will require further consideration due to additional personnel requirements beyond the scope of this matrix. • Incident Command will assume responsibilities for the accountability and entry control tasks when no person has been assigned, or until a person has been assigned the task. 										

The OFM 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 (Group C - Residential Occupancy) would be 16 to 43.

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 – Institutional Occupancy) would be 36 to 83.

6.4.1 National Fire Protection Association (NFPA)

The National Fire Protection Association (NFPA) is an international non-profit organization that was established in 1896. The company'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 NFPA is recognized as one of the world's leading advocates of fire prevention and an authoritative source on public safety.

NFPA 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. Its more than 200 technical code and standard development committees are comprised of over 6,000 volunteer seats. Volunteers vote on proposals and revisions in a process that is accredited by the American National Standards Institute (ANSI).

6.4.2 National Fire Protection Association (NFPA) 1710 Standard

NFPA 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.

NFPA 1710 is a standard that is designed for larger municipalities that as a result of many factors are operating their fire department utilizing substantially career firefighters. Relevant references from NFPA 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.
- 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 relevance of this particular standard for the Municipality of Brighton is within the introduction of common terms and definitions as benchmarks in considering an appropriate volunteer firefighters deployment strategy. This particular standard identifies the minimum deployment of firefighters based on an “Initial Arriving Company” and an “Initial Full Alarm Assignment” that recognize similar critical fireground tasks as contained within PFSG 04-08-10.

6.4.3 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.

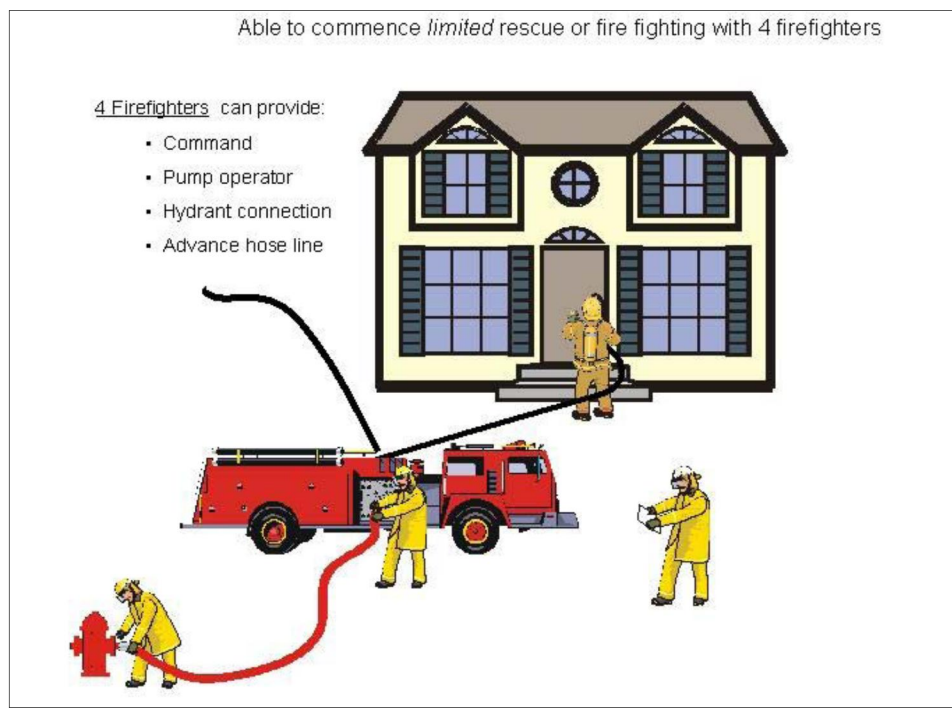
NFPA 1710 refers to the Initial Arriving Company as an Engine Company and further defines the minimum staffing level of an Engine Company as four firefighters whose primary functions are to pump and deliver water and perform basic firefighting at fires, including search and rescue.

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 Command; 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 8** below.

Figure 8: Initial Response Fire Scene Responsibilities



The NFPA 1710 standard identifies an initial response deployment of four firefighters to effectively, efficiently and safely conduct initial fire suppression operations. As listed in the Fireground Critical Tasks shown in **Figure 8**, and summarized in **Figure 7** the critical tasks with four firefighters on-scene include incident command, pumper operator and an attack line. This relates to a low-risk call response or an initial response for all calls.

6.4.4 Initial Full Alarm Assignment – “Depth of Response”

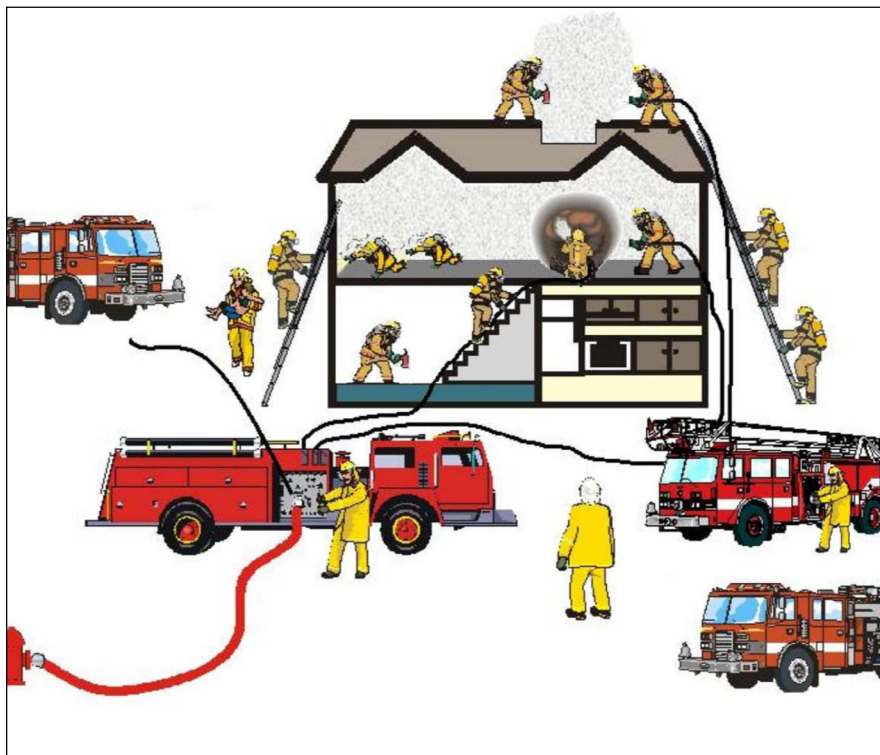
In comparison to the Initial Response the depth of response relates to the “total” number of firefighters initially assigned to an incident. Depth of response is also commonly referred to as “First Alarm” or “Full Response”. For example NFPA 1710 defines “Initial Full Alarm Assignment” as “Those personnel,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

The standard utilizes the example of a fire risk scenario in a 2,000 square foot, two-story 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 study this occupancy would be classified as a Group C - Residential Occupancy (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 such as high, or extreme may require a higher number of firefighters as part of the initial depth of response.

The NFPA 1710 standard for depth of response to the fire risk scenario presented is fourteen firefighters, fifteen if an aerial device is to be used. The NFPA 1710 fire scene responsibilities for depth of response including an aerial are highlighted in **Figure 9**.

Figure 9: Depth of Response Fire Scene Responsibilities



(Shown including an aerial device – 15 firefighters)

The NFPA 1710 standard identifies a depth of response deployment of 14 firefighters (with one additional firefighter with an aerial on-scene) to effectively, efficiently and safely conduct initial fire suppression operations in a fire risk scenario representing a single-family detached dwelling. Within this FMP this occupancy would be classified as a Group C - Residential Occupancy (moderate risk). As listed in the Fireground Critical Tasks shown in **Figure 9** and summarized in **Figure 7** 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)*

6.4.5 *National Fire Protection Association (NFPA) 1720 Standard*

NFPA 1720 “*Standard for the Organization and Deployment of Fire suppression Operations, Emergency medical Operations, and Special Operations to the Public by Volunteer Fire Departments*” provides a resource for determining and evaluating the number of volunteer firefighters required based upon recognized industry best practices.

The NFPA 1720 standard further supports the minimum initial response staffing to include four firefighters including “*Initial firefighting operations shall be organized to ensure that at least four fire fighters are assembled before interior fire suppression operations are initiated in a hazardous area*”. This particular standard recognizes that the four firefighters may not arrive on the same vehicle, but that there must be four on the scene prior to initiating any type of interior firefighting operations.

Within this standard the NFPA identifies five different categories described as “Demand Zones” that relate to the type of risk that may be found within a typical community; either by population density, travel distance, or special circumstances. The standard then identifies a minimum level of firefighters that would be recommended for each of these categories. **Table 5** presents the NFPA minimum staffing levels by category.

Table 5: NFPA 1720

Demand Zones	Demographics	Minimum # of Firefighters Responding	Response Time (Turnout + Travel) in Minutes	Meets Objective (%)
Urban Area	>1000 people per square mile	15	9	90
Suburban Area	500-1000 people per square mile	10	10	80
Rural Area	<500 people per square mile	6	14	80
Remote Area	Travel Distance + or – 8 miles	4	Dependent upon travel distance	90
Special Risks	To be determined by Fire Department	To be determined by Fire Department	To be determined by Fire Department	90

The NFPA 1720 standard utilizes population density as a factor in evaluating the minimum number of firefighters recommended for depth of response. As a standard primarily for use by volunteer fire departments it recognizes lower population densities are typically found in smaller communities in comparison to much higher population densities found in large urban centres.

The NFPA 1720 standard identifies an initial response deployment of four firefighters to effectively, efficiently and safely conduct initial fire suppression operations. This standard identifies a depth of response deployment range of four to 15 firefighters depending on the risks associated with fire demand zones to effectively, efficiently and safely conduct initial fire suppression operations.

6.5 Summary of Fire Suppression Guidelines, Industry Standards, and Industry Best Practices

In our view the framework for identifying community risk and deploying sufficient firefighting resources to address the community risk present is accurately presented in PFSG 04-08-10 *Operational Planning: An Official Guide to Matching Resource Deployment and Risk (Appendix C)*.

Initial Response:

Having considered PFSG 04-08-10, NFPA 1710 and 1720 Standards and based on our experience in working with other municipalities across Ontario current best practices within the Ontario fire service for deployment of an initial response to effectively, efficiently and safely conduct initial fire suppression operations reflects a minimum deployment of four firefighters.

In our view an appropriate deployment of an initial response within the Municipality of Brighton should include a **minimum initial response of four firefighters** to provide sufficient firefighting resources to effectively, efficiently and safely conduct initial fire suppression operations including the fireground critical tasks of:

- *Incident Command- 1 firefighter/officer*
- *Pump Operation – 1 firefighter*
- *Attack Line - 2 firefighters (Confine and Extinguish)*

Depth of Response:

Current best practices within the Ontario fire service for depth of response reflect the principles of PFSG 04-08-10 (**Appendix C**) that utilizes fireground critical tasks for determining the appropriate number of firefighters to be deployed based on the associated occupancy risk.

Fireground critical tasks refer to the types of activities that are required to be completed by firefighters to effectively and safely mitigate a fire situation. PFSG 04-08-10 provides a lower and upper effective range of firefighters for each of the occupancy risks levels including low, moderate, high and extreme. The OFM has identified the critical tasks from the Incident Management System (IMS) that are used during fireground operations. As indicated within the guideline these tasks are consistent with applicable legislation, industry best practices and the Ontario Fire College curriculum.

Residential occupancies and specifically single family residences provide an example of the type of fire risk present and fireground critical tasks required to effectively, efficiently and safely mitigate an incident. This is particularly relevant to Ontario where residential occupancies have historically accounted for 70% of all structure fires and 90% of all fire related deaths. During the five year period from 2007 to 2011 the Municipality of Brighton reported 39 fires of which 69% occurred in Group C - Residential occupancies.

The fireground critical tasks and initial full response assignment (depth of response) identified within NFPA 1710 utilize the following definition of a residential occupancy:

“The fire risk scenario in a 2,000 square foot, two-story 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”.

The NFPA staffing deployment for this residential fire risk is 14 firefighters, 15 if an aerial device is deployed.

The identification of fire risk classifications (e.g. low, moderate, high and extreme) is determined based on analyses of all available information that defines the characteristics of a community. The Community Risk Profile included within this FMP (**Appendix I**) provides these analyses for the Municipality of Brighton. The analyses consider the eight key risk factors identified within the OFM Fire Risk Sub-Model.

The fire suppression resources necessary to complete the fireground critical tasks can vary based on the type of occupancy. For example, a fire situation in the example of a single family dwelling (moderate risk) will require sufficient fire suppression resources that are determined based on the Community Risk Profile including the eight key factors and the relevant PFSG and the NFPA 1710 / 1720 and OHSA standards reflecting best practices in fire suppression activities.

High risk occupancies such as a nursing home where higher risks such as on older demographic (seniors) that may become disoriented, or unable to evacuate themselves present a different challenge for responding firefighters. The nature of these occupancies to have more residents than a single family home present further challenges for conducting search and rescue and evacuation activities.

To determine the appropriate firefighter deployment for low, moderate, high and extreme risks occupancies within the Municipality of Brighton an assessment of the Community Risk Profile; relevant PFSG and the NFPA 1710 / 1720 standards; and OSHA Section 21 Guidance Notes was completed.

These analyses identified a best practices firefighter deployment to complete the fireground critical tasks associated with each occupancy risk level. For low risk occupancies this reflects a minimum deployment of four firefighters. This represents the appropriate fire suppression resources to complete the following fireground critical tasks:

- ✓ *Incident Command - 1 firefighter*
- ✓ *Pump Operator – 1 firefighter*
- ✓ *Initial Attack Line – 2 firefighters*

For moderate risk occupancies including Group C - Residential occupancies (Single – Family Dwelling) a minimum deployment of 14 firefighters is required to complete the additional fireground critical tasks based on the fire risks present. The additional fireground critical tasks include activities such as providing an additional fire attack line requiring two firefighters, and providing a Rapid Intervention Team (RIT) comprised of two firefighters who are assigned the specific task of being prepared to respond quickly in the event one of the fire attack teams or other firefighters on scene require immediate assistance.

In comparison to the low and moderate risk occupancies, high risk occupancies such as the nursing home referenced above require additional fireground critical tasks to be completed and a higher minimum deployment of firefighters. The additional fireground critical tasks include activities such as providing a dedicated crew of two firefighters for positioning ladders on the building to support fire suppression and rescue activities, and the provision of an Incident Safety Officer to oversee and ensure all firefighting activities are conducted safely.

Based on our analyses an appropriate minimum depth of response to the low, moderate and high risks occupancies within the Municipality of Brighton to achieve the required critical fireground tasks includes four firefighters to low risk occupancies, 14 firefighters to moderate risk occupancies and 24 firefighters to high risk occupancies.

The recommended depth of response firefighter deployment is identified in **Table 6** below:

Table 6: Recommended Depth of Response – Municipality of Brighton

Fireground Critical Tasks		Low Risk	Moderate Risk	High Risk
Incident Response	Incident Command	1	1	1
	Pump Operator	1	1	1
	Additional Pump Operator	0	0	1
	Initial Attack Line (Confine & Extinguish)	2	2	2
	Additional Attack Line (Confine & Extinguish)	0	2	2
	Search and Rescue	0	2	2
	Initial Rapid Intervention (RIT)	0	2	2
	Ventilation	0	2	2
	Water Supply- pressurized	0	1	1
	Forcible Entry Team	0	1	2
	Laddering	0	0	2
	Exposure Protection	0	0	2
	Incident Safety Officer	0	0	1
	Accountability	0	0	1
	Rehabilitation	0	0	2
Minimum firefighter deployment	4	14	24	

In our view the current Northumberland County Mutual Aid Plan reflects the planning and access to additional firefighting resources that may be required in the event of an extreme risk incident within the Municipality of Brighton.

Based on our analyses of the relevant PFSG, Industry Standards, Best Practices and the municipalities legislated responsibilities within the FPPA and OHSAA determining an appropriate fire suppression deployment model utilizing the minimum firefighter deployment based on risk (**Table 6** above) in conjunction with a comparison the performance targeted within the NFPA 1720 Standard would reflect an appropriate analyses of fire suppression resource deployment within the Municipality of Brighton.

6.6 Current Emergency Response Overview

This section presents an analysis of historical call data for Brighton provided by the OFM. Throughout this section calls are referred to and categorized by event type and by response type. These call response types are defined by the OFM and are used by jurisdictions throughout Ontario for reporting purposes. Dillon has grouped the OFM response types for more concise discussion in this report. **Table 7** illustrates the relationship between the response types used in this report and the OFM defined response types. **Appendix J** provides definitions of the OFM response types.

Table 7: Response Types

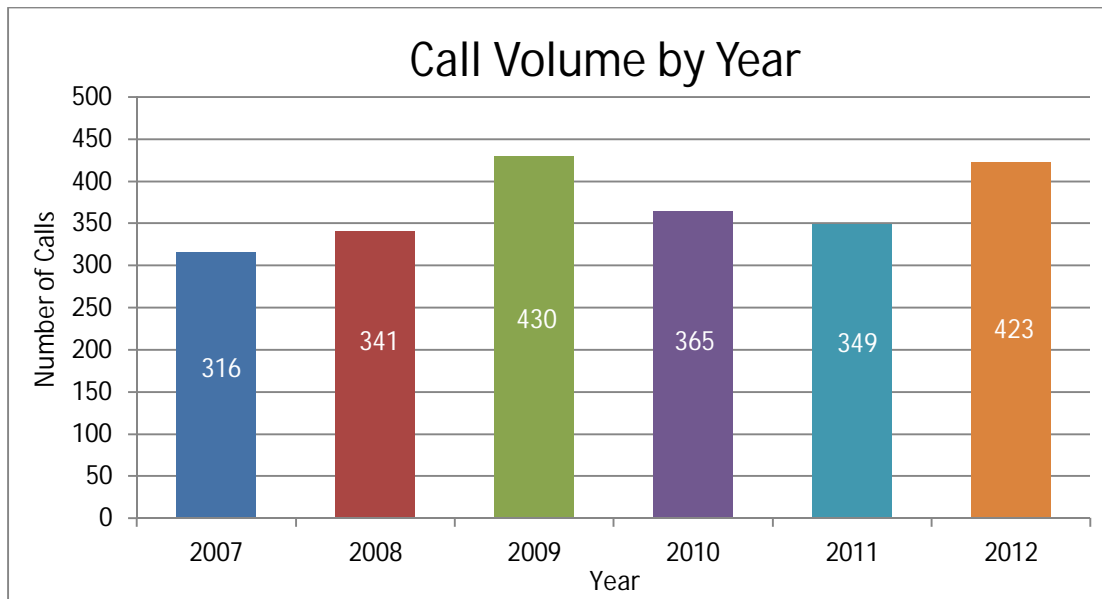
Dillon Response Type	OFM Response Type
Fire	Property Fires / Explosions
Medical	Medical / resuscitator call
Other	Overpressure rupture / explosion (no fire)
	Pre-fire conditions / no fire
	Burning (controlled)
	False fire calls
	CO false fire calls
	Public hazard
	Rescue
	Other Response

The following sections discuss call volume and incident types including all incidents that the Brighton District Fire Department has responded to in the period 2007 to 2012. The data have been manipulated to focus on the components of the total response time (dispatch, turnout, and travel). Outliers have been removed from the data set.

6.7 Emergency Call Volume

A summary of the volume of emergency calls in the Municipality of Brighton for the period 2007 to 2012 is presented in **Figure 10**. Over this period the department has experienced relatively consistent call volumes, with the exception of spikes in 2009 and 2012. There is an average of 370 calls per year over the six year period.

Figure 10: Historical Annual Call Volume (2007 - 2012)

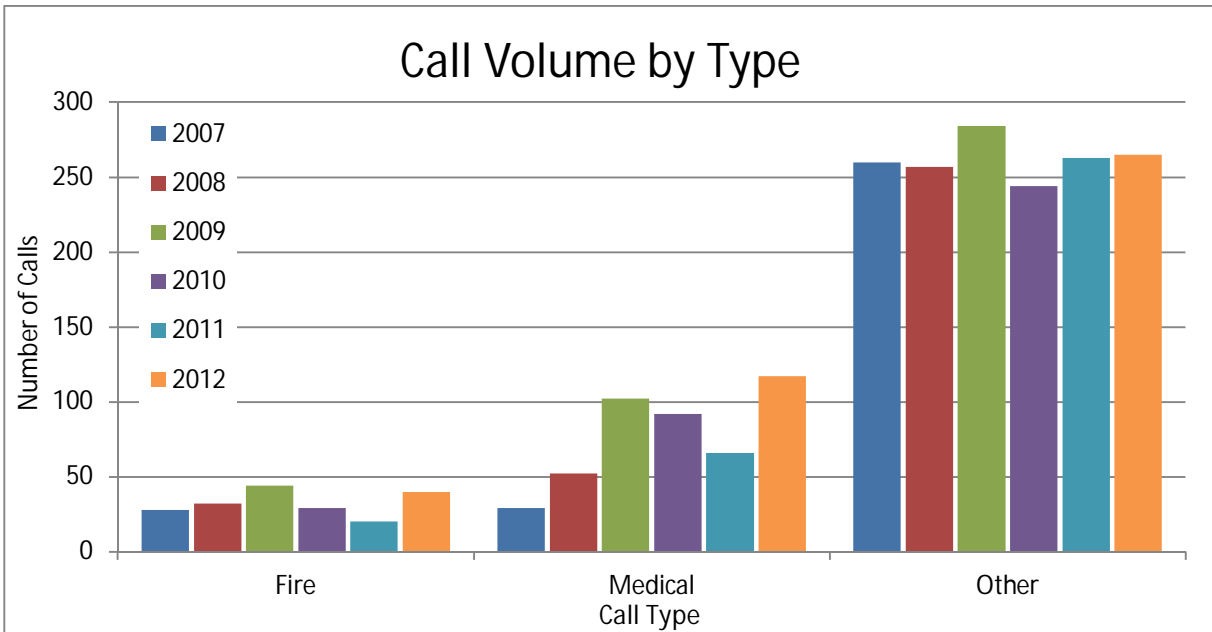


Source: Created based on analysis of OFM historical call data

6.8 Emergency Call (Incident) Types

There were a total of 193 fire-related calls over the six year period resulting in an average of approximately 32 calls per year. **Figure 11** provides a breakdown of the call volume by type for the years 2007 to 2012.

Figure 11: Historical Call Volume by Type (2007-2012)

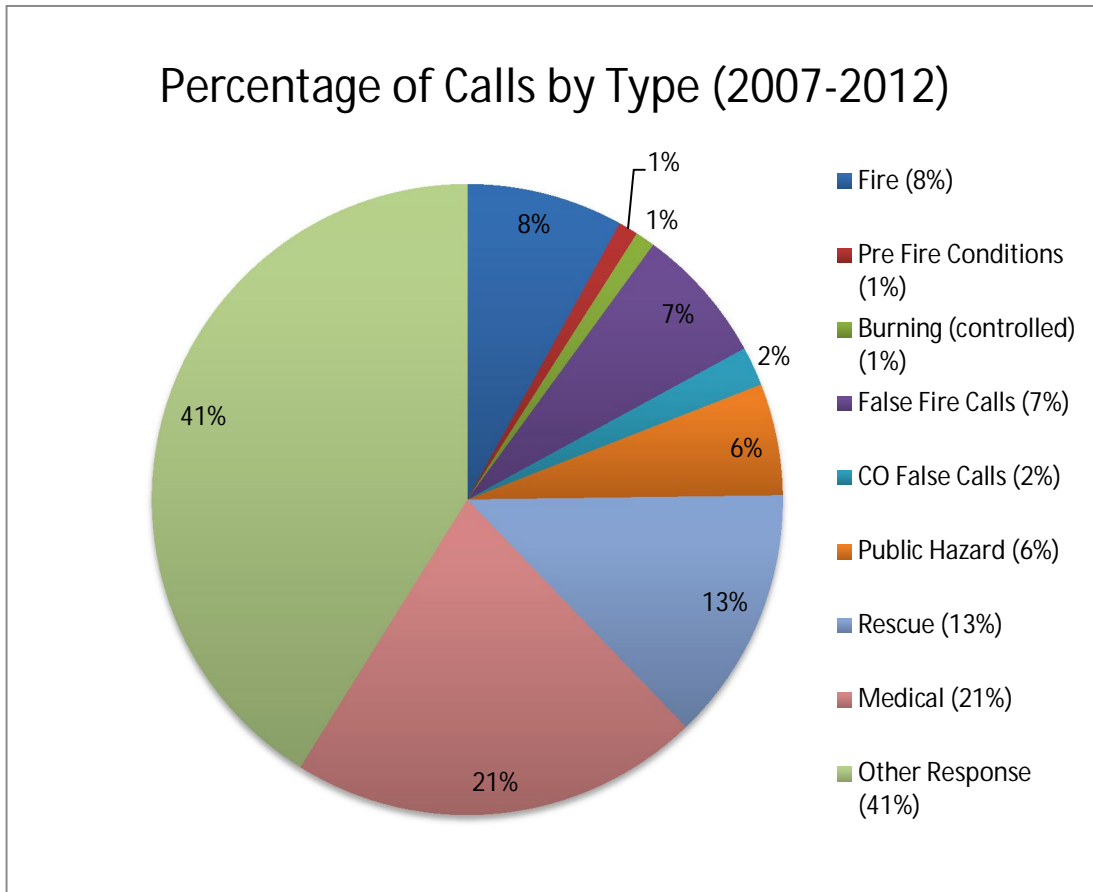


Source: Created based on analysis of OFM historical call data

As shown in **Figure 11** above, the volume of fire calls has remained relatively stable over the past six years. Enhancing public education and fire prevention programs are an effective strategy to maintaining and enhancing a downward trend of fire and fire related call volumes, and ideally reducing overall fire loss within the municipality. The volume of medical calls has seen steadily ben increasing while other calls have remained relatively consistent over the past six years.

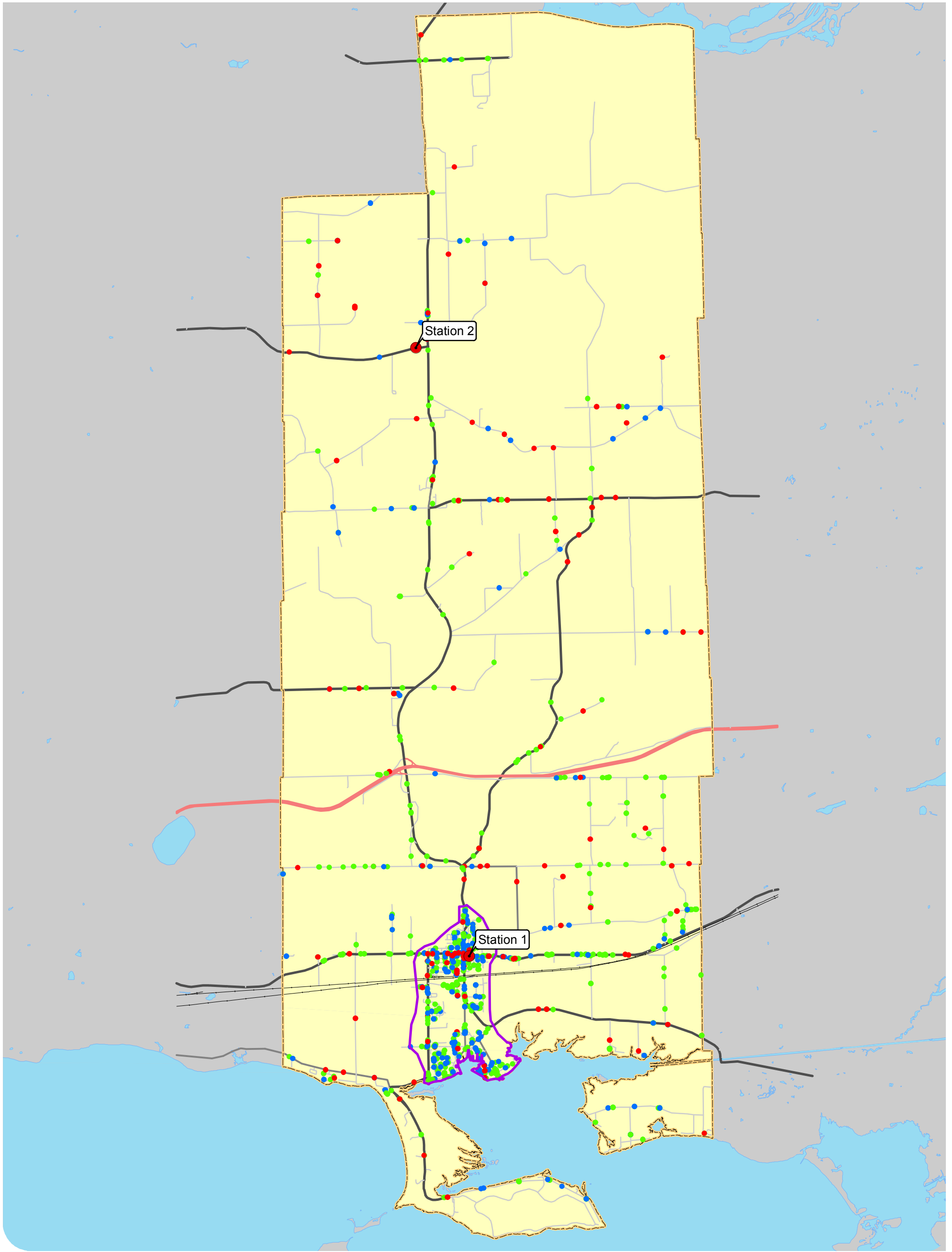
The majority of the emergency calls within the municipality that the fire department responds to are other response calls. The percentages of calls by type are shown in **Figure 12**. Other response calls comprise 41% of the department's call volume. Calls included in this category are assistance to other agencies, assistance to other fire departments and mutual aid calls. The department also responds to a large percentage of medical calls and rescue calls, as each comprise 21% and 13% respectively of the department's overall call volume.

Figure 12: Percentage of Calls by Type















Source: Created based on analysis of OFM historical call data

The historic calls are colour coded by type and mapped to show call locations in **Figure 13** below. As shown, the majority of calls occur in the main urban area at the southern end of the municipality within which Station 1 is located. The existing stations are well-located to respond to the historic calls.



HISTORICAL CALL LOCATIONS AND TYPES
 FIGURE #13

 Existing Fire Station	 Local	Historical Call Type (2007-2012)	
 Freeway	 Railways	 Fire	 Medical
 Ramp	 Municipal Boundary	 Other	
 Arterial	 Waterbody		
 Collector	 Assumed Urban Area		



MAP DRAWING INFORMATION:
 DATA PROVIDED MUNICIPALITY OF BRIGHTON
 MAP CREATED BY: SLS
 MAP CHECKED BY: SLC
 MAP PROJECTION: NAD 1983 UTM Zone 17N
 FILE LOCATION:
 I:\GIS\126607 - Brighton FMP\MXDs\Existing Risk and Response - Historical Call Locations.mxd



6.8.1 Dispatch Times

Dispatch time is defined by the NFPA in a standard called “*NFPA 12213– Standard for the Installation, Maintenance, and Use of Emergency Services Communications Systems*”, as follows:

“Emergency Alarm Processing / Dispatching: A process by which an alarm answered at the communications centre is transmitted to emergency response facilities (ERFs) or the emergency response units (ERUs) in the field.”

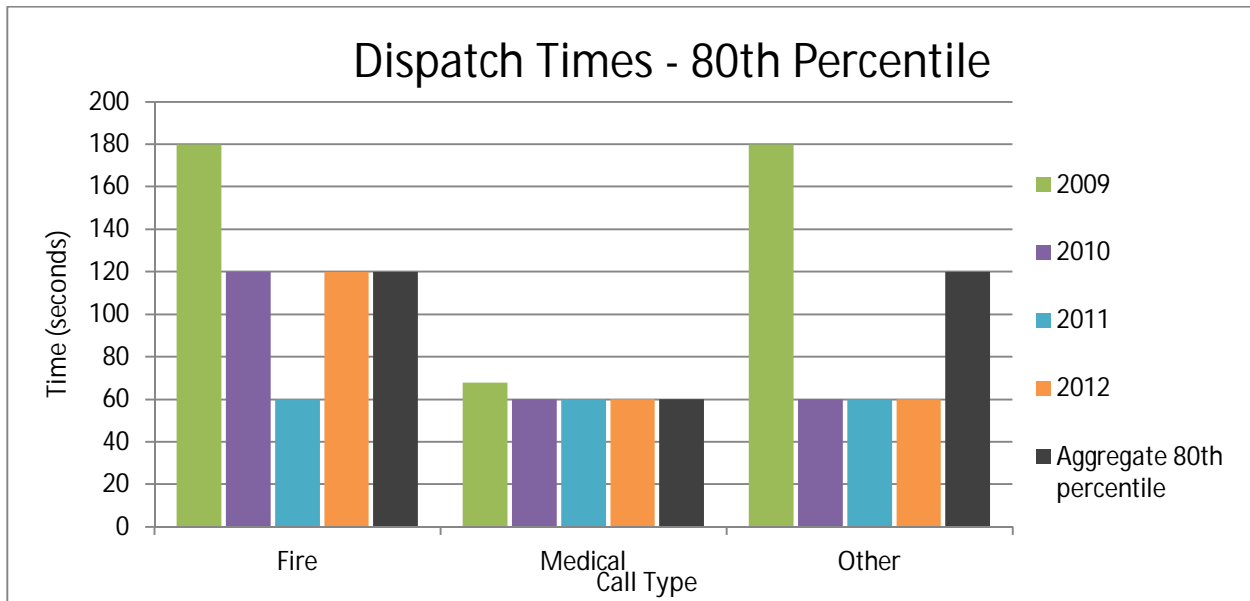
NFPA 1221 is an industry best practice for dispatch time requirements. It requires that 95% of alarms received on emergency lines shall be answered within 15 seconds, and 99% of alarms shall be answered within 40 seconds. It requires processing of the alarm call (dispatching) to be completed within 60 seconds, for 80% of all calls (80th percentile), and within 106 seconds for 95% of calls. This means that 80 out of 100 calls are required to be dispatched within 60 seconds and the 95 out of 100 calls must be dispatched within 106 seconds. There are some exceptions that have been identified. For the following call types, emergency alarm processing shall be completed within 90 seconds 90% of the time and within 120 seconds 99% of the time:

- *Calls requiring emergency medical dispatch questioning and pre-arrival medical instructions*
- *Calls requiring language translation*
- *Calls requiring the use of a TTY/TDD device or audio/video relay services*
- *Calls of criminal activity that require information vital to emergency responder safety prior to dispatching units*
- *Hazardous material incidents*
- *Technical Rescue*

Figure 14 presents a summary of the 80th percentile of historical dispatch times from the period of 2009 to 2012. Data was not available for 2007 and 2008. The aggregate 80th percentile is also displayed on the graph.

³ NFPA 1221 2013 Edition was referenced within this report

Figure 14: Historical Dispatch Times by Type



Source: Created based on analysis of OFM historical call data

In comparison to the NFPA 1221 standard, the BDFD dispatch performance for fire calls and other calls have historically been an 80th percentile time of 120 seconds, which is over the performance measure target of 60 seconds. The aggregate 80th percentile dispatching time for medical calls is 60 seconds which is the NFPA 1221 performance measure. Dispatching times for medical calls have remained consistent over the years. While the dispatching time for fire and other calls saw a dramatic reduction after 2009.

This data analysis shows that BDFD is close to, but not currently meeting the NFPA 1221 performance measure for dispatch operations for fire calls and other calls.

The Municipality of Brighton should review each step of the call handling and dispatching processes to determine if there are any efficiencies to improve this component of emergency response time. An improvement in any element of the call handling / dispatch times would be beneficial in moving BDFD closer to the target dispatch time performance measure.

6.8.2 Turnout Time

Turnout time is defined as the time interval that begins from when the emergency response staff receives the required dispatch notification, and ends at the beginning point of travel time. Turnout times can vary significantly based on the use of either full-time or volunteer firefighters. Full-time firefighters have the benefit of being located within the fire station and are able to receive the call and safely staff the apparatus ready for response in a very short time frame. Best practices reflect a 60 to 80 second turnout time for full-time firefighters depending on the nature of the call.

In comparison volunteer firefighters must first receive the call to respond (via pager) travel to the fire station and then safely staff the apparatus in preparation for response. Volunteer firefighter turnout times can vary significantly depending on the location and availability of the individual when the call is received. This variable can have a significant impact on a fire departments total response time and therefore should be monitored on an ongoing basis.

It is recommended that the BDFD implement a process to begin tracking turnout times for all calls that the fire department receives to monitor the department's turnout time performance.

6.8.3 Travel Time

Travel time is defined as the time interval beginning when the assigned emergency response apparatus begins the en-route travel to the emergency, and ends when the apparatus arrives at the scene. Travel times for emergency response vehicles can be impacted by many factors such as traffic congestion, traffic management systems including traffic lights and stop signs, and extended travel times due to converge of large geographic areas. Many areas of the Municipality of Brighton have extended travel times given the large geographic coverage area of the Brighton District Fire Department.

It is recommended that BDFD implement a process to track and monitor the travel times to all calls.

6.8.4 Total Response Times

Total Response Time is noted within NFPA 1720 (Table 4.3.2 Staffing and Response Time) as follows:

“Response time begins upon completion of the dispatch notification and ends at the time interval shown in the table.”

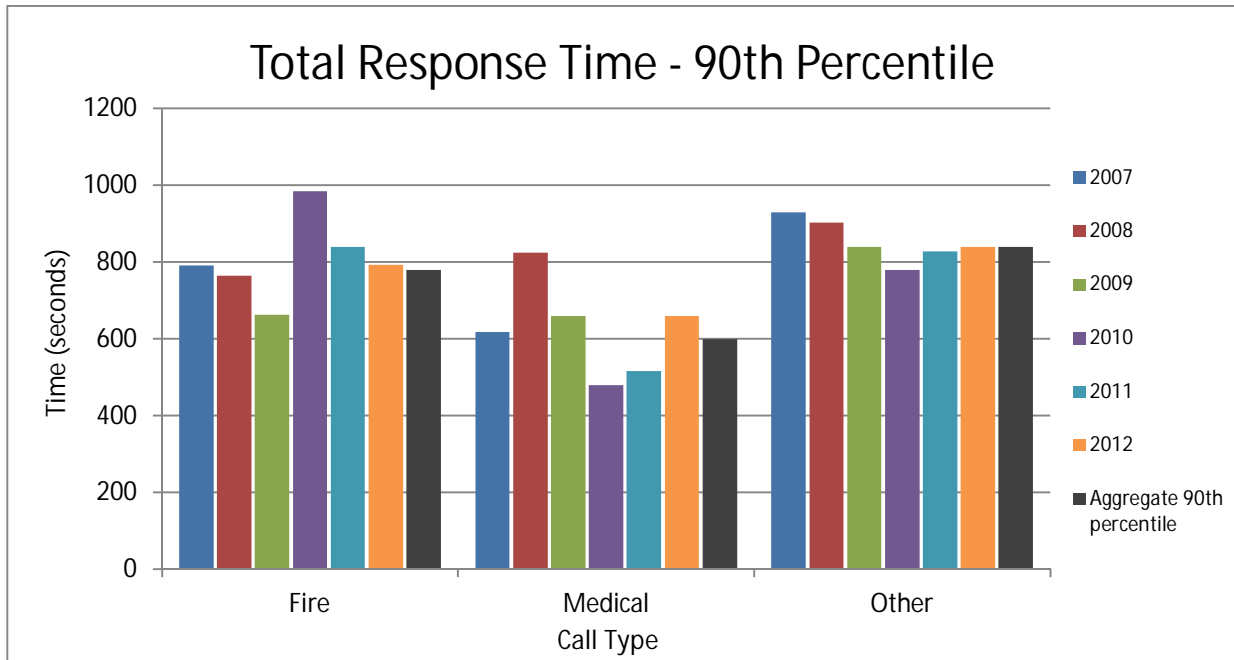
The table referred to in NFPA 1720 is replicated in **Table 8**. As per NFPA 1720, we assessed the department’s response time as turnout time and travel time only (excluding the dispatch component).

Table 8: NFPA 1720 Table 4.3.2 Staffing and Response Time

Demand Zones	Demographics	Minimum # of Firefighters Responding	Response Time (Turnout + Travel) in Minutes	Meets Objective (%)
Urban Area	>1000 people per square mile	15	9	90
Suburban Area	500-1000 people per square mile	10	10	80
Rural Area	<500 people per square mile	6	14	80
Remote Area	Travel Distance + or – 8 miles	4	Dependent upon travel distance	90
Special Risks	To be determined by fire department	To be determined by fire department	Determined by authority having jurisdiction	90

Figure 15 presents a summary of historical response times for the first arriving vehicle from 2007 to 2012. The response time for this first response is calculated as the sum of turnout time and travel time. The Municipality of Brighton’s five year aggregate 90th percentile total response times are approximately 780 seconds (13 minutes) for fire calls, 600 seconds (10 minutes) for medical calls and approximately 840 seconds (14 minutes) for other calls. The data presented in **Figure 15** represents the first responding vehicle response time.

Figure 15: Historical Total Response Times by Type (2007-2012)



Source: Created based on analysis of OFM historical call data

As shown in **Figure 15** above, Brighton has one main urban area within the municipality, the remaining portions of the municipality have been considered rural. Fifty-six (56%) percent of all calls occur within the assumed urban area of the municipality. Of the calls within the urban area the BDFD was able to achieve a total response time of nine minutes or less 85% of the time. Forty-four (44%) percent of all calls occur within the rural area of the municipality. Of the calls within the rural area, BDFD was able to achieve a total response time of 14 minutes or less 85% of the time. This measures well against the NFPA 1720 response time targets.

Of all the fire calls reported from 2007-2012, 29% of them occurred within the assumed urban area while the remaining 71% occurred in the rural portion of Brighton. Of the urban fire calls, the BDFD was able to achieve a total response time of nine minutes or less 49% of the time. Of the rural fire calls, the BDFD was able to achieve a total response time of 14 minutes or less 60% of the time.

6.9 Assessment of Response Coverage

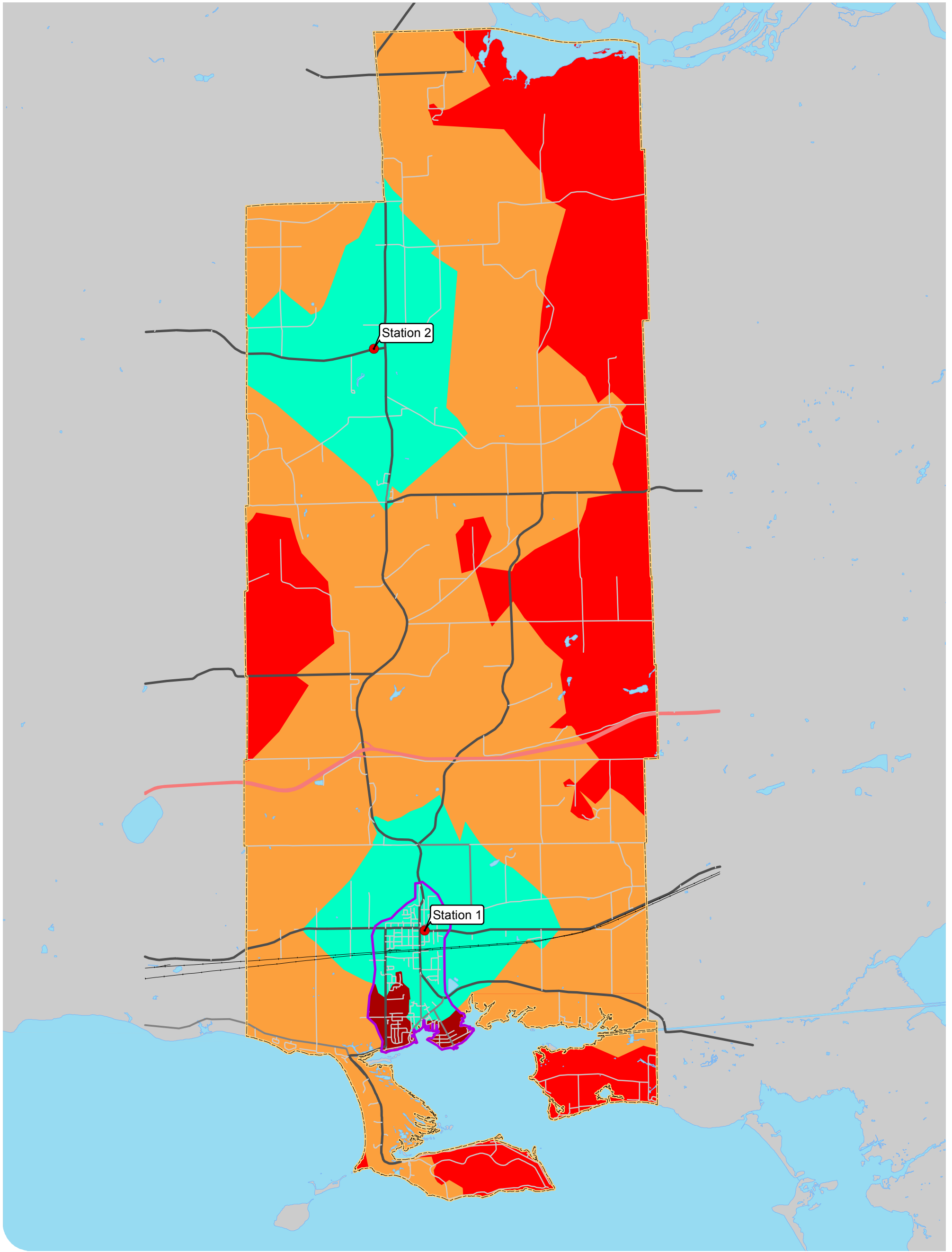
The following sections detail the assessment of response coverage within the Municipality of Brighton. Various methods were employed to assess the fire services emergency response coverage capabilities for existing conditions as well as for projected future conditions. The analysis was carried out using ESRI's Network Analyst, a GIS tool developed specifically for the purpose of assessing networks, such as roads.

As discussed above NFPA 1720 was deemed to be the most applicable standard for the Municipality of Brighton given its current organizational structure. While it was not possible to assess historical turnout times for the fire department, based on our analysis and past experience we have assumed that each station experiences an average turnout time of five minutes. This turnout time has been incorporated into the GIS response model. In relation to the NFPA 1720 standard this results in a four minute travel time for the urban area and a nine minute travel time for the rural area within the Municipality.

6.9.1 *Current Initial Response*

The Brighton District Fire Department currently utilizes dispatch protocols to assign the initial response resources based on historical call data and geography. Current initial response can include the existing two stations in Brighton as well as automatic aid agreement with the City of Quinte West. With respect to total response time the fire department is able to provide an initial response of nine minutes or less to 69% of the Municipality's urban area. Within the rural area the fire department is able to provide an initial response of 14 minutes or less to 73% of the rural area.

Figure 16 below presents the current initial response coverage areas of the two Brighton fire stations based on total response times (assuming a five minute turnout time).



- Existing Fire Station
- Assumed Urban Area
- Municipal Boundary
- Waterbody

Total Response Time (Turnout + Travel Time)

- 9 minutes
- >9 minutes
- 14 minutes
- >14 minutes

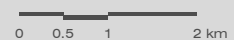
Total Response (minutes)	% Area Covered
<= 9 minutes	69% of urban area
<=14 minutes	73% of rural area



MAP DRAWING INFORMATION:
DATA PROVIDED MUNICIPALITY OF BRIGHTON

MAP CREATED BY: JJA
MAP CHECKED BY: SLC
MAP PROJECTION: NAD 1983 UTM Zone 17N

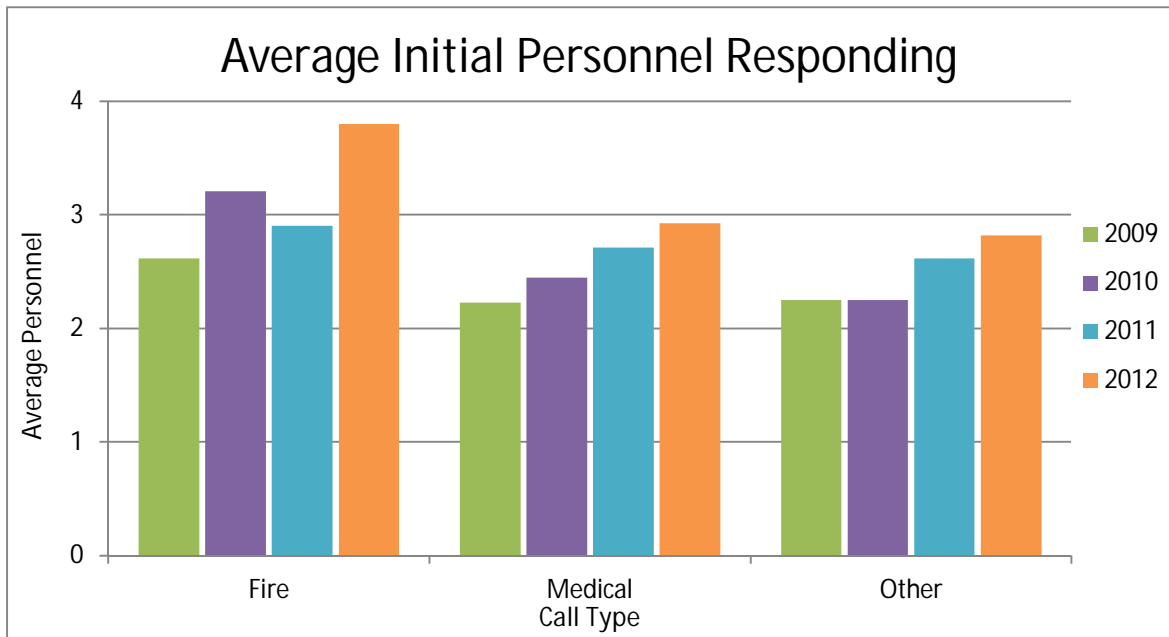
FILE LOCATION:
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Monitoring the actual number of firefighters responding as the initial response and depth of response are critical components of understanding the overall operational effectiveness, and managing the health and safety responsibilities of the Municipality.

This review assesses the actual staffing levels achieved for initial response utilizing the emergency call data from 2009 to 2012. **Figure 17** presents a summary of the average initial number of personnel responding to each type of incident for the period from 2009 to 2012. This represents the initial personnel that arrived on-scene to the emergency calls. During this period, the average number of personnel responding to fire, medical-related and other types of incidents has slightly increased. The analysis indicates that the fire department was not able to achieve the recommended initial response of four firefighters for all of the emergency response calls.

Figure 17: Historical Initial Personnel Response by Type (2009-2012)



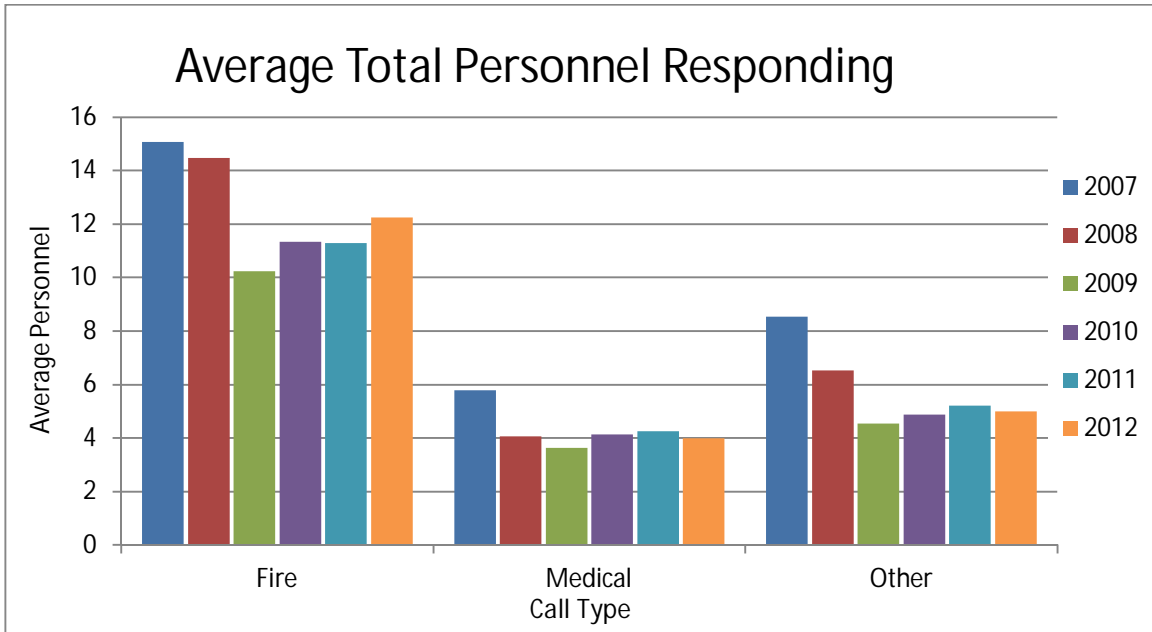
Source: Created based on analysis of OFM historical call data

6.9.2 Current Depth of Response

The Brighton District Fire Department currently utilizes dispatch protocols to assign the depth of resources based on historical call data and geography and includes responses from automatic aid agreements, as in the initial response. The current deployment strategy for depth of response provides a solid foundation for achieving the depth of response performance target recommended. Depth of response was assessed against NFPA1720 (for urban and rural areas) as well as the recommended depth of response targets presented above in **Table 8**.

As presented in **Figure 17** above, the BDFD is not currently meeting the recommended initial response of four firefighters on the first arriving vehicle. Therefore multiple apparatus are required to arrive on scene simultaneously in order to meet the NFPA 1720 response standards. Detailed analysis of the 2007-2012 depth of response capabilities of the Brighton District Fire Department was also completed and is presented in **Figure 18** below. The analysis indicates that the fire department achieves a lower than recommended staffing level of fourteen firefighters for depth of response. It is recommended that the fire department implement detailed tracking and recording of the time interval that staff arrive on-scene in order to measure and monitor depth of response performance.

Figure 18: Historical Total Personnel Response by Type (2007-2012)



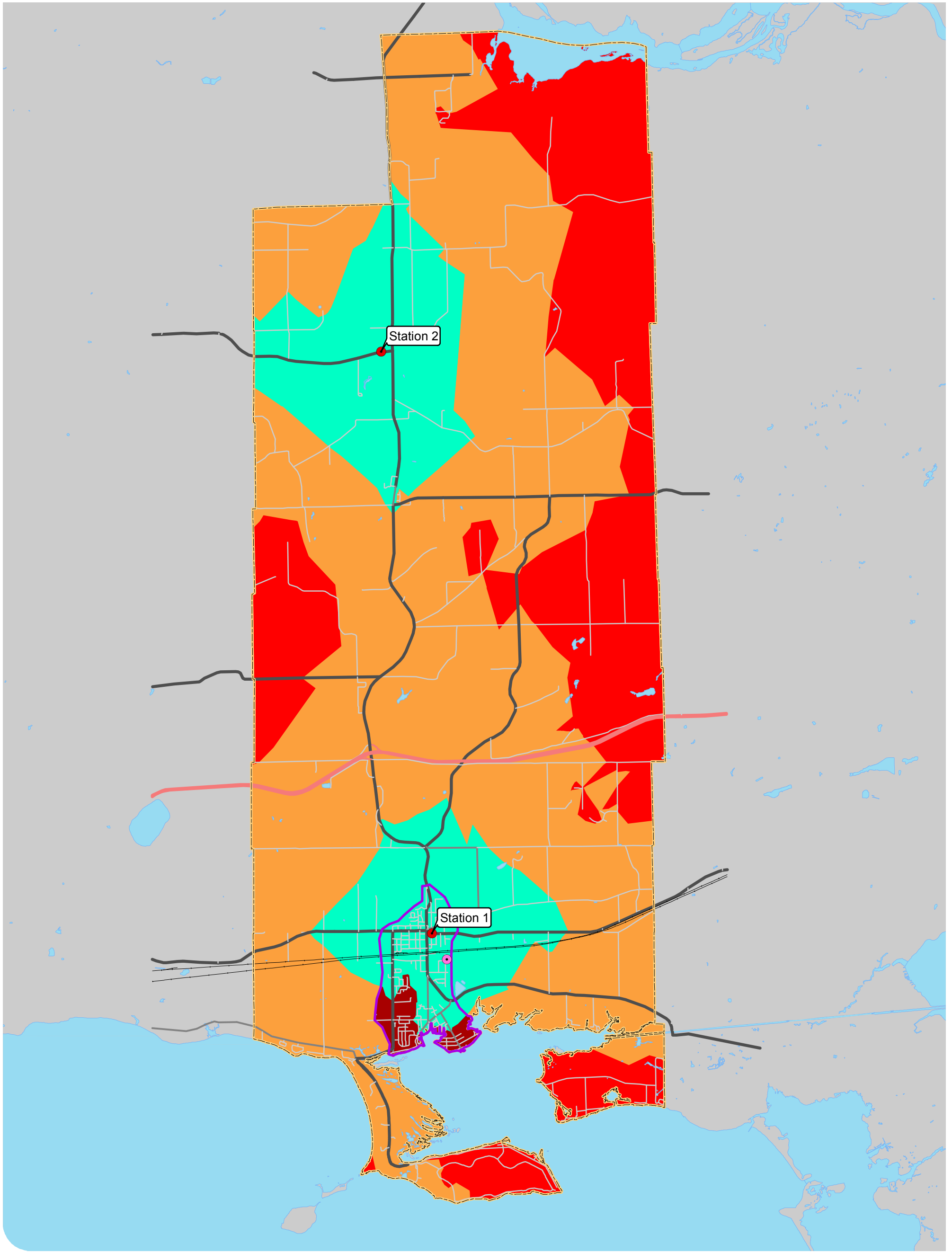
Source: Created based on analysis of OFM historical call data

6.9.3 Future Initial Response – with Staging Area

The Municipality of Brighton has a rail line that crosses the Municipality just south of Station 1. Throughout the year there are times where CN/CP rail may be blocking the rail crossing, which would prevent the Fire Department from reaching the southern portion of the Municipality. This generally occurs three to four times a year. In the event that the rail crossing will be blocked, the Fire Department is notified and the Fire Department stages a pumper just south of the tracks in the case of an emergency. This provides the municipality with additional coverage as the staged vehicle acts as a temporary third station from which firefighters are deployed. The staged pumper provides an initial response. The depth of response can be achieved by accessing the area south of the tracks via Boes Road (which has an underpass below the tracks). The practice of staging trucks and communicating well with CN/CP provides a good existing level of service to the area of Brighton located south of the tracks.

With respect to total response time the fire department is able to provide an initial response of nine minutes or less to 70% of the Municipality’s urban area. Within the rural area the fire department is able to provide an initial response of 14 minutes or less to 74% of the rural area.

Figure 19 presents the assessment of the current initial response coverage areas using the staging area just south of the railway crossing. The model is based on total response times (assuming a five minute turnout time).



Total Response Time (Turnout + Travel Time)

- Existing Fire Station
- Potential Staging Area
- Municipal Boundary
- Assumed Urban Area
- 9 minutes
- >9 minutes
- 14 minutes
- >14 minutes

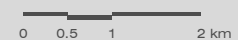
Total Response (minutes)	% Area Covered
<= 9 minutes	70% of urban area
<=14 minutes	74% of rural area



MAP DRAWING INFORMATION:
DATA PROVIDED MUNICIPALITY OF BRIGHTON

MAP CREATED BY: JJA
MAP CHECKED BY: SLC
MAP PROJECTION: NAD 1983 UTM Zone 17N

FILE LOCATION:
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FutureFirstResponse.mxd



6.10 Consideration of a Third Fire Station

As a component of the Fire Master Plan study, consideration was given to the need and justification for a third fire station, located south of the rail lines. As a result of call volume, call location, current population density and location of volunteer firefighters it is not recommended that a third station be developed within the 10 year horizon. There are future development plans that are expected to increase the population residing south of the rail lines. As this development is built and occupied, it will likely result in the justification to consider a third fire station in this area. It is expected that this will occur around the 15 to 20 horizon (depending on how quickly development occurs), which is beyond the planning horizon of this Fire Master Plan, although this should be reassessed at the plan mid-point in five-years.

Presently, as shown in **Section 6.9.3** above, the Brighton Fire Department is able to provide a reasonable level of service to the development that exists south of the rail line. Procedures are in place to mitigate response delays in the event that the rail line becomes blocked (e.g. for shunting). Limited access (due to the height, width and grade of the structure) can also occur via Boes Road, as an underpass presently exists below the rail line on that road.

As mentioned in the introduction, typically, a Fire Master Plan is a 10 year planning document, which requires a formal review at the five year mark. The growth and development south of the rail line should be a consideration when completing the review of the existing plan and when conducting the subsequent Fire Master Plan in 2023.

6.11 Existing Fire Suppression Services

6.11.1 *Current Staffing*

Recruitment and retention of volunteer firefighters continues to be a major challenge for fire departments across Ontario. Historically small towns and communities were reflected in their volunteer fire department. The volunteer departments were comprised of business owners and residents able to leave their employment or home and respond to the siren on the fire station for the call to duty.

Changes in employment conditions and individual priorities for work/life balance have negatively impacted recruitment and retention of volunteer firefighters across Ontario. The Municipality of Brighton has experienced this; however, it continues to meet this challenge through proactive recruitment programs and sustaining many long serving volunteer firefighters.

In our view the recruitment within the North Station area is of the most concern. This particular area has limited growth, and very limited possibilities to find potential volunteers working in the community who are able to leave their employment to assist in providing day-time coverage. Another immediate challenge for the Municipality of Brighton is the recruitment of volunteer firefighters that would be available to provide weekly daytime (normal business hours) coverage.

In our view the success of recruiting volunteer firefighters in the future will depend on the ability of the fire service to revise recruitment strategies including more aggressive marketing strategies such as media ads (including the Municipality's website), and the use of social media tools and technology (e.g. Facebook and Twitter). There will also be a need for flexibility in the policies regarding where volunteers live, work and respond from, in order to maximize daytime response within the Municipality.

The current Council approved complement of volunteer firefighters between both stations is 35 firefighters in total. In our view the current complement of 35 volunteer firefighters between two stations is at the low end of the optimal range for the effective operation of a volunteer department with two stations. Personal commitments and balancing work/life priorities with the desire to fulfill their role as volunteer firefighters is becoming a challenge for many volunteer firefighters. Optimizing the operational effectiveness of the Brighton District Fire Department relies on the volunteer firefighters responding and staffing multiple pieces of apparatus at each fire station. This is becoming an increasingly difficult challenge during weekly daytime hours (normal business hours) particularly at the North Station.

Based on our analyses we are recommending that the Municipality of Brighton consider an increase in the complement of volunteers to 30 per station. We are recommending at a minimum an increase of 25 volunteer firefighters to achieve an overall complement of 60 volunteer firefighters. Should additional applicants be available for daytime coverage, the municipality may wish to increase the complement of volunteers to 35 per station. This may require some flexibility to existing requirements such as residence within an eight kilometre radius of the fire stations. Consideration should be given to seeking out daytime responders who work in Brighton, near a fire station, even if they may not reside near one of the two stations. Providing flexibility for volunteers to respond from either station depending on the area of residence and area of workplace could also provide increased daytime response.

This recommendation is targeted at achieving the following objectives:

- ✓ *Maintaining a minimum complement of 30 volunteer firefighters at all stations at all times;*
- ✓ *Increasing the number of volunteer firefighters available during weekly daytime (normal business hours) time period at all stations;*

6.12 Suppression Division Summary and Recommendations

As a result of our review and assessment of the Fire Suppression Division we recommend that:



1. A revised depth of response protocol to deploy a minimum of 14 firefighters based on moderate risk occupancies as defined by the Community Risk Profile be implemented.
2. A process to track turnout time for all calls that the fire department receives be implemented to monitor the department's turnout time performance.
3. A process to track arrival times of personnel on-scene be implemented to monitor depth of response performance and response time performance more accurately.
4. The complement of volunteer firefighters within the department be increased to a minimum of 60 volunteer firefighters. This recommendation is targeted at achieving the following objectives:
 - Maintaining a minimum complement of 30 volunteer firefighters at all stations at all times;
 - Increasing the number of volunteer firefighters available during week-day daytime (normal business hours) periods at all stations;
 - Should additional applicants be available for daytime coverage it is recommended that each station increase their complement to 35.
5. The Municipality consider flexible alternatives to enhance and support daytime response of volunteer firefighters (i.e. volunteers able to respond to both stations to compliment area of work and area of residence).

7.0 FIRE STATIONS, APPARATUS & EQUIPMENT

7.1 Fire Stations

The Brighton District Fire Department currently operates from two existing fire stations that are strategically located throughout the Municipality. **Table 9** provides a description of the existing stations.

Table 9: Existing Stations Descriptions

Station	Description
<p>North Station - 1256 County Road 27</p> 	<p>North Station is approximately 18 years old. The station is in good condition. It was built in 1995 with a wood frame and mostly steel clad. At the time of this study, the department was in the process of building an addition on the building. The original building was built for smaller apparatus. The expansion includes two truck bays and a large training room. This expansion will meet the needs of the department for the foreseeable future.</p>
<p>South Station - 20 Elizabeth Street</p> 	<p>South Station station was built in 1970 with an added addition in 1987. For its age the building is in relatively good condition. Some outside repairs are needed to the brick, stucco and parching of the foundation. EMS currently rents an office and one truck bay for paramedics stationed at the fire station. An additional truck bay will be required if EMS continues to share the building with the fire department. There are discussions underway that may see the relocation of the ambulance to another site. This would provide a unique opportunity to expand the fire station space and provide a number of improvements such as more space for apparatus. The administrative space is located at the South Station and is inadequate for the public as well as for administrative staff. The building is not accessible to people with disabilities.</p>

In our view there are recognized challenges with existing space allocation and facility condition at Station 1. It is identified that, although no critical issues exist at the present time, infrastructure improvements should be reviewed and implemented in a timely manner. We recommend that the municipality conduct a detailed facility review within the short-term horizon of the FMP to ascertain the overall current infrastructure condition, administrative and operational space needs for the fire department. In our opinion this type of review would provide the municipality with a detailed framework (including prioritization and capital budget requirements) to address the fire department’s facility needs. The study should consider whether or not there are options within existing municipal buildings nearby to satisfy the department’s administrative needs. Taking a strategic approach to facility maintenance and improvement will assist the Municipality in avoiding or managing costly repairs or time sensitive needs which may be requires if infrastructure begins to degrade or worst case, fail.

Table 10 provides an overview of the fire station, apparatus, and fire suppression staffing within the Brighton District Fire Department.

Table 10: Current Stations, Apparatus & Minimum Staffing

Station	Station Address	Apparatus	Available Fire Suppression Staffing
North Station	1256 County Road 27 Codrington	1 Pumper 1 Tanker 1 Rescue	Volunteers
South Station	20 Elizabeth Street Brighton	2 Pumpers 1 Tanker 1 Rescue 1 ATV on trailer	Volunteers

7.1.1 Future Station Consideration

As growth and development occurs in the Municipality of Brighton over the next twenty years, the call volume and type of calls occurring in the development areas should be monitored by the fire department. If the call volumes and occurrences of fire-related calls were to increase in the area of Brighton located south of the railway tracks, consideration may need to be given to adding a third fire station in that area. The size of the facility of the new fire station could be smaller than the North and South Stations, with one primary apparatus and a smaller complement of volunteers, as the main function would be to provide a designated first response to the area of Brighton located south of the rail line. The depth of response could continue to be provided by the existing fire stations and volunteers.

The addition of a new grade-separation over the rail line within the Municipality, though not currently planned, would likely negate the need for this additional station.

Timing for the design, construction and staffing of a third station would need to be based on the following:

- Actual growth of population and dwelling units within south Brighton (south of the rail line);
- Call volumes within south Brighton (south of the rail line)
- Success of the operational practice of staging a pumper vehicle south of tracks in events where the rail crossings are blocked; and

- Number of approved building permits within south Brighton (south of the rail line).

These factors should be monitored over the coming 20 year horizon, and reviewed at five year increments. It is expected that as the call volumes in the vicinity increase to reflect two to three calls per week (annual call volume of approximately 100-150) a volunteer station would be warranted. Based on the current growth projections, we estimated the need for a future volunteer station to be at or slightly beyond the 20 year plan horizon.

7.2 Diesel Emissions

The Ontario Fire Service has identified health and safety concerns related to diesel exhaust emissions from apparatus stored within a fire station. In response the Ministry of Labour, Section 21 Guidance Note #3-1 was developed to assist municipalities in responding to these concerns raised.

This guidance note includes a number of actions that should be taken to limit the exposure of the diesel emissions. The following is an excerpt from Guidance Note #3-1 that states:

“The Section 21 Committee strongly recommends the installation of direct capture type exhaust system extractors when stations are being renovated or newly constructed. Consideration should be given to having direct capture type exhaust extractors installed in all existing fire stations”.

The fire stations of the Brighton District Fire Department currently do not have provisions for the direct capture system recommended. The Municipality and the fire department should consider full implementation of the actions identified to limit the exposure of diesel emissions as an interim measure and include a detailed analysis of these systems as part of the proposed detailed facility review recommended.

7.3 Apparatus and Equipment

Overall, the apparatus and equipment within the department are generally in good condition. The fleet is relatively young, with two thirds being less than 10 years old. The fleet is well dispersed amongst the two fire stations and provides efficient suppression services throughout the Municipality.

7.4 Staffing and Responsibilities

It is the responsibility of the Fire Chief and the Deputy Fire Chief to arrange for vehicle and equipment maintenance as required.

Equipment is checked by station personnel twice a month and recorded on truck check forms. Any problems are recorded on these forms and then the Fire Chief or Deputy Chief is notified to have the apparatus or equipment repaired. Repairs and regular maintenance are carried out as necessary. Some repair and maintenance is done in house by officers if it is possible. Otherwise, the Municipality does employ a full time mechanic at the Public Works Department to complete apparatus repairs and perform the annual inspections. For equipment maintenance and repairs, if the maintenance cannot be handled in-house, it is sent back to the manufacturer for repairs.

7.5 Apparatus & Fleet

Table 11 below reflects the current apparatus used by the department.

Table 11: Apparatus and Model Year

Apparatus	Station	Description	Year
Pumper Freightliner	South Station	4 person cab, 1,000 gallon tank back up pumper	1996
GMC Mini Pumper	South Station	4 person cab, compressed air pumps water &/or foam front line vehicle to all calls for the South Station	2006
Ford Rescue Van	South Station	holds Auto Extrication equipment, SCBA bottles & refills SCBA Bottles, storage for air, land based water rescue equipment, holds extra radios, used as a command centre	1993
ATV & Trailer	South Station	used for grass fires, carrying water & 1st Aid to areas with no road access Rescue to carry patients out of wooded areas.	2009
Freightliner Tanker	South Station	carries 4 SCBA's has pump, foam, ladder & porta-tank, used as a blocker vehicle to create safe zones as needed at emergency scenes tank holds 1,600 gallons of water	2012
Ford ½ ton pick-up truck	South Station	Chief's vehicle, also used to go to emergency calls and meetings, etc.	2008
Pumper Freightliner	North Station	5 person cab, pumper front line truck for North Station calls	2003
International Water Truck	North Station	carries water, used as a blocker vehicle refurbished in 2004 tank holds 2,500 gallons of water	1989
GMC Rescue Van	North Station	carries Auto Extrication equipment, SCBA's and spare radios, command equipment and ventilation fans, etc. carries Medical Equipment	1989

As the complement of volunteers at each station is increased, the turnout of volunteers to calls should be tracked and monitored to ensure the appropriate number of seats is available within the fleet of each station to transport the volunteers to incident scenes. If and when the department is receiving a consistently higher number of volunteers responding to the station for calls than the number of seats available, the municipality should consider options for adding a passenger transport vehicle (i.e. passenger van) to the fleet of that station.

7.6 Maintenance

Apparatus requiring Ministry of Transportation, Ontario (MTO) certificates have scheduled maintenance throughout the year. This is incorporated into the schedule and work load of the Municipalities’ public works mechanic.

7.7 Fleet Replacement Plan

Our review of apparatus replacement and major equipment replacement plans for municipalities with similar types of use and wear (e.g. volunteer fire departments) reflect a best practice strategy of 2015 years of service as front-line apparatus with an overall life cycle of 25 years (reflecting a and a further five years of service in a reserve capacity) reflecting a 20 year overall life cycle for major apparatus such as pumpers and tankers. When apparatus reach life expectancy, the Municipality should assess the condition and options related to the vehicle to determine if there is any added value it can provide to the department or the Municipality. *Small vehicles within the fleet should be considered for replacement at approximately a 10-15 year cycle, or as maintenance and wear dictates.* **Table 12** summarizes the dates associated with existing apparatus replacement.

Table 12: Fleet Replacement Plan

Apparatus	Station	Year	Replacement Year
Pumper Freightliner	South Station	1996	2016 (reserve until 2021)
GMC Mini Pumper	South Station	2006	2026 (reserve until 2031)
Ford Rescue Van	South Station	1993	2014
ATV & Trailer	South Station	2009	2024
Freightliner Tanker	South Station	2012	2032 (reserve until 2037)
Ford ½ ton pick-up truck	South Station	2008	2023
Pumper Freightliner	North Station	2003	2023 (reserve until 2028)
International Tanker	North Station	1989	2014
<i>GMC Rescue Van</i>	<i>North Station</i>	<i>1989</i>	<i>2014</i>

7.8 Reserve Apparatus

Currently, the Brighton District Fire Department does not have any reserve vehicles. It should be recognized that in the event that any of the front-line apparatus are out of service at any time the overall firefighting capability of the Brighton District Fire Department is significantly reduced. This includes the department’s ability to have firefighters respond as well as the equipment capacity to mitigate the emergency.

Developing some reserve apparatus capacity for use in the event of a front-line apparatus breakdown, and to increase the depth of firefighting capacity could be achieved through the replacement of the Pumper at the South Station and assigning this apparatus to a reserve status for the recommended five years until 2019. This strategy would initiate a cycle of replacing the front-line pumper on a 15 year cycle.

Subject to consideration of the recommended organizational structure contained within this report the addition of a reserve pumper in addition to the increased complement of firefighters recommended would provide an increased depth in the firefighting capabilities of the department to address community need.

7.9 Major Equipment

Our review of equipment included the following major items:

- Self-Contained Breathing Apparatus (SCBA)
- Personal Protective Clothing (Bunker Gear)

These items were visually assessed in relation to the current level of services provided by the department and our experience with regard to firefighting equipment best practices. All of the equipment assessed appeared in good condition reflecting good care and maintenance.

All bunker gear currently in use is eight years old or less. In-house inspections are performed by individuals on a quarterly basis and recorded on an inspection form. It is recommended that the fire department begin initiating a bunker gear replacement program in 2013-2014.

Self-contained breathing apparatus (SCBA) are an example of the department's use of life cycle planning and budgeting for replacement. SCBA and cylinders are checked visually and operational functions are checked twice a month and recorded on appropriate forms. SCBA bench tests are carried out at least once every two years or at the time of any service if any deficiencies are noted. All repairs are performed by outside companies with qualified technicians. The SCBA air cylinders are also checked as required for compliance with hydrostatic testing by a service technician. We recommend that SCBA fit testing be completed on a regular basis to ensure proper use of the equipment.

7.10 Fire Station, Apparatus, & Equipment Summary and Recommendations

Based on our visual assessment the existing fire stations the apparatus and equipment appear to be in good repair and reflect the current operational needs of the department.

As a result of our review of Brighton's fire stations, apparatus & equipment we recommend that:

1. Subject to consideration of the recommended organizational structure within this report we recommend that Council support the completion of a detailed facility review within the short-term horizon of the FMP to ascertain the overall current infrastructure condition, administrative and operational space needs for the fire department.
2. The Municipality and the fire department consider full implementation of the actions identified to limit the exposure of diesel emissions as an interim measure and include a detailed analysis of these systems as part of proposed new stations and facilities.
3. The fire department consider formalizing and maintaining a 'Capital Replacement Plan' for fleet and equipment.
4. Council direct staff to investigate the options of implementing the apparatus replacement schedule included within the Fire Master Plan including the addition of a reserve pumper as recommended.
5. The fire department initiate bunker gear replacement in 2013-2014.

6. Considerations for ladder truck/elevated stream within the department's fleet.
7. If a consistent response of volunteers responding to the station for calls is greater than the number of seats available, the municipality should consider options for adding a passenger transport vehicle to the fleet of that station.

8.0 MUNICIPAL COMPARATORS

The Brighton District Fire Department strives to maintain fiscal responsibility in providing effective and efficient municipal fire and emergency service delivery. Assessing the current costs of fire protection in comparison to those of other municipalities provides further depth of analysis in support of the continued commitment of Council and senior staff to providing the highest level of services and programs to the community in the most cost-effective and efficient manner.

To conduct the analysis of municipal comparators, consideration was first given to developing a list of indicators that would reflect an accurate representation for comparison analysis. The indicators identified included the following:

- ✓ *Population*
- ✓ *Geographic Area of the Municipality*
- ✓ *Density Per Square Kilometer*
- ✓ *Number of Residential Dwellings*
- ✓ *Community Risk Considerations*

The OFM “*Summary of Key Facts and Fire Loss*” was the initial data source used to research these indicators in order to identify the list of comparable communities utilized within this report. Additional information was also provided using; “Census Profiles” produced by Statistics Canada, and “Financial Information Return (FIR) and Municipal Performance Measurement Program (MPMP)” produced by The Ministry of Municipal Affairs and Housing.

The strategies and recommendations contained within this FMP utilize a comprehensive Community Risk Profile as a primary factor in evaluating current and future service delivery levels and staff resources. This depth of analysis with regard to community risk is not readily available for peer departments across the province, and as such was not available for the comparable municipalities selected. As a result our general knowledge and understanding of the eight risk factors for each of the comparator municipalities was considered in selecting the municipalities identified. As such in developing the list of municipal comparators identified in **Table 13** below priority was given to ensuring, where possible, that the municipal comparators chosen reflected a similar community risk profile.

Table 13: Municipal Comparator Group

Municipality/Town /Township	Population 2011	Land Area 2011 (km ²)	Population Density (persons/km ²)	Call Volume 2011	# Dwelling Units (Total Private Dwellings)
Cramahe	6,073	202	30.1	177	2,676
Cavan-Monaghan	8,601	306	28.1	525	3,221
Brockton	9,432	565.4	16.7	187	4,157
Grey Highlands	9,520	882	10.8	229	5,297
Mapleton	9,989	535	18.7	161	3,379
Adjala-Tosorontio	10,603	372	28.5	331	3,799
Hamilton Township	10,702	256	41.8	358	4,377
Brighton	10,928	223	49.0	341	4,825
Kincardine	11,174	538	20.8	220	5,789
Wellington North	11,477	526	21.8	209	4,801
Mississippi Mills	12,385	520	23.8	211	5,037
Saugeen Shores	12,661	171	74.0	142	7,228
Thames Centre	13,000	434	30.0	206	4,836
West Lincoln	13,837	388	35.7	357	4,744
Bracebridge	15,409	626	24.6	240	8,515
<i>Comparator Group Average</i>	<i>11,053</i>	<i>436</i>	<i>25.3</i>	<i>260</i>	<i>4,845</i>

As shown above, the Municipality of Brighton’s population (10,928) and number of dwellings (4,825) are just slightly lower than the comparator group average of 11,053 and 4,845 respectively. Brighton’s land area of 223 km² is also below the group average of 436 km². The Municipality’s call volume is significantly higher than the peer group average.

Utilizing comparisons such as this are consistent with PFSG 02-03-01 “*Economic Circumstances.*” Under the section “*Factors to be considered in assessing the local economic circumstances*” the document identifies a wide range of factors including “*per capita basis, assessment basis and per household*” and a further factor that states these are to be considered with regard to the “*relationship of all of the above with similar municipalities.*”

Table 14 provides a comparison of the resources, staffing and financial statistics for the comparator group. The financial information presented represents the 2011 actual operating costs for fire protection services as provided by each of the comparator municipalities.

Table 14: Resources, Staffing and Financial Comparison

Municipality/Town /Township	# Stations	Volunteers Firefighters	Full Time Suppression Firefighters	Fire Services Operating Budget 2011	Fire Services Operating Budget 2011 - Per Capita	Fire Services Operating Budget 2011 - Per Dwelling Unit	Municipal Operating Budget 2011	Total Assessed Value 2011
Cramahe	2	30	1.5	\$387,549	\$63.82	\$144.82	\$4,559,192	\$571,103,447
Cavan-Monaghan	2	45	2	\$747,078	\$86.86	\$231.94	\$10,618,490	\$954,187,022
Brockton	2	49	1	\$674,869	\$71.55	\$162.35	\$13,897,503	\$878,846,519
Grey Highlands	2	36	2	\$525,569	\$55.21	\$99.22	\$9,430,954	\$1,432,649,352
Mapleton	2	43	1	\$556,350	\$55.70	\$164.65	\$7,108,524	\$1,283,072,777
Adjala-Tosorontio	2	94	1	\$641,000	\$60.45	\$168.73	\$9,354,759	\$1,627,852,445
Hamilton Township	3	60	0	\$609,700	\$56.97	\$139.30	\$5,029,428	\$1,228,553,534
Brighton	2	37	1	\$560,331	\$51.27	\$116.13	\$8,252,339	\$1,017,381,974
Kincardine	2	52	1.5	\$746,884	\$66.84	\$129.02	\$29,471,233	\$1,632,414,798
Wellington North	2	51	0.5	\$658,481	\$57.37	\$137.15	\$11,239,593	\$1,187,208,070
Mississippi Mills	2	51	1.5	\$409,248	\$33.04	\$81.25	\$11,722,385	\$1,285,916,150
Saugeen Shores	2	53	2	\$667,184	\$52.70	\$92.31	\$16,968,684	\$1,901,349,711
Thames Centre	2	54	0	\$660,515	\$50.81	\$136.58	\$10,372,253	\$1,713,438,069
West Lincoln	2	45	2	\$667,773	\$48.26	\$140.76	\$8,427,495	\$1,323,250,036
Bracebridge	2	36	3.5	\$712,217	\$46.22	\$83.64	\$11,901,375	\$2,576,224,951
<i>Comparator Group Average</i>	2	49	1	\$614,983	\$55.64	\$126.92	\$11,223,614	\$1,374,229,924

Brighton has two fire stations, which is equal to the group average. Brighton District Fire Department has 25% fewer volunteer firefighters than the group average. Indicating that this is at the low end of the optimal range for the effective operation of a volunteer department with two stations. The recommended increase in the complement of volunteer firefighters would place Brighton above the group average.

Compared to the peer group averages for the 2011 data presented, BDFD has a 9% lower operating budget, 8% lower per capita operating budget and a 9% lower per dwelling unit operating budget. Overall, the Municipality's operating budget is 27% lower than the peer comparator average. The Municipality's 2011 Total Assessed Value is 26% lower than the comparator average.

9.0 COMMUNICATIONS & TECHNOLOGY

Communications within the Municipalities' Fire Department consists of dispatch procedures and equipment for rescue operations as well as internal communication between the members of the department.

9.1 Fire Dispatch

The Municipality of Brighton currently contracts emergency call taking and fire dispatching through an agreement with TAS-Page Communications of Peterborough.

The current agreement covers a two year term commencing April 1, 2011. The agreement defines the fees associated, operations, governance structure and protocols to be followed. It is recommended that the agreement be reviewed and revised to include performance measures for dispatch time performance (e.g. NFPA 1221).

9.2 Internal Department Communications

Internal communications within the department was identified as a concern during the volunteer stakeholder consultations. This is not surprising of a fire department with fire stations that are located to cover such a large geographic area. The volunteer stakeholders identified that there are some communications issues between different ranks and positions in the department. It would also be beneficial for more interaction and communication at the departmental level.

In our view the discussions regarding internal communication align with the department's clear objective to become one unified composite department. The volunteer stakeholder consultations were very positive sessions that in our experience represent an expression of a desire to be informed, be involved, and ultimately help towards achieving the goals and objectives of the department.

In our experience there are numerous strategies that could be considered to enhance communications within the department. As proposed within this plan the formalization of the department management team including the Fire Chief and Assistant Chiefs would provide the platform for initiating enhanced communication and interaction across the department.

9.3 Technology

The department currently uses FIREHOUSE computer software as the digital records management platform. The software program is well recognized and utilized within the Ontario fire service. The program will support additional users such as those identified within the new organizational structure and should be considered in the future for extension of use to the volunteer officers as part of the departments records management system.

9.4 Communications and Technology Summary and Recommendations

The current dispatch agreement with TAS-Page Communications is working well and meeting the needs of the Brighton District Fire Department.

Internal department communications would benefit from introduction of strategies to inform the volunteer firefighters, and where possible, seek their input into the operation of the department.

As a result of our review and assessment of communications and technology we recommend that:

1. The department management team identifies and implements strategies to enhance the communication and interaction across the department.
2. The TAS-Page Communications agreement be reviewed and revised to include performance measures for dispatch time performance (e.g. NFPA 1221).
3. The department expand the number of users of FIREHOUSE and install the software on additional computers within the department. Future extension of use to the volunteer officers should also be considered.

10.0 STUDY CONSULTATION

The process of developing a Fire Master Plan for the Municipality of Brighton involved various consultation activities. Effective communication and consultation with stakeholders and the community is essential to ensure that those responsible for implementing this Fire Master Plan, and those with a vested interest, understand the basis on which certain decisions are made and why particular actions are required.

10.1 Steering Committee

The Steering Committee was comprised of the following members, including Municipal staff and Council members:

- Chief Administrative Officer (CAO)
- Fire Chief
- Deputy Fire Chief
- Two Council Representatives

10.2 Project Meetings

Throughout this study, the Dillon team met with the Steering Committee to keep them abreast of study progress. The following meetings took place:

- Project Meeting #1 Project Initiation – October 1, 2012
- Project Meeting #2 Preliminary Findings & Recommendations – March 19, 2013
- Project Meeting#3 Present Draft Report – September 12, 2013
- Project Meeting#4 Present Final Report to Council – Planned for October 21, 2013

10.3 Stakeholder Consultation

Stakeholders can provide valuable input at each step of the process, providing information about context and background from different perspectives. This helps to identify issues and needs associated with the fire and emergency service. As well it provides information that is used for study analysis and recommendation phases. Engaging stakeholders helps ensure that multiple perspectives can be brought to the fire master planning process.

10.4 Interviews with Steering Committee Members

Information and feedback was collected from members of the Project Steering Committee and key stakeholders via informal interviews held following the Project Initiation Meeting. This was an opportunity to gather background information and input on strengths, opportunities, challenges and threats from the point of view of these key stakeholders. This was an essential stage in developing strategic goals and objectives for the fire master planning process.

10.5 Volunteer Firefighter Roundtable Sessions

Stakeholder sessions were held at each of the two fire stations that comprise the Brighton District Fire Department. Sessions were held at the North Station and South Station on Tuesday, October 30th, 2012.

A presentation was delivered to stakeholder group to introduce the master fire planning process. This was followed by open discussion to gather feedback from these key stakeholders regarding the strengths, weaknesses, opportunities and challenges of the fire department for consideration in the Fire Master Plan.

10.6 Council Workshop Education and Training Session

The engagement of Council in the Fire Master Plan process is paramount in ensuring overall municipal goals are met within the study recommendations and Council feel that they have ownership of the study. A workshop session was held with Council on October 30, 2012. This was an education and training session, held with Council outside of Council Chambers. The consultant team delivered a formal presentation to Council to introduce the purpose and background behind the fire master planning process and gather feedback regarding key issues, concerns or interests. The opportunity for questions and discussion followed the presentation.

11.0 IMPLEMENTATION PLAN

The recommendations of this Fire Master Plan support the goal of creating a single unified fire department. Many of the recommendations require no additional financial commitment. For those recommendations requiring further financial support by Council the following implementation plan has been developed to provide a high level overview of the potential cost impacts of the recommendations. The operating and capital costs identified reflect cost estimates based our experience.

Our recommendation subject to Council’s approval of this Fire Master Plan is to request the Fire Chief to provide a detailed financial implementation plan utilizing the information provided below in **Table 15**.

Table 15: Implementation Plan

Horizon	Description	Approximate Funding Required	
		Operating Budget	Capital Budget
Short-term	1. Increase Administrative Assistant to full-time	\$20,000	
Short-term	2. Conduct administration/operational space needs assessment of South Station.		\$15,000
Short-term	3. Implement position of full-time Assistant Chief – Fire Prevention.	\$85,000*	
Short-Term	4. Implement position of full-time Assistant Chief – Training & Public Education	\$85,000*	
Short-term	5. Increase complement of Volunteer Firefighters by 25 @ \$6,000 base pay per firefighter.	\$150,000	
Short-term	6. Additional training hours for increased complement of 25 firefighters @ \$2,500 training pay per firefighter.	\$62,500	
Short-term	7. Additional Volunteer Firefighter bunker gear for increased complement of 25 firefighters @ \$3,500 per firefighter.		\$87,500
Short-Term	8. Additional equipment to provide “Shore-Based Ice/Water Rescue		\$15,000
Mid to Long Term	9. Passenger van for transport of volunteers to scene (one for each station)	\$60,000	
Long-Term	10. Potential Third Fire Station (need determined by growth, development & call volume)	\$2,000,000	

Note: * approximation includes salary and benefits for proposed positions

APPENDIX A

PFSG 00-00-01 “Framework for Setting Guidelines within a
Provincial-Municipal Relationship”

Ministry of Community Safety and Correctional Services :: Public Fire Safety Guidelines

Framework For Setting Guidelines Within A Provincial- Municipal Relationship

Public Fire Safety Guidelines

Subject Coding
**PFSG 00-00-
01**

Section

Date

General

**January
1998**

**Framework For Setting Guidelines Within A Provincial-Municipal
Relationship**

Page

Purpose

To assist municipalities in making informed choices for providing public fire protection through objective and innovative approaches. Guidelines will be developed for municipal councilors and senior officials as well as municipal fire departments.

Background

The Fire Protection and Prevention Act places new responsibilities on municipalities. The Office of the Fire Marshal has a mandate to assist municipalities to fulfill these responsibilities by providing information which will enable municipalities to make informed choices based on an objective analysis. Municipalities are compelled to establish a program in the municipality which must include public education with respect to fire safety and certain components of fire prevention. The act also states that municipalities are responsible for arranging such other fire protection services as they determine may be necessary according to their own needs and circumstances. The relationship between the province and municipalities is based on the principle that municipalities are responsible for arranging fire protection services according to their own needs and circumstances. The primary roles of the province are to provide leadership and support to municipalities in the exercise of this responsibility, and to ensure public safety is not compromised. Guidelines, developed by the Office of the Fire Marshal in consultation with municipalities, the fire service and others, will be a key vehicle for fulfilling the provincial role to support municipalities. This consultation process will continue on an ongoing basis to ensure the guidelines change and evolve to reflect trends, changing circumstances and new technology. To be useful, the guidelines must remain current, and must have the support and acceptance of municipalities. The province will retain an interest in the development of guidelines and monitoring of their application. However, day-to-day management and delivery will be municipal responsibilities.

Principles

The key principles which will be used to develop the guidelines are as follows:

- Municipal councils are directly accountable to their constituents and municipalities are also accountable to the province.
- There will be opportunities for appropriate stakeholder involvement and consultation during the development stages.
- Local needs and circumstances vary widely across the province. Therefore, the measures required to address these needs and conditions will also vary.

- There are many ways in which individual needs and circumstances can be addressed. Therefore, municipalities require flexibility to employ different strategies to achieve similar objectives.
- Local council, in consultation with the fire chief, will determine the extent to which their needs and circumstances will be addressed. Some may choose to address specific risks more comprehensively than others. Provided serious threats to public safety are addressed, this is a reasonable and legitimate exercise of municipal responsibility.

Content and Implementation

The guidelines will provide:

- The key concepts of risk assessment and risk management
- The factors that affect the level of fire protection in any community
- The options municipalities may wish pursue in addressing risks
- The information required to evaluate those options

Municipalities will be able to use the guidelines in a variety of ways:

- They can assign knowledgeable local officials to gather the necessary data and conduct appropriate cost/benefit analysis internally.
- They can commission independent reviews of their fire protection activities and use the guidelines to monitor the consultant's activities and evaluate its conclusions.
- Staff of the OFM will continue to be available to assist municipalities in the use of the guidelines.

In addition, the OFM will be re-focusing its training and education services to provide municipal and fire department officials with the skills needed to utilize the guidelines effectively.

Basis of Development

The guidelines will be based on the Comprehensive Fire Protection Effectiveness Model. Fire protection in any community is determined by:

1. The risk of a fire occurring
2. The impact a fire may have on the community
3. Public attitude toward fire
4. The effectiveness of its fire prevention activities
5. The deployment of automatic fire detection systems
6. The deployment of automatic fire suppression systems
7. The effectiveness of its fire department's suppression activities
8. The time period between when the fire starts and when the fire department begins suppression activity

The level of fire protection in a given community will reflect an appropriate balance of all of these factors. Changes in any one factor will affect the overall level of protection.

For example, if the general public is complacent about the risk of fire, there will be a greater risk of a fire occurring in the community. A municipality may choose to address the risk by enhancing its fire suppression capability, by deploying more automatic detection and suppression systems, or a combination of any or all of the other factors affecting fire protection. It may also choose to address the issue head on - by raising awareness of public fire safety through effective public education. In short, there are many valid ways of addressing a problem of poor public attitude toward fire. The guidelines will not make value judgments on which course of action is the best, but they will help municipalities evaluate the efficiency and effectiveness of each option, and choose a course of action that suits its needs.

The guidelines will also serve as a tool for improving the overall efficiency and effectiveness of a municipality's fire protection system. If a municipality is generally satisfied with the overall level of protection it provides, the model can help it improve efficiency by demonstrating that there are alternatives which may cost less, while achieving a similar level of protection. For example, it may find that through effective public education, it can reduce the number of fire code violations that persist throughout the community. This may lead to a reduction in the cost of inspecting properties and prosecuting offenders.

The guidelines will also help municipalities to make adjustments to existing services to improve effectiveness and reduce costs. By thoroughly analyzing costs and benefits, municipalities can initiate new work assignments with confidence. For example, fire departments with full-time fire suppression staff can reduce the workload of the fire prevention division by conducting in-service fire safety inspections. Without objective tools for analyzing such innovations, those opposed can prevent change by appealing to public fears and misapprehensions.

The guidelines will also facilitate fire department reorganization and restructuring on a much broader scale. Many smaller municipalities focus almost exclusively on fire suppression. This is often based on limited availability of volunteers' time to carry out prevention activities. The guidelines will help municipalities to see areas where resources can be shared and services can be provided over broader geographic areas. Inter-municipal co-operation will ensure that effective fire prevention and public education are both viable and affordable.

Collectively, these measures can improve public fire safety while, at the same time, stabilizing or reducing costs.

The guidelines are designed to provide municipalities with a new way of thinking about public fire protection. It will encourage them to consider all aspects of fire safety and not just fire stations, fire trucks and firefighters. Each guideline will assist municipalities to apply the Comprehensive Model by expanding further on each concept, outlining decision-points and indicating the information they will require to analyze their options.

Municipalities will have the means to make objective choices about public fire protection, and implement significant changes with confidence.

Overall Strategy

The guidelines represent one component of the strategy the Ministry is proposing for public fire protection in Ontario. This strategy includes:

- Clarifying municipal responsibility for local fire protection, while protecting the provincial interest in public fire safety.
- Removing remaining legislative barriers which forestall the restructuring and reorganization of municipal fire services.
- Facilitating a shift in focus which places priority on fire prevention and public education as opposed to fire suppression.
- Providing municipalities with decision-making tools to help them provide services according to their own needs and circumstances.
- Facilitating more active involvement of the private sector and other community groups in fire prevention and public education through the Fire Marshals Public Safety Council.

This strategy recognizes that municipalities, with the aid of appropriate tools and support, are fully capable of ensuring adequate fire protection for their communities.

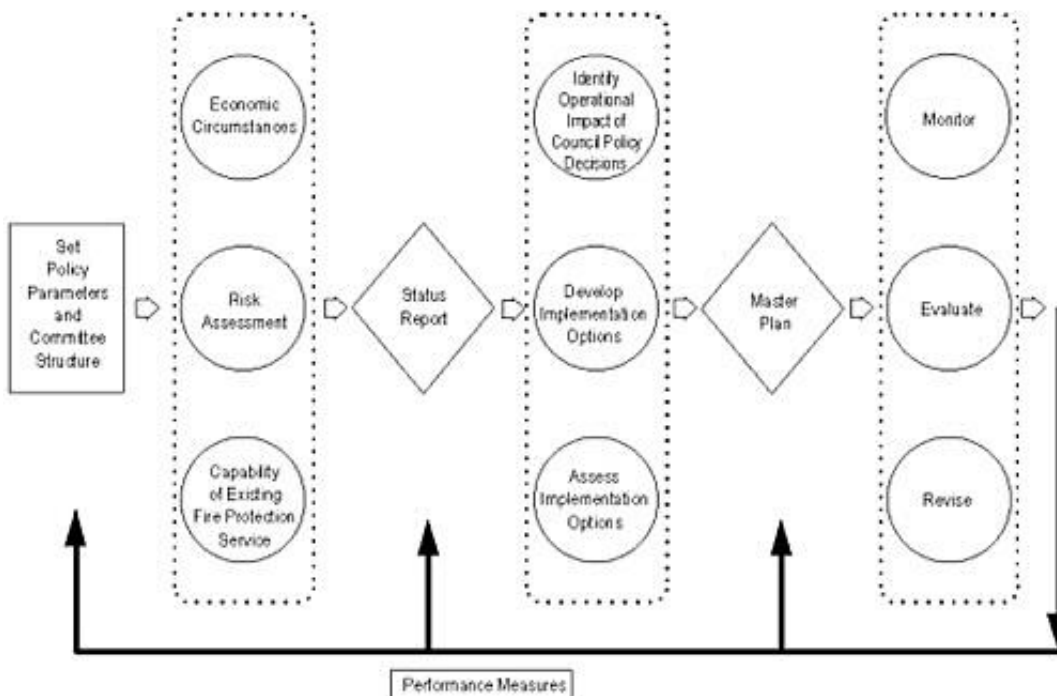
At the same time, this strategy recognizes that the provincial interest would not be met if the level of service provided by a municipality jeopardized public fire safety.

- The guidelines will provide the means for municipalities to make informed choices about public fire protection - responsible choices that will not compromise public safety.
- They are the foundation for measuring and determining adequate fire protection.
- Provincial regulatory authority would be exercised only where there was a clear and identifiable threat to public safety that a municipality or municipalities fail to address.
- Good guidelines, and responsible local government, will ensure that this authority need not be exercised.

Application Options

The model - "Optimizing Public Fire Safety" is intended to be a companion to the guidelines. Its intended use is to provide consistency in application and to ensure all aspects are considered when applying the guidelines.

Optimizing Public Fire Safety



APPENDIX B

PFSG 04-40-03 "Selection of Appropriate Fire Prevention Programs"

Ministry of Community Safety and Correctional Services :: Public Fire Safety Guidelines

Selection of Appropriate Fire Prevention Programs

Public Fire Safety Guidelines

Subject Coding

PFSG 04-40-03

Section

Date

Fire Prevention and Public Fire Safety Education

March 2001

Subject

Page

Selection of Appropriate Fire Prevention Programs

Purpose:

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

Introduction:

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

Minimum Required Services:

Section 2. (1) of the Fire Protection and Prevention Act states:

(1) Every municipality shall,

1. establish a program in the municipality which must include public education with respect to fire safety and certain components of fire prevention; and
2. provide such other fire protection services as it determines may be necessary in accordance with its needs and circumstances.

Therefore, as a minimum acceptable model municipalities must provide the services listed below. The simplified risk assessment should identify the extent to which additional services may be required to meet the local needs and circumstances of specific municipalities.

Municipalities may develop a different model for fire prevention and public education services provided they are able to demonstrate that their model meets the mandated requirements of the community's local needs.

3. Simplified risk assessment
4. A smoke alarm program
5. Fire safety education material distributed to residents/occupants
6. Inspections upon complaint or when requested to assist with code compliance

Simplified Risk Assessment:

A simplified risk assessment must be done for the community to determine the needs and circumstances of the municipality and to establish the level of fire prevention and public fire safety education required. Any significant risks identified through the analysis should be addressed. For

example; if the risk assessment indicates a significant life or fire loss in multi-unit residential buildings, a program that will adequately improve their fire safety - such as routine inspections - would be appropriate to address the specific need of the community. The scope and extent of the remaining three required programs can be determined by the results of the simplified risk assessment.

Smoke Alarm Program:

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

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

Fire Safety Material:

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

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

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

Public Fire Safety Education:

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

- the audience to be targeted
- the message that needs to be delivered to improve the fire safety situation must be determined.
- an inventory of the available or required resources and programming.
- the most appropriate method of delivering the message.
- the duration or frequency of the message delivery.

Inspections:

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

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

Any inspection conducted must include notification of the property owner or responsible person and

appropriate follow-up with enforcement, if necessary.

Inspection Program Considerations:

For inspections, the following factors should be considered:

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

Program Selection:

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

Each area of program activity has a number of factors which need to be considered.

Service Delivery Options:

The Fire Prevention Effectiveness Model may also assist with informed decision making about fire prevention and public education programs. Once the needs analysis component of the model has been completed, fire department managers can decide what programs are appropriate to address their identified local risks.

There are a number of options for delivery of selected fire prevention programs. They can be provided by fire department staff - personnel dedicated to fire prevention and/or fire suppression staff. Other persons in the community may be used. Agreements with other communities may be made for provision of services. The OFM provides assistance in delivery of fire prevention programs through the Assist Program.

Policy Requirements and Other Relevant Issues:

Any selected/mandated programs must have sufficient resources, human and others, to be effectively delivered.

Persons assigned responsibility for delivering programs must be adequately trained.

Policy decisions must be made with appropriate authority and records made of the level of service decreed.

Appropriate program guidelines must be established for each program to be delivered.

Any fees for services should be discussed and decided upon at the policy level.

Legal counsel should be consulted regarding any changes to the delivery of services to the community.

Codes, Standards, and Best Practices:

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

See also PFSG

[01-02-01](#)

<[../..../..../english/firemarshal/fireserviceresources/publicfiresafetyguidelines/01-02-01.html](#)> Comprehensive Fire Safety Effectiveness Model

[04-12-13](#)

<[../..../..../english/firemarshal/fireserviceresources/publicfiresafetyguidelines/04-12-13.html](#)> Core Services

[04-40A-03](#)

<[../..../..../english/firemarshal/fireserviceresources/publicfiresafetyguidelines/04-40a-03.html](#)> Simplified Risk Assessments

[04-40B-12](#)

<[../..../..../english/firemarshal/fireserviceresources/publicfiresafetyguidelines/04-40b-12.html](#)> Smoke Alarm Programs

[04-40C-12](#)

<[../..../..../english/firemarshal/fireserviceresources/publicfiresafetyguidelines/04-40c-12.html](#)> Public Education Programs

[04-40D-12](#)

<[../..../..../english/firemarshal/fireserviceresources/publicfiresafetyguidelines/04-40d-12.html](#)> Inspection Programs

Ministry of Community Safety and Correctional Services :: Public Fire Safety Guidelines

Selection of Appropriate Fire Prevention Programs

Public Fire Safety Guidelines

Subject Coding

PFSG 04-40-12

Section

Date

Fire Prevention and Public Fire Safety Education

March 2001

Subject

Page

Selection of Appropriate Fire Prevention Programs

Purpose:

To assist fire service managers in identifying the minimum fire prevention and public education activities required to comply with the Fire Protection and Prevention Act

Introduction:

Municipalities must develop a fire prevention and fire safety education program that addresses their needs and circumstances.

Minimum Required Services:

Section 2. (1) of the Fire Protection and Prevention Act states:

(1) Every municipality shall,

1. establish a program in the municipality which must include public education with respect to fire safety and certain components of fire prevention; and
2. provide such other fire protection services as it determines may be necessary in accordance with its needs and circumstances.

Therefore, as a minimum acceptable model municipalities must provide the services listed below. The simplified risk assessment should identify the extent to which additional services may be required to meet the local needs and circumstances of specific municipalities.

Municipalities may develop a different model for fire prevention and public education services provided they are able to demonstrate that their model meets the mandated requirements of the community's local needs.

1. Simplified risk assessment
2. A smoke alarm program
3. Fire safety education material distributed to residents/occupants
4. Inspections upon complaint or when requested to assist with code compliance

Simplified Risk Assessment:

A simplified risk assessment must be done for the comm

unity to determine the needs and circumstances of the municipality and to establish the level of fire prevention and public fire safety education required. Any significant risks identified through the analysis should be addressed. For example; if the risk assessment indicates a significant life or fire loss in multi-unit residential buildings, a program that will adequately improve their fire safety - such as routine inspections - would be appropriate to address the specific need of the community .

The scope and extent of the remaining three required programs can be determined by the results of the simplified risk assessment.

Smoke Alarm Program:

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

- community surveys
- distribution of pamphlets or other education material
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- inspecting premises to determine compliance with the smoke alarm provisions of the Fire Code.

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

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

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

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

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

Codes, Standards, and Best Practices:

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<http://www.mcscs.jus.gov.on.ca/> Please feel free to copy and distribute this document. We ask that the document not be altered in any way, that the Office of the Fire Marshal be credited and that the documents be used for non-commercial purposes only.

See also PFSG

01-02-01 Comprehensive Fire Safety Effectiveness Model

[04-12-13](#)

[<../../../../english/firemarshal/fireserviceresources/publicfiresafetyguidelines/04-12-13.html](#)> Core Services

[04-40A-03](#)

[<../../../../english/firemarshal/fireserviceresources/publicfiresafetyguidelines/04-40a-03.html](#)> Simplified Risk Assessments

[04-40B-12](#)

[<../../../../english/firemarshal/fireserviceresources/publicfiresafetyguidelines/04-40b-12.html](#)> Smoke Alarm Programs

[04-40C-12](#)

[<../../../../english/firemarshal/fireserviceresources/publicfiresafetyguidelines/04-40c-12.html](#)> Public Fire Safety Education Materials

[04-40D-12](#)

[<../../../../english/firemarshal/fireserviceresources/publicfiresafetyguidelines/04-40d-12.html](#)> Inspections Upon Request or Complaint

APPENDIX C

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

Ministry of Community Safety and Correctional Services :: Public Fire Safety Guidelines

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

Public Fire Safety Guidelines

Subject Coding

**PFSG 04-
08-10**

Section

Date

Emergency Response

**January
2011**

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

1.0 Purpose

1.1 Municipalities are responsible for the funding and delivery of fire protection services in accordance with Section 2 of the *Fire Protection and Prevention Act, 1997* (FPPA).

In order to meet the intent of Section 2 of the FPPA, municipalities are expected to implement a risk management program.

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

2.0 Scope

2.1 This guideline applies to all municipalities.

3.0 Risk Management

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

4.0 Legislation

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

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

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

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

4.3 Fire Chief

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

4.4 Fire Department

The fire department delivers the services as approved by municipal council and at the direction of the fire chief.

Operational Planning: An Official Guide to Matching Resource Deployment and Risk can help fire departments to

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

4.5 Clause 2.(1)(b)

Every municipality shall provide such other fire protection services as it determines may be necessary in accordance with its needs and circumstances

4.6 Subsection 2.(7)

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

4.7 Subsection 5.(1)

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

4.8 Clause 9.(1)(a)

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

4.9 Clause 9.(2)(b)

It is the duty of the Fire Marshal to advise municipalities in the interpretation and enforcement of this Act and the regulations.

4.10 Clause 9.(2)(d)

It is the duty of the Fire Marshal to develop training programs and evaluation systems for persons involved in the provision of fire protection services and to provide programs to improve practices

relating to fire protection services.

5.0 References

OFM documents, programs and courses

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

National Fire Protection Association standards

- NFPA 1710 and NFPA 1720

6.0 Appendix

Evaluation tool:

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

Workbook

[PDF version](#)

<http://stellent/groups/public/@mcscs/@www/@ofm/documents/webasset/ecofm001395.pdf>

[HTML version](#)

<http://english/firemarshal/fireserviceresources/publicfiresafetyguidelines/04-08-10at1.html>

APPENDIX D

PFSG 01-02-01 "Comprehensive Fire Safety Effectiveness
Model"

Ministry of Community Safety and Correctional Services :: Public Fire Safety Guidelines

Comprehensive Fire Safety Effectiveness Model Considerations

Public Fire Safety Guidelines

Subject Coding

PFSG 01-02-01

Section

Date

General

January 1998

Subject

Page

Comprehensive Fire Safety Effectiveness Model Considerations

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



Fire Protection & Prevention In Your Community

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

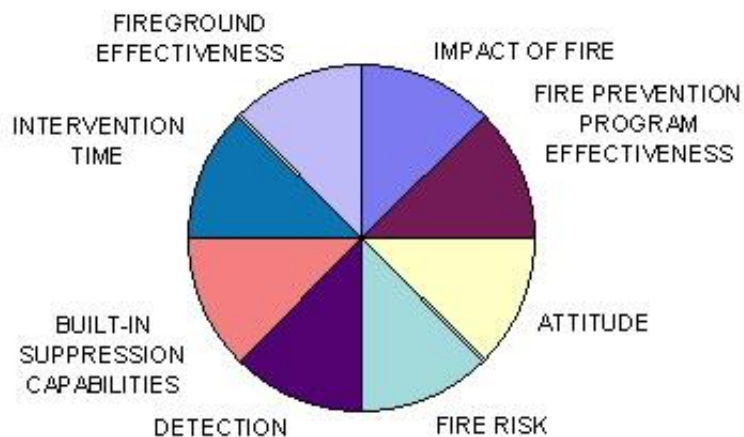
The provision of fire protection in Ontario is a municipal responsibility. The level and amount of fire protection provided is determined by the residents of the community through decisions made by and support provided by the local municipal council. Due to a wide variety of factors, the Ontario fire service finds itself in a period of change. Increased community expectations coupled with

reduced financial resources are forcing all communities to critically assess their fire protection needs and to develop new and innovative ways of providing the most cost effective level of service. A refocus on fire protection priorities is providing progressive fire departments and communities throughout Ontario with an exciting opportunity to enhance community fire safety. There is more to providing fire protection than trucks, stations, firefighters and equipment.

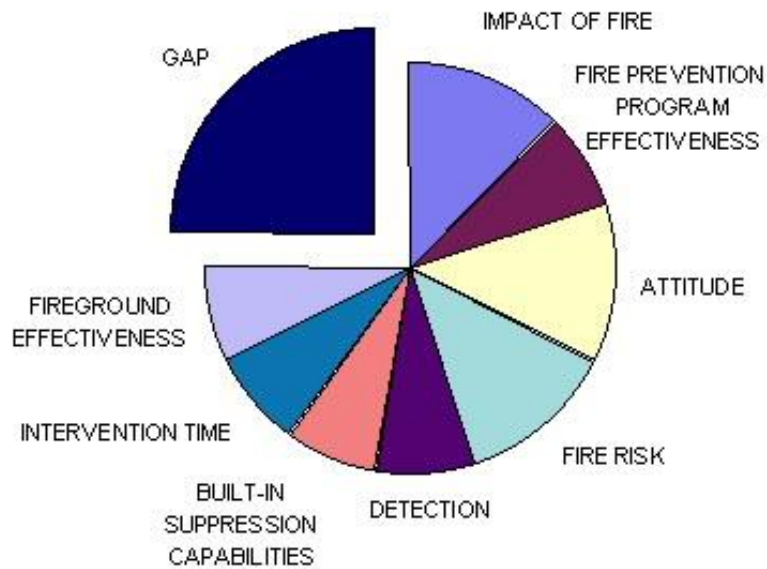
The Office of the Fire Marshal has developed the *Comprehensive Fire Safety Effectiveness Model* which can be used as a basis for evaluating fire safety effectiveness in your community. This model looks at community fire protection as the sum of eight key components, all of which impact on the fire safety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

Community Master Fire Protection Plan

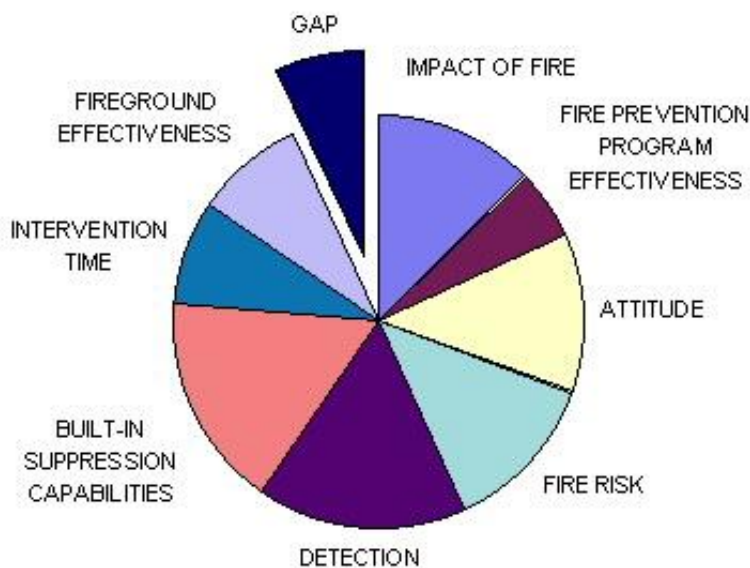
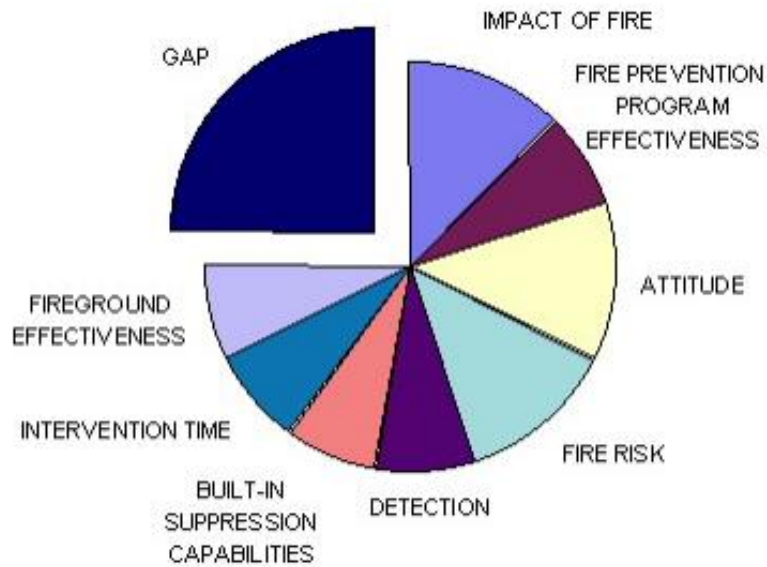
Every fire department should be guided by a master or strategic plan. This *Community Master Fire Protection Plan* traditionally focused on the identification of fire hazards and planning an appropriate suppression force response. Today, hazard or risk assessment has expanded well beyond the fire problem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



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



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



This chart shows how the "gap" can be reduced by

strengthening a number of factors in order to increase the overall level of protection provided to the community.

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

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

1. Impact Of Fire:

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

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

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

2. Fire Prevention Program Effectiveness:

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

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

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

addresses:

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

3. Public Attitude:

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

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

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

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

4. Fire Risk:

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

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

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

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

on the fire department?

5. **Detection Capabilities:**

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

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

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

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

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

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

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

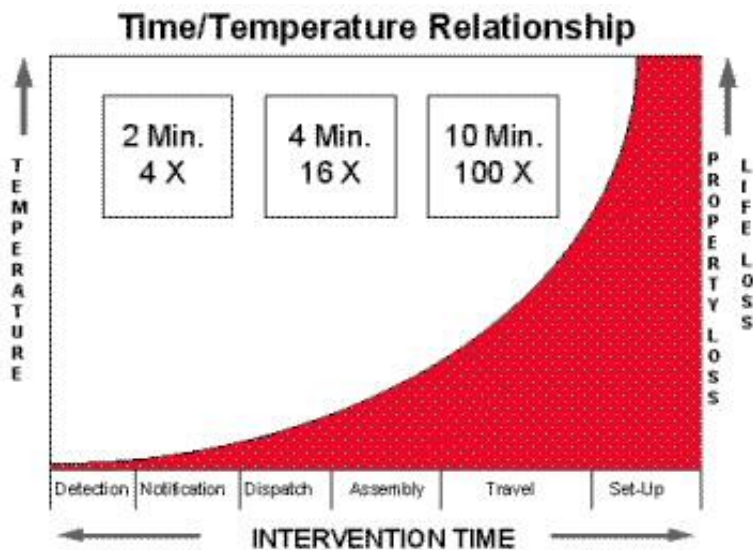
- Does your community promote the use of built-in suppression devices in all types of occupancies
 - residential?
 - commercial?
 - industrial?
 - assembly?
 - institutional?
- Does your community consider built-in suppression devices and early warning detection as an alternative to traditional concepts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

7. **Intervention Time:**

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

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

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



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

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

8. Fireground Effectiveness:

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

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

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

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

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

Please feel free to copy and distribute this document. We ask that the document not be altered in any way, that the Office of the Fire Marshal be credited and that the documents be used for non-commercial purposes only.

Further assistance is available from your local OFM representative

APPENDIX E

PFSG 01-01-01 "Fire Protection Review Process"

Ministry of Community Safety and Correctional Services :: Public Fire Safety Guidelines

Fire Protection Review Process

Public Fire Safety Guidelines

Subject Coding

PFSG 01-01-01

Section

Date

General

January 1998

Subject

Page

Fire Protection Review Process

Purpose

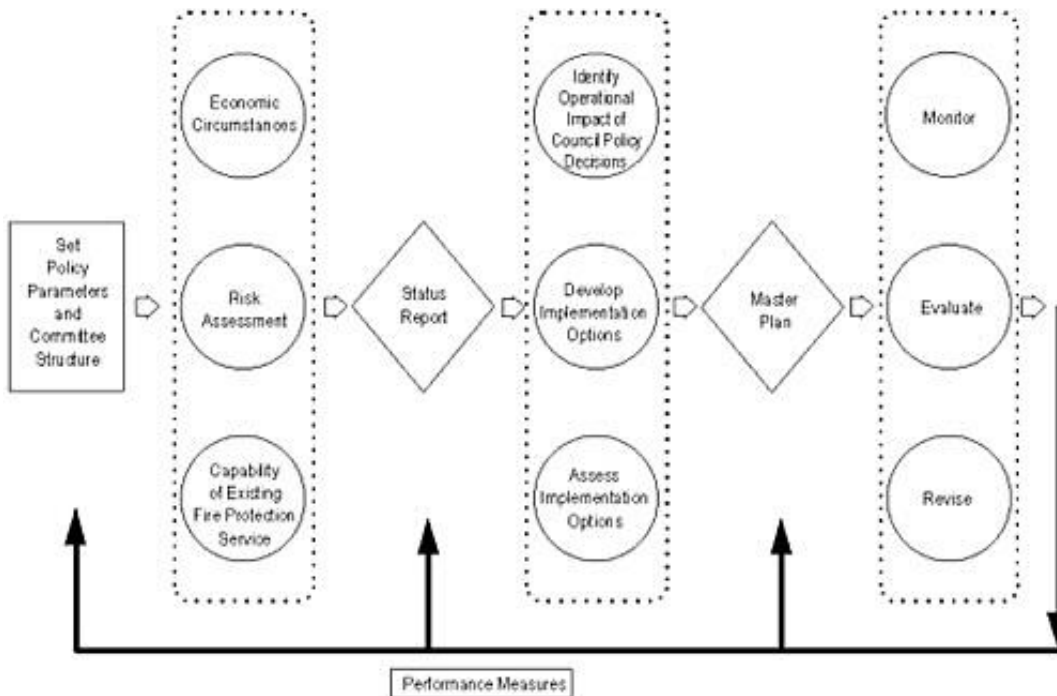
To provide a description of a simple and practicable system to enable decision makers to make informed choices.

It ensures formal interaction between council with its policy setting responsibilities, the municipality with its corporate management objectives, and the fire department with its operational expertise.

Introduction

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

Optimizing Public Fire Safety



Overview

Stage 1: Set Policy Parameters

Stage 2: Determine Local Circumstances

Stage 3: Status Report

Stage 4: Determine Fire Protection Strategy

Stage 5: Develop Master Fire Plan

Stage 6: Monitor, Evaluate and Revise

Stage 7: Performance Measures

- Every municipality operates under a specific set of policy parameters -- basic tenets that define the role of the municipal government in the community.
- In essence, it is the political philosophy of the municipality.
- These parameters reflect the culture of the local community and will have a profound impact on the fire protection strategy that you develop.
- Policy parameters include, for example:
 - *Public Expectations* -- does the public expect the municipality to address its needs or is there a fairly high level of personal self reliance?
 - *Service Delivery Strategy* -- how open is your community to alternate forms of service delivery and financing such as out-sourcing or fee-for-service?
 - *Level of Satisfaction* -- are you satisfied with the level of fire protection in your community, and the efficiency and effectiveness of the fire protection system?
 - *Funding Policies* -- what impacts do your funding policies and practices have on the services you deliver? How do you account for capital expenditures? Are you prepared to issue debentures?

- *Competing Priorities* -- what priority does public fire safety have in your community in comparison to the other services that you provide?
- *Receptiveness to Change* -- does the public recognize the need for change, and would they accept the implications of such change?
- It is extremely important that you work through these questions from a fire protection perspective, and that you include all of the key participants in the process.
- It need not be an excessively formal process, but everyone involved in the review should have an opportunity to discuss the broader context within which the fire department must operate.
- The results of this discussion should be reflected in the "terms of reference" for the review.
- It will help to ensure that the review remains focused.

It will also encourage participants to be open to innovations, and conversely, it will help to ensure that staff involved in the review do not spend unnecessary time and resources analyzing options that are not viable.

Stage 2:

Analyse Local Circumstances

Separate guidelines are available that address each of the three main issues that define the local circumstances of a municipality:

- Assessing Economic Circumstances from a Fire Protection Perspective (PFSG 02-03-01)
- Assessing Fire Risk (PFSG 02-02-12)
- Assessing the Existing Fire Protection Services (PFSG 02-04-01)

The following is an overview of the issues that these three guidelines address.

Economic Circumstances

- What are your expectations for economic growth?
- How much development do you expect to occur?
- What type of development do you expect?
- How is your population changing? (Demographics)
- If the fire department receives the bulk of its financing from the tax base;
 - is the tax base increasing, shrinking, or relatively steady?
 - is the tax base shifting?
- Describe the assessment
- A review of your economic circumstances should involve more than just an assessment of future demand and available resources:
- A growing community creates new demand for emergency services, but the type of growth you are experiencing may require a very different kind of response. For example, growth resulting from an in-migration of newly retired residents will create very different demands than growth resulting from the recovery of the local resource industry.
- There are many more ways in which your fire protection system can address new residential development than there are for older neighbourhoods. An initial investment in sprinkler and/or detection systems when new developments are being planned can reduce the need for new fire stations in the future.

- Economic development and expansion may have a significant impact on the availability of resources for fire protection. It tends to be easier to attract volunteers in a self-contained community than in a similar-sized area that serves as a bedroom community for a large city. Is the make-up of your community changing?
- This stage of the review is the first opportunity for you to co-ordinate your planning strategy with your fire protection strategy. Accordingly, it is very important for both fire and planning officials to work closely together on this aspect of the review, perhaps by way of a sub-committee

Fire Risk

The Fire Risk in your community is a function of:

- *Potential for Loss*, which depends on the extent to which buildings comply with relevant fire and building codes, how buildings are used, the public's attitude toward fire, and the use of special measures such as automatic detection and/or suppression systems.
- *Consequences of Fire*, such as the effect of a fire at a major industry on local employment, assessment and economic activity. This also includes social impacts resulting from the loss of an historic or recreational facility, or the impact of fire on a sensitive environmental area.
- *Local Infrastructure*, such as water supply, communications, the quality of roads, and physical barriers such as rivers or railroads.
- *Building Stock*, including the age of buildings, the density and type of construction, their height, and the mix of commercial, industrial and residential uses.
- Since there are so many factors that affect fire risk, it tends to vary considerably from location to location. In fact, fire risk in one part of a municipality will often be very different from in another, particularly in rural areas. Accordingly, there is no need for the fire department to provide a uniform level of service throughout the municipality. The service you provide should be tailored to the risks faced.

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

Existing Fire Protection System

- Examining the existing fire protection system is perhaps the most time consuming component of the assessment process. The objective is to obtain a clear picture of the nature of the fire protection system as it exists today. The following broad areas should be examined:

Role and Mandate -- What range and scope of services is the department expected to provide (fire suppression, rescue, hazmat, etc)? How does it relate to neighbouring fire departments (mutual-aid, automatic aid)? How does it relate to other sections of the municipality?

Structure and Organization -- What type of department is it (full-time, composite, volunteer)? What is its total staff, facilities, apparatus and equipment? How many layers of management?

Services and Support -- Briefly describe the services provided by the various functional sections of the fire department and describe the support mechanisms for these services.

Emergency Operations -- Describe the types and extent of emergency operations conducted by the

fire department and include such things as incident command systems and operational support.

Financial & Resource Analysis -- Describe in detail the funding, budgeting and resource allocation of the fire department, including the individual functional divisions.

Fire Protection and Prevention Act - indicate whether or not the department/municipality is in compliance with this Act.

Stage 3:

Status Report

- The purpose of this stage is to assist in the preparation of a report to council outlining the findings of the analysis of the following:
- economic circumstances
- risk assessment
- capabilities of existing fire protection service
- The report will include details of the existing circumstances
- The report will also include and identify strengths, limitations, threats and opportunities respecting the existing fire protection services.
- The purpose of the report is also to elicit the expectations of the decision makers, and confirm their commitment to proceeding to the master planning process.

Stage 4:

Determine Fire Protection Strategy

- This stage of the process involves a review team assisting council in making a determination of the future fire protection strategy.
- The procedure involves analyzing economic circumstances, risk assessment and the capabilities of the existing fire protection service (including core services). This is accomplished in three levels, as follows:
 - council considerations
 - administrative considerations
 - fire department considerations
- Your review should consider, and perhaps emphasize the need for residents, industry and others to accept increased responsibility for the improvement of public safety.
- The review must look beyond the fire department's fire fighting capability in fulfilling its responsibility to provide for public safety.
- Today's economic conditions - evidenced by reduced budgets, revenues, hiring freezes, reductions in staffing levels through attrition or otherwise, delayed apparatus and equipment purchases - forces the making of hard decisions about the resources required for local fire protection.
- Options and alternatives are therefore essential. For example, it may be considered appropriate to re-focus on developing fire prevention and public education programs rather than expanding fire fighting forces, or consider resources in surrounding communities and how those resources might be utilized to meet your needs.
- Determining the future fire protection strategy of your municipality is accomplished by way of

providing options for the consideration of council.

- For this process to be successful, it is imperative that there be full and open consultation with all of the stakeholders.
- Stakeholders are the people and organizations with an interest in the fire service, including:
 - fire department staff and management
 - municipal staff and management
 - municipal administrators
 - council
 - residents
 - business
 - industry
 - planning and co-ordinating agencies and organizations
 - provincial government ministries
 - county/district/regional organizations
 - other municipalities
- Schematic diagram of the model: Optimizing Public Fire Safety highlighting Stage 3.
 - police
 - ambulance
- other umbrella organizations:
 - firefighter associations (full time and volunteer)
 - AMO
 - OAFCA
 - CAFC
- Consultation with stakeholders during the development, assessment and operational impact of various options is necessary for three reasons.
- First the review team will obtain expert advice on key elements of the various options.

Obtaining expert advice from all stakeholders ensures that all parties to the process:

- fully appreciate why the process is being carried out
- clearly understand the strategy, initiative or option that will be evaluated
- participate in identifying potential evaluation questions or issues, and
- help shape the options
- Second, it will help ensure a surprise-free environment for all parties to the review process.

Ensuring a surprise-free environment is necessary for the review team facilitator(s) to create a receptive, productive environment for the option evaluation process. Except in extremely rare cases, stakeholders should be aware of the option evaluation process. Nothing is more damaging to such a process than to spring it on stakeholders. They will usually react suspiciously and defensively, see the process as an intrusion, find fault with it, and actively lobby to circumvent its recommendations.

- Finally, the stakeholders will use the consultation as an opportunity to market the various options.

Marketing the various options and their potential is essential if it is expected that they will lead to program or service changes, particularly significant ones. Change is not an event, but a process, and usually a slow process, and conditions generally need to be cultivated. Like a building, the

foundation for change needs to be laid well in advance of its construction. Stakeholders must accept the need to change before it can occur. For the review team and its facilitator(s), creating this comfort level is an essential ingredient of success.

- The review team and facilitator(s) usually consult with the stakeholders through established committees. Primary discussions between the facilitators and the stakeholders are usually conducted on an individual basis, with the committee acting as a clearinghouse. Facilitators, who almost always shun formal committees and attempt to consult by **only** using individual or team interviews, enjoy limited success. While individual consultation may provide a more direct and confidential input into the process, this practice has drawbacks. It often results in stakeholders seeing the process as the product and possession of the facilitator. Stakeholders often feel that they have not participated fully and equally in planning the study. And, there is the chance they can complain that the facilitators have filtered their concerns
- This review process will result in alternatives for your existing fire protection services, and options and considerations for council's vision of the future of the fire service.
- All options will be prioritized, assessed, costed where appropriate and clearly indicate the operational impact.
- Then council will be in a position to make better informed decisions for creation of your master fire plan.

Stage 5:

Develop Master Fire Protection Plan

- Master fire plans, properly introduced, are a valuable tool in identifying management options for providing desired fire protection levels to a community. Ultimately, a good plan will lead to a more fire safe community.
- A master plan, pared to its essentials, presents the programs or projects, the costs, and the schedules for developing and maintaining the fire protection system that has been accepted and approved by council on behalf of the community, based on a price which the public can afford.
- Master planning itself is not a new concept. Many municipalities are involved in the process with varying degrees of success.
- Master planning for fire protection allows each community to determine the best allocation of resources to achieve an acceptable level of fire protection.
- An appropriate plan can only be developed under the following conditions.
- Schematic diagram of the model: Optimizing Public Fire Safety highlighting Stage 5.
- The plan forms the basis for the fire protection budget, through identification and description of time-phased programs and projects to be implemented throughout the planning period.
- The plan considers the following factors.
 - The current and future fire protection environment by establishing and maintaining a comprehensive data base.
 - The acceptable life and property risks by setting goals and objectives.
 - The fire protection system that provides the level of service commensurate with the level of accepted risk.
 - The funding required to implement the plan.

- The assignment of authority and responsibility.
 - The procedures for carrying out and updating the plan.
 - The master fire plan defines the community fire problem and provides the future direction of the delivery of fire protection services.
 - The plan will require continuous updating to provide a current picture of the needs of the community.
 - There are several benefits to developing a master fire plan.
- Supports the risk management program by identifying programs and levels of service.
 - Improves public relations and promotes interest and direct involvement within the community.
 - Sets standards of service the fire department is capable of providing.
 - Potentially decreases costs, for fire protection and/or insurance coverage.
 - Contributes to a reduction in the number of fires, fire deaths, fire injuries and property loss.
 - Makes best use of available resources.

Defines by policy of council the types, level and quality of fire protection services to be provided to the community.

Stage 6:

Monitor, Evaluate & Revise

Introduction:

This stage of the municipal fire protection review process involves three parts:

- Monitor
- Evaluate
- Revise
- Just as the type and level of fire services provided are a municipal responsibility, so are the evaluation, monitoring and revision of such services a municipal responsibility.
- They **may**, however, be subject to outside scrutiny.

Objectives:

- The objectives of the municipality, as mirrored in the fire department master plan, are the starting point for any evaluation.
- These objectives should be consistent with the review process mission statement and express what the process is to accomplish.
- The objectives should be both specific and measurable.

Activities:

- The activities are the operational aspects of the identified objectives.
- Activities should be logically related to objectives.
- **Immediate Outcomes** are the effects that are expected to occur as a direct result of activities. These outcomes may include changes that affect people or processes. For example, an immediate outcome might be the improved delivery of a specific service.
- **Ultimate Outcomes** include the larger societal level changes that are expected from the activities. An example would be an expected improvement in compliance with the Fire Code.

Ultimate outcomes are often dependant on immediate outcomes. In this example, success might be dependent on providing an appropriate public education program.

Monitor:

- Notwithstanding it is considered prudent for municipalities to monitor programs, services and activities, the Fire Protection and Prevention Act includes the following:
 - **PART II (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." and,
 - **PART III 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 the services."
- Program monitoring is a systematic attempt to measure both of the following:
 - a. program effectiveness -- are the programs and services reaching their intended marks?, and
 - Program delivery -- does the service being provided match what was intended to be delivered? Program monitoring need not always be complicated and complex, as it often can be as simple as keeping track of the activities involved
 - Program monitoring concentrates on program service outputs rather than program outcomes

Evaluate:

- Programs adopted and implemented through the master fire plan should have built-in evaluation procedures
- Evaluations are not simply the responsibility of municipal politicians and or administrators, but additionally, is an administrative function of the fire department.

Internal Evaluators

- as employees of the fire department, internal evaluators have intimate knowledge of the department's policies, procedures, politics and people
- they know both the formal and informal channels for communicating and accomplishing tasks.
- this knowledge permits them to select methods that fit the unique situation of the department
- internal evaluators long term commitment to the fire department can lend credibility to their efforts and help forge positive working relationships with managers and staff
- they can build trust over time that helps reduce the anxiety normally associated with evaluation activities
- because they are employees, internal evaluators are available as an on going corporate resource
- this puts internal evaluators in an excellent position to communicate relevant information in a timely fashion
- it also permits internal evaluators to participate actively in long-range planning by making crucial evaluative information available for strategic planning and policy decisions
- it affords internal evaluators the opportunity to consult with and provide information to various

management levels within the organization, enabling them to enhance the utilization of evaluation information

- internal evaluators are often responsible for correcting problems and advocating change rather than only identifying difficulties and making recommendations
- the focus of internal evaluation often includes not only program outcomes and processes, but also the factors that influence program performance, such as structure, operations and management
- the use of internal evaluators, some of whom could conceivably be part of the problem, then can become part of the solution

External Evaluators

- are usually perceived as being more objective because they are not fire department employees and are therefore not subject to all of the pressures of organizational life
- Internal evaluators now often work in partnership with external evaluators to obtain the external evaluators' specialized skill and objectivity while retaining the internal evaluators' knowledge of the department
- All evaluators, whether internal or external, have their biases.

Revise:

- Consider the benefits and results of the foregoing monitoring and evaluation processes to assist in determining if any revisions are necessary.
- Some of the principal benefits are:
 - any gap between goals and performance
 - cost effectiveness and efficiency of the program/service
 - how is the program operating/functioning?
 - issues that could jeopardize the program/service
 - program/services strengths
 - program/services weaknesses
 - to what extent are the citizens being served
 - whether desired and/or undesired outcomes have taken place
- This information is useful for:
 - clarifying the mission, purpose and goals
 - describing the programs and services
 - facilitating the refinement and modification of program or service activities
 - fulfilling accountability requirements
 - guiding allocation of resources and personnel
 - maintaining quality of services and programs
 - program decision making, such as continue, cancel, cut back, change, expand
 - setting priorities
 - weighing costs and benefits of alternatives

Stage 7:

Performance Measures

Purpose

- The purpose of this section of the guideline is to assist in developing and using performance measures.
- The guide answers the following questions:
 - What are performance measures?
 - How can they be used
 - What is the best way of doing this?
 - Where does one start?

Introduction

- Data and information collected and used by managers in the public sector usually pertain to inputs, outputs and processes.
- Examples of these measures are as follows:

INPUTS :

Amount of money spent on training
Number of staff assigned to fire prevention
Number of staff assigned to training

PROCESS

Number of firefighters at O.F.C.
Number of days to complete a project
Length of time to conduct an inspection

OUTPUTS

Number of training manuals produced
Number of inspections completed
Number of plans reviewed
Number of emergency responses

- Many managers judge their effectiveness by counting and tabulating these inputs, processes and outputs.
- These are measurements of the **process** rather than the measurement of **performance**
- They measure what was done, rather than the impact of the action.

Without meaningful performance measures that directly link the impact of your actions to clear goals and objectives, it may be difficult, if not impossible, to provide a sound and supportable justification for the continued existence of your program or service

Goals and Objectives:

- It is imperative that there is a clearly stated goal and objective for every program, service, and activity.
- Once the goals are clarified in a meaningful way, specific objectives can then be made to operationalize the program.
- For example, the vague goal of improved fire safety can be made more meaningful and specific as follows:
- ***"Increased number of working smoke alarms in the home"***
- With the goal specifically defined, it provides direction and guidance as to what objectives must be achieved in order to reach this goal. For example:

Goal

Increased number of working smoke alarms in the home

Objectives

Public awareness of the value of smoke alarms through media advertising

Promotional campaign as part of Fire Prevention Week

Provide quality smoke alarms to the public at a reduced price

Measuring Performance

- There is merit in linking the results of programs, services and activities to clearly defined objectives.
- It is not sufficient that the goal be achieved; it is necessary to show that the activities of the program were responsible for the achievement of the goal by establishing cause and effect.
- The key questions to determine the **impact** of actions are:

Do you have the resources to achieve the goal?

Why are you doing this?

Are you achieving what you are supposed to be doing?

How do you know? "

- Managers must develop meaningful performance measures and report on their success by measuring performance.
- Decisions on program direction can then be made based on this information

What are Performance Measures?

- The quantitative and qualitative measures which assess the effectiveness and efficiency of a product, service or process
- They are the key indicators of success.
- Performance measures generally fall into six primary categories:
 - Time
 - Effectiveness
 - Quality
 - Efficiency
 - Costs and
 - Productivity Safety

To clarify these six categories of performance measures, each is defined on the following page.

Time :

- Time it takes to complete a process (cycle time) or deliver a service or product
- Effectiveness: Doing the right things, meeting corporate objectives and strategic directions
- Quality: A measure of the extent to which a thing or experience (service) meets a need, solves a problem or adds value for someone (client, stakeholder, taxpayer)
- Efficiency: Outputs relative to inputs; doing things right every time
- Costs & Productivity: Cost to provide a product or service; the relationships among costs, inputs and outputs
- Safety: The extent to which important assets (personnel, property, records) are safeguarded so that the organization is protected from danger of losses that could threaten its success, credibility, continuity, etc.

Why

Why do you use performance measures?

- To demonstrate success
- To identify problems
- To evaluate goal achievement
- To determine whether or not there is performance improvement

Codes, Standards and Best Practices

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

See also

[02-04-01](#)

[<../../../../english/firemarshal/fireserviceresources/publicfiresafetyguidelines/02-04-01.html>](#) & [23](#)

[<../../../../english/firemarshal/fireserviceresources/publicfiresafetyguidelines/02-04-23.html>](#) Capabilities of Existing Fire Protection Services

[02-03-01](#)

[<../../../../english/firemarshal/fireserviceresources/publicfiresafetyguidelines/02-03-01.html>](#) Economic Circumstances

[02-02-12](#)

[<../../../../english/firemarshal/fireserviceresources/publicfiresafetyguidelines/02-02-12.html>](#) & [03](#)

[<../../../../english/firemarshal/fireserviceresources/publicfiresafetyguidelines/02-02-03.html>](#) Fire Risk Assessment

[03-01-13](#)

[<../../../../english/firemarshal/fireserviceresources/publicfiresafetyguidelines/03-01-13.html>](#) Preparation of Draft Report

[04-39-12](#)

[<../../../../english/firemarshal/fireserviceresources/publicfiresafetyguidelines/04-39-12.html>](#) Fire Prevention Effectiveness Model

APPENDIX F

PFSG 02-03-01 "Economic Circumstances"

Ministry of Community Safety and Correctional Services :: Public Fire Safety Guidelines

Economic Circumstances

Public Fire Safety Guidelines

Subject Coding

PFSG 02-03-01

Section

Date

General

January 1998

Subject

Page

Economic Circumstances

Purpose

To identify considerations for analyzing municipal economic circumstances.

Introduction

Elected officials are responsible for the economic well-being of the community, and measure this in a number of ways. One such way would be with a balanced budget containing no tax increases. This does not necessarily give a complete or clear picture of the community's economic circumstances. For many years various budgetary systems, approaches, and formats have been developed in the continuing quest for political objectivity by elected officials. By the very nature of democracy, which is based on representative elections and the "politics" associated with them, mitigates against objectivity in the usual sense. Such budgeting and/or financial planning could be therefore defined as a rational decision making system working within a less than rational political process.

It is therefore essential that the economic circumstances of a community be thoroughly and objectively analyzed, in addition to the assessment of the existing fire protection system, and risk assessment, if an accurate representation is to be made of the community.

Economic Considerations

Factors to be considered in assessing the local economic circumstances, include the following:

- assessment:
 - residential/farm
 - industrial
 - institutional
 - business/commercial
 - increases (decreases) in past 5 and 10 years

- tax rates :
 - show local and regional/county purposes
 - 5 and 10 year history of increases (decreases)
 - urban and rural service areas, if any
 - municipal debt
 - revenues

- reserve funds
- other monetary assets
such as development charge accounts
- total fire protection system costs
- per capita basis
- assessment basis
- per household
- employment, unemployment conditions
- relationship of all of the above in the general area of the local community
- affect on the ability of the municipal tax base to fund appropriate fire protection services
- relationship of all of the above with similar communities
- past and present political philosophy respecting
- budget increases/decreases
- pay as you go
- debenturing/borrowing
service (budget reductions) necessitated by reduced revenues
- loss impact of single employer, major industry, institution
- barriers to rebuilding, such as zoning and environmental requirements

Related Functions:

- [Fire Risk Assessment](http://www.ontario.ca/firemarshal/fireserviceresources/publicfiresafetyguidelines/02-02-03.html)
<../../../../english/firemarshal/fireserviceresources/publicfiresafetyguidelines/02-02-03.html>
- [Capabilities of Existing Fire Protection Services](http://www.ontario.ca/firemarshal/fireserviceresources/publicfiresafetyguidelines/02-02-03.html)
<../../../../english/firemarshal/fireserviceresources/publicfiresafetyguidelines/02-02-03.html>

Codes, Standards, Best Practices:

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See also PFSG

[02-04-01](http://www.ontario.ca/firemarshal/fireserviceresources/publicfiresafetyguidelines/02-04-01.html)

<../../../../english/firemarshal/fireserviceresources/publicfiresafetyguidelines/02-04-01.html> & [23](#)

<../../../../english/firemarshal/fireserviceresources/publicfiresafetyguidelines/02-04-23.html> Capabilities of existing Fire Protection Services

[02-02-12](http://www.ontario.ca/firemarshal/fireserviceresources/publicfiresafetyguidelines/02-02-12.html)

<../../../../english/firemarshal/fireserviceresources/publicfiresafetyguidelines/02-02-12.html> & [03](#)

<../../../../english/firemarshal/fireserviceresources/publicfiresafetyguidelines/02-02-03.html> Risk Assessment

APPENDIX G

PFSG 02-02-03 "Fire Risk Assessment"

Ministry of Community Safety and Correctional Services :: Public Fire Safety Guidelines

Fire Risk Assessment

Public Fire Safety Guidelines

Subject Coding

PFSG 02-02-03

Section

Date

General

January 1998

Subject

Page

Fire Risk Assessment

Purpose:

To identify considerations for persons conducting municipal fire risk assessments.

Ambient Factors of Risk Assessment:

The following factors should be considered in assessing the local fire risk.

- the municipality:
 - urban
 - rural
 - metropolitan
 - other, such as a bedroom community, border community
 - predominantly dependent upon a single employer, business, or institutional operation or activity
 - describe its uniqueness
 - describe its geography
 - describe its demographics
 - outline current development and development trends
 - describe street network and traffic patterns
 - describe traffic barriers
 - consider applicable by-laws
 - labour relations climate and history
- historical
- indicate emergency call volume last year, last 5 years
- the number of fire casualties in the past year, past 5 years
- identify any trends respecting cause and location
- the fire loss for the past year, past 5 years
- indicate trends respecting call types for the past 5 years
- comparisons with other like municipalities should be considered for the following factors:
 - population (static/subject to seasonal or other fluctuations)
 - geographical area and size of municipality
 - type of municipality
 - number of residential dwellings

- assessment
- development trends
- growth history and trends
- demographics
- equalized assessment and tax base

- residential/farming vs industrial/commercial assessment

- building stock

- identify, as accurately as possible, the number and percentage of the following:
 - single family residences
 - multi-unit residences
 - high-rise buildings
 - large complexes
 - farms/agricultural buildings
 - commercial buildings
 - industrial buildings
 - institutional
 - business buildings
 - storage facilities
 - other special buildings
 - hospitals
 - nursing homes
 - with respect to building type, identify specific problems, such as access, density and age
 - with respect to building type, identify significant and associated outside storage areas

- building occupancies

- identify, as accurately as possible, the number and percentage of the following occupancies:
 - assembly
 - institutional
 - residential
 - commercial
 - industrial
 - business
 - storage
 - vacant
 - other

- prevention and public education

- if, for example, the municipality does not have a fire department, but purchases fire suppression services, describe what fire prevention and public education initiatives, if any, are undertaken by the community. Describe the significance and impact, or lack of same, of such initiatives.

- public and political resolve
- what is the perceived awareness of fire safety by the general public and the corporate sector?
- what are the expectations for fire protection by the general public, and the corporate sector?
- what is the general tone of press and media coverage of fire related matters?
- how are fire prevention, fire safety, and public education programs generally received and accepted by the community at large?
- what is the local political climate respecting:
 - cost cutting/no budget increases?
 - preserving the status quo?
 - maintaining/improving essential services such as the fire department?
- public and private protection systems
- independent of the assessment of (Analyzing Local Circumstances - Assessing Existing Fire Protection Services), identify and describe:
 - private fire brigades
 - industrial/commercial fire brigades
 - private water supplies and water supply systems

Related Functions:

Click on the related function below to view that function:

- Economic Circumstances
- Capabilities of Existing Fire Protection Services

Codes, Standards, and Best Practices:

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See also PFSG

[01-02-01](#)

[<http://www.ontario.ca/firemarshal/fireserviceresources/publicfiresafetyguidelines/01-02-01.html>](http://www.ontario.ca/firemarshal/fireserviceresources/publicfiresafetyguidelines/01-02-01.html) Comprehensive Fire Safety Effectiveness Model Considerations

[02-04-01](#)

[<http://www.ontario.ca/firemarshal/fireserviceresources/publicfiresafetyguidelines/02-04-01.html>](http://www.ontario.ca/firemarshal/fireserviceresources/publicfiresafetyguidelines/02-04-01.html) & [23](#)

[<http://www.ontario.ca/firemarshal/fireserviceresources/publicfiresafetyguidelines/02-04-23.html>](http://www.ontario.ca/firemarshal/fireserviceresources/publicfiresafetyguidelines/02-04-23.html) Capabilities of Existing Fire Protection Services

[04-39-12](#)

[<http://www.ontario.ca/firemarshal/fireserviceresources/publicfiresafetyguidelines/04-39-12.html>](http://www.ontario.ca/firemarshal/fireserviceresources/publicfiresafetyguidelines/04-39-12.html) Fire Prevention Effectiveness Model

APPENDIX H

PFSG 02-04-01 "Capabilities of Existing fire Protection Services

Ministry of Community Safety and Correctional Services :: Public Fire Safety Guidelines

Capabilities of Existing Fire Protection Services

Public Fire Safety Guidelines

Subject Coding

PFSG 02-04-01

Section

Date

General

January 1998

Subject

Page

Capabilities of Existing fire Protection Services

Purpose:

To identify methods to accurately assess existing capabilities of available fire protection services.

This section is a companion to Risk Assessment Analysis and Economic Circumstances Analysis, which are used to provide policy makers with a report on existing fire services. This is a fact finding exercise only and decisions, conclusions, judgments, recommendations, and options are not to be made at this stage, nor on the basis of this section only.

Fire Department:

Is the fire protection for the municipality provided by:

- a fire department organized for the municipality?
- an unorganized community?
- a fire department jointly managed and operated with other municipality(ies)?
- an agreement to purchase protection from another jurisdiction?
- a combination of the above ?

Factors Involved In Assessing The Fire Department:

Regardless of how the fire protection is organized and delivered, the following factors must be considered in assessing the protection services;

- mission statement and mandate
- goals and objectives
- organization
- administration
- by-laws and agreements
- fire prevention, public information, public education
- investigations
- communications
- emergency operations
- training and education
- vehicles and equipment
- financial management and budgeting
- automatic aid and "mutual aid"
- building and facilities
- pre-emergency planning
- disaster planning

- risk management planning
- human resources
- maintenance
- records, reports, data
- water supplies

Related Functions:

- [Fire Risk Assessment](http://www.ontario.ca/firemarshal/fireserviceresources/publicfiresafetyguidelines/02-02-03.html)
<../../../../english/firemarshal/fireserviceresources/publicfiresafetyguidelines/02-02-03.html>
- [Economic Circumstances](http://www.ontario.ca/firemarshal/fireserviceresources/publicfiresafetyguidelines/02-03-01.html)
<../../../../english/firemarshal/fireserviceresources/publicfiresafetyguidelines/02-03-01.html>

Codes, Standards, Best Practices:

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See also PFSG

[02-03-01](http://www.ontario.ca/firemarshal/fireserviceresources/publicfiresafetyguidelines/02-03-01.html)

<../../../../english/firemarshal/fireserviceresources/publicfiresafetyguidelines/02-03-01.html> Economic Circumstances

[02-02-12](http://www.ontario.ca/firemarshal/fireserviceresources/publicfiresafetyguidelines/02-02-12.html)

<../../../../english/firemarshal/fireserviceresources/publicfiresafetyguidelines/02-02-12.html> & [03](http://www.ontario.ca/firemarshal/fireserviceresources/publicfiresafetyguidelines/02-02-03.html)

<../../../../english/firemarshal/fireserviceresources/publicfiresafetyguidelines/02-02-03.html> Fire Risk Assessment

[04-39-12](http://www.ontario.ca/firemarshal/fireserviceresources/publicfiresafetyguidelines/04-39-12.html)

<../../../../english/firemarshal/fireserviceresources/publicfiresafetyguidelines/04-39-12.html> Fire Prevention Effectiveness Model

[04-61-12](http://www.ontario.ca/firemarshal/fireserviceresources/publicfiresafetyguidelines/04-61-12.html)

<../../../../english/firemarshal/fireserviceresources/publicfiresafetyguidelines/04-61-12.html> Human Resources Practices

[04-64-12](http://www.ontario.ca/firemarshal/fireserviceresources/publicfiresafetyguidelines/04-64-12.html)

<../../../../english/firemarshal/fireserviceresources/publicfiresafetyguidelines/04-64-12.html> Communications/Resource Centre

APPENDIX I

Community Risk Profile Assessment

Table of Contents

	Page
I1.0 DETAILED COMMUNITY RISK PROFILE.....	I-1
I1.1 Introduction.....	I-1
I1.2 OFM Fire Risk Sub-Model	I-1
I1.3 Assessing Fire Risk Scenarios	I-2
I1.4 Property Stock.....	I-2
I1.4.1 Community Risk Profile – Major Occupancy Classifications.....	I-3
I1.4.2 Assembly Occupancies (Group A)	I-3
I1.4.3 Care and Detention Occupancies (Group B)	I-4
I1.4.4 Residential Occupancies (Group C).....	I-4
I1.4.5 Business and Personal Services Occupancies (Group D).....	I-5
I1.4.6 Mercantile Occupancies (Group E)	I-5
I1.4.7 High/Medium/Low Hazard Industrial Occupancies (Group F).....	I-6
I1.4.8 Other Occupancies/Uses not listed within the OBC (Not Classified).....	I-6
I1.4.9 Property Stock Analysis.....	I-7
I1.4.10 Property Stock Profile Observations.....	I-8
I2.0 BUILDING HEIGHT AND AREA	I-9
I2.1 Building Height.....	I-9
I2.2 Building Area.....	I-9
I2.2.1 Building Height and Area Observations	I-10
I2.3 Building Age and Construction.....	I-10
I2.3.1 Building/Fire Code Application	I-10
I2.3.2 Residential Buildings	I-11
I2.3.3 Non-Residential Buildings	I-12
I2.3.4 Building Age and Construction Observations	I-13
I2.4 Building Exposures	I-13
I2.4.1 Building Exposures Observations.....	I-13
I3.0 DEMOGRAPHIC PROFILE	I-14
I3.1 Population Distribution by Age Group.....	I-14
I3.2 Population Shifts	I-16
I3.3 Vulnerable Individuals or Occupancies	I-17
I3.4 Language Barriers to Public Education	I-17
I3.5 Income Levels	I-17
I3.6 Demographic Profile Observations	I-18
I4.0 GEOGRAPHY / TOPOGRAPHY / ROAD INFRASTRUCTURE.....	I-19
I4.1 Geography/Topography/Road Infrastructure Profile Observations.....	I-24
I4.2 Past Fire Loss Statistics	I-24
I4.2.1 Fire Loss by Occupancy Classification.....	I-24
I4.2.2 Property Fire Loss.....	I-26
I4.2.3 Reported Fire Cause.....	I-27
I4.2.4 Reported Ignition Source	I-28
I4.2.5 Reported Civilian Injuries and Fatalities.....	I-28
I4.3 Past Fire Loss Profile Observations	I-29
I4.4 Fuel Load Profile.....	I-29
I4.4.1 Fuel Load Profile Observations	I-30

15.0	COMMUNITY GROWTH & DEVELOPMENT	I-31
15.1	Historic Growth.....	I-31
15.2	Growth Projections.....	I-31
15.3	Growth Projections Profile Observations	I-32
16.0	RISK PROFILE MODEL	I-33
16.1	Probability Levels	I-33
16.2	Consequence Levels	I-34
16.3	Risk Levels	I-35
16.4	Ontario Fire Code Compliance	I-36
16.5	Municipality of Brighton Risk Evaluation.....	I-37
17.0	MUNICIPALITY OF BRIGHTON RISK MODEL	I-40
17.1	Methodology	I-40
17.2	Existing Risk and Response (Municipal Geography).....	I-41
17.3	Existing Risk and Response (Historical Call Locations).....	I-41

List of Figures

Figure 1:	Municipality of Brighton Official Plan Land Use Map	I-20
Figure 2:	Brighton Urban Area Official Plan Land Use Map	I-21
Figure 3:	Municipality of Brighton Official Plan Natural Features and Resources Map	I-22
Figure 4:	Brighton Urban Area Official Plan Natural Features and Resources Map	I-23
Figure 5:	Existing Risk and Response	I-42
Figure 6:	Existing Risk and Response – Historical Call Locations.....	I-43

List of Tables

Table 1:	OBC Major Occupancy Classification.....	I-3
Table 2:	Property Stock Profile Municipality of Brighton (2003)	I-7
Table 3:	Residential Structural Dwelling Type.....	I-11
Table 4:	Age of Construction.....	I-12
Table 5:	Age Group.....	I-14
Table 6:	Provincial % of Fire Fatalities by Age Group	I-16
Table 7:	Vulnerable Occupancies in Brighton	I-17
Table 8:	Mother Tongue of Brighton Residents.....	I-17
Table 9:	2006 Statistics Canada Household Data.....	I-18
Table 10:	Provincial Fire Loss by Occupancy Classification	I-25
Table 11:	Municipality of Brighton Fire Loss by Property Classification.....	I-26
Table 12:	Property Fire Loss (Dollars).....	I-27
Table 13:	Municipality of Brighton 2007 to 2011 Reported Fire Cause	I-27

Table 14: Municipality of Brighton 2007 to 2011 Ignition Source Class.....	I-28
Table 15: Municipality of Brighton.....	I-29
Table 16: Historic Growth in Population and Households	I-31
Table 17: Population and Employment Growth Projections.....	I-31
Table 18: OFM Fire Risk Sub-Model Likelihood Levels (Probability)	I-34
Table 19: OFM Fire Risk Sub-model Consequence Levels.....	I-35
Table 20: OFM Fire Risk Sub-model Risk Levels	I-36
Table 21: Risk Evaluation Summary	I-39
Table 22: Base Risk Zone Category by Occupancy	I-40

I1.0 DETAILED COMMUNITY RISK PROFILE

I1.1 Introduction

The Office of the Fire Marshal, Ontario (OFM) provides a number of tools to assist municipalities, and ultimately municipal councils, in determining local needs and circumstances as required by the FPPA. These tools include the Comprehensive Fire Safety Effectiveness Model; the Fire Risk Sub-Model and Public Fire Safety Guideline 01-01-01 “*Fire Protection Review Process*”.

PFSG 01-01-01 “*Fire Protection Review Process*” further identifies the three primary components of assessing community needs and circumstances including:

- ✓ *Assessing Economic Circumstances from a Fire Protection Perspective (PFSG 02-03-0)*
- ✓ *Assessing Fire Risk (PFSG 02-02-12)*
- ✓ *Assessing the Existing Fire Protection Services (PFSG 02-04-01)*

This section provides a detailed assessment of the current and future (planned growth) fire risk within the Municipality of Brighton.

I1.2 OFM Fire Risk Sub-Model

The community fire risk analyses within this report follow the OFM framework and specifically the OFM Fire Risk Sub-Model. The model identifies the importance of community risk in the following introductory paragraphs:

“Assessing the fire risk within a community is one of the seven components that comprise the Comprehensive Fire Safety Effectiveness Model. It is the process of examining and analyzing the relevant factors that characterize the community and applying this information to identify potential fire risk scenarios that may be encountered. The assessment includes an analysis of the likelihood of these scenarios occurring and their subsequent consequences.”

“The types of fire risks that a community may be expected to encounter are influenced by its defining characteristics. For example, a “bedroom community” presents a different set of circumstances over one that is characterized as an “industrial town”. Communities that are distinguished by older buildings will pose a different set of concerns over those that are comprised of newer buildings constructed to modern building codes. Communities populated by a high percentage of senior citizens present a different challenge over ones with a younger population base.

Assessing fire risk should begin with a review of all available and relevant information that defines and characterizes your community. Eight key factors have been identified that contribute to the community’s inherent characteristics and circumstances. These factors influence events that shape potential fire scenarios along with the severity of their outcomes:

- *Property Stock*
- *Building Height and Area*
- *Building Age and Construction*

- *Building Exposures*
- *Demographic Profile*
- *Geography/Topography/Road Infrastructure*
- *Past Fire Loss Statistics*
- *Fuel Load*

Using the framework provided within the OFM’s Fire Risk Sub-model the potential fire risk scenarios present within the community can be assessed by creating a Community Fire Risk Profile. The profile can then be applied to assess the current level of fire protection services provided, and identify where if any potential gaps exist, or identify areas that a municipal Council may want to consider in determining its own ‘needs and circumstances’, as defined by the *Fire Protection and Prevention Act (FPPA)*.

I1.3 Assessing Fire Risk Scenarios

The Fire Risk Sub-Model provides communities with the flexibility to determine how their municipality should be defined in terms of fire risk scenarios. Specifically, the model states that:

For analyses purposes, the community being assessed can be defined as the municipality in its entirety or as a particular segment of it that distinguishes it from other parts. For smaller municipalities, it may be sufficient to simply define the community based on town boundaries. For larger municipalities, it may be appropriate to subdivide it into separate and distinct components to permit more detailed analysis. For example, it may be convenient to subdivide a municipality based on residential subdivision, downtown sections, industrial park, and a rural area. Hence, the first step in conducting a fire risk analyses is to identify and define the community (s) being analyzed”.

The analyses within this Fire Master Plan utilize the major occupancy classifications of the Ontario Building Code (OBC) to define the fire risk scenarios within the Municipality of Brighton.

I1.4 Property Stock

The OBC categorizes buildings by their major occupancy classifications. Each classification has inherent definitions that distinguish it from other occupancy classifications. Utilizing the OBC as the source for defining the occupancy classifications provides a recognized definition and baseline for developing the Community Risk Profile.

The OBC major occupancy classifications are divided into six major building occupancy classifications (groups). Within each group the occupancies are furthered defined by division. The OBC major classification groups and divisions are presented in **Table 1**.

Table 1: OBC Major Occupancy Classification

Group	Division	Description of Major Occupancies
Group A Assembly	1	Assembly occupancies intended for the production and viewing of the performing arts
Group A	2	Assembly occupancies not elsewhere classified in Group A
Group A	3	Assembly occupancies of the arena type
Group A	4	Assembly occupancies in which occupants are gathered in the open air
Group B Assembly	1	Detention occupancies
Group B	2	Care and treatment occupancies
Group B	3	Care occupancies
Group C	---	Residential occupancies
Group D	---	Business and personal services occupancies
Group E Assembly	---	Mercantile occupancies
Group F	1	High hazard industrial occupancies
Group F	2	Medium hazard industrial occupancies
Group F	3	Low hazard industrial occupancies

11.4.1 Community Risk Profile – Major Occupancy Classifications

The Fire Risk Sub-model developed by the Office of the Fire Marshal utilizes the major group classifications only (Group A, B, C, D, E, F). The Fire Risk Sub-model does not use the detailed “Division” classifications provided for the respective occupancy groups.

This strategy provides the ability to assess property stock within a community comparatively by major occupancy groups thus providing a consistent and recognized definition for each major occupancy type. Where necessary this strategy provides the opportunity for further analysis of a specific occupancy group. For example a ‘Group F Industrial’ that is a ‘Division 1’ is a ‘High hazard industrial occupancy’. Subject to any site specific hazards or concerns individual occupancies within this group can be assessed individually and then included where required within the scope of the broader community risk profile.

The following describes the major occupancy classifications used within the Fire Risk Sub-model.

11.4.2 Assembly Occupancies (Group A)

Assembly occupancies are defined by the OBC as the “occupancy or the use of a building or part of a building by a gathering of persons for civic, political, travel, religious, social, educational, recreational or similar purposes or for the consumption of food or drink”.

Risks within these occupancies can include:

- overcrowding by patrons;
- lack of patron familiarity with emergency exit locations and procedures;
- staff training in emergency procedures; and
- large quantities of combustible furnishings and decorations.

Proactive measures for reducing risks can include:

- ✓ *regular fire prevention inspection cycles;*
- ✓ *automatic fire detection and monitoring systems;*
- ✓ *approved Fire Safety Plan and staff training; and*
- ✓ *pre-planning by fire suppression staff.*

11.4.3 Care and Detention Occupancies (Group B)

A care or detention occupancy means the occupancy or use of a building or part thereof by persons who;

- are dependent on others to release security devices to permit exit;
- receive special care and treatment; or
- receive supervisory care.

Risks within these occupancies can include:

- inability to evacuate or relocate patients;
- presence of flammable/combustible gases;
- vulnerable occupants; and
- combustible furnishings.

Proactive measures for reducing risks can include:

- ✓ *regular fire prevention inspection cycles;*
- ✓ *automatic fire detection and monitoring systems;*
- ✓ *approved Fire Safety Plan and staff training; and*
- ✓ *pre-planning by fire suppression staff.*

11.4.4 Residential Occupancies (Group C)

A residential occupancy is defined as one that is used by persons for whom sleeping accommodation is provided but who are not harboured or detained there to receive medical care or treatment or who are not involuntarily detained there.

Within this occupancy classification both the Ontario Fire Code (OFC) and the Ontario Building Code classify residential low-rise buildings as up to and including six stories in building height. Buildings in excess of six stories are considered as high-rise buildings. Comparatively Statistics Canada defines low-rise buildings as being less than five stories in building height and high-rise as five stories and greater.

Another example of a use within this occupancy group would be mobile homes or travel trailers. The common factor is overnight accommodation (sleeping) when an occupant can be at the highest risk.

As the primary source for data regarding community risk factors is provided by Statistics Canada this analysis utilizes the Statistics Canada definitions for residential occupancies.

Risks within these occupancies can include:

- overnight accommodation (sleeping);
- combustible furnishings;
- secondary units (basement apartments);
- high density; and
- human behavior (cooking, use of candles, etc.).

Proactive measures for reducing risks can include:

- ✓ Smoke Alarm Program
- ✓ Public Education Programming including Home Escape Planning
- ✓ Retro-fit and compliance inspection cycles for OBC and OFC compliance
- ✓ Pre-planning by fire suppression staff

11.4.5 *Business and Personal Services Occupancies (Group D)*

Business and personal services occupancies are defined as those that are used for the transaction of business or the provision of professional or personal services.

These occupancies can be located within remodelled single family dwellings, low-rise and high-rise buildings. Each of these building types can present different risks including egress for firefighting operations and evacuation by occupants.

Risks within these occupancies can include:

- high volume of occupants;
- high combustible loading;
- specialized equipment utilizing high risk substances such as radiation; and
- consumers unfamiliar with emergency exits and procedures.

Proactive measures for reducing risks can include:

- ✓ *regular fire prevention inspection cycles to sustain OFC compliance*
- ✓ *targeted fire prevention inspections for OFC retro-fit compliance*
- ✓ *staff training in fire prevention and evacuation procedures*
- ✓ *public education*
- ✓ *pre-planning by fire suppression staff*

11.4.6 *Mercantile Occupancies (Group E)*

This occupancy is defined as one that is used for the displaying or selling of retail goods, wares, and merchandise.

These occupancies range in size and potential risk from smaller neighbourhood corner stores to the large “big box” industrial style buildings that survive on the sale of large volume. Large volumes of combustibles are typically present in all applications.

Risks within these occupancies can include:

- high volume of occupants/staff;
- high volume of combustible loading/high rack storage;
- lack of occupant familiarity with emergency exit locations and procedures; and
- size of building.

Proactive measures for reducing risks can include:

- ✓ *regular fire prevention inspection cycles*
- ✓ *automatic fire detection and monitoring systems*
- ✓ *approved Fire Safety Plan and staff training*
- ✓ *pre-planning by fire suppression staff*

11.4.7 High/Medium/Low Hazard Industrial Occupancies (Group F)

Industrial occupancies are defined as those used for the assembly, fabrication, manufacturing, processing, repairing or storing of goods and materials. This category is divided into low hazard (F3), medium hazard (F2) and high hazard (F1) based on its combustible content and potential for rapid fire growth.

The potential for major fires within this occupancy type is related to the high levels of combustibles that are present in storage and utilized in the manufacturing process. This can include highly flammable and corrosive products.

Risks within these occupancies can include:

- large dollar loss as a result of a major fire;
- economic loss in the event of plant shut downs and job loss;
- environmental impacts; and
- presence of ignition sources related to processing activities.

Proactive measures for reducing risks can include:

- ✓ *regular fire prevention inspection cycles*
- ✓ *staff training in fire prevention and evacuation*
- ✓ *public education*
- ✓ *pre-planning by fire suppression staff*
- ✓ *installation of early detection systems (smoke alarms, heat detectors)*
- ✓ *installation of automatic sprinkler systems*

11.4.8 Other Occupancies/Uses not listed within the OBC (Not Classified)

There are other occupancies and uses not included within the OBC major building occupancy classifications that should be considered as part of developing the Community Risk Profile. These include occupancies that may be regulated under other legislation such as federally or provincially owned facilities.

Examples of these include:

- major railway lines
- major highways and transportation corridors
- outdoor tire storage facilities
- farm / agricultural buildings

11.4.9 Property Stock Analysis

Applying the property stock classifications contained within the Fire Risk Sub-model **Table 2** provides a summary of the property stock within the Municipality of Brighton.

Table 2: Property Stock Profile Municipality of Brighton (2003)

Occupancy Classification (OBC)	Occupancy Definition Fire Risk Sub-model (OFM)	Number of Occupancies	Percentage of Occupancies
Group A – Assembly	<i>Assembly occupancies</i>	14	0.3%
Group B - Institutional	<i>Care or Detention occupancies</i>	3	0.0%
Group C - Residential	<i>Residential occupancies</i>	3,818	75.2%
Group D/E - Commercial	<i>Business and Personal Services Occupancies</i>	292	5.8%
Group F - Industrial	<i>Industrial occupancies</i>		
Other occupancies	<i>Not classified within the Ontario Building Code (i.e. farm buildings)</i>	951	18.7%
Totals		5,078	100%

The majority (75.2%) of the Municipality of Brighton property stock is Group C residential, which is comprised of mainly single family residential. The second largest percentage of property stock (18.7%) consists of other occupancies not classified within the Ontario Building Code (e.g. farm buildings, etc.). This is consistent with the large rural area of the Municipality that contains many original farms and related buildings such as barns and implements storage buildings.

This particular analysis confirms that as a community the Municipality of Brighton represents the typical level of risk that would be found in comparable municipalities within the Province of Ontario. These include smaller urban centres surrounded by large tracts of agricultural and environmentally protected areas forming a larger community. Agriculture is very prevalent throughout the Municipality. Farm buildings (not classified within the OBC) vary in size and use from small utility sheds to large livestock barns.

The Municipality’s other occupancies include industrial, commercial and assembly occupancies. Brighton’s Industrial Park is located in the southeast section (Loyalist Drive) of the urban community and there is also a mixed use industrial area located immediately north of the railway corridor from Prince Edward Street to Ontario Street. Commercial occupancies are located within the downtown core; however some new commercial development is occurring outside of this area.

11.4.10 Property Stock Profile Observations

The analysis of the Property Stock Profile for the Municipality confirms that the largest percentage of major occupancies (75.2%) is “Group C” residential. Significant priority should be given to developing a Fire Master Plan that reflects the risks associated with this occupancy category. A key element in mitigating residential risks is maximizing the use of all three lines of defence.

The priority of addressing the residential fire risk is supported by the historic data¹ provided by the Office of the Fire Marshal, Ontario that reports for the period from 2007 to 2011 residential fires accounted for 71% of all structure fire losses and for the period from 2001 to 2010 residential fires accounted for 86% of all fire fatalities.

¹Sources, OFM website:

http://www.mcscs.jus.gov.on.ca/english/FireMarshal/MediaRelationsandResources/FireStatistics/OntarioFatalities/FatalFiresSummary/stats_fatal_summary.html

http://www.mcscs.jus.gov.on.ca/english/FireMarshal/MediaRelationsandResources/FireStatistics/OntarioFires/FireLossesCausesTrendsIssues/stats_causes.html

I2.0 BUILDING HEIGHT AND AREA

Buildings that are taller in height, or contain a large amount of square footage (footprint) can have a greater fire loss risk and life safety concern.

I2.1 Building Height

One of the unique characteristics and risks of tall / multi-storey buildings is known as the “stack effect”. This is characterized as vertical air movement occurring throughout the building, caused by air flowing into and out of the building typically through open doors and windows. The resulting buoyancy caused by the differences between the indoor/outdoor temperature and elevation differences causes smoke and heat to rise within the building. This can have a dramatic effect on smoke permeation throughout the common areas and individual units within the building. This can be directly related to the high percentage of deaths that occur in high-rise buildings as a result of smoke inhalation.

The nature of taller buildings also brings the presence of higher occupant loads and higher fuel loads due to the quantity of furnishings and building materials. Efficient evacuation can also be a challenging process due to a lack of direction / signage and knowledge / familiarity of the occupants which may result in overcrowding of stairways and exit routes.

Ensuring all required life safety systems are in place and functioning is a priority for these occupancies. Taller buildings can experience extended rescue / suppression response times for firefighters to ascend to the upper levels. Options such as “shelter-in-place” whereby occupants are directed by the fire department to stay within their units can be an effective strategy. However, ensuring internal building communications systems are in place and functioning is critical to the success of this strategy.

There are no residential high-rise buildings within the Municipality of Brighton. The downtown core’s buildings range from one storey to three storey’s high. The maximum residential building height allowed is 12 m, whereas the maximum farm building height is 15 m and the maximum industrial building height is 20 m.

I2.2 Building Area

Building area can cause comparable challenges as those present in taller buildings. Horizontal travel distances rather than vertical can mean extended response times by firefighters attempting rescue or fire suppression activities.

Large buildings, such as industrial plants and warehouses, department stores, and the new “big box” stores, can contain large volumes of combustible materials. In many of these occupancies the use of high rack storage is also present. Fires within this type of storage system can be difficult to access and cause additional risk to firefighter safety, due to collapse risks.

The Municipality has a small number of large industrial/commercial/mixed-use buildings. For example, the Gerow Propane facility located at 15384 County Road 2, is a large building and the contents of the building are considered to be very hazardous. Other examples of buildings with large areas and potential fire loss risk include:

- Tri-County Plastics Ltd., large combustible building;
- Agrium Advanced Technologies Nu-Gro Ltd.; and

- Various large mixed use buildings in the downtown core with wood frame constructions.

The Municipality also has a historic downtown core with a Downtown Business Improvement Area consisting of multi-unit buildings containing mixed-use occupancies as defined by the OBC. Many of these include residential units above commercial stores located on the ground floor. In terms of building height these buildings would not be considered higher risk; however, in terms of area these buildings cover relatively large areas (square footage) in downtown Brighton.

I2.2.1 Building Height and Area Observations

The analysis of the buildings within the Municipality in regards to height and area represent a minimal risk. This includes all occupancy classifications. There are also a limited number of large area (by square footage) industrial buildings. The multi-use occupancies present in the downtown core of Brighton in addition to their large coverage area represent a potentially significant fire loss risk.

The observations of this section are consistent with the need to prioritize a pro-active fire inspection and compliance program. These strategies should be aligned with optimization of the first two lines of defence with the Fire Master Plan.

I2.3 Building Age and Construction

The Municipality of Brighton began to develop during the early to mid-1800s when the Village of Brighton was formed in 1831. Many of the older buildings within Municipality have historic ties to this era. As the community has grown the large majority of new construction has occurred both within the Brighton Urban Area and outside of the downtown core. This includes both commercial and residential growth. Residential development has been mainly in the form of low and medium density housing.

I2.3.1 Building/Fire Code Application

The Ontario Building Code (OBC) was adopted in 1975. The Ontario Fire Code (OFC) was similarly adopted in 1981. Together these two documents have provided the foundation for eliminating many of the inconsistencies in building construction and maintenance that were present before their adoption.

The OBC and the OFC were developed to ensure uniform building construction and maintenance standards are applied for all new building construction. The codes also provide for specific fire safety measures depending on the use of the building. Examples of the fire safety issues that are addressed include:

- *occupancy*
- *exits/means of egress including signs and lighting*
- *fire alarm and detection equipment*
- *fire department access*
- *inspection, testing, and maintenance*

In 1983 the OFC was further expanded to include retrofit requirements for many of the building constructed prior to adoption of the code. Retrofit requirements were established to ensure a minimum acceptable level of life safety is present. A number of occupancy types are included within the retrofit requirements including assembly, boarding, lodging and rooming houses, health care facilities, multi-unit residential, two-unit residential, and hotels.

12.3.2 Residential Buildings

The priority of addressing the residential fire risk is supported by the historic data provided by the Office of the Fire Marshal, Ontario that reports² for the period from 2007 to 2011 residential fires accounted for 72% of all structure fire losses and for the period from 2002 to 2011 residential fires accounted for 85% of all fire fatalities.

These facts make understanding the age and construction of a community’s residential building stock an important component of developing a Community Risk Profile.

The Municipality of Brighton’s residential building structural dwelling types are summarized in **Table 3**.

Table 3: Residential Structural Dwelling Type

Structural Dwelling Type	Municipality of Brighton ³	% of Units	Ontario ⁴	% of Units
Single-Detached House	3,910	89.4	2,718,880	55.6
Semi-Detached House	65	1.5	279,470	5.7
Row House	90	2.1	415,225	8.5
Apartment-Duplex	40	0.9	160,460	3.3
Apartment-more than 5 Stories	0	0.0	789,970	16.2
Apartment-less than 5 Stories	225	5.1	498,160	10.2
Other single-attached House	20	0.5	9,540	0.2
Movable Dwelling	30	0.7	15,800	0.3
Total	4,375	100	4,887,510	100

In comparison to the provincial data the Municipality of Brighton percentage of single-detached housing of 89.4% represents a significantly larger component of the residential dwelling types than that of the province at 55.6%. Apartments with less than 5 stories are the second highest percentage of residential dwellings at 5.1%.

Historical data provided by the Office of the Fire Marshal indicates that fires in single-detached dwellings are responsible for nearly two thirds of all residential fires. The data further indicates that detached homes generally account for 80% of all single-family dwelling fires, with semi-detached and attached homes evenly contributing the remaining 20%.

² Source, OFM website:

http://www.mcscs.jus.gov.on.ca/english/FireMarshal/MediaRelationsandResources/FireStatistics/OntarioFatalities/FatalFiresSummary/stats_fatal_summary.html

http://www.mcscs.jus.gov.on.ca/english/FireMarshal/MediaRelationsandResources/FireStatistics/OntarioFires/FireLossesCausesTrendsIssues/stats_causes.html

³ Source: *Statistics Canada - 2011 Census Data*

⁴ Source: *Statistics Canada - 2011 Census Data*

The Municipality of Brighton residential buildings age are summarized in **Table 4**.

Table 4: Age of Construction

Period of Construction	Municipality of Brighton ⁵	% of Units	Ontario ⁶	% of Units
Prior to 1946	720	18.3	677,875	14.9
1946 to 1960	405	10.3	690,155	15.2
1961 to 1970	380	9.6	640,660	14.0
1971 to 1980	510	12.9	776,745	17.0
1981 to 1985	215	5.4	338,575	7.4
1986 to 1990	600	15.2	410,160	9.0
1991 to 1995	330	8.4	291,480	6.4
1996 to 2000	320	8.1	312,215	6.9
2001 to 2006	465	11.8	417,165	9.2
Total	3,965	100	4,554,255	100

An important component of this analysis is the percentage of residential buildings built prior to the adoption of the Ontario Fire Code in 1981. **Table 4** indicates that 51.1% of the Municipality’s residential buildings were built prior to 1981 in comparison to 61% of those in Ontario.

In relation to the OFC the Municipality has a relatively newer percentage of residential dwelling buildings than that of the province.

I2.3.3 Non-Residential Buildings

During the late 19th century and early 20th century’s balloon frame construction was a common framing technique used in both residential and small commercial construction. This technique permitted the spread of fire and smoke to move rapidly from the lower floors to upper floors and the roof level. Understanding the age of construction of dwellings can assist in determining if balloon framing may have been utilised.

Modern construction techniques have introduced the use of platform construction whereby each level is built as a component of the overall structure. This technique in addition to the use of fire stops has reduced the extension of fire and smoke by creating horizontal barriers.

⁵ Source: Statistics Canada - 2006 Census Data

⁶ Source: Statistics Canada - 2006 Census Data

Specific information such as the census data is not available for non-residential buildings; however the experience of community planning and development provides a relative comparison when assessing the age and construction of a community. Tours of the community and discussions with Municipality staff indicate that a large percentage of the non-residential buildings also pre-date the OFC adoption in 1981.

I2.3.4 Building Age and Construction Observations

As a community the current building stock of the Municipality is representative of a small urban settlement area that has grown over the past century to the current mixed use urban/rural community.

Residential single-detached housing units represent 89.4% of the 4,375 residential dwelling structures. 51.1% of the residential building stock was built prior to adoption of the Ontario Fire Code in 1981.

The majority of the residential building stock is of newer construction technology including flame retardant materials and construction techniques. Buildings within the downtown core represent the highest fire loss risk due to age and construction. However, there have been upgrades to these buildings to increase the fire separations and notification with regards to the alarm systems and smoke detectors, to meet the retrofit sections of the OFC.

I2.4 Building Exposures

Closely spaced buildings, typical of historic downtown core areas, and newer infill construction, have a higher risk of a fire propagating (fire spreading to an adjacent exposed building). A fire originating in one building could easily be transferred to neighbouring structures due to the close proximity. The close proximity of buildings can also impede firefighting operations due to the limited access for firefighters and equipment.

Adoption of the OBC and the OFC has required spatial separations and the use of fire retardant materials and constructions methods to reduce the fire risks. In addition to the construction and planning requirements within the respective codes, basic firefighting practices consider the protection of exposures as a primary function and consideration in the event of a response by the fire department.

I2.4.1 Building Exposures Observations

The risk of exposures as a result of a fire can occur in incidents involving buildings that are in compliance with current OBC and OFC requirements as well as those that may have been constructed prior to these public safety initiatives.

As a large percentage of the building stock within the Municipality of Brighton was constructed prior to the current OFC the probability of a fire spreading to involve other exposures is of concern.

The age and construction of the buildings within the downtown core present the most significant risk for fire spread both internally and to adjacent buildings due to the close proximity and combustible construction of many of these buildings.

I3.0 DEMOGRAPHIC PROFILE

In terms of demographic profile with regard to developing a community risk profile it is important to understand a number of key factors related to residents of the community. Assessing these factors in relation to provincial statistics is an effective tool in understanding where there may be vulnerable groups in terms of fire or life risk, or barriers such as language that could affect communication of public education programs. The key factors within the demographic profile include:

- Population Distribution by Age Group
- Population Shifts
- Vulnerable Individuals or Occupancies
- Language Barriers to Public Education
- Income level

I3.1 Population Distribution by Age Group

Within Canada our aging population has been recognized as one of the most significant demographic trends. Based on current data it is predicted that by the year 2026, one in every five Canadians will have reached the age 65. Seniors, those 65 and above represent one of the highest fire risk target groups in Ontario.

Information provided by the Office of the Fire Marshal indicates that “between 2000 and 2004 the leading cause of senior (aged 65 and over) fire deaths were attributed to “open flame tools/smoker’s articles” and “cooking equipment”. These ignition sources were responsible for 35% and 10% respectfully of fire deaths for this age category during this period. It is believed that the decline in cognitive and physical abilities contributes to the frequency of fire incidents relating to careless use of these ignition sources”.

Identifying a community’s population by age category is a core component of developing the Community Risk Profile and identifying specific measures that may be required to mitigate risks associated with a specific age group, such as seniors.

Table 5 provides a comparison of the Municipality’s population by age group to that of the provincial statistics according to the 2011 census from Statistics Canada.

Table 5: Age Group⁷

Age Characteristics of the Population	Brighton		Ontario	
	Total	% Total	Total	% Total
Total population	10,930	-	12,851,820	-
0 to 4 years	405	3.7%	704,260	5.5%

⁷ Source: Statistics Canada - 2011 Census Data

Age Characteristics of the Population	Brighton		Ontario	
	Total	% Total	Total	% Total
5 to 9 years	455	4.2%	712,755	5.5%
10 to 14 years	535	4.9%	763,755	5.9%
15 to 19 years	640	5.9%	863,635	6.7%
20 to 24 years	495	4.5%	852,910	6.6%
25 to 44 years	2,140	19.6%	3,383,890	26.3%
45 to 54 years	1,800	16.5%	2,062,020	16.0%
55 to 64 years	1,745	16.0%	1,630,275	12.7%
65 to 74 years	1,575	14.4%	1,004,265	7.8%
75 to 84 years	880	8.1%	627,660	4.9%
85 years and over	265	2.4%	246,400	1.9%
Median age of the population	49.7	-	40.0	-
% of the population aged 14 and under	1,395	12.8%	2,180,770	17.0%
% of the population aged 65 and over	2,720	24.9%	1,878,325	14.6%

The age comparison reflects that the senior's population (over age 65) represents 24.9% of the population of the Municipality of Brighton. In comparison to the provincial statistics for the same age group seniors across the province represent 14.6% of the population. The Municipality of Brighton is at a point whereby seniors represent approximately one of every four persons, which is likely a result of older people moving out of the city to retire. This should be considered significant in relation to the provincial statistics and when considered in relation to the number of fire deaths for this age category.

Table 6 was prepared using information from the OFM's review of Ontario Fatal Fire during the ten year period from 2001 to 2010 (*revised October 2011*). Although no particular age group stands out as a significantly higher risk, when the number of fatalities per million population is calculated, the seniors' age group are at the greatest risk of fire death compared to other age groups.

Table 6: Provincial % of Fire Fatalities by Age Group

Age Characteristics of the Population	% of Age Group
0 to 10 years	8%
10 to 19 years	6%
20 to 29 years	6%
30 to 39 years	10%
40 to 49 years	19%
50 to 59 years	14%
60 to 69 years	12%
70 to 79 years	13%
80+ years	12%

As indicated by the Provincial data, seniors tend to be more at risk. This is particularly important as the seniors' population of the Municipality of Brighton as a percentage of the overall population is slightly higher than that of the provincial data.

I3.2 Population Shifts

The population within a community can shift at various times during the day or week and throughout the year. This can be as a result of residents that are required to leave the community to seek employment as opposed to those having employment opportunities within the community. Other examples can include tourist and vacation destinations within a community. Large population shifts can occur during summer months as a direct result of the seasonal availability of these activities or tourism draws within a community.

Communities that are home to educational institutions such as colleges and universities can have a different population shift during the fall and winter months when students are attending school and residing in the community (e.g. student residences).

In both instances the increased risk due to overnight accommodation (sleeping) either in a trailer/hotel/or school residence can be a major factor which can impact the demand for fire protection services.

The Municipality of Brighton experiences a minor population shift throughout the spring and summer months. The Municipality has approximately 700 camping and trailer sites and Presqu'île Park brings a large number of tourists and campers to the community. The Municipality's camping and recreational facilities can increase the seasonal population up to 8,000 to 10,000 people. Specific fire protection strategies to address population shifts should not be required; they should be accommodated as part of broader services such as pro-active fire inspections of the facilities occupied by this demographic.

I3.3 Vulnerable Individuals or Occupancies

Identifying the location and number of vulnerable individuals, or occupancies within the community will provide insight into the magnitude of this particular demographic within a community. This demographic is typically defined as requiring some type of assistance due to physical/cognitive limitations, disabilities, drug or alcohol use and others that may require assistance to evacuate in the event of a fire.

Occupancies that should be considered when assessing this demographic include hospitals, seniors' apartments, group homes, rooming houses, residential care facilities, daycare centres and long-term care facilities. **Table 7** lists these occupancies in Brighton.

Table 7: Vulnerable Occupancies in Brighton

Community	Address
Applefest Lodge	120 Elizabeth Street
Maplewood	12 Maplewood
Golden Pond Retirement Residence	387 Goodrich
Brighton Daycare & Preschool	24 Elizabeth Street
Warkworth Institution	15847 County Rd 29

I3.4 Language Barriers to Public Education

Cultural diversity and ethnic background can be a factor that fire departments must consider in developing and delivering programs related to fire prevention and public education. Communication barriers in terms of language and the ability to read written material can have an impact of the success of these programs. **Table 8** provides a breakdown of the mother tongue of residents within the Municipality based on the 2011 Statistics Canada census information.

Table 8: Mother Tongue of Brighton Residents

Language	Brighton		Ontario	
	Total	% Total	Total	% Total
Total population	10,285	-	12,722,060	-
English	9,505	92%	8,896,465	70%
French	250	2%	506,945	4%
English and French	20	0%	54,220	0%
Other	515	5%	3,264,435	26%

English is the primary language of the Municipality's population (92%). Therefore language barriers are expected to be relatively infrequent. However, communications barriers, including language differences, should still be taken into consideration, especially when working with specific community groups.

I3.5 Income Levels

Table 9 summarizes household data from the 2006 Census from Statistics Canada. Brighton, as a municipality, has a higher population density than the province. Brighton also has a lower median income. In terms of housing, Brighton has a lower average dwelling value but a higher ownership rate than the provincial averages. This is typical of a rural town in Ontario.

Table 9: 2006 Statistics Canada Household Data

Census Characteristic	Brighton	Ontario
Population Density (per square km)	46.1	13.4
Median Income (all census families)	\$54,278	\$60,455
Average Value of Owned Dwelling	\$208,325	\$297,479
Total # of Dwellings Owned	4,825	3,235,495
% Owned Dwellings	85%	71%
% Rented Dwellings	15%	28%

I3.6 Demographic Profile Observations

The demographic analysis of Brighton indicates that the Municipality's population is weighted more towards seniors than the Ontario average. As such there are lower percentages of young and middle aged individuals compared to the Ontario average. There are a minimum number of buildings identified where the most vulnerable demographic of the community reside. These buildings should be considered as high risk with regard to developing a pro-active fire prevention and protection program. Optimizing the first two lines of defence should be considered a priority for these facilities as part of the Fire Master Plan.

English is the predominate language within the community representing 92% of the population. This indicates that there should be a very minimal language barrier in the delivery of fire prevention and public education programs.

In general both income level and proportion of rental dwellings are lower than the provincial average; as a result the percentage of home ownership is substantially higher than the provincial average.

I4.0 GEOGRAPHY / TOPOGRAPHY / ROAD INFRASTRUCTURE

Located approximately 150 km east of Toronto along the shores of Lake Ontario and within the Northumberland County, the Municipality of Brighton has the fourth largest population of the seven municipalities within the County (10,930)⁸. The Municipality also has the fifth largest geographic area at 223 square kilometres. The majority of the Municipality's population is located within the Brighton Urban Area and includes the lands within the former Town of Brighton, while the remainder of the population is interwoven into the rural areas and many small hamlets surrounding the municipality. The municipality is also home to Presqu'île Provincial Park, located just south of the Municipality of Brighton along the shores of Lake Ontario.

The municipality has identified Environmental Protection lands, which are areas subject to natural hazards and areas in proximity to watercourses and natural heritage features and areas that require protection. Hazard lands are characterized by lands which may pose a threat to life and property due to inherent characteristics such as floodplains, erosion, unstable bedrock or soils, dynamic beach hazards, and steep slopes. This policy is intended for preservation and conservation of the natural land and/or environment, and serves to ensure that new development is protected from physical hazards. Areas subject to Natural Hazards include the shoreline of Lake Ontario, which has potential for flooding and the effects of wave up-rush, as well as ice scour and shoreline erosion. Development along Lake Ontario is directed to areas outside of the regulatory flood elevation.

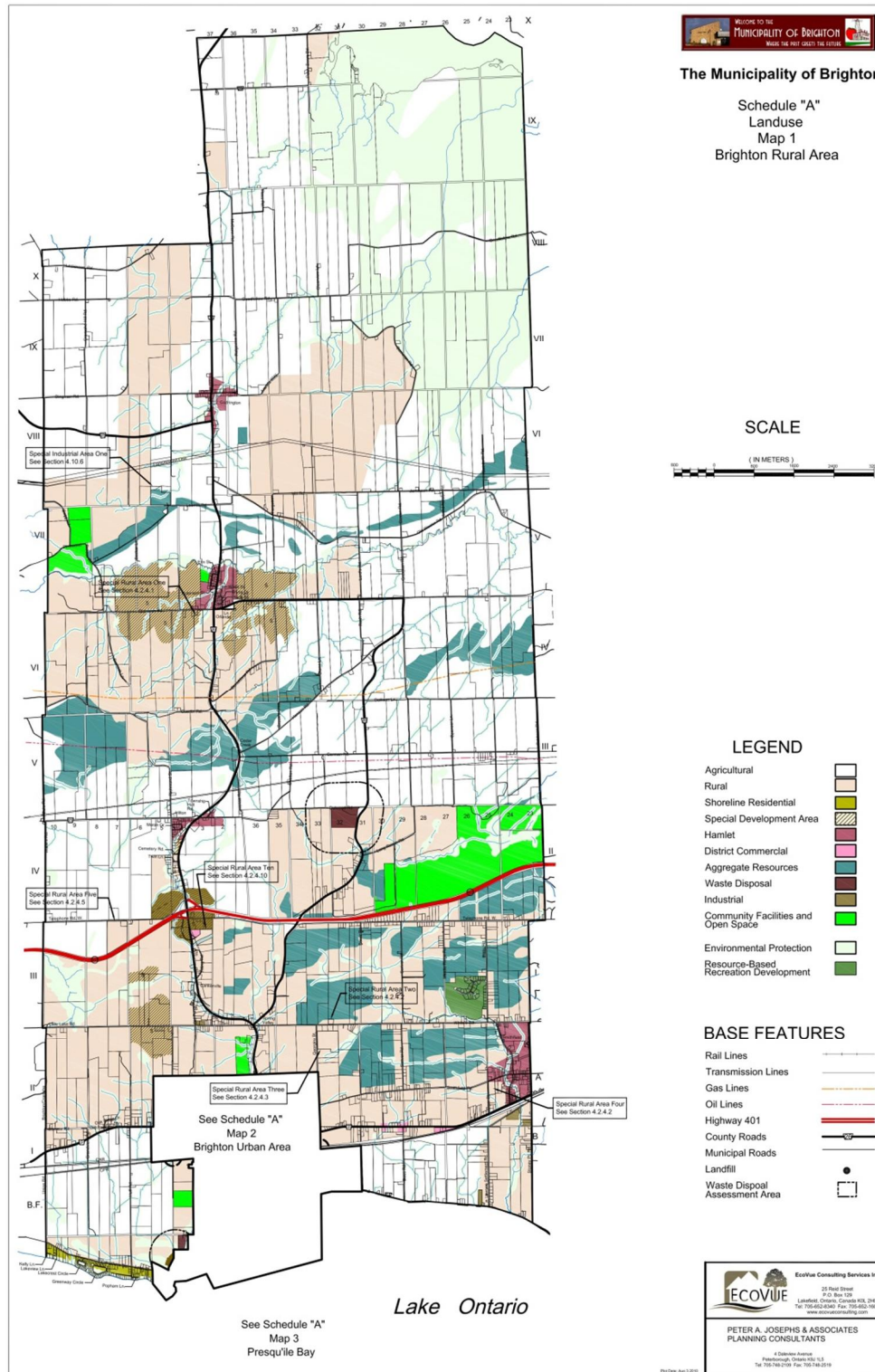
There are also wellhead protection areas, specifically around existing municipal wells extending from the midpoint of Concession III to just beyond the midpoint of Concession IV, and part of Lots 34, 35, 10 and 9 of the former Township of Brighton. The purpose of this area is to protect municipal drinking water supplies and designated vulnerable areas and development is limited in these surrounding areas.

The urban and settlement areas and the Environmental Protection lands are shown in the Municipality's Official Plan maps 1 and 2 included below as **Figure 1** and **Figure 2**, respectively.

The road network within the Municipality consists of primarily two lane rural profile infrastructure. Roads within the urban areas and the newer commercial/industrial growth districts have a more modern two lane urban profile including storm sewers and sidewalks. The Provincial Highway 401 runs east-west through the Municipality and is a four lane freeway. The Municipality and its population centres are all served by a number of north-south and east-west County (arterial) roads. The existing road network is depicted below in **Figures 3** and **4**.

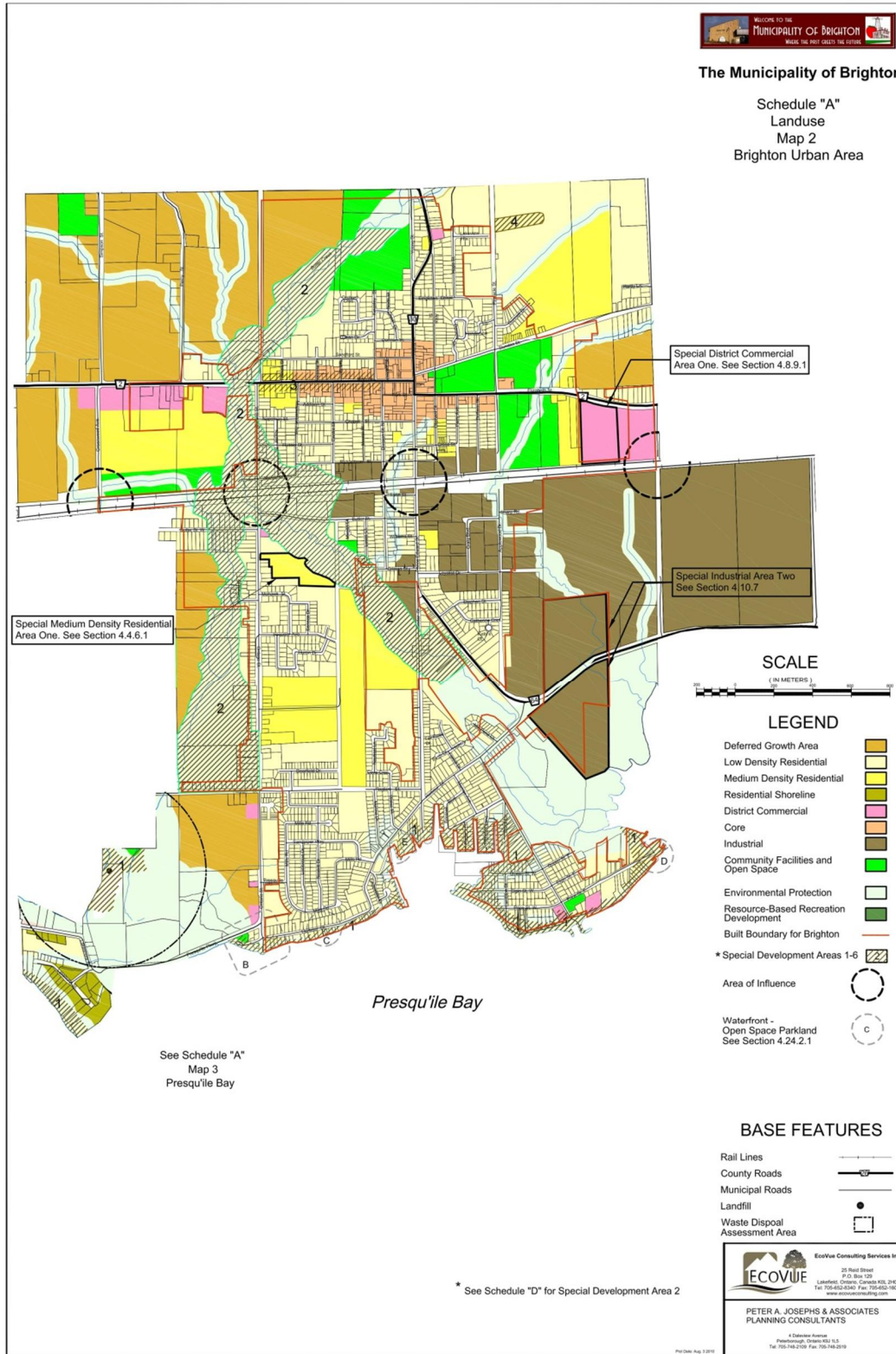
⁸ Population in 2011: 10,928, Statistics Canada, 2011 Census

Figure 1: Municipality of Brighton Official Plan Land Use Map



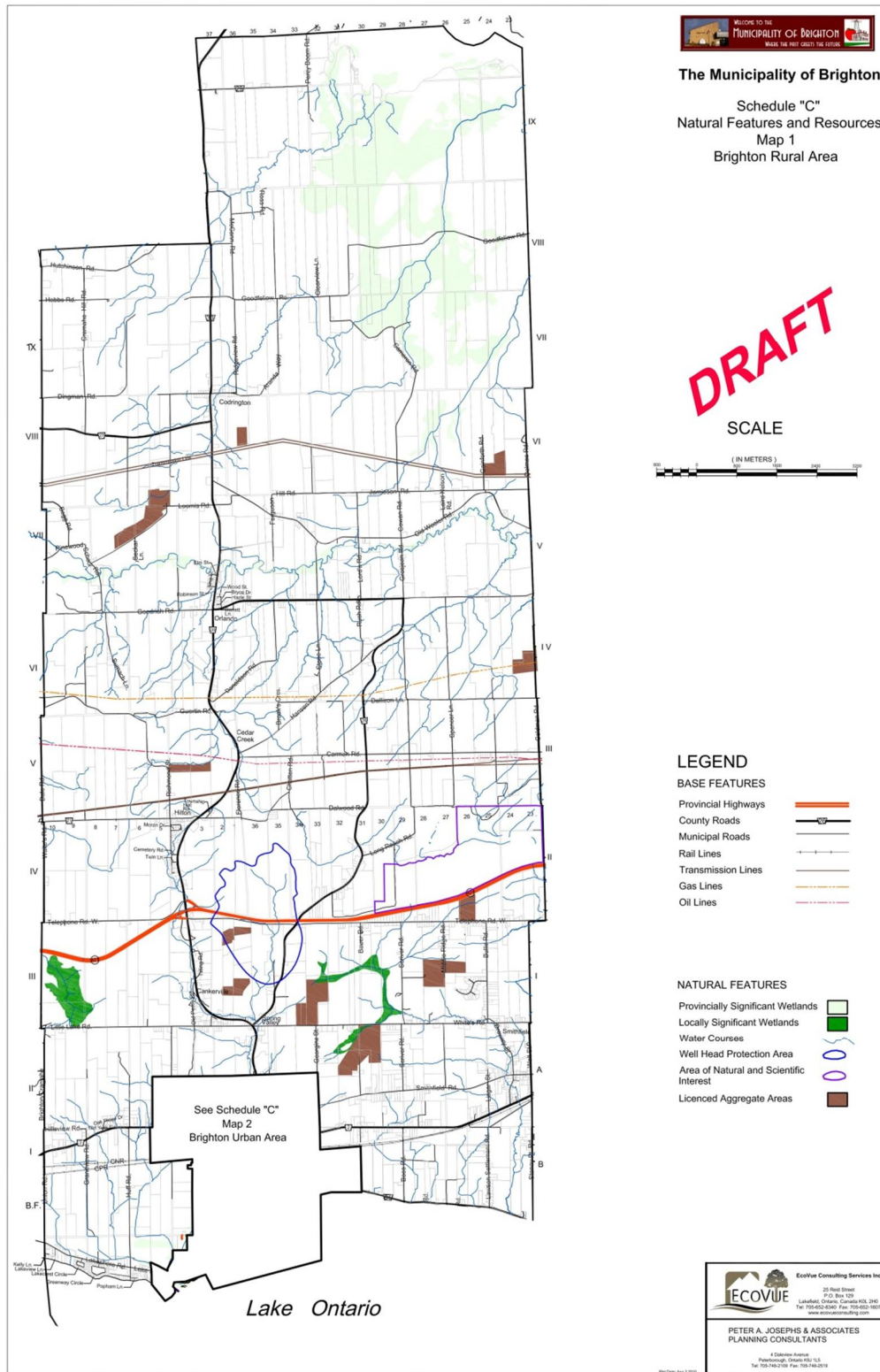
(Source: Municipality of Brighton Official Plan, July 2010)

Figure 2: Brighton Urban Area Official Plan Land Use Map



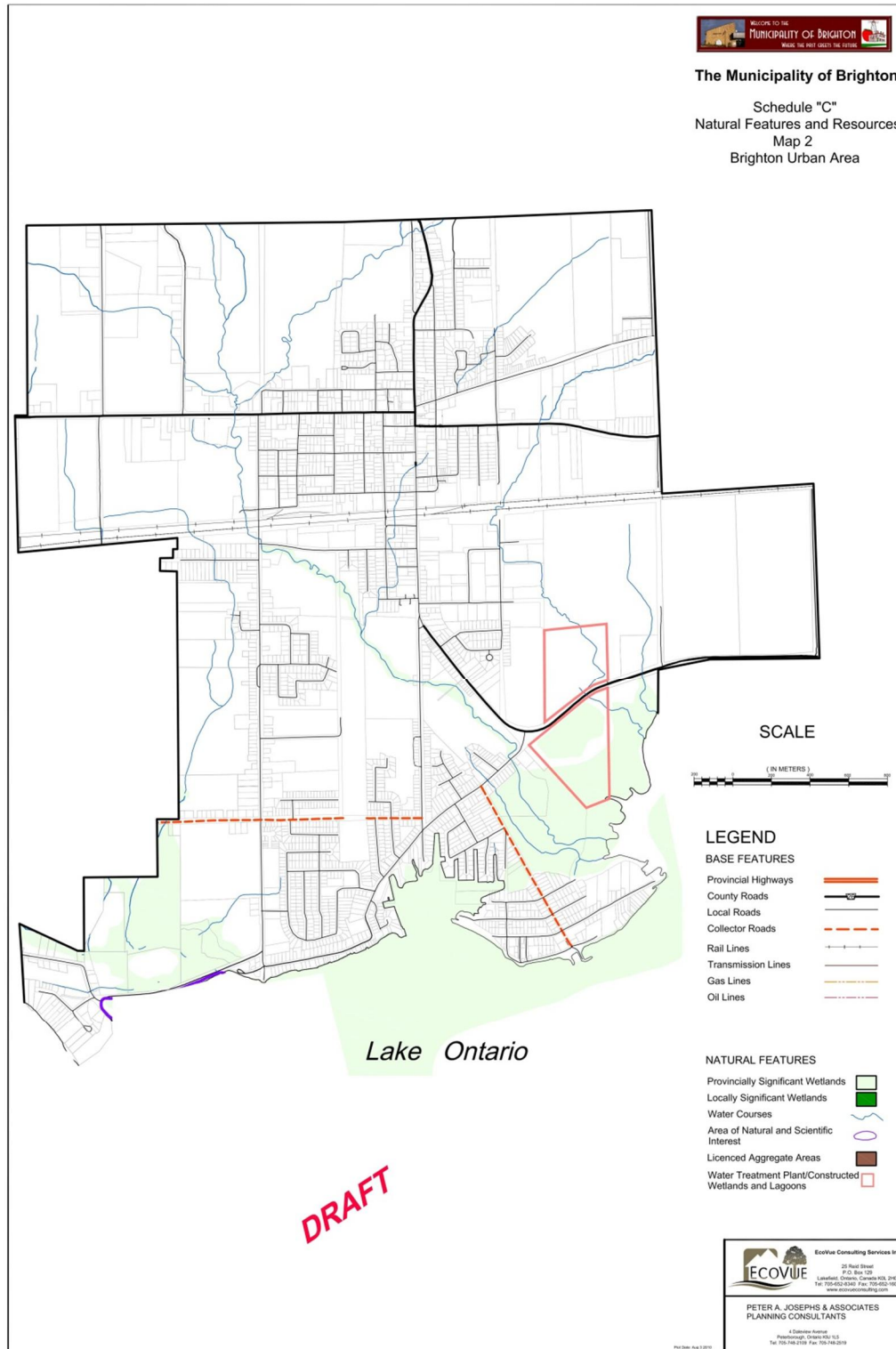
(Source: Municipality of Brighton Official Plan, July 2010)

Figure 3: Municipality of Brighton Official Plan Natural Features and Resources Map



(Source: Municipality of Brighton Official Plan, July 2010)

Figure 4: Brighton Urban Area Official Plan Natural Features and Resources Map



(Source: Municipality of Brighton Official Plan, July 2010)

I4.1 Geography/Topography/Road Infrastructure Profile Observations

The risks associated with the geography, topography and road infrastructure within the municipality are predominantly those associated with the large overall size of the municipality and the rural residential areas located outside of the built-up communities. This typically means longer emergency response times from the fire stations, located in the built-up areas, out to the rural areas and occupancies. In developing the Fire Master Plan consideration should be given to prioritizing the delivery of public education and fire prevention programs in these areas. This should include optimization of the department's smoke alarm program and home fire safety planning for areas with extended emergency response travel times.

The road network layout is primarily a grid pattern of arterial rural roads and local roads which provide access to these rural residential locations. However, the municipality does have a multitude of natural and man-made features that substantially disjoins the road network. The population centres within the municipality, including the Brighton Urban Area and the many small hamlets are well served and connected by the road network.

The following potential constraints within Brighton have been identified:

- There are no grade separated rail crossings in the Municipality of Brighton. A train crossing at the time of an emergency has the potential to impact and increase response times to areas south of the rail line. An underpass on Boes Road does provide access to the area south of the rail line, however, not all apparatus may fit through the passage.
- The Brighton Road Swing Bridge has a load limit of 9 tonnes and would create response issues if a boat was passing. An agreement is in place with Quinte West to provide automatic aid to the area served by the swing-bridge.
- Several other bridges on rural roads have load restrictions.

I4.2 Past Fire Loss Statistics

Identifying and understanding trends through the analysis of historical data provides valuable insight into a community's specific trends. Assessing the key factors of life safety risk and fire risk in relation to provincial statistics provides a foundation for evaluating where specific programs or services may be necessary.

I4.2.1 *Fire Loss by Occupancy Classification*

For the period from 2007 to 2011 there were 64,757 fires within Ontario with a loss reported to the OFM. During this period 58% or 37,559 of these involved a structure and 28% or 18,132 of these fires involved a vehicle.

Table 10 indicates the provincial fire loss by property classification for the period 2007 to 2011.

Table 10: Provincial Fire Loss by Occupancy Classification
 Period 2007 to 2011

Occupancy Classification (OBC)	Occupancy Definition Fire Risk Sub-model (OFM)	Ontario Fire Loss by Occupancy Classification
Group A – Assembly	<i>Assembly occupancies</i>	5%
Group B - Institutional	<i>Care or Detention occupancies</i>	1%
Group C - Residential	<i>Residential occupancies</i>	71%
Group D - Business	<i>Business and Personal Services Occupancies</i>	3%
Group E - Mercantile	<i>Mercantile occupancies</i>	4%
Group F - Industrial	<i>Industrial occupancies</i>	8%
Other occupancies	<i>Not classified within the Ontario Building Code (i.e. farm buildings)</i>	8%
Reported fires	<i>Reported structure fires</i>	40,854

For this period 71% of the fires with a loss occurred within a Group C - residential occupancies.

In comparison to the provincial analysis the Municipality of Brighton property loss as a result of fires is presented in **Table 11** below (OFM data for Brighton). The data is very similar to that of the province. For the same period the analysis indicates that 69.2% of the fires reporting a loss occurred in Group C - residential occupancies.

Table 11: Municipality of Brighton Fire Loss by Property Classification
 Period 2007 to 2011

Occupancy Classification (OBC)	Occupancy Definition Fire Risk Sub-model (OFM)	Municipality of Brighton Fire Loss by Occupancy Classification
Group A – Assembly	<i>Assembly occupancies</i>	2.6%
Group B – Institutional	<i>Care or Detention occupancies</i>	0.0%
Group C – Residential	<i>Residential occupancies</i>	69.2%
Group D - Business	<i>Business and Personal Services Occupancies</i>	5.1%
Group E - Mercantile	<i>Mercantile occupancies</i>	0.0%
Group F - Industrial	<i>Industrial occupancies</i>	10.3%
Other occupancies	<i>Not classified within the Ontario Building Code (i.e. farm buildings)</i>	12.8%
Reported fires	<i>excluding buildings under National Farm Building code (4 fires)</i>	39

I4.2.2 Property Fire Loss

Property fire loss is another valuable performance measurement tool in assessing the cumulative impact of the “three lines of defence” utilized by a fire and emergency service.

Table 12 provides the Municipality of Brighton’s historical property fire loss for the period from 2007 to 2011. An important consideration in evaluating this data is to consider the impact of a major fire with a large dollar loss and/or a series of larger fires with a combined significant large dollar loss. Overall the Municipality of Brighton has experienced a relatively high level of property loss as a result of fire. There was significant property fire loss in 2008 but this decreased the following year in 2009. The significant property fire loss in 2008 was a result of structural fires.

Table 12: Property Fire Loss (Dollars)

Year	Fire Loss
2007	\$279,000
2008	\$2,282,200
2009	\$816,585
2010	\$584,549
2011	\$569,750

(Source: OFM historic fire loss data for Brighton)

14.2.3 Reported Fire Cause

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

Table 13 provides a summary of the reported possible cause of the 43 fires reported during the period 2007 to 2011 for the Municipality of Brighton (OFM data for Brighton).

Table 13: Municipality of Brighton 2007 to 2011 Reported Fire Cause

Nature	Fire Cause	Number of Fires	% of Cause
Intentional	Arson	1	2.3%
Intentional	Vandalism	1	2.3%
Unintentional	Children Playing	0	0.0%
Unintentional	Design/Construction/Maintenance deficiency	3	7.0%
Unintentional	Mechanical /Electrical failure	10	23.3%
Unintentional	Misuse of ignition source	2	4.7%
Unintentional	Other unintentional	2	4.7%
Unintentional	Undetermined	3	7.0%
Other	Other	1	2.3%
Undetermined	Undetermined	20	46.5%
Total number of fires and percentage		43	100.0%

There are four categories of cause utilized to classify the cause of a fire. These include intentional, unintentional, other, and undetermined.

The “intentional” category recognises the cause of a fire to be started for a specific reason. These are typically classified as arson fires, and for example can be related to acts of vandalism, or to achieve personal gain through insurance payment. There was one arson fire reported and one act of vandalism reported fire for this period.

The “unintentional” category recognises a number of the common causes of a fire that represent both human behavioural causes such as playing with matches, and equipment failures such as a mechanical failure. Unintentional mechanical/electrical failure represents 23.3% of the cause for the 43 fires during this period.

The cumulative percentage of “*unintentional–other unintentional (4.7%), other-other (2.3%) and undetermined-undetermined (46.5%)*” represents a total of 53.5% of all fire causes. This indicates that there was no specific cause identified for over half of all fires during this period.

I4.2.4 Reported Ignition Source

Table 14 similarly provides the reported ignition source for the 43 fires that occurred during the period 2007 to 2011.

Table 14: Municipality of Brighton 2007 to 2011 Ignition Source Class

Reported Ignition Source	Number of Fires	% of Cause
Appliances	3	7.0%
Cooking equipment	3	7.0%
Electrical distribution	6	14.0%
Heating equipment chimney etc.	5	11.6%
Lighting equipment	1	2.3%
Open flame tools/smokers articles	3	7.0%
Other electrical/mechanical	1	2.3%
Processing equipment	2	4.6%
Miscellaneous	0	0.0%
Exposure	0	0.0%
Undetermined	18	41.9%
Unknown, not reported	1	2.3%
Total number of fires and percentage	43	100%

(Source: OFM historic data for Brighton)

Undetermined ignition source represent the largest percentage at 41.9%. Out of the main categories of determined ignition sources, electrical distribution was the largest percentage at 14.0%.

I4.2.5 Reported Civilian Injuries and Fatalities

Table 15 indicates the number of fire related civilian injuries and fatalities that occurred within the Municipality of Brighton during the period 2007 to 2011 (OFM Data for Brighton).

Table 15: Municipality of Brighton
 2007 to 2011 Reported Civilian Injuries and Fire Deaths

Occupancy Classification (OBC)	Occupancy Definition Fire Risk Sub-model (OFM)	Injuries	Fatalities
Group A – Assembly	<i>Assembly occupancies</i>	0	0
Group B - Institutional	<i>Care or Detention occupancies</i>	0	0
Group C - Residential	<i>Residential occupancies</i>	2	0
Group D - Business	<i>Business and Personal Services Occupancies</i>	0	0
Group E - Mercantile	<i>Mercantile occupancies</i>	0	0
Group F - Industrial	<i>Industrial occupancies</i>	0	0
Other occupancies	<i>Not classified within the Ontario Building Code (i.e. farm buildings)</i>	0	0

During this period there were two reported injuries as a result of a fire in a Group C - residential occupancy.

I4.3 Past Fire Loss Profile Observations

Based on the historical data for the period 2007 to 2011 the Municipality of Brighton experienced the highest rate of fires within the Group C - residential occupancies. This result is consistent with that of the provincial profile.

Undetermined causes representing 46.5% and mechanical /electrical failure causes representing 23.3% were the leading causes for fires during this period. The cumulative percentage of fire causes that could not be determined represented 53.5% of the 43 fires reported during this period.

Undetermined ignition sources at 41.9% and electrical distribution at 14.0% represented the two leading ignition sources of the 43 fires reported during this period.

The analysis of the past fire losses within the Municipality of Brighton further defines that Group C- Residential occupancies represent the highest level of risk within the community.

Enhancing the first line of defence, including pro-active prevention and education programs, targeted at the areas identified within this Community Risk Profile, should be considered a priority within the Fire Master Plan.

I4.4 Fuel Load Profile

Fuel load typically refers to the amount and nature of combustible content and materials within a building. This can include combustible contents, interior finishes as well as structural materials. Combustible content tends to create the greatest potential fire loss risk. This can include industrial materials, commercial materials or typical office furnishings. Higher fuel loads results in increased fire loss risk due to increased opportunity for ignition and increased fire severity.

In many communities large amounts of fuel load can be contained within a single occupancy such as a building supply business, or alternatively within a large multi-occupancy building such a historical downtown core.

As presented previously within this report, age and construction of a building can also have an impact on fuel load given that older buildings likely have a larger volume of combustible construction such as wood framing rather than newer construction utilizing concrete and steel products.

Our analysis of fuel load within the Municipality of Brighton indicates that there are a small number of buildings or occupancies where significant fuel loads are present that would be cause for any specific identification. There are three noted facilities that have high amounts of fuel load concentration:

- Agrium Advanced Technologies – 10 Loyalist Drive
- Tri County Plastics – 87 Prince Edward
- Brighton Tire – 17 Loyalist Drive

The Tri-County Plastics facility contains recycling polyvinyl chloride (OVC) plastics with over 4 million pounds of product. The building is approximately 5,415 sq. metres in size and has a sprinkler system throughout, but in the event of a fire a municipal evacuation would take place.

Regular fire prevention inspection cycles and strategies to enforce continued compliance with the OFC are considered as best practices to achieving the legislative responsibilities of the municipality and providing an effective fire protection program to address fuel load risks.

I4.4.1 Fuel Load Profile Observations

In comparison to the number of buildings within the Municipality of Brighton there are a small number of buildings having a site specific fuel load concern. In addition to ensuring compliance to the requirements of the OBC and the OFC there are operational strategies that a fire department can implement to address fuel load concerns. These include regular fire inspection cycles and pre-planning of buildings of this nature to provide an operational advantage in the event of fire.

I5.0 COMMUNITY GROWTH & DEVELOPMENT

I5.1 Historic Growth

The following table indicates the historic populations within the Municipality of Brighton, as provided by Statistics Canada, Census Profiles. Historic household population statistics are also included, where available.

Table 16: Historic Growth in Population and Households

Year	Brighton Population ⁹	% Change in Population	Brighton Population by Household ¹⁰	% Change in Households
1996	9,022	N/A	N/A	N/A
2001	9,449	4.9%	3,883	N/A
2006	10,253	8.5%	4,328	11.5%
2011	10,928	6.6%	4,825	11.5%

I5.2 Growth Projections

Table 17 summarizes the growth projections for the Municipality of Brighton from 2006 to 2031.

Table 17: Population and Employment Growth Projections

Year	2006	2011	2016	2021	2026	2031
Population	10,253	10,928	11,399	11,415	12,059	12,662
Housing Units	3,965	4,374	4,559	4,566	4,823	5,064
Employment	2,563	2,732	2,849	2,853	3,014	3,165

(Source: Municipality of Brighton Planning Department)

⁹ Population data from Statistics Canada, Census Community Profiles, Municipality of Brighton

¹⁰ Total Private Dwellings, Statistics Canada, Census Community Profiles, Municipality of Brighton

The population of the Municipality of Brighton has grown slightly from 1996 to 2011, with an overall growth of 21.1%. It is predicted that over the next 20 years, the municipality will again experience a slight population growth of a 15.9% increase. From 2006 to 2011 specifically, the population of Brighton grew by 6.6%, approximately 1.3% per year. This is somewhat greater than the population growth of the province over the same time period, which was 5.7%, closer to 1.14% per year. Households grew by 11.5% over the same period, approximately 2.3% per year. The higher rate of household growth is consistent with a trend towards smaller household sizes overall in the province. The population and employment estimates shown above in **Table 17** predict that over the next 10 years (from 2011 to 2021) the municipality will experience a modest population growth of a 4.5% increase, representing 0.45% annual growth. It is anticipated that the majority of future residential and employment growth will be located in the Brighton Urban Area, which is comprised of residential, commercial, industrial, institutional and recreational land uses and is the central focus for the municipality.

Employment, however, is predicted to increase by approximately 15.9% over the next 20 years, or 0.80% per year. This represents the same increase as population growth. Although there is a lack of viable employment lands within the settlement boundary of the Brighton Urban Area, lands have been identified for inclusion within the urban settlement boundary for Brighton, as shown previously in **Figure 2**.

I5.3 Growth Projections Profile Observations

The population of the Municipality of Brighton is anticipated to grow at a modest rate of 4.5% over the coming 10 year period. This represents less than 1% of population growth per year and is a relatively low-growth or stable-growth scenario. This is consistent with the historic slower population growth in the Municipality of Brighton. No significant intensification is currently planned and new residential development is expected to occur in the existing Brighton Urban Area. Therefore the future population distributions within the Municipality's area are not expected to vary significantly within the 10 year study horizon.

I6.0 RISK PROFILE MODEL

The OFM Fire Risk Sub-model defines risk “as a measure of the probability and consequence of an adverse effect to health, property, organization, environment, or community as a result of an event, activity or operation. For the purposes of the Fire Risk Sub-model, such an event refers to a fire incident along with the effects of heat, smoke and toxicity threats generated from an incident.”

The OFM model develops an overall risk assessment “by assigning probability and consequence levels to potential adverse events or scenarios due to fire and combining the two to arrive at an overall risk level”. The OFM Fire Risk Sub-model provides a matrix as one option in arriving at the level of risk for a range of scenarios.

Alternatively the model provides the opportunity “for analysis purposes, the community being assessed can be defined as the municipality in its entirety or as a particular segment of it that distinguishes it from other parts”. The model further provides that “it may be convenient to subdivide a municipality based on residential subdivision, downtown sections, industrial park, and a rural area.”

For analytical purposes, the methodology within this study uses the OFM Fire Risk Sub-model major occupancy classifications as the basis for segmenting the community by primary building use. Each major occupancy classification is assigned a probability level based on the OFM Fire Risk Sub-model definitions. A consequence level also using the OFM Fire Risk Sub-model definition is then assigned for each major occupancy classification.

The methodology within this report includes a further process of assigning ‘weighting factor’ to each of the eight risk factor categories identified by the OFM Fire Risk Sub-model. Utilizing a range from 1 (lowest) to 3 (highest) each of the factors is assigned a weight factor, to calculate a weighted average. The weight factor assigns more or less priority to each of the given factors. For example, the demographic profile that identifies the number of vulnerable residents has been assigned the highest factor weight of 3. This process results in the most relevant categories having more impact on the risk priority level calculated.

The level of risk (Priority Level) for each major occupancy classification is determined by multiplying “**probability x consequence = risk level (priority).**” This provides the ability to determine an overall risk level for each major occupancy classification within the community.

This methodology then coordinates the assigned risk level for each major occupancy classification with the Council approved zoning by-law information and mapping. This process provides the opportunity to create a visual model (map) of the Community Risk Profile. This provides the opportunity to view both the current and projected level of risk within the community based on the Council approved Official Plan.

Creating the Community Risk Profile Model provides the opportunity to evaluate the current level of fire protection services provided. The model can further identify where risk levels may increase or change based on growth and long-term planning of the community.

I6.1 Probability Levels

The probability of a fire occurring can be estimated in part based on historical experience of the community. The experience of other similar communities and that of the province as a whole can also provide valuable insight into the probability of a fire occurring. The experience of the evaluator and the local fire service staff in collaborating on determining probability is also a key factor.

The OFM Fire Risk Sub-model categorizes the probability of an event occurring into five levels of likelihood. **Table 18** identifies the OFM Fire Risk Sub-model categories.

Table 18: OFM Fire Risk Sub-Model Likelihood Levels (Probability)
Likelihood Levels (Probability)

Description	Level	Specifics
<i>Rare</i>	1	- may occur in exceptional circumstances - no incidents in the past 15 years
<i>Unlikely</i>	2	- could occur at some time, especially if circumstances change - 5 to 15 years since last incident
<i>Possible</i>	3	- might occur under current circumstances - 1 incident in the past 5 years
<i>Likely</i>	4	- will probably occur at some time under current circumstances - multiple or reoccurring incidents in the past 5 years
<i>Almost Certain</i>	5	- expected to occur in most circumstances unless circumstances change - multiple or reoccurring incidents in the past year

I6.2 Consequence Levels

The consequences as a result of a fire relate to the potential losses or negative outcomes associated should an incident occur. The Fire Risk Sub-model identifies four components that should be evaluated in terms of assessing consequence. These include:

- **Life Safety:** Injuries or loss of life due to occupant and firefighter exposure to life threatening fire or other situations.
- **Property Loss:** Monetary losses relating to private and public buildings, property content, irreplaceable assets, significant historic/symbolic landmarks and critical infrastructure due to fire.
- **Economic Impact:** Monetary losses associated with property income, business closures, downturn in tourism, tax assessment value and employment layoffs due to fire.
- **Environmental Impact:** Harm to human and non-human (i.e. wildlife, fish and vegetation) species of life and general decline in quality of life within the community due to air/water/soil contamination as a result of fire or fire suppression activities.

The OFM Fire Risk Sub-model evaluates the consequences of an event based on five levels of severity. **Table 19** identifies the OFM Fire Risk Sub-model categories.

Table 19: OFM Fire Risk Sub-model Consequence Levels

Description	Level	Specifics
<i>Insignificant</i>	1	<ul style="list-style-type: none"> - no life safety issue - limited valued or no property loss - no impact to local economy and/or - no effect on general living conditions
<i>Minor</i>	2	<ul style="list-style-type: none"> - potential risk to life safety of occupants - minor property loss - minimal disruption to business activity and/or - minimal impact on general living conditions
<i>Moderate</i>	3	<ul style="list-style-type: none"> - threat to life safety of occupants - moderate property loss - poses threat to small local businesses and/or - could pose threat to quality of the environment
<i>Major</i>	4	<ul style="list-style-type: none"> - potential for a large loss of life - would result in significant property damage - significant threat to businesses, local economy and tourism and/or - impact to the environment would result in a short term, partial evacuation of local residents and businesses
<i>Catastrophic</i>	5	<ul style="list-style-type: none"> - significant loss of life - multiple property damage to significant portion of the municipality - long term disruption of businesses, local employment, and tourism and/or - environmental damage that would result in long-term evacuation of local residents and businesses

I6.3 Risk Levels

Once probability and consequence are determined for each major occupancy classification the level of risk is calculated by multiplying “*probability x consequence = risk level (priority).*” *Table 20* identifies the four levels of risk identified within the OFM Fire Risk Sub-model including the lower and upper range of each risk classification and the relative definition of each.

Table 20: OFM Fire Risk Sub-model Risk Levels

Risk Level	Priority Level	Lower – Upper Range	Definition
<i>Low Risk</i>	L1	0 to 6.3	- manage by routine programs and procedures, maintain risk monitoring
<i>Moderate Risk</i>	L2	6.4 to 12.5	- requires specific allocation of management responsibility including monitoring and response procedures
<i>High Risk</i>	L3	12.6 to 18.7	- community threat, senior management attention needed
<i>Extreme Risk</i>	L4	18.8 to 25.0	- serious threat, detailed research and management planning required at senior levels

I6.4 Ontario Fire Code Compliance

A major determinate in assessing risk within a community and the major building classifications is compliance with the Ontario Fire Code. The Ontario Fire Code which was adopted in 1981 and the Ontario Building Code were developed to ensure uniform building construction and maintenance standards are applied for all new building construction. The codes also provide for specific fire safety measures depending on the use of the building. Examples of the fire safety issues that are addressed include:

- *occupancy*
- *exits/means of egress including signs and lighting*
- *fire alarm and detection equipment*
- *fire department access*
- *inspection, testing, and maintenance*

In 1983 the OFC was further expanded to include retrofit requirements for many of the building constructed prior to 1981. Retrofit requirements were established to ensure a minimum acceptable level of life safety is present. A number of occupancy types are included within the retrofit requirements including assembly, boarding, lodging and rooming houses, health care facilities, multi-unit residential, two-unit residential, and hotels.

Determining the status of compliance or non-compliance including the status of retrofit requirements particularly for major building occupancies is an important component of developing the Community Risk Profile. This is particularly important within the major occupancies classifications where there is a documented history of property loss as a result of fire, and/or injuries and fatalities as a result of fire. Group A – Assembly and Group B – Institutional occupancies are the two primary occupancies types where more detailed analysis of compliance and non-compliance should be considered.

Where compliance has been achieved and documented these occupancy classifications can be considered as part of the standard risk identification methodology within this report. Where compliance has not been achieved including retrofit requirements these occupancies should be evaluated independently adding a further assessment of OFC compliance.

Completing the independent evaluation provides the opportunity to assess these buildings on a case by case basis and as such does not impact the overall risk level for the occupancy classification. In the event an individual property is assigned a higher level of risk as a result of non-compliance this methodology provides the opportunity for re-evaluating the risk level for that specific property once compliance is achieved.

Group A – Assembly Occupancies – Non-Compliant OFC

All Group A - Assembly occupancies are currently in compliance with the OFC.

Group B – Institutional Occupancies – Non-Compliant OFC

Information provided by the Municipality indicates that all Group B – Institutional Occupancies are currently in compliance with the OFC. The care and detention centers classified within this occupancy classification, including the federal penitentiary can present unique challenges in the event of a fire. Utilizing the “first line of defence” including pro-active fire prevention and public education programming in addition to a regular fire inspection program to sustain compliance with the OFC is an effective strategy in managing this risk.

Group C – Residential Occupancies – Non-Compliant OFC / Vulnerable Demographics

There are a number of properties where vulnerable occupants reside in either residential or institutional occupancies (Applefest Lodge, Maplewood, Golden Pond Retirement Resident and Brighton Daycare and Preschool). Although these buildings are currently compliant with the OFC the profile recognizes that this demographic of the population is by experience at higher risk in the event of a fire. Utilizing the “first line of defence” including pro-active fire prevention and public education programming in addition to a regular fire inspection program to sustain compliance with the OFC is an effective strategy in managing this risk.

Group D – Commercial Occupancies – Non-Compliant OFC

Information provided by the Municipality indicates that all Group D - Commercial Occupancies are currently in compliance with the OFC.

Group E – Mercantile Occupancies – Non-Compliant OFC

Information provided by the Municipality indicates that all Group E - Mercantile Occupancies are currently in compliance with the OFC.

Group F – Industrial Occupancies – Non-Compliant OFC

Information provided by the Municipality indicates that all Group F - Industrial Occupancies are currently in compliance with the OFC.

16.5 Municipality of Brighton Risk Evaluation

Table 21 presents the completed risk evaluation for the Municipality of Brighton. The evaluation utilizes the methodology described above following the framework of the OFM Fire Risk Sub-model.

The risk evaluation summary incorporates all community risk factors within the Municipality of Brighton for each major occupancy classification. The summary identifies that the Municipality has no extreme risk occupancies.

Institutional occupancies were assigned high risk. This should be reflected in the department's fire prevention and public education program planning. Assembly and residential occupancies are identified as moderate level risks. If, however, any buildings under this occupancy are non-compliant, they may be considered high risk. This would apply specifically to higher density residential units or assembly occupancies. Another consideration would be residential buildings which specifically house higher risk age-groups (e.g. seniors or vulnerable persons), which should be given a higher priority for programming based on increased risk. Business and mercantile occupancies in Brighton represent a moderate risk.

Table 21: Risk Evaluation Summary

Community Risk Profile Factors		Property Stock	Building Height	Building Age	Building Exposures	Demographic Profile	Geography Topography	Past Fire Loss	Fuel Load	Prob. Level	Cons. Level	Priority Level	Risk Level
Weight Factor		1	2	3	1	3	1	3	2				
OBC Major Occupancy Classification		Risk Level Assessment											
Group A	Assembly	3	2	3	2	4	2	1	2	2.4	3	7.2	RL-2
Group B	Institutional	4	3	4	3	5	3	1	3	3.2	4	12.8	RL-3
Group C	Residential	4	2	3	3	5	2	3	2	3.1	3	9.3	RL-2
Group D	Business	3	3	3	4	2	2	2	3	2.6	3	7.8	RL-2
Group E	Mercantile	3	3	3	4	2	2	2	3	2.6	3	7.8	RL-2
Group F	Industrial	3	2	2	2	2	2	2	4	2.3	3	6.9	RL-2
Mobile Homes & Trailers		1	2	3	3	5	2	3	2	2.9	3	8.8	RL-2

Probability: 1 – Rare 2 – Unlikely 3 – Possible 4 – Likely 5 – Almost Certain	X	Consequence Level: 1 – Insignificant 2 – Minor 3 – Moderate 4 – Major 5 - Catastrophic	=	Priority Level 0 to 6.2 = Low 6.3 to 12.5 = Moderate 12.6 to 18.7 = High 18.8 to 25.0 = Extreme	=	Risk Level RL-1 – Low Risk RL-2 – Moderate Risk RL-3 – High Risk RL-4 – Extreme Risk
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17.0 MUNICIPALITY OF BRIGHTON RISK MODEL

17.1 Methodology

This section provides a brief outline of the scope and methodology used in order to provide insight into the modeling procedures adopted to assess Municipal risk. A Geographic Information Systems (GIS) model was developed to assess risk based on historic call locations, risk geography, land use, the department’s existing and predicted emergency response travel times relate to these risks, and the Fire Risk Sub-Model (form 100).

The basis of the GIS risk model is to develop geographical risk zones that represent areas of low, moderate, high and extreme risk categories based on land use. The Municipality’s existing land use zoning was used to determine the boundaries and building occupancies associated with each zone. Subsequently, additional building located in agricultural and rural areas were identified using a buildings shapefile provided by the Ministry of Natural Resources. The shapefile displays the buildings as points, thus each point/building was given a 100 metre buffer in order to approximate the building along with its corresponding property. Next, building occupancies were assigned to their associated land use in order to determine the base risk category (assumes that all buildings are in compliance). The base risk zones associated with each occupancy category are listed in **Table 22**. Finally, several occupancies had their risk levels up-graded or down-graded based on a review of the risk evaluation summary with department staff.

Table 22: Base Risk Zone Category by Occupancy

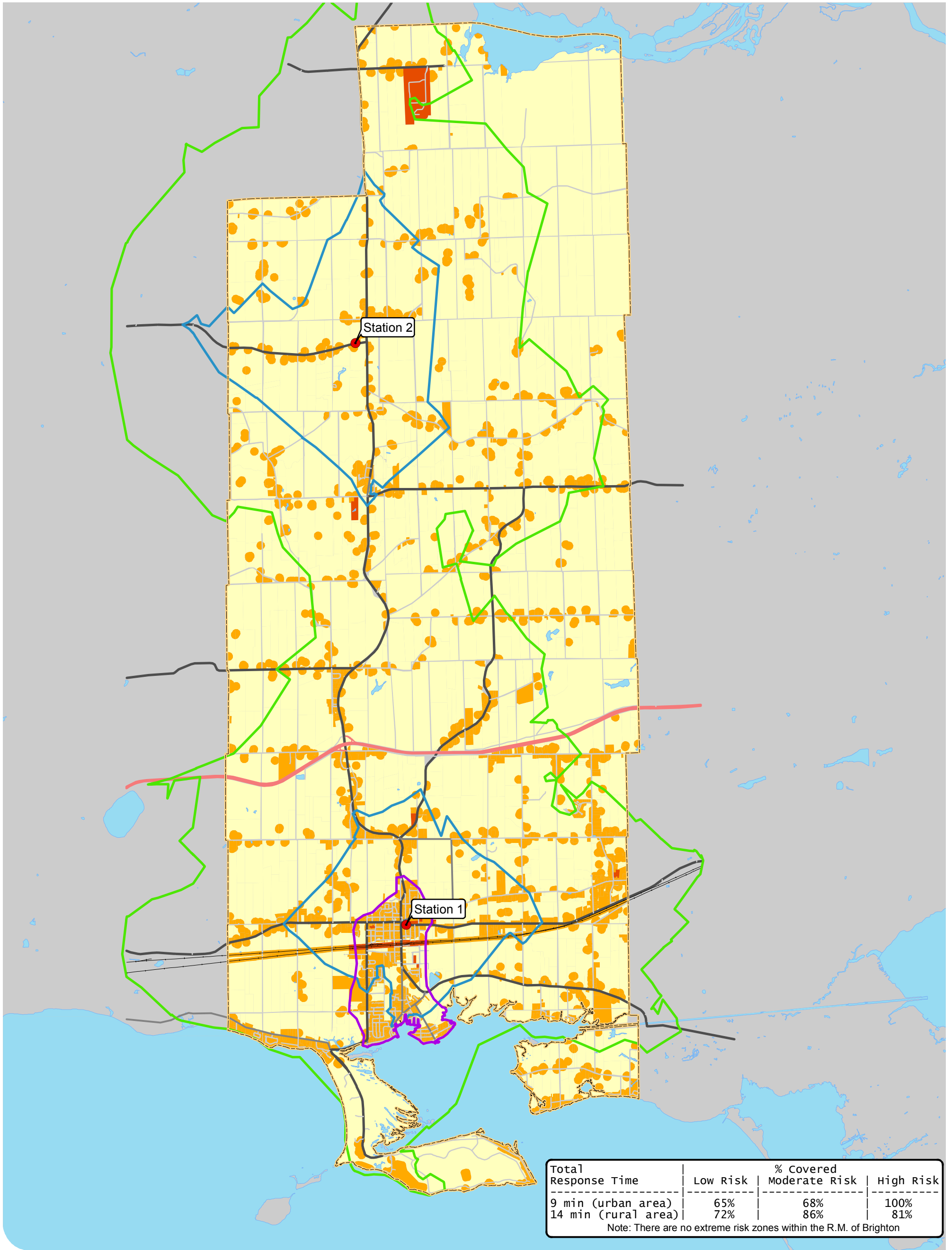
Occupancy Classification (OBC)	Occupancy Definition Fire Risk Sub-model (OFM)	Base Risk Zone Category Assigned
Group A – Assembly Assembly	<i>Assembly occupancies</i>	<i>moderate</i>
Group B - Institutional Institutional	<i>Care or Detention occupancies</i>	<i>high</i>
Group C - Residential Residential	<i>Residential occupancies</i>	<i>moderate</i>
Group D - Business	<i>Business and Personal Services Occupancies</i>	<i>moderate</i>
Group E - Mercantile	<i>Mercantile occupancies</i>	<i>moderate</i>
Group F1 - Industrial	<i>Industrial occupancies</i>	<i>low</i>
Group F2 - Industrial		<i>moderate</i>
Group F3 - Industrial		<i>high</i>
Other occupancies	<i>Not classified within the Ontario Building Code (i.e. farm buildings)</i>	<i>low</i>

17.2 Existing Risk and Response (Municipal Geography)

The GIS model was used to approximate existing geographic coverage of the existing risk zones. The existing station locations were represented in this scenario, shown in **Figure 5**. Total response times were estimated by assuming a five minute turnout time and calibrating the travel time along the road network. The calibrated travel speeds take into account vehicle acceleration and deceleration at stop sign and traffic signals and closely match the actual travel times to historical calls. These calibrated travel speeds were used to calculate total response time buffers that radiate out from the fire stations. Area calculations identify the percentage of each risk zone category that can be responded to within an estimated nine minute and 14 minute total response time. The calculations indicate that 100% of the high risk geography, 68% of the moderate risk geography and 65% of the low risk geography is covered within nine minutes of predicted total response time within the urban area. This scenario also indicates that 81% of the high risk zones, 86% of the moderate risk zones and 72% of the low risk zones being covered within a 14 minute total response time throughout the rural area of the municipality.











17.3 Existing Risk and Response (Historical Call Locations)

Figure 6 depicts historic call locations from 2007 to 2012, which have been placed on top of the existing risk zones. Calculations were carried out to determine the number of calls that are located within each risk zone category and the associated total response time. Based on the calculation results, 100% of historic high risk calls, 92% of the historic moderate risk calls and 100% of the historic low risk calls have been responded to within nine minutes of response time within the urban area. The table also indicates that within 14 minutes of total response time, all of historic high risk calls, 92% of the historic moderate risk calls and 83% of the historic low risk calls were responded to within the rural area of the municipality. These results indicate that the Brighton District Fire Department should be able to respond to the vast majority of calls within the NFPA 1720 standard.



Total Response Time	Low Risk	% Covered Moderate Risk	High Risk
9 min (urban area)	65%	68%	100%
14 min (rural area)	72%	86%	81%

Note: There are no extreme risk zones within the R.M. of Brighton

Total Response Time		Risk
 Existing Fire Station	 9 minutes	 Low Risk
 Municipal Boundary	 14 minutes	 Moderate Risk
 Waterbody	 Assumed Urban Area	 High Risk
		 Extreme Risk



MAP DRAWING INFORMATION:
DATA PROVIDED MUNICIPALITY OF BRIGHTON

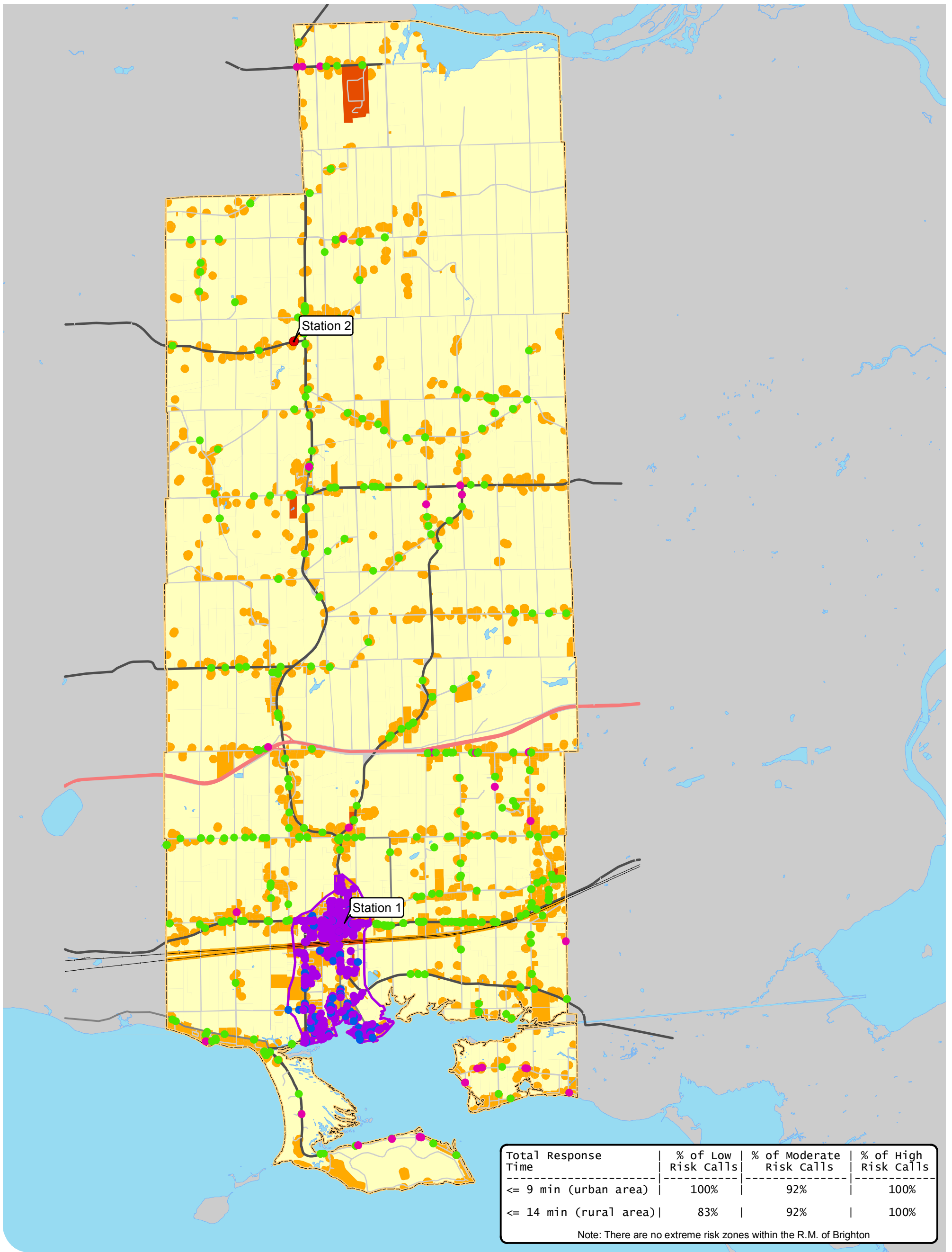
MAP CREATED BY: JJA
MAP CHECKED BY: SLC
MAP PROJECTION: NAD 1983 UTM Zone 17N

FILE LOCATION:
I:\GIS\126607 - Brighton FMP\MXDs\Existing Risk and Response.mxd

0 0.5 1 2 km



PROJECT: 12-6607 STATUS: FINAL DATE: 03/28/13



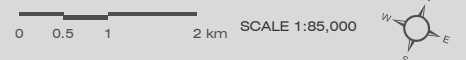
2007-12 Historic Call - Total Response Time		Risk
	Existing Fire Station	 Low Risk
	<= 9 minutes	 Moderate Risk
	Municipal Boundary	 High Risk
	Waterbody	 Extreme Risk
	Assumed Urban Area	
	> 9 minutes	
	<= 14 minutes	
	> 14 minutes	



MAP DRAWING INFORMATION:
DATA PROVIDED MUNICIPALITY OF BRIGHTON

MAP CREATED BY: JJA
MAP CHECKED BY: SLC
MAP PROJECTION: NAD 1983 UTM Zone 17N

FILE LOCATION:
I:\GIS\126607 - Brighton FMP\MXD\Existing Risk and Response - Historical Call Locations.mxd



PROJECT: 12-6607 STATUS: FINAL DATE: 06/04/13

APPENDIX J
Definitions of OFM Response Types



ALL EMERGENCY RESPONSES

AID FROM OTHER DEPARTMENT(S)

1	Mutual aid
2	Automatic aid
3	Fire Protection agreement
4	Not applicable

INCIDENT LOCATION

NFPP

See separate code listing

FIRE DEPT ID CODE

NFPP OR FD

See separate code listing

ALARM TO FIRE DEPARTMENT

1	911
2	Telephone from Civilian (other than 911)
3	From Ambulance
4	From Police Services
5	From Monitoring Agency
6	Direct Connection
7	Verbal Report to Station (in person)
8	Two-Way Radio (fire department)
9	Other Alarm
10	No Alarm Received - No Response
11	No Alarm rec'd - incident discovered by FD personnel

RESPONSE TYPE

Property Fires/Explosions

1	Fire
2	Explosion (exc. types 3, 11 to 13)
3	No loss outdoor fire (excluding arson, vandalism, children playing, recycling or dump fires)

Overpressure rupture/explosion (no fire)

11	Overpressure Rupture (no fire, e.g. steam boilers, hot water)
12	Munition Explosion - (no fire, e.g. bombs, dynamite)
13	Overpressure Rupture - gas pipe (no fire)

Pre fire conditions/no fire

21	Overheat (no fire, e.g. engines, mechanical devices)
22	Pot on Stove (no fire)
24	Other Cooking/toasting/smoke/steam (no fire)
25	Lightning (no fire)

26	Fireworks (no fire)
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29	Other pre fire conditions (no fire)
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Burning (controlled)

23	Open air burning/unauthorized controlled burning (no uncontrolled fire)
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36	Authorized controlled burning - complaint
----	---

False fire calls

31	Alarm System Equipment - Malfunction
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32	Alarm System Equipment - Accidental activation (exc. code 35)
----	---

33	Human - Malicious intent, prank
----	---------------------------------

34	Human - Perceived Emergency
----	-----------------------------

35	Human - Accidental (alarm accidentally activated by person)
----	---

39	Other False Fire Call
----	-----------------------

CO False calls

37	CO false alarm - perceived emergency (no CO present)
----	--

38	CO false alarm - equipment malfunction (no CO present)
----	--

Public Hazard

53	CO incident, CO present (NOT false alarm)
----	---

41	Gas Leak - Natural Gas
----	------------------------

42	Gas Leak - Propane
----	--------------------

43	Gas Leak - Refrigeration
----	--------------------------

44	Gas Leak - Miscellaneous
----	--------------------------

45	Spill - Gasoline or Fuel
----	--------------------------

46	Spill - Toxic Chemical
----	------------------------

47	Spill - Miscellaneous
----	-----------------------

48	Radio-active Material Problem
----	-------------------------------

49	Ruptured Water, Steam Pipe
----	----------------------------

50	Power Lines Down, Arcing
----	--------------------------

51	Bomb, Explosive Removal, Standby
----	----------------------------------

54	Suspicious substance
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57	Public Hazard no action required
----	----------------------------------

58	Public Hazard call false alarm
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59	Other public hazard
----	---------------------

Rescue

61	Vehicle Extrication
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62	Vehicle Collision
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63	Building Collapse
----	-------------------

64	Commercial/Industrial Accident
----	--------------------------------

65	Home/Residential Accident
----	---------------------------

66	Persons Trapped in Elevator
----	-----------------------------

67	Water Rescue
----	--------------

68	Water Ice Rescue
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69	Other Rescue
----	--------------

601	Trench rescue (non fire)
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602	Confined space rescue (non fire)
-----	----------------------------------

603	High angle rescue (non fire)
-----	------------------------------

604	Low angle rescue (non fire)
-----	-----------------------------

605	Animal rescue
-----	---------------

698	Rescue no action required
-----	---------------------------

699	Rescue false alarm
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Medical/resuscitator call

701	Oxygen administered
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702	CPR administered
-----	------------------

703	Defibrillator used
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71	Asphyxia, Respiratory Condition
----	---------------------------------

73	Seizure
----	---------

74	Electric Shock
----	----------------

75	Traumatic Shock
----	-----------------

76	Chest pains or suspected heart attack
----	---------------------------------------

82	Burns
----	-------

84	Medical Aid Not Required on Arrival
----	-------------------------------------

85	Vital signs absent, DOA
----	-------------------------

86	Alcohol or drug related
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88	Accident or illness related - cuts, fractures, person fainted, etc.
----	---

89	Other Medical/Resuscitator Call
----	---------------------------------

898	Medical/resuscitator call no action required
-----	--

899	Medical/resuscitator call false alarm
-----	---------------------------------------

Other response

921	Illegal grow operation (no fire)
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922	Illegal drug operation (no fire)
-----	----------------------------------

910	Assisting other FD: Mutual Aid
-----	--------------------------------

911	Assisting other FD: Automatic Aid
-----	-----------------------------------

912	Assisting other FD: Fire Protection Agreement
-----	---

913	Assisting other FD: Other
-----	---------------------------

92	Assisting Police (exc 921, 922)
----	---------------------------------

93	Assisting Other Agencies (exc 921, 922)
----	---

94	Other Public Service
----	----------------------

96	Call cancelled on route
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97	Incident not found
----	--------------------

98	Assistance not required by other agency
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99	Other Response
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FIRES AND EXPLOSIONS

STATUS ON ARRIVAL

1	Fire extinguished prior to arrival
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2	Fire with no evidence from street
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3	Fire with smoke showing only - including vehicle, outdoor fires
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4	Flames showing from small area (one storey or less, part of a vehicle, outdoor)
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5	Flames showing from large area (more than one storey, large area outdoors)
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7	Fully involved (total structure, vehicle, spreading outdoor fire)
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8	Exposure involved
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9	Unclassified
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WATER

1	Hydrant within 150 meters
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2	Hydrant within 150 to 300 meters
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3	Hydrant 300 or more meters
---	----------------------------

4	Tanker shuttle service available (NO hydrant)
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5	None of the above
---	-------------------

9	Undetermined
---	--------------

FIRE CONTROL

1	Extinguished by fire department
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2	Extinguished by automatic system
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3	Extinguished by occupant
---	--------------------------

4	Fire self extinguished
---	------------------------

5	Action taken unclassified
---	---------------------------

