DILLON CONSULTING

TOWNSHIP OF CENTRE WELLINGTON

Fire Service Master Plan

Final Report

December 2017 – 16-3644

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Acronyms / Abbreviations

AHJ	Authority Having Jurisdiction
ANSI	American National Standards Institute
B.C. Playbook	Structure Firefighters Competency and Training Playbook
CAFC	Canadian Association of Fire Chiefs
CFAI	Commission on Fire Accreditation International
CFEM	Comprehensive Fire Safety Effectiveness Model
CLAC	Volunteer Firefighters Association
CO	Carbon Monoxide
CPC	Commission on Professional Credentialing
CRA	Community Risk Assessment
CWFR	Centre Wellington Fire & Rescue
DP	Departmental Policy
DRDC	Defence Research & Development Canada
EMS	Emergency Medical Services
EVT	Emergency Vehicle Technician
FLMS	*Fire Learning Management System*
FPPA	*Fire Protection and Prevention Act*
FSMP	Fire Service Master Plan
FTE	Full-Time Equivalent
FUS	Fire Underwriters Survey™
GIS	Geographical Information System
HTA	Highway Traffic Act
IC	Incident Command
IDLH	immediately dangerous to life and health
IFSTA	International Fire Service Training Association
IMS	Incident Management System
JHSC	Joint Health and Safety Committee
LERL	Lower Effective Response Level
MTO	Ministry of Transportation
MW	megawatt
NFPA	National Fire Protection Association
NFPA Pro-Qual	National Fire Protection Association Professional Qualifications
NIST	National Institute of Standards and Technology
OBC	Ontario Building Code
OFC	Ontario Fire Code
OFMEM	Office of the Fire Marshal and Emergency Management
OFSS	Ontario Fire Services Standards

OG	Operating Guideline
OHSA	*Occupational Health and Safety Act*
PFSGs	Public Fire Safety Guidelines
PPE	Personal Protective Equipment
RIT	Rapid Intervention
SCBA	Self-Contained Breathing Apparatus
SOG	Standard Operating Guideline
TAAP-C	The Arson Prevention Program for Children
WRESTRC	Waterloo Region Emergency Services Training and Research Centre

Executive Summary

This Fire Service Master Plan (FSMP) has been developed to provide the Township of Centre Wellington with a strategic framework to assist Council in making decisions regarding the provision of fire protection and emergency services based on in-depth analyses of its local "needs and circumstances" as defined by the *Fire Protection and Prevention Act* (1997) (FPPA). Our interpretation of Council's commitment to public safety is to provide an effective and efficient level of fire protection and emergency services in responding to the Township's legislated responsibilities as contained within the FPPA and the *Occupational Health and Safety Act* (OHSA).

This FSMP provides a complete review of the current operations of the Centre Wellington Fire & Rescue (CWFR) to assist Council in establishing key objectives for the department. This plan includes analyses and recommendations that have been prepared following the master fire planning process outlined within the Office of the Fire Marshal and Emergency Management (OFMEM), *Shaping Fire-Safe Communities Initiative.*

One of the primary roles of the OFMEM 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 OFMEM has developed Public Fire Safety Guidelines (PFSGs) to assist municipalities in making informed decisions to determine local needs and circumstances and achieve compliance with the FPPA.

It is important to note that the OFMEM has initiated a review of all Public Fire Safety Guidelines. The following information is presented on the OFMEM website regarding this review:

> "Please be advised that Office of the Fire Marshal and Emergency Management Public Fire Safety Guidelines are currently under review but continue to be made available for reference purposes."[1]

This FSMP has been prepared in consideration of the current PFSGs and the Comprehensive Fire Safety Effectiveness Model, and Fire Risk Sub-model, authored by the OFMEM.

A core focus of the FPPA is the optimization of programs and services which prioritize the application of a strategy commonly referred to as the *"Three Lines of Defence"* that includes:

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

[1] OFMEM website, PFSG Index page, as of January 31st, 2017

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. The OFMEM has indicated that further optimization of programs targeted specifically at the first two lines of defence should be a priority for fire services within Ontario.

The analyses presented within this FSMP indicate that the CWFR is currently not achieving its legislative requirements for completing a Simplified Risk Assessment. There are also identified legislative gaps in defining and measuring the goals and objectives for distributing public education materials and delivery of the department's Home Smoke/Carbon Monoxide (CO) Alarm Program.

The FPPA states that, *"every municipality shall, establish a program in the municipality which must include public education with respect to fire safety and certain components of fire prevention; and provide such other fire protection services as it determines may be necessary in accordance with its needs and circumstances."* In our view, this FSMP provides thorough analyses of the Townships current needs and circumstances. This FSMP provides a number of strategies and recommendations for Council's consideration in providing the most efficient and effective level of fire and emergency services that provide the community with the most value.

In the decision making process to choose the level of fire protection to be provided, consideration should also be given to the role of the community in fire safety. The role of human behaviour and awareness with respect to fire safety plays a key part in having an effective and efficient level of fire protection services. These factors further support the importance of public fire safety education and fire prevention in providing the most efficient and effective level of fire protection services for the community.

Emergency response, including fire suppression resources, is a necessary tool in managing the overall fire risk within a community. However, as indicated by the OFMEM, preventing fires through the delivery of proactive education and prevention programs, and utilization of the appropriate fire safety standards and enforcement strategies are the most effective means to further reduce the impacts of fire, and fire-related injuries across the province.

The analyses within this FSMP recognize four strategic priorities for the delivery of fire protection services by the Centre Wellington Fire & Rescue including:

i. *Recognize the historical dedication and commitment of the members of Centre Wellington Fire and Rescue and their ongoing effort to transition to one single, unified fire department.*

ii. *Utilization of a Community Risk Assessment to determine the fire safety risks within the Township as the basis for developing clear goals and objectives for all fire protection and emergency services provided by the Centre Wellington Fire and Rescue;*
iii. *Optimization of the first two lines of defence including public education and fire prevention, and the utilization of fire safety standards and fire code enforcement to provide a comprehensive fire protection program within the Township based on the results of the Community Risk Assessment; and*
iv. *Emphasis on strategies to support the sustainability of fire protection and emergency services that provide the most effective and efficient level of services resulting in the best value for the community.*

Subject to Council's consideration of the proposed Fire Service Master Plan the following recommendations are presented for approval and implementation to support the strategic priorities of this Fire Service Master Plan:

Administration Division:

1. *That the Centre Wellington Fire and Rescue update the department's mission statement, and develop a vision statement to align with the proposed strategic priorities of the proposed Fire Service Master Plan;*
2. *That the Fire Chief's job description be revised to reflect the recommendations of the proposed Fire Service Master Plan;*
3. *That the Township investigate opportunities for providing coverage in the absence of the Administrative Assistant;*
4. *That the purchase and implementation of an integrated records management software solution be investigated for use by the Centre Wellington Fire and Rescue;*
5. *That an Operating Guideline Committee be formalized including a defined terms of reference, and representation from a cross section of department staff.*
6. *That the purchase and implementation of an integrated records management software solution be investigated for use by the Centre Wellington Fire and Rescue.*
7. *That the Centre Wellington Fire and Rescue develop an Operating Guideline or Department Policy to define the required records management procedures and practices;*
8. *That the Centre Wellington Fire and Rescue develop a Public Relations Policy;*
9. *That the Centre Wellington Fire and Rescue develop an Annual Report to Council and the community as part of the annual budget submission process;*
10. *That the Establishing and Regulating By-Law No. 2006-083 be updated to reflect the direction of Council in respect to the delivery of all fire protection services;*
11. *That consideration be given to implementing a regular process for reviewing and updating all by-laws associated with the operation of the Central Wellington Fire and Rescue Services;*

12. *That the Centre Wellington Fire and Rescue investigate alternative options for the delivery of fire dispatching services;*
13. *That the strategic priorities identified within the proposed Fire Service Master Plan be adopted to form the strategic framework for the delivery of fire protection services, including:*
    - v. *Recognize the historical dedication and commitment of the members of Centre Wellington Fire and Rescue and their ongoing effort to transition to one single, unified fire department.*
    - vi. *Utilization of a Community Risk Assessment to determine the fire safety risks within the Township as the basis for developing clear goals and objectives for all fire protection and emergency services provided by the Centre Wellington Fire and Rescue;*
    - vii. *Optimization of the first two lines of defence including public education and fire prevention, and the utilization of fire safety standards and fire code enforcement to provide a comprehensive fire protection program within the Township based on the results of the Community Risk Assessment; and*
    - viii. *Emphasis on strategies to support the sustainability of fire protection and emergency services that provide the most effective and efficient level of services resulting in the best value for the community.*

Fire Prevention & Public Education Division:

14. *That the Centre Wellington Fire and Rescue develop a draft Fire Prevention Policy for consideration and approval by Council and inclusion within the proposed updated establishing and Regulating By-law as an appendix;*
15. *That the Centre Wellington Fire and Rescue develop Standard Operating Guidelines to inform the delivery of all approved fire prevention and public education programs and activities;*
16. *That the Fire Chief update the Community Risk Assessment as part of the proposed annual reporting process;*
17. *That the Centre Wellington Fire and consider OFM-TG-01-2012 "Fire Safety Inspections and Enforcement" in developing the proposed Fire Prevention Policy;*
18. *That the proposed Public Education Programs and Activities be included within the proposed Fire Prevention Policy;*
19. *That the Centre Wellington Fire and Rescue that the proposed Fire Inspection Cycles be included within the proposed Fire Prevention Policy;*
20. *That subject to Councils consideration and approval of the proposed Fire Service Master Plan that the Centre Wellington Fire and Rescue proposed Fire Prevention & Public Education Division Staff Resource Plan be adopted.*

Training Division:

21. *That the Centre Wellington Fire and Rescue consider revisions to its current training policies as referenced in the proposed Fire Service Master Plan;*
22. *That the Centre Wellington Fire and Rescue consider options to enhancing its utilization of online firefighter training;*
23. *That the Centre Wellington Fire and Rescue review all current Standard Operating Guidelines for specialized services, and include the response capabilities within the proposed updated Establishing and Regulating By-law for Council's consideration and approval;*
24. *That the Centre Wellington Fire and Rescue enhance its Company Officer training program by developing an internal Company Officer Training Program that aligns with the NFPA 1021 Standard – Level II;*
25. *That the Centre Wellington Fire and Rescue implement a strategy supporting succession planning within the department;*
26. *That the Centre Wellington Fire and Rescue consider the Volunteer Firefighter Recruitment and Retention Strategies included within the proposed Fire Service Master Plan;*
27. *That that the Centre Wellington Fire and Rescue proposed Training Division Staff Resource Plan be adopted.*

Fire Suppression Division:

28. *That the proposed fire suppression emergency response performance objectives identified within the proposed Fire Master Plan be considered and approved by Council and included within the new Establishing and Regulating By-law, including:*
    a. *That the Centre Wellington Fire and Rescue strive to achieve an initial response deployment of four firefighters to all fire related emergency calls;*
    b. *That the Centre Wellington Fire and Rescue strive to achieve a depth of response deployment to all fire related emergency calls of four firefighters to low risk occupancies, 14 firefighters to moderate risk occupancies, and 24 firefighters to high risk occupancies;*
    c. *That the Centre Wellington Fire and Rescue strive to achieve the response time performance objective referenced within the NFPA 1720 Rural Demand Zone within the entire Township including a minimum of six firefighters responding within a 14 minute response time (turnout time + travel time) with a performance objective of 80%; and*
    d. *That the Centre Wellington Fire and Rescue strive to achieve the response time performance objectives in the NFPA 1720 Suburban Demand Zone within the defined urban boundary of the Township including a minimum of ten firefighters responding within a ten minute response time (turnout time + travel time) with a performance objective of 80%.*
29. *That the Centre Wellington Fire and Rescue take a leadership role in the removal of duplicate street names within the Township;*

30. *That the Centre Wellington Fire and Rescue develop a Senior Officer On-Call Policy;*
31. *That the Centre Wellington Fire and Rescue total complement of Volunteer Firefighters be increased to 72;*
32. *That the Centre Wellington Fire and Rescue increase the number of scheduled on call volunteer firefighters to a minimum of six volunteer firefighters at all times;*
33. *That Council consider the proposed Fire Suppression Staff Resource Options and approve the option that best defines Council's definition of responding to the local needs and circumstances of the Township of Centre Wellington.*

Stations, Fleet, Equipment, and Communications:

34. *That the Centre Wellington Fire and Rescue consider implementing a financial strategy to develop a reserve apparatus capacity of a minimum of one Pumper-Rescue.*

1.0 Introduction

The Township of Centre Wellington is a community that has deep agricultural roots with a charming small town feel and rural character. Along with its beautiful natural heritage features such as the Grand River and Elora Gorge, the Township of Centre Wellington (Centre Wellington or Township) boasts modern amenities alongside a prominent built heritage. These features contribute to it being an established destination for tourism including sports and culture. As the Township continues to grow, the municipality strives for healthy growth and good governance. As part of these objectives, the Township initiated this Fire Service Master Plan (FSMP or Plan). The FSMP will guide the delivery of fire protection services over the next ten years (to 2026). Development of a FSMP reflects 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 even as the community continues to grow.

The foundation of this plan is based on the local and national context. Industry best practices, including relevant standards, legislation, and analysis techniques directly inform the plan methodology. The plan is also driven by the community context, including existing services and future needs based on growth. Using this foundation, the FSMP presents an assessment of the operations and divisions within Centre Wellington Fire and Rescue (CWFR) and provides future direction to meet the local needs and circumstances of the Township.

1.1 Municipal Overview

The Township of Centre Wellington is located in the heart of Wellington County (County) and covers a geographic area of approximately 408 square kilometres. As shown in Figure 1, Centre Wellington is bordered by the Townships of Mapleton, Wellington North, Guelph/Eramosa, and the Town of Erin within the County. To the southwest, the Township is bordered by Woolwich Township (Region of Waterloo) and East Garafaxa (Dufferin County) to the northwest. The Township is also in close proximity to the City of Guelph.

The Township is the result of a 1999 amalgamation of the former town of Fergus, village of Elora and parts of the former townships of West Garafaxa, Nichol, Pilkington, and Eramosa. In addition to the rural homes distributed throughout the Township, residential areas include: Fergus and Elora-Salem as urban centres in the approximate centre of the Township; and three hamlets - Inverhaugh, Ennotville, and Belwood. According to the County of Wellington growth projections, approximately 85% of the Township's 2016 estimated population of 29,885 people reside within the urban centres of Elora-Salem and Fergus.[2]

[2] Population data is based on the projections from the County of Wellington Official Plan Amendment 99, dated May 12, 2016, pg. 10.

Across the Township's geography there is a mix of residential areas, natural features, and agricultural lands. The Township is rich in natural heritage features which include its agricultural lands, the Grand River, Belwood Lake, and the Elora Gorge. Belwood Lake features recreational land uses including cottages, active and passive recreational uses, and tent/trailer parks. The Elora Gorge Conservation Area features hiking trails, a campground, and other recreational activities. Nestled on the Grand River, both Fergus and Elora are rich with a built heritage that creates a unique sense of place. Combined, the natural features and built heritage make the Township a place that has a mix of rural character, built heritage, and urban amenities which contribute to it being a tourist destination and a desirable place to call home.

The County of Wellington is a part of the 'outer ring' of the Greater Golden Horseshoe which is an area projected to experience considerable population and employment growth to 2041 as identified within the 2013 Growth Plan. The County in turn allocates this growth to local municipalities by taking into consideration land supply, housing market demand, servicing capacity, and servicing constraints. As identified within the 2015 *Wellington County Population, Household, and Employment Forecast Update (2011 to 2041)*, of the historical (2001 to 2011) growth within the County, much of it was accommodated by the Township. This trend is expected to continue with Fergus and Elora-Salem as the key areas to accommodate this growth. By 2036, the population of Centre Wellington is expected to increase by 62% from 2016 estimates according to the County of Wellington Official Plan Amendment 99. Throughout this FSMP, this growth is considered as part of future local needs and circumstances. Further information on the planning context and growth projections can be found in the Growth Considerations section of the Community Risk Assessment (Appendix A).

1.2 Centre Wellington Fire and Rescue Overview

Like many fire departments across the province, Centre Wellington Fire and Rescue (CWFR) is a fire service that is a result of municipal amalgamation. Since the 1999 amalgamation of the Township, the stations located in Elora and Fergus have been making strides to become one, single unified fire service. The Township is serviced by a fire department that is comprised of volunteer / paid response suppression staff. The two existing station locations are based on their historic locations within the settlement areas of Fergus and Elora, as shown in Figure 2.

Today CWFR is overseen by an administration team that consists of a Fire Chief, Chief Training Officer / Public Fire Safety Education, and District Chief / Public Safety Officer. Together this team oversees core services of:

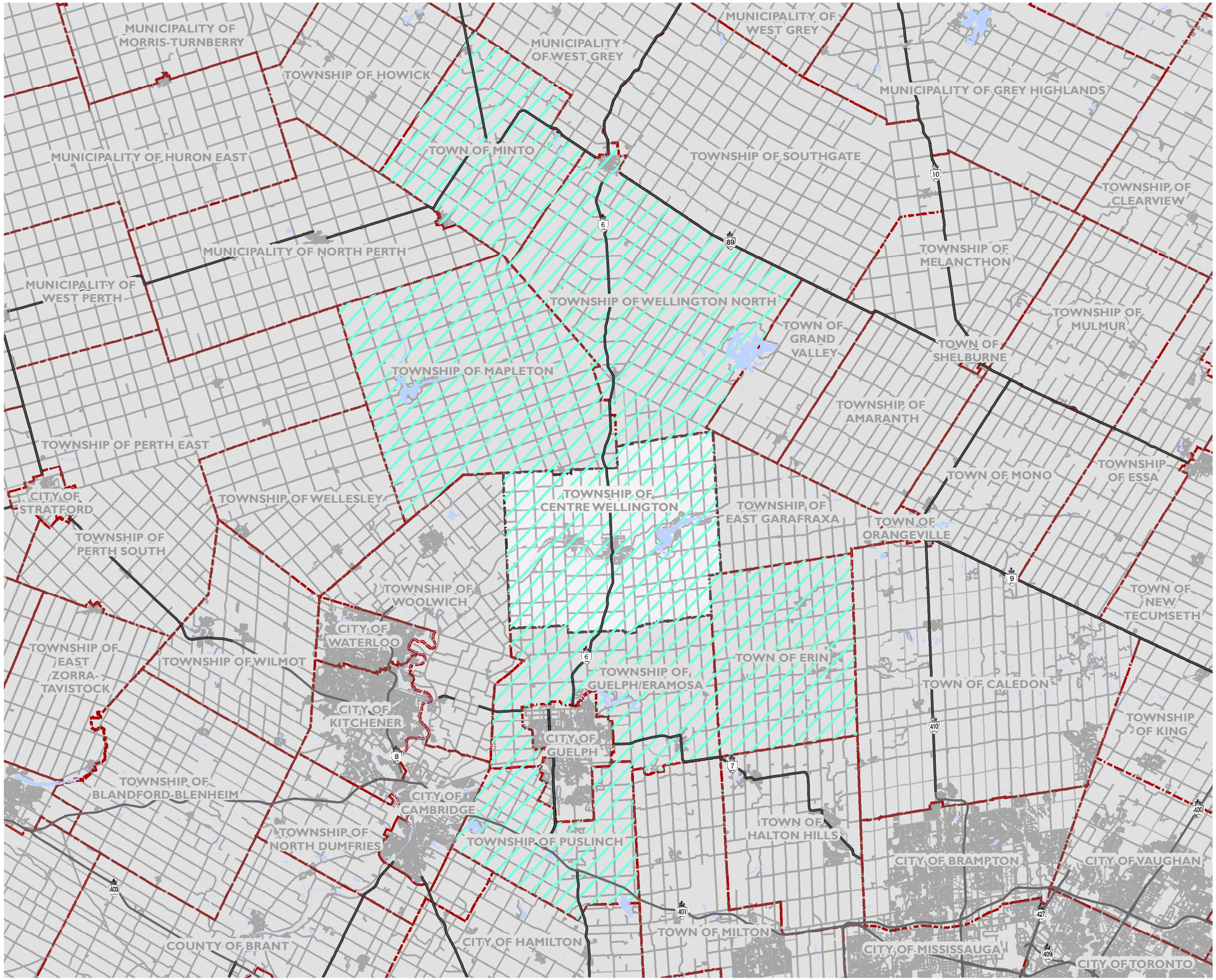
- Fire Administration;
- Fire Prevention and Public Education;
- Training; and
- Fire Suppression and Technical Rescues.

More information on the department staffing and structure can be found in the Administration Division section of this Fire Service Master Plan.

Township of Centre Wellington
Fire Service Master Plan

Centre Wellington Location Map

Figure 1



Highway / Freeway
Arterial
Collector
Township of Centre Wellington
County of Wellington
Surrounding Municipal Boundary
Waterbody

0 0.5 1 2 km

SCALE 1:85,000

MAP DRAWING INFORMATION:
DATA PROVIDED BY MNR AND THE TOWNSHIP OF CENTRE WELLINGTON

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

FILE LOCATION: I:\GIS\163644 - Centre Wellington Master Fire Plan\MXDs\Municipal Overview.mxd

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PROJECT: 16-3644
STATUS: DRAFT
DATE: 2017-02-23

TOWNSHIP OF MAPLETON

TOWNSHIP OF WELLINGTON NORTH

TOWN OF GRAND VALLEY

TOWNSHIP OF EAST GARAFRAXA

TOWNSHIP OF WOOLWICH

TOWN OF ERIN

TOWNSHIP OF GUELPH/ERAMOSA

COUNTY RD 8

ELORA RD

COUNTY RD 17

PEEL ST W

COUNTY RD 17

COUNTY RD 109

ARTHUR ST N

1ST LINE

COUNTY RD 16

COUNTY RD 5

COUNTY RD 19

Belwood

HWY 6

BEATTY LINE

Salem

SIDERD 15

SIDERD 10

COUNTY RD 18

NORTHFIELD DR E

GEDDES ST

GARTSHORE ST

COLBORNE ST

Elora

Station 60 (Elora)

Fergus

Station 40 (Fergus)

COUNTY RD 3

COUNTY RD 18

MIDDLEBROOK RD

1ST LINE

S RIVER RD

GILKISON RD

GUELPH RD

TOWER ST S

Inverhaugh

COUNTY RD 21

KATHERINE ST N

WELLINGTON 7 RD

SIDERD 6 N

9 HWY

Ennotville

COUNTY RD 29

COUNTY RD 26

LINE 86

COUNTY RD 22

COUNTY RD 22

Township of Centre Wellington
Fire Service Master Plan

Station Locations and Settlement Areas
Figure 2

- Fire Station
- Urban Centre
- Hamlet Area
- Township of Centre Wellington
- Surrounding Municipal Boundary
- Waterbody
- Local
- Arterial
- Collector

0 0.5 1 2 km

SCALE 1:85,000

MAP DRAWING INFORMATION:
DATA PROVIDED BY MNR AND THE TOWNSHIP OF CENTRE WELLINGTON

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

FILE LOCATION: I:\GIS\163644 - Centre Wellington Master Fire Plan\MXDs\Station Locations.mxd

DILLON CONSULTING

PROJECT: 16-3644
STATUS: DRAFT
DATE: 2017-02-24

1.3 Related Plans and Reports

This Fire Service Master Plan was completed with consideration to applicable plans and reports including the Council Priority and Initiatives Strategic Plan 2015 to 2018, the 2002 Five Year Fire Master Plan, and the 2016 verdict of the Coroner's Jury.

1.3.1 Council Priorities and Initiatives – 2015 to 2018

The Township of Centre Wellington Council Priorities and Initiatives – 2015 to 2018 is a strategic plan that was approved by Council and finalized in September 2015. The strategic plan identifies five goals: reliable infrastructure, healthy growth, economic prosperity, pride of place, and good government.

The completion of this fire service master plan is explicitly identified within the strategic plan to facilitate the goal of healthy growth. Under the healthy growth goal, Council stipulates that in 2016 the Township will prepare a Fire Service Master Plan in order to anticipate long term fire service facility and equipment needs. The strategic plan identifies that the fire study is intended to understand new development areas and building types over the next 25 years. In addition, the Fire Service Master Plan was to examine staffing, firefighter response and apparatus.

The completion and implementation of this Fire Service Master Plan further supports other Council priorities including good government. The initiative focuses on engaging citizens on budget, spending and program decisions. This includes the adoption of a rolling three year capital and operating budget. This Fire Service Master Plan supports this priority through the stakeholder engagement conducted to inform this FSMP and the capital costs identified within the implementation plan for this FSMP.

The strategic plan acknowledges the importance of volunteers for municipal activities. The Township plans to develop and adopt a policy on the use and support of volunteers in these activities. This Fire Service Master Plan supports this Council direction by reviewing the important role of volunteers in providing fire services to the community.

Overall, the completion and implementation of this Fire Service Master Plan reflects a strategic priority of Council. This FSMP is designed to address Council objectives where appropriate with respect to the fire department and the services it provides.

1.3.2 Five Year Fire Master Plan (2002)

In 2002, a Five Year Fire Master Plan was completed by an external consultant (Insurers' Advisory Organization Inc.) for the Township of Centre Wellington. The Five Year Master Plan assisted in providing recommendations to direct the provision of municipal fire protection in the short and long term. As it was completed in 2002, this plan provided recommendations to move forward from the recent (1999) amalgamation of two fire departments. This included a review of station staffing, training, public education and fire protection, administration, fire stations, communications and apparatus and equipment.

When this plan was conducted, the department, including the administration team, was entirely comprised of volunteer staff. Staffing recommendations within the five-year plan included hiring a full-time Fire Chief and a full-time, dedicated fire prevention and public education officer. It also recommended providing the department with administrative assistant support and adding a dedicated, full-time Training Officer. These staffing recommendations were identified to: address the growing pressure and time required for a Fire Chief; develop a strong Public Fire Safety and Fire Prevention program; and address training gaps. A dedicated, full-time fire prevention / public education officer was recommended to ensure that the department is meeting its duties under the *Fire Protection and Prevention Act* including for public education and fire inspections. The recommendation for a dedicated Training Officer was specifically identified to encourage inter-station training to bring the newly amalgamated department together, improve records management, and encourage consistency in training.

The plan also looked at the fire station facilities, apparatus, and a high level consideration of emergency response. There was a recommendation that Centre Wellington consider a new fire station to replace the aging Fergus station. Additionally, each truck was reviewed and replacement dates identified to set out the capital budget. In regards to emergency response coverage, the plan recommended that Centre Wellington discontinue the automatic aid agreement with the Township of Woolwich since the fire station in Elora is closer to the service agreement areas than Woolwich stations. (The existing agreement is discussed in Section 3.9.2 – Automatic Aid Agreements.)

Since this plan was completed nearly fifteen years ago, the CWFR has seen a lot of changes. Some of these changes including full-time administration team staff reflect the recommendations in the Five Year Fire Master Plan. This 2017 Fire Service Master Plan seeks to recognize the progress that has been made while looking to the next ten years.

1.3.3 2016 Verdict of Coroner's Jury

Mandated under the *Coroners Act*, 1990, coroners specialize in death investigation for certain deaths as identified under the Act. In Ontario, the Office of the Chief Coroner has a mandate to: "…serve the living through high quality death investigations and inquests to ensure that no death will be overlooked, concealed or ignored. The findings are used to generate recommendations to help improve public safety and prevent deaths in similar circumstances".[3]

As a result of three fatal fires in 2012 (in Oshawa, Whitby, and Ajax, Ontario) and a fourth fatal fire in the Town of East Gwillimbury in 2013, the Office of the Chief Coroner initiated an inquest to determine the events surrounding all of the fire-related deaths that occurred. It included all of the various aspects related to fire safety, before and during a fire situation, and local emergency services response to a fire.

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

The intent of an inquest such as this is designed to focus public attention on the circumstances of a death through an objective examination of facts. The findings of this inquest resulted in 33 recommendations to a range of organizations and stakeholders within Ontario including municipalities.

Our review of these recommendations and their relevance to this fire service master planning process highlight the importance of the *"three lines of defence"* identified within this FSMP. In our view, each of the 33 recommendations is important and relate to enhancing public safety. Examples of these recommendations included directly from the inquest report are presented to support the analyses and recommendations of this FSMP:[4]

Directed to the Office of the Fire Marshal and Emergency Management:

- ü *To educate the public on its responsibility to maintain and not dismantle/vandalize smoke alarms;*
- ü *To continue and expand the accessibility of all training resources to municipalities by providing standard curriculum e-learning, Train the Trainer packages, local training opportunities and teaching materials to municipalities to provide consistent province wide training standards;*

Directed to Municipalities:

- ü *Consult with stakeholders to explore the installation of clearly visible house numbers; and*
- ü *Work towards a provincially integrated computer software program to assist dispatching of 911 calls.*

Directed to the Office of the Fire Marshal and Emergency Management and Municipalities:

- ü *To continue and expand public education on the fact that upon discovery of smoke or fire every person must immediately get out and stay out of the building; and*
- ü *As part of public education, promote awareness of different types and appropriate use of fire extinguishers. Included in this education, could be demonstrations and hands-on practice.*

Directed to the Ontario Association of Fire Chiefs:

- ü *Fire Departments to explore re-allocating their current resources, and/or utilizing resources from the suppression area, for fire prevention, public education and fire safety inspections in their municipalities. This could include a Home Visit Public Education program and literature that will provide occupants home fire safety information, such as the presence of smoke detectors, CO detectors, escape plans, vulnerable occupants (physical and cognitive disabilities), appliance (e.g. dryer) safety, delivered by fire fighters as provided by the municipality. Such programs may include a home inspection as determined by the municipality.*

[4] Ministry of Community Safety and Correctional Facilities. "Verdict of Coroner's Jury." *Office of the Chief Coroner.* April 2016. https://www.mcscs.jus.gov.on.ca/sites/default/files/content/mcscs/docs/Harrison_et_al_2016.pdf (accessed November 2016).

1.4 Report Purpose and Structure

The purpose of this FSMP is to establish strategic priorities to guide decision making and the future direction of the department. This included the development of a comprehensive Fire Service Master Plan for the provision of local fire and rescue services based upon growth, trends, regulatory requirements, and financial capabilities of the Township. The plan also identifies fire risks, fire protection capabilities, public education, fire risk reductions and management (fire prevention), emergency response, opportunities for optimizing service delivery by reviewing staffing and the operational model, as well as funding and fiscal measures related to fire protection. This resulted in an implementation plan based on short (1 to 3 years), medium (4 to 6 years), and long term (7 to 10 years) horizons. The plan includes targeted consultation processes to gather input from internal and external stakeholders. The internal consultation included members of Council, key staff and the volunteer firefighters. The external consultation was designed to gather an understanding the customer services needs of the public with respective to the delivery of fire protection services. The analysis conducted as part of this FSMP is based on existing community fire risk, future growth, service gaps, and cites best practices as well as industry trends.

In alignment with the scope of this FSMP, this report is structured into 10 sections:

1.0 Introduction
2.0 Fire Service Master Plan Process Overview
3.0 Administration Division
4.0 Community Risk Assessment Summary
5.0 Municipal Peer Comparators Summary
6.0 Fire Prevention and Public Education Division
7.0 Training Division
8.0 Fire Suppression Division
9.0 Stations, Fleet, Equipment, and Communications
10.0 Implementation Plan

2.0 Fire Service Master Plan Process Overview

Local context and experience informs the completion of a fire service master plan. In addition, there are three additional areas that act as a foundational element to the fire service master planning process: legislation, industry best practices, and stakeholder engagement. This section describes the relevant legislation, guidelines and the stakeholder engagement process that was undertaken to frame this Fire Service Master Plan in defining the needs and circumstances of the Township of Centre Wellington.

2.1 Legislation

All municipalities in Ontario, whether they have volunteer, full-time, or composite fire services, are subject to provincial legislation. Key pieces of legislation that affect the delivery of fire protection services include the *Fire Prevention & Protection Act (1997),* and the *Occupational Health and Safety Act, R.S.O. 1990 (*OHSA*).*

2.1.1 *Fire Protection and Prevention Act*, 1997

Within the Province of Ontario, the *Fire Protection and Prevention Act*, 1997 (FPPA) outlines the relevant legislation for the operation of a fire department. The following are applicable sections of the FPPA for reference:

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 Municipal Act, 2001; ("municipalite")
"prescribed" means prescribed by regulation ("prescript")
"regulation" means a regulation made under this Act; ("reglement")
"volunteer firefighter" means a firefighter who provides fire protection services either voluntarily or for a nominal consideration, honorarium, training or activity allowance;

("pompier volontaire")

Application of definition of firefighter

(3) The definition of firefighter in subsection (1) does not apply to Part IX. 1997, c. 4, s. 1 (2)

Automatic aid agreements

(4) For the purposes of this Act, an automatic aid agreement means any agreement under which,

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

(b) a municipality agrees to ensure the provision of a supplemental response to fires, rescues and other emergencies that may occur in a part of another municipality where a fire department situated in the municipality is capable of providing the quickest supplemental response to fires, rescues and other emergencies occurring in the part of the other municipality. 1997, c. 4, s. 1 (4)

PART II
RESPONSIBILITY FOR FIRE PROTECTION SERVICES

Municipal responsibilities

2.(1) Every municipality shall

(a) establish a program in the municipality which must include public education with respect to fire safety and certain components of fire prevention, and

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

Services to be provided

(3) In determining the form and content of the program that it must offer under clause (1)(a) and the other fire protection services that it may offer under clause (1)(b), a municipality may seek the advice of the Fire Marshal

Automatic aid agreements

(6) A municipality may enter into an automatic aid agreement to provide or receive the initial or supplemental response to fires, rescues and emergencies.

Review of municipal fire services

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

Failure to provide services

(8) If a municipality fails to adhere to the recommendations made by the Fire Marshal under subsection (7) or to take any other measure that in the opinion of the Fire Marshal will remedy or reduce the threat to public safety, the Minister may recommend the Lieutenant Governor in Council that a regulation be made under subsection (9).

Regulation	(9) Upon the recommendation of the Minister, the Lieutenant Governor in council may make regulations establishing standards for fire protection services in municipalities and requiring municipalities to comply with the standards.
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 MARSHAL

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.

2.1.2 *Occupational Health and Safety Act*, 1990

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 firefighter-specific safety issues within Ontario.

Firefighter safety must be a high priority considering all of the activities and services to be provided by a fire department. This must include the provision of department policies, procedures, or guidelines that are consistent with the direction of the OHSA Section 21 Guidance Notes for the fire service.

2.2 Industry Best Practices

In Ontario, there are no legislated standards that a municipality must achieve with regard to: the number of firefighters; the type of firefighter (full-time/paid response/casual/volunteer); the apparatus required to respond; emergency response times; or fire prevention and public education resources.

As such, municipalities must look to best practices within the industry to respond to evolving trends. This section presents an overview of the current best practices being used by municipalities. Where applicable these are utilized to inform this Fire Master Plan including:

- Office of the Fire Marshal and Emergency Management (OFMEM);
- National Fire Protection Association (NFPA);
- Commission on Fire Accreditation International (CFAI);
- National Institute of Standards and Technology (NIST);
- Canadian Association of Fire Chiefs – Volunteer Firefighter Recruitment and Retention Strategy;
- Province of British Columbia – Structure Firefighters Competency and Training Playbook

2.2.1 Office of the Fire Marshal and Emergency Management (OFMEM)

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:

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

The OFMEM has developed Public Fire Safety Guidelines (PFSGs) to assist municipalities in making informed decisions to determine local "needs and circumstances" and achieve compliance with the FPPA. It is important to note that the OFMEM began a comprehensive review of all Public Fire Safety Guidelines in January 2015. The following information is presented on the OFMEM website regarding this review:

"Please be advised that Office of the Fire Marshal and Emergency Management Public Fire Safety Guidelines are currently under review but continue to be made available for reference purposes."[5]

With the Township's approval, Dillon Consulting Limited continued the completion of this FSMP utilizing the current PFSGs, recognizing the current review process is underway.

2.2.1.1 Public Fire Safety Guidelines

This section outlines five key PFSGs that assist municipalities in making informed decisions with regard to determining local "*needs and circumstances*" and achieving compliance with the FPPA. These PFSGs form part of the foundation for this Fire Service Master Plan. Applicable PFSGs referenced within this FSMP can be found in Appendix B.

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

PFSG 00-00-01 (Appendix B) 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.*

[5] Source: Ministry of Community Safety and Correctional Services. *Public Fire Safety Guidelines.* September 16, 2016. http://www.mcscs.jus.gov.on.ca/english/FireMarshal/FireServiceResources/PublicFireSafetyGuidelines/OFM_Guidelines.html (accessed November 5, 2016).

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

PFSG 04-40-03 and 04-40-12 (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:

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

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

PFSG 04-08-10 (Appendix B) was developed by the OFMEM 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".*

PFSG 01-02-01 "Comprehensive Fire Safety Effectiveness Model" (CFEM)

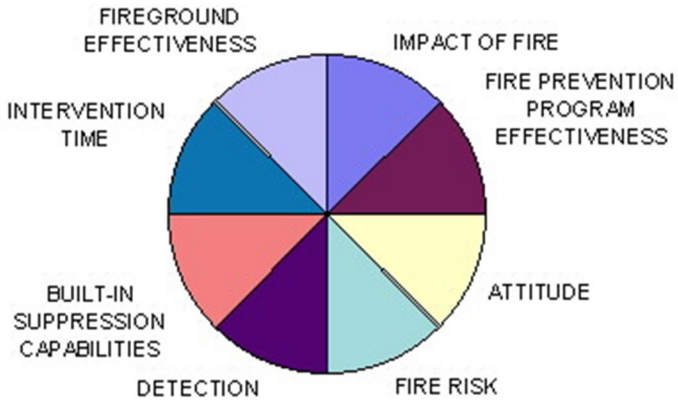
PFSG 01-02-01 (Appendix B) was developed by the OFMEM to assist communities in evaluating their level of fire safety. The model recognizes that there is more to providing fire protection services than just building fire stations, purchasing equipment and deploying firefighters. The CFEM confirms that 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 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 3 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.

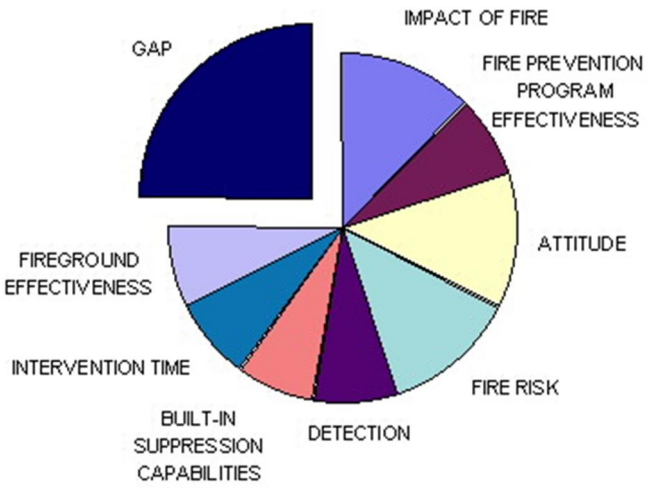
Figure 3: Factors in a Comprehensive Fire Safety Effectiveness Model



(Source: OFM PFSG 01-02-01)

Figure 4 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 4: 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 OFMEM the primary objective of this FSMP is to identify through evidence based analyses the presence of any existing gap in fire protection services within the Township of Centre Wellington.

In response to any existing gaps identified this FSMP 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

The three lines of defence are described 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;

II. Fire Safety Standards and Enforcement:

Ensuring that buildings have the required fire protection systems, safety features, including fire safety plans, and that these systems are maintained, so that the severity of fires may be minimized;

III. Emergency Response:

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

The CFEM 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.

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

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

- *PFSG 02-03-01 "Economic Circumstances"*
- *PFSG 02-02-03 "Fire Risk Assessment"*
- *PFSG 02-04-01 "Capabilities of Existing Fire Protection Services*

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

2.2.2 Commission on Fire Accreditation International (CFAI)

The Centre for Public Safety Excellent (CPSE) serves as the governing body for the two organizations that offer accreditation, education and credentialing: the Commission on Fire Accreditation International (CFAI) and the Commission on Professional Credentialing (CPC).

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

The objective of the CFAI program is to define an accreditation system that is a credible, achievable, usable, and realistic model. The ultimate CFAI goal is to provide an accreditation process to improve the abilities of municipalities to both understand and recognize their respective community fire risks, provide balanced public / private involvement in reducing these risks and improve the overall quality of life for community members using the accreditation model.

2.2.2.1 Accreditation Process

The 'Principles of Accreditation' are defined by the CFAI as:

- *Accreditation:* A process by which an agency evaluates and recognizes a program of study as meeting certain predetermined standards or qualifications. It applies only to institutions or agencies and their programs of study or their services.
- *Certification/Professional Designation:* Certification is a process whereby an individual is tested and evaluated in order to determine his or her mastery of a specific body of knowledge. Professional designation is similar to certification and is proven by which an individual is evaluated based upon experience, education and related accomplishments and is awarded a designation based upon this third party evaluation.
- *Standardization:* A process by which a service is assessed against some fixed standard of performance and quality.

The accreditation model is comprised of the following required elements:

- *Organizational Self-Assessment*
- *Standards of Cover*
- *Community Risk Analysis*
- *Strategic Plan*

Manuals are provided by the CPSE & CFAI to layout the process for evaluating, conducting, organization and presenting the requirements of these required elements. This FSMP has been developed with reference to the CFAI Standards of Cover Manual, 5th Edition and the CFAI Fire and Emergency Service Self-Assessment Manual, 8th Edition. Of importance to this fire master planning process is the CFAI strategy that seeks to achieve continuous improvement in the delivery of fire protection services.

2.2.3 Fire Protection Association (NFPA)

The National Fire Protection Association (NFPA) develops and publishes over 300 codes and standards aimed towards reducing losses due to fire, electrical, and related hazards. NFPA codes and standards are administered by over 250 Technical Committees, and are adopted internationally. Therefore, the NFPA codes and standards represent a best practice, and will be used in this FSMP to inform observations and recommendations.

When applicable, the following standards will be described or referenced throughout this FSMP:

- ü *NFPA 1221 Standard for the Installation, Maintenance, and Use of Emergency Services Communications Systems*
- ü *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*
- ü *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*
- ü *NFPA 1730 Standard on Organization and Deployment of Fire Prevention Inspection and Code Enforcement, Plan Review, Investigation, and Public Education Operations*

Other standards in reference to training levels, such as NFPA 1035 *Standard on Fire and Life Safety Educator,* will also be referenced.

2.2.4 National Institute of Standards and Technology

The National Institute of Standards and Technology (NIST) was founded in 1901 as a non-regulatory agency within the United States (U.S.) Department of Commerce. NIST's mission is to promote U.S. innovation and industrial competitiveness by advancing measurement science, standards, and technology in ways that enhance economic security and improve our quality of life.

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

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

2.2.5 Volunteer Firefighter Recruitment and Retention Strategy - Canadian Association of Fire Chiefs (CAFC)

Recruitment and retention of volunteers is not just a municipal or provincial challenge in Ontario. Volunteer firefighters represent approximately 80% of all firefighters in Canada. In May 2010, Volunteer Alberta released the "*Volunteer Firefighter Recruitment and Retention Strategy"* which was developed for the Alberta Fire Chiefs' Association.[6] Recently, the Canadian Association of Fire Chiefs signed an agreement with the Alberta Fire Chiefs Association to expand their volunteer firefighter recruitment strategy across Canada. Further information on this strategy and its applicability to the Township of Centre Wellington can be found in Section 7.10.

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

The Office of the Fire Commissioner in British Columbia, in consultation with the Fire Chiefs' Association of British Columbia, and the British Columbia Fire Training Officers Association has developed the Structure Firefighters Competency and Training Playbook (B.C. Playbook). The B.C. Playbook is applicable to all fire services personnel within the Province of British Columbia as defined by their *Fire Services Act*.

The principles of the Playbook indicate that it is the direct responsibility of the *"authority having jurisdiction"* (AHJ) to declare its firefighting service level. The service level to be declared is directly linked to the training level of the department. The declared fire suppression service level must then be established as a formal policy (by-law, policy or contract) and be fully reflected in operating guidelines within the fire department. The service levels from which an AHJ may choose per the Playbook include: Exterior Operations Service Levels, Interior Operations Service Levels, and Full Service Level.

For further information on the B.C. Playbook and how it can be used to inform the department's services and operations see Section 8.4.2.

2.3 Stakeholder Engagement Process

The process of developing a Fire Service Master Plan for the Township of Centre Wellington involved various consultation activities. Effective communication and consultation with stakeholders is essential to the success of the plan. It is essential for three reasons. First, information is collected on local needs and circumstances which feed directly into this FSMP. The second reason is to ensure those responsible for implementing and affected by this Fire Service Master Plan understand the basis on which certain decisions are made and why particular recommendations are made. Third, it is an opportunity to obtain feedback from the public, including key stakeholders, as well as to educate the public stakeholders on fire prevention and the fire master planning process.

[6] The Volunteer Alberta "*Volunteer Firefighter Recruitment and Retention Strategy"* released May 2010 is currently available on the Alberta Fire Chiefs Association website at: http://www.afca.ab.ca/images/stories/PDFs/volunteer%20alberta%20r%20%20r%20tool%20kit.pdf.

2.3.1 Project Team

To provide input and feedback into the FSMP, the Township assembled Fire Service Master Plan Committee. This committee was comprised of:

- Managing Director Community Services;
- Fire Chief;
- District Chief (Station 40) / Public Safety Officer;
- District Chief (Station 60);
- Elora Volunteer Firefighter Association President; and
- Fergus Volunteer Firefighter Association President.

At key intervals of the study, Dillon team met with the Fire Service Master Plan Committee to seek input and provide feedback to the FSMP. The following key meetings took place:

- Project Team Meeting 1 - Project Initiation: June 1 2016; and
- Project Team Meeting 2 - Preliminary Findings: September 20, 2016.

When necessary throughout the project, informal calls and email communication took place.

2.3.2 Internal Stakeholder Engagement

Internal stakeholders 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 department. It also provides information that is used for study analysis and recommendation phases. Engaging stakeholders helps ensure that multiple perspectives can be brought to the fire service master planning process.

Two full days of interviews were held with several internal stakeholders to understand the challenges and opportunities from a number of different viewpoints within the department. Individual interviews were held with staff from the CWFR, the Township, and elected officials including:

- Managing Director of Community Services;
- Chief Administrative Officer;
- Mayor and Councillors;
- Fire Chief;
- District Chief (Station 40)/ Public Safety Officer;
- Chief Training Officer / Public Fire Safety Education;
- District Chief (Station 60);
- Administrative Assistant / Dispatch;
- County Training Officer / Fergus Volunteer Firefighter Association President; and
- Managing Director of Planning and Development and Planning and GIS Coordinator.

As a department supported by dedicated volunteer firefighters, these individuals are key stakeholders for the process of developing the fire service master plan. To accommodate training schedules, a volunteer firefighter stakeholder session was held in the evening at each of the two stations. All

firefighters were invited to attend an open discussion designed to gather feedback regarding the strengths, weaknesses, opportunities and challenges of the fire department for consideration in the Fire Service Master Plan. The volunteer firefighter consultation sessions were held on the evening of June 1 and June 6, 2016. The Elora Volunteer Firefighter Association President was present and involved in the volunteer stakeholder group session. In order to broaden the connection with the volunteer firefighters, it was identified that the Fire Chief will provide communications as appropriate to the stations throughout the process.

Of those elected officials interviewed, there was consistent feedback heard including the recognition of the dedication of the volunteer firefighters and the service they provide to the community. It was also recognized that the volunteers from the two stations work well as a team. Elected officials were interested in moving towards a more unified fire department and the continued efficient use of resources. There was also a notable concern that the two fire stations are located south of the Grand River. The feedback from all interviewees directly informed the analysis and recommendations of this FSMP.

2.3.3 External Stakeholder Engagement

To complement and support the development of this FSMP, external public stakeholder engagement was conducted. Key external stakeholders were defined as representatives from community groups, businesses, institutions, or other groups that have interaction with the CWFR. Eight stakeholders were identified by the CWFR and were invited by the CWFR to participate in a telephone survey. Four respondents replied and were interviewed by Dillon staff via telephone. The interviewed groups included: the Centre Wellington Chamber of Commerce; Groves Memorial Hospital; Jefferson Elora Corp; and the Elora Research Station/University of Guelph.

The targeted stakeholder survey was designed to gain detailed information about the Centre Wellington Fire and Rescue Department from important community organizations and businesses. While there were only four respondents to the survey, the detail provided helps shape the direction of the Fire Service Master Plan and identifies both strengths and weaknesses of the department.

- To summarize:
- Most respondents have accessed services provided by CWFR in the past five years including fire suppression, medical services, training, public education, and fire inspection.
- All respondents knew that CWFR is comprised of volunteer firefighters and have policies in place that enable employees to depart the work place to respond to calls.
- All respondents were aware of the technical rescue services provided by CWFR with the exception of windmill rescue services.
- All of the respondents indicated that CWFR fire prevention strategies were ‘somewhat effective’ or ‘very effective’.

- When it came to the overall performance and perception of the department, all respondents rated the department between eight and ten out of ten.
- In terms of weaknesses, one respondent questioned the suitability of a two-station model as the Township continues to grow.
- Another recommended area for improvement was the frequency and opportunity of training for institutional (hospital) staff.
- The majority of respondents were satisfied with the services provided by the CWFR, but it was identified that enhanced hands-on training and increased public education would be a mutual benefit for the groups and the CWFR.
- Overall, the commitment, compassion, and responsiveness of the CWFR staff were recognized. In all, respondents were very positive of the CWFR, stating that *"the strength of the Centre Wellington Fire Department is the staff"*.

A description of the methodology as well as detailed engagement results can be found in Appendix C.

In addition to the above external stakeholder consultation completed by Dillon, the Township sought input from the public at large. This included posting the Draft Fire Services Master Plan for public review and comment on the Connect CW stakeholder engagement website. A public open house, which included further opportunity to comment on and provide comment on the Draft FSMP was held on October 17, 2017.

2.3.4 Summary

Consultation was conducted with CWFR staff including volunteer firefighters, the Volunteer Firefighter Association Presidents, senior municipal staff, elected officials, and key external stakeholders throughout the course of the Fire Service Master Plan study. Interviews with key stakeholders and staff members were an essential component of the process, as they provided insight into the strengths, weaknesses, opportunities, and challenges facing the department and the issues to be considered within the FSMP. Public consultation included targeted stakeholder phone consultation and will include a Community Information Open House as an element of presenting the final Fire Master Plan Report to Council.

Study consultation allows for input into the FSMP by study stakeholders and also provides an opportunity to inform stakeholders about the FSMP purpose, goals, and recommendations. Support from municipal staff and Council is essential to the success of the FSMP, and therefore, including these key stakeholders throughout the planning process is highly beneficial.

3.0 Administration Division

The Centre Wellington Fire & Rescue Administration Division is comprised of four employees. This team is responsible for providing the department with strategic direction as well as ensuring day-to-day operations are carried out. Some of the resources used to carry out these duties include the administrative workspace, annual reports, by-laws and agreements, policies and standard operating guidelines and records management systems. This section provides an overview of the existing conditions and opportunities in regards to these resources.

3.1 Department Vision & Mission Statements

The OFMEM identifies fire department vision and mission statements as a key component of fire service master plans within PFSG 03-02-13 "*Master Planning Process for Fire Protection.*" A vision statement should identify a vision for the future that all individuals within the department can work towards. A mission statement should identify what an organization does, who it does it for, and how it does it.

The CWFR operates under a mission statement that successfully relates to the Office of the Fire Marshal and Emergency Management's comprehensive fire safety effectiveness model's three lines of defence. The mission statement is as follows:

> *To provide a range of services to educate, prevent and protect the inhabitants and visitors to the Township from the adverse effects of fires, sudden medical emergencies or exposure to dangerous conditions created by man or nature in an efficient and cost effective manner.*

The CWFR does not currently have a vision statement to align with the department's mission statement. Developing a vision statement and potentially revisiting the mission statement having considered this proposed FSMP, could be utilized as a strategy in team building and defining a shared vision of CWFR as part of the ongoing effort to transition to one single, unified fire department.

Subject to Council's consideration and approval of this FSMP, consideration should be given to ensuring that the mission statement reflects the strategic priorities outlined and recommendations contained within this FSMP. Once completed, it is recommended that the vision statement and mission statement of the department be posted in public, visible and prominent locations within the fire stations. The statements should also be included within any formal reports and correspondence emanating from the department.

It is recommended that subject to Council's consideration and approval of the proposed Fire Service Master Plan that the Centre Wellington Fire and Rescue update the department's mission statement, and develop a vision statement to align with the proposed strategic priorities of the proposed Fire Service Master Plan.

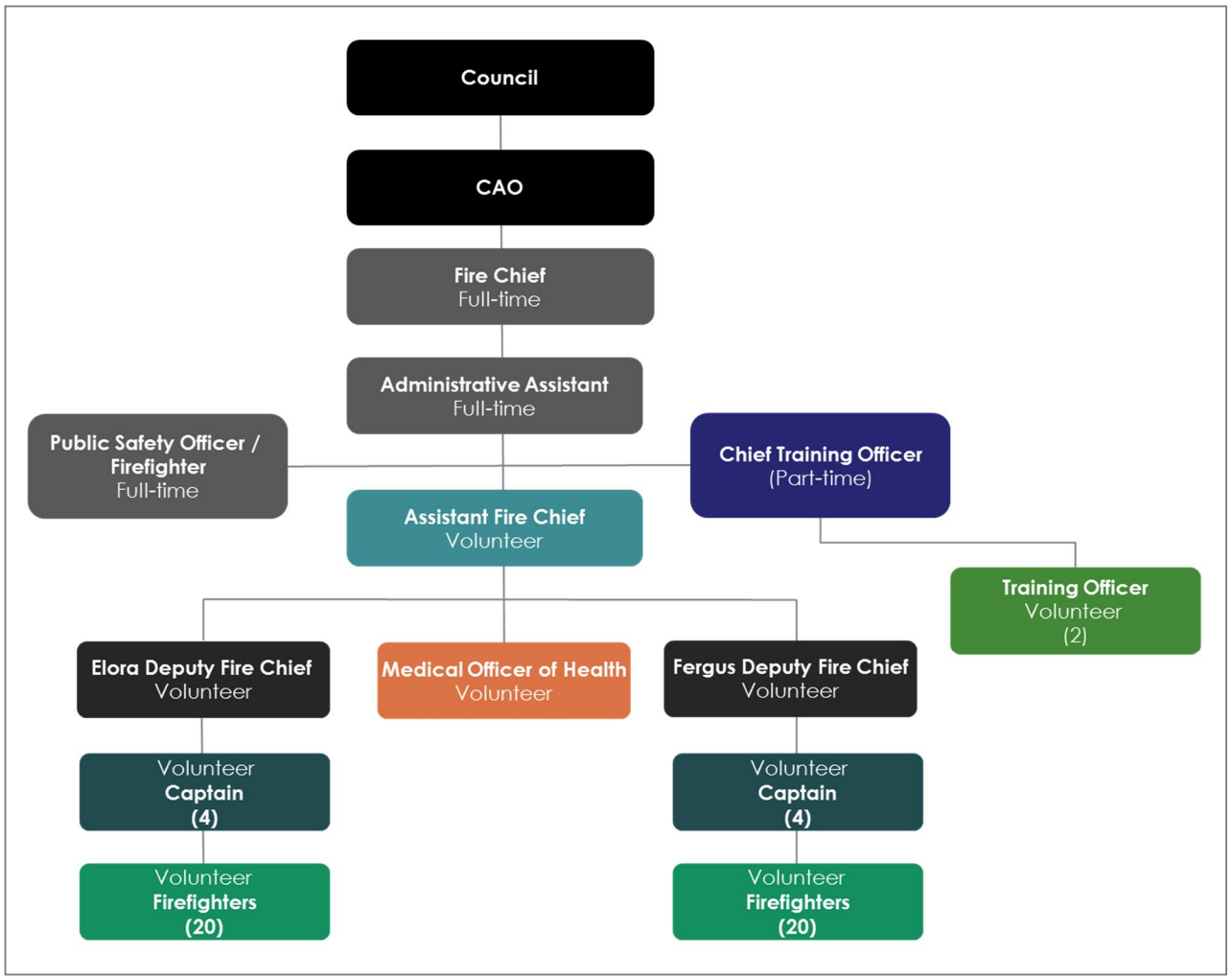
3.2 Existing Organizational Structure and Staff Resources

Within the CWFR Establishing and Regulating By-law (2006-083), the core services of the department are established through the definition of a "fire protection service". The services provided as established within the by-law includes:

- fire suppression;
- fire prevention;
- fire safety education;
- communication;
- auto extrication, high and low angle rope rescue, fire service level first aid including automatic defibrillator, ice rescue, fast water rescue, in water rescue (with boats);
- investigation and mitigation of hazardous materials and dangerous conditions; and
- training of persons involved in the provision of fire protection services, rescue and emergency services and the delivery of all those services.

The current Establishing and Regulating By-law No. 2006-083 has an approved organizational chart included within the by-law (shown in Figure 5). The approved organizational chart, (Appendix A of the by-law), includes a volunteer assistant fire chief, two volunteer deputy fire chiefs, a part time training officer, and a volunteer medical officer of health.

Figure 5: CWFR Organizational Chart per Approved Establishing and Regulating By-law (No. 2006-083)



Research into preparing this FSMP indicates that the organizational structure contained within the current Establishing and Regulating By-law is not an accurate reflection of the department's current staff resources and reporting structure. A number of organizational changes have occurred since the current Establishing and Regulating By-law was approved in 2006. For example, the current organizational structure does not identify the Managing Director of Community Services, and other full-time positions that have been added to the CWFR services.

Within the existing organizational structure the Fire Chief reports directly to the Managing Director of Community Services. The department's administrative team includes the full-time Fire Chief, full-time Chief Training Officer/Public Fire Safety Education, full-time Public Safety Officer/ District Chief and full-time administrative assistant.

The existing volunteer staff include a district chief, nine additional officers, and 50 firefighters. The existing organizational structure of the CWFR services is shown in Figure 6. In addition to the dedicated CWFR staff identified in Table 1, there is an additional training and fire suppression response resource (when available) through the Wellington County Training Officer. More information on this role can be found in the Training Division section of this report.

Figure 6: Existing Organizational Model of CWFR

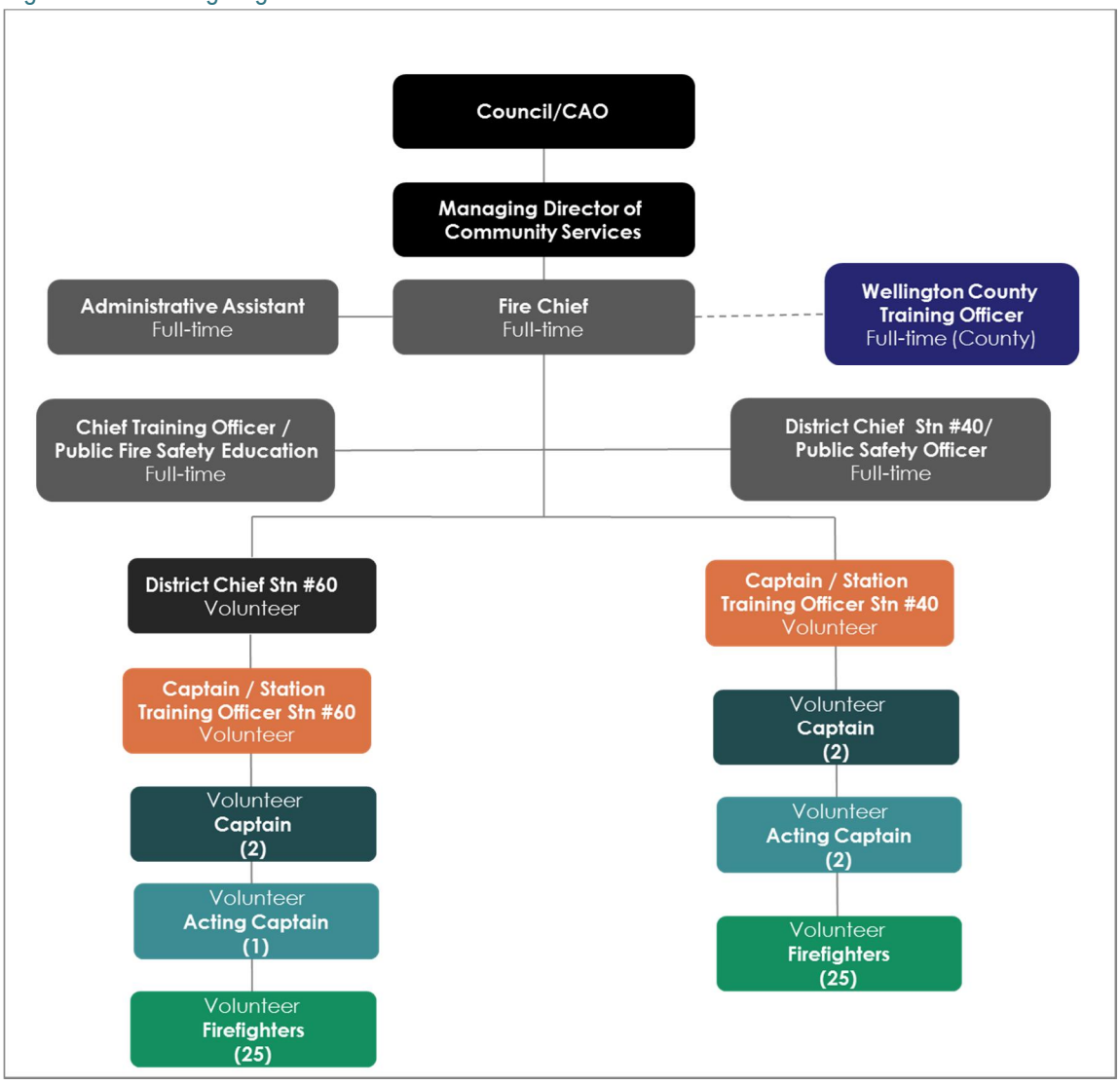


Table 1: Centre Wellington Fire and Rescue Existing Staffing

Role	# Full-Time	Volunteer / Paid Response
Fire Chief	1	-
District Chief / Public Safety Officer	1	-
Chief Training Officer / Public Fire Safety Education	1	-
District Chief	-	1
Captain / Station Training Officer	-	2
Captains	-	4
Acting Captains	-	3
Firefighters	-	50
Administrative Assistant	1	-
Total Staffing:	4	60
County Training Officer	1	-

The analyses completed in preparing this FSMP indicate that the existing organizational structure and staff resource assignments of the CWFR have served the department and the community well. Sufficient evidence was also found to warrant consideration of further organizational changes to enhance the overall efficiency and effectiveness of the CWFR services. Options for Council's consideration in revising the current staff resourcing plan and organizational structure are presented within the following sections of this FSMP.

3.3 Administration Division Staffing

The sections that follow describe the roles and responsibilities of the full-time Administration Division team.

3.3.1 Fire Chief (Full-Time)

The current Fire Chief was appointed as required by the FPPA through By-Law No. 2002-100 approved by Council on January 15th, 2003. Section 10 of the Establishing and Regulating By-law 2006-083 clearly establishes that the Fire Chief is responsible for all the services identified in the delivery of fire protection services. This includes those services related to administration, fire prevention and public education, training, suppression and emergency response. The formal job description for this position expands on the by-law by outlining the scope of the position and by listing major responsibilities. Per the Township's job description, the overarching responsibility of the full-time Fire Chief is to "*organize, motivate and control the operation of Centre Wellington's fire & rescue department and related public safety services according to Council policy and pertinent statutes*."

A detailed list of current responsibilities is listed in the job description as follows:

- *Plans and organizes all services, functions and requirements of the Department;*

- *Directs the proper recruitment, selection and orientation of fire service members;*
- *Ensures that the occupational health, hygiene and safety of members of the Fire Department are not compromised;*
- *Organizes and manages training and development programs to ensure that members of the fire service keep pace with the requirements of their present duties and prepare themselves to take on greater responsibilities through assignment and promotion;*
- *Applies leadership techniques to create and maintain a performance centered, disciplined espirit d'corps. Consults with senior officers and other ranks. Oversees performance appraisals that include follow up action to recognize good and unsatisfactory performance with training, assignment, promotion, demotion, dismissal, compensation and status changes;*
- *Takes command, when required, at a major fire, public safety and emergency incidents;*
- *Accountable for discharging requirements under the Fire Protection and Prevention Act (legislation and regulations) and for corporate policies and programs that are charged to the fire services;*
- *Develops, prepares and presents fire service budgets for operational purposes, capital forecasting and strategic planning. Monitors budget performance and directs the Department within budgetary limits that are approved by Council. Administers policies and procedures for acquisition, maintenance and repair of buildings, equipment, vehicles and supplies;*
- *Examines and/or directs the examination of plans for proposed buildings, zoning, site plans, subdivisions, retrofits, etc. for conformity with all safety legislation and codes. Offers solutions to fire related problems that are encountered during the planning and building processes;*
- *Enforces and directs staff for the purpose of fire and public safety provisions. Issues orders for non-compliance as required by legislation, codes, by-laws and resolutions after full and proper investigations. Assists in the investigation and prosecution of violations;*
- *Conducts fire and explosion investigations to determine causes. Assists police and other agencies with their enquiries;*
- *Issues and directs staff for the purpose of issuing permits and follows up on complaints regarding open air burning;*
- *Represents Centre Wellington's interests in formal liaison with other public safety agencies, and engages in mutual aid activities;*
- *Contributes to the effectiveness of corporate decision-making, community services and public protection programs and serves as a full member of the corporate management team;*
- *Drafts fire and public safety related by-laws in consultation with appropriate Township officials;*
- *Researches and drafts policies for fire service activities that will benefit the Township, and ensures that all statutory obligations are met. Presents research reports and recommendations to Council and its Committees in the prevailing corporate format. Comments, from a fire service point of view, on policy recommendations from other Departments and Council initiatives;*
- *Ensures that the Chief Administrative Officer and Council are properly briefed on changes to fire service legislation and regulations;*

- *Establishes and maintains a close working relationship with the Chief Administrative Officer for accountability purposes and to ensure that activities are consistent with corporate goals and objectives;*
- *Participates in organization development activities with the Chief Administrative Officer and other senior staff that recommend structural, personnel and managerial practices for the betterment of Centre Wellington's municipal government;*
- *Participates as a principal part in the management of the Township's responses to emergencies and disasters;*
- *Ensures that citizens are informed of fire related procedures and where responsibilities lie for effective protection of life and property;*
- *Directs the development and presentation of public education and awareness programs. Ensures that programs are informative, engaging and that they achieve their purposes;*
- *Meets with the public to discuss fire protection and how well it meets public needs;*
- *Participates in public relations activities that promote Centre Wellington's services. Facilitates public presentations to various groups and organizations to promote and educate public safety and fire prevention;*
- *Maintains skills and knowledge at a high level by taking training and development courses, workshops, conferences and selected reading;*
- *Participates in special events and ceremonies that celebrate Centre Wellington; and*
- *Performs other related duties that are assigned by the Chief Administrative Officer or Council.*

The analyses completed in preparing this FSMP indicates that although the Fire Chief is directly responsible for the overall administration and operation of the CWFR services the current job description includes many responsibilities that have been delegated to other positions. This FSMP includes recommendations to revise the staff resources and organizational structure of the CWFR services. Subject to Council's consideration and approval of this FSMP this will require revising the Fire Chiefs job description.

It is recommended that subject to Council's consideration and approval of the proposed Fire Service Master Plan that the Fire Chief's job description be revised to reflect the recommendations of the proposed Fire Service Master Plan.

3.3.2 District Chief/Public Safety Officer (Full-time)

The position of District Chief/Public Safety Officer is a combination of two job functions that relate to delivering the department's fire inspection program, and providing emergency response to support the department's fire suppression capabilities and specifically the need for Incident Command. This position reports directly to the Fire Chief.

In summary, the key duties of this role includes: conducting fire inspections; investigation; plans review; and coordinating the maintenance of apparatus, equipment and communication devices. In detail, the current job description for this position identifies that the role is responsible for:

- *Promotes public safety with contemporary fire prevention methods.*
- *Develops and delivers fire prevention programs for use throughout the community. Makes frequent public presentations on public safety through proper fire prevention and other health and safety issues.*
- *Provides fire and accident prevention information services for use by architects and engineers in the design and renovation of buildings. Gathers and organizes data from fire prevention centers and institutions, and makes it available, with appropriate briefings to interested parties inside and outside the corporation.*
- *Conducts fire prevention inspection services for all classes of buildings at the request of owners, occupiers and on own initiative.*
- *Supports Centre Wellington's planning, building and development policies from a fire protection and prevention point of view. Comments on site plans, zoning and re-zoning applications, subdivision agreements and designs for all classes of new and renovated buildings for compliance with fire regulations,*
- *Responsible for operating the Township's Burning Permit program. Sets out conditions, timing and procedures for safe burning; issues permits, documents and provides adequate follow up.*
- *Advises the Fire Chief on methods needed to improve fire prevention and protection services in the community.*
- *Assists in the development and delivery of progressive public safety training and development programs for firefighters.*
- *Carries out inspection, investigation and enforcement services for fire prevention and protection.*
- *Develops and implements fire prevention and protection inspection programs to be applied in service and in the community.*
- *Receives, processes and takes appropriate action on fire prevention inspection reports.*
- *Conducts special inspections of all classes of buildings (institutional, retail, commercial and industrial) sites for compliance with The Fire Protection and Prevention Act prior to the issue of licenses and permits for general and specific uses.*
- *Investigates complaints and enquiries that are brought from all sources.*
- *Follows up on all alleged contraventions with solid investigative methods to determine causes, outcomes and impacts of the failure to maintain adequate fire prevention and protection practices in the community.*
- *Prepares reports on all investigations and inspections. Makes recommendations as required. Maintains an accessible data base of documentation.*
- *Assists in prosecutions. Gives information to court officers and gives expert evidence in court proceedings.*
- *Responds to fire calls and investigates causes. Communicates with Fire Marshall's investigators, Ontario Provincial Police and other officials in the conduct of their enquiries.*

- *Determines causes of fires in conjunction with other officials and ensures that all incidents are carefully and accurately documented and reported to appropriate authorities.*
- *Performs all firefighting, suppression and rescue duties that are determined by circumstances.*
- *Conducts and facilitates building maintenance of fire stations, grounds and other buildings within the care of the fire and rescue department.*
- *Maintains and makes recommendations to the Fire Chief for the reliable and effective emergency communication system used by the firefighters.*
- *Acts for Fire Chief and other senior ranks as required.*
- *Maintains skills and knowledge at a high level with training and development through courses, seminars and selected reading.*
- *At fires, rescues or other related alarm unless working under a superior officer; he is responsible for effectively extinguishing the fire, which may include the entering of a burning building with staff. The safe rescue of persons and the protection of property*
- *When the senior officer at an emergency shall supervise the return of all manpower, apparatus and equipment to the respective fire halls.*
- *Ensure all equipment and apparatus is ready for service as designed or corrective action is taken.*
- *Applies leadership techniques to create and maintain a performance centered, disciplined espirit d'corps.*
- *Respond and assist at such emergencies as may be required by the Chief of the Department.*
- *Prepare payroll reports for submission to Fire Chief.*
- *Prepare specifications for the purchase of apparatus and equipment as requested by the Fire Chief.*
- *Responsible, as an employee, for good occupational health and safety practices.*
- *Performs other related tasks that are assigned by the Fire Chief.*

Similarly to the review of the Fire Chiefs position, the analyses completed in preparing this FSMP indicates the current job description does not accurately reflect the current role of this position. For example, the current job description indicates that this position "Acts for the Fire Chief and other senior ranks as required" however, there is currently no appointment by-law approved by Council delegating this authority. This FSMP includes recommendations to revise the staff resources and organizational structure of the CWFR services including revisions to this positon.

3.3.3 Chief Training Officer / Public Fire Safety Education (Full-time)

The role of the Chief Training Officer/Public Fire Safety Education position is to develop, coordinate, and facilitate all training activities for CWFR and to deliver public safety messages to the public. The position reports directly to the Fire Chief for the delivery of training and to the District Chief/Public Safety Officer for the coordination and facilitation of public fire and safety activities. In detail, the formal job description for this position identified that the role is responsible for:

- *Meets regularly with the Officers and the Fire Chief to co-ordinate and plan the development of a progressive and efficient training program.*

- *Implements all fire-training programs including annual Live Fire Training, and Water and Ice Rescue.*
- *Receives and processes reports of training activities conducted by station Training Officers and/or instructors.*
- *Advises the Fire Chief of any changes in procedures or methods necessary to maintain or improve the emergency operation of the Department.*
- *Responds to fires, rescues, hazardous materials emergencies and other emergencies as part of the Centre Wellington Fire and Rescue Department. Performs all firefighting and rescue duties as deemed appropriate by the Fire Chief.*
- *Conducts post-emergency evaluations and recommends improvements to the Fire Chief.*
- *Involved in major pre-emergency planning.*
- *Attends conferences, seminars, workshops, etc. to keep abreast of relevant emerging issues in the areas of fire service and emergency management.*
- *Co-ordinates Recruit training and monitors all relative material regarding the Recruit Training program.*
- *Assists the Fire Chief in determining promotions.*
- *May function as the Safety Officer on scene at major incidents.*
- *Assists the Fire Chief in preparing the annual training budget.*
- *Receives and maintains accurate training records and all related emergency operation reference material.*
- *Maintains files on each firefighter, including records of training and certifications, and shall make all information available upon request of the Fire Chief.*
- *Ensures statutory compliance with respect to the Occupational Health and Safety Act and the Ministry of Labour.*
- *Any other duties as assigned by the Fire Chief.*
- *Designs and implements Public Safety programs for a wide range of age groups.*
- *Monitors fire and emergency trends in order to design appropriate public training programs.*

Similarly to the review of the Fire Chief's position, the analyses completed in preparing this FSMP indicate the current job description does not accurately reflect the role of this position. This FSMP includes recommendations to revise the staff resources and organizational structure of the CWFR services including revisions to this positon.

3.3.4 Administrative Assistant (Full-time)

Within the department, there is one full-time administrative assistant who reports directly to the Fire Chief but provides support to the staff within the Administration Division as well as the volunteer / paid response firefighters. This position has the general responsibilities of: organizing and approving payroll; approving fire response reports; providing burn permits; conducting legal fire searches and creating letters; maintaining all department data including personnel files, schedules, and department budgets; and functions as dispatcher during the weekday.

The Administrative Assistants' office is the first point of contact with the public electronically (phone, e-mail) and in person when visiting the CWFR headquarters. This position is a key element in the department's initial customer service with the general public. When this position is absent due to vacation, sickness of for other reason, the department does not currently back fill this position, or this office. Visitors are left to ring the doorbell or wait until a staff person attends the front door of the station. The department's initial point of customer service would benefit from the administrative office being staffed at all times during normal business hours (reception).

As part of the formal job description, the Administrative Assistant is expected to have an understanding of the municipality to support dispatching duties. The role is also responsible for creating official records of all emergency calls and response reports for the department. Within the job description, specific detailed duties and responsibilities are as follows:

- *Receives inquiries at the counter or by telephone. If cannot resolve any issue directs inquiry to appropriate staff member.*
- *Processes file search requests for Solicitors and Insurance companies.*
- *Functions as the Administrative Assistant to the Fire Chief, the Fire Public Safety Officer and the Chief Training Officer, as well as the other Fire Department members as authorized or directed by the Fire Chief.*
- *Works with the radio communications system and records related information.*
- *As emergency radio dispatcher must be intuitive to the needs of emergency staff to ensure adequate resources and health and safety.*
- *Dispatching requires sound knowledge of emergency operations in the allocation of resources.*
- *Work involves evaluating incoming calls to determine appropriate level of fire or rescue services required, dispatching units, and transmitting information and messages upon request.*
- *Issues burning permits and performs administration function for the burning permit program.*
- *Issues staff bulletins regarding new roads, road closures and other issues of importance.*
- *Executes correspondence and reports as dictated or directed by the Fire Chief, the Fire Public Safety Officer and the Chief Training Officer.*
- *Maintains all document storage systems.*
- *Obtains and records pertinent statistical information which includes staffing levels, response types, response times and dollar losses.*
- *Records and monitors payroll information.*
- *Processes and maintains applicant/employment hiring information.*
- *Receptionist for the Fire Department.*
- *Assists Fire Chief with yearly budget records and submissions.*
- *Submits and codes all invoices with account numbers to Treasury Department.*
- *Maintains and records all invoices paid from Fire Service accounts and monitors budget.*
- *Assists Fire Chief with tenders and Requests for Proposal for fire equipment.*
- *Issues Purchase Order numbers as authorized by the Fire Chief.*
- *Maintains inventory lists for Fire Station equipment and vehicles.*

- *Maintains vehicle inspection and maintenance records.*
- *Maintains firefighter attendance records for emergencies and training and notifies Fire Chief of those not maintaining attendance levels as per policy.*
- *Maintains all training records for the Chief Training Officer, the Fire Chief and other Fire Service Personnel, and as required by the Ministry of Labour.*
- *Maintains up-to-date confidential personnel records and files on all Fire Department personnel.*
- *Maintains records for SCBA and SCBA cylinders.*
- *Maintains records for ventilators and oxygen cylinders.*
- *Maintains records on all emergency responses by category per month and annually.*
- *Administers and maintains the Township-wide municipal house numbering system for Fire Department mapping.*
- *Maintains up-to-date index of street names within the Township and County.*
- *Provides all record keeping and filing relevant to Fire Department positions, seniority and promotions*
- *Completes all Provincial Fire Reports and submits to Ministry of Community Safety and Correctional Services.*
- *Responsible for shipping/receiving and recording of equipment/supplies including bunker suits sent out for cleaning and repairs.*
- *Co-ordinates all correspondence and billing for emergency responses by fire vehicles on provincial highways.to the Ministry of Transportation, and to Out of Town residents.*
- *Notifies other Departments of pertinent issues in regards to road closures, flooding, house numbering, building issues, etc.*
- *Maintains and keeps itinerary/schedule for Fire Chief, Chief of Training and Public Safety Officer.*
- *Maintains confidential Fire Department dispatch information and contact list.*
- *Maintains Fire Department Standard Operating Guidelines, Policies and Procedures manual.*
- *Assists with Fire Prevention and Public Education Programs.*
- *Performs all other duties as assigned.*
- *Maintains and co-ordinate memberships and conference attendance required by the Fire Department including the Wellington County Training Officer*
- *Remain after hours as required to execute the duties as an emergency radio dispatcher.*

Research into preparing this FSMP indicates that one of the most significant challenges associated with the roles of this position is the absence of a formalized procedure or process for providing coverage for this position in the absence of the current staff resource person. This FSMP includes recommendations to revise the staff resources and organizational structure of the CWFR services that may alter the roles and responsibilities of this position. These recommendations will not result in any change to the necessity of this position. Where possible, recommendations are presented to introduce efficiencies to support more effective administrative practices.

It is recommended that subject to Council's consideration and approval of the proposed Fire Service Master Plan that the Township investigates opportunities for providing coverage in the absence of the Administrative Assistant.

3.4 Administrative Workspace

The administration team is located at Station 40 – 250 Queen Street West in Fergus (Headquarters) which had additional administrative space added in 2006. The administration space has five individual offices for the Fire Chief, Chief Training Officer/Public Fire Safety Officer, District Chief/Public Safety Officer, the Administrative Assistant, and the County of Wellington Training Officer. The facility also has a kitchen, small boardroom, and a larger training/meeting room and storage space. There is an additional office located adjacent to the apparatus storage room that is utilized for dispatching.

The findings of this FSMP indicate that the current administrative workspace is meeting the current administrative workspace needs of the CWFR services. Where this FSMP identifies recommendations to revise the staff resources and organizational structure of the CWFR services some alterations to the current workspace may be required as a result.

3.5 Departmental Policies and Procedures

Within the Ontario Fire Service, establishing departmental policies and/or guidelines as a tool to clearly communicate expectations is an industry best practice. Departmental policies are used to provide specific direction to all staff within a department around all divisions and aspects of the services provided by the department. In comparison to standard 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. As part of enhancing safety, it is critical that such policies and procedures thoroughly reflect and comply with Ontario's Occupational Health and Safety Act (OHSA) Section 21 Guidance Notes.

As identified by the OFMEM through PFSG 04-69-13 "*Co-ordination, Development, Approval, and Distribution of Standard Operating Guidelines for Various Disciplines*" (Appendix B), the intent of Operating Guidelines can be summarized as to:

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

The CWFR has both Departmental Policies (DP) and Standard Operating Guidelines (SOG). The DPs are organized into three sections: Fire Services; All Centre Wellington Fire Department Staff; and Operating Policies. The policies are structured similarly in that they indicate a revision date, the date where the policy was originally developed and whom it was developed and approved by. These policies cover a range of topics including minimum expectations around training, stand-by procedures, use of seatbelts, apparatus weekly inspection forms, and hazardous spills clean up.

The departmental SOGs are similarly organized into sections including: Personnel Safety; Training; Apparatus & Equipment; Emergency Vehicle Operation; Emergency Responses; Water Supply; Incident Command; Post Incident Procedures; Communications; and Water Rescue. Similar to the DPs, the SOGs have re-issued dates that range from 2005 to more recently (e.g., 2013, 2016).

As acknowledged within SOG #101 – *Statement of Intent,* SOGs are to be reviewed annually. The SOGs are also identified as living documents whereby all staff are responsible for being familiar with the SOGs and they are expressly included within the training materials for staff. While it is industry best practice to have a guideline in place as to the schedule for reviewing policies and guidelines, SOG#101 does not indicate who is responsible for reviewing the departments operating guidelines. Within the Establishing and Regulating By-law, the ultimate responsibility for policies and operating guidelines falls to the Fire Chief. However, within the fire services, industry best practices and the OFMEM indicate that creating and empowering a committee of fire service staff representing a cross section of the department, to research, develop, review, and draft operating guidelines has proven to be an effective model. The implementation of a committee such as this does not relinquish the responsibility of the Fire Chief to review and approve all operating guidelines.

Industry best practices also reflect the need to ensure procedures are in place to ensure that all policies and operating guidelines are distributed to and comprehended by all relevant staff and followed as directed. Applicable procedures to record this process of distributing and ensuring all staff are familiar with department policies and operating guidelines must also be in place to ensure due diligence on behalf of the fire department and the Township, as the employer. This also helps to ensure that the operating guidelines and standing orders are being used effectively as a departmental communication tool, training tool, and enforcement tool.

Subject to Council consideration and approval of this FSMP there will be a need to conduct a review of all existing operating guidelines and policies and where necessary complete revisions or develop additional operating guidelines or policies to reflect the levels of service approved by Council. Completing this review, and implementing a regular process of reviewing all SOG's will also reflect the departments continued priority of updating policies and operating guidelines with emphasis on compliance with the OHSA Section 21 Guidance Notes.

It is recommended that subject to Council's consideration and approval of the proposed Fire Service Master Plan that an Operating Guideline Committee be formalized including a defined terms of reference, and representation from a cross section of department staff.

3.6 Departmental Records Management

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

Within CWFR, the Administrative Assistant is identified as being responsible for tracking and managing data for all divisions including: invoicing, training records, emergency response attendance records, personnel records, inventory and purchasing, and municipal addresses. Research indicates that the department and the Township have a strong history of utilizing a range of common software solutions such as Microsoft Office components including Excel spreadsheets to track many of the department's activities and programs. The analyses conducted indicate that many of these records management solutions such as inventory control and purchasing are meeting the department's needs. However, there is currently no integrated software solution that provides the flexibility required in today's fire service to monitor and report on trends, and conduct queries of different programs and activities.

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

The analyses in completing this FSMP indicates that a number of efficiencies, specifically affecting the role of the Administrative Assistant could be achieved by implementing an integrated records management software solution designed for use by the fire service. Examples of these software solutions include those provided by FIREHOUSE and FDM that have been designed specifically for the fire service. These integrated records management solutions provide the capability to track the various needs encountered in a fire department including those related to administration, training records, public education, fire prevention (inspections), suppression, communications, apparatus and equipment.

Implementing an integrated software solution would provide the flexibility of allowing multiple users to input information into a centrally located data base further enhancing the overall records management process and workload required by other staff such as the Fire Chief and other administrate division staff.

It is recommended that subject to Council's consideration and approval of the proposed Fire Service Master Plan that the purchase and implementation of an integrated records management software solution be investigated for use by the Centre Wellington Fire and Rescue.

In addition to supporting the use of an integrated software solution, industry best practices indicate the need for comprehensive operating guidelines to be in place to direct the records management practices of a fire department. The analyses within this FSMP identifies a need to develop a comprehensive operating guideline, or policy to define the required records management practices of the CWFR services including required records, retentions schedules and performance expectations.

It is recommended that subject to Council's consideration and approval of the proposed Fire Service Master Plan that the Centre Wellington Fire and Rescue develop an Operating Guideline or Department Policy to define the required records management procedures and practices.

3.7 Public Relations

Within the fire service, every member of the department plays a key role in developing and sustaining a high degree of public confidence. Research into preparing this FSMP indicates that the CWFR has a high degree of public support. In part, this success can be attributed to departmental *Policy # 2005-24 – Open Communication Policy* that emphasises the importance that *"the Centre Wellington Fire Department and its Fire Chief are committed to open communications to improve our services to all people".*

The use of social media including Facebook, Twitter and websites has become an effective tool for the fire service to sustain a high degree of communication with the public. Effective use of these tools can benefit the department operationally as another tool to inform emergency responders, and to support the department fire prevention and public education programs.

Members of the department have received specific media relations training in the past that is geared to managing larger scale emergency incidents. Extending this type of training to all members of the department though the regular training program would be beneficial. This could include varying levels of training at each level including firefighter, Captain and District Chief.

The CWFR has a comprehensive website that provides access to a number of department programs such as recruitment, public education, and community emergency planning. This FSMP includes a recommendation to hire a full-time Fire Inspector - Fire & Life Safety Educator. In our view, this new position will provide an opportunity to further enhance the department public relations practices including expanding the department's website and social media outreach in enhancing the department's public education programming.

The department would benefit from considering a department policy that describes the use of the department's website as well as social media practices. *It is recommended that subject to Council's consideration and approval of the proposed Fire Service Master Plan that the Centre Wellington Fire and Rescue develop a Public Relations Policy.*

3.8 Annual Report

The OFMEM's "Optimizing Public Fire Safety" model (Figure 4) recognizes the importance of ongoing monitoring, evaluation, and modifications to the fire protection services approved by Council. Many fire services across the province utilize annual reports as a tool to provide a high degree of accountability and transparency on behalf of the Fire Chief in reporting to the community and Council. A regular reporting process is also an ideal opportunity to report on trends, evaluate the effectiveness of services provided (e.g., impact of a community risk reduction plan), review the Community Risk Assessment, and review fire-related by-laws.

In the past, CWFR did prepare annual reports to Council; however, this practice has not been continued in recent years. Industry best practices indicate that created, an Annual Report is an effective tool for communicating the yearly activities of the department to Council and the community. Developing an Annual Report as part of the department's annual budgeting process has proven to be an effective reporting and business planning tool.

This FSMP recommends implementing an integrated records management process that will enhance the department's ability to analyze and report on trends related to training, public education programs, fire prevention activities, emergency response types, and emergency response times. This will be especially useful as the Township is slated to experience growth in the coming years. Preparing the proposed Annual Report would also assist in achieving Council's legislative role to monitor and evaluate the delivery of all fire protection services.

It is recommended that subject to Council's consideration and approval of the proposed Fire Service Master Plan that the Centre Wellington Fire and Rescue develop an Annual Report to Council and the community as part of the annual budget submission process.

3.9 By-laws

Municipalities enact a number of by-laws in order to operate and provide services including in relation to fire departments. There are a number of common by-laws that pertain to the operation of a fire department. Such by-laws provide the community with important information regarding the level of service that a municipality intends to provide. By-laws also provide municipal staff with the authorization to provide these services. Within the Township of Centre Wellington, these by-laws include the Establishing and Regulating By-law No. 2006-083, the Association By-law No. 2014-041, and additional by-laws such as appointment by-laws.

3.9.1 Establishing and Regulating By-law (No. 2006-083)

An Establishing and Regulating By-law should provide clear and accurate policy direction as to how a municipal council intends its fire protection services to operate. The OFMEM provides a description of the primary issues to be addressed, as well as a template for developing such a by-law within PFSG 01-

03-12 *"Sample Establishing and Regulating By-law"* (Appendix B). The key features of such a by-law as identified by the OFMEM include:

- General functions and services to be provided;
- The goals and objectives of the department;
- General responsibilities of department members;
- Method of appointment to the department;
- Method of regulating the conduct of members;
- Procedures for termination from the department;
- Authority to proceed beyond established response areas; and
- Authority to effect necessary department operation.

The Establishing and Regulating By-law was approved by Council in June 2006 and does address some of the features identified by the OFMEM including: approved organizational chart; general functions of the department; method of appointment; termination procedures; and authority to proceed beyond established response areas.

The analyses conducted as part of preparing this FSMP indicates that the current Establishing and Regulating By-law No. 2006-083 has not been updated to reflect changes that have occurred within the department. As previously identified, while there is an approved organizational chart included within the by-law, it does not reflect the existing organization of the department. Similarly, the existing by-law does not clearly delineate the roles and responsibilities of all existing administration team members. Subject to Council's consideration and approval of this FSMP there will be further need to update the by-law to reflect the proposed recommendations contained within this plan. Industry best practices indicate that the Establishing and Regulating By-law should identify the core services and services levels including the goals and objectives of the department. For example, this should identifying a Fire Prevention Policy that sets out the public education programs and activities and fire inspection cycles to be delivered by the department, identifying service levels for activities such as Technical Rescues should also be included within the by-law.

It is recommended that subject to Council's consideration and approval of the proposed Fire Service Master Plan that the Establishing and Regulating By-Law No. 2006-083 be updated to reflect the direction of Council in respect to the delivery of all fire protection services.

3.9.2 Fees and Charges By-law (No. **2015-055**)

Under the authority of the *Municipal Act*, a municipality can impose fees or charges on users for cost recovery. Within the Township of Centre Wellington, this ability is enacted through the Fees and Charges By-law No. 2015-055. This By-law references nine municipal service groups with individual by-law schedules for their respective fees. Schedule B outlines the fees for Fire Services. The overall schedule had revisions made as of April 2016, with the most recent changes to Fire Services Schedule B being related to Ministry of Transportation charge out rates.

The fees are broken down into several different categories:

- False Alarms;
- Motor Vehicle;
- Specialized Response Rescue Team;
- Natural Gas;
- Fire Extinguisher Training;
- File Search and Reports;
- Applications;
- Occupant Load License;
- Burning Related Charges;
- Securing of Premises;
- Administration and Enforcement of Spills Act and Transportation of Dangerous Goods Act;
- Fire Watch Under the Ontario Fire Code;
- Inspections;
- Fireworks;
- Inspections under the Ontario Fire Code;
- Burning Related Charges; and
- Other Fees.

Within these categories, the areas for cost recovery are fairly comprehensive. For example, within inspections there is a clear breakdown by different occupancies. There are also fees related to emergency response including false alarms, natural gas response, specialized rescues, and motor vehicle collisions. Having these categories in place ensures that the municipality can recover costs as required. Where applicable the Township applies the current Ministry of Transportation's (MTO) cost recovery rates of $450 per hour per apparatus responding.

The analyses within this FSMP indicate that false alarm calls over the period 2011 to 2015 have accounted for 19% of the total emergency response call volume. Within the Township's current Fees and Charges By-law, two false alarms within a single calendar year are subject to no charge. If a second false alarm call occurs within a 72 hour period, the false alarms are considered a single incident. After two false alarms, all subsequent false alarms within the same calendar year are based on the MTO charge out rate for vehicles at $450 per hour per truck or $225 per half hour per truck.
Identifying strategies to reduce the number of false alarm calls should be considered a priority of the CWFR services. This should include further analyses of the current Fes and Charges By-law, and specifically assessing the current application of fees for second false alarm calls within 72 hours. Based on the findings of this review a false alarm could occur at an address on four occasions within a week and not result in a fee being charged (e.g. 1st false alarm of the calendar year on Monday night, 2nd false alarm on Tuesday night, within 72 hours, 3rd false alarm of Thursday night and 4th false alarm on Friday, less than 72 hours apart).

Analyses of the current fees and charges process in place within the Township of Wellington reflects an example of municipal, and fire service best practices. All fees are reviewed on an annual basis, and where applicable new fees are identified and presented for Council's consideration and approval.

3.9.3 Sale and Discharge of Fireworks by-Law (No. **2002-47**)

By-law 2002-47 regulates the sale and discharge of fireworks in the Township. This by-law was put in place shortly after the 1999 amalgamation to create the Township of Centre Wellington. Research into completing this FSMP indicates that the 2008 OFMEM Municipal Fire Protection Information Survey conducted by the OFMEM recommended that this by-law be updated to reflect the *Municipal Act*, 2001.

3.9.4 Development Charges By-Law (No. **2013-076**)

By-law 13-076 *for the Imposition of Development Charges* enables the Township (through the *Development Charges Act* (DCA)*)* to impose fees on development and re-development to cover the increased cost of providing physical and social services due to population growth. Under the DCA, fire protection services are one of the non-discounted municipal services. This means that municipalities can fully recover the cost a growth-related increase in services (as opposed to funding through municipal revenue streams). Municipalities recover costs by enacting development charges by-laws. In the Township, By-law 2013-076 outlines the collection of fees for fire protection as identified in Schedule B of the by-law. These fees are displayed in Table 2. When this by-law is reviewed as planned in the near future, it should be ensured that it addresses all eligible components related to fire services.

Table 2: Development Charges By-law 2013-076, Schedule B

Portion of Schedule "B" to By-Law 2013-076					
	Residential				Non-Residential
	Single and Semi-Detached Dwelling	Apartments – 2 Bedrooms +	Apartments – Bachelor and 1 Bedroom	Other Multiples	Per ft^2 of Gross Floor Area
Fire Protection Service	$616	$384	$260	$494	$0.33

3.9.5 Firefighters Association By-Law (No. **2014-041**)

By-law 2014-041 is a by-law to adopt the policies governing the relationship between the Township and The Elora Firefighters Association and the Fergus Volunteer Firefighters Association. As mentioned previously within this plan, the firefighters of Stations 40 (Fergus) and 60 (Elora) are organized through respective volunteer firefighter associations. While there are two Associations representing each station, they are managed by the same polices which are enacted through By-Law 2014-041.

Schedule A of the By-Law 2014-041 includes nineteen sections which identify the policies for: remuneration; WSIB benefits; honorariums; on-duty standby crews; accident and sickness benefits and insurance; personal clothing; uniforms; discipline; association membership; station transfers; and conflict resolution.

Our review of the existing by-laws impacting the Centre Wellington Fire and Rescue services reflects those that would be expected to be present in a municipality of the size and complexity of the Township of Centre Wellington. Ensuring these by-laws are regularly reviewed and updated to reflect any changes in service level or changes, such as presented within this proposed FSMP, is an important process. Our review suggests that while some reviews of by-laws occur, there is not a consistent and regular review process currently in place.

It is recommended that subject to Council's consideration and approval of the proposed Fire Service Master Plan that consideration be given to implementing a regular process for reviewing and updating all by-laws associated with the operation of the Centre Wellington Fire and Rescue.

3.10 Agreements

Within the fire service there are multiple approaches to sharing services or procuring services including mutual aid, automatic aid, tiered response, and dispatch agreements. The Township currently has agreements of all four types in place and which are described in this section.

3.10.1 Wellington County Mutual Aid Agreement

Mutual aid agreements are predetermined plans that allow a participating fire department to request assistance from a neighbouring fire department. Public Fire Safety Guideline (PFSG 04-05-12 Mutual Aid) provided by the OFMEM 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.

Centre Wellington Fire and Rescue is an active participant in the Mutual Aid Plan and Program for the County of Wellington. Within the Plan the stated purpose is (pg. 4):

- *"To provide authority and general direction to fire co-ordinators for the co-ordination of mutual aid systems and associated fire protection services activated within the local county as well as with neighbouring counties, districts or regions, inter-provincially and internationally;*
- *To provide clarification to municipalities of the roles and responsibilities of fire co-ordinators within the mutual aid system;* and

- *To provide other emergency management agencies with an understanding of the fire co-ordinators role within the mutual aid system."*

The 2010 Mutual Aid Plan and Program (updated in 2015) for the County of Wellington identifies the Centre Wellington Fire and Rescue Fire Chief as the programs Fire Co-ordinator. Appointed as the Fire Co-ordinator, the CWFR Fire Chief has the following responsibilities (p. 17):

- *Develop, review and maintain an up-to-date mutual aid plan under the instructions of the Fire Marshal of Ontario, and in cooperation with the area fire chiefs;*
- *Submit the plan to the Office of the Fire Marshal (OFM) regional operations manager for approval;*
- *Review the mutual aid plan annually, or more often if required, with the participating fire chiefs and the local fire protection advisor(s);*
- *Coordinate activations of the mutual aid plan;*
- *Consider requests and recommend to the PEOC the deployment of provincial CBRNE and HUSAR teams;*
- *Provide advice and assistance to the Fire Marshal upon request;*
- *May assist and support participants by providing information and guidance during mutual aid activations;*
- *Within seven days forward by email a synopsis of any significant events within their area;*
- *In cooperation with the local fire protection advisor, review equipment and apparatus covered by the plan when deemed necessary by the fire co-ordinator or fire protection advisor;*
- *Attend annual fire co-ordinators' conferences and such other meetings as may be convened from time to time by the OFM;*
- *Submit expense accounts to the OFM regional operations manager for approval twice yearly, and more frequent if required, and before March 31st of each year;*
- *Encourage county, district or regional training, and submit requests to the Office of the Fire Marshal for specialized courses; and*
- *Other duties as may be assigned by the Fire Marshal.*

As such, the Fire Chief has additional responsibilities related to the role of Fire Coordinator for the County. This requires annual review of the County Mutual Aid Plan and Program, managing training needs, attending related meetings, and responding to inquiries from mutual aid partners.

The participation of local fire services in a regional mutual aid plan is a core component of the province wide mutual aid fire protection strategy. The Township of Centre Wellington is a participant in the Wellington County Mutual Aid Agreement as authorized by the current Establishing and Regulating By-Law No. 2006-083. On behalf of the Township the current Fire Chief also provides a leadership role in overseeing the County Mutual Aid Agreement as the Regional Fire Coordinator. The analyses within this FSMP supports continued participation in the County Mutual Aid Agreement and the role of the Fire Chief as the Regional Fire Coordinator.

3.10.2 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, irrespective of municipal boundaries, on a day-to-day basis. The obvious advantage of implementing an automatic aid program, or fire protection agreement, is that 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:

- enhancement of the level of public safety;
- reduction of the critical element of time elapsed between the commencement of a fire and the application of an extinguishing agent to the fire by dispatching the closest available assistance;
- reduction of life, property and environmental losses; and
- improvement of public and firefighter safety.

The Township is currently a participant in three automatic aid agreements with the Township of Woolwich, the Township of Mapleton, and Township of Guelph/Eramosa which are described in the sections that follow. The geographies to which these agreements apply are shown in Figure 7 and are described in the sections that follow.

3.10.2.1 Township of Woolwich

The Township of Centre Wellington's By-Law No. 2006-055 enables the Centre Wellington Fire and Rescue to participate in an automatic aid agreement with the Township of Woolwich which borders to the Township to the west. The by-law enacts an agreement between Centre Wellington and the Township of Woolwich whereby Centre Wellington receives automatic aid from Woolwich.

This agreement applies to two geographic areas within Centre Wellington as defined by Schedule A of the agreement and shown as Areas 1 in Figure 7. One area borders the Township of Woolwich to the north and one to the south. As such, in the case of an emergency CWFR Station 60 (Elora) and the closest Woolwich station (either Floradale or Maryhill) will automatically be dispatched. Based on a high-level desktop review of distance, the existing agreement offers some benefit to the Township of Centre Wellington in that the identified Woolwich stations may enhance initial response and/or depth of response coverage to the areas covered under the existing agreement. The automatic aid agreement indicates that the Township of Centre Wellington will reimburse Woolwich for one hour of effort utilizing the most current Ministry of Transportation (MTO) rate for fire apparatus for up to one hour, after which the terms of the County of Wellington Mutual Aid Agreement applies. The agreement was signed in April 18, 2006 and will remain in force until either party provides written notice of termination at least 90 days prior to the desired date of termination.

3.10.2.2 Township of Mapleton

The Township of Centre Wellington's By-Law No. 2006-057 enables Centre Wellington Fire and Rescue to participate in an automatic aid agreement with the Township of Mapleton which borders the

Township to the north. This by-law enacts an agreement whereby Centre Wellington provides automatic aid to a portion of the Township of Mapleton.

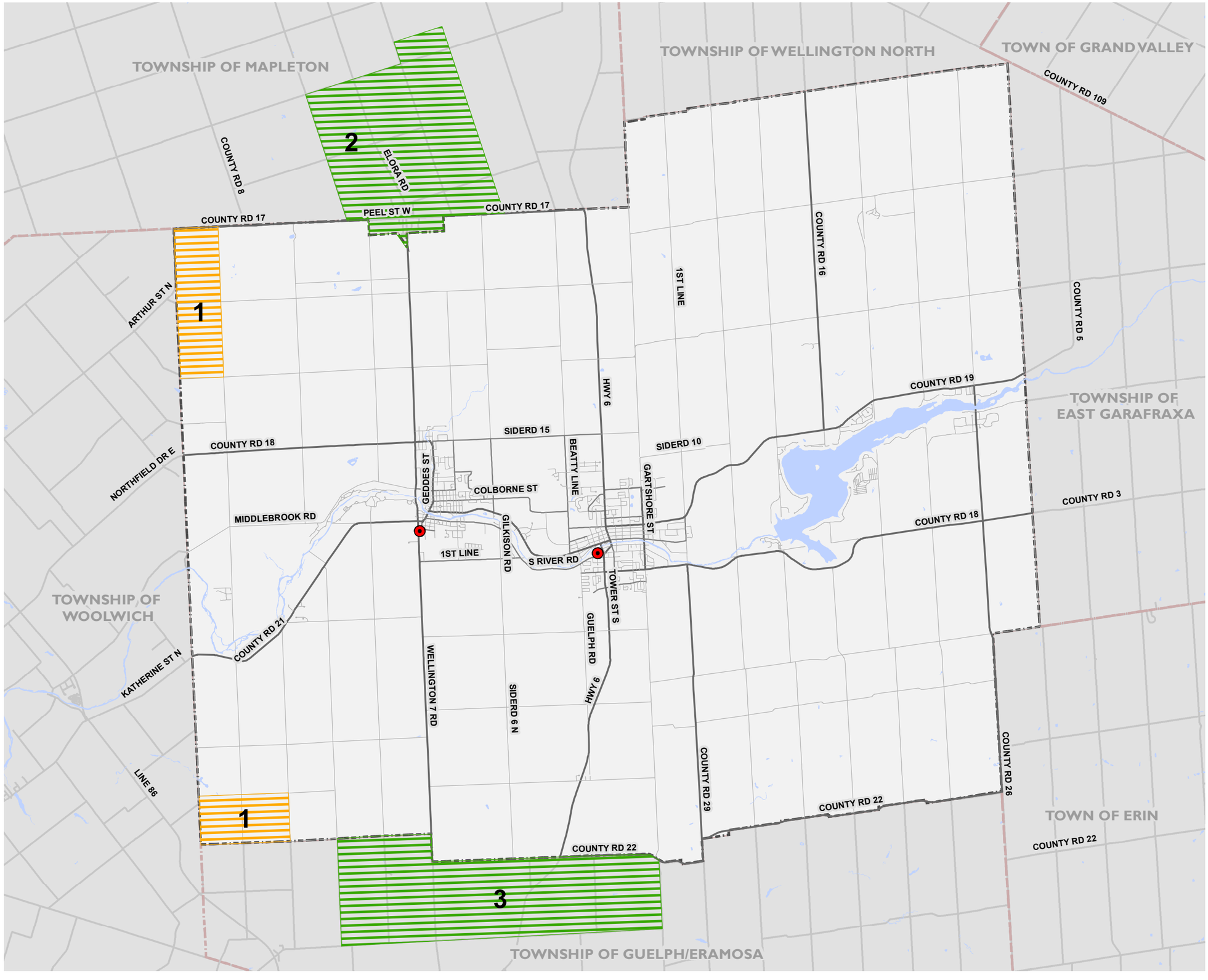
This agreement applies to a geographic area of approximately 1,900 hectares along the border of the two townships. This area is defined in Schedule A of the agreement and shown as Area 2 in Figure 7.The agreement states that both the Mapleton's Drayton Fire Station of Maptleton and the CWFR Station 60 (Elora) will be dispatched to all emergencies involving structure fires within the area identified. The automatic aid agreement is similar to the Woolwich agreement in that Township of Mapleton will reimburse Centre Wellington for the first hour only, utilizing the Ministry of Transportation (MTO) rate for fire apparatus. The agreement with Mapleton references an MTO rate of $350 per hour per apparatus at the time of signing. The agreement signed on April 18, 2006 is to remain in force until either party provides written notice of termination at least 90 days prior to the desired date of termination.

3.10.2.3 Township of Guelph/Eramosa

The Township of Centre Wellington's By-Law No. 2008-010 enables the Centre Wellington Fire and Rescue to participate in an automatic aid agreement with the Township of Guelph/Eramosa which borders the Township to the south. This by-law enacts an agreement whereby Centre Wellington provides automatic aid to a portion of the Township of Guelph/Eramosa.

This agreement applies to a geographic area of approximately 2,000 hectares along the border of the two townships. This area is defined in Schedule A of the agreement and shown as Area 2 in Figure 7.The agreement states that both the Mapleton's Drayton Fire Station of Maptleton and the CWFR Station 60 (Elora) will be dispatched to all emergencies involving structure fires within the area identified. The automatic aid agreement indicates that the Township of Guelph/Eramosa will reimburse Centre Wellington for the hourly rate utilizing the most current Ministry of Transportation (MTO) rate for fire apparatus. Unlike the other agreements in place, the MTO rate will apply for the duration of the emergency response as appropriate. The agreement signed February 11, 2008 will remain in force until either party provides written notice of termination at least 90 days prior to the desired date of termination.

The analyses within this FSMP indicate that these agreements continue to support an effective and efficient utilization of existing fire suppression resources. Continued utilization of these agreements is recommended.



Township of Centre Wellington
Fire Service Master Plan

Automatic Aid Agreements

Figure 7

- Fire Station
- Local
- Arterial
- Collector
- Township Boundary
- Surrounding Municipal Boundary
- Waterbody

Type of Fire Protection Services

- CWFR Provides Fire Protection Services
- CWFR Receives Fire Protection Services

0 0.5 1 2 km

SCALE 1:85,000

MAP DRAWING INFORMATION:
DATA PROVIDED BY MNR AND THE TOWNSHIP OF CENTRE WELLINGTON

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

FILE LOCATION: I:\GIS\163644 - Centre Wellington Master Fire Plan\MXDs\Automatic Aid Agreements.mxd

DILLON CONSULTING

PROJECT: 16-3644
STATUS: DRAFT
DATE: 2017-02-24

3.10.3 Tiered Medical Response Agreement (CWFD & GWEMS)

Within the Province of Ontario, emergency responses 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 emergency medical levels of service that a fire department will provide in the context of the regionally based provision of ambulance services. Centre Wellington Fire and Rescue signed a Tiered Response Agreement with the Guelph Wellington Emergency Medical Service on September 13, 2012. The agreement is renewed automatically on an annual basis unless terminated in writing.

As part of the agreement, CWFR will be dispatched by the Cambridge Central Ambulance Communications Centre based on the criteria outlined in Table 3.

Table 3: CWFR Responses to Medical Calls per Tiered Medical Response Agreement

Medical Emergency Type	CWFR Response
ü Any 'Code 4' (emergency response) triggered in the primary assessment including: ü Obvious immediate threat to life or vital signs absent (VSA) ü Choking, not breathing, severe respiratory distress, unconscious ü Airway/breathing compromise ü Burns/electrocutions/inhalation ü Near drowning ü Motor vehicle collision (MVC) ü Penetrating trauma	CWFR will respond immediately when dispatched in all scenarios.
ü Breathing problem ü Chest pain/heart problem ü Convulsion/seizure ü CVA stroke ü Decreased level of consciousness/unconscious ü Blunt trauma/assault	CWFR will respond when a predicted ambulance on scene time is greater than 15 minutes.
Any medical emergency call involving accidents on farms or at industrial establishments.	CWFR will respond immediately when dispatched in all scenarios.
Other Incidents	CWFR will respond to any calls including Code 3 calls where there will be a significant delay (greater than 15 minutes) in the arrival of an ambulance. CWFR will also respond to any calls where paramedics request fire personnel assistance.

The analyses within this FSMP indicates that for the period 2011 to 2015 medical calls represented 18% of the departments total emergency call volume. In comparison to the experience of other fire departments across the province that reported a call volume of 42% for the period 2010 to 2014 for medical calls, the experience of the CWFR is substantially lower. Continued participation in the current Tiered Medical Response Agreement is recommended.

3.10.4 Fire Dispatch Agreement (City of Guelph)

Since 2007 the Township of Centre Wellington has had an agreement with the City of Guelph for the provision of fire dispatch services. There have been a number of revisions to the original agreement the most recent occurring in 2015. The current agreement introduces the provision of "basic" fire dispatch services which is deemed to mean:

a) *The City of Guelph will accept calls from 911, Police, Central Ambulance Communications Centre and directly from private citizens, directed to the City of Guelph's Emergency Services - Guelph Fire Department (the "Guelph Fire Department");*
b) *In response to all such calls, the Guelph Fire Department will page the Municipality's Fire Department to reply to the calls; and*
c) *The Guelph Fire Department will provide incident information to the Municipality; the Municipality shall acknowledge, to the Guelph Fire Department, receipt of each dispatch received from the Guelph Fire Department and shall acknowledge, to the Guelph Fire Department, when each dispatched unit is back in service.*

Within this agreement the CWFR is still required to assign either the Administrative Assistant or the first arriving firefighter to the role of fire dispatcher (Telecommunicator). This role is required to ensure continuous communication between the responding fire apparatus and a central dispatch location is maintained at all times. This role is critical to support the responding fire apparatus in the event additional resources are required, to conduct benchmarking of incident activities, and to dispatch other agencies or equipment as may be required.

In January of 2014, the Office of the Fire Marshal and Emergency Management distributed Communique 2014-04 to the Ontario Fire Service reflecting the grandfathering and transition process to the use of the NFPA Professional Qualifications Standards. The certification and qualification of fire service personnel including firefighters, officers, fire inspectors, training officers and senior officers has become a high priority within the fire service. The certification and qualification of fire dispatchers (Telecommunicators) is not immune to this priority.

Within the current dispatching model the CWFR does not have an operating guideline or department policy defining the certification or qualifications required to fulfill the roles and responsibilities of fire dispatcher. The current model relies on the historical skills and experience of the Administrative Assistant or alternatively a volunteer firefighter to complete the roles and responsibilities of fire

dispatching. The NFPA 1061 – Standard for Professional Qualifications for Public Safety Telecommunicator would be deemed as the most applicable standard for the role of fire dispatcher.

In addition to the challenge of ensuring appropriate certification and qualification of the person conducting the fire dispatching, the current fire dispatching model has a significant impact on reducing the fire suppression initial response capabilities of the CWFR services. In the absence of the Administrative Assistant the first responding volunteer firefighter is required to fulfill the role of dispatcher. This removes the first responding volunteer firefighter from responding to his/her primary role of responding to emergency incidents.

Analyses of the current dispatch agreement also indicate the absence of any defined performance objectives (benchmarks). Industry best practices 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 dispatch services. The 2016 edition of this standard indicates a performance target that is based on three possible components of dispatch: alarm answering, alarm processing, and alarm transferring. An alarm is when an indication is made that an emergency response is needed by an agency such as a fire department. The current NFPA 1221 performance guidelines are:

- *95% of alarms received on emergency lines shall be answered within 15 seconds;*
- *99% of alarms shall be answered within 40 seconds;*
- *90% of emergency alarm processing (the point from when an alarm is answered and then transmitted to the fire department) shall be completed within 64 seconds; and*
- *95% of alarm processing shall be completed within 106 seconds.*

Further revisions to the current dispatch agreement, or alternatively investigating other alternatives for providing emergency call taking and fire dispatching should be considered a priority of the Township of Centre Wellington. The analyses conducted as part of this fire master planning process has identified a number of existing challenges that indicate the current fire dispatching model does not reflect industry best practices.

It is recommended that subject to Council's consideration and approval of the proposed Fire Service Master Plan that the Centre Wellington Fire and Rescue investigate alternative options for the delivery of fire dispatching services.

3.11 Strategic Priorities

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

Emphasis has been placed on the use of the industry best practices including NFPA, current Public Fire Safety Guidelines, and resources provided by the Office of the Fire Marshal and Emergency Management. One of the primary roles of the OFMEM 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 analyses within this report recognize three strategic priorities for the delivery of fire protection services within the Township of Centre Wellington including:

i. *Recognize the historical dedication and commitment of the members of Centre Wellington Fire and Rescue and their ongoing effort to transition to one single, unified fire department.*

ii. *Utilization of a Community Risk Assessment to determine the fire safety risks within the Township as the basis for developing clear goals and objectives for all fire protection and emergency services provided by the Centre Wellington Fire and Rescue;*

iii. *Optimization of the first two lines of defence including public education and fire prevention, and the utilization of fire safety standards and fire code enforcement to provide a comprehensive fire protection program within the Township based on the results of the Community Risk Assessment; and*

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

It is recommended that subject to Council's consideration and approval of the proposed Fire Service Master Plan that the strategic priorities identified within the proposed Fire Service Master Plan be adopted to form the strategic framework for the delivery of fire protection services.

3.12 Administration Division Summary of Recommendations

This fire master planning process was initiated by Council to establish strategic priorities to guide decision making to inform the delivery of fire protection services over the next ten-year community planning horizon. The recommendations contained within this plan have considered future community growth, industry best practices, regulatory requirements and the financial capabilities of the Township. Developing this plan has also included broad consultation including both internal and external stakeholders in providing insight into the strengths, weaknesses, opportunities, and challenges currently facing the department.

The current organizational model of the CWFR services has evolved through the process of community amalgamation and community growth to its current state. Under the leadership of the current full-time Fire Chief the CWFR continues to rely on the dedication and commitment of volunteer firefighters as the primary providers of fire suppression services supported by a group of dedicated full-time staff.

The analyses within this FSMP indicate that the roles and responsibilities of the current administrative team have evolved to the point that consideration of further organizational change should be considered. With the implementation of enhanced records management practices and process

opportunities exist to improve the overall administrative function of the department as part of a revised organizational structure.

Analyses of the Administration Division have identified several areas where the CWFR services are reflective of municipal and fire services best practices. Sustaining and further enhancing these efficiency and effectiveness of this Division is the goal of the FSMP.

It is recommended that subject to Council's consideration and approval of the proposed Fire Service Master Plan that the following recommendations be implemented to support the strategic priorities of this Fire Service Master Plan for the Administration Division:

1. *That the Centre Wellington Fire and Rescue update the department's mission statement, and develop a vision statement to align with the proposed strategic priorities of the proposed Fire Service Master Plan;*
2. *That the Fire Chiefs job description be revised to reflect the recommendations of the proposed Fire Service Master Plan;*
3. *That the Township investigate opportunities for providing coverage in the absence of the Administrative Assistant;*
4. *That the purchase and implementation of an integrated records management software solution be investigated for use by the Centre Wellington Fire and Rescue;*
5. *That an Operating Guideline Committee be formalized including a defined terms of reference, and representation from a cross section of department staff.*
6. *That the purchase and implementation of an integrated records management software solution be investigated for use by the Centre Wellington Fire and Rescue.*
7. *That the Centre Wellington Fire and Rescue develop an Operating Guideline or Department Policy to define the required records management procedures and practices;*
8. *That the Centre Wellington Fire and Rescue develop a Public Relations Policy.*
9. *That the Centre Wellington Fire and Rescue develop an Annual Report to Council and the community as part of the annual budget submission process;*
10. *That the Establishing and Regulating By-Law No. 2006-083 be updated to reflect the direction of Council in respect to the delivery of all fire protection services;*
11. *That consideration be given to implementing a regular process for reviewing and updating all by-laws associated with the operation of the Centre Wellington Fire and Rescue;*
12. *That the Centre Wellington Fire and Rescue investigate alternative options for the delivery of fire dispatching services;*
13. *That the strategic priorities identified within the proposed Fire Service Master Plan be adopted to form the strategic framework for the delivery of fire protection services, including:*
    - ix. *Recognize the historical dedication and commitment of the members of Centre Wellington Fire and Rescue and their ongoing effort to transition to one single, unified fire department.*

x. *Utilization of a Community Risk Assessment to determine the fire safety risks within the Township as the basis for developing clear goals and objectives for all fire protection and emergency services provided by the Centre Wellington Fire and Rescue;*

xi. *Optimization of the first two lines of defence including public education and fire prevention, and the utilization of fire safety standards and fire code enforcement to provide a comprehensive fire protection program within the Township based on the results of the Community Risk Assessment; and*

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

4.0 Community Risk Assessment (CRA) Overview

The Community Risk Assessment methodology is based on NFPA 1730 and on the OFMEM's Fire Risk Sub-Model. A CRA helps to define the level of risk in a community and establish local needs and circumstances as identified in the FPPA. The fire risk within a community is a foundational element to the recommendations within this Fire Service Mater Plan. The complete Community Risk Assessment can be found in Appendix A. This section provides a summary of the community risk based around the key risk profiles identified in NFPA 1730 and the OFMEM Fire-Risk Sub-Model:

- Demographics
- Geography
- Building Stock
- Past Fire Loss
- Response
- Hazards
- Economics

The need to consider and assess community-specific risks is an area receiving increased focus within the fire protection industry in North America. A CRA is a useful tool to consider how the characteristics of a community contribute to and impact potential fire risk scenarios and in being proactive in understanding where fire prevention and public education should be focused within a community.

4.1 Demographic Profile

Assessing demographic 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 socioeconomic circumstances that could affect risk levels. The demographic analysis of Centre Wellington indicates that the community has a slightly older resident population at 17% over 65 years of age, compared to 15% in the Province of Ontario. Youth and seniors are considered more vulnerable individuals and should be targeted with public education programming. Centre Wellington is a popular recreation and tourism destination resulting in a population shifts primarily during the summer season. In the Township, 20% of households spend 30% or more of the household total income on shelter costs compared to the Province with 27% of households suggesting that there is more disposable income available for fire safety materials (lower risk).

4.2 Geographic Profile

There are some risks associated with the transportation, water features, geographic landforms, and wildland-urban interface in the Township. The Township is well-serviced by the road network (local roads, collector roads, arterial roads, county roads, and private roads). However, the network can also pose a risk to residents and individuals driving through the community, such as motor vehicle collisions.

The Township overall is a rural community with a strong agricultural base with thriving, urban centres within the centre of the Township – Fergus and Elora-Salem. Residential populations around Belwood Lake, Township hamlets, and other rural residences experience extended emergency response times. Due to the rich natural features in the area including the Grand River, there are a total of 84 bridges in the Township, 12 of which are located within the Fergus-Elora-Salem urban boundary. The loss of a bridge in a certain area, whether related to planned capital upgrades or a hazard such as a flood, would reduce access via the road network and therefore negatively impact emergency response coverage. The CWFR should be considered a key stakeholder when the Township seeks to address traffic /circulation needs in the case of bridge/road works that could impact the turnout time of volunteers and travel time of the department.

The Township is rich in natural heritage features including the Grand River, the Elora Gorge Conservation Area, the Elora Quarry Conservation Area, and the Belwood Lake Conservation Area. These geographic features result in an increased risk to the community resulting in the form of accidents or incidents occurring while using/navigating these geographic features. This results in a higher potential for the need of technical rescue services provided by the department (e.g., water, swift water, high-angle/low-angle rope rescue, etc.). As a rural community with a mix of agricultural uses and other natural features, there are risks related to wildland-urban interface.

4.3 Building Stock Profile

The Ontario Building Code (OBC) categorizes buildings by their major occupancy classifications. Each classification has inherent definitions that distinguish it from other occupancy classifications. Table 4 illustrates the current building stock information within the Township. The largest percentage of major occupancies is Group C – Residential occupancies comprising 95.2% of the occupancies.

Table 4: Existing Building Stock Information

Occupancy Classification (OBC)	Occupancy Definition Fire Risk Sub-model (OFMEM)	Number of Occupancies	Percentage of Occupancies
Group A – Assembly	Assembly occupancies	21	0.2%
Group B – Care or Detention	Care or Detention occupancies	5	0.0%
Group C – Residential	Single Family	8,125	95.2%
	Multi-unit residential	1,820	
	Hotel / Motel	3	
Group D & E – Business & Mercantile	Business and Personal Services and Mercantile Occupancies	411	3.9%
Group F – Industrial	Industrial occupancies	69	0.7%
Other occupancies	Not classified within the Ontario Building Code (i.e. farm buildings)	-	-
	Total	10,454	100.0%
Mixed Use Buildings	Not classified within the Ontario Building Code (i.e. Group C and Group F)	-	-

(Source: Centre Wellington Fire and Rescue)

Other key building stock profile observations include:

- Single-detached homes represent 76% of residential buildings within the Township which is a higher proportion than the Province (55.6%);
- Centre Wellington has an older building stock with 49.7% of the Township's residential buildings built prior to the adoption of the 1981 Ontario Building Code. The downtown core areas of Elora and Fergus represent an increased risk due to the age (built in 1800s), construction method and materials (wood frame), and exposures of the buildings (not spatially separated);
- The Township of Centre Wellington has 18 vulnerable occupancies including four long term care facilities with over 100 beds;
- There are some fuel load concerns within the Township primarily within industrial occupancies but also within big box commercial occupancies.

This analysis suggests that Group C – Residential occupancies, vulnerable occupancies, and the downtown core areas should be key considerations when providing public education and prevention services.

4.4 Past Fire Loss Profile

Identifying and understanding trends through the analysis of historical data provides valuable insight into community-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.

Based on the historical data from OFMEM for the period 2010 to 2014, the Township experienced the greatest number of fires in Group C – Residential occupancies at 73% and 89% of its dollar ($) loss. The proportion of fire loss in Group C – Residential occupancies for the Township would in part be linked to the high proportion of Group C – Residential occupancy building stock within the Township (95.2%). On the other hand, the proportion of fire loss within Group F – Industrial occupancies within the Township seems high compared to the proportion of the building stock (0.70% of total building stock).

Within the Province of Ontario for the period 2009 to 2013, more than half (56%) of the homes with a casualty or property loss did not have a smoke alarm in place that operated as anticipated. This highlights the importance of a proactive home smoke alarm/CO alarm program. Tracking this information in the case of could be beneficial to inform the design of public education activities.

The three most common known causes of fires in the home within the Township are exposure (15.9%), heating equipment (14.5%), and cooking equipment and electrical distribution (7.2% for both sources). This type of information should also be used to develop targeted public education programming within the municipality.

4.5 Response Profile

The breakdown of calls for emergency response can be used to target education and inspection programs both generally and to specific occupancies. An extensive analysis of the calls for the Township of Centre Wellington can be found in Section 8.6 of the Fire Service Master Plan. As it pertains to Community Risk Assessment, there are several key, high-level observations:

- The overall call volume by year is increasing with 518 calls in 2015;
- Fire related call volume has been relatively consistent for the past five years;
- Medical and other calls have both increased in 2015;
- There are a high proportion of false alarm calls (19% of all calls).

It is important to note that the use of enhanced fire prevention and public education efforts can reduce the number of fire calls a municipality has even with the presence of population growth. As part of employing the first two lines of defence, there is potential for the Township of Centre Wellington to assess these calls spatially to identify trends in geographies or specific occupancies.

4.6 Hazard Profile

Hazards are important to consider from a fire risk, emergency response, and overall public safety perspective. NFPA 1730 and the OFMEM identify three types of hazards: natural, human-caused, or technological. Of particular note in terms of hazards in the Township are those identified as the most probable hazards identified for the County: severe weather, winter power failure, flood, transportation incident, hazardous transportation incident, energy emergency, water emergency, human health emergency, foreign animal disease, and terrorism. The Township has developed an approved Emergency Response Plan to respond to such incidents. This process may also be used to identify key hazards important to the municipality.

4.7 Economic Profile

According to NFPA 1730, the Economic Profile of a community considers particular facilities, employers, or events in a community that may contribute to its financial vitality and sustenance. If these facilities, employers, or events are impacted through a fire or emergency event, it could have a negative impact on the overall well-being of the community. There are several key events and occupancies where if a fire loss were to occur, there would be an economic loss to the Township and its residents. As key observations:

- The loss of a major manufacturing facility would impact residents' ability to work;
- The loss of a health care or government facility would impact both residents' ability to work as well as service delivery and response and
- The loss of agricultural production or retail facilities could also result in economic loss.

By optimizing the first two lines of defence with such occupancies, (e.g., inspection, education, enforcement, pre-planning, etc.), related economic losses could be prevented or mitigated.

4.8 Growth Consideration

Growth consideration such as historical growth and projected growth can inform existing risk and future risk within a community. According to Statistics Canada, from 1996 to 2016 the population of Centre Wellington grew by 19.8%, approximately 1.1% per year on average (compounding). According to the County of Wellington Official Plan Amendment 99, Centre Wellington is slated to continue experiencing growth. The majority is projected to occur in the Elora-Salem and Fergus urban centres. It is projected that as of 2016, 85% of the population will reside within the existing urban centres of Elora-Salem and Fergus.

The Township of Centre Wellington is currently undertaking a Growth Management Strategy to plan for this projected growth. Preliminary results identify several greenfield areas within the existing urban centre boundary that are projected to absorb both greenfield residential and employment growth. There is also growth slated to take place between the two urban centres in the Aboyne area referred to as the Wellington Place lands. These lands are planned to include a future hospital by 2018. As the

Township continues to grow, and the Fire Services Master Plan is reviewed and updated, the nature of the growth and its impact on local needs and circumstances from an emergency services and risk perspective should be monitored.

5.0 Municipal Peer Comparators Summary

This section presents a summary of the findings of the municipal comparators analysis presented in Appendix D. This summary includes an overview of the peer comparison methodology, identifies the peer municipalities, and summarizes the results of the analysis.

5.1 Methodology Overview

The use of benchmarking and key performance indicators can be used as a tool to help ensure that Township residents are receiving the most efficient and effective service possible within the fiscal realities of the municipality. Benchmarks and indicators can be used across municipal services. However, within the fire service in particular, it can be a challenge to successfully compare and benchmark municipal performance to peers comparators.

An industry-wide challenge is consistency in what data and how departments collect performance data, as well as access to that information. Without consistent metrics and a standard data source, peer comparisons are very difficult. In 2015, this challenge was acknowledged by the Canadian Association of Fire Chiefs (CAFC) and the federal agency Defence Research & Development Canada (DRDC). To work towards a solution, the DRDC announced at the CAFC Conference in September 2015 that a three-year pilot project will be launched to develop a National Fire Information Database. At the time of writing, this project is still in progress.

Until such time that there is a comprehensive database, desktop review and surveys of fire departments will need to be utilized to establish municipal peer comparisons. As part of this FSMP, such an exercise was undertaken to inform decision making.

To conduct the analysis of municipal comparators, the CWFR provided a list of peer comparators typically used internally. Seven performance indicators were analyzed as a part of the peer comparison:

- Fire department operating budget;
- Fire department operating budget per capita;
- Fire department operating budget per dwelling unit;
- Full-time staff per capita;
- Fire prevention staff per capita;
- Fire suppression staff per capita; and
- Fire suppression staff per training staff.

Additional research was conducted to inform and provide context for these indicators. The contextual data collected included:

- Department Type;
- Number of Stations;

- Organizational structure, including total staffing including and staffing by division; and
- Minimum staffing.

The initial sources of data for this analysis were web-based research and information provided by peer fire departments. The initial findings were supplemented with information collected from email and phone interviews. Not all peer departments were contacted directly.

5.2 Municipal Comparators

The identified peer comparators and their traits including population, area, population density, and number of dwellings can be found in Table 5.

Table 5: Municipal Comparators

Municipality	Population (2016)	Area (km^2)	Population Density (people/km^2)	Population Growth (2011-2016)	Dwellings (2016)	Dwellings Growth (2011-2016)
Centre Wellington	28,191	407.54	69.2	5.6%	11,499	7.2%
Town of Orangeville	28,900	15.61	1,851.9	3.3%	10,696	4.2%
Town of Halton Hills	61,161	276.27	221.4	3.6%	21,475	4.5%
Town of Caledon	66,502	688.16	96.6	11.8%	22,021	12.1%
Town of New Tecumseth	34,242	274.21	124.9	13.3%	13,191	13.3%
Town of Innisfil	36,566	262.71	139.2	11.7%	14,875	7.8%
Town of Bradford West Gwillimbury	35,325	201.04	175.7	25.8%	11,918	19.4%
Average	41,555	303.65	382.7	10.7%	15,096	9.8%

(*Source: Statistics Canada, Municipal Census Profiles 2016*)

5.3 Summary of Findings

The municipal peer comparison of the six municipalities results in the following observations:

- Of the municipal comparators identified, the Township of Centre Wellington has the lowest population and is one of the largest by geography.
- The CWFR has 3.0 fewer FTE (-62.7%) staff per 10,000 residents than the average (4.8 FTE per 10,000 residents).This includes all full-time staff including suppression staff, prevention, and training as detailed in the appendix.
- Compared to the identified peers, the CWFR has a lower 2015 operating budget including being:

  $2.6 million (-66.9%) less than the average operating budget of the peer group.

  $45.19 per capita less (-51.2%) than the average ($92.60 per capita) of the peer group.

$160.10 lower (-57.4%) costs per dwelling unit than the average ($278.83 per dwelling unit).

- The lower operating budget for Centre Wellington Fire and Rescue is in part directly attributed to the higher proportion of full-time staff found in the peer departments.
- The CWFR has 0.23 fewer FTE (-39.3%) fire prevention/education staff per 10,000 residents than the average (0.58 FTE per 10,000 residents).
- The CWFR has 9.0 fewer (-30.9%) suppression personnel per 10,000 residents than the average (29.3 suppression personnel per 10,000 residents). Volunteer personnel were included when calculating this average.
- With just one station more than Centre Wellington, it is notable that the Town of New Tecumseth has a substantially higher proportion of volunteer suppression personnel than Centre Wellington. It is recognized that New Tecumseth has moved to a strategy of increasing the complement of volunteers per station in order to enhance their response capabilities. Their current target complement per station is 40 volunteer firefighters.
- The CWFR has 13.9 more (+13.9%) suppression personnel per full-time training staff than the average (100.1 suppression personnel per training FTE).

6.0 Fire Prevention and Public Education Division

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

Section 2.(1) of the *Fire Protection and Prevention Act, 1997* states:

> *"(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."*

PFSGs 04-40-03 and 04-40-12 "*Selection of Appropriate Fire Prevention Programs"* (Appendix B) provides further information defining the minimum acceptable level of fire prevention and fire safety education services that a municipality must provide. According to the OFMEM's 2015 Municipal/NFPP Fire Protection Profile, the minimum acceptable model is comprised of the following:

- ü *Carbon Monoxide and Smoke Alarm Program, including home escape planning as described within PFSG 04-40B-03 and 04-40B-12;*
- ü *Distribution of public education information and implementation of public education programs as per PFSG 04-40C-03 and 04-40C-12;*
- ü *Municipal Risk Assessment as per PFSG 04-40A-03 and 04-40A-12; and*
- ü *Fire prevention inspections upon complaint or request, and as directed by the Fire Marshal, and Ontario Fire Code enforcement as per PFSG 04-40D-03 and 04-40D-12*

Assessing community fire risk 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 analysis 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 systems is an example of integrating alternatives to managing the inherent risks of a building rather than simply developing a larger emergency response deployment plan.

This section of the FSMP highlights fire prevention and public education best practices and key functions of the division. It also explores existing division staffing and activities in consideration of these best practices and presents recommendations to address existing gaps and future needs.

6.1 Fire Prevention and Public Education Best Practices

The fire prevention and public education services provided by the Township of Centre Wellington should be guided by industry best practices. Primarily these include the Ontario Comprehensive Fire Safety Effectiveness Model and NFPA 1730 *Standard on Organization and Deployment of Fire Prevention Inspection and Code Enforcement, Plan Review, Investigation, and Public Education Operations to the Public* (2016 Edition).

6.1.1 Comprehensive Fire Safety Effectiveness Model (OFMEM)

The fire prevention and public education services provided by a fire department are intended to optimize impact of applying the first two lines of defence identified within the Comprehensive Fire Safety Effectiveness Model including:

I. *Public Education and Prevention*
II. *Fire Safety Standards and Enforcement*

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 OFMEM indicates that from 2010 to 2014 the number of fire losses, described as any fire with an injury, fatality or dollar loss reported, have declined from 12,840 in 2010 to 10,632 in 2014 resulting in a decrease of 17%. This occurred during a period of time when the population and number of structures across Ontario continued to grow.

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

In our view, strategies that optimize the use of the first two lines of defence to address the findings of the Community Risk Assessment (CRA) (Appendix A) should be considered a strategic priority of this FSMP. For example, this should include prioritizing fire prevention and public education programs in areas of the community where vulnerable occupants such as seniors reside.

6.1.2 NFPA 1730: Standard on Organization and Deployment of Fire Prevention Inspection and Code Enforcement, Plan Review, Investigation, and Public Education Operations to the Public (2016 Edition)

NFPA has recently finalized a *Standard on Organization and Deployment of Fire Prevention Inspection and Code Enforcement, Plan Review, Investigation, and Public Education Operations.* The stated purpose of the standard is to "*specify the minimum criteria addressing the effectiveness and efficiency of the fire prevention organization… based on an approved community risk reduction plan"* (pg. 4). The standard establishes its criteria through five main chapters:

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

The essence of the standard is to ensure that a fire prevention organization has a Community Risk Reduction Plan (CRRP) in place that is based on the local needs and circumstances. A department is to establish local needs and circumstances through a Community Risk Assessment (CRA). A CRA involves the assessment of: demographics; geography; building stock; fire experience (fire loss); responses; hazards; and economics.

A Community Risk Reduction Plan is then used to assign resources and develop programs that are consistent with identified risk. This would include inspection activities, plan review, investigations, and public education programs. For example, the NFPA 1730 standard identified a minimum inspection frequency cycle which could be refined based on the local context. Additional CCRP implementation considerations within the standard is to circulate the CRRP to all stakeholders who help implement it and to establish partnerships to facilitate implementation. This standard further emphasizes the importance of the application of the first two lines of defence and is consistent with the current industry trend to emphasize prevention and education within the fire service.

These identified best practices as well as other PFSGs developed by the OFMEM will be referenced throughout the review of the operations of the Fire Prevention/Public Education Division.

6.2 Existing Fire Prevention and Public Education Staff Resources

The current job descriptions indicate that the District Chief/Public Safety Officer is the position primarily responsible for the overseeing the departments fire prevention programs and activities. The responsibility for the department's public education (public safety) is assigned to the Chief Training Officer/Public Fire Safety Education. In addition to these full-time staff resources the volunteer firefighters provide support in delivering public education programs to schools and other community groups.

Analyses within this FSMP will present options for Council's consideration in revising the department's current fire prevention and public education programs and activities. These options are presented to enhance the efficiency and effectiveness of these programs and activities in responding to the proposed strategic priorities presented within this FSMP.

A revised staff resource plan is also presented within this FSMP to support the delivery of the proposed fire prevention and public education programs and activities.

6.3 Fire Prevention Policy

The components of a Fire Prevention Policy are provided in PFSG 04-45-12 "*Fire Prevention Policy*" (Appendix B) which presents a framework for developing a fire prevention policy.

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

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

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

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

Research into preparing this FSMP indicates that the CWFR does not currently have a Fire Prevention Policy. The analyses within this FSMP will present an overview of the department's current fire prevention and public education programs and activities. It is recommended that this information and the proposed recommendations for enhancing the department's fire prevention and public education programs and activities be utilized to develop a Fire Prevention Policy.

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

It is recommended that subject to Council's consideration and approval of the proposed Fire Service Master Plan that the Centre Wellington Fire and Rescue develop a draft Fire Prevention Policy for

consideration and approval by Council and inclusion within the proposed updated establishing and Regulating By-law as an appendix.

6.4 Fire Prevention & Public Education Operating Guidelines

Operating guidelines are an integral component to providing specific direction to all staff in how, when and where department activities will be conducted. The CWFR does not currently have any fire prevention and public education operating guidelines. The department does have one related department policy identified as *Policy No. 2005-026 Public Education (Fire Station Tours and Relocation of Fire Apparatus)* that states that staff interested in conducting public education tours should inform the Public Safety Officer. It also requires that the public education event be recorded.

Industry best practices and the OFMEM support the need for extensive operating guidelines to ensure all department programs and activities are being delivered as approved by the Fire Chief and authorized by Council. Operating guidelines particularly in the area of fire prevention and public education activities and programs are necessary to define performance goals and objectives to inform trend analyses to inform ongoing monitoring of these services.

It is recommended that subject to Council's consideration and approval of the proposed Fire Service Master Plan that the Centre Wellington Fire and Rescue develop Standard Operating Guidelines to inform the delivery of all approved fire prevention and public education programs and activities.

6.5 Simplified Risk Assessment

The Township has a legislated responsibility under the Fire Protection and Prevention Act, 1997 to provide public education with respect to fire safety and certain components of fire prevention. Developing a simplified risk assessment is intended to identify the community's fire risks to inform the Townships decisions with respect to the specific programs and activities required based on the local needs and circumstances.

PFSG 04-40A-12 – *Simplified Risk Assessment* (Appendix B) defines the purpose, core components and risk consideration that should be included within a simplified risk assessment. The Township completed its last Simplified Risk Assessment in 2008. This simplified risk assessment includes a demographic profile, building stock profile, and municipal fire loss statistics. Our analyses indicate that this simplified risk assessment accurately applies the methodology included within PFSG 04-40A-12.

As indicated, a Simplified Risk Assessment is a legislative requirement that based on industry best practices suggest should be updated on a regular basis as part of the fire department's regular business planning process. The departments current Simplified Risk Assessment was last updated in 2008 presenting a potential gap in the municipality's legislated requirements. This FSMP includes a Community Risk Assessment that will provide compliance with the Townships legislative requirements.

Developing a process to update the CRA on an annual basis as part of the proposed annual reporting process contained within this FSMP would assure that the Township sustains its legislative requirements in the future.

It is recommended that subject to Council's consideration and approval of the proposed Fire Service Master Plan that the Fire Chief updates the Community Risk Assessment as part of the proposed annual reporting process.

6.6 Current Public Education Programs and Activities

The experience of other municipalities has proven that expanding and enhancing public education efforts can be an effective strategy to mitigate emergency call volume and increase the overall level of fire safety within a community. Information provided by the OFMEM indicates that: "*between 2000 and 2004 the leading causes of senior (aged 65 and over) fire deaths in the province 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".*[7] These are preventable incidents that could in part be mitigated through targeted public education programming.

The Comprehensive Fire Effectiveness Model prioritize the importance of providing fire prevention and public education programs as the first line of defence including:

"*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 those affected by fires respond properly to save lives, reduce injury and reduce impacts of fires".*

Through consultation with the department's internal stakeholders in preparing this plan there is certainly recognition of the importance of public education. Providing public education programs and activities that are strategically aligned with community fire risk that considers local needs and circumstances enable a municipality to both achieve its legislative requirements, and support a fire safe community. The CWFR currently provides a range of public education programs and activities, some of which are tailored to specific target audiences, as Table 6 shows.

[7] Source: Ministry of Community Safety and Correctional Services. *Comprehensive Fire Safety Effectiveness Model.* February 6, 2016. https://www.mcscs.jus.gov.on.ca/english/FireMarshal/FireServiceResources/ComprehensiveFireSafetyEffectivenessModel/FireRiskSub-Model/Fire_risk_submodel.html (accessed November 2016).

Table 6: Current CWFR Public Education Programs and Activities

Demographic Audience	Current Public Education Programs and Activities
1) Children	• School visits • Fire Hall tours (upon request) • Attend Pre-school and special needs camps • Contests and Promotions (e.g., Ride to School in a Fire Truck Contest)
2) Seniors	• Fire safety lectures at seniors' centres • Regular visits to local retirement communities
3) All Residents	• Monthly Radio interviews with local radio station • Public Service announcements on TV as well as local newspapers • Fire extinguisher training
4) Industrial / Commercial	• Fire extinguisher training • Fire safety lectures • First Aid Courses
5) Other	• Fire safety talks to local community organizations (e.g., Belwood Lake Cottagers Association, church groups, camp visits, etc.) • Presence at special events: o Farm Safety Show (Fire safety trailer & apparatus) o Canada Day Activities (Provide pumper) o Special Needs Soccer Day (Provide pump and volunteers) o Elora / Centre Wellington Easter Egg Hunt o Highland Pines Craft Day • Fire Prevention Week

While there are regular activities and programs provided by CWFR, there is no department policy or standard operating guideline that describes the goals and objectives of these programs. Therefore, there is currently a gap in ensuring the consistency of the program, the ability to measure the success of the program, and to track the department's legislated requirements such as the distribution of public education materials.

The information presented in Table 7 indicates that the department currently spends approximately 344 hours per year on delivering public education programs targeting various demographics within the community. As indicated by the number of staff required to deliver these programs, the department relies predominantly on the support of the volunteer firefighters to deliver these programs.

Table 7: Current CWFR Public Education Programs

Program/Activity	Average Number of Times the Program is Provided Annually	Average Number of Staff Present to Deliver Program	Average Number of Hours to Deliver Program	Estimated Total Average Number of Hours Annually
Fire Hall Tours	25	2	1	50
School Visits	12	2	2	48
Contests/Promotions	2	2	36	72
Fire Safety Talks	6	1	1	6
Fire Extinguisher Training	8	3	2	48
Special Events	8	4	3	96
Fire Prevention Week	1	4	6	24
			Total	344

This FSMP includes recommendations for proposed public education programs and activities, and a proposed staff resource plan in response to the identified potential legislative gaps within this FSMP, to optimize the first line of defence and to align with the proposed strategic priorities contained within this FSMP.

6.6.1 Smoke Alarm, CO Alarm, and Home Escape Planning

The provision of a smoke alarm program and a CO alarm program including home escape planning is a legislated responsibility of the Township. The presence of working smoke alarms and home fire escape planning that is practiced regularly by occupants are critical components of the first line of defence in an overall community fire protection plan. The relevance of these components must be further emphasized, especially in areas of the community where extended emergency response travel times may be present, and where vulnerable demographics such as children and seniors reside.

As of April 15th, 2015 homeowners and property owners/tenants in buildings that contain no more than six suites must install and maintain carbon monoxide alarms as required by the Ontario Fire Code. Generally this means that a carbon monoxide alarm must be installed adjacent to each sleeping area of the residence. As the FPPA has also been revised to address “unsafe levels of carbon monoxide” the fire service has been tasked with monitoring compliance with this legislation. Recent experience has shown that fire departments are amending their Smoke Alarm Programs to include carbon monoxide alarms as well.

The CWFR does not currently have a department policy or standard operating guidelines that defines the goals objectives of the departments home smoke alarm, CO alarm and home escape planning activities. Consultation with members of the department exhibit a high degree of support and awareness of the need for these programs. However, there is a gap in the department’s ability to

present records on the number of times a smoke alarm may have been checked, replaced or a residence found in non-compliance, or the distribution of home escape planning information. The department will provide a smoke alarm in the event a residence is found in non-compliance; however the department is currently unable to identify the legislative compliance ratio of smoke alarms/CO alarms in residential occupancies within the community.

PFSG 04-40B-03 Smoke Alarm Program suggests that an effective smoke alarm program will help fire department staff protect residents from fire. This PFSG indicates that Implementing a smoke alarm program will help:

- ü *Ensure that owners have properly installed working smoke alarms in all residential occupancies;*
- ü *Reduce fire deaths, injuries and property losses;*
- ü *Educate residents about the importance of installing and maintaining smoke alarms;*
- ü *Assist residents to develop and practice an effective home fire escape plan;*
- ü *Assists the municipality in meeting its legislative requirements under the FPPA; and*
- ü *Create positive public relations between the community and the fire department.*

Industry best practices indicate the delivery of a pro-active home smoke alarm/CO alarm program that includes a door-to-door campaign. In our experience many similar size communities as the Township of Centre Wellington utilize a strategy to approach all residential occupancies once every five years. The Community Risk Assessment included within this FSMP indicates that there are 8,125 single family units and 1,820 multi-unit residential occupancies within the Township. This represents a total of 9,945 estimated residential occupancies that could be included within a door-to-door smoke alarm/CO alarm campaign. Based on a five year cycle this would mean the CWFR would need to design a program that could accommodate approximately 2,000 residential occupancies being approached each year. Consideration should be given to designing the five year cycle by prioritizing the areas of the municipality that experience extended response times earlier in the cycle.

This FSMP recommends increasing the total complement of volunteer firefighters from the current 60 to 72. If each of the volunteer firefighters was to approach approximately 28 homes per year the department could achieve a five year cycle (72 firefighters x 28 residences each = 2,016 residential occupancies).

It is recommended that the Centre Wellington Fire and Rescue develop a Standard Operating Guideline for the department's Smoke Alarm/CO Alarm and Home Escape Planning Program.

6.7 Current Fire Prevention Inspection Program

The CWFR is achieving its legislative requirements for conducting fire inspections by providing inspections based upon receiving a request or alternatively receiving a complaint. These are the minimum legislative requirements for a municipality. The current Establishing and Regulating By-law No. 2006-83 is limited in its description to the fire protection services to be provided by the CWFR. The by-law indicates "fire prevention" and "fire safety education".

As referenced in Section 6.3 industry best practices reflect having a Council approved Fire Prevention Policy describing the types of fire prevention programs to be provided including the goals and objectives of each program, or activity.

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

Ontario Regulation 150/13 was filed on May 9, 2013. This regulation introduced amendments to the Ontario Fire Code (OFC) that came into force on January 1, 2014. The OFMEM led the development of this new regulation in consultation with a Technical Advisory Committee of industry experts. This regulation is intended to enhance fire safety in occupancies that house vulnerable occupants. This would include those occupancies classified as Group B – Care or Detention.

Compliance with this new regulation is being achieved through a multi-pronged strategy including mandatory inspections by local fire departments and a process of providing training for facility staff and upgrades to existing buildings. The installation of automatic sprinkler systems in such occupancies is also a mandatory requirement of this new legislation.

Under the direction of the OFMEM one of the first impacts on local fire departments was the development of a building registry of all buildings affected by the new legislation. This task has been completed by CWFR and will assist in providing the department with a tool for managing the workload requirements of this new legislation.

The CWFR is currently achieving its legislated requirements for conducting annual testing of fire safety plans including conducting an evacuation and fire inspection of each building affected by this legislation on an annual basis.

6.7.2 Current Fire Inspection Cycles

The department's current fire inspection cycles (performance measures) for each of the major building classifications of the Ontario Building Code are shown in Table 8.

Table 8: Current Fire Inspection Cycles (Performance Measures)

Occupancy Classification (OBC)	Buildings	Current Fire Inspection Frequencies (Performance Measures)
Group A – Assembly	Schools	Upon Request/Complaint
	Nursery/Day Care Facilities	Annually
	Recreation Centres (Arenas), Curling/Golf Centres, Licensed Properties, Churches, Special Occasion Permits	Upon Request/Complaint
Group B – Care or Detention	Long-term care facilities, Hospitals, Group Homes, Homes for Special Care	Annually
Group C – Residential	Hotel / Motel	Annually
	Boarding/Lodging/Rooming House	Annually
	Apartments regulated by Part 9.3 of the OFC Apartments regulated by Part 9.5 of the OFC Apartments regulated by Part 9.8 of the OFC Home Inspection Program	Upon Request/Complaint Upon Request/Complaint Upon Request/Complaint Upon Request/Complaint
Group D - Business	Business and Personal Services Occupancies	Upon Request/Complaint
Group E - Mercantile	Mercantile Occupancies	Upon Request/Complaint
Group F - Industrial	F1 – High Hazard	Upon Request/Complaint
	F2 – Moderate Hazard	Upon Request/Complaint
	F3 – Low Hazard	Upon Request/Complaint

This FSMP includes recommendations for proposed fire inspection cycles, and a proposed revised staff resource plan to optimize the first two lines of defence, and to align with the proposed strategic priorities contained within this FSMP.

6.8 Fire Safety Enforcement

Complementary to fire safety inspections is fire safety enforcement. In the past, enforcement was not a commonly used tool for municipalities working with property owners to achieve compliance with the OFC. This trend is changing across the province with the support of the OFMEM, in part through its May 2012 Technical Guideline OFM-TG-01-2012 *"Fire Safety Inspections and Enforcement"*. This guideline is intended to assist municipalities in efficiently and effectively meeting fire safety inspection and enforcement responsibilities.

Dillon's review of this guideline indicates that it supports the direction of the first two lines of defence as a means to optimize the level of fire protection services within a community. 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. The CWFR has developed a proactive approach to achieving compliance through working with occupancy owners to attain compliance. The proposed staff resource plan contained within this FSMP recommends additional resources to assist in delivering the proposed fire inspecting cycles. In our view this includes assessing the current and required certifications and authority of staff conducting fire inspections.

It is recommended that subject to Council's consideration and approval of the proposed Fire Service Master Plan that the Centre Wellington Fire and consider OFM-TG-01-2012 "Fire Safety Inspections and Enforcement" in developing the proposed Fire Prevention Policy.

6.9 Site Plans Review

Approval of site plans for new construction or site alterations from the perspective of fire protection is a critical component of fire prevention. The involvement of fire departments across the province in the site plans review process varies. Plans can be reviewed for sprinkler, fire alarm, and kitchen suppression systems; and, site plan and subdivision approval for items affecting fire services such as access and water supply. Presently, CWFR and the Planning, Building, and Development department have an informal agreement for CWFR to provide comment on site plans upon request.

This responsibility is currently assigned to the District Chief/ Public Safety Officer. Research into preparing this FSMP indicates that this current inter-department relationship is working well for the Township.

6.10 Fire Investigations and Cause Determination

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

Research indicates that the CWFR does not currently have a standard operating guideline or policy that describes the department's activities in this area. Industry best practices indicate that a standard operating guideline should be in place and include the following:

- Identify who is responsible for investigations;
- Identify what external agencies are involved or required;
- Identify the process for evaluating the investigation results and including them within updates to the Community Risk Assessment.
- The required training to be a CWFR fire investigator;
- The documentation and filing procedure for fire investigations, prosecutions, and litigations; and
- Clear direction for when an OFMEM Investigator must be notified.

It is recommended that the Centre Wellington Fire and Rescue develop a Standard Operating Guideline for fire investigation and cause determination.

6.11 Fire Safety Plans

Fire Safety Plans are required for select occupancy types identified within the Ontario Fire Code per Section 2.8.1.1 of the code. These occupancies include Group A – Assembly occupancies, and Group B – Care or Detention occupancies. All remaining major occupancy groups (e.g., Group C – Residential, Group F – Industrial, etc.) also require fire safety plans depending on their occupancy load or other building-related features such as storeys below grade. The OFC also details the content requirements of a fire safety plan (OFC Section 2.8.2.1). The requirement includes emergency procedures in the case of a fire such as use of the fire alarm, notifying the fire department, and instruction and evacuation of occupants. Fire safety plans must also designate supervisory staff, and detail holding of fire drills, control of fire hazards, and maintenance of building facilities.

These plans, while approved by qualified personnel within a fire department, are utilized primarily by the occupants. Fire Safety Plans provide an avenue for training in the case of a fire incident; for example, care providers at a long-term care facility would know their role in an evacuation procedure. The District Chief/ Fire Safety Officer currently reviews all Fire Safety Plans.

OFMEM Communique 2013-06 announced Ontario Regulation 150/13 in effect as of January 1, 2014. In regards to fire safety plans, the regulation requires that by January 1, 2017, those fire officials responsible for approving fire safety plans must have completed a training program or course that is acceptable to the Fire Marshal. [8] Research into preparing this FSMP indicates that the CWFR does not currently have a Standard Operating Guideline or department policy describing the department's activities in this area. Reviewing Fire Safety Plans is also not recognised within the current Establishing and Regulating By-law.

[8] (Ontario Office of the Fire Marshal and Emergency Management, 2013)

It is recommended that the Centre Wellington Fire and Rescue develop a Standard Operating Guideline for Fire Safety Plan review.

6.12 Pre-Planning

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

As part of the review conducted for this FSMP, it was identified that pre-planning has recently been conducted by CWFR. High-hazard, high-risk or complex buildings had pre-plans developed. However, there is no regular approach to development, review or use of pre-plans. This FSMP includes a Community Risk Assessment that includes identifying low, moderate and high risk occupancies. The review conducted as part of this FSMP indicates that there is currently no Standard Operating Guideline or defined procedures for completing or prioritizing pre-planning within the Township.

For those pre-plans that have been completed, hard copy documents currently reside in the fire station dispatch offices. As the purpose of pre-plans is to assist fire suppression staff with formulating a plan and increasing awareness of the sites hazards on the way to the incident, some departments use a software technology. Such a technology supports the ability of suppression staff to familiarize themselves with a building /site enroute to a scene in the fire apparatus.

It is recommended that the Centre Wellington Fire and Rescue develop a Standard Operating Guideline for conducting and developing pre-plans.

6.13 Comprehensive Fire Effectiveness Model – Fire Prevention/Public Education Gap Analyses

The analyses within the preceding sections of the Fire Prevention and Public Education Division identify the existing gaps in the department's ability to achieve its legislative and proposed goals and objectives for the delivery of fire inspections and public education programs and activities. These existing gaps include the following.

6.13.1 Legislative Requirements

The CWFR is not currently achieving its legislative requirements for completing a Simplified Risk Assessment. There are also identified gaps in defining the goals and objectives for distributing public education materials and the Home Smoke/CO Alarm Home Escape Planning program that should be

included within operating guidelines and a Council approved Fire Prevention Policy. To support the effectiveness of these programs accurate records to support how these programs and services are delivered should also be readily available.

6.13.2 Optimization of Fire Prevention and Public Education Programs and Activities

The purpose of this FSMP is to provide Council and senior staff with a strategic framework to assist in making decisions regarding the provision of fire protection services. This FSMP includes four strategic priorities for Council's consideration in providing fire protection services that meet the local needs and circumstances of the Township of Centre Wellington as required by the FPPA. The optimization of fire prevention and public education programs and activities align with the following proposed strategic priorities:

"Utilization of a Community Risk Assessment to determine the fire safety risks within the Township as the basis for developing clear goals and objectives for all fire protection and emergency services provided by the Centre Wellington Fire and Rescue" and

"Optimization of the first two lines of defence including public education and fire prevention, and the utilization of fire safety standards and fire code enforcement to provide a comprehensive fire protection program within the Township based on the results of the Community Risk Assessment".

In our view, implementing the proposed public education programs and activities, fire inspection cycles and staff resource plan will result in a more comprehensive community fire protection plan.

6.14 Proposed Public Education Programs and Activities

Implementing goals and objectives for conducting public fire safety education activities and programs is consistent with responding to the strategic priorities identified within this FSMP. This would include developing regularly scheduled programs and activities (cycles) for providing fire safety education to the various occupancies classifications identified by the Community Risk Assessment.

It is recommended that the CWFR formalize its current public education programs and activities to include performance measures to define the goals and objectives of each program and the ability to report on the number of activities conducted within each program. In addition, the following industry recognised programs are presented for consideration in optimizing the department's current public education services:

- *Older & Wiser Program (Seniors);*
- *Get Out Alive Program (Community Smoke Alarm Program);*
- *TAAP-C Program (The Arson Prevention Program for Children);*
- *Kitchen Care Program;*
- *Social, Service, and Special Interest Group Fire Safety Presentations; and*

- *Fire Safety Public Service Announcements and Media Releases.*

The programs and approach implemented should also recognize some of the unique risks found in the Township. For example, the geographic profile in the Community Risk Assessment, discusses the potential risks related to bridge closures. Consideration should be given to targeting public education programming in areas of the municipality that could experience extended response times due to planned closures of bridges.

Dillon's research into developing fire safety program delivery cycles looked at the relevant NFPA standards, PFSGs and industry best practices and results of the Community Risk Assessment were used to inform the proposed public education program and activity delivery cycles. Table 9 reflects the proposed public fire safety education activities and program delivery cycles for Ontario Building Code (OBC) major building occupancy classifications.

Table 9: Proposed Public Safety Education Objectives

Occupancy Classification (OBC)	Buildings	Proposed Public Education Program Delivery Cycle Objectives
Group A – Assembly	Schools, Recreation Centres (Arenas)	1 – 2 Years
	Licensed Properties, Nursery/Day Care Facilities, Churches, Special Occasion Permits	1 – 2 Years
Group B – Care or Detention	B1 - General	1 – 2 Years
	B-2 & B-3 Long-Term Care and Care Facilities	Annually
Group C – Residential	Apartments regulated by Part 9.3 of the OFC Apartments regulated by Part 9.5 of the OFC Apartments regulated by Part 9.8 of the OFC Hotels, Motels and occupancies regulated by Part 9.9 of the OFC Home Inspection Program	1 - 2 Years 1 – 2 Years 1 - 2 Years 3 – 4 Years 5 - Years
Group D - Business	Business and Personal Services Occupancies	Upon Request
Group E - Mercantile	Mercantile Occupancies	3 - 4 Years
Group F - Industrial	F1 – High Hazard	1 – 2 Years
	F2 – Medium Hazard	3 – 4 Years

To achieve the proposed fire safety program delivery cycle goals and objectives, the department will need to look at alternative strategies for delivering the proposed public safety education activities and programs. In our view, this will require assessing the current staff resources available, and options to restructure the Fire Prevention and Public Education Division as proposed within this FSMP.

It is recommended that subject to Council's consideration and approval of the proposed Fire Service Master Plan that the proposed Public Education Programs and Activities be included within the proposed Fire Prevention Policy.

6.15 Proposed Fire Inspection Program

Based on an analysis of the Community Fire Assessment and the new Ontario Regulation 150/13, revised fire inspection goals and objectives (performance measures) are proposed within this FSMP. The

proposed fire inspection goals and objectives align with prioritizing the optimization of the first two lines of defence and the strategic priorities of this FSMP.

To achieve the proposed goals and objectives, the CWFR will need to reassess, and re-prioritize the current fire inspection program. To achieve the routine inspection cycles proposed, including prioritizing high risk occupancies and implementing the residential occupancy cycles, the department will need to look at alternative strategies for the current inspection program.

Table 10 identifies the proposed goals and objectives (performance measures) for conducting fire inspections within the Township based on the Community Risk Assessment presented within this FSMP.

Table 10: Proposed Fire Inspection Objectives

Occupancy Classification (OBC)	Buildings	Current Fire Inspection Frequencies (Performance Measures)	Proposed Fire Inspection Frequencies (Performance Measures)
Group A – Assembly	Schools	Upon Request/Complaint	Annually
	Nursery/Day Care Facilities	Annually	Annually
	Recreation Centres (Arenas), Curling/Golf Centres, Licensed Properties, Churches, Special Occasion	Upon Request/Complaint	Annually
Group B – Care or Detention	Long-term care facilities, Hospitals, Group Homes, Homes for Special Care	Annually	Annually
Group C – Residential	Hotel / Motel	Annually	Annually
	Boarding/Lodging/Rooming House	Annually	Annually
	Apartments regulated by Part 9.3 of the OFC Apartments regulated by Part 9.5 of the OFC Apartments regulated by Part 9.8 of the OFC Home Inspection Program	Upon Request/Complaint Upon Request/Complaint Upon Request/Complaint Upon Request/Complaint	3 – 4 Years Smoke Alarm Program
Group D - Business	Business and Personal Services Occupancies	Upon Request/Complaint	3 - Years
Group E - Mercantile	Mercantile Occupancies	Upon Request/Complaint	3 - Years

Occupancy Classification (OBC)	Buildings	Current Fire Inspection Frequencies (Performance Measures)	Proposed Fire Inspection Frequencies (Performance Measures)
Group F - Industrial	F1 – High Hazard	Upon Request/Complaint	3 - Years
	F2 – Moderate Hazard	Upon Request/Complaint	3 - Years
	F3 – Low Hazard	Upon Request/Complaint	3 - Years

The proposed fire inspection goals and objectives reflect the results of the Community Risk Assessment presented within this report to achieve the Township's legislated responsibilities for occupancies including new legislation for 'Enhancing Fire Safety in Occupancies Housing Vulnerable Ontarians, Ontario Regulation 150/13'.

It is recommended that subject to Council's consideration and approval of the proposed Fire Service Master Plan that the Centre Wellington Fire and Rescue that the proposed Fire Inspection Cycles be included within the proposed Fire Prevention Policy.

6.16 Proposed Fire Prevention & Public Education Staff Resource Plan

In response to the identified fire prevention and public education gaps, this FSMP includes a proposed fire prevention/public education staff resource plan. This plan responds to the proposed strategic priorities included within this FSMP and presents alternative options for Council's consideration.

Best practices within the fire service and more recent evidence such as the 2016 Verdict of Coroner's Jury (Section 1.3.3 of this FSMP) indicate that optimizing the delivery of fire prevention and public education programs can have a positive impact in changing human behavior. The results of such changes can lead to a reduction in the number of fire-related deaths, injuries, and property loss.

To implement the proposed public education programs and enhanced fire inspection program proposed within this FSMP the following elements need to be assessed:

- ü skills;
- ü competencies;
- ü certification/training of staff assigned to these areas; and
- ü number of staff resources and their hours of availability for delivering the proposed programs.

6.16.1 Fire Prevention/Public Education Training and Certification

The Ontario fire service has recently adopted the National Fire Protection Association Professional Qualifications (NFPA Pro-Qual) Standards for training and certification. Further details with respect to the new NFPA training standards and certification process are contained within this FSMP. The previous Ontario performance objectives for fire inspector have now been replaced by the NFPA 1031 – *Standard for Professional Qualifications for Fire Inspector and Plans Examiner*. Similarly the previous certification and designation process for individuals assigned to deliver public education programs has been replaced with the NFPA 1035 – *Standard for Professional Qualifications for Fire and Life Safety Educator, Public Information Officer, and Juvenile Firesetter Intervention Specialist*.

Table 11 summarizes the different fire inspector designations included within the NFPA 1031 fire inspector standard.

Table 11: Fire Inspector Designations (NFPA 1031 Standard)

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

At a minimum, staff resources conducting fire inspections should have the skills and competencies included within the NFPA 1031 – Fire Inspector Level I. Fire inspections involving more complex issues and requiring interpretation of various legislation and codes are recommended to have the Level II designation. Research indicates that the Fire inspector III certification is not currently available in Canada. In our view, this is in part due to limited demand in the past and Ontario's recent transition to these new qualifications resulting in an increased demand.

For individuals assigned to deliver public education programs. NFPA 1035 – Standard for Professional Qualifications for Fire and Life Safety Educator, Public Information Officer, and Juvenile Firesetter Intervention Specialist provides the relevant training and certification requirements. Table 12 summarizes the different public education designations included within the NFPA 1035 standard.

Table 12: Public Education Designations (NFPA 1035 Standard)

Fire and Life Safety Educator	NFPA 1035 Standard
Fire & Life Safety Educator I	The individual who has demonstrated the ability to coordinate and deliver existing educational programs and information.
Fire & Life Safety Educator II	The individual who has demonstrated the ability to prepare educational programs and information to meet identified needs.
Fire & Life Safety Educator III	The individual who has demonstrated the ability to create, administer, and evaluate educational programs and information.

In our view these NFPA standards should serve as the job performance requirements for all staff resources identified within the following fire prevention/public education staff resource options. Research and analyses of information informing this FSMP indicates that the current staff resources within the CWFR including full-time staff and volunteer firefighters have a wide range of experience and certification. Additional training and certification may be required for both existing full-time staff and volunteer firefighters to achieve the proposed certifications. These costs have not been included within this FSMP process as they may vary significantly from person to person.

6.16.2 Prevention and Public Education Staff Resource Plan

In our view, the current organizational structure of the CWFR has served the department, and the Township well through the transition to one unified fire service. The current organizational model requires individuals to be proficient in more than one area of the department such as the District Chief/Fire Safety Officer. Department workload also required the current full-time staff to lead other projects and support other activities that have been prioritized by the Fire Chief.

Analyses within this FSMP indicates that the CWFR is not currently achieving its legislative requirements in a number of areas including the required Simplified Risk Assessment, distributing public education materials, and the departments Home Smoke/CO Alarm Program. There is also an identified need to develop a number of Standard Operating Guidelines as well as developing the proposed Fire Prevention Policy. This FSMP also proposes new public education and fire inspection cycles to optimize the delivery of fire prevention and public education programs as the first line of defence.

This FSMP is recommending a restructuring of the current position of District Chief/Fire Safety Officer in response to the current workload assigned to this position. This includes realigning the roles and responsibilities assigned to this position and those within the fire prevention/public education division. This FSMP recommends that this position be reassigned to the role of Deputy Fire Chief – Fire Prevention/Public Education and Communications with direct responsibility for the Fire Prevention/Public Education Division.

6.16.2.1 Proposed Full-time Deputy Fire Chief – Fire Prevention & Public Education (Existing Positon)

The analyses within this FSMP indicate that the current District Chief/Fire Safety Officer is required to fulfill many of the roles commonly found in the position of Deputy Fire Chief – Fire Prevention & Public Education. This position plays a leadership role across the department in assisting the Fire Chief with the overall management of the day to day priorities of the department. In our experience, this need to balance workload is a common result of a fire department that is in transition -- responding to community growth and managing a service that is experiencing many new demands e.g. new legislation and certification.

This FSMP recommends that this position be revised to Deputy Fire Chief – Fire Prevention & Public Education with direct responsibility for the Fire Prevention/Public Education Division. In our view, at a minimum this position should be required to achieve the *NFPA 1031 – Fire Inspector II* certification, and when available the *Fire Inspector III* certification. This FSMP includes a proposed organizational structure to identify the proposed staff resource reporting structure to align with this recommendation.

Within this position the proposed Deputy Fire Chief – Fire Prevention & Public Education would continue to facilitate a key role in the delivery of the proposed fire inspection and public education performance objectives including actively conducting the higher risk fire inspections, fire investigations and implementing the proposed Fire Prevention Policy.

One of the key roles of this position would be coordinating the proposed Public Relations Policy including enhancing the use of the department's website, use of Facebook and Twitter as tools in enhancing the department's public education fire safety programming.

Implementing this strategy would require revisions to the department's current full time equivalent (FTE) complement be removing the current position of District Chief/Fire Safety Officer, and adding the proposed Deputy Fire Chief – Fire Prevention & Public Education position. Based on a review of other comparable communities, the salary and benefits for the position of Deputy Fire Chief – Fire Prevention & Public Education is estimated at between $80,000 and $105,000 depending on the level of experience and qualification. This cost would be offset by the current salary and benefits of the District Chief/Fire Safety Officer.

6.16.2.2 Proposed Full-time Fire Inspector/Public Education Officer (New Position)

Reporting directly to the proposed Deputy Fire Chief – Fire Prevention & Public Education this position would be required to have a minimum of the *NFPA 1031 – Fire Inspector I* certification and preferred *Fire Inspector II* certification. This position would be directly responsible for delivering the department's proposed fire inspection program. This includes developing the proposed fire inspection cycles, scheduling fire inspections, and conducting the inspections as prescribed within the proposed standard operating guidelines.

This position would also coordinate the department's proposed public education program. This would include working with the proposed part-time Fire and Life Safety Educators in delivering the public education program. Preference should be given to a candidate who has also attained the *NFPA 1035 Fire & Life Safety Educator II* or equivalent skills and experience.

This would be a new full-time position within the department with a work schedule to be coordinated Monday through Friday business days, with flexibility to alter the schedule to accommodate after normal business hours fire inspections, special events, or identified fire inspection/public education activities. Based on a review of other comparable communities the salary and benefits for this position is estimated at between $75,000 and $90,000 depending on the level of experience and qualification.

6.16.2.3 Proposed Volunteer (Part-time) Fire and Life Safety Educators (New Positions)

Reporting directly to the proposed Fire Inspector/Public Education Officer and indirectly to the Deputy Fire Chief – Fire Prevention & Public Education, this strategy includes hiring two of the current volunteer firefighters to deliver the proposed public education program. At a minimum these positions would be required to have or attain the *NFPA 1035 – Fire & Life Safety Educator I* certification.

These volunteer (part-time) positions would each be assigned a minimum of 10 hours per week that would be based on a flexible schedule. This is intended to provide flexibility to the individuals as well as the delivery of public education program in the evenings and on weekends. This strategy assumes that one of these individuals would be from the complement of volunteer firefighters currently assigned to each fire station; however, this should not be considered a mandatory requirement. Within their roles, one of the primary responsibilities of these positions would be to oversee the delivery of the department's Smoke Alarm/CO Alarm Program facilitated by the volunteer firefighters at each fire station.

Based on the rate of a first class firefighter included in the 2014 volunteer firefighter association's agreement, the estimated cost of this strategy is 20 hours per week x 48 weeks per year x $30.63 = $29,405.

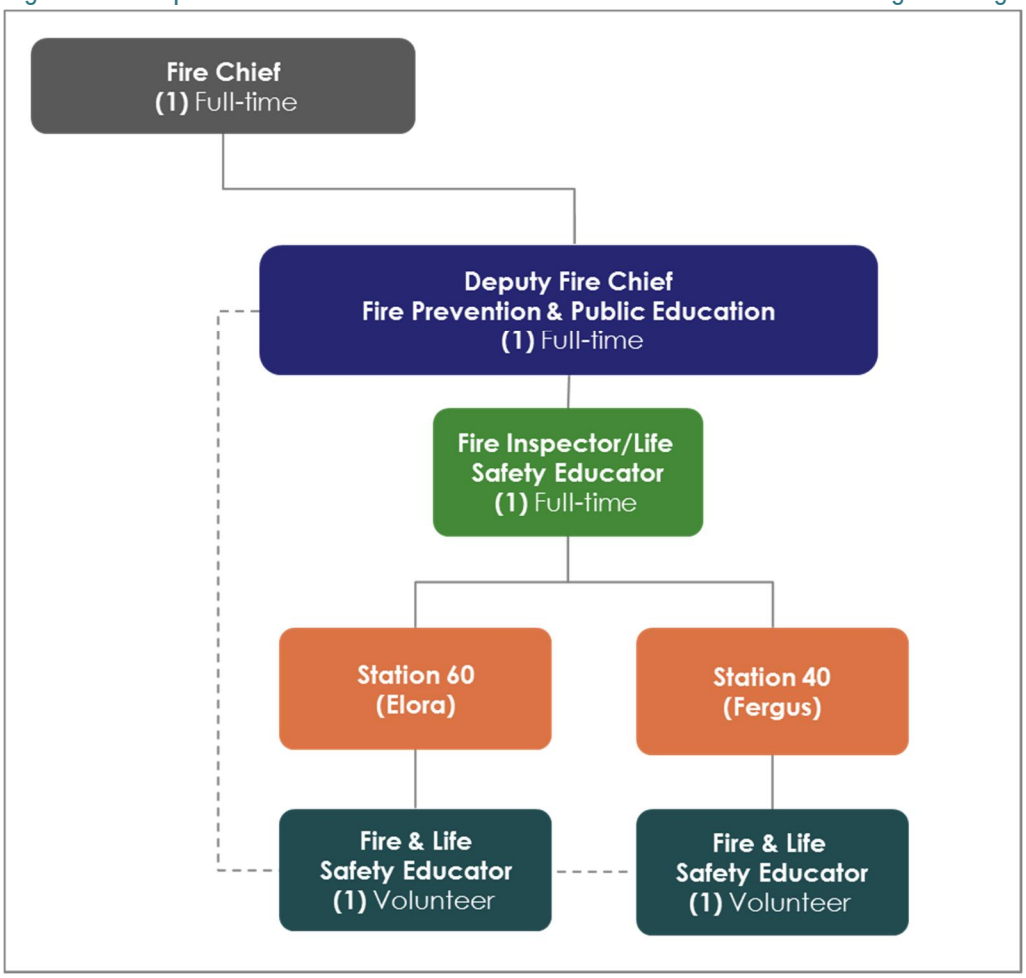
6.16.2.4 Summary of Proposed Fire Prevention and Public Education Staff Resource Plan

The proposed fire prevention and public education staff resource organizational structure is illustrated in Figure 8. The proposed staff resource plan and organizational structure is presented as a strategy to mitigate the identified legislative gaps within this division and implement the proposed fire inspection and public education programs. Together these strategies align with the proposed strategic priority of this FSMP including:

> *"Utilization of a Community Risk Assessment to determine the fire safety risks within the Township as the basis for developing clear goals and objectives for all fire protection and emergency services provided by the Centre Wellington Fire and Rescue; and*

"Optimization of the first two lines of defence including public education and fire prevention, and the utilization of fire safety standards and fire code enforcement to provide a comprehensive fire protection program within the Township based on the results of the Community Risk Assessment".

Figure 8: Proposed Fire Prevention and Public Education Division Staffing and Organization



It is recommended that subject to Council's consideration and approval of the proposed Fire Service Master Plan that the Centre Wellington Fire and Rescue proposed Fire Prevention and Public Education Staff Resource Plan be adopted.

6.17 Prevention and Public Education Summary of Recommendations

Industry best practices support the utilization of the first two lines of defence in optimizing fire prevention and public education programs and activities. The strategies and recommendations contained within this FSMP have been developed to assist the CWFR in achieving its legislative requirements, and in support of the strategic priorities contained within this FSMP.

This FSMP recommends that developing and updated standard operating guidelines be developed for these areas including clearly defined goals and objectives for each program. To support the effectiveness of these programs historical data and information should be tracked to support how these programs and services are delivered, and be readily available at all times.

This FSMP also recommends developing a Fire Prevention Policy. This should include consideration of the recommendations contained within this FSMP prior to presenting the proposed Fire Prevention Policy to Council for consideration and approval. The approved Fire Prevention Policy should then be included within an updated Establishing and Regulating By-law to provide the direction and authority for the CWFR to deliver these services.

The analyses within this FSMP present a number or recommendations and strategies for Council's consideration in achieving the proposed strategic priorities including optimization of the first two lines of defence. This includes prioritizing the delivery of public education and fire prevention, and the utilization of fire safety standards and fire code enforcement to provide a comprehensive fire protection program within the Township based on the results of the Community Risk Assessment.

It is recommended that subject to Council's consideration and approval of the proposed Fire Service Master Plan that the following recommendations be implemented to support the strategic priorities of this Fire Service Master Plan for the Fire Prevention & Public Education Division:

14. *That the Centre Wellington Fire and Rescue develop a draft Fire Prevention Policy for consideration and approval by Council and inclusion within the proposed updated establishing and Regulating By-law as an appendix;*
15. *That the Centre Wellington Fire and Rescue develop Standard Operating Guidelines to inform the delivery of all approved fire prevention and public education programs and activities;*
16. *That the Fire Chief update the Community Risk Assessment as part of the proposed annual reporting process;*
17. *That the Centre Wellington Fire and consider OFM-TG-01-2012 "Fire Safety Inspections and Enforcement" in developing the proposed Fire Prevention Policy;*
18. *That the proposed Public Education Programs and Activities be included within the proposed Fire Prevention Policy;*
19. *That the Centre Wellington Fire and Rescue that the proposed Fire Inspection Cycles be included within the proposed Fire Prevention Policy;*
20. *That subject to Councils consideration and approval of the proposed Fire Service Master Plan that the Centre Wellington Fire and Rescue proposed Fire Prevention & Public Education Division Staff Resource Plan be adopted.*

7.0 Training Division

Dillon's experience and knowledge of the fire service indicates that 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, as fire service leaders, and as supervisors. The training division is responsible for ensuring that all CWFR personnel receive the training necessary to meet the legislative requirements of the Ontario *Fire Prevention and Protection Act, 1997* (FPPA) and the *Occupational Health and Safety Act* of Ontario (OHSA). The division is also responsible for ensuring that training programs meet appropriate training standards.

The analysis within this section examines the processes, and details the programs, currently in place within the department. This includes: division organization and staffing, training standards, annual training, live fire training, company officer training, and volunteer firefighter recruitment and retention. Where any gaps are identified in achieving compliance with industry best practices and legislative requirements, further strategies and recommendations are provided for consideration.

7.1 Division Organization & Staffing

CWFR is committed to ensuring that department staff are well trained in relevant fire, medical and safety procedures, applicable protocols, safety procedures and speciality rescue operations. Though ultimately overseen by the Fire Chief, the training division staff resourcing currently consists of: Chief Training Officer / Public Fire Safety Education, and two Volunteer Station Training Officers. The sections that follow outline these roles in further detail.

7.1.1 Chief Training Officer / Public Fire Safety Education (Full-time)

As described in the Administration Division section, the purpose of the Chief Training Officer/Public Fire Safety Education position is to develop, coordinate, and facilitate all training activities for CWFR. The position reports directly to the Fire Chief for the delivery of training. More information on the job description of the Chief Training Officer/Public Fire Safety Education can be found in Section 3.3.3, but to summarize, these identified duties include:

- Facilitate departmental training;
- Develop, review, and implement lesson plans;
- Conduct training sections;
- Coordinate volunteer firefighter recruit and promotion; and
- Designs and implements Public Safety programs for a wide range of age groups.

Section 6.16 of this FSMP proposes a new full-time Fire Inspector/Public Education Officer. Within the proposed organization of the CWFR this new position would assume all responsibility for designing and

implementing public fire safety programs currently assigned to the Chief Training Officer/Public Fire Safety Education.

Analyses within this FSMP will present options for Council's consideration in revising the department's current training programs and activities. These options are presented to enhance the efficiency and effectiveness of these programs and activities in responding towards the proposed strategic priorities presented within this FSMP.

A revised staff resource plan is also presented within this FSMP to support the delivery of the proposed training programs and activities.

7.1.2 Station Training Officers (Volunteer)

To support the implementation of the training programs there are two volunteer Station Training Officers (STO). These positions hold the rank of Captain within their respective fire station. The station training officers are volunteers who are responsible for delivering and administering the training programs to the respective stations under the direction of the Chief Training Officer. The current job description lists the following duties and responsibilities of the volunteer Station Training Officers:

- Meets regularly with Officers and the Chief Training Officer to assist in developing and maintaining a progressive and efficient training program;
- Ensures the safety of all staff during training;
- Implements an in-service fire training program and self-taught theory lesson plans;
- Processes reports of fire training activities conducted by station officers and firefighters;
- Advise the Chief Training Officer of any changes in procedures or methods necessary to maintain or improve the fire training programs of the municipality;
- Attends all major emergencies within assigned district or as requested by the Senior Officer when available;
- Attends all post-emergency evaluations within assigned district when available;
- May be involved in major pre-emergency planning or tactical work plans;
- Attends training seminars and courses to keep currant of changes in equipment, methods of operation and training to ensure that the level of training delivered serves the needs of the Fire Department and Municipality;
- Assist Chief Training Officer where required in the Recruit Training Program;
- Assist Chief Training Officer and Senior Officers in determining promotions;
- May function as Safety Officer on scene at incidents when requested and
- Other duties as assigned by the Chief Training Officer or Fire Chief.

The existing job description reflects the current organization of the division. It also identifies required training and education including a minimum of Company Officer Level 1 and certification as a

trainer/facilitator and qualification in pump operations. It is noted that this job description has not been updated to reflect the transition to NFPA Pro Qual. training standards.

Analyses within this FSMP will present options for Council's consideration in revising the department's current training programs and activities. These options are presented to enhance the efficiency and effectiveness of these programs and activities in responding towards the proposed strategic priorities presented within this FSMP.

A revised staff resource plan is also presented within this FSMP to support the delivery of the proposed training programs and activities.

7.1.3 County Training Officer (Full-time)

The position of County Training Officer has been in place for five years and was established by Wellington County to coordinate training of the volunteer firefighters within the County. This full-time position is funded by the seven participating municipalities including; the Township of Centre Wellington; Town of Erin; Township of Guelph/Eramosa; Township of Mapleton; Town of Minto; Township of Puslinch; and the Township of Wellington North.

The County Training Officer is an employee of the Township of Centre Wellington and reports directly to the CWFR Fire Chief as his employment supervisor. The current County Training Officer is also a volunteer firefighter with the CWFR.

The County Training Officers primary role is to assist the volunteer Station Training Officers in each fire department with coordinating the delivery of standardized training programs across the County. The current job description provides a more detailed description of the roles and responsibilities of this position including:

- *Co-ordinate the design, development, delivery and evaluation of training and training programs;*
- *Co-ordination and assistance to Station Training Officers and other personnel to ensure that training and development activities are implemented in accordance with Section 21 Guidance Notes and NFPA Standards;*
- *Development of Recruitment programs;*
- *Development of Company Officer training programs;*
- *Develop and maintain training programs;*
- *Assist in the preparation of Fire Department training budgets;*
- *Assist Municipal Fire Departments in the County of Wellington in training and record audits;*
- *Attend scheduled training sessions of all Municipal Fire Departments in the County of Wellington;*
- *Identifies skills development needs and co-ordinates training and professional development program;*

- *Researches, obtains and maintains educational material for all Municipal Fire Departments in the County of Wellington; and*
- *Ensures obligations are met under the Occupational Health and Safety Act and other applicable Legislation.*

Research into preparing this FSMP indicates that implementing this positon has served to improve the quality and consistency of volunteer firefighters training across the County. It should be noted that the presence of this position does not relieve the Township of Centre Wellington from its legislative responsibility to provide the required volunteer firefighter training.

7.2 Training Standards

Training standards are important to ensure consistency for the level of service within a department and to ensure the safety for all firefighters. Training standards in Ontario were once based on the Ontario Fire Service Standards which were developed by the OFMEM and other key stakeholders. These competency-based standards were applied in developing a comprehensive provincial fire service training program. This program included a firefighter curriculum, Fire Prevention Officer Diploma program, Company Officer Diploma program, and a Training Officer Diploma program.

As announced by the OFMEM in April 2013, this training program has now been superseded as the Ontario fire service has adopted the National Fire Protection Association Professional Qualifications (NFPA Pro-Qual) Standards. Table 13 lists the previous Ontario Standards in comparison with the representative NFPA Standards.

Table 13: Comparison of Ontario and NFPA Standards

Previous Ontario Standard	New NFPA Standard
Ontario Firefighter Standard	NFPA 1001 – Standard for Fire Fighter Professional Qualifications
Ontario Company Officer Standard	NFPA 1021 – Standard for Fire Officer Professional Qualifications
Ontario Fire Prevention Officer Standard	NFPA 1031 – Standard for Professional Qualifications for Fire Inspector and Plan Examiner
Ontario Training Officer Standard	NFPA 1041 – Standard for Fire Service Instructor Professional Qualifications

In January of 2014, the Office of the Fire Marshal and Emergency Management distributed *Communique 2014-04* to the Ontario Fire Service reflecting the grandfathering and transition process to the use of the NFPA Professional Qualifications Standards. Table 14 reflects the OFMEM's determination of concordance between the previous Ontario Standards and the representative NFPA Standards. The *Communique* indicated that a Letter of Compliance with NFPA Standards were to be submitted through an application by December 31st, 2015.

The CWFR submitted all required documentation for the applicable volunteer firefighters on staff prior to December 31st, 2015. The CWFR has since received confirmation that these volunteer firefighters have been grandfathered to the NFPA 1001 – Level I certification.

Table 14: Concordance of Ontario and NFPA Standards

Previous Ontario Standard	New NFPA Standard
Ontario Firefighter Curriculum	NFPA 1001 Standard – Level I and Level II
Company Officer Diploma Program	NFPA 1021 Standard – Level II
Fire Prevention Officer Diploma Program	NFPA 1031 Standard – Fire Inspector Level I
Training Officer Diploma Program	NFPA 1041 Standard – Fire Instructor Level II

Across the province, this transition to and maintenance of NFPA training standards is creating challenges for fire departments, especially for volunteer or composite departments. This FSMP recommends the review and update of CWFR's comprehensive annual training program based on the new NFPA Professional Qualifications Standards.

7.3 Current Training Policy/Program

As required the CWFR is in the process of transitioning from the previous OFMEM Ontario Firefighter curriculum and use of International Fire Service Training Association (IFSTA) curriculum, to the use of the NFPA training standards. The CWFR is similar to many volunteer and composite fire departments across the province that are finding this transition to the NFPA training standards a challenge. These challenges include revising lesson plans, required proficiencies, and recertification and training records.

Department *Policy #2004-009 - Mandatory Required Training for all Suppression Staff* describes the departments current training that is required to be completed annually. The current training program is based on a four priority structure, where those training elements identified as priority one comprise the mandatory elements to be completed each year. Table 15 summarizes priority one elements of the current training program as well as the training cycle for other aspects of the training provided including some technical rescue components and fire prevention / public education training.

Table 15: CWFR Current Training Program

Mandatory Annual Training (Priority One)	Every Two Years (Priority Two)	Every Three Years (Priority Three)	Every Four Years (Priority Four)
ü First-Aid & Defibrillator ü Pump Operations ü Live Fire Training ü Water & Ice Rescue (full course every two years for technicians) ü High Angle Rescue (full course every two years for technicians) ü SCBA ü Fire Ground Command ü Fire Ground Accountability and Entry Control ü Rapid Intervention Teams (Firefighter Rescue) ü Radio Communications ü Aerial Operations (Elora Station Only) ü Hazardous Materials	ü Hoses and Appliances ü Fire Streams ü Forcible Entry ü Size-Up ü IMS ü Building Construction ü Electrical Emergencies ü ATV Operation ü Apparatus Maintenance	ü Safety In The Fire Service ü Salvage & Overhaul ü Confined Space (Awareness Level) ü Trench Rescue (Awareness Level) ü Public Education (Upon Request)	ü Fire Prevention Topics ü Inspections ü Fire Code ü Fire Scene Assessment

Analyses of the current training program indicate that CWFR has the foundation of a very good training program in place. Where opportunities may exist to further enhance this program they are presented within the following sections of this FSMP.

7.3.1 Training Attendance

Department *Policy #2001-001 – Attendance at Training* describes the departments training attendance policy that states a firefighter, or officer missing three consecutive regular scheduled training sessions, must submit the reasons for their absence on the appropriate form to the Station Training Officer for approval.

The procedures within this policy indicate that the disciplinary process may commence under the following attendance issues:

A. *An employee is absent more than three consecutive times from regular training without prior approval from a senior officer or the training officer; and*
B. *An employee is absent more than 50% of his or her training without prior approval from a senior officer or the training officer.*

This policy provides some flexibility in its application based circumstances such as illness and family emergencies.

Department *Policy #2004-009 - Mandatory Required Training for all Suppression Staff* further describes the consequences to a firefighter should they not be able to accomplish the required mandatory annual training. Our interpretation of the department's current training requirements is that all volunteer firefighters must complete 100% of the required mandatory annual training. However, our review of the training attendance policies indicates that they were last updated *Policy #2001-001 – Attendance at Training* in 2013, and *Policy #2004-009 - Mandatory Required Training for all Suppression Staff* was last updated in 2009. These policies also refer to OHSA Section 21 – Guidance Notes that have been updated since approval of these policies.

Analyses of the departments training policies indicates an example of industry best practices in the presence and application of these policies. In our view consideration should be given to combining these two policies into one comprehensive training policy describing the departments training program, attendance requirements, and identifying a practice for regular updates of supporting documentation such as applicable OHSA Section 21 Guidance Notes.

It is recommended that subject to Council's consideration and approval of the proposed Fire Service Master Plan that the Centre Wellington Fire and Rescue consider revisions to its current training policies as referenced in the proposed Fire Service Master Plan.

7.4 Live Fire Training

The purpose of live fire training is to provide realistic fire training simulations under safe and controlled conditions. With relatively low volumes of fire calls, it is important that a department provides access for all volunteer firefighters to simulate safe and effective fire suppression operations in an appropriate training facility. Live fire training exercises are intended to simulate the actual fire conditions that a firefighter may encounter and provide simulated heat, humidity, restricted vision and smoke conditions. This type of training is very beneficial for firefighters and particularly Company Officers, in learning to understand fire behaviour including identifying evolving smoke conditions as they may relate to the potential for fire extension or conditions such as a flashover.

CWFR already actively recognizes the importance and value of live fire training in the health and safety and skills of suppressions staff. As identified previously, live fire training is identified as a mandatory element of annual training for all fire suppression staff which reflects best practice. There are also two SOGs in place that address live fire training: *SOG #301 - Live Fire Training Evolutions in Structures,* and *SOG #302 - Live Fire Training Evolutions Not Involving Structures*. Live fire training is scheduled for the entire department at the beginning of the year with opportunities typically occurring in April or October.

A common challenge of volunteer fire departments is access to facilities and the related cost of travel, accommodations, etc. that may be required. Centre Wellington is located in reasonable proximity to larger full-time fire departments in the Region of Waterloo and the Greater Toronto and Hamilton Area.

Typically live fire training is conducted at the Waterloo Region Emergency Services Training and Research Centre (WRESTRC).

The CWFR is providing access to live fire training annually for all firefighters. In our view this practice should be continued and when possible expanded when further opportunities become available.

7.5 Online Training

The CWFR supports the International Fire Service Training Association (IFSTA) online instructional program *ResourceOne.* Department training instructors and firefighters have access to training materials including power point presentations, quizzes and competency tests. The IFSTA program provides the framework for the department's current theoretical training.

Access to online training programs can provide greater flexibility in delivering the comprehensive annual training program recommended, particularly for volunteer firefighters. Online programs can be designed to meet varying learning styles and objectives. As well, they provide flexibility in access from the fire station or at home. Participation can be either individually or in groups and courses can be self-delivered or supervised and delivered by the Training Officer. An electronic learning management system can also provide flexibility in designing and assigning training requirements to certain ranks or individuals. They can also enable an ease of reporting as to compliance and completion.

ResourceOne is currently used throughout the County for recruit training. However, online training tools are not currently integrated into the CWFR Annual Training Program. Within the industry there are many examples of on-line training systems. The *Fire Learning Management System (FLMS)* is another example of an online firefighter training program. The learning materials are accessed through the internet at any time of day. FLMS allows each member of the fire department to log on to their own account and complete courses created by the fire department / Training Division. These courses can be self-delivered or supervised and delivered by Station Training Officers.

Similar to the *ReourceOne* program volunteer firefighters can access course materials anytime they want outside of the regular training schedule. Courses contain learning activities and materials presented in a logical, familiar fashion. One benefit of this online training program is that it would allow the CWFR to design and customize its own training course content. This particular system also allows courses to be shared with other fire departments. The FLMS program is available for all firefighter and company officers and has been revised to reflect the transition to the NFPA firefighter training programs adopted by the OFMEM.

It is recommended that subject to Council's consideration and approval of the proposed Fire Service Master Plan that the Centre Wellington Fire and Rescue consider options to enhancing its utilization of online firefighter training.

7.6 Specialized Services Training Program (Technical Rescues)

In addition to basic firefighting training, fire departments 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.

The current Establishing and Regulating By-Law 2006-083 identifies a number of emergency response services that would be deemed to require specialized training, these include:

- High Angle Rope Rescue;
- Low Angle Rope Rescue;
- Ice Rescue;
- Fast Water Rescue;
- In Water Rescue (Boat); and
- Hazardous Materials Response.

These services are all identified within the by-law as part of the broad fire protection services provided by the department. The level of training for these services, (awareness, operational, technician), is not indicated within the current by-law. There are currently four SOGs in place that address the provision of technical rescue services as part of emergency response. These include:

- *SOG #617 - Gorge Rescue;*
- *SOG #622 Spills (Hazardous Material Incidents);*
- *SOG #1501 - In Water Rescue Response Protocol; and*
- *SOG #1502 - Shore Based Water/Ice Rescue.*

Such services require specialized training as the low probability but higher consequences of these incidents requires a higher standard of technical and health and safety requirements. The level of training required is established through the identified service level for each technical rescue service. The three levels of training as established in *NFPA 1670 - Standard on Operations and Training for Technical Search and Rescue* include the following:

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

The types of specialized services, level of training and number of staff trained is illustrated in Table 16. This is a wide range of specialized services than would typically be found in a community of similar size as Centre Wellington, however the probability of requiring these services was confirmed as part of the developing the Community Risk Assessment that forms a part of this FSMP.

As part of the County of Wellington Mutual Aid Plan and Program, the City of Guelph Fire Department has agreement to support the CWFR with Operations / Technician level response for hazardous material incidents upon request. Within the same plan, CWFR's technical rescue team has agreed to provide mutual aid services for in-water rescue, ice-water rescue, and high-angle rope rescue. Our analyses indicate that the CWFR is utilizing the current mutual aid program as a tool for sharing services. In our view this is an effective strategy for ensuring additional resources and equipment are readily available for these types of infrequent incidents.

Table 16: Current Specialized Services, Training and Staff Resources

Specialized Rescue	Training Level	Number of Staff
Low-Angle Rope Rescue	Technician Level	57 Firefighters
High-Angle Rope Rescue	Technician Level	42 firefighters
Water Based Search and Rescue	Technician Level	30 firefighters
Water-Ice Rescue	Technician Level	1 Firefighter
Trench Rescue	Awareness Level	All
Swift Water Rescue	Technician Level	30 Firefighters
Tower and Windmill Rescue	Technician Level	6 Firefighters
Hazardous Materials	Technician Level	9 Officers
Urban Search and Rescue	Awareness Level	All
Confined Space Rescue	Awareness Level	All
Building Collapse	Awareness Level	All

It should be recognised that sustaining the high degree of training for all firefighters participating in these responses, including certification and recertification requires a large commitment of time and financial investment. Where possible the CWFR utilizes a train-the-trainer model that utilizes current staff that become certified as instructors. The *NFPA 1006- Standard for Technical Rescue Personnel Professional Qualifications* requires that all instructors be certified to awareness level prior to advancing to other levels of competency. The CWFR has initiated certification in this area.

Ensuring that the standard operating guidelines associated with each of these specialized services are current, and reflect the level of training and emergency response capabilities of the CWFR should be considered a priority of the department. These services and response capabilities should also be presented within the proposed updated Establishing and Regulating By-law for Council's consideration and approval.

It is recommended that subject to Council's consideration and approval of the proposed Fire Service Master Plan that the Centre Wellington Fire and Rescue review all current Standard Operating

Guidelines for specialized services, and include the response capabilities within the proposed updated Establishing and Regulating By-law for Council's consideration and approval.

7.7 Company Officer Training

The fire service is a paramilitary organization that relies on a rank structure to manage the roles and responsibility of the organization and the operational services it delivers. This structure needs to include an appropriate span of control in order to be efficient and effective.

A sufficient number of company officers are also required to ensure the function of incident command can be implemented at all emergency scenes and, depending on the incident action plan, have sufficient additional officers to facilitate other roles such as Safety Officer. Municipalities are required to ensure a sufficient number of supervisors (officers) are trained to oversee the workforce. Within the *Occupational Health and Safety Act,* Part III, Duties of Employers and Other persons, Section 12, subsection (2) states that an employer shall appoint a competent person as supervisor.

As an employer, the Township of Centre Wellington is legislated by the OHSA to ensure that all supervisors, including the role of incident commander, be competent. The OHSA defines a "competent person" to mean a person who:

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

The CWFR has historically utilized the Ontario Company Officer Standard as referenced in Section 7.2 for Company Officer Training. This standard has been replaced through the transition process to the *NFPA 1021 Standard – Level II.*

As indicated previously within this FSMP access to training programs to attain the new NFPA standards such as the *NFPA 1021 Standard – Level II has* become a challenge for many fire departments across the province. The CWFR is benefiting from having a number of qualified trainers on staff capable of assisting in teaching the company officer program.

Based on the analyses in preparing this FSMP the CWFR is well positioned to develop an internal Company Officer Training Program that aligns with the *NFPA 1021 Standard – Level II*.

It is recommended that subject to Council's consideration and approval of the proposed Fire Service Master Plan that the Centre Wellington Fire and Rescue enhance its Company Officer training program

by developing an internal Company Officer Training Program that aligns with the NFPA 1021 Standard – Level II.

7.8 Incident Command Training

Incident command training should be considered a core element of the proposed Company Officer Training Program. As mentioned, guidance notes to protect the health and safety of firefighters are developed by the Ontario fire service Section 21 Advisory Committee and distributed by the Ministry of Labour. Firefighters Guidance Note #2-1 – Incident Command reflects the importance of having an Incident Command System (ICS). This guidance note references a number of recognized systems including the "*Phoenix Fireground Command System"* which was developed by Alan V. Brunacini the former Fire Chief of the Phoenix Fire Department.

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

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

- *Establish immediate priorities, especially the safety of responders, other emergency workers, bystanders, and people involved in the incident.*
- *Stabilize the incident by ensuring life safety and managing resources efficiently and cost effectively.*
- *Determine incident objectives and strategy to achieve the objectives.*
- *Establish and monitor incident organization.*
- *Approve the implementation of the written or oral Incident Action Plan.*
- *Ensure adequate health and safety measures are in place.*

Research into preparing this FSMP did not identify any existing standard operating guidelines specifically defining the CWFR Incident Command process. It is recommended that the department develop a defined standard operating guideline for Incident Command training, and utilization.

In our experience with similar size communities the Blue Card Fire Command Training Program is an example of a readily available and highly recognised training and certification process for Incident

Command. This training program is based on the work of Chief Brunacini and has been applied in many fire departments across North America including Ontario. This program utilizes both on-line and in-class simulation training that focuses primarily on incident command training for structural fire responses, but is applicable to all emergency incident responses.

7.9 Succession Planning

Fire departments and municipalities are recognizing the importance and value that succession planning has within the municipal fire service. Succession planning has not traditionally been an area of concern or consideration within the fire service in Ontario. An effective succession plan requires the implementation of strategies to ensure that opportunities, encouragement and additional training are available for those staff that may be considering further advancement within an organization. A comprehensive succession plan also supports the concepts of coaching and mentoring in support of staff considering future career opportunities.

Within the CWFR, there is no formal succession planning process in place within the department. There is evidence of mentoring particularly the Acting Captains level. 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 Council with the knowledge that there are trained and skilled candidates available in the event vacancies occur within the department. Currently there are informal processes in place that encourage succession planning including sufficient (two to three months) notice of retirement to allow for sufficient time to promote/recruit as necessary.

The CWFR is well positioned to consider integrating its current mentoring process with the elements of succession planning within many of the identified areas identified within this FSMP such as the Company Officer Program and annual training program. Implementing succession planning would further support the department promotional process and officer development process.

It is recommended that subject to Council's consideration and approval of the proposed Fire Service Master Plan that the Centre Wellington Fire and Rescue implement a strategy supporting succession planning within the department.

7.10 Volunteer Firefighter Recruitment & Retention

In Ontario, there are 19,350 volunteer firefighters (as of October 2016) comprising nearly two-thirds (62%) of the total provincial complement.[9] Across Canada as a whole, this proportion of volunteer firefighters increases to 80%. The service provided by volunteer firefighters is integral to fire safety;

[9] http://www.mcscs.jus.gov.on.ca/english/FireMarshal/MediaRelationsandResources/FireStatistics/NumberFireDepartmentsFirefighters/stats_fd.html

however, municipalities are increasingly facing challenges in volunteer firefighter recruitment and retention. This section describes some of the considerations that results in these challenges, as well as strategies that are occurring to address these needs.

7.10.1 Demands on Volunteer Firefighters

Historically, volunteer firefighters represented a portion of the community that lived and worked in close proximity to the fire station where individuals were allowed to leave work and respond to emergency calls. Providing a service to the community and being active within the community was – and continues to be – a major point of pride for volunteer firefighters. Financial compensation, although warranted, was not the only motivator for those seeking to become a volunteer firefighter.
There are numerous factors impacting volunteer firefighters across the province that can make recruitment and retention a challenge today. Some reasons could subjectively include shifting demographics, economic realities, household structures, and expectations of work-life balance. It is a certainty, however, that performance expectations including sustaining training standards and attendance at training sessions continue to increase the demands municipalities place on volunteer firefighters in the interest of health and safety. Commonly, volunteer firefighters must also sustain minimum response attendance to emergency calls. Thus, the result is an increasing demand on personal commitment to sustain a high degree of training competency and experience gained through responding to calls. Maintaining an appropriate balance between the demands of being a volunteer firefighter and those of family and other commitments is becoming more difficult. Municipalities must begin to develop recruitment and retention strategies for volunteer firefighters that recognize this evolution.

7.10.2 Volunteer Firefighter Recruitment and Retention Strategy

Recruitment and retention of volunteers is not just a municipal or provincial challenge in Ontario. In May 2010, Volunteer Alberta released the *Volunteer Firefighter Recruitment and Retention Strategy* (Strategy) which was developed for the Alberta Fire Chiefs' Association.[10] The resulting document was informed by an environmental scan of best practices, literature review, and experience across departments in Alberta and beyond.

A separate study conducted by Volunteer Alberta identified six known issues and barrier that are having an impact on the ability of municipalities to recruit and retain volunteer firefighters. As described in the Strategy, these issues and barriers include (pg. 1 and 2):

- *Employer-related – A lack of support of volunteer firefighting by employers especially for on-the-job time;*

[10] The Volunteer Alberta "*Volunteer Firefighter Recruitment and Retention Strategy*" released May 2010 is currently available on the Alberta Fire Chiefs Association website at: *http://www.afca.ab.ca/images/stories/PDFs/volunteer%20alberta%20r%20%20r%20tool%20kit.pdf*.

- *Family-related – Volunteer firefighting requires a time commitment which separates volunteer firefighters from their loved ones at unpredictable times and can impact family income by being called away from work;*
- *Availability of people – Many people work outside the community during the day (especially an issue in Alberta);*
- *Time commitment – There are increased demands on volunteers time, and odes of practice and discipline action for missing training while necessary, can be discouraging for volunteers;*
- *Perceptions and public image – People may begin volunteer firefighting without properly understanding the role, or the overall experience; volunteer firefighters may quit after traumatic experiences. The local reputation of the fire department also may not encourage volunteerism; and*
- *Structural challenges – Unrealistic demands from municipalities, but low funding; a lot of time taken up by administrative tasks; high turnover of volunteers.*

The Strategy goes on to provide local and centralized initiatives that include the identified target audiences including: business owners and employers; community groups; residents (women, immigrant populations, First Nations populations); fire department members; and political stakeholders. There are fifteen local recommended initiatives that provide detailed guidelines on implementation. The recommendations are also complemented by a comprehensive toolkit to assist with implementation. The recommended local initiatives that can be explored by any municipal fire department include:

1. *Involve current volunteer firefighters in planning formal recruitment drives;*
2. *Raise local awareness through traditional and new media activities;*
3. *Engage in local public relations;*
4. *Use of promotional items;*
5. *Attendance at trade shows;*
6. *Engage in regular and ongoing outreach with local employers;*
7. *Engage community groups on a regular and ongoing basis;*
8. *Reach out to recruitment audiences with targeted messages;*
9. *Regularly engage with political stakeholders;*
10. *Bolster firefighter psychological support services;*
11. *Develop a spousal support network;*
12. *Establish child care services;*
13. *Establish diversity policies in the fire department;*
14. *Create firefighter service recognition awards; and*
15. *Establish a proper volunteer screening process.*

Generally, the recommended centralized initiatives focus on actions that can be taken on a provincial level to encourage volunteer firefighter recruitment and retention. Some of these recommended initiatives include:

- *Create a central website to provide recruitment information to the public and to support local fire departments with tools and information.*
- *Centrally coordinate public relations;* and
- *Explore Canada-wide terminology standardization.*

While the issues and recommendations provided in the Strategy were created within the context of Alberta, many of the issues and recommendations are applicable nation-wide.

7.10.3 National Recruitment Initiative

In recognition of the volunteer firefighter recruitment and retention challenge and the importance of volunteer firefighters across the country, the Canadian Association of Fire Chiefs signed an agreement with the Alberta Fire Chiefs Association to expand their volunteer firefighter recruitment strategy across Canada. As part of this initiative, the CAFC launched the *Answering the Call* website (answerthecall.ca). This website was launched near the end of 2016 and features a map that shows volunteer fire departments that is searchable based on postal code. The site features a "department portal" where a profile can be created for a fire department where the department information and listings.

7.10.4 Centre Wellington Recruitment and Retention Strategy

The term "volunteer firefighter" represents the strong tradition of volunteerism and pride in serving the community. However, in the past few years there has been an increasing amount of dialogue within the industry that the term 'volunteer' does not accurately articulate the role of this position. Volunteer firefighters are part-time employees who receive financial compensation for their time related to training and emergency response. Many within the industry suggest the time has come to re-brand or market the role of a volunteer firefighter more accurately as a part-time firefighter. This supports more recent thinking that there may be more interest in this role in the future if it is recognized as a part-time, compensated, position.

The CWFR has recently completed one of its most successful volunteer firefighter recruitment process in the past few years. This recent recruitment will bring the total complement of volunteer firefighters up to the current Council approved total complement of 60 volunteer firefighters. It should however be recognised that the average turnover rate of volunteer firefighters in Ontario ranges from 10 to 20% annually.

It is recommended that subject to Council's consideration and approval of the proposed Fire Service Master Plan that the Centre Wellington Fire and Rescue consider the Volunteer Firefighter Recruitment and Retention Strategies included within the proposed Fire Service Master Plan.

7.11 Training Facility and Workspace

In order to meet the function and purpose of a training division, both administrative space and facilities to implement the actual training including live fire training and other specialized rescue services is required. While some of these needs are met by travelling to other training facilities such as Waterloo Region Emergency Services Training and Research Centre, some needs are met within the Township itself.

For the purpose of providing theory training, both stations are equipped with training rooms, a laptop, and a large display monitor. Other theory-based training is conducted on the apparatus floor at each station, as needed.

Station 40 (Fergus) is home to the upper training compound. This is located adjacent to the parking lot for Station 40 and together with the upper training building (large shed) has facilities for forcible entry, ventilation and roof operations, extinguisher training, and an automobile extrication pad. There is also a training tower located at Station 40. This tower is used to provide rope rescue training, windmill rescue training, aerial and ladder operations, search and rescue, smoke tower training, and firefighter survival. As part of the stakeholder engagement conducted for this FSMP, it was identified that these facilities are regularly used and accessed by staff from both stations. There is also sufficient storage available as part of the upper training compound including land and storage in the upper training building. On site are a number of training props owned by both the Township and the County. The training tower, props, and other amenities are used by other municipalities in the County as part of recruit training. The training tower is also used by external organizations for training purposes.

The above described training facilities enable the CWFR suppression staff to access some the amenities required for the existing Annual Training Program. There are some needs to travel beyond the stations throughout the Township and beyond as needed. This includes:

- Centre Wellington Sportsplex for ATV operations, pump and hydrant operations, and rural water supply training;
- Centre Wellington High School for driver training;
- Centre Wellington public works garage for hydrant operations and driver training;
- CW Sportsplex for ATV operations, pump and hydrant operations, rural water supply;
- University of Guelph research farms for rural water supply training (Tanker Shuttle Accreditation);
- Acquired structures slated for demolition (about two to three per year); and
- Access to local natural features found at Belwood Lake, Westminister Park, Millage Pond, Bissel Park, Elora Quarry, the GRCA park and gorge for a combination of training for boat launch/operations, pump operations, water supply, water-ice rescue, swift water rescue, search and rescue, and tanker operations.

7.12 Proposed Training Staff Resource Plan

To implement the proposed enhanced training initiatives included within this FSMP will require consideration of the current staff resource plan within this area. This should include a review of the skills and competencies, and certification of the staff resources assigned to this area.

To implement the proposed enhanced training program initiatives within this FSMP the following elements should be assessed:

- ü skills;
- ü competencies;
- ü certification/training of staff assigned to these areas; and
- ü number of staff resources and their hours of availability for delivering the proposed programs.

7.12.1 Staff Training and Certification

Ensuring the staff resources delivering the proposed comprehensive training program and training initiatives have the required skill, competencies and certification should also be considered a priority of this FSMP. Table 17 summarizes the different instructor levels included within the NFPA 1041 standard.

Table 17: Training Officer Instructor Levels (NFPA 1041 Standard)

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

In our view these NFPA standards should serve as the job performance requirements for all staff resources identified within the following training division staff resource options. Research and analyses of information informing this FSMP indicates that the current staff resources within the CWFR including full-time staff and volunteer firefighters have a wide range of experience and certification. Additional training and certification may be required for both existing full-time staff and volunteer firefighters to achieve the proposed certifications. These costs have not been included within this FSMP process as they may vary significantly from person to person.

At a minimum the internal staff resources within the CWFR delivering firefighter training should have the skills and competencies included within the *NFPA 1041 – Instructor Level I*. Within the Township of Centre Wellington it is our interpretation of the NFPA 1041 standard that there should be at least one staff resource with a minimum of the *Instructor Level II accreditation*, and preferably the *Instructor Level III accreditation*.

7.12.2 Proposed Training Division Staff Resource Plan

As previously indicated within this FSMP the current organizational structure of the CWFR has served the department, and the Township well through the transition to one unified fire service. Workload within the training division has been increasing at a similar pace as that identified within the fire prevention and public education section of this plan. Current department workload requires all full-time staff to lead other projects and support other activities that have been prioritized by the Fire Chief.

7.12.2.1 Proposed Full-time Deputy Fire Chief – Training & Suppression (Existing Position)

As indicated within Section 6.16, this FSMP is recommending that the positon of District Chief/Fire Safety Officer be revised to Deputy Fire Chief – Fire Prevention & Public Educations. Similarly this FSMP is recommending that the Chief Training Officers position be revised to Deputy Fire Chief – Training & Suppression.

The CWFR has been very successful in sustaining a fire department that continues to rely solely on the response of volunteer firefighters to provide emergency response services. Increasing demands related to recruitment and retention, firefighter certification and training and company officer training, in our view is going to further challenge the CWFR in sustaining the current volunteer firefighter model.

In our view one of the most proactive and effective strategies the Township of Centre Wellington can implement to sustain this preferred volunteer firefighter operating model is a highly qualified and integrated fire department management team. In our experience there is a direct connection between firefighter training and fire suppression. This FSMP is recommending the full-time position of Deputy Fire Chief – Training & Suppression to further develop the leadership of integration between supporting training programs and fire protection service levels.

At a minimum the successful candidate in this position should be required to have the *NFPA 1041 - Instructor Level II accreditation*, and preferably the *NFPA 1041 - Instructor Level III accreditation*. Further supporting information for this recommendation will be presented within the proposed Fire Suppression Division Staff Resource Plan.

7.12.2.2 County Training Officer (Full-time)

This proposed Training Division Staff Resource Plan continues to support the need for the County Training Officer. Within this plan it is recommended that this position be revised to report directly to the proposed Deputy Fire Chief – Training & Suppression.

In our view, consideration should be given to focusing the role of this position in the areas of volunteer firefighter recruit training and Company Officer training to apply consistency to these training needs across the County.

7.12.2.3 Station Training Officers (Volunteer)

This proposed Training Division Staff Resource Plan also supports the continued need for these positions as well as requirements for certification. At a minimum these positions should be required to have the *NFPA 1041 - Instructor Level I accreditation*, and preferably the *NFPA 1041 - Instructor Level II accreditation.*

In our view consideration should also be given to implementing an Acting Station Training Officer at each of the fire stations. This FSMP recommends increasing the complement of volunteer firefighters at each

of the fire stations. The result is going to be an increased demand on the training division, and training program deliverables. Implementing this position would be an effective strategy in managing this additional workload as well as implementing a succession planning strategy in this critical area of the department. At a minimum these two proposed positions should be required to have the *NFPA 1041 - Instructor Level I accreditation.*

7.12.2.4 Proposed Training Program Committee

Under the leadership of the proposed Deputy Fire Chief – Training & Suppression the purpose of the proposed Training Program Committee would be to provide coordinated leadership and oversight of a unified department-wide training program within a defined terms of reference approved by the Fire Chief. This committee would include membership of the Station Training Officers, proposed Acting Station Training Officers and the County Training Officer. This committee would be responsible for delivering the identified firefighter and Company Officer training.

The roles and responsibilities of this committee would be to develop the structure and program elements of a comprehensive training program curriculum, including knowledge-based and practical training, sign-off components, and records management. The proposed Training Program Committee would be required to benchmark and follow the principles of NFPA, OHSA, the OFMEM, municipal policies and procedures and the best practices within the fire service.

7.12.2.5 Summary of Proposed Training Division Staff Resource Plan

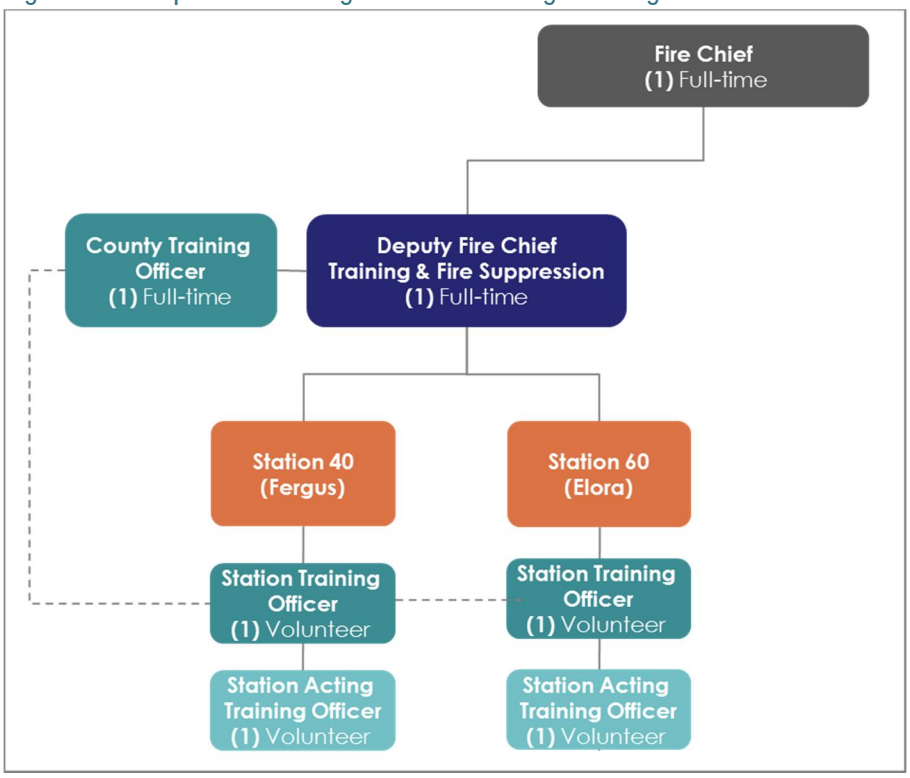
The proposed Training Division staff resource plan organizational structure is illustrated in Figure 9. The proposed staff resource plan and organizational structure is presented as a strategy to sustain the utilization of volunteer firefighters as the sole providers of fire suppression services, sustaining the Townships legislative requirements and enhancing the leadership effectiveness of the CWFR services.

The proposed Training Division staff resource plan is also intended to align with the proposed strategic priority of this FSMP including:

"Recognize the historical dedication and commitment of the members of Centre Wellington Fire and Rescue and their ongoing effort to transition to one single, unified fire department" and

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

Figure 9: Proposed Training Division Staffing and Organization



It is recommended that subject to Council's consideration and approval of the proposed Fire Service Master Plan that the Centre Wellington Fire and Rescue proposed Training Division Staff Resource Plan be adopted.

7.13 Training Division Summary of Recommendations

The ultimate goal of this FSMP is to reduce the probability and consequence of a fire and enhance community and firefighter safety through the implementation of recommendations that enhance the overall effectiveness and efficiency of Centre Wellington Fire and Rescue.

The analyses conducted and the internal consultation completed as part of this review indicates that historical delivery of training within the department would be considered to have met the Townships minimum legislative requirements. Opportunities exist to enhance the departments training program including formalizing standard operating guidelines to ensure the consistency of programs, further transition to the implementation of NFPA training programs including certification and prioritizing strategies that sustain the utilization of volunteer firefighters.

Implementing the proposed recommendations and staff resource plan, including managing an ongoing recruitment and retention strategy for volunteer firefighters is intended to ensure that all of the volunteer firefighters and company officers receive the training necessary to meet the Township's

legislative requirements of the Fire Prevention and Protection Act, 1997 and the *Occupational Health and Safety Act.*

It is recommended that subject to Councils consideration and approval of the proposed Fire Service Master Plan that the following recommendations be implemented to support the strategic priorities of this Fire Service Master Plan for the Fire Prevention & Public Education Division:

21. *That the Centre Wellington Fire and Rescue consider revisions to its current training policies as referenced in the proposed Fire Service Master Plan;*
22. *That the Centre Wellington Fire and Rescue consider options to enhancing its utilization of online firefighter training;*
23. *That the Centre Wellington Fire and Rescue review all current Standard Operating Guidelines for specialized services, and include the response capabilities within the proposed updated Establishing and Regulating By-law for Council's consideration and approval;*
24. *That the Centre Wellington Fire and Rescue enhance its Company Officer training program by developing an internal Company Officer Training Program that aligns with the NFPA 1021 Standard – Level II;*
25. *That the Centre Wellington Fire and Rescue implement a strategy supporting succession planning within the department;*
26. *That the Centre Wellington Fire and Rescue consider the Volunteer Firefighter Recruitment and Retention Strategies included within the proposed Fire Service Master Plan;*
27. *That subject to Councils consideration and approval of the proposed Fire Service Master Plan that the Centre Wellington Fire and Rescue proposed Training Division Staff Resource Plan be adopted.*

8.0 Fire Suppression Division

The Township of Centre Wellington includes the communities of Fergus, Elora, and Salem which are surrounded by large sections of rural geography. Providing emergency response in these primarily rural municipalities in the form of firefighting resources capable of effectively mitigating a fire in a timely manner can be difficult and challenging. Travel distances and water supply are two factors that can impact the ability to provide fire suppression services within an established time frame.

The Centre Wellington Fire and Rescue currently operates from two fire stations within the Township of Centre Wellington. Both stations are located within the Fergus-Elora-Salem urban area - Station 40 (Fergus) and Station 60 (Elora). The current fire station locations are based on the pre-amalgamation fire station locations in the communities of Elora and Fergus.

8.1 Current Fire Suppression Staff Resources

Under the leadership of the full-time Fire Chief, the Centre Wellington Fire and Rescue currently employs a complement of 60 dedicated volunteer firefighters who provide fire suppression services 24/365 from the two fire stations. The volunteer firefighters are organized into scheduled on-call crews which ensure a minimum number of responding firefighters. The current fire suppression staff resources are summarized in Table 18.

Interaction with the volunteer firefighters as part of the stakeholder consultation process indicated a highly dedicated group of people committed to providing fire protection services to the communities where they live and work. Their commitment is evident in the low annual turnover rate of volunteers leaving the department. The consultation process identified that the staff from the two stations work very well when responding together. However, there continues to be some remnants of the pre-amalgamation/amalgamation process that at times raises cause for concerns. Our observations are that this potential is limited to a few people and will not inhibit the department from moving forward with the implementation of this FSMP and the desire for one single-unified fire department.

The current recruitment process requires a candidate wanting to be a volunteer firefighter to live within a three kilometre radius of the fire station. During the consultation process it was indicated that in the past potential candidates have not been accepted due to this requirement. In our experience the current three kilometre benchmark may be a barrier in the current recruitment process. In our experience, a five kilometre radius is more common within Ontario.

There is currently no minimum requirement for staffing apparatus responding from either station. This means the first apparatus can leave with only two firefighters; the importance of ensuring there are four firefighters on the first apparatus is discussed in this suppression section of this report.

The information contained with Table 18 does not include the proposed staff resource plans included with Section 6.16.2.4 proposed Fire Prevention and Public Education staff resource plan, or in

Section 7.12.2.5 proposed Training Division staff resource plan. These resource plans will be integrated into the proposed Fire Suppression staff resource plan contained in later sections of this plan.

Table 18: Current Fire Suppression Staff Resources

Role / Division	# Full-Time	#Volunteer
Fire Chief	1	-
District Chief / Public Safety Officer	1	-
Chief Training Officer / Public Fire Safety Education	1	-
District Chief	-	1
Captain / Station Training Officer	-	2
Captains	-	4
Acting Captains	-	3
Firefighters	-	50
Administrative Assistant	1	-
Staffing Composition	4	60
Total Staffing:	64	

8.2 Emergency Response Analysis

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 (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."*

The three lines of defence represent a proven model for: optimizing the benefits of proactive prevention and education programs; the appropriate use of standards and code enforcement; and, as the model suggests, the provision of emergency response as the 'fail safe'. The failsafe is in place for 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 municipality must achieve with regard to the type of firefighter (career/part-time/volunteer) or the number of firefighters required to respond to any given incident. The FPPA does require that a municipal Council assess this level of resources based on determining its "*local needs and circumstances.*"

This FSMP contains options for Council's consideration directly related to the department's ability to assemble and deploy a sufficient number of firefighters to achieve the initial response and depth of

response firefighter staffing levels required to provide emergency response services based upon the local needs and circumstances of the community as defined by this FSMP.

To assist with evaluating the level of fire suppression resources required by the Township of Centre Wellington this FSMP identifies the different guidelines and standards that are currently relevant within Ontario. Through comparison of each guideline/standard with a typical fire scenario this analysis presents insight into the industry best practices based on a risk-based approach.

8.3 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 OFMEM 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 the room of origin in as little as three minutes, under fast fire growth conditions.

Fire growth rates, defined by the Society of Fire Protection Engineers as slow, medium and fast, are listed in Table 19. The fire growth rates are measured by the time it takes for a fire to reach a one megawatt (MW) fire. This is roughly equivalent to an upholstered chair burning at its peak. A two MW fire is approximately equal to a large upholstered sofa burning at its peak.

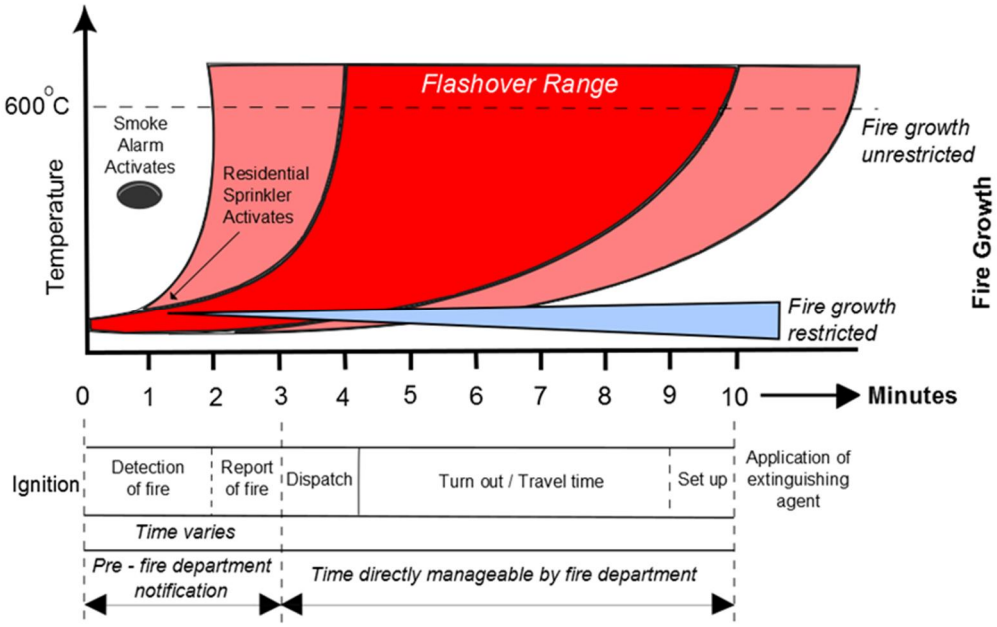
Table 19: Time to Reach 1 MW and 2 MW Fire Growth Rates in the Absence of Fire Suppression

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

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

Within the ten-minute (600 second) time period, flashover conditions can occur. Flashover occurs when the combustible items within a given space reach a temperature that is sufficiently high for them to auto-ignite. The graph in Figure 10 highlights the importance of the first two lines of defence including early detection actions of the occupants. Early detection occupant actions include working smoke alarms, home escape planning, and prompt notification of the fire department. The success of firefighting intervention, given the exponential increase in fire temperature and the potential for loss of property/loss of life with the progression of time, further support the importance of optimizing the first two lines of defence.

Figure 10: Example Fire Propagation Curve



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

The fire propagation curve reflects the importance of time during the Detection *'detection – report'* stage. This is the time period not impacted by any actions by the fire department. The time period controlled by the fire department begins when the call is initially received by dispatch and includes several other components leading up to the initiation of intervention by fire 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, the potential for the fire to have spread from the room of origin or to have already reached a flashover state will be significantly higher.

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

8.4 Current Fire Suppression Guidelines, Industry Standards, Industry Best Practices

Over the past decade there has been a transition within the fire service industry across North America to the use community risk assessments to inform fire suppression needs. Community risk assessments can

be used in part to determine the appropriate level of firefighter deployment based on the critical tasks to be performed to effectively, efficiently and safely conduct fire suppression operations.

The OFMEM is the agency responsible for fire protection within the Province of Ontario, and the NFPA is the most highly recognized fire service association in North America. These agencies cumulatively represent the authorities for identifying an appropriate methodology and process for determining firefighter deployment in the Township of Centre Wellington. The sections that follow explore the fire suppression guidelines, industry standards, and industry best practices released by the OFMEM, the NFPA, and other industry best practices.

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

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

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

The matrix further recognizes that within the 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. Table 20 reflects the PFSG 04-08-10 (Appendix B) Critical Task Matrix.

The OFMEM 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.

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

Table 20: PFSG 04-08-10 Critical Task Matrix

Fireground Critical Task		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 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								

Notes:

- 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 the 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.

(Source: Ontario Fire Marshal (2011), Operational Planning: An official Guide to Matching Resource Deployment and Risk)

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

As introduced in Section 2.0 of this Master Fire Plan, the B.C. Playbook describes and establishes three different service levels that are directly linked to the training level of the department. In our view, the most recent addition amended in May of 2015 provides valuable insight into determining the level of fire suppression services to be provided by a municipality including those in Ontario.

In addition to response times, and the number of firefighters responding, the B.C. Playbook links the training qualifications of firefighters to fire suppression service levels. In further support of the OFMEM Public Fire Safety Guidelines and NFPA standards, the B.C. Playbook identifies three specific fire suppression service levels for Council's consideration in developing the Township of Centre Wellington fire suppression service levels.

The sections that follow describe the service levels available within the B.C. Playbook.

8.4.2.1 Exterior Operations Service Level

Fire service firefighters shall not enter any building, vehicle dumpster or other object if an immediately dangerous to life and health (IDLH) atmosphere is present. If an IDLH atmosphere is present, Exterior Operation firefighters shall only engage in external fire suppression activities. Operational Guidelines that restrict them to Exterior Operations must be written and enforced by the department, even though they may possess equipment that would otherwise permit them to respond at a higher level.

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

Where there is a potential risk of an IDLH atmosphere developing, or risk from smoke or particulate matter when conducting external operations (including overhaul), Self-Contained Breathing Apparatus (SCBA) must be worn in accordance with WorkSafe BC requirements.

8.4.2.2 Interior Operations Service Level

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

Interior Operations Service Level fire departments shall have written Operational Guidelines enforced by the department that describe advanced training in fire operations activities that allow for a calculated fire attack within permitted structures and objects.

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

8.4.2.3 Full Service Operations Level

Full Service Operations Level fire departments are equipped and have completed the appropriate training identified in the B.C. Playbook to provide a full spectrum of fire services. These services are based on the competencies included within the NFPA 1001 Firefighter Level II Standard and relevant NFPA Fire Officer Standards.

Full service fire departments will have Operational Guidelines that must be written and enforced by the department that describe advanced training in fire operations activities. These fire departments are organized such that the suppression activities that occur are based on response protocols which include the appropriate staffing levels, and number and type of apparatus on scene.

It is recommended that subject to Council's consideration and approval of the proposed Fire Master Plan that the Centre Wellington Fire and Rescue develop Standard Operating Guidelines for defensive and offensive attack utilizing the analyses presented within the proposed Fire Master Plan.

8.4.3 NFPA 1710 Standard

As introduced in Section 2.2 Industry Best Practices, NFPA is recognized as one of the world's leading advocates of fire prevention and an authoritative source on public safety. The NFPA identifies two relevant standards with regards to fire suppression operations. 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 primarily full-time (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 NFPA references support the strategic priority of saving lives and property, as well as recognizing the standard as a "*benchmark"* for determining the appropriate level of resources based on the complexity and level of risk present.

This standard identifies the minimum deployment of firefighters based on an "Initial Arriving Company" and an "Initial Full Alarm Assignment."

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.

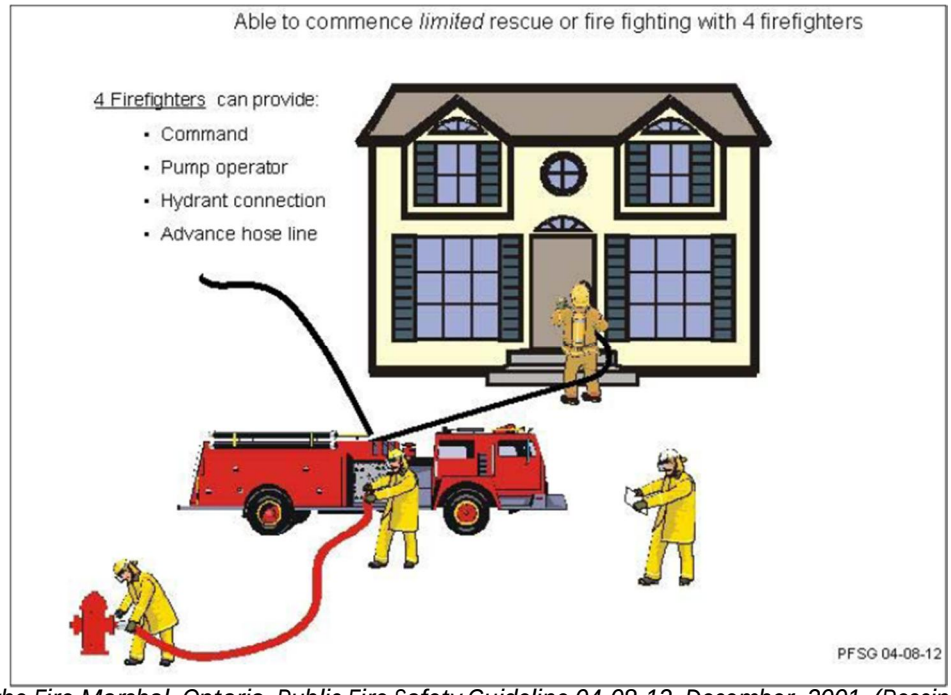
NFPA 1710 refers to the 'Initial Arriving Company' as an 'Engine Company' and further defines the minimum staffing level of an Engine Company as four firefighters whose primary functions are to pump and deliver water and perform basic firefighting at fires, including search and rescue.

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 Commander; one firefighter shall be designated as the pump operator; one firefighter shall complete the task of making the fire hydrant connection; and the fourth firefighter shall prepare an initial fire attack line for operation.

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

Fire scene responsibilities of an initial response are highlighted in Figure 11.

Figure 11: Initial Response Fire Scene Responsibilities



(Office of the Fire Marshal, Ontario, Public Fire Safety Guideline 04-08-12, December, 2001. (Rescinded November 10, 2010))

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 and summarized in Table 20, 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.

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."*

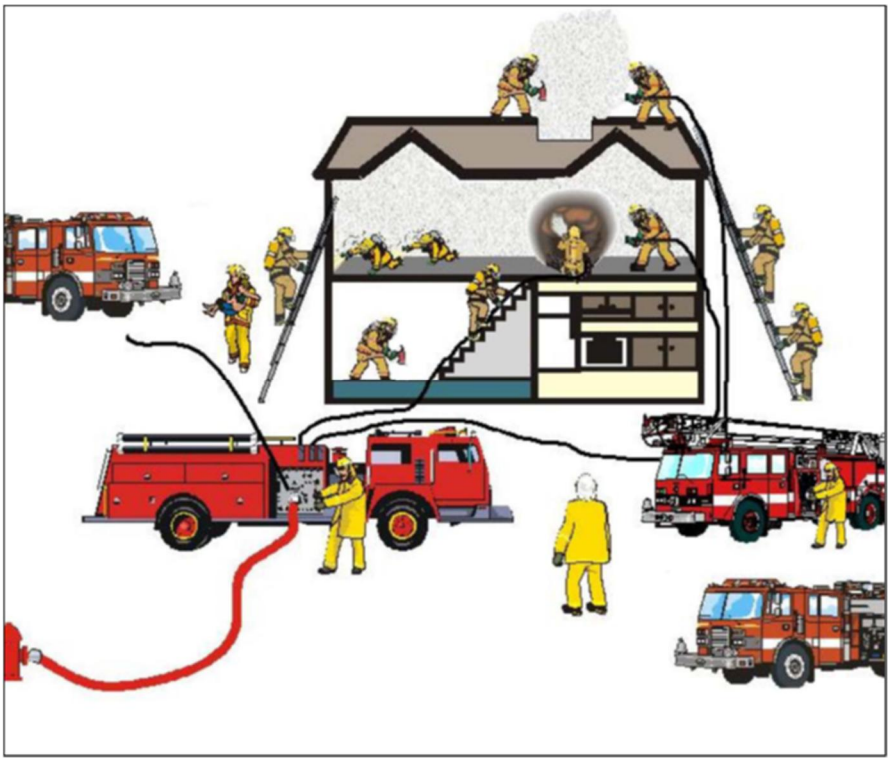
The standard utilizes the example of a fire risk scenario in a 2,000 square foot, two-storey single-family dwelling without a basement and with no exposures present. This represents a typical home of wood frame construction located in a suburban neighbourhood having access to a municipal water supply including **fi**re hydrants. Within this FSMP, this occupancy would be classified as a 'Group C - Residential Occupancy' (relating to a moderate risk).

It is very important to recognize that depth of response is referring to the "total" number of firefighters ini**ti**ally 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 14 firefighters, 15 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 12.

Figure 12: Depth of Response Fire Scene Responsibilities



(Shown including an aerial device – 15 firefighters) Modified from the Office of the Fire Marshal, Ontario, Public Fire Safety Guideline 04-08-12, December, 2001. (Rescinded November 10, 2010).

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 FSMP this occupancy would be classified as a 'Group C - Residential Occupancy' (equivalent to a moderate risk). As listed in the Fireground Critical Tasks and summarized in Table 19, the critical tasks for a moderate level risk include:

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

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

8.4.4 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 definition of a combination and volunteer fire department is as follows:

An organization providing rescue, fire suppression, emergency medical services, and related activities to the public.
Combination Fire Department. A fire department having emergency service personnel comprising less than 85 percent majority of either volunteer or career membership.
Volunteer Fire Department. A fire department having volunteer emergency service personnel comprising 85 percent or greater of its department membership.

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 21 presents the NFPA 1720 standard minimum staffing levels by demand zone.

Table 21: NFPA 1720 Demand Zones

Demand Zones	Demographics	Minimum # of Firefighters Responding	Response Time (Turnout + Travel) in Minutes	Performance 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.

The NFPA 1720 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.

8.4.5 Superior Tanker Shuttle Accreditation

The Superior Tanker Shuttle Accreditation is a proprietary process managed by the Fire Underwriters Survey™ (FUS), a national organization administered by SCM Risk Management Services Inc. formerly CGI Insurance Business Services, formerly the Insurers' Advisory Organization and Canadian Underwriters Organization.

As a method to provide water for firefighting in areas without municipal water supply, the Superior Tanker Shuttle Accreditation includes the following process:

- set up pumper apparatus at fire event and deliver water from temporary storage facility (e.g., portable tank) through fire pump to fire;
- draft water (from a location where water supplies are known to be reliable and accessible) into a mobile water supply apparatus;
- move water from source location to fire event using mobile water supply apparatus;
- dump water into temporary storage facility (ex. portable tank) at fire event location; and
- repeat shuttle cycle.

The levels of service assigned with the Tanker Shuttle Accreditation (e.g., Standard Tanker Shuttle Service or Superior Tanker Shuttle Accreditation) are determined by the alternative water supply performance and capabilities provided by the fire services.

As stated on the FUS website: "*To be recognized for Standard Tanker Shuttle Service, the fire department must have adequate equipment, training and continuous access to approved alternative water supplies to deliver standard tanker shuttle service in accordance with NFPA 1142, Standard on Water Supplies for Suburban and Rural Fire Fighting.*"

The CWFR was accredited by FUS on November 2nd, 2013 having achieved the requirements of the Superior Tanker Shuttle Accreditation. The Township's fire Personal Lines and Commercial Lines insurance grade maps as provided by Fire Underwriters Survey and shown on the Township's website are presented in Figure 13 and Figure 14, respectively. The Fire Underwriter's Survey assigned a number of different fire insurance grades depending on the location of personal dwellings and commercial properties. However, the following fire insurance grade is of specific importance to this review as they relate to the location of approved alternative water supplies, and the current fire stations:

Rating 3B(S): *That indicates the area of the Township with the Superior Tanker Shuttle Accreditation within five kilometres by road of an approved water supply location, and within eight kilometres by road of an accredited fire station.*

The Superior Tanker Shuttle Accreditation can relate to a reduction in home ownership insurance premiums of 5% to 10% depending on the applicable fire insurance grading and the insurance provider.

The CWFR recognizes the importance of the Superior Tanker Shuttle Accreditation as a component of providing the most cost effective and efficient level of fire protection services providing the most value to the community.

EAST LUTHER GRAND VALLEY

EAST GARAFRAXA

WELLINGTON NORTH

ERIN

MAPLETON

CENTRE WELLINGTON

Fergus - Fire Station

Elora - Fire Station

Floradale - Fire Station

WOOLWICH

GUELPH/ERAMOSA

GUELPH

Guelph - Fir

nira - Fire Station

N

Fire Underwriters Survey
Est. 1883

Township of Centre Wellington

Scale = 1:36,000

0 500 1,000
Meters

Personal Lines Insurance - Dwelling Protection Grades

Fire Underwriters Survey
A Service to Insurers and Municipalities

Legend

- Fire Hall
- Road
- Fire Protection Boundary
- 3A
- 3A (Private Hydrant Protected)
- 3B(S)
- 3B
- 4
- 5

These maps and figures are not intended to illustrate the exact response distance or fire insurance grade coverage areas but can be used to aid in determining the fire insurance grade that should be applied to the property in question.
Fire Underwriters Survey does not warrant or make any representations with respect to the quality, completeness, currency or accuracy of anything contained in this map, the fitness of this map for any purpose or results obtained using information contained in this map and is not responsible for any action taken in reliance on information contained in this map. In all cases, field data should be used to confirm the data and accuracy of these maps; if differences are noted please contact Fire Underwriters Survey at 1-800-665-5661.

Date Drawn: 2014-01-14

Drawn By: LZ

☐ *Preliminary* ■ *Final*

☐ *Commercial* ■ *Personal*

EAST LUTHER GRAND VALLEY

EAST GARAFRAXA

WELLINGTON NORTH

ERIN

MAPLETON

CENTRE WELLINGTON

Fergus - Fire Station

Elora - Fire Station

Floradale - Fire Station

WOOLWICH

GUELPH/ERAMOSA

GUELPH

Guelph - Fir

nira - Fire Station

N

Fire Underwriters Survey
Est. 1883

Township of Centre Wellington

Scale = 1:36,000

0 500 1,000
Meters

Commercial Lines Insurance - Public Fire Protection Classification

Fire Underwriters Survey
A Service to Insurers and Municipalities

Legend

- Fire Hall
- Road
- Fire Protection Boundary
- 5
- 5 (Private Hydrant Protected)
- 9
- 10

These maps and figures are not intended to illustrate the exact response distance or fire insurance grade coverage areas but can be used to aid in determining the fire insurance grade that should be applied to the property in question.
Fire Underwriters Survey does not warrant or make any representations with respect to the quality, completeness, currency or accuracy of anything contained in this map, the fitness of this map for any purpose or results obtained using information contained in this map and is not responsible for any action taken in reliance on information contained in this map. In all cases, field data should be used to confirm the data and accuracy of these maps; if differences are noted please contact Fire Underwriters Survey at 1-800-665-5661.

Date Drawn: 2014-01-14

Drawn By: LZ

☐ *Preliminary* ■ *Final*

■ *Commercial* ☐ *Personal*

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

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 B).

8.4.6.1 Initial Response Staffing Deployment

Having considered PFSG 04-08-10, NFPA 1710 and 1720 Standards and based on Dillon's 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 within the Township of Centre Wellington should include a *minimum initial response of four firefighters* to conduct initial fire suppression operations. This accounts for the critical fireground tasks of:

- *Incident Command- 1 firefighter/officer*
- *Pump Operation – 1 firefighter*
- *Initial Attack Line - 2 firefighters*

8.4.6.2 Depth of Response Staffing Deployment

Current best practices within the Ontario Fire Service for depth of response reflect the principles of PFSG 04-08-10 (Appendix B) that applies 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 OFMEM 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 NFPA training standards.

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 72% of all structure fires and 86% of all fire related deaths.

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 analyzing and reviewing all available information that defines the characteristics of a community. The Community Risk Assessment included within this FSMP (Appendix A) provides the analysis for the Township of Centre Wellington. The analysis considers the eight key risk factors identified within the OFMEM 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 Assessment 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 different challenges 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 Township of Centre Wellington an assessment of the Community Risk Assessment; relevant PFSG and the NFPA 1710 / 1720 standards; and OHSA Section 21 Guidance Notes was completed.

The analysis 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:

- ü *Incident Command - 1 firefighter/officer*
- ü *Pump Operator – 1 firefighter*
- ü *Initial Attack Line – 2 firefighters*

For moderate risk occupancies including 'Group C - Residential occupancies' (e.g. 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.

The recommended depth of response firefighter deployment is identified in Table 22.

TABLE 22: RECOMMENDED DEPTH OF RESPONSE

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 (for Depth of Response)	4	14	24

PFSG 04-08-10 prioritizes the planning and deployment of sufficient firefighters based on the risk present. Based on analysis of the relevant PFSG and the NFPA 1710 / 1720 standards; and OHSA Section 21 Guidance Notes an appropriate minimum depth of response to the low, moderate and high risks occupancies within the Township of Centre Wellington 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.

8.5 Proposed Fire Suppression Emergency Response Performance Objectives

The Township does not currently have Council approved performance objectives for fire suppression activities, therefore the current fire suppression guidelines, and industry best practices will inform the performance measures used within this FSMP. The analyses within the preceding sections of this review consider two performance objective elements for fire suppression response including:

- *The number of firefighters required for both initial response and depth of response to effectively and safely mitigate a fire situation, and*
- *The response time (turnout time + travel time) performance objective for deploying the initial emergency response deployment.*

Based on the findings of these comparative analyses, the following performance objectives for the delivery of fire suppression services are presented for consideration:

8.5.1.1 Initial Response and Depth of Response Staffing Performance Objective:

An analysis of the relevant PFSGs, NFPA Standards, and OHSA Section 21 Guidance Notes indicates that in order to effectively and safely mitigate a fire situation the Township of Centre Wellington should be striving to achieve an initial response deployment of four firefighters to all fire related emergency calls. The Township of Centre Wellington should also be striving to achieve a depth of response deployment to all fire related emergency calls of four firefighters to low risk occupancies, 14 firefighters to moderate risk occupancies, and 24 firefighters to high risk occupancies.

8.5.1.2 Response Time Performance Objective:

An analysis of the relevant NFPA Standards indicates that the Township of Centre Wellington is defined as a volunteer fire department (93% volunteers); therefore the NFPA 1720 Standard is the appropriate standard to use. An assessment of the Township's population indicates the applicable NFPA 1720 demand zone with regards to time.

The 2016 Wellington County Official Plan Amendment population data identifies the Township of Centre Wellington has a population of 29,885 with an area of 407.53 square kilometers (157.35 square miles). The majority (85.7%) of the population lives in the Township's urban area of Fergus-Elora-Salem. The Fergus-Elora-Salem urban area has a population of 25,540 with an area of 20.84 square kilometers (8.05 square miles).

Entire Municipality Density: 29,885 people divided by 157.35 square miles = 190 people per square mile

Fergus-Elora-Salem Urban Centres Density: 25,540 people divided by 8.05 square miles = 3,173 people per square mile

Based on the population density and Table 23, the NFPA 1720 *Rural Area Demand Zone* would be the applicable performance measure for assessing the current and future options for deploying the minimum number of firefighters and response time (turnout time + travel time) within the entire municipality with a performance objective of 80%.

Table 23: NFPA 1720 Demand Zones

Demand Zones	Demographics	Minimum # of Firefighters Responding	Response Time (Turnout + Travel) in Minutes	Performance 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%

Based on population calculations of the defined Fergus-Elora-Salem urban area and NFPA Population densities shown in Table 23, the urban area would be designated as an NFPA 1720 Urban Area Demand Zone. This performance measure requires a firefighter deployment of a minimum of 15 firefighters responding in a turnout time + travel time of 9 minutes to 90% of the fire related incidents. The Urban Area Demand Zone deployment closely matches the performance measures of a full-time fire department. Our assessment of existing firefighter deployment capabilities of the CWFR included within this fire master planning process indicates that this performance measure significantly exceeds the department's current firefighter deployment capabilities.

Within Ontario there is no legislated standard or guidelines that a municipal Council must consider for the deployment of firefighters. As such, this FSMP has adopted a strategy of focusing on continuous improvement as supported by the Commission on Fire Accreditation International. The application of the NFPA 1720 *Suburban Area Demand Zone* is presented as a more applicable performance measure for assessing the current and future options for deploying the minimum number of firefighters and response time (turnout time + travel time) within the identified urban area of the Township of Centre Wellington with a performance objective of 80%.

8.5.1.3 Summary of Proposed Emergency Response Performance Objectives:

Analyses of the relevant PFSGs, NFPA Standards, and OHSA Section 21 Guidance Notes indicate that the Township of Centre Wellington should consider the following emergency response performance objectives.

It is recommended that the proposed fire suppression emergency response performance objectives identified within the proposed Fire Master Plan be considered and approved by Council and included within the new Establishing and Regulating By-law, including:

i. *That the Centre Wellington Fire and Rescue strive to achieve an initial response deployment of four firefighters to all fire related emergency calls;*

ii. *That the Centre Wellington Fire and Rescue strive to achieve a depth of response deployment to all fire related emergency calls of four firefighters to low risk occupancies, 14 firefighters to moderate risk occupancies, and 24 firefighters to high risk occupancies;*

iii. *That the Centre Wellington Fire and Rescue strive to achieve the response time performance objective referenced within the NFPA 1720 Rural Demand Zone within the entire Township including a minimum of six firefighters responding within a 14 minute response time (turnout time + travel time) with a performance objective of 80%; and*

iv. *That the Centre Wellington Fire and Rescue strive to achieve the response time performance objectives in the NFPA 1720 Suburban Demand Zone within the defined urban boundary of the Township including a minimum of ten firefighters responding within a ten minute response time (turnout time + travel time) with a performance objective of 80%.*

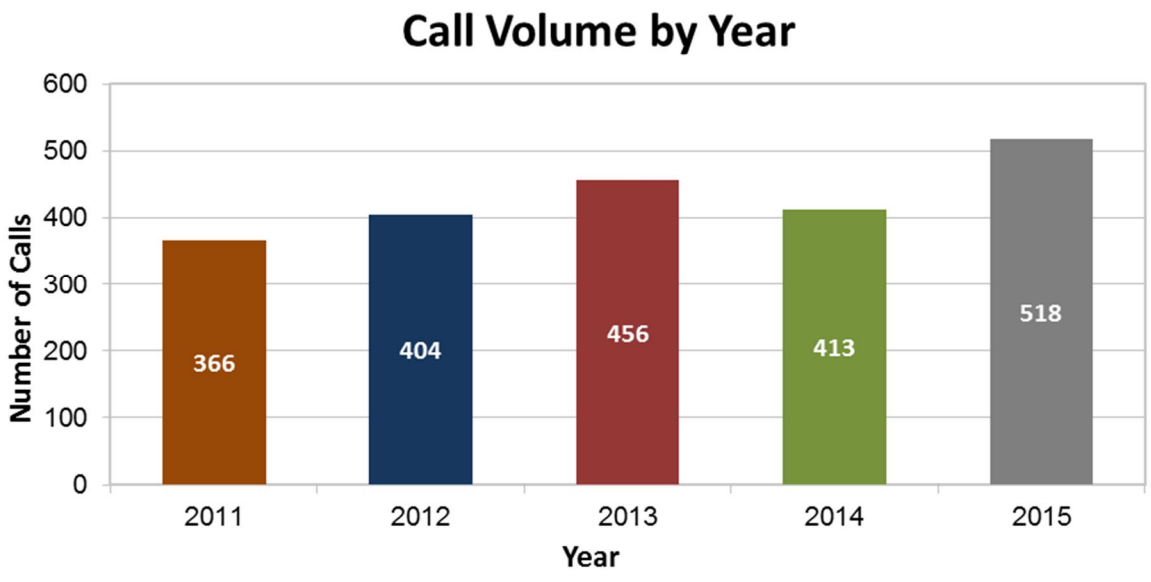
8.6 Historical Emergency Response Capabilities

This section presents analysis of the historical emergency response capabilities of the CWFR. The information within this section was provided by the CWFR and represents the actual incident data collected for the period from January 1st, 2011 to December 31st, 2015.

8.6.1 Emergency Call Volume

A summary of the total number of emergency calls the CWFR responded to during the five year period from 2011 to 2015 is presented in Figure 15. The highest number of emergency calls over this five year period was 518 in 2015, an increase of 152 calls (or 42%) from 2011. In general the number of calls per year has been increasing with an average of 431 calls per year.

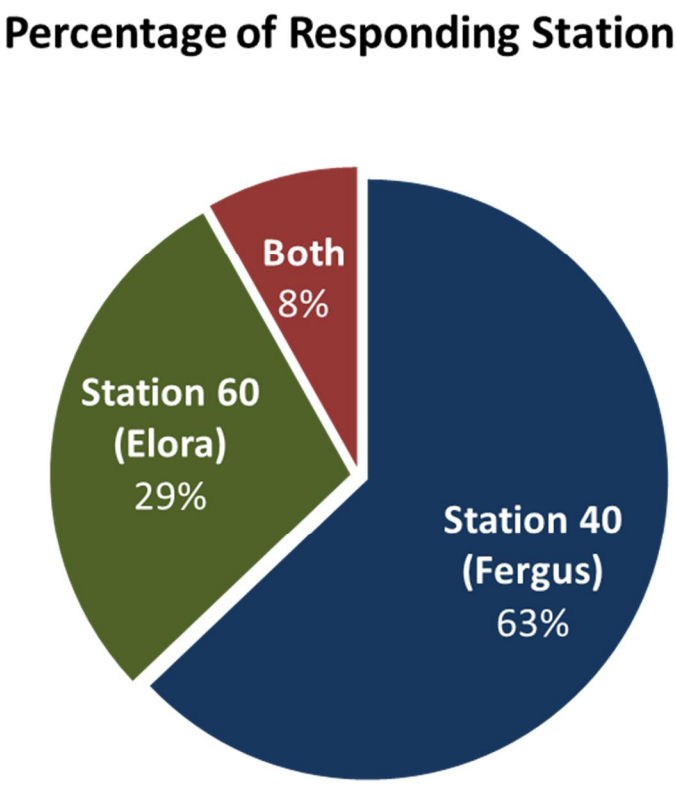
Figure 15: Emergency Call Volume



8.6.2 Emergency Call Volume by Station

Across the department as a whole from 2011 to 2015, there were 2,157 emergency calls within the Township. Each call was assigned a responding station(s), allowing for an analysis of emergency call volume by station. The distribution of calls by station is shown in Figure 16. Station 40 (Fergus) responded to the highest proportion of calls at 63%, while Station 60 (Elora) responded to 29%. There were 8% of calls where both stations responded simultaneously.

Figure 16: Percentage of Emergency Call Volume by Responding Station



8.6.3 Emergency Response Types (OFMEM)

Throughout this section, emergency calls are referred to and categorized by response type. Response types are defined by the OFMEM and are used by jurisdictions throughout Ontario for comparative reporting purposes. To assist in the comparative process, Dillon has grouped the OFMEM response types within this FSMP. Table 24 illustrates the relationship between the response types used in this FPM and the OFMEM-defined response types. Appendix E provides definitions of the OFMEM response types.

Table 24: Emergency Response Types

Dillon Response Type	OFMEM Response Type
Fire	Property Fire / Explosion
Medical	Medical / Resuscitator Call
Other	Overpressure Rupture / Explosion (no fire)
	Burning (controlled)
	False Fire Call
	CO False Call
	Public Hazard
	Rescue
	Other Response

8.6.4 Percentage of Emergency Response Types (OFMEM)

A more detailed analysis of emergency call volume response is presented in Figure 17 below. As shown in Table 24 above, OFMEM incident type categories include property fire, medical calls, overpressure rupture, pre fire conditions, burning (controlled), false fire call, CO false call, public hazard, rescue, and other response. Figure 17 shows the CWFR emergency calls from 2011 to 2015 categorized by OFMEM response type. Fire (Property Fire) calls accounted for 9% of emergency calls the CWFR responded to. Medical calls had the highest percentage of calls at 18%.

When compared to the percent of calls by OFMEM response type for the entire province, shown in Figure 18, the Township has a higher proportion of fire calls (9% Township vs. 4% Province), public hazard (9% Township vs. 5% Province), and rescue calls (20% Township vs. 10% Province). However, the Township has a lower proportion of medical (18% Township vs. 42% Province). A closer look at the number of public hazard calls and rescue calls within the Township of Centre Wellington is provided in the sections that follow.

Figure 17: Percentage of CWFR Emergency Calls by OFMEM Response Type (2011 to 2015)

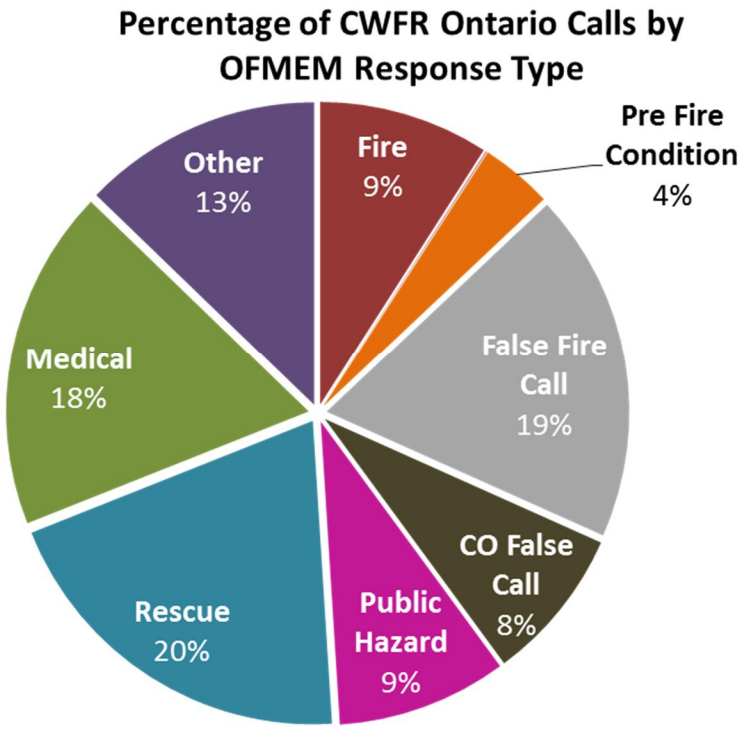
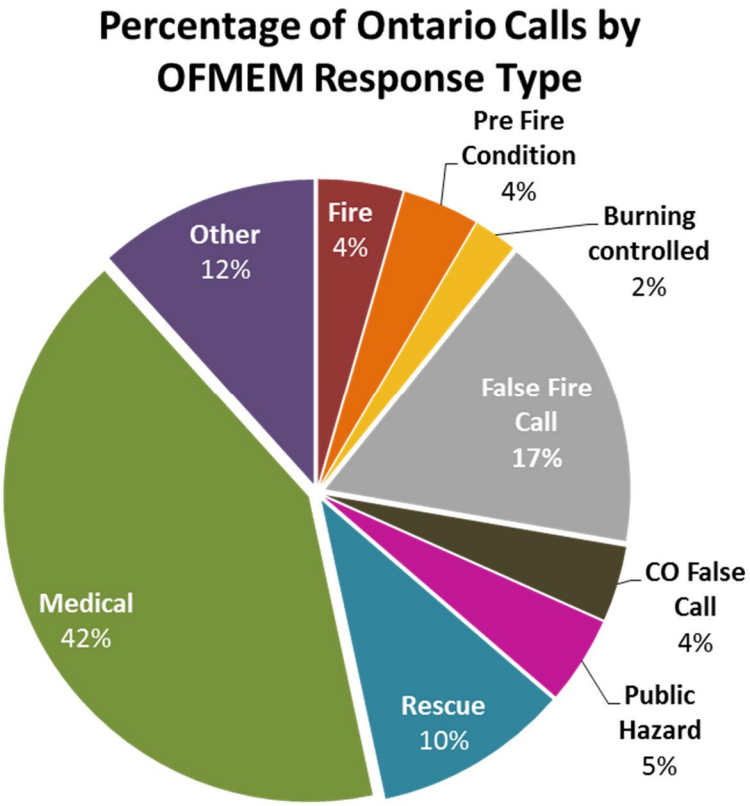


Figure 18: Percentage of Provincial Emergency Calls by OFMEM Response Type (2011-2015)

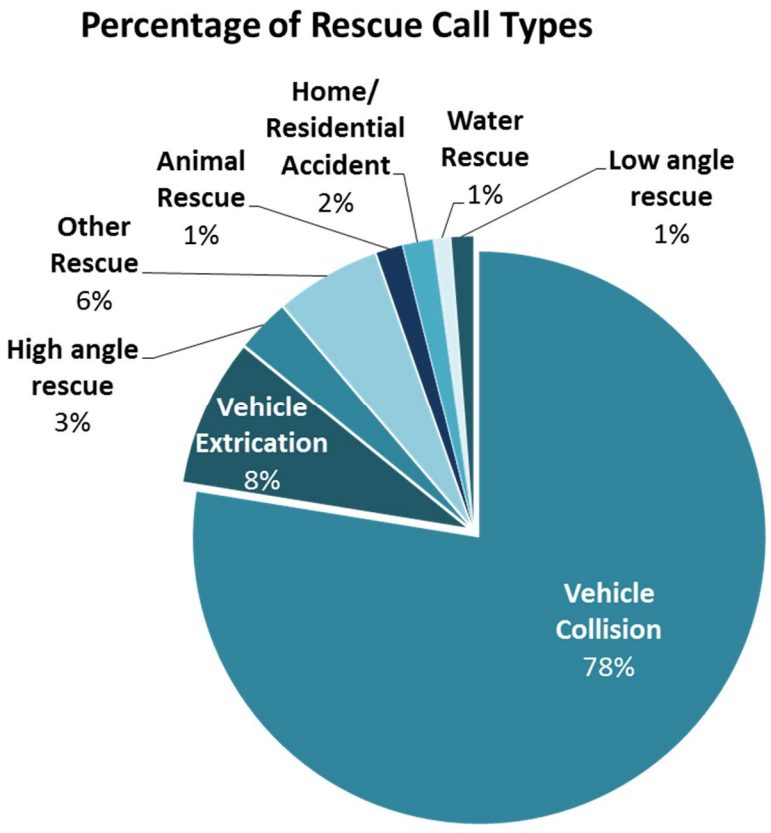


8.6.4.1 Percentage of Rescue Calls (OFMEM)

The percentage of rescue calls in the Township of Centre Wellington is 10% higher than the percentage of rescue calls which occurred throughout the entire Province. As shown in Figure 19, vehicle collisions represent 78% of the rescue calls. Vehicle extrication represents 8% of rescues calls. Motor vehicle collisions as a whole (vehicle collisions plus vehicle extrication) represent 86% of rescue calls and 16% of total call volume. The high proportion of motor vehicle collisions is a common characteristic of a community with a King's Highways (Highway 6) and rural arterial roads.

The percentages of technical rescues (high angle, low angle, and water rescues) are displayed in Figure 19. High and low angle rescues account for 4% of CWFR's rescue calls while water rescues account for 1% of rescue calls. Technical rescues require specialized training to effectively and safely rescue individuals.

Figure 19: Percentage of OFMEM Rescue Calls

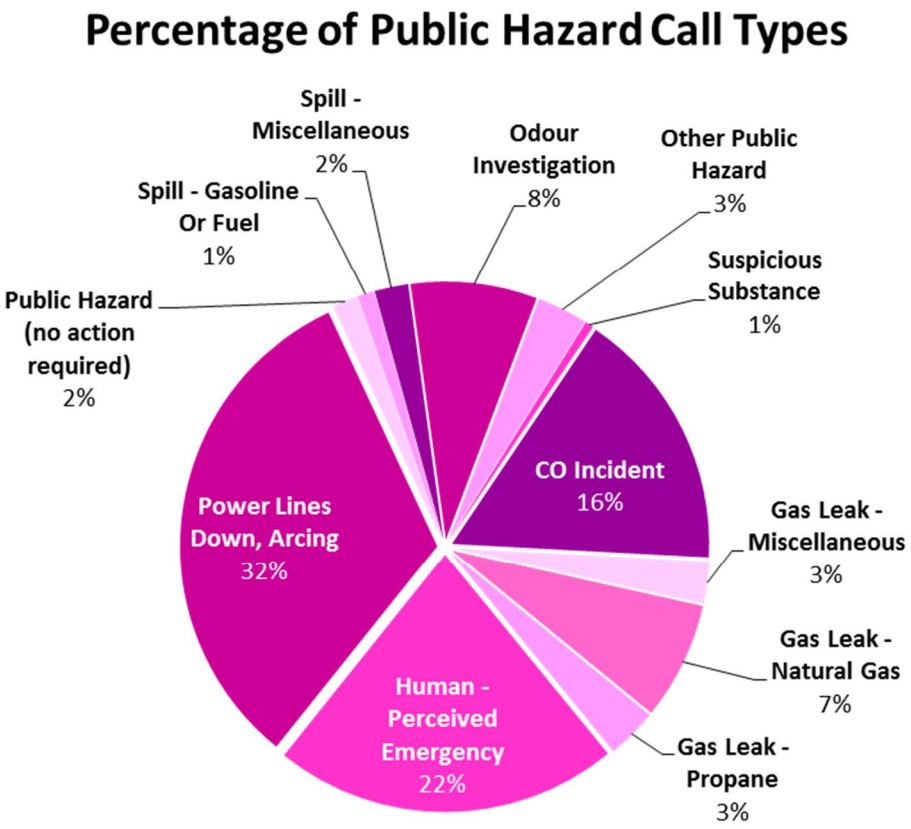


8.6.4.2 Percentage of Public Hazard Calls (OFMEM)

The percentage of public hazard calls in the Township of Centre Wellington is 4% higher than the percentage of public hazard calls which occurred throughout the entire Province. As shown in Figure 20,

"power lines down, arching" represents 32% of public hazard calls. The high volume of downed power lines is due to a large ice storm in 2013.

Figure 20: Percentage of OFMEM Other Calls



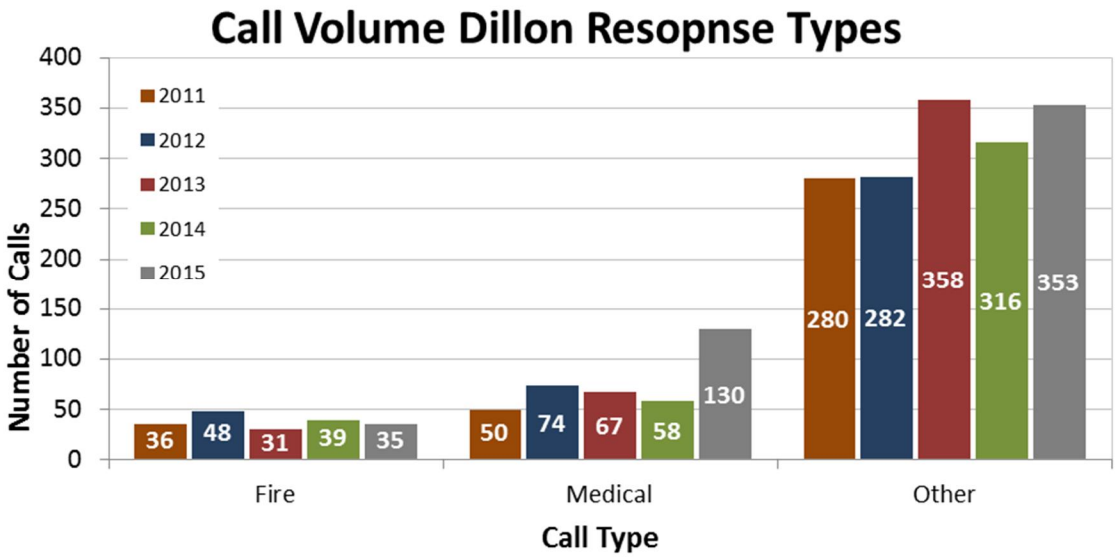
8.6.5 Emergency Call Volume Response Types (Dillon)

For analysis and modelling purposes, emergency call categories developed by Dillon are also applied. The relationship between Dillon response types and OFMEM response types is discussed in Section 8.6.3. As Figure 21 illustrates, fire calls have remained relatively consistent with the least calls in 2013 (31 calls) and the most calls in 2012 (48 calls) for an annual average of 38 fire calls per year.

The volume of medical calls that the fire department responded to has been relatively stable with a large increase in 2015. In 2015, CWFR responded to 130 medical calls; this is a 160% increase from 2011 (50 calls). Research indicates that the increase in medical calls that occurred in 2015 was related to the change to simultaneous dispatching. This impact was identified and revised by the department in 2016.

The volume of other calls has been increasing throughout the five years. The most other calls occurred in 2013 this is a result of a large ice storm, in December 2013, causing in a high volume of public hazard calls specifically downed power lines.

Figure 21: Emergency Call Volume by Response Type (Dillon)



8.6.6 Dispatch Time

As presented within Section 3.9.4 of this FSMP the Township of Centre Wellington purchases fire dispatching services from the City of Guelph. The information within this section presents a detailed analysis of the current fire call taking and dispatching process provided by the Guelph Fire Department.

The current Dispatch time is defined by the NFPA in a standard called *"NFPA 1221*[11]*– 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 64 seconds, for 90% of all calls (90th percentile), and within 106 seconds for 95% of calls. This means that 90 out of 100 calls are required to be dispatched within 64 seconds and 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;*

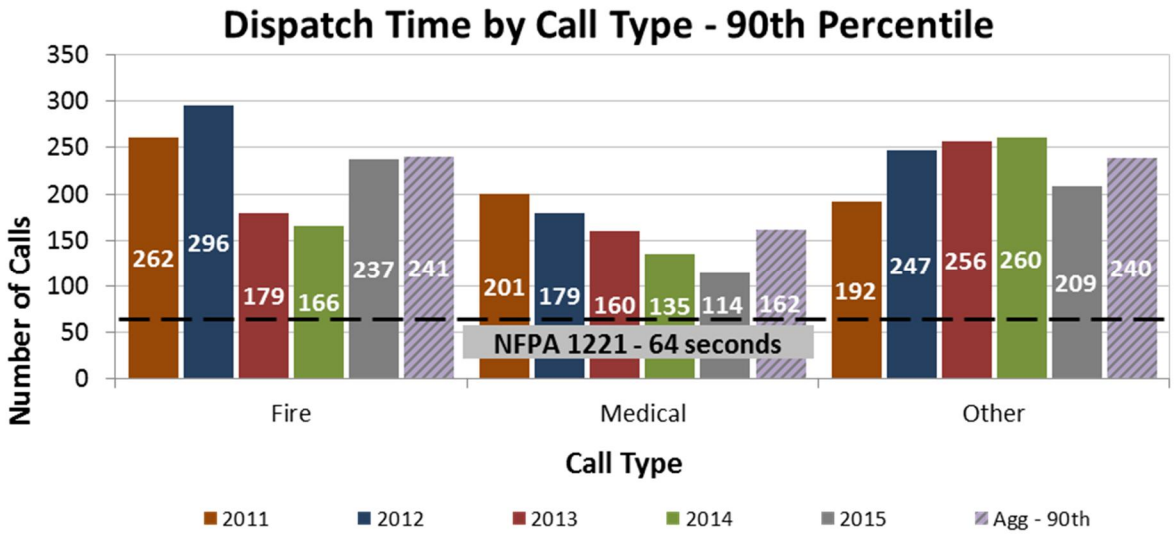
[11] NFPA 1221 2016 Edition was referenced within this report

- *Calls of criminal activity that require information vital to emergency responder safety prior to dispatching units; and*
- *Hazardous material incidents.*
- *Technical Rescue*
- *Calls that require determining the location of the alarm due to insufficient information*
- *Calls received by text message*

The standard does not make a distinction between fire and emergency calls types other than those listed above but viewing these call types separately can help identify important differences in the historic performance of the CWFR. For example, EMS calls generally have a shorter dispatch time, if the percentage of EMS calls increases over time, then the combined overall dispatch time will decrease. It may be interpreted as an improvement in dispatch time but in reality it is just a shift in the volume of call types received by the department. Figure 22 presents a summary of the 90th percentile historical dispatch times for emergency type calls from 2011 to 2015.

The historical call data provided by the OFMEM for all calls between 2011 and 2015 was used to assess the dispatch times for the Centre Wellington Fire and Rescue Department. Based on the NFPA standard the 90th percentile aggregate dispatch times for CWFR for five year period 2011-2015 is 241 seconds (or approx. 4.0 minutes) for fire calls which is 177 seconds longer than the standard. The 90th percentile aggregate for medical calls is 162 seconds (or approx. 2.7 minutes), which is 98 seconds longer than the standard. The 90th percentile aggregate for other calls is 240 seconds (or approx. 4.0 minutes), which is 176 seconds longer than the standard. During the same time period the CWFR completed emergency alarm processing within 64 seconds for 37% of fire calls, 63% of medical calls, and 49% of other calls.

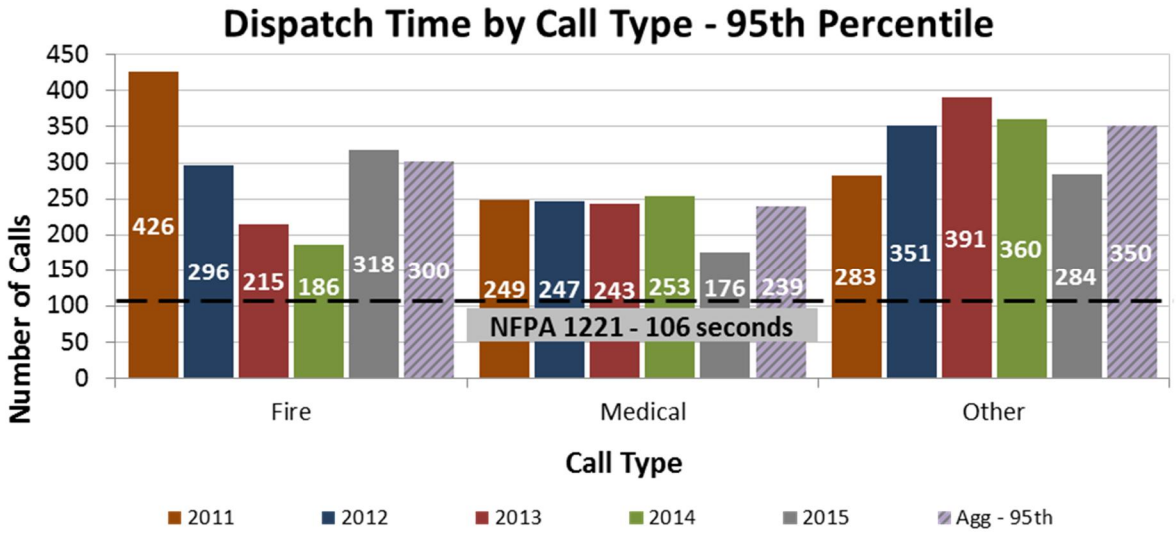
Figure 22: 90th Percentile Dispatch Time



Based on the new NFPA standard, the 95th percentile aggregate dispatch times for CWFR for five year period 2011-215 is 300 seconds (or approx. 5 minutes) for fire calls, 239 seconds (or approx. 4 minutes) for medical calls, and 350 seconds (or approx. 5.8 minutes) for other calls. The CWFR completed

emergency alarm processing within 106 seconds for 50% of fire calls, 84% of medical calls, and 67% of other calls. The overall trend for this performance measure is illustrated in Figure 23.

Figure 23: 95th Percentile Dispatch Time



During the consultation process and analysis process to develop this FSMP there core issues were identified with the current dispatch. These are explored in the subsequent sections.

8.6.6.1 Current Dispatch Agreement

Section 3.9.4 of this FSMP contains a recommendation related to investigating alternative options for the delivery of full dispatching services. In part, this recommendation is directly related to the Guelph Fire Dispatch not achieving the 90th percentile or the 95th percentile for emergency alarms (all call types).

8.6.6.2 Current Use of CWFR Staff for Dispatching

Within the current dispatch agreement with the City of Guelph the CWFR is required to staff the dispatching console at the Fergus fire station after receiving the initial alert from Guelph. This is required to maintain contact with responding fire apparatus, to initiate benchmarking, and provide a resource for requesting additional resources at an emergency incident. Currently this role is facilitated either by the Administrative Assistant, or alternatively the first responding volunteer firefighter. When a responding volunteer firefighter is required to assume this role (after normal business hours) the turnout time of the initial responding apparatus from the Fergus station is delayed until the fifth responding volunteer firefighter arrives. Operationally (fire suppression) this is further supporting rational for investigating alternative options for the delivery of full dispatching services.

8.6.6.3 Duplicate Street Names

It was identified during the consultation process that there are currently duplicate street names within the Township. Our understanding is that these are related to the former townships, towns, and villages prior to amalgamation having the same street names. The consultation process identified that this can be confusing and potentially results in a delayed emergency response. This includes potential delays and/or confusion on behalf of the fire dispatchers, and responding fire suppression resources.

It is recommended that subject to Council's consideration and approval of the proposed Fire Service Master Plan that the Centre Wellington Fire and Rescue take a leadership role in the removal of duplicate street names within the Township.

8.6.7 Turnout Time

Turnout Time within the fire service 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 department's response time (turnout time + travel time) and reflects one of the Centre Wellington Fire and Rescue's most significant current challenges.

The Centre Wellington Fire and Rescue's turnout times were derived by evaluating each fire station individually. Deployment at each station was determined by apparatus departure order and 80th percentile staffing. The 80th percentile turnout time of each truck was calculated based on deployment.

The 80th percentile staffing and turnout times of the first three apparatuses at each station are shown in Table 25. Both stations have similar deployment and turnout times (for all calls). Station 40 (Fergus) tends to have the shortest turnout times of the first apparatuses (8:21) and Station 60 (Elora) tends to have the shortest turnout times of the second and third apparatuses (9:31 and 11:34, respectively).

This analysis also indicates that the time of day may impact the turn out time of the volunteer firefighters and the number of volunteer firefighters on each apparatus. The difference is more noticeable at Station 60 (Elora) where the number of firefighters on the first apparatus drops to three firefighters. This FSMP discusses the importance of maintaining four firefighters on the first apparatus to safely and effectively mitigate a fire.

Table 25: Historical Turnout Times by Station, Apparatus, and Time of Day

		Turnout Time 24/7 (# of Firefighters)	Turnout Time During the Weekday – Monday to Friday 7am-6pm (# of Firefighters)	Turnout Time During All Other Times (# of Firefighters)
Station 40 (Fergus)	Truck 1	8:21 (4)	8:23 (4)	8:17 (4)
	Truck 2	10:35 (2)	10:00 (2)	10:35 (2)
	Truck 3	12:51 (3)	12:49 (3)	12:48 (3)
Station 60 (Elora)	Truck 1	9:04 (4)	8:47 (3)	9:06 (4)
	Truck 2	9:31 (2)	11:08 (2)	9:28 (3)
	Truck 3	11:34 (3)	12:58 (3)	9:40 (2)

With respect to the NFPA 1720 Rural and Suburban Demand Zone, it is important to understand the Centre Wellington Fire and Rescue's turnout time as a whole department. With regards to the NFPA 1720 Rural Demand Zone Standard of six firefighters arriving within 14 minutes (travel and turnout time) for 80% of calls, the aggregate 80th percentile turnout time for the first six firefighters responding to an emergency call is approximately 628 seconds (10:28 minutes). With regards to the NFPA 1720 Suburban Demand Zone Standard of ten firefighters arriving within ten minutes (travel and turnout time) for 80% of calls, according to this analysis the Centre Wellington Fire and Rescue does not consistently deploy ten firefighters from either station.

8.6.7.1 Turnout Time – Peer Comparison

A peer comparison of a sample group of six municipalities within Ontario where Dillon has conducted similar analysis of departments utilizing volunteer firefighters and deploying a minimum of four volunteer firefighters on the first responding apparatus was completed.[12] Table 26 represents a comparison of the average 80th percentile turnout times of the six municipalities with those of the CWFR for deploying the first apparatus.

[12] The comparison municipalities were: Wilmot Township, Town of Innisfil, Town of New Tecumseth, Township of Uxbridge, Essa Township, and Town of Bradford West Gwillimbury.

Table 26: Comparison Turnout Times

Comparison Municipalities		Centre Wellington		+ or – Percentage Difference
Deployment	Turnout Time	Deployment	Turnout Time	
Minimum 4 Firefighters (1st Apparatus)	6.5 Minutes	Minimum 4 Firefighters	10.5 minutes	62% higher

This analysis highlights the higher turnout times for the volunteer firefighters in Centre Wellington in comparison to a group of six other municipalities utilizing volunteer firefighters. There can be many factors contributing to longer turnout times of volunteer firefighters. These include the location of volunteer firefighters in relation to the fire station including either home or work, the availability of volunteers during the business day or on evenings and weekend, culture within the department, weather conditions, and the total number of volunteer firefighters assigned to a station.

Further analyses and recommendations regarding strategies to improve the turnout time of volunteer firefighters are contained within Section 8.9.2 of this FSMP.

8.7 Assessment of Existing Fire Suppression Coverage

The following sections detail the assessment of response coverage within the Township of Centre Wellington. Various modelling scenarios were developed to assess the fire and emergency services' response coverage for existing conditions as well as for the projected future conditions. The analysis was carried out using ESRI's Network Analyst, a Geographical Information System (GIS) tool developed specifically for the purpose of assessing networks, such as roads.

8.7.1 Fire Suppression Modelling Methodology

This section provides a brief outline of the methodology and modelling procedures used to assess existing emergency response coverage. A Geographic Information System (GIS) program was used to assess the fire department's response coverage. Digital copies of GIS layers were provided by the Ministry of Natural Resources and Forestry, Township of Centre Wellington and the County of Wellington for the existing road network. Relevant base road network information, such as road length and speed, was extracted from the GIS data.

The historic call locations (2011 to 2015) were then added to the network and coded based on travel time to reach the call. An iterative process was used to adjust the speeds throughout the road network and calibrate the model to accurately reflect historic travel times of first responding units for all emergency calls. A calibration table, as shown in Table 27, represents the modelled speed by posted speed limit that was used in the GIS model.

Table 27: Calibrated Speed

Road Class	Modeled Speeds (km/h)
Highway	Speed Limit
County	Speed Limit
Urban Collector	Speed Limit - 15
Urban Local	Speed Limit - 10
Rural	Speed Limit - 5
Private	38

The existing conditions were based on the existing road network and municipal boundaries. This information, combined with the station location, was used to build graphical "response polygons" around the station. These polygons represent the coverage the station can provide in the specified amount of time and the number of staff. This analysis provides insight into the departments existing emergency response coverage in comparison to a recognized industry standards.

Table 28 highlights the performance standards that were considered to assess the fire department's response coverage.

Table 28: Performance Targets Assessed

Response Area	NFPA 1720 Demand Zone	Minimum # of Firefighters Responding	Response Time (Turnout + Travel) in Minutes	Performance Objective (%)
Fergus-Elora-Salem Urban Area	NFPA 1720 Suburban Demand Zone 500-1000 people per square mile	10	10	80%
Entire Municipality	NFPA 1720 Rural Demand Zone <500 people per square mile	6	14	80%

8.7.2 Historic Call Locations

Figure 24 shows the location of all geocoded emergency calls responded to by Centre Wellington Fire and Rescue between 2011 and 2015. There is a high concentration of calls within the Fergus-Elora-Salem urban area. The remaining calls are evenly distributed along the rural roads.

8.7.3 Existing Emergency Response Capabilities

The existing emergency response capabilities of the CWFR are based on the deployment and turnout times as explained in Section 8.6.7 which is based on historic fire calls that occurred between 2011 and 2015. The road network and station locations reflect the conditions as of the onset of this study.

Within the defined Fergus-Elora-Salem urban area the existing fire suppression emergency response capabilities of the CWFR were assessed in comparison to the NFPA 1720 Suburban Area Demand Zone

as shown in Figure 23. Based on the results of this assessment the CWFR is not currently able to deploy the NFPA 1720 Suburban Area Demand Zone performance objective of deploying ten firefighters within a ten minute response time (turnout + travel time) to 80% of the fire related incidents. This is largely due to the current deployment model of firefighters at each station; consistently there are a total of nine firefighters deployed from each fire station which is one less than the required minimum of ten for this standard.

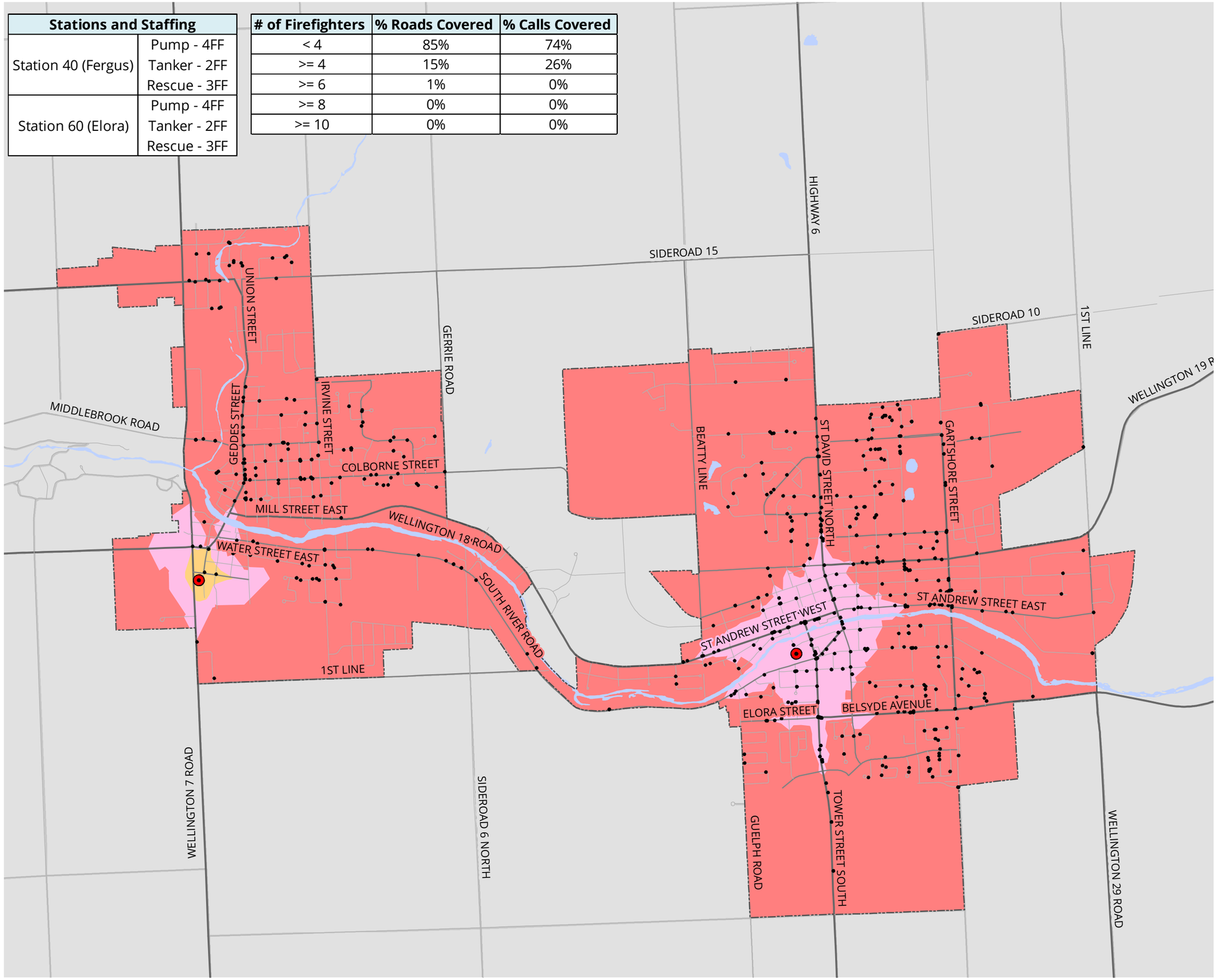
As a result of completing this analysis, the existing emergency response capabilities for the Township of Centre Wellington including the defined Fergus-Elora-Salem urban area and the defined rural area were assessed in comparison to the 1720 Rural Area Demand Zone performance objective. This assessment included increasing the deployment analyses of the 1720 Rural Area Demand Zone performance objective to include benchmarks of eight and ten firefighters. The result of this further analyses provides an indication of where the department is able to deploy the NFPA 1720 Suburban Area Demand Zone performance objective of deploying ten firefighters, however within a fourteen minute response time (turnout time + travel time).

As shown in Figure 24, the CWFR is able to deploy six firefighters to 73% of historic geocoded emergency calls and 26% of municipal roads. The existing conditions model indicates that the CWFR is not currently able to achieve the NFPA 1720 rural demand zone response benchmark of six firefighters responding in 14 minutes of travel time (Turnout time + travel time) to 80% of the fire related incidents anywhere within the defined Fergus-Elora-Salem urban area and the defined rural area. The gaps in response coverage tend to be outside the Fergus-Elora-Salem urban boundary. The existing fire stations are both located on the south side of the Grand River, flooding of the river or problems on the bridges (including structural bridge updates) can impact emergency response.

In order to understand when the CWFR is able to deploy ten firefighters Figure 25 highlights the percentage of roads and calls covered by ten firefighters within 14 minutes. The CWFR is able to deploy ten firefighters to 2% of historic geocoded emergency calls and 2% of municipal roads at all other times within a fourteen minute response time (turnout + travel time).

Stations and Staffing	
Station 40 (Fergus)	Pump - 4FF
	Tanker - 2FF
	Rescue - 3FF
Station 60 (Elora)	Pump - 4FF
	Tanker - 2FF
	Rescue - 3FF

# of Firefighters	% Roads Covered	% Calls Covered
< 4	85%	74%
>= 4	15%	26%
>= 6	1%	0%
>= 8	0%	0%
>= 10	0%	0%



Township of Centre Wellington
Fire Service Master Plan

NFPA 1720 - Suburban Demand Zone (10 firefighters within 10 minutes) Applied to Urban Centre Boundary Existing Conditions

Figure 24

- Fire Station
- Historic Urban Calls (2011-2015)
- Urban Centre Boundary
- Waterbody
- Arterial Road
- Collector Road
- Local Road

Staffing within 10 Minutes

- Less than 4 Firefighters
- 4 Firefighters
- 6 Firefighters

SCALE 1:30,000

0 0.25 0.5 1 km

MAP DRAWING INFORMATION:
DATA PROVIDED BY MNR AND THE TOWNSHIP OF CENTRE WELLINGTON

MAP CREATED BY: SMB
MAP CHECKED BY: AJN
MAP PROJECTION: NAD 1983 UTM Zone 17N

FILE LOCATION: I:\GIS\163644 - Centre Wellington Master Fire Plan\MXDs\Revised Modelling\ExistingConditions_SuburbanDepth_UrbanOnly2.mxd

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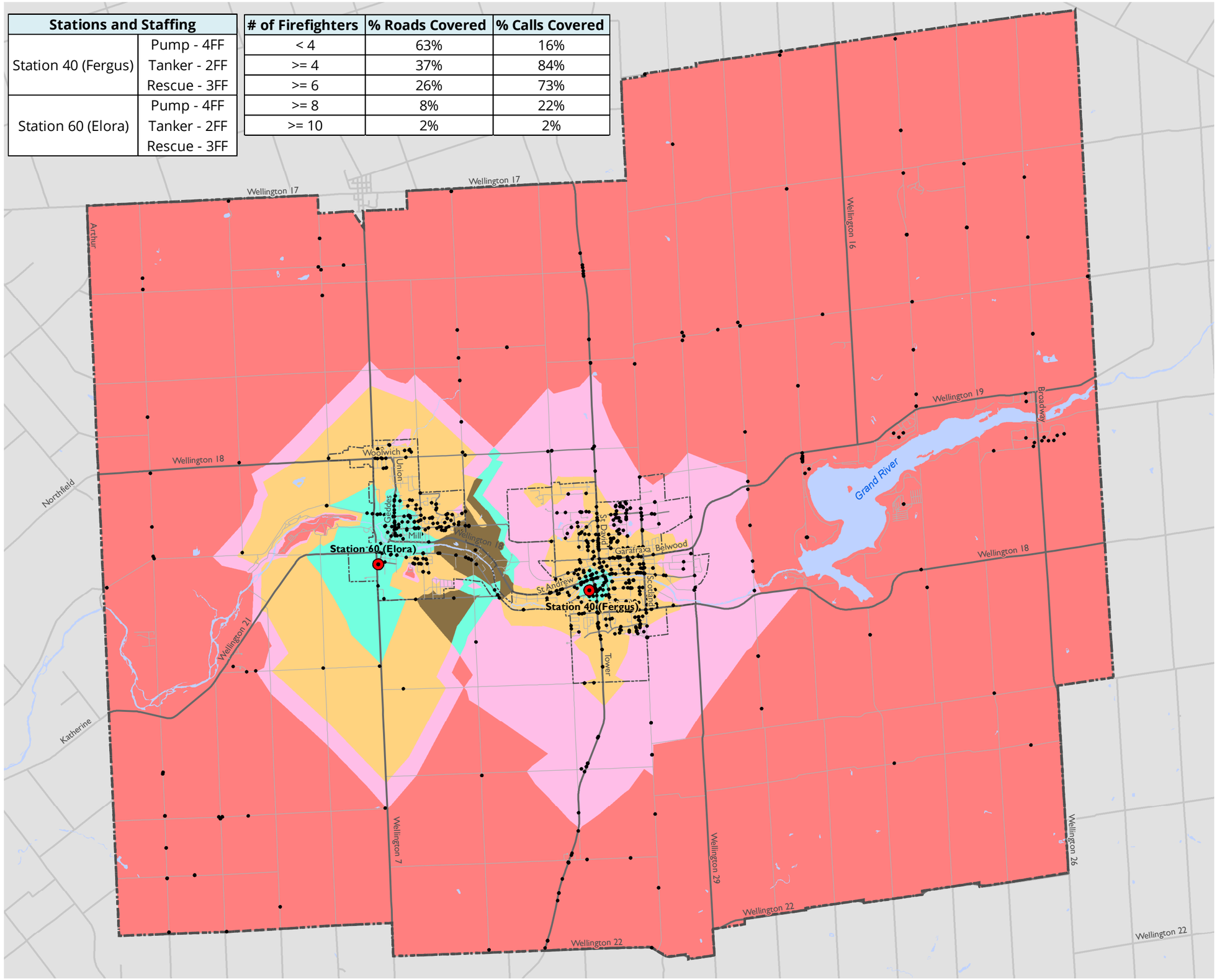
PROJECT: 16-3644
STATUS: DRAFT
DATE: 2017-02-21

Stations and Staffing	
Station 40 (Fergus)	Pump - 4FF
	Tanker - 2FF
	Rescue - 3FF
Station 60 (Elora)	Pump - 4FF
	Tanker - 2FF
	Rescue - 3FF

# of Firefighters	% Roads Covered	% Calls Covered
< 4	63%	16%
>= 4	37%	84%
>= 6	26%	73%
>= 8	8%	22%
>= 10	2%	2%



Township of Centre Wellington
Fire Service Master Plan

NFPA 1720 - Rural Demand Zone (6 Firefighers within 14 Minutes) Applied to Entire Municipality Existing Conditions

Figure 25

- Historic Calls (2011-2015)
- Fire Station
- Township Boundary
- Urban Centre Boundary
- Waterbody
- Arterial Road
- Collector Road
- Local Road

Staffing within 14 minutes

- Less than 4 Firefighters
- >= 4 Firefighters
- >= 6 Firefighters
- >= 8 Firefighters
- >= 10 Firefighters

0 0.5 1 2 km

SCALE 1:85,000

MAP DRAWING INFORMATION:
DATA PROVIDED BY MNR AND THE TOWNSHIP OF CENTRE WELLINGTON

MAP CREATED BY: SMB
MAP CHECKED BY: AJN
MAP PROJECTION: NAD 1983 UTM Zone 17N

FILE LOCATION: I:\GIS\163644 - Centre Wellington Master Fire Plan\MXDs\Revised Modelling\ExistingConditions_RuralDepth_EntireMunicipality.mxd

DILLON CONSULTING

PROJECT: 16-3644
STATUS: DRAFT
DATE: 2017-02-24

8.8 Comprehensive Fire Safety Effectiveness Model – Fire Suppression Gap Analyses

The analyses within this report indicate that the CWFR has utilized a wide range of strategies in attempting to provide the most effective and efficient level of fire suppression services within the Township. These strategies include a commitment to training a highly dedicated pool of volunteer firefighters and scheduled on-call volunteer firefighters.

This FSMP presents the NFPA 1720 Rural and Suburban Area Demand Zone performance measures as an industry best practice for assessing the existing and future fire suppression services provided by the CWFR.

The analyses within this report indicates that there are two primary factors challenging the CWFR's current ability to achieve the identified fire suppression service level best practices, these include:

- *The turnout time of the volunteer firefighters responding to the fire stations; and*
- *The total number of volunteer firefighters able to respond to form part of the initial and depth of response deployment.*

8.9 Fire Suppression Staff Resource Options

This section is intended to provide Council with fire suppression staff resource options for enhancing the operational efficiency and effectiveness of the fire department. All of the options presented have been developed to respond to the current fire suppression challenges identified. The options presented are also intended to enhance the CWFR's ability to achieve the proposed fire suppression emergency response performance objectives identified within the proposed Fire Service Master Plan.

The following options evaluate the coverage that would be expected over a ten year horizon. The potential future roads added to the road network are based on currently available information from the North West Fergus Secondary Planning Area (2015). The ten year future residential and employment growth, indicated in the Township of Centre Wellington's Growth Management Strategy, was considered during the selection of possible station locations. For more information on the future growth within the Township of Centre Wellington please refer to the Growth Considerations section within the Community Risk Assessment (Appendix A).

8.9.1 Proposed Revised Organizational Structure

The proposed fire suppression staff resource options integrate the previously recommended staff resource options from the Fire Prevention/Public Education Division, and the Training Division. These are presented within this section as it is recommended that all members of CWFR excluding the Administrative Assistant are trained and qualified as firefighters, and are able to respond as part of the department's fire suppression resources.

8.9.2 Proposed Senior Officer on Call Program

In the absence of the Fire Chief, the CWFR currently has a practice whereby either the District Chief/Public Safety Officer or the Chief Training Officer/Public Fire Safety Education will be available in the Chief's absence. This FSMP recommends a revised organizational structure that includes the Deputy Fire Chief – Training & Suppression and the Deputy Fire Chief – Prevention & Education.

Subject to approval of this revised organizational structure, it is recommended that a senior officer on call program be implemented. This program would implement a formal schedule whereby one of the senior officers, Fire Chief or Deputy Fire Chief, would be available at all times. This program would require coordination of vacation schedules and events where one or more of the senior officers are not available within the Township.

The intent of this program is to ensure that one of the senior officers is available at all times to oversee the daily operations of the department and be available for large scale incidents including supporting the Township Emergency Response Plan. This program is also designed to ensure that a senior officer is always available to members of Council to address fire protection concerns.

It is recommended that subject to Council's consideration and approval of the proposed Fire Service Master Plan that the Centre Wellington Fire and Rescue develop a Senior Officer On-Call Policy.

8.9.3 Proposed Strategies to Reduce Turnout Time of Volunteer Firefighters

Implementing strategies to reduce the turnout time of the volunteer firefighters at each of the fire stations will be one of the most effective ways for the CWFR to improve performance in relation to the NFPA 1720 Rural and Suburban Demand Zone performance objectives presented within this FSMP.

The analysis of peer communities in Ontario utilizing volunteer firefighters indicates that this performance objective can be achieved. The focus of this section is to provide the CWFR and Council with strategies specifically targeted at reducing the volunteer firefighters turnout time.

8.9.3.1 Increasing the Complement of Volunteer Firefighters at Each Station

Historically communities operating volunteer fire departments succeeded with a complement of 20 to 25 volunteer firefighters per station. This complement relied heavily on the availability of these individuals to leave their place of work, live in close proximity to the fire station and be available on a regular basis to train and respond.

Today's volunteer firefighters are involved in more social activities, work priorities and life's priorities, making it increasingly difficult to commit the time necessary to sustain the required training competencies and response capabilities of a volunteer firefighter. As a result, recent trends within the industry are indicating the need to increase the total complement of volunteer firefighters within a fire department. These trends indicate a total complement of 35 to 40 volunteers per station as more

reflective of today's operational needs. Strategies to increase the total complement of volunteer firefighters available have been implemented on a station by station level, or alternatively by increasing the total complement within the department. This latter strategy is intended to provide more flexibility to the Fire Chief when conducting the recruitment process.

Based on this research, increasing the complement of volunteer firefighters at each of the CWFR stations represents a strategy that provides the opportunity to increase the number of volunteer firefighters as part of the departments initial and depth of response deployment, and an opportunity to reduce the turnout time of the volunteer firefighters. In our view providing the Fire Chief the flexibility to increase the total complement of volunteer firefighters within the department, based on the availability of candidates to an upset limit of 72 volunteer firefighters, this reflects a proposed complement of 36 volunteer firefighters per station.

Sustaining an appropriate ratio of officers (Captains/Acting Captains) to firefighters should be considered a priority of this strategy. Fire service best practices reflect an effective ratio of 4 to 6 firefighters to each officer position. The department currently operates within a platoon system comprised of five firefighters and one officer on each of six platoons. Sustaining this ratio would support an effective firefighter to officer, or alternatively OHSA employee to supervisor ratio.

It is recommended that subject to Council's consideration and approval of the proposed Fire Service Master Plan that the Centre Wellington Fire and Rescue total complement of Volunteer Firefighters be increased to 72.

8.9.3.2 Increasing Number of Scheduled On Call Firefighters

The CWFR currently utilizes a scheduled on-call process whereby a minimum of four volunteer firefighters are scheduled to be available to respond to each of the fire stations to staff the initial responding apparatus. In our experience this strategy reflects an industry best practice in sustaining the use of volunteer firefighters.

The CWFR currently assigns the volunteer firefighters at each station utilizing a platoon system. Within the current total complement of 60 volunteer firefighters, assigned as 30 per station this reflects a platoon system of five volunteers on each of six platoons. Subject to Councils approval of the proposed increase in the total number of volunteer firefighters to 72 it is recommended that the platoons be increased to a minimum of six volunteer firefighters on each of the six platoons.

It is recommended that subject to Council's consideration and approval of the proposed Fire Service Master Plan that the Centre Wellington Fire and Rescue increase the number of scheduled on call volunteer firefighters to a minimum of six volunteer firefighters at all times.

8.9.4 Proposed Fire Suppression Options – Estimated Financial Impacts

Each of the fire suppression options presented within this FSMP includes the estimated financial impact for both the annual operating cost, and the annual capital cost. The estimated costs were developed in consultation with Township staff.

The annual operating costs of a volunteer firefighter includes base wages, training and overtime and is estimated at = $11,500 per volunteer firefighter.

The annual operating cost of a volunteer firefighter includes capital contributions toward replacement of firefighters protective clothing, uniforms, and coveralls based on a 10 – year life cycle and is estimated at = $670.00 per firefighter.

The initial capital costs for firefighters protective clothing, uniforms, and coveralls when hiring additional volunteer firefighters is estimated as = $5,500 per firefighter.

The increased annual operating cost of scheduling a minimum of six volunteer firefighters at all times is estimated as = $200.00 per firefighter per week.

8.9.5 Fire Suppression Staff Resource – Option 1 Increasing Total Complement and On Call Schedule

This option is intended to provide Council with the analysis of the operational impacts of increasing the number of scheduled on-call volunteer firefighters. This option includes implementing the following strategies:

- *Increasing the total complement of volunteer firefighters to 72 and assigning 36 per station supporting an increase in the minimum number of schedule on call volunteer firefighters to six at all times;*
    - *Predicted result – sustaining the current turnout time of the first four volunteer firefighters at each station to staff the first apparatus;*
    - *Predicted result – ability to staff the second responding apparatus at each station with two volunteer firefighters within the same current turnout time as the current first apparatus;*
    - *Predicted result – ability to staff the third responding apparatus with four volunteer firefighters at each station within the same turnout time as the current second responding apparatus.*
- *Negotiating a new Dispatch Agreement that does not require the use of Volunteer Firefighters to staff the Fergus dispatch console.*

8.9.5.1 Option 1 – Proposed Organizational Structure and Staffing Complement

This option includes the implementation of the proposed Deputy Fire Chief – Training & Suppression and the Deputy Fire Chief – Prevention & Education. This option proposes discontinuing the position of Volunteer District Chief and assigning a Volunteer Captain to be in-charge of each station. This option also implements the proposed position of Fire Inspector/Fire and Life Safety Educator.

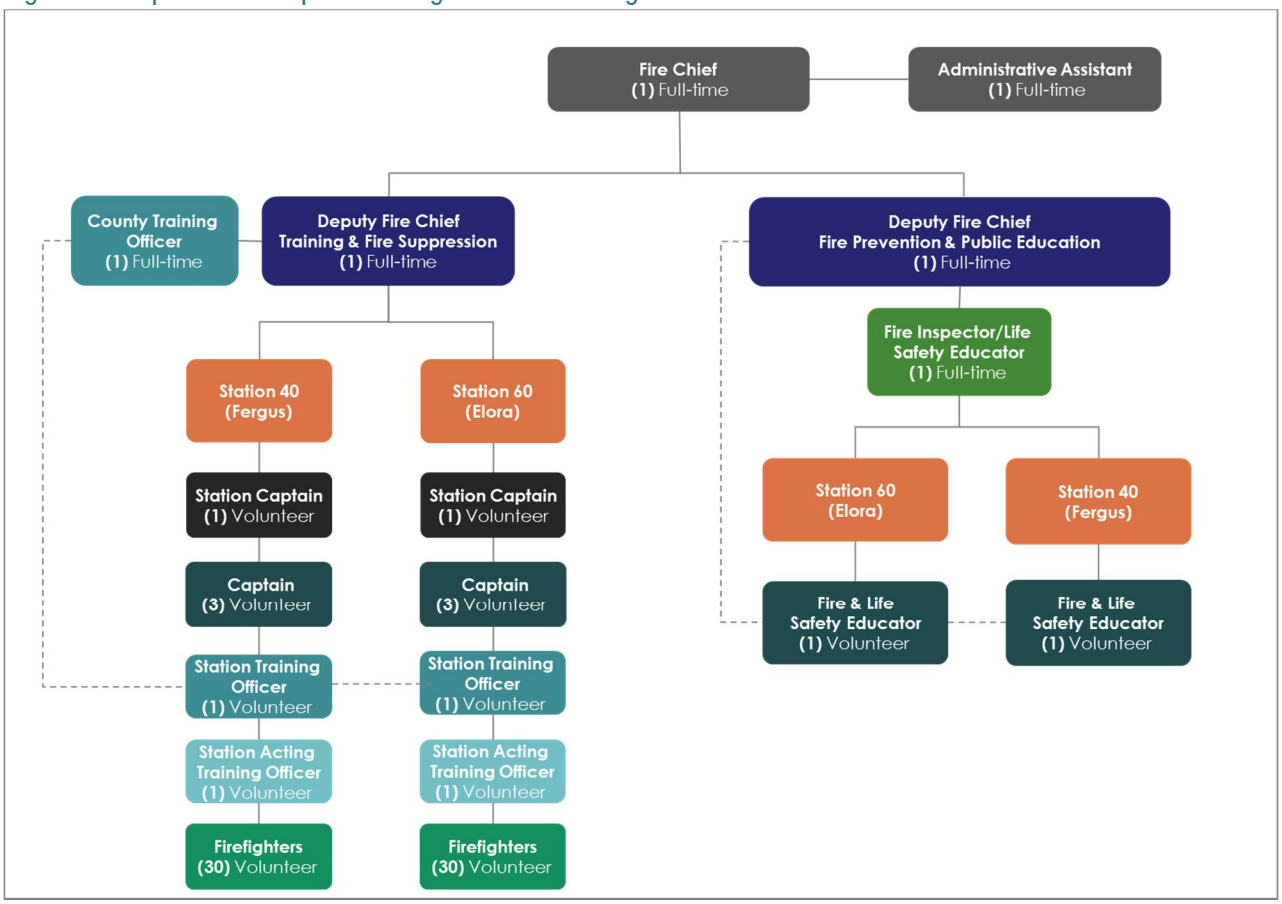
The Option 1 proposed staffing complement is illustrated in Table 29.

Table 29: Option 1 Proposed Staffing Complement

Role / Division	# Full-Time	#Volunteer
Fire Chief	1	-
Deputy Fire Chief – Training & Suppression	1	-
Deputy Fire Chief – Prevention & Education	1	-
Fire Inspector/Fire Life Safety Educator	1	
Station Captain	-	2
Station Training Officer	-	2
Captains	-	7
Acting Captains	-	3
Firefighters	-	58
Administrative Assistant	1	-
Staffing Composition	5	72
Total Staffing:	77	

The Option 1 proposed integrated organizational structure is illustrated in Figure 26.

Figure 26: Option 1 - Proposed Integrated CWFR Organizational Structure



8.9.5.2 Option 1 – Proposed Fire Suppression Deployment and Turnout Time

This option revises the turnout time of the 2nd apparatus responding from Station 40 (Fergus) from 10:35 minutes to a predicted 8:21 minutes in recognition of the additional two scheduled on-call firefighters being readily available to respond to the station as well as the turnout time and deployment of the 3rd apparatus responding from Station 40 (Fergus) from 12:51 minutes to a predicted 10:35 minutes in recognition of the additional scheduled on-call firefighters, illustrated in Table 30.

This option revises the turnout time of the 2nd apparatus responding from Station 60 (Elora) from 9:31 minutes to a predicted 9:04 minutes in recognition of the additional two scheduled on-call firefighters being readily available to respond to the station as well as the turnout time and deployment of the 3rd apparatus responding from Station 60 (Fergus) from 11:34 minutes to a predicted 9:31 minutes in recognition of the additional scheduled on-call firefighters, illustrated in Table 30.

Table 30: Option 1 – Proposed Fire Suppression Deployment and Turnout Time

Station	Existing Staff Deployment	Existing Turnout Time	Option 1 Proposed Deployment	Applied Turnout Time
Station 40 (Fergus)				
1st Apparatus	4 - Volunteer	8:21	4 - Volunteer	8:21
2nd Apparatus	2 - Volunteer	10:35	2 - Volunteer	8:21
3rd Apparatus	3 - Volunteer	12:51	4 - Volunteer	10:35
Station 60 (Elora)				
1st Apparatus	4 - Volunteer	9:04	4 - Volunteer	9:04
2nd Apparatus	2 - Volunteer	9:31	2 - Volunteer	9:04
3rd Apparatus	3 - Volunteer	11:34	4 - Volunteer	9:31

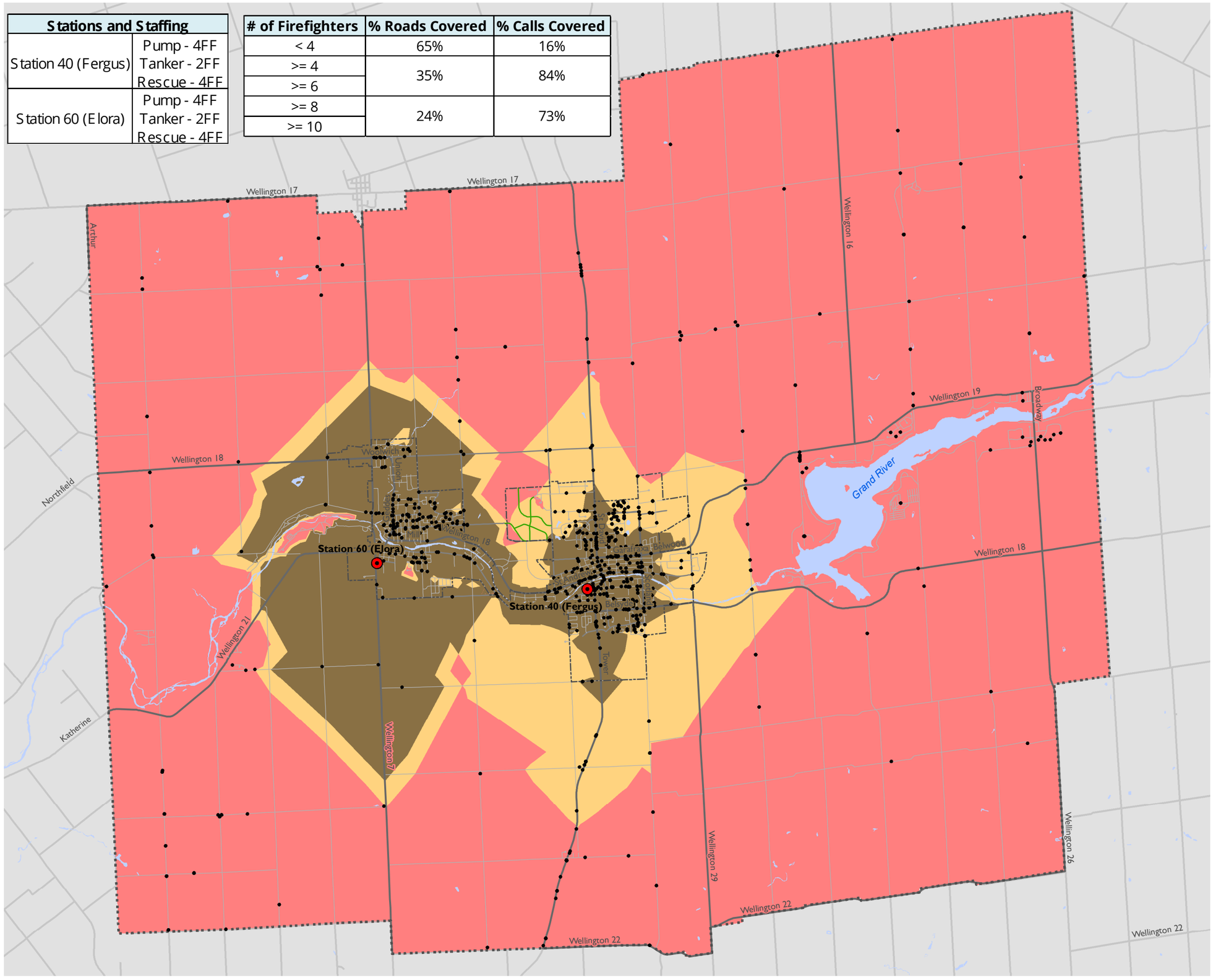
8.9.5.3 Option 1 – Predicted Response Capabilities

The modelled response capabilities, shown in Figure 27, indicates a predicted performance of six firefighters being able to respond to 35% of the future road network covered and 84% of the historical call locations within a 14 minute response time (turnout time + travel time) applied to the entire municipality (urban and rural area combined). This option indicates that in comparison to the historic calls the CWFR would be able to achieve the NFPA 1720 rural demand zone response benchmark of six firefighters responding in 14 minutes of travel time (Turnout time + travel time) to 80% of the fire related incidents applied to the entire municipality.

This option also predicts a performance of ten firefighters being able to respond to 24% of the future road network covered and 73% of the historical call locations within a 14 minute response time (turnout time + travel time) applied to the entire municipality (urban and rural area combined). The applied 14 minute response time (turnout time +travel time) exceeds the NFPA 1720 Suburban Area Demand Zone performance objective of 10 minutes; however, this analysis provides the CWFR with an understanding of where it is achieving a deployment of ten firefighters in 14 minutes.

Stations and Staffing	
Station 40 (Fergus)	Pump - 4FF Tanker - 2FF Rescue - 4FF
Station 60 (Elora)	Pump - 4FF Tanker - 2FF Rescue - 4FF

# of Firefighters	% Roads Covered	% Calls Covered
< 4	65%	16%
>= 4	35%	84%
>= 6		
>= 8	24%	73%
>= 10		



Township of Centre Wellington
Fire Service Master Plan

NFPA 1720 - Rural Demand Zone (6 Firefighers within 14 Minutes) Applied to Entire Municipality Option 1

Figure 27

- Historic Calls (2011-2015)
- Fire Station
- Township Boundary
- Urban Centre Boundary
- Waterbody
- Arterial Road
- Collector Road
- Local Road
- Potential Future Road

Staffing within 14 minutes

- Less than 4 Firefighters
- >= 6 Firefighters
- >= 10 Firefighters

0 0.5 1 2 km

SCALE 1:85,000

MAP DRAWING INFORMATION:
DATA PROVIDED BY MNR AND THE TOWNSHIP OF CENTRE WELLINGTON

MAP CREATED BY: SMB
MAP CHECKED BY: AJN
MAP PROJECTION: NAD 1983 UTM Zone 17N

FILE LOCATION: I:\GIS\163644 - Centre Wellington Master Fire Plan\MXDs\Revised Modelling\Option1_RuralDepth_EntireMunicipality.mxd

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PROJECT: 16-3644
STATUS: DRAFT
DATE: 2017-02-24

8.9.5.4 Option 1 - Estimated Financial Impacts

The financial impact of Option 1 includes transitioning to the proposed two Deputy Fire Chief model, discontinuing the position of Volunteer District Chief, implementing the position of Fire Inspector/Fire and Life Safety Educator, hiring the proposed 12 additional volunteer firefighters and increasing the scheduled on call process to a minimum of 6 volunteer firefighters at each station at all times.

The estimated annual operating budget increase of $287,400 is summarized in Table 31.

TABLE 31: OPTION 1 Estimated Annual Operating Budget Financial Impact

	Estimated Operating Budget Cost
Incremental increase of two Deputy Fire Chiefs from current positions.	$12,000 (Lower end of proposed salary range)
Hire proposed full-time Fire Inspector/Fire and Life Safety Educator.	$75,000 (Lower end of proposed salary range)
Hire proposed additional 12 Volunteer Firefighters.	$138,000 ($11,500 per position)
Increase scheduled on call to a minimum of 6 per station = + 2 per week.	$62,400 ($200 x 52 weeks x 6 staff)
Estimated Annual Operating Budget Financial Impact	$287,400

The estimated initial capital budget increase of $71,500 and the ongoing capital replacement cost of $8,710 is summarized in Table 32.

TABLE 32: OPTION 1 Estimated Staff Resource Capital Budget Financial Impact

	Initial Capital Budget Cost	Ongoing Capital Budget Cost
Incremental increase of two Deputy Fire Chiefs from current positions.	$0	$0
Hire proposed full-time Fire Inspector/Fire and Life Safety Educator	$5,500	$670
Hire proposed additional 12 Volunteer Firefighters.	$66,000	$8,040
Increase scheduled on call to a minimum of 6 per station = + 2 per week.	$0	$0
Estimated Capital Budget Financial Impact	$71,500	$8,710

8.9.6 Fire Suppression Staff Resource – Option 2 Revised Two Station Model

This option is intended to provide Council with the analysis of the operational impacts of relocating Station 60 (Elora) to the north side of the Grand River in the area of E Mill Street between Gerrie Road and Kertland Street, and increasing the number of scheduled on-call volunteer firefighters.

This option includes implementing the following strategies:

- *Relocate Station 60 (Elora) to the area E Mill Street between Gerrie Road and Kertland Street;*
- *Increasing the total complement of volunteer firefighters to 72 and assigning 36 per station* supporting an increase in the minimum number of schedule on call volunteer firefighters to six at all times;
    - *Predicted result – sustaining the current turnout time of the first four volunteer firefighters at each station to staff the first apparatus;*
    - *Predicted result – ability to staff the second responding apparatus at each station with two volunteer firefighters within the same current turnout time as the current first apparatus;*
    - *Predicted result – ability to staff the third responding apparatus with four volunteer firefighters at each station within the same turnout time as the current second responding apparatus.*
- *Negotiating* a new Dispatch Agreement that does not require the use of Volunteer Firefighters to staff the Fergus dispatch console;

8.9.6.1 Option 2 – Proposed Organizational Structure and Staffing Complement

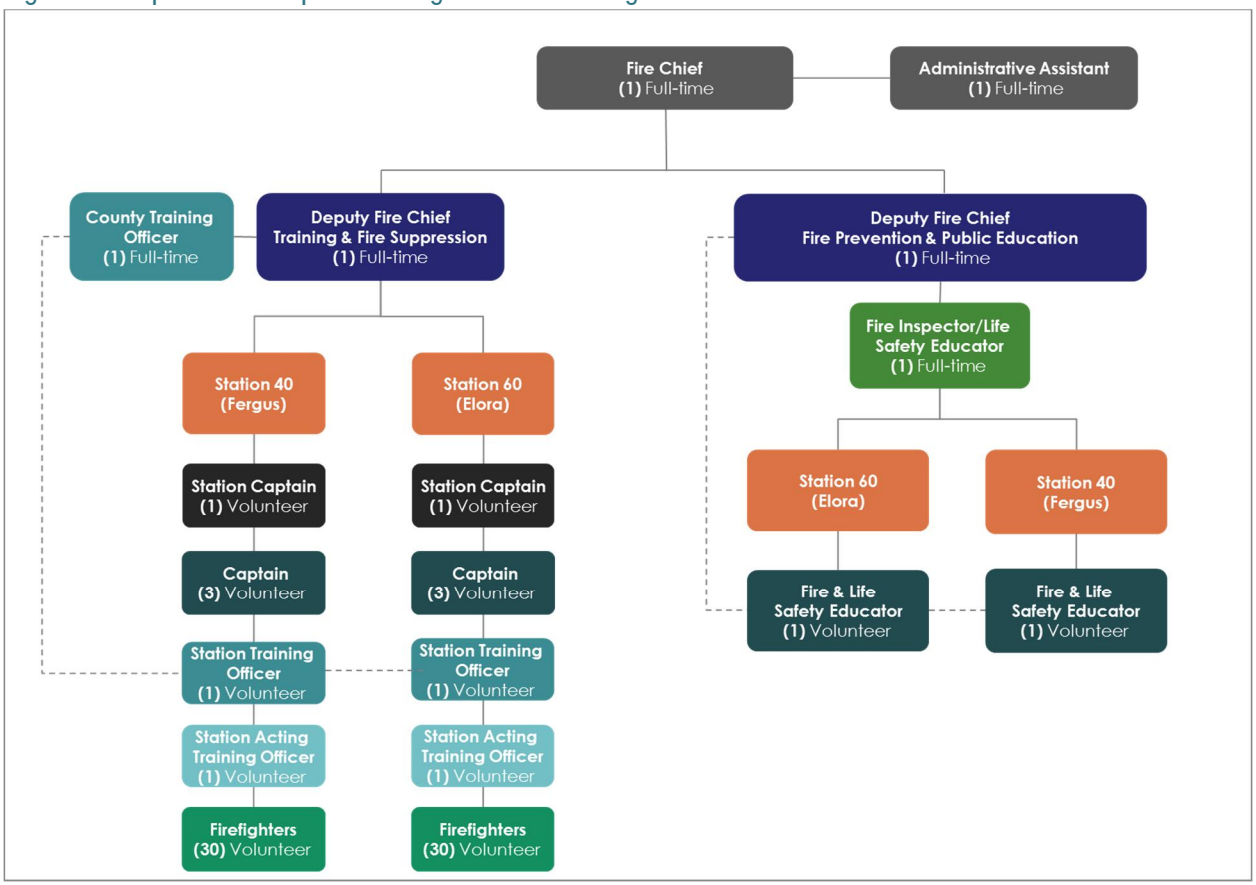
The Option 2 proposed staffing complement is illustrated in Table 33.

Table 33: Option 2 Proposed Staffing Complement

Role / Division	# Full-Time	#Volunteer
Fire Chief	1	-
Deputy Fire Chief – Training & Suppression	1	-
Deputy Fire Chief – Prevention & Education	1	-
Fire Inspector/Fire Life Safety Educator	1	
Station Captain	-	2
Station Training Officer	-	2
Captains	-	7
Acting Captains	-	3
Firefighters	-	58
Administrative Assistant	1	-
Staffing Composition	5	72
Total Staffing:	77	

The Option 2 proposed integrated organizational structure is illustrated in Figure 28. This is the same organizational structure as Option 1.

Figure 28: Option 2 - Proposed Integrated CWFR Organizational Structure



8.9.6.2 Option 2 – Proposed Fire Suppression Deployment and Turnout Time

This option revises the turnout time of the 2nd apparatus responding from Station 40 (Fergus) from 10:35 minutes to a predicted 8:21 minutes in recognition of the additional two scheduled on-call firefighters being readily available to respond to the station as well as the turnout time and deployment of the 3rd apparatus responding from Station 40 (Fergus) from 12:51 minutes to a predicted 10:35 minutes in recognition of the additional scheduled on-call firefighters, illustrated in Table 34.

This option revises the turnout time of the 2nd apparatus responding from Station 60 (Elora) from 9:31 minutes to a predicted 9:04 minutes in recognition of the additional two scheduled on-call firefighters being readily available to respond to the station as well as the turnout time and deployment of the 3rd apparatus responding from Station 60 (Fergus) from 11:34 minutes to a predicted 9:31 minutes in recognition of the additional scheduled on-call firefighters, illustrated in Table 34.

Table 34: Option 2 – Proposed Fire Suppression Deployment and Turnout Time

Station	Existing Staff Deployment	Existing Turnout Time	Option 2 Proposed Deployment	Applied Turnout Time
Station 40 (Fergus)				
1st Apparatus	4 - Volunteer	8:21	4 - Volunteer	8:21
2nd Apparatus	2 - Volunteer	10:35	2 - Volunteer	8:21
3rd Apparatus	3 - Volunteer	12:51	4 - Volunteer	10:35
Station 60 (Elora)				
1st Apparatus	4 - Volunteer	9:04	4 - Volunteer	9:04
2nd Apparatus	2 - Volunteer	9:31	2 - Volunteer	9:04
3rd Apparatus	3 - Volunteer	11:34	4 - Volunteer	9:31

8.9.6.3 Option 2 – Predicted Response Capabilities

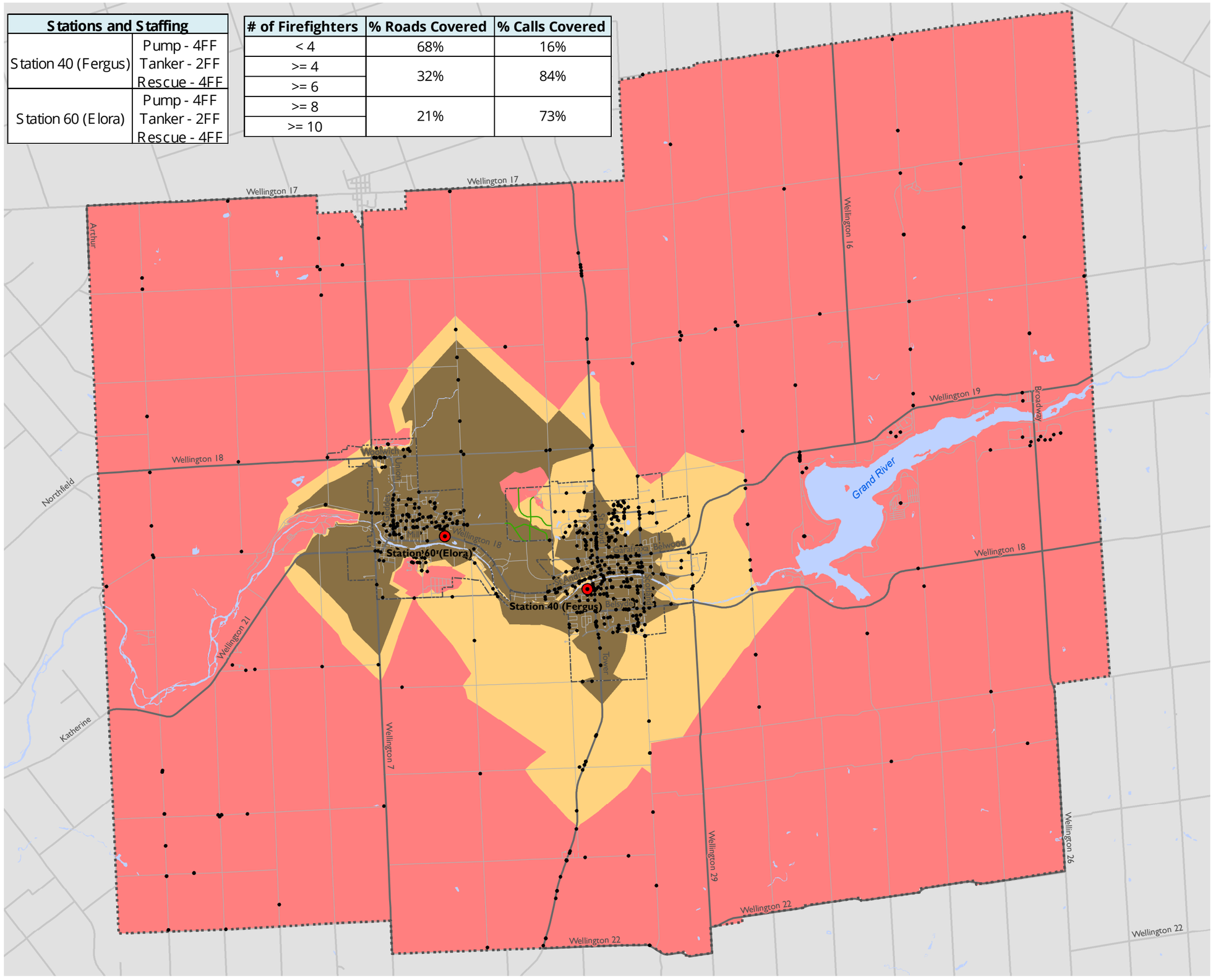
The modelled response capabilities, shown in Figure 29, indicates a predicted performance of six firefighters being able to respond to 36% of the future road network covered and 84% of the historical call locations within a 14 minute response time (turnout time + travel time) applied to the entire municipality (urban and rural area combined).

This option indicates that in comparison to the historic calls the CWFR would be able to achieve the NFPA 1720 rural demand zone response benchmark of six firefighters responding in 14 minutes of travel time (turnout time + travel time) to 80% of the fire related incidents as applied to the entire municipality (urban and rural area combined). This option provides the Township with a fire station on both sides of the Grand River which would also provide more flexible emergency response during a flood or bridge problem.

This option also predicts a performance of ten firefighters being able to respond to 21% of the future road network covered and 73% of the historical call locations within a 14 minute response time (turnout time + travel time) applied to the entire municipality (urban and rural area combined). The applied 14 minute response time (turnout time +travel time) exceeds the NFPA 1720 Suburban Area Demand Zone performance objective of 10 minutes; however this analyses provides the CWFR with an understanding of where it is achieving a deployment of ten firefighters within 14 minutes.

Stations and Staffing	
Station 40 (Fergus)	Pump - 4FF Tanker - 2FF Rescue - 4FF
Station 60 (Elora)	Pump - 4FF Tanker - 2FF Rescue - 4FF

# of Firefighters	% Roads Covered	% Calls Covered
< 4	68%	16%
>= 4	32%	84%
>= 6		
>= 8	21%	73%
>= 10		



Township of Centre Wellington
Fire Service Master Plan

NFPA 1720 - Rural Demand Zone (6 Firefighers within 14 Minutes) Applied to Entire Municipality Option 2

Figure 29

- Historic Calls (2011-2015)
- Fire Station
- Township Boundary
- Urban Centre Boundary
- Waterbody
- Arterial Road
- Collector Road
- Local Road
- Potential Future Road

Staffing within 14 minutes

- Less than 4 Firefighters
- >= 6 Firefighters
- >= 10 Firefighters

0 0.5 1 2 km

SCALE 1:85,000

MAP DRAWING INFORMATION:
DATA PROVIDED BY MNR AND THE TOWNSHIP OF CENTRE WELLINGTON

MAP CREATED BY: SMB
MAP CHECKED BY: AJN
MAP PROJECTION: NAD 1983 UTM Zone 17N

FILE LOCATION: I:\GIS\163644 - Centre Wellington Master Fire Plan\MXDs\Revised Modelling\Option2_RuralDepth_EntireMunicipality.mxd

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PROJECT: 16-3644
STATUS: DRAFT
DATE: 2017-02-24

8.9.6.4 Option 2 - Estimated Financial Impacts

The financial impact of Option 2 includes transitioning to the proposed two Deputy Fire Chief model, discontinuing the position of Volunteer District Chief, implementing the position of Fire Inspector/Fire and Life Safety Educator, hiring the proposed 12 additional volunteer firefighters and increasing the scheduled on call process to a minimum of 6 volunteer firefighters at each station at all times.

The estimated annual operating budget increase of $287,400 is summarized in Table 35.

Table 35: Option 2 Estimated Annual Operating Budget Financial Impact

	Estimated Operating Budget Cost
Incremental increase of two Deputy Fire Chiefs from current positions.	$12,000 (Lower end of proposed salary range)
Hire proposed full-time Fire Inspector/Fire and Life Safety Educator.	$75,000 (Lower end of proposed salary range)
Hire proposed additional 12 Volunteer Firefighters.	$138,000 ($11,500 per position)
Increase scheduled on call to a minimum of 6 per station = + 2 per week.	$62,400 ($200 x 52 weeks x 6 staff)
Estimated Annual Operating Budget Financial Impact	$287,400

The estimated initial capital budget increase of $71,500 and the ongoing capital replacement cost of $8,710 is summarized in Table 36.

Table 36:Option 2 Estimated Staff Resource Capital Budget Financial Impact

	Initial Capital Budget Cost	Ongoing Capital Budget Cost
Incremental increase of two Deputy Fire Chiefs from current positions.	$0	$0
Hire proposed full-time Fire Inspector/Fire and Life Safety Educator	$5,500	$670
Hire proposed additional 12 Volunteer Firefighters.	$66,000	$8,040
Increase scheduled on call to a minimum of 6 per station = + 2 per week.	$0	$0
Capital Budget Financial Impact	$71,500	$8,710

The estimated Fire Station land purchase building construction capital budget of $2,250,000 is summarized in Table 38.

Table 37:Option 2 Estimated Station Capital Budget Financial Impact

	Initial Capital Budget Cost
Land purchase	$1,000,000
Station Design and Construction	$2,500,000
Decommission and sale of current Station 60	($1,000.000)
Estimated Capital Budget Financial Impact	$2, 250.000

8.9.7 Fire Suppression Staff Resource – Option 3 Proposed Three Station Model

This option is intended to provide Council with the analysis of the operational impacts of adding a third Fire Station (50) in the area of Gerrie Road and Colborne Street, utilizing the existing Station 60 as a satellite station with only one apparatus, further increasing the total complement of volunteer firefighters to 96 and increasing the number of scheduled on-call volunteer firefighters. This option would require the purchase of one additional pumper apparatus. This option includes implementing the following strategies:

- *Adding a third Fire Station (50) in the area of Gerrie Road and Colborne Street and utilizing the existing Station 60 as a satellite station with only one apparatus;*
- *Further increasing the total complement of volunteer firefighters to 96 and assigning 36 to Station 40, 36 to the new Station 50, and 24 to Station 60;*
- *Supporting an increase in the minimum number of schedule on call volunteer firefighters to six at all times at Stations 40 and 50, and four at Station 60;*
    - *Predicted result – sustaining the current turnout time of the first four volunteer firefighters at Station 40 and 50 of 8:21 to staff the first apparatus;*
    - *Predicted result – sustaining the current turnout time of the first four volunteer firefighters at Station 60 of 9:04 to staff the first apparatus;*
    - *Predicted result – ability to staff the second responding apparatus at Stations 40 and 50 with two volunteer firefighters within the same current turnout time of 8:21 as the current first apparatus at Station 40;*
    - *Predicted result – ability to staff the third responding apparatus with four volunteer firefighters at Station 40 in a turnout time of 10:35;*
    - *Predicted result – ability to staff the third responding apparatus with four volunteer firefighters at Station 50 in a turnout time of 9:31;*
- Negotiating a new Dispatch Agreement that does not require the use of Volunteer Firefighters to staff the Fergus dispatch console;

8.9.7.1 Option 3 – Proposed Organizational Structure and Staffing Complement

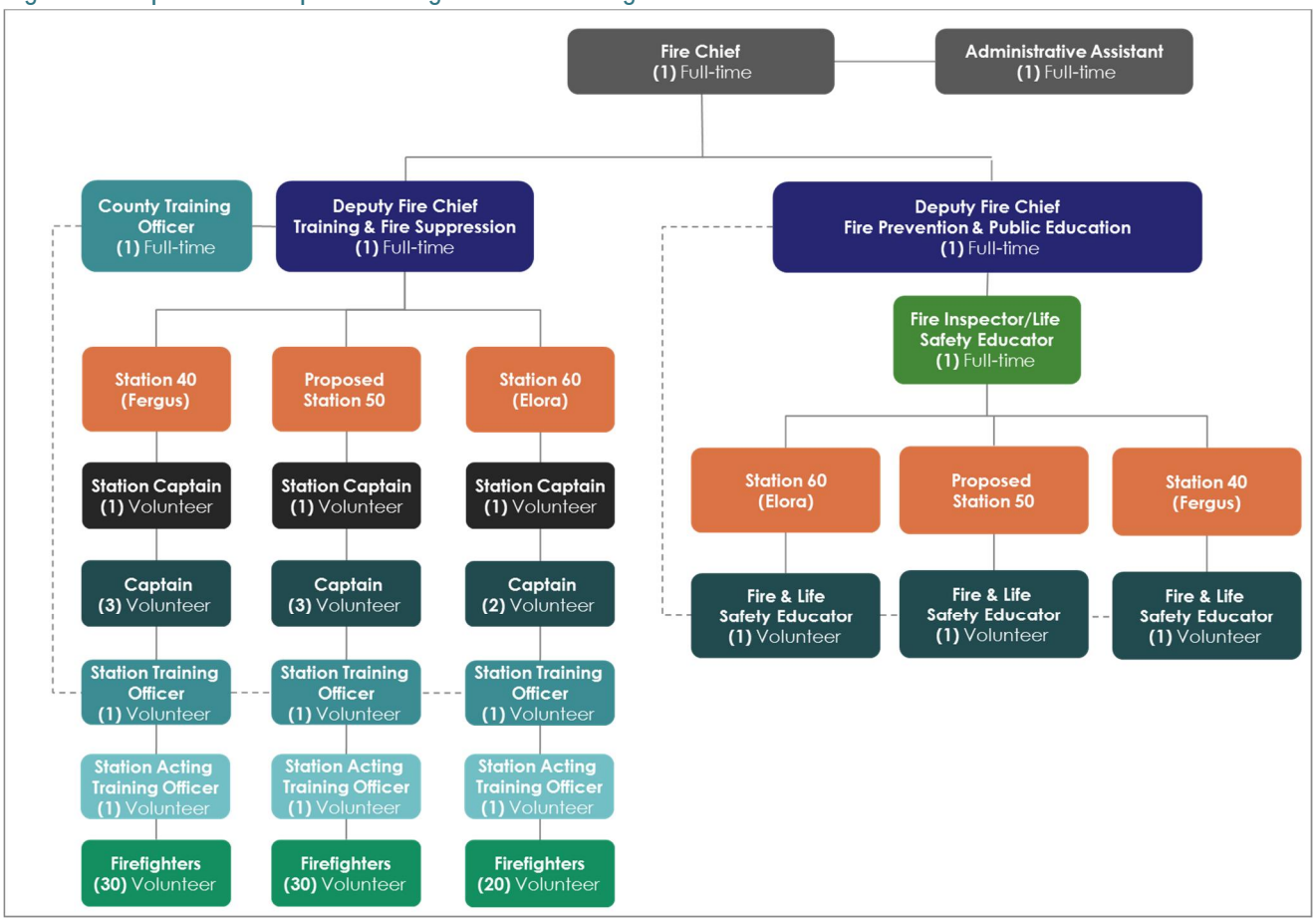
The Option 3 proposed staffing complement is illustrated in Table 38.

Table 38: Option 3 Proposed Staffing Complement

Role / Division	# Full-Time	#Volunteer
Fire Chief	1	-
Deputy Fire Chief – Training & Suppression	1	-
Deputy Fire Chief – Prevention & Education	1	-
Fire Inspector/Fire Life Safety Educator	1	
Station Captain	-	3
Station Training Officer	-	3
Captains	-	9
Acting Captains	-	4
Firefighters	-	77
Administrative Assistant	1	-
Staffing Composition	5	94
Total Staffing:	101	

The Option 3 proposed integrated organizational structure is illustrated in Figure 30.

Figure 30: Option 3 - Proposed Integrated CWFR Organizational Structure



8.9.7.2 Option 3 – Proposed Fire Suppression Deployment and Turnout Time

This option revises the turnout time of the 2nd apparatus responding from Station 40 (Fergus) from 10:35 minutes to a predicted 8:21 minutes in recognition of the additional two scheduled on-call firefighters being readily available to respond to the station as well as the turnout time and deployment of the 3rd apparatus responding from Station 40 (Fergus) from 12:51 minutes to a predicted 10:35 minutes in recognition of the additional scheduled on-call firefighters, illustrated in Table 39.

This option adds a fire station (Station 50) to the area near Gerrie Road and Colborne Street. The Station is staffed with six on-call firefighters (1st and 2nd apparatuses) with a turnout time of 8:21, similar to Station 40 (Fergus) , illustrated in Table 39. The Station is also staffed with four firefighters on the 3rd apparatus with a turnout time of 9:31, similar to the second apparatus at Station 60 (Elora).

Station 60 (Elora) will remain as a satellite station in this option with one apparatus staffed with four scheduled on-call firefighters and a turnout time of 9:04 minutes (existing condition's 1st apparatus), illustrated in Table 39.

Table 39: Option 3 – Proposed Fire Suppression Deployment and Turnout Time

Station	Existing Staff Deployment	Existing Turnout Time	Option 3 Proposed Deployment	Applied Turnout Time
Station 40 (Fergus)				
1st Apparatus	4 - Volunteer	8:21	4 - Volunteer	8:21
2nd Apparatus	2 - Volunteer	10:35	2 - Volunteer	8:21
3rd Apparatus	3 - Volunteer	12:51	4 - Volunteer	10:35
Station 50				
1st Apparatus	-	-	4 - Volunteer	8:21
2nd Apparatus	-	-	2 - Volunteer	8:21
3rd Apparatus	-	-	4 - Volunteer	9:31
Station 60 (Elora)				
1st Apparatus	4 - Volunteer	9:04	4 - Volunteer	9:04

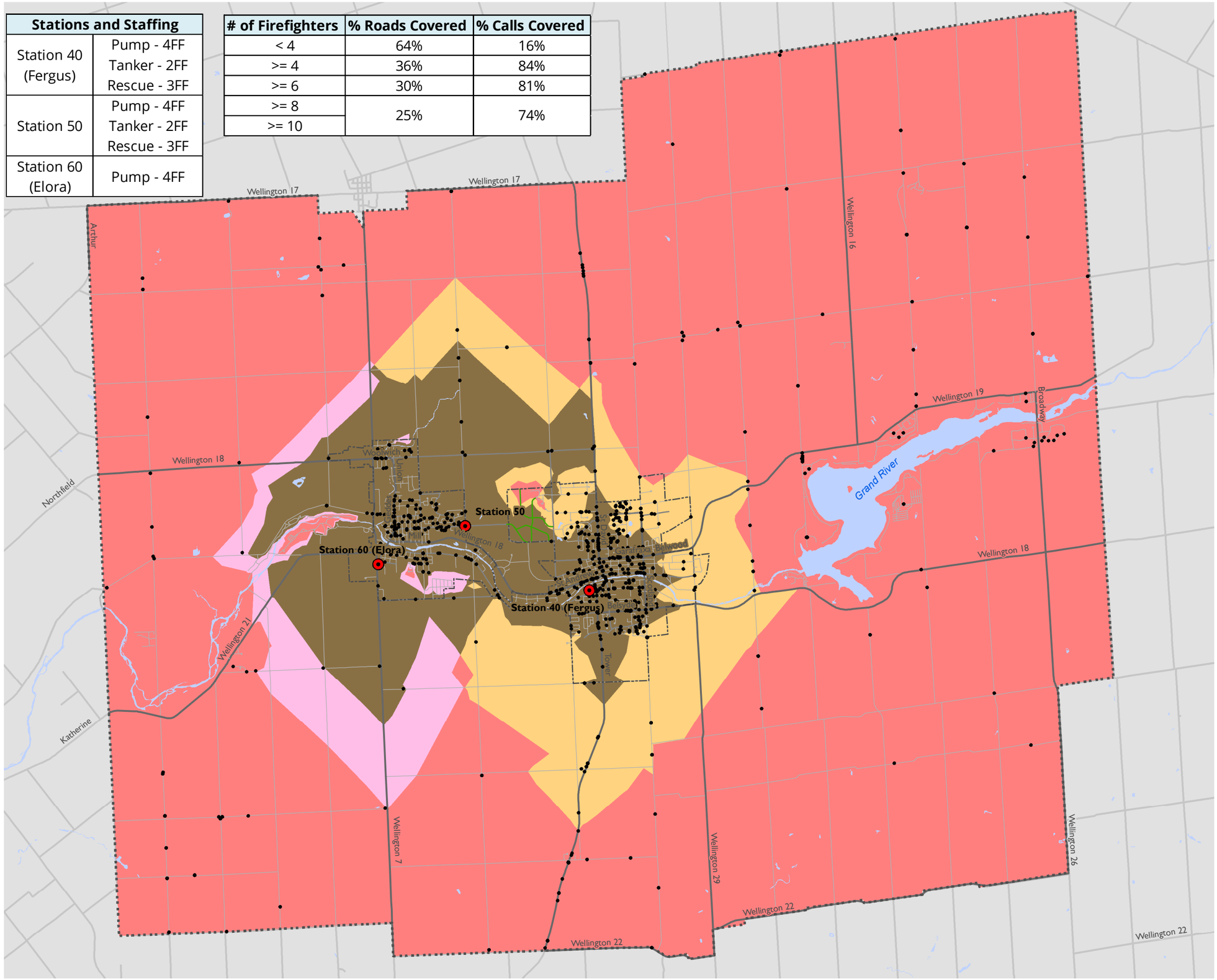
8.9.7.3 Option 3 – Predicted Response Capabilities

The modelled response capabilities, shown in Figure 31, indicates a predicted performance of six firefighters being able to respond to 30% of the future road network covered and 81% of the historical call locations within a 14 minute response time (turnout time + travel time) applied to the entire municipality (urban and rural area combined). This option indicates that in comparison to the historic calls the CWFR would be able to achieve the NFPA 1720 rural demand zone response benchmark of six firefighters responding in 14 minutes of travel time (Turnout time + travel time) to 80% of the fire related incidents. This option provides the Township with a fire station on both sides of the Grand River which would provide more flexible emergency response during a flood or bridge problem.

This option also predicts a performance of ten firefighters being able to respond to 24% of the future road network covered and 74% of the historical call locations within a 14 minute response time (turnout time + travel time) applied to the entire municipality (urban and rural area combined). The applied 14 minute response time (turnout time +travel time) exceeds the NFPA 1720 Suburban Area Demand Zone performance objective of 10 minutes; however, this analysis provides the CWFR with an understanding of where it is achieving a deployment of ten firefighters in 14 minutes.

Stations and Staffing	
Station 40 (Fergus)	Pump - 4FF Tanker - 2FF Rescue - 3FF
Station 50	Pump - 4FF Tanker - 2FF Rescue - 3FF
Station 60 (Elora)	Pump - 4FF

# of Firefighters	% Roads Covered	% Calls Covered
< 4	64%	16%
>= 4	36%	84%
>= 6	30%	81%
>= 8	25%	74%
>= 10		



Township of Centre Wellington
Fire Service Master Plan

NFPA 1720 - Rural Demand Zone (6 Firefighers within 14 Minutes) Applied to Entire Municipality Option 3

Figure 31

- Historic Calls (2011-2015)
- Fire Station
- Township Boundary
- Urban Centre Boundary
- Waterbody
- Arterial Road
- Collector Road
- Local Road
- Potential Future Road

Staffing within 14 minutes

- Less than 4 Firefighters
- >= 4 Firefighters
- >= 6 Firefighters
- >= 10 Firefighters

0 0.5 1 2 km

SCALE 1:85,000

MAP DRAWING INFORMATION:
DATA PROVIDED BY MNR AND THE TOWNSHIP OF CENTRE WELLINGTON

MAP CREATED BY: SMB
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MAP PROJECTION: NAD 1983 UTM Zone 17N

FILE LOCATION: I:\GIS\163644 - Centre Wellington Master Fire Plan\MXDs\Revised Modelling\Option3_RuralDepth_EntireMunicipality.mxd

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PROJECT: 16-3644
STATUS: DRAFT
DATE: 2017-02-24

8.9.7.4 Option 3 - Estimated Financial Impacts

The financial impact of Option 3 includes transitioning to the proposed two Deputy Fire Chief model, discontinuing the position of Volunteer District Chief, implementing the position of Fire Inspector/Fire and Life Safety Educator, hiring the proposed 36 additional volunteer firefighters and increasing the scheduled on call process to a minimum of 6 volunteer firefighters at Stations 40 and 50, and 4 at Station 60 at all times.

The estimated annual operating budget increase of $584,200 is summarized in Table 40.

TABLE 40: OPTION 3 ESTIMATED ANNUAL OPERATING BUDGET FINANCIAL IMPACT

	Estimated Operating Budget Cost
Incremental increase of two Deputy Fire Chiefs from current positions.	$12,000 (Lower end of proposed salary range)
Hire proposed full-time Fire Inspector/Fire and Life Safety Educator.	$75,000 (Lower end of proposed salary range)
Hire proposed additional 36 Volunteer Firefighters at $11,500 each.	$414,000 ($11,500 per position)
Increase scheduled on call to a minimum to a total of 16 at all times.	$83,200 ($200 x 52 weeks x 8 staff)
Estimated Annual Operating Budget Financial Impact	$584,200

The estimated initial capital budget increase of $203,500 and the ongoing capital replacement cost of $24,790 is summarized in Table 41.

TABLE 41: OPTION 3 ESTIMATED STAFF RESOURCE CAPITAL BUDGET FINANCIAL IMPACT

	Initial Capital Budget Cost	Ongoing Capital Budget Cost
Incremental increase of two Deputy Fire Chiefs from current positions.	$0	$0
Hire proposed full-time Fire Inspector/Fire and Life Safety Educator	$5,500	$670
Hire proposed additional 36 Volunteer Firefighters.	$198,000	$24,120
Increase scheduled on call to a minimum of 16 at all times.	$0	$0
Capital Budget Financial Impact	$203,500	$24,790

The estimated Fire Station land purchase, building construction and additional pumper purchase capital budget of $4,000,000 is summarized in Table 42.

TABLE 42: OPTION 3 ESTIMATED STATION CAPITAL BUDGET FINANCIAL IMPACT

	Initial Capital Budget Cost
Land purchase	$1,000,000
Station Design and Construction	$2,500,000
Purchase of additional Pumper & equipment	$750,000
Estimated Capital Budget Financial Impact	$4,000.000

8.9.8 Fire Suppression Staff Resource – Option 4 Transition to Part-time Staffing

In our experience the current CWFR fire suppression model of utilizing volunteers firefighters and the scheduled on call process is an effective operational model that balances the financial costs of providing fire suppression services. The alternative to this model would be to consider staffing the fire stations on an initial part-time basis utilizing volunteer (part-time) firefighters.

The previous options are presented to optimize the department's current model before consideration of transitioning to use of part-time firefighters. Should Council consider the need to supplement the current model, or alternatively increase the department's fire suppression resource capabilities, transitioning to part-time, particularly Monday through Friday during normal business hours would enhance the department's capabilities in this area.

In a part-time model careful consideration would need to be given to the number of hours any one individual worked within a normal week. However, based on the total complement of volunteer firefighters recommended within the previous options it should be possible to staff one or two of the stations with a crew of four part-time firefighters recruited from the total complement of volunteer firefighters. Based on the current hourly wage of a 1st class volunteer firefighter of $30.63 the estimated cost of staffing a fire station 40 hours per week with four part-time firefighters is estimated at $4,900 (40 hrs x 4 staff x $30.63 = $4900). This reflects an annual operating cost of approximately $254,841 to staff one fire apparatus 40 hours per week ($4,900 x 52 weeks = $254,841).

This option is not recommended at this time. It could be implemented either independently, or in combination with any of the other options presented within this FSMP. It is presented to provide Council with insight into the potential future costs of providing fire suppression services, and provide further support for considering the previous options at this time.

8.9.9 Summary of Proposed Fire Suppression Staff Resource Options

A summary comparison of the proposed fire suppression staff resource options is illustrated in Table 43 and a summary of the proposed options response coverage is shown in Table 44.

TABLE 43: Summary of Proposed Fire Suppression Staff Resource Options

Role / Division	Existing	Proposed	Option 1	Option 2	Option 3
Fire Chief	1	Fire Chief	1	1	1
Deputy Fire Chief / Public Safety Officer	1	Deputy Fire Chief – Training & Fire Suppression	1	1	1
Chief Training Officer / Public Fire Safety	1	Deputy Fire Chief – Prevention & Education	1	1	1
	-	Fire Inspector/Fire Life Safety Educator	1	1	1
District Chief	1	Volunteer Station Captain	2	2	3
Captain / Station Training Officer	2	Volunteer Station Training Officer	2	2	3
Captains	4	Captains	7	7	9
Acting Captains	3	Acting Captains	3	3	4
Volunteer Firefighters	50	Volunteer Firefighters	72	72	75
Administrative Assistant	1	Administrative Assistant	1	1	1
Total Staffing Composition:	64		77	77	99

Table 44: Summary of the Proposed Emergency Response Coverage

	Predicted NFPA 1720 Rural Demand Zone Coverage (6 firefighters responding in 14 minutes turnout time + travel time)	
Option	% Roads Covered	% Calls Covered
Existing Conditions		
4 Firefighters	37%	84%
6 Firefighters	26%	73%
8 Firefighters	8%	22%
10 Firefighters	2%	2%
Option 1 - Proposed Increase in Total Complement & On Call Schedule		
4 Firefighters	35%	84%
6 Firefighters	35%	84%
8 Firefighters	24%	73%
10 Firefighters	24%	73%
Option 2 – Proposed Revised Two Station Model		
4 Firefighters	32%	84%
6 Firefighters	32%	84%
8 Firefighters	21%	73%
10 Firefighters	21%	73%
Option 3 – Proposed Three Station Model		
4 Firefighters	36%	84%
6 Firefighters	30%	81%
8 Firefighters	25%	74%
10 Firefighters	25%	74%

A summary of the estimated financial impacts is illustrated in Table 45.

Table 45: Summary of Estimated Financial Impacts

	Estimated Annual Operating Budget Financial Impact	Estimated Initial Capital Financing Required	Estimated Ongoing Capital Financing Required	Estimated Station Construction Capital Financing
Option 1	$287,400	$71,500	$8,710	$0
Option2	$287,400	$71,500	$8,710	$2,250,000
Option 3	$584,200	$203,500	$24,790	$4,000,000

In summary, the fire suppression staff resource options presented reflect an increase in the emergency response capabilities of the CWFR in comparison to the department's current capabilities when compared to both the NFPA Rural Demand Zone and Suburban Demand Zone performance objectives.

Option 1 provides the most cost effective strategy to increase the current emergency response capabilities of the department in comparison to the proposed performance objectives. However, Option 1 continues to rely on both fire stations being located on the south side of the Grand River. Option 2 provides a similar emergency response performance capability in comparison to the proposed performance objectives; however, it provides fire stations on both sides of the Grand River increasing the department's response flexibility in the event of a major flood or bridge closure.

It is recommended that Council consider the proposed Fire Suppression Staff Resource Options and approve the option that best defines Council's definition of responding to the local needs and circumstances of the Township of Centre Wellington.

8.10 Fire Suppression Division Summary of Recommendations

The proposed Fire Suppression Staff Resource options presented within this FSMP include a range of staffing strategies for delivering fire protection (emergency response) services. These options have been provided to present Council with a clear understanding of the operational and financial impacts of the various options. In our view it is Council's role to assess this analyses in finding the appropriate balance that responds to the local needs and circumstances as defined by the FPPA.

In the decision making process to choose an option consideration should also be given to the role of the community in fire safety. The level of human behaviour and awareness with respect to fire safety plays a key part in having an effective and efficient level of fire protection services. These factors further support the importance of public fire safety education and fire prevention in providing the most efficient and effective level of fire protection services that provide the community with the most value.

It is recommended that subject to Council's consideration and approval of the proposed Fire Service Master Plan that the following recommendations be implemented to support the strategic priorities of this Fire Service Master Plan for the Fire Suppression Division:

28. *That the proposed fire suppression emergency response performance objectives identified within the proposed Fire Master Plan be considered and approved by Council and included within the new Establishing and Regulating By-law, including:*

    a. *That the Centre Wellington Fire and Rescue strive to achieve an initial response deployment of four firefighters to all fire related emergency calls;*

    b. *That the Centre Wellington Fire and Rescue strive to achieve a depth of response deployment to all fire related emergency calls of four firefighters to low risk*

occupancies, 14 firefighters to moderate risk occupancies, and 24 firefighters to high risk occupancies;

c. *That the Centre Wellington Fire and Rescue strive to achieve the response time performance objective referenced within the NFPA 1720 Rural Demand Zone within the entire Township including a minimum of six firefighters responding within a 14 minute response time (turnout time + travel time) with a performance objective of 80%; and*

d. *That the Centre Wellington Fire and Rescue strive to achieve the response time performance objectives in the NFPA 1720 Suburban Demand Zone within the defined urban boundary of the Township including a minimum of ten firefighters responding within a ten minute response time (turnout time + travel time) with a performance objective of 80%.*

29. *That the Centre Wellington Fire and Rescue take a leadership role in the removal of duplicate street names within the Township;*

30. *That the Centre Wellington Fire and Rescue develop a Senior Officer On-Call Policy.*

31. *That the Centre Wellington Fire and Rescue total complement of Volunteer Firefighters be increased to 72.*

32. *That the Centre Wellington Fire and Rescue increase the number of scheduled on call volunteer firefighters to a minimum of six volunteer firefighters at all times;*

33. *That Council consider the proposed Fire Suppression Staff Resource Options and approve the option that best defines Council's definition of responding to the local needs and circumstances of the Township of Centre Wellington.*

9.0 Stations, Fleet, Equipment, and Communications

This section of the report provides a review of the existing stations, fleet, equipment, and communications used in the department.

9.1 Existing Fire Stations and Amenities

The two fire stations of CWFR are located in relation to their previous function within the individual communities prior to amalgamation. As discussed, both stations are located south of the river within the built up areas of Fergus and Elora. Table 46 summarizes the condition of the existing stations and key amenities. Both stations are in moderate condition and it is recognized that with the 2006 renovation and expansion of Station 40 for the role of headquarters, there is some more modern design and construction in place at this station. Overall, based on our experience in other municipalities across Ontario, the overall station facilities are in relatively good condition and are meeting the needs of the department. However, neither station has a separate, closed and ventilated room for the bunker gear which is critical to the life span of the gear and the long term health of the firefighters. There were also some amenity challenges identified through the consultation for Station 60. Challenges pertained to parking space, and need for male/female washroom, locker, and shower facilities.

Table 46: Existing Stations – Summary of Conditions

Station	Description
Station 60 72 Wellington Road 7, Elora 	· Constructed in 1987, steel frame · Two drive-through bays · Four apparatus including the department's aerial · Administrative workspace (two private offices) · Well-equipped training room · Kitchen area · Men and women washrooms but just one changing area/locker room · Bunker gear on apparatus floor · Generator · Washer/extractor · Large parking lot, but some parking challenges

Station	Description
 Station 40 250 Queen Street West, Fergus	· Constructed in 1974 with renovations in 2006 to add offices for administration team (headquarters) · Three drive-through bays · Four apparatus · Administrative workspace (five large offices) · Dispatch office off apparatus floor · Well-equipped training room and small boardroom · Modern kitchen area · Men and women change rooms / bathrooms · Bunker gear off apparatus floor but not closed off · Washer/extractor · Two generators · Tank fill station · BBQ/social outside area · Storage shed on site and auto extrication pad / other training amenities including a training tower · Large parking lot

9.2 Fleet & Equipment

The Fire Fleet and Equipment Division is a core component to suppression operations in the Centre Wellington Fire and Rescue and is the responsibility of the Fire Chief. To perform suppression activities the Centre Wellington Fire and Rescue uses various vehicles and equipment, all of which must be maintained and replaced. Operating Guidelines related to apparatus and equipment includes the following:

- S.O.G. #201: Appropriate Level of Protective Clothing
- S.O.G .#201-A: Personal Protective Equipment (PPE) - Safety Glasses / Helmet Visors
- S.O.G. # 204: Wearing of Self-Contained Breathing Apparatus
- S.O.G. # 205: Excessive Facial Hair and Beards
- S.O.G. # 206: Wearing of Jewellery and Personal Items
- S.O.G. # 209: Care and Cleaning of Protective Clothing
- S.O.G. #401: Self-Contained Breathing Apparatus Maintenance
- S.O.G. # 402: Pure Breathing Air Compressor Maintenance

- S.O.G. # 403: Ladder Maintenance and Testing

CWFR also has policies regarding their apparatuses and equipment which includes the following:

- Policy #2012-002: Equipment Repairs & Maintenance
- Policy #2012-003: Apparatus Weekly Vehicle Inspection Forms

This section provides an overview of types of apparatus used, current fleet of CWFR, and CWFR fleet maintenance.

9.2.1 Types of Apparatus

PFSG 04-07-12 *Types of Apparatus and Equipment* (Appendix B) was developed to provide communities, such as the Township of Centre Wellington, with options to follow in determining the level of fire suppression and types of fire apparatus and equipment that should be available within the community. PFSG 04-07-12 provides the following information for consideration:

- *Demands on municipal resources force all communities to re-evaluate the level and nature of services they provide;*
- *Traditional approaches to the delivery of fire suppression with full-size triple combination pumpers may not necessarily be the most appropriate way to deliver this component of community fire safety, particularly in small communities with limited availability of firefighting personnel;*
- *The primary mission of all fire departments should be to ensure that the community is provided with an optimal level of fire protection in a cost effective and efficient manner. This optimal level may require a much greater emphasis on fire prevention and public education activities - with residents being responsible for protection within their own residences;*
- *New technology provides options;*
- *Must be appropriate to the fire suppression needs of the community;*
- *Dependent upon availability of human resources needs to work closely with neighbouring communities; and,*
- *Focus must still be on community fire safety initiatives.*

PFSG 04-07-12 refers to the *NFPA 1901 Standard for Automotive Fire Apparatus (2009 Edition)* as a reference for the standards that should be considered in determining the appropriate apparatus for a community. NFPA 1901 provides the following definitions of major fire apparatus:

Pumper/Engine: Fire apparatus with a permanently mounted fire pump of at least 750 gpm (3000L/min) capacity, water tank and hose body whose primary purpose is to combat structural and associated fires. Initial Attack Apparatus: Fire apparatus with a fire pump of at least 250 gpm (1000L/min) capacity, water tank, and hose body whose primary purpose is to initiate a fire suppression attack on structural, vehicular, or vegetation fires and to support associated fire department operations.

Mobile Water Supply Apparatus (Tanker): A vehicle designed primarily for transporting (pick-up, transporting, and delivering) water to fire emergency scenes to be applied by other vehicles or pumping equipment.

Quint: Fire apparatus with a permanently mounted fire pump, a water tank, a hose storage area, an aerial ladder or elevating platform with a permanently mounted waterway, and a complement of ground ladders.

Special Services Fire Apparatus: A multipurpose vehicle that primarily provides support services at emergency scenes.

Rescue: A vehicle specifically designed for the purposes of transporting specialized rescue equipment such as vehicle extrication equipment, water/ice rescue equipment, hazardous materials equipment, and additional fire suppression support equipment such as additional self-contained breathing apparatus.

Pump/Rescue: A vehicle that combines the traditional functions of a pumper and a rescue apparatus into one multi-functional apparatus.

Aerial Device: A vehicle equipped with an aerial device, elevating platform, or water tower that is designed and equipped to support firefighting and rescue operations by positioning personnel, handling materials, providing continuous egress, or discharging water at positions elevated from the ground.

9.2.2 Current Fleet & Replacement Plan

The Centre Wellington Fire and Rescue operates a major apparatus fleet that would be expected based on the fire risks present within the municipality. The current front-line fleet is summarized in Table 47.

Table 47: Current Front-line Fleet

Station	Vehicle	Type	Year Purchased	Forecasted Replacement Year
Station 40	Pumper Rescue - 41	E1	2005	2023
	Mini Pumper - 40	Timberwolf	2007	2025
	Tanker - 47	Freightliner FL-80	1997	2019
	Rescue - 45	Freightliner FL-80	1996	2017
	Truck - 45B	Dodge Ram	2007	2020
	Pump/Rescue-61	KME	2011	2029
Station 60	Aerial - 64	E-One Custom Cab	2001	2026*
	Tanker - 67	International 7500 –KME	2014	2034

Station	Vehicle	Type	Year Purchased	Forecasted Replacement Year
	Rescue - 65	International 4700	1994	2017
	Truck - 65B	Silverado	2003	2020
**Refurbishment of Aerial 64 in 2021 is planned to extend the life of the vehicle beyond 2021.*				

The Centre Wellington Fire and Rescue operates a fleet of light vehicles to support the operational needs of various divisions including Administration, Prevention, Training, and Fire Suppression. The current light vehicle fleet is summarized in Table 48.

Table 48: Current Light Vehicle Fleet

Description	Type	Year Purchased	Forecasted Replacement Year
Fire Chief	Expedition	2012	2022
District Chief / Public Safety Officer	Dodge Ram	2012	2022
District Chief / Chief Training Officer	Dodge Caravan	2012	2022
Training Officer	Dodge Ram 1500 4X4	2012	2019

As shown above the CWFR has ten front-line apparatuses and four support vehicles. The number of vehicle in the fleet is well suited to the needs of the community. Two new Rescue apparatuses recently went out to tender which will replace two of the oldest trucks in the fleet.

During the consultation process concerns were expressed with respect to the operational capability of Tanker – 67. Our understanding is that the Fire Chief is aware of these concerns.

Our review of the current fleet indicates that there is no reserve capacity. In the event one these front-line apparatus is out of service either for preventative maintenance or repairs there is no redundancy plan for its replacement. This is particular important for the two front-line Pump-Rescues. Industry best practices indicate that at a minimum the department should have one reserve Pumper-Rescue. Developing this reserve capacity could be achieved by replacing Pump-Rescue-41 sooner than currently scheduled and keeping this apparatus in service longer as a reserve apparatus.

It is recommended that subject to Council's consideration and approval of the proposed Fire Service Master Plan that the Centre Wellington Fire and Rescue consider implementing a financial strategy to develop a reserve apparatus capacity of a minimum of one Pump-Rescue.

9.2.3 Maintenance and Repair of Apparatuses

Maintenance and repair of the front-line fleet apparatuses, specialty vehicles, reserve vehicles, support vehicles and firefighting equipment is contracted out to private mechanics, depending on the type of repair an Emergency Vehicle Technician (EVT) is used. In addition to unscheduled repairs, the apparatus is checked twice a year and all maintenance activities are tracked. Maintenance and repairs completed by the contracted supplier is tracked in manuals. Small repairs are done in-house by the Fire Chief or District Chief/Public Safety Officer; these repairs are recorded on a spreadsheet.

9.2.4 Equipment

Firefighting equipment is essential to fire suppression, technical rescues, and firefighter safety. The Centre Wellington Fire and Rescue has OGs pertaining to the use, maintenance and inspection of equipment as well as a replacement plan to ensure equipment is in working order. Our review of equipment included the following major items:

- Hoses and Nozzles;
- Rescue Equipment;
- Defibrillators;
- Boats, Argo, and Drone;
- Personal Protective Clothing (Bunker Gear); and
- Self-Contained Breathing Apparatuses (SCBA).

Personal Protective Equipment (PPE) is crucial to firefighter safety. PPE includes bunker gear, Self-Contained Breathing Apparatus (SCBA) and air tanks. The CWFR recently purchased bunker gear in 2016 with each firefighter having one set of bunker gear assigned to them. All bunker gear must be inspected by a contracted agency annually. Considering inspection requirements as well as cleaning and repair needs, consideration should be given to ensuring that there is a sufficient spare bunker gear in place (e.g. ratio of one spare for every four sets of bunker gear in service). The CWFR currently has budgeted for the replacement of 39 SCBA in 2018. The SCBA masks are mostly sized medium and, if needed, a mask is fitted for a firefighter, with one fitting conducted annually. Currently, CWFR identifies a 10 year replacement cycle for bunker gear and a 20 year replacement cycle for SCBA equipment.

Technical rescue services provided by CWFR are seen as strength by stakeholders and firefighters. These types of rescues require specialty equipment that is inspected after use and replaced when necessary. This equipment includes: hydraulic equipment, life lines, full body rescue harnesses, ice water rescue suits, high angle stretcher, vehicle stabilization kit, high pressure air bags, three boats, an Argo, and a drone. These items were visually assessed in relation to the current level of services provided by the Centre Wellington Fire and Rescue and our experience with regard to firefighting equipment best practices. All assessed equipment appeared in good condition reflecting good care and maintenance. However, all the operational guidelines addressing the use, maintenance, replacement, and inspection of all equipment should be reviewed by the proposed Operational Guideline Committee to ensure that the departmental guidelines align with manufacturers' guidelines and the Section 21 Guidance Notes.

9.3 Communications

Some key components to communications within a department include dispatch, radios, and paging. As previously reported within this FSMP, the Township of Centre Wellington purchases fire dispatching services from the City of Guelph. The initial dispatch component is completed by Guelph where Guelph pages the CWFR volunteer firefighters and the firefighters respond to the page. The administrative assistant or the first firefighter in the fire station takes over dispatch from Guelph and remains as dispatcher until the call is done. All firefighters are trained in this dispatch function. Considerations and recommendations related to this dispatch system and the agreement are provided in Section 8.6.6.

Other than the challenges related to dispatch, the current paging system seems to be meeting the needs of the department. The paging system functions throughout the County of Wellington using an analog system (153.770). Pagers can also be activated from either of the fire stations, with a number of paging notification methods available to the firefighters. One method includes "e-dispatching" where emergency call information is sent directly to individuals' cell phones. Another avenue is through an automatic email notification (referred to as EMLive). It was noted that often the email notifications are received sooner than the page.

In terms of radio systems, it was identified through the stakeholder consultation that CWFR is currently using two radio systems. There is an older radio used for dispatch and new radios in the trucks. All vehicles have Motorola XPR 4550 mobile systems. There are three base stations including two Motorola 400 trucking system Connect Plus and one that is cross patched with the Fleetnet System for select mutual aid situations. There are also 44 new portable radios (Motorola XPR 6550) and XPR 7500 models. It was identified as part of this review that radios have a replacement cycle of ten years.

9.4 Stations, Fleet, Equipment, and Communications Summary of Recommendations

The CWFR apparatus fleet and equipment reflects that of what would be expected of a fire department of its size and community risk. The department utilizes external contracted service for all scheduled maintenance and major repairs. This strategy is consistent with industry best practices for a municipality the size of the Township of Centre Wellington.

Developing a financial strategy to implement a minimum of one reserve Pumper-Rescue would provide added benefit to the department in sustaining its emergency response capabilities at all times.
It is recommended that subject to Council's consideration and approval of the proposed Fire Service Master Plan that the following recommendations be implemented to support the strategic priorities of this Fire Service Master Plan for the fleet and equipment:

34. *That Centre Wellington Fire and Rescue consider implementing a financial strategy to develop a reserve apparatus capacity of a minimum of one Pump-Rescue.*

10.0 Implementation Plan

The recommendations of this FSMP have been developed in consideration of the strategic priorities identified within this plan. To achieve this objective, this FSMP includes an implementation strategy that categorizes the recommendations of this plan into those that can be implemented by the Fire Chief within the boundaries of his current authority delegated by Council, these are presented as *Operational Recommendations*. Recommendations that require direct Council approval related to policy decisions, or financial commitments are presented as *Council Recommendations.*

A proposed implementation time frame is also provided for consideration that identifies short-term (1 to 3 years), intermediate (4 to 6 years) and long-term (7 to 10 year) planning horizons. When applicable, financial estimates related to a recommendation or options are provided throughout this FSMP.

10.1 Operational Recommendations

Table 49 summarizes the recommendations of this FSMP that have been deemed as *Operational Recommendations* that can be administered and implemented by the Fire Chief within his current authority. In some cases this may require additional work by the Fire Chief in preparing further documentation and reporting to Council for approval. An example of this is updating the current Establishing and Regulating By-law. This is a process that can be led by the Fire Chief, and senior corporate staff and through normal reporting be brought to Council for consideration and approval.

Table 49: Operational Recommendations

Recommendation No.	Operational Recommendations	Implementation
1	*That the Centre Wellington Fire and Rescue update the department's mission statement, and develop a vision statement to align with the proposed strategic priorities of the proposed Fire Service Master Plan.*	*Short-term*
2	*That the Fire Chief's job description be revised to reflect the recommendations of the proposed Fire Service Master Plan.*	*Short-term*
3	*That the Township investigate opportunities for providing coverage in the absence of the Administrative Assistant.*	*Short-term*
4	*That the purchase and implementation of an integrated records management software solution be investigated for use by the Centre Wellington Fire and Rescue.*	*Short-term*
5	*That an Operating Guideline Committee be formalized including a defined terms of reference, and representation from a cross section of department staff.*	*Short-term*
6	*That the purchase and implementation of an integrated records*	*Short-term*

Recommendation No.	Operational Recommendations	Implementation
	management software solution be investigated for use by the Centre Wellington Fire and Rescue.	
7	*That the Centre Wellington Fire and Rescue develop an Operating Guideline or Department Policy to define the required records management procedures and practices.*	*Short-term*
8	*That the Centre Wellington Fire and Rescue develop a Public Relations Policy.*	*Short-term*
9	*That the Centre Wellington Fire and Rescue develop an Annual Report to Council and the community as part of the annual budget submission process.*	*Short-term*
10	*That the Establishing and Regulating By-Law No. 2006-083 be updated to reflect the direction of Council in respect to the delivery of all fire protection services;*	*Short-term*
11	*That consideration be given to implementing a regular process for reviewing and updating all by-laws associated with the operation of the Centre Wellington Fire and Rescue.*	*Short-term*
12	*That the Centre Wellington Fire and Rescue investigate alternative options for the delivery of fire dispatching services.*	*Short-term*
15	*That the Centre Wellington Fire and Rescue develop Standard Operating Guidelines to inform the delivery of all approved fire prevention and public education programs and activities.*	*Short-term*
16	*That the Fire Chief update the Community Risk Assessment as part of the proposed annual reporting process.*	*Intermediate-Term*
17	*That the Centre Wellington Fire and consider OFM-TG-01-2012 "Fire Safety Inspections and Enforcement" in developing the proposed Fire Prevention Policy.*	*Short-term*
21	*That the Centre Wellington Fire and Rescue consider revisions to its current training policies as referenced in the proposed Fire Service Master Plan.*	*Short-term*
22	*That the Centre Wellington Fire and Rescue consider options to enhancing its utilization of online firefighter training.*	*Intermediate-Term*
23	*That the Centre Wellington Fire and Rescue review all current Standard Operating Guidelines for specialized services, and include the response capabilities within the proposed updated Establishing and Regulating By-law for Council's consideration and approval.*	*Short-term*
24	*That the Centre Wellington Fire and Rescue enhance its Company*	

Recommendation No.	Operational Recommendations	Implementation
	Officer training program by developing an internal Company Officer Training Program that aligns with the NFPA 1021 Standard – Level II.	*Short-term*
25	*That the Centre Wellington Fire and Rescue implement a strategy supporting succession planning within the department.*	*Intermediate-Term*
26	*That the Centre Wellington Fire and Rescue consider the Volunteer Firefighter Recruitment and Retention Strategies included within the proposed Fire Service Master Plan.*	*Short-term*
29	*That the Centre Wellington Fire and Rescue take a leadership role in the removal of duplicate street names within the Township.*	*Short-term*
34	*That the Centre Wellington Fire and Rescue consider implementing a financial strategy to develop a reserve apparatus capacity of a minimum of one Pump-Rescue.*	*Intermediate-Term*

10.2 Council Recommendations

Council Recommendations include those that require a policy decision or financial commitment on behalf of the Township.

Table 50 summarizes the recommendations of this FSMP that have been deemed as *Council Recommendations*.

Table 50: Council Recommendations

Recommendation No.	Council Recommendations	Implementation
13	*That the strategic priorities identified within the proposed Fire Service Master Plan be adopted to form the strategic framework for the delivery of fire protection services, including:* *i. Recognize the historical dedication and commitment of the members of Centre Wellington Fire and Rescue and their ongoing effort to transition to one single, unified fire department.* *ii. Utilization of a Community Risk Assessment to determine the fire safety risks within the Township as the basis for developing clear goals and objectives for all fire protection and emergency services provided by the Centre Wellington Fire and Rescue;* *iii. Optimization of the first two lines of defence including public education and fire prevention, and the utilization of fire safety standards and fire code enforcement to provide a comprehensive fire*	*Short-term*

Recommendation No.	Council Recommendations	Implementation
	protection program within the Township based on the results of the Community Risk Assessment; and *iv. Emphasis on strategies to support the sustainability of fire protection and emergency services that provide the most effective and efficient level of services resulting in the best value for the community.*	
14	*That the Centre Wellington Fire and Rescue develop a draft Fire Prevention Policy for consideration and approval by Council and inclusion within the proposed updated establishing and Regulating By-law as an appendices.*	*Short-term*
18	*That the proposed Public Education Programs and Activities be included within the proposed Fire Prevention Policy*	*Short-term*
19	*That the Centre Wellington Fire and Rescue that the proposed Fire Inspection Cycles be included within the proposed Fire Prevention Policy.*	*Short-term*
20	*That the Centre Wellington Fire and Rescue proposed Fire Prevention & Public Education Division Staff Resource Plan be adopted.*	*Short-term*
27	*That the Centre Wellington Fire and Rescue proposed Training Division Staff Resource Plan be adopted.*	*Short-term*
28	*That the proposed fire suppression emergency response performance objectives identified within the proposed Fire Master Plan be considered and approved by Council and included within the new Establishing and Regulating By-law, including:* *I. That the Centre Wellington Fire and Rescue strive to achieve an initial response deployment of four firefighters to all fire related emergency calls;* *II. That the Centre Wellington Fire and Rescue strive to achieve a depth of response deployment to all fire related emergency calls of four firefighters to low risk occupancies, 14 firefighters to moderate risk occupancies, and 24 firefighters to high risk occupancies;* *III. That the Centre Wellington Fire and Rescue strive to achieve the response time performance objective referenced within the NFPA 1720 Rural Demand Zone within the entire Township including a minimum of six firefighters responding within a 14 minute response time (turnout time + travel time) with a performance objective of 80%; and* *IV. That the Centre Wellington Fire and Rescue strive to achieve the response time performance objectives in the NFPA 1720 Suburban Demand Zone within the defined urban boundary of the Township including a minimum of ten firefighters responding within a ten minute response time (turnout time + travel time) with a performance*	*Short-term*

Recommendation No.	Council Recommendations	Implementation
	objective of 80%.	
30	*That the Centre Wellington Fire and Rescue develop a Senior Officer On-Call Policy.*	*Short-term*
31	*That the Centre Wellington Fire and Rescue total complement of Volunteer Firefighters be increased to 72.*	*Short-term*
32	*That the Centre Wellington Fire and Rescue increase the number of scheduled on call volunteer firefighters to a minimum of six volunteer firefighters at all times.*	*Short-term*
33	*That Council consider the proposed Fire Suppression Staff Resource Options and approve the option that best defines Council's definition of responding to the local needs and circumstances of the Township of Centre Wellington.*	*Short-term*

Appendix A
Community Risk Assessment

DILLON CONSULTING

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Tables

1.0 Introduction

The process of assessing community risk is receiving increased attention within the fire protection industry in North America. A Community Risk Assessment (CRA) is fundamental to the development of a strategic Fire Service Master Plan. Assessing community risk informs the understanding of local needs and circumstances which can then be applied to align the service levels provided by the municipality. The results of this CRA directly inform the recommendations of the Fire Services Master Plan (FSMP) and are used to identify existing service gaps across divisions, with particular connections to fire prevention, training, and emergency response (e.g. suppression).

This appendix to the FSMP outlines the methodology and sources of information used to assess community risk in the Township of Centre Wellington (Centre Wellington or Township). The analysis and results of the assessment are described based on three primary report sections: profile assessments; Geographic Information System (GIS) risk model; and future growth considerations.

2.0 Methodology

The CRA is based on a methodology founded in part on the National Fire Protection Association (NFPA) 1730 *"Standard on Organization and Deployment of Fire Prevention Inspection and Code Enforcement, Plan Review, Investigation, and Public Education Operations* (2016 Edition). According to the standard, the purpose of a Community Risk Assessment is to "*assist in the development and implementation of a community risk reduction plan and programs to reduce, mitigate, or eliminate the community's risks*" (p.6). NFPA 1730 outlines seven profiles that should be assessed and used to understand risk within the community. As identified in NFPA 1730, these profiles incorporate the methodology of the Ontario Office of the Fire Marshal and Emergency Management (OFME) Public Fire Safety Guideline on Simplified Risk Assessments (PFSG 04-40A-03). Where appropriate, references to OFMEM methodology and research are included within this CRA.

This exploration of the profiles is the first component of the CRA methodology for this Fire Service Master Plan. This includes the development of the following seven profile assessments:

- Demographics
- Geography
- Building Stock
- Past Fire Loss
- Response
- Hazards
- Economics

These profiles are analyzed based on several sources of information, including data provided by Centre Wellington Fire and Rescue (CWFR), Statistics Canada, OFMEM, and desktop research. To link the CRA to the risks unique to specific occupancy types, this study utilizes the major occupancy classifications of the Ontario Building Code (OBC) and the Ontario Fire Code (OFC) to define fire risk scenarios within Centre Wellington.

In addition to NFPA 1730, this CRA is also based on the Ontario Office of the Fire Marshal's Fire Risk Sub-model which informs a risk model presented within Geographic Information Systems (GIS) mapping. The risk model considers the probability and consequence of a fire incident and how those factors interact to inform risk levels. This information is used as the foundation to develop a GIS-based risk model which spatially displays the low, moderate, or high risks within the Township's geography.

The profile assessments and GIS-based model give consideration to community risks as they exist today. An additional consideration of this Community Risk Assessment is future growth. A future growth scenario is developed based on Centre Wellington's approved Official Plan, population and employment projections, and discussions with municipal planners. This future growth scenario, based on a ten year horizon, is primarily utilized to future fire suppression needs including station location, staffing, and deployment.

3.0 Profile Assessments

The profile assessments include an analysis of demographics, geography, building stock, past fire loss, fire and emergency response, hazards, and economic considerations for the Township.

3.1 Demographic Profile

As included in NFPA 1730, the demographic profile assessment includes analysis of age, gender, educational attainment and socioeconomic make-up, vulnerable individuals/occupancies, ethnic and cultural considerations, and population shifts. The following sections consider these demographic characteristics within the Township of Centre Wellington.

3.1.1 Age

Canada's aging population has been recognized as one of the most significant demographic trends in the nation. Based on preliminary postcensal estimates from Statistics Canada, on July 1, 2015, for the first time ever, there were more Canadians over the age of 65 (16.1% of the population) than there were children aged 0 to 14 (16.0%).[1]

Seniors (those 65 years and over) are considered to represent one of the highest fire risk groups across the province based on proportion of fire fatalities. Table 1 was prepared using information from the Office of the Fire Marshal and Emergency Management's Fire Statistics for 2004-2013 and 2011 census data. Seniors account for a much higher percentage of fire fatalities than their percentage of population.

Table 1: Fire Fatalities by Age Group (Ontario, 2004-2013)

Category	Age	% of Provincial Population	% of Fire Fatalities
Children and Youth	14 years and under	17%	7%
Adults	15 to 64 years	68%	60%
Seniors	65 year and older	15%	33%

Identifying a community's population by age is a core component of developing the Community Risk Assessment and identifying specific measures to mitigate risks associated with a specific age group, such as seniors. Table 2 provides a comparison of the Township's population by age group based on the 2011 census completed by Statistics Canada to that of the Province.

[1] Source: Statistics Canada, Canada's population estimates: *Age and sex, July 1, 2015* http://www.statcan.gc.ca/daily-quotidien/150929/dq150929b-eng.htm, published September 29, 2015: visited December 12, 2016.

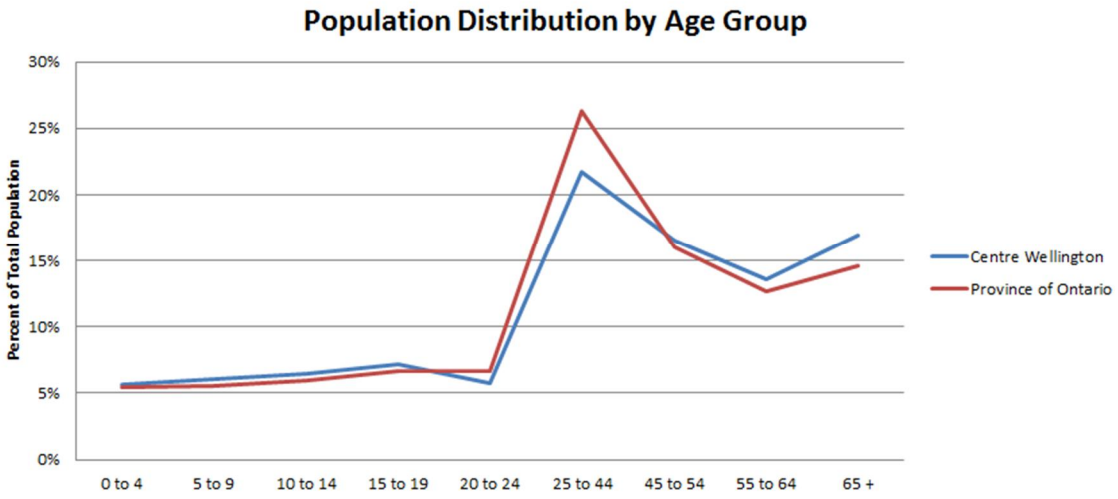
Table 2: Population by Age Group (2011 Census)

	Township of Centre Wellington		Province of Ontario	
Age Group	Population*	% Total	Population	% Total
0 to 4 years	1,515	6%	704,260	5%
5 to 9 years	1,610	6%	712,755	6%
10 to 14 years	1,730	6%	763,755	6%
20 to 24 years	1,920	7%	863,635	7%
25 to 44 years	5,795	22%	3,383,895	26%
45 to 54 years	4,410	17%	2,062,020	16%
55 to 64 years	3,640	14%	163,0275	13%
65 years and older	4,530	17%	187,8325	15%
Total	26,695	100%	12,851,830	100%
Median Age of the Population	42.7	-	40.4	-
Population aged 14 and under	4,855	18%	2,180,770	17%

**Note: At the time of writing, only limited 2016 Census data was available. For the detailed analysis within this CRA, the more detailed 2011 Statistics Canada Census and National Household Survey (NHS) information is used. Limited available 2016 Census information can be found in the Growth Considerations section of this CRA.*

As shown in Table 2, the 2011 census identifies a total population of 26,695 for the Township. The age distribution for the Township and the Province are further illustrated in Figure 1. The age distribution of this population should be considered when developing targeted public education programs. The figure illustrates that the age distribution of the Township and the province follow a similar overall distribution. However, there are three notable differences. One key observation is that the proportion of youth aged 14 and under is slightly greater within the Township than in the Province (18% versus 17%). The second key observation is that there are simultaneously a slightly higher proportion of seniors in the Township than in the Province (17% vs. 15%). This is offset by the fact that in the Township there is a lower proportion of adults aged 25 to 44 years than in the Province (22% versus 26%) being the third observation.

Figure 1: Population Distribution – Township of Centre Wellington vs. Province of Ontario



3.1.2 Gender

NFPA 1730 considers gender as part of Community Risk Assessments due to the findings that, based on historic data, males are more likely to be injured from a fire or lose their life in a fire.[2,3]

Table 3 shows the gender distribution in the Township across age groups. These results are based on the 2011 Statistics Canada census. When looking at the proportion of male versus female overall, they are fairly evenly split at 49% male and 51% female, as would be expected. When specific age groups are reviewed, there are minor variations. One of the greater differences is the proportion of males (45%) compared to females (55%) for the 65 years and over age group. Based on these statistics, it is not anticipated that public education programming would be refined based on gender. The impact of gender distribution on public education programming would be more notable in a community with unique demographics such as those that have transient populations due to employment, for example.

[2] National Fire Protection Association . (2014, October). Characteristics of Home Fire Victims. Retrieved July 2016, from http://www.nfpa.org/~/media/Files/Research/NFPA%20reports/Victim%20Patterns/oshomevictims.pdf
[3] U.S. Department of Homeland Security . (2015, January). Fire Risk in 2011.. Retrieved July 2016, from U.S. Fire Administration: http://nfa.usfa.dhs.gov/downloads/pdf/statistics/v15i8.pdf

Table 3: Gender Distribution by Age Group – Township of Center Wellington (2011 Census)

	Centre Wellington Population				
Age Group	Total	Male	%	Female	%
0 to 4 years	1,515	770	*51%*	745	*49%*
5 to 9 years	1,610	850	*53%*	765	*48%*
10 to 14 years	1,730	880	*51%*	845	*49%*
15 to 19 years	1,920	1,005	*52%*	915	*48%*
20 to 24 years	1,545	815	*53%*	730	*47%*
25 to 34 years	2,495	1,205	*48%*	1,285	*52%*
35 to 44 years	3,300	1,625	*49%*	1,680	*51%*
45 to 54 years	4,410	2,170	*49%*	2,250	*51%*
55 to 64 years	3,640	1,790	*49%*	1,855	*51%*
65 years and over	4,530	2,020	*45%*	2,500	*55%*
TOTAL	26,695	13,130	*49%*	13,570	*51%*

(Source: 2011 Census, Statistics Canada)

3.1.3 Socioeconomic Circumstances

Within the fire industry, it has been established through research that fire risk does not impact a community homogenously. Just as communities can be diverse, so too is the potential for fire risk. One of the factors that influences fire risk is the socioeconomic circumstances of a community. Socioeconomic circumstances can be indicated by several factors including educational attainment, income levels, and home ownership. These factors can be analyzed and considered on a number of levels such as neighbourhood, household, and individual as referred to in the report titled "*Socioeconomic Factors and the Incidence of Fire*" completed by the Federal Emergency Management Agency (FEMA) United States Fire Administration (1997).[4]

Socioeconomic factors intersect in a number of ways and have a direct and indirect impact on fire risk. One such example is outlined in the Ontario's Office of the Fire Marshal and Emergency Management's Fire Risk Sub-Model. The Sub-Model makes reference to the relationship between income and fire risk. As one consideration, households with less disposable incomes may be less likely to purchase fire safety products (e.g., smoke alarms, fire extinguishers, etc.), which puts them at higher risk of experiencing

[4] *Source: Federal Emergency Management Agency, United States Fire Administration. (1997, June). Socioeconomic Factors and the Incidence of Fires. Retrieved July 2016, from http://www.sustainable-design.ie/fire/socio.pdf*

consequences from a fire.[5] Another consideration is that households living below the poverty line may have a higher number of persons per bedroom in a household and/or children who are more likely to be at home alone. These circumstances would impact both the probability and consequence of a fire.

These complexities are not well understood within the fire service. Therefore, for the purposes of this Community Risk Assessment a number of socioeconomic indicators will be reviewed at a high-level for the Township of Centre Wellington in comparison to the Province of Ontario. It should be noted that, if viewed at a finer level of detail (example, census tract or neighbourhood level), consideration could be given to how these factors may intersect and compound each other. For example, a neighbourhood that has a high proportion of seniors, immigrants, and unemployed residents may be at a higher risk than a neighbourhood with just a high proportion of seniors.

The factors reviewed at a high-level have been selected based on data available from Statistics Canada (both the Census and National Household Survey). Factors that are highlighted in this section include:

- Immigrant Status
- Labour Force Status
- Family Structure
- Educational Attainment
- Household Tenure
- Household Occupancy
- Household Suitability
- Household Cost

Immigrant Status

A high proportion of immigrants could demonstrate a higher fire risk due to a large population that has a potential for: lower income; lack of familiarity with local fire life safety practices; and/or experience possible language barriers, for example. Table 4 presents the overall immigrants status of the population in Centre Wellington. The Township has a smaller proportion of immigrants (11%) compared to Ontario as a whole (29%). When looking at the data by year of immigration, it is shown that there is greater variability between the Township and the Province. In the Township, 49% of immigrants moved to the Township before 1971 compared to 20% in the Province. Between 2001 and 2011, 9% of the immigrant population arrived in Centre Wellington compared to 28% in the Province as a whole. This suggests that, in comparison to the province, there is likely to be a smaller proportion of at-risk immigrants. This population should be monitored as new census data becomes available for

[5] *Source*: Comprehensive Fire Safety Effectiveness Model: Fire Risk Sub-model. OFMEM. June 2009, accessed Sept 2015, <http://www.mcscs.jus.gov.on.ca/english/FireMarshal/FireServiceResources/ComprehensiveFireSafetyEffectivenessModel/FireRiskSub-Model/Fire_risk_submodel.html>.

consideration when planning public education programs and materials. In addition, spatial considerations may reveal geographic clusters that could be targeted for public education programming.

Table 4: Immigrant Status – Township of Centre Wellington and Ontario (2011 NHS)

	Centre Wellington	%	Ontario	%
Non-immigrants	23,215	*89%*	8,906,000	*70%*
Immigrants	2,960	*11%*	3,611,365	*29%*
Before 1971	1,460	*49%*	723,030	*20%*
1971 to 1980	605	*20%*	464,380	*13%*
1981 to 1990	370	*13%*	538,285	*15%*
1991 to 2000	265	*9%*	866,220	*24%*
2001 to 2011	260	*9%*	1,019,460	*28%*
Non-permanent residents	25	*0%*	134,425	*1%*
Total	26,205	*100%*	12,651,795	*100%*

(Source: Statistics Canada, 2011 National Household Survey)

Labour Force Status

Labour force status is another possible indicator of income levels which directly influences on fire risk (e.g. lower income translates to increased fire risk). The participation rate (i.e. the proportion of residents in the labour force) can also be an indicator of income and can be considered alongside unemployment rates (e.g. lower participation rate and higher unemployment could mean lower income, higher fire risk). In terms of labour force status (Table 5), the Township has a slightly higher participation rate than the Province (69% versus 66%). The Township of Centre Wellington has an unemployment rate at 4% (in 2011) which is slightly less than the Province at 5%, suggesting a slightly lower amount of fire risk in comparison to the Province from the perspective of labour force status.

Table 5: Labour Force Status – Township of Centre Wellington and Ontario (NHS 2011)

	Centre Wellington	%	Ontario	%
In the labour force	14,825	*69%*	6,864,990	*66%*
Employed	*14,005*	*66%*	6,297,005	*60%*
Unemployed	*815*	*4%*	567,985	*5%*
Not in the labour force	4,880	*23%*	3,608,685	*34%*
Total	18,625	*100%*	10,473,670	*100%*

(Source: Statistics Canada, 2011 National Household Survey)

Family Structure

Another indicator of socioeconomic status and level of income is the number of lone-parent families, or family structure. A higher proportion of lone-parent families could reflect lower household income and therefore a higher fire risk. A higher proportion of lone-parent families also have the possible increased likelihood of a child being home alone or unsupervised leading to an increased fire risk. Of the families with children in Centre Wellington, 11% are lone-parent families compared to 17% for the Province as a whole (Table 6). This suggests that Centre Wellington has a lower fire risk from the perspective of lone-parent families.

Table 6: Family Structure – Township of Centre Wellington and Ontario (Census 2011)

	Centre Wellington	%	Ontario	%
Couple Families	6,995	89%	3,007,560	83%
Lone-Parent Families	855	11%	604,645	17%
Total	6,970	100%	3,612,205	100%

(Source: Statistics Canada, 2011 Census)

Educational Attainment and Income

The relationship between educational attainment and income is multi-layered. Based on analysis completed by Statistics Canada, high-income Canadians tended to be highly educated. One in four people in Canada with post-secondary education had incomes in the top 10% of all Canadians.[6] However, the analysis also showed that of the Canadians with the top 10% of incomes, only 50.3% had attained a university degree. Only 4% of the individuals with incomes in the top 10% had no certificate, diploma, or degree. For the purposes of this CRA, it is simply assumed that a higher education leads to more disposable income and a lower fire risk. It is also assumed that households with more disposable income are more likely to invest in fire life safety products such as fire extinguishers and smoke alarms reducing the fire risk.

In terms of educational attainment, Centre Wellington has a similar proportion of the population that has no certificate, degree, or diploma – 20% in Centre Wellington versus 19% in the Province. As shown in Table 7, 51% of Township residents have a post-secondary certificate, diploma or degree which is 4% less than the Province. However, a greater proportion of the population in Centre Wellington has a high school diploma or equivalent compared to the Province (29% versus 27%).

[6] *Source*: Statistics Canada, Education and occupation of high-income Canadians, https://www12.statcan.gc.ca/nhs-enm/2011/as-sa/99-014-x/99-014-x2011003_2-eng.cfm , modified September 15, 2016: visited January 24, 2017.

This overall level of educational attainment could be linked to the higher median household incomes found in Centre Wellington ($77,246 which is over $10,000 higher than the Province). This suggests that Center Wellington as a whole has a lower fire risk from the perspective of income using educational attainment as an indicator.

Table 7: Educational Attainment – Township of Centre Wellington and Ontario (NHS 2011)

	Centre Wellington	%	Ontario	%
No Certificate; Diploma or Degree	4,185	*20%*	1,954,520	*19%*
High School Diploma or Equivalent	6,200	*29%*	2,801,805	*27%*
Postsecondary Certificate; Diploma Or Degree	10,970	*51%*	5,717,340	*55%*
Total	18,625	*100%*	10,473,670	*100%*

(Source: Statistics Canada, 2011 National Household Survey)

Household Tenure, Occupancy, Suitability, and Costs

Table 8 summarizes household statistics including tenure, occupancy, suitability, and costs. Housing tenure reflects socioeconomic status whereby a low home ownership rate may reflect lower incomes in the community and a higher overall fire risk. The Township of Centre Wellington has a higher proportion of dwellings that are owned versus rented when compared to the Province (82% owned in Centre Wellington versus 71% in the province). In the Township, 1% of the households have more than one person per room compared to the Province which has 2% of households with more than one person per room. A higher proportion of multiple persons per household can result in an increased fire loss resulting in a higher risk. From the perspective of housing tenure and occupancy, Centre Wellington has a lower fire risk as compared to the Province.

Similarly, the National Household Survey reports on housing suitability which, according to Statistics Canada, refers to whether a private household is living in suitable accommodations according to the National Occupancy Standard. Suitable accommodations are defined by whether the dwelling has enough bedrooms based on the age and relationships among household members. Based on this measure, the Township of Centre Wellington has 3% of (or 295) households that are not suitable compared to 7% for the Province as a whole (resulting in nearly 353,090 “not suitable” households across the province). From the perspective of housing suitability, Centre Wellington has a lower fire risk as compared to the Province.

Shelter costs further provide some indication of the amount of disposable income within a household. Households with less disposable income have fewer funds to purchase household fire life safety items resulting in a higher risk. In the Township of Centre Wellington, 20% of households spend 30% or more of the household total income on shelter costs. This is 7% lower than the Province, where 27% of households spend 30% or more of income on shelter costs. However, the Township has a very similar cost of living in terms of shelter costs to the Province. This is further supported through the median

value of dwellings at $300,625 (Centre Wellington) to $300,862 (Province). The Township also has a similar median monthly shelter costs for owned and similar median monthly shelter costs for rented dwellings compared to the Province. The 7% difference in the proportion of households spending more than 30% of total household income on shelter costs may be offset by the median household income. As mentioned, in Centre Wellington the median household income is $77,246 (in 2010) which is higher than the Province at $66,358 per the 2011 NHS. This analysis suggests that from the perspective of shelter costs and the impact on income, the fire risk within the Township of Centre Wellington may overall be similar or lower than that of the Province as a whole.

Table 8: Household Tenure, Occupancy, Suitability, and Costs – Township of Centre Wellington and Ontario (NHS 2011)

	Centre - Wellington	%	Ontario	%
Household Tenure				
Owner	8,120	*82%*	3,491,320	*71%*
Renter	1,820	*18%*	1,389,915	*28%*
Total	9,945	*100%*	4,886,655	*100%*
Household Occupancy				
One person or fewer per room	9,865	*99%*	4,765,300	*98%*
More than one person per room	80	*1%*	121,355	*2%*
Total	9,945	*100%*	4,886,655	*100%*
Housing Suitability				
Suitable	9650	*97%*	4,533,570	*93%*
Not suitable	295	*3%*	353,090	*7%*
Total	9,945	*100%*	4,886,655	*100%*
Shelter Costs				
Spending less than 30% of household total income on shelter costs	7,645	*80%*	3,520,530	*73%*
Spending 30% or more of household total income on shelter costs	1,950	*20%*	1,303,190	*27%*
Total	8,520	*100%*	4,823,720	*100%*
Median value of dwellings ($)	300,625		300,862	
Median monthly shelter costs for owned dwellings ($)	1,212		1,163	
Median monthly shelter costs for rented dwellings ($)	813		892	

(Source: Statistics Canada, 2011 National Household Survey)

As previously noted, it is important to keep in mind that all these factors, as explored, can intersect with one another and have an impact on fire risk. For example, a community may have higher shelter costs resulting in less disposable income, but also have a higher level of educational attainment. The

quantitative impact intersecting factors can have on fire risk (probability and consequence) is not widely understood at a detailed level within the fire service. This should be considered when assessing socioeconomic factors.

3.1.4 Vulnerable Individuals or Occupancies

A group within a community that faces higher fire risk is known as vulnerable individuals or vulnerable occupancies. A vulnerable individual can be someone with mobility limitations, cognitive limitations, persons with developmental disabilities, or those generally who are unable to move on their own due to their own physical limitations or due to restraint.

Vulnerable individuals or occupancies are a particular focus of a fire and rescue department primarily because these individuals are unable to assist themselves in the event of a fire. A vulnerable occupancy would be occupied by vulnerable individuals; however, not all vulnerable individuals reside in a vulnerable occupancy. From an occupancy perspective, vulnerable occupancies would fall into Group B – Care or Detention occupancies. (Further information on these occupancies can be found in Section 3.3.6.) One way a fire department can help reduce the risk faced by vulnerable individuals is to provide, advertise, and maintain a registry for the domiciles of vulnerable individuals.

3.1.5 Ethnic and Cultural Considerations (Considerations for Public Education)

Cultural diversity and ethnic background can be factors for fire departments to 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 9 provides a breakdown of the knowledge of official languages based on the 2011 Statistics Canada census information.

Table 9: Knowledge of Official Languages

Language	Centre Wellington		Ontario	
	Total	% Total	Total	% Total
Total population (non-institutional)	26,350	-	12,722,060	-
English Only	24,710	93.8%	10,984,360	86.3%
French Only	10	0.0%	42,980	0.3%
English and French	1,600	6.1%	1,395,805	11.0%
Neither English nor French	25	0.1%	298,920	2.4%

Source: Statistics Canada, 2011 Census

English is the primary language of the Township's population with 93.8% knowing English only. In addition, 6.1% of the population state that they know both English and French, and less than 1% with knowledge of neither English nor French. Therefore, language barriers experienced by residents are expected to be relatively infrequent. Consideration could be given to considering language barriers at a census tract or neighbourhood level. Further, the potential for communication barriers should be considered and monitored, especially when working with specific groups, such as tourists and as the community continues to grow.

3.1.6 Population Shifts

The population within a community can shift at various times during the day or week and throughout the year. Population shift can be a result of a number of factors including employment, tourism, and education. In some municipalities, residents occasionally leave the community for employment. Other communities may be major tourist and vacation destinations resulting in large population shifts related to seasonal availability of tourism activities. This can result in an increased risk due to overnight tourism accommodation (sleeping) which can impact the demand for fire protection services. Another impact of population shift could be an increase in vehicular traffic which could impact the number of motor vehicle calls and emergency response times.

The Township of Centre Wellington primarily experiences population shift related to tourism. The Township of Centre Wellington has a number of unique features that draw tourists to the area primarily during the summer months. The features that contribute to its draw as a tourist destination include:

- Outdoor recreational activities such as the Elora Gorge, Elora Quarry, Belwood Lake, Conservation Area, tubing on the Grand River, trails, golf, and fishing;
- Culinary and art attractions;
- Downtown Elora and Fergus with prominent built heritage; and
- Special events such as:
  - Elora Vintage & Antique Show (April);
  - Elora Writers Festival(Spring);
  - Belwood Lake Triathlon;
  - Canada Day Festivities;
  - Christmas Festival
  - Elora Festival;
  - Elora Farmers' Market;
  - Centre Wellington Equine Trade Show, Tack Swap and Seminars;
  - Fergus Truck Show; and
  - Fergus Scottish Festival and Highland Games.

As a result, the Township experiences some population shift due to the tourism draw for recreational opportunities. However, the extent of this tourism including quantitative estimates and the proportion that stay overnight (which would impact fire risk) has not been studied recently. While each event draws tourists at various times throughout the year, it is important to consider population shifts from a fire protection, education and prevention standpoint. Specific fire protection strategies to address population shifts should be accommodated as part of broader services, such as pro-active fire inspections of the facilities occupied by these demographics (e.g., hotels and motels).

3.1.7 Demographic Profile Observations

The following is a summary of key Demographic Profile observations:

- The 2011 Statistics Canada Census identified a population of 26,695 for the Township;
- The Township of Centre Wellington has a slightly older resident population at 17% over 65 years of age compared to 15% in the Province of Ontario;
- Centre Wellington is a popular recreation and tourism destination resulting in a population shifts primarily during the summer season;
- The distribution of males and females in the overall population is split at 49% for males and 51% for females;
- Centre Wellington has a similar proportion of the population that has no certificate, degree, or diploma compared to the Province (20% versus 19%);
- The Township of Centre Wellington has 3% (or 295) households that are classified as unsuitable compared to 7% (353,090) for the Province as a whole;
- In the Township, the median household income is $77,246 (in 2010) which is higher than the Province at $66,358 per the 2011 NHS;
- In the Township, 20% of households spend 30% or more of the household total income on shelter costs (-7% compared to the Province); and
- The median value of dwellings at $300,625 in Centre Wellington is almost identical to the Province at $300,862.

3.2 Geographic Profile

A geographic profile reviews key natural and human-made features within a jurisdiction. According to NFPA 1730, a geographic profile should consider highways, bridges, railroads, water features, geographic landforms, and the wildland-urban interface.

Highways, Bridges, and Railroads

Located in the County of Wellington, the Township of Centre Wellington covers approximately 407 km^2 and had a 2011 population of 26,695 (2011 Statistics Canada census). Approximately 76% of the Township's 2016 estimated population of 30,210 people reside within the urban centres of Elora-Salem and Fergus.[7] The remaining population is distributed through the rural area including the Hamlets of Inverhaugh, Ennotville, and Belwood. As shown in Figure 2, the Township is primarily serviced by local roads, collector roads, arterial roads, and County roads. Highway 6 travels through Fergus, connecting Centre Wellington to the City of Guelph. The road network within the Fergus and Elora-Salem are primarily a modified grid pattern, respecting the natural geography of the area, while the road network outside of the Urban Centres is a grid network of county roads. While the road network is serving the community well, it can potentially pose risks to residents and individuals driving through the community (e.g. motor vehicle collisions) and residing adjacent to highways and arterial roads (e.g. truck roll-overs). Section 8.6 in the FSMP states the CWFR responds to a high percentage of motor vehicle collisions (16% of total calls). Weather may be a factor as well as congestion during commuter peak times.

The road network and geographic extent of the Township should also be considered in terms of extended emergency response times. While the road network is comprehensive, the existing fire stations are located within the centre of the Township (where three-quarters of the Township population resides). However, there are notable residential areas outside of the urban centres of Elora-Salem and Fergus including the hamlets, and Belwood Lake. Residential uses around Belwood Lake include the hamlet of Belwood, Pine Meadows Retirement Community, Maple Leaf Acres (seasonal), and other pockets of residential uses including along the shoreline of the lake. Belwood Lake and other rural areas outside of Fergus and Elora experience extended response times. Consideration should be given to targeting areas with extended response times for public education activities and fire prevention activities as appropriate.

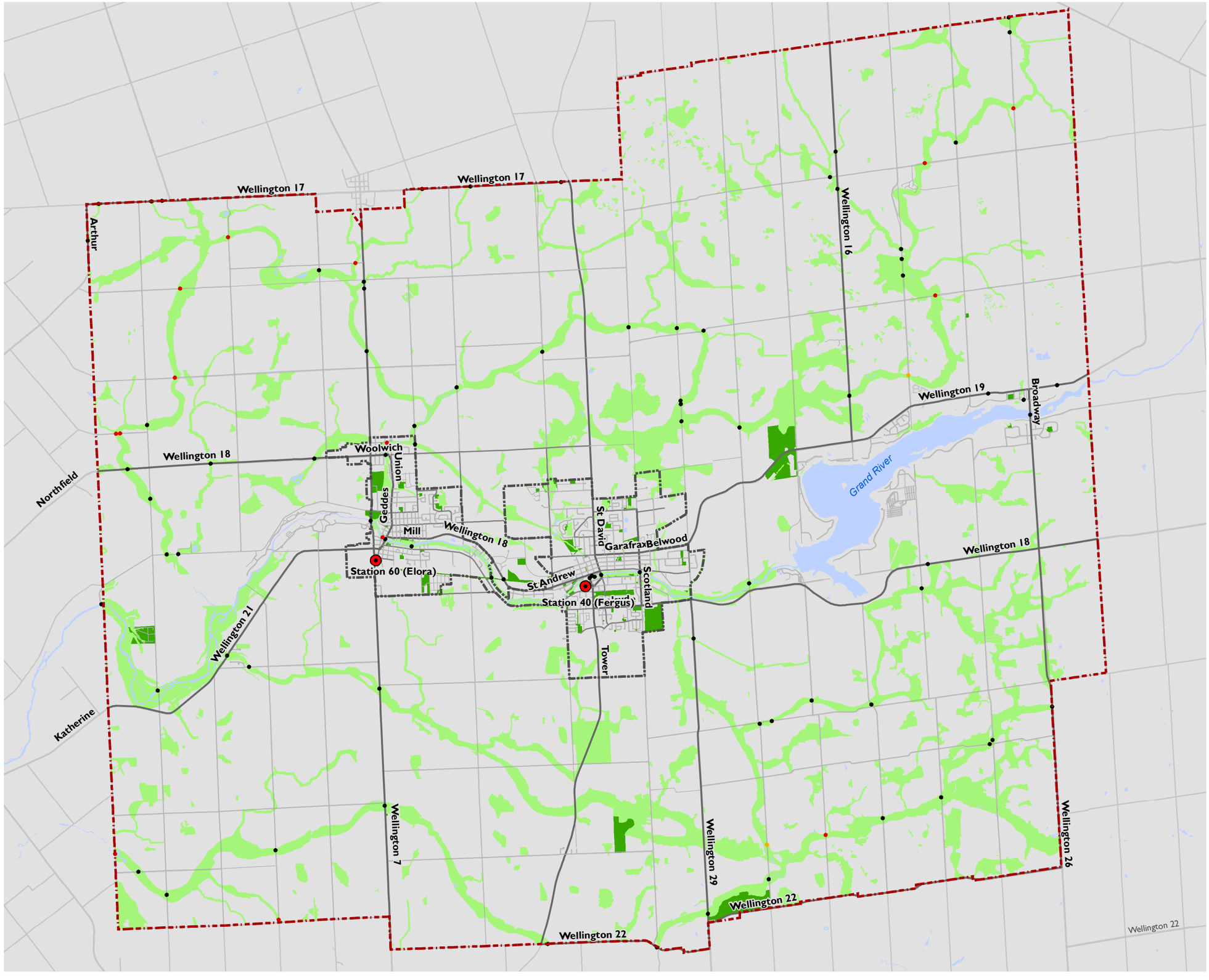
Flowing south through Fergus and Elora, Centre Wellington is bisected by the Grand River and related tributaries and streams. These natural features combined with the existing transportation network results in a considerable inventory of bridges within the community. Today, there are 84 bridges including 72 scattered throughout the municipality and 12 within Elora and Fergus as shown in Figure 2.

[7] Based on data from the 2016 estimate of population as found on page 4-9, figure 4-4a of the May 5th, 2015 Watson & Associates *Wellington County Population, Household and Employment Forecast Update*, 2011-2041.

Township of Centre Wellington
Fire Service Master Plan

Transportation Network and Natural Features

Figure 2



- Fire Station
- Open Bridges
- Recommended Closing Bridges
- Closed Bridges
- Township Boundary
- Urban Centre Boundary
- Waterbody
- Environmental Protection
- Parks, Open Space, and Stormwater Management
- Arterial Road
- Collector Road
- Local Road

0 0.5 1 2 km

SCALE 1:85,000

MAP DRAWING INFORMATION:
DATA PROVIDED BY MNR AND THE TOWNSHIP OF CENTRE WELLINGTON

MAP CREATED BY: SMB
MAP CHECKED BY: AJN
MAP PROJECTION: NAD 1983 UTM Zone 17N

FILE LOCATION: I:\GIS\163644 - Centre Wellington Master Fire Plan\MXDs\Road Network.mxd

DILLON CONSULTING

PROJECT: 16-3644
STATUS: FINAL
DATE: 2017-02-24

There are ten bridges with bridge restrictions meaning that the weight of the fire apparatus is too great for the vehicle to safely cross the bridge, none of which are within the Fergus-Elora-Salem urban boundary. Today, these restrictions do not have significant impact on emergency response coverage. The bridges in the urban centres of Elora and Fergus connect the northern and southern portions of the communities. In addition to known bridge restrictions, there are other risks related to the bridges that should be considered. Since the Grand River runs right through Elora and Fergus, it bisects the communities and currently both fire stations are located on the south side of the river. Some bridges are slated for capital upgrades which could have multiple impacts such as fully restricting access to a geographic area or by increasing congestion in built up areas, both of which may severely impact volunteer turnout time and fire apparatus travel time. CWFR identified two key bridges that will be closed in the future: St. David Street bridge (in 2018), and the Badley Bridge in 2017. The loss of a bridge in a certain area, whether related to planned capital upgrades or a hazard such as a flood, would reduce access via the road network and therefore negatively impact emergency response coverage. The CWFR should be considered a key stakeholder when the Township seeks to address traffic /circulation needs in the case of bridge/road works that could impact the turnout time of volunteers and travel time of the department.

While the Goderich to Guelph Rail Trail - used for walking/hiking - travels through Centre Wellington, there are no active railway lines within the municipal boundaries of Centre Wellington for either passenger rail or freight service. Since there are no active railways, the related risks (e.g., the potential for restricting emergency response vehicles, transporting potentially hazardous material, etc.) are not anticipated as an issue within the Township of Centre Wellington.

Water Features and Geographic Land Forms

While Centre Wellington is primarily agricultural, there are notable water and geographic features within the community. As already introduced, Centre Wellington is bisected by the Grand River and it runs right through the urban centre of Fergus and Elora. This major river presents considerable risk with the potential for flooding, recreational accidents, or other emergency incidents.

Figure 3: Elora Gorge

Photography by Ken Lund, (CC BY-SA 2.0), available under Public License via Flickr. No modifications made to the image. https://www.flickr.com/photos/kenlund/21651798050

Complementing the river are three Conservation Areas: Elora Quarry, Elora Gorge, and Belwood Lake Conservation Area. The conservation areas in Elora are popular destinations for swimming (Elora Quarry), tubing, hiking, biking, and camping (Elora Gorge, Figure 3).

Located roughly six kilometres north-east of Station 40 in Fergus is the Belwood Lake Conservation Area. This conservation area is just one of the many features on Belwood Lake, a

reservoir. Most the lake's shoreline is designated for recreational land use and is used for *"passive outdoor leisure activities such as conservation, walking, hiking and cycling"* (Centre Wellington Official Plan pg. 30). This area is popular for swimming, boating, fishing, hiking, and features campgrounds such as Highland Pines Campground. These geographic features offer a bounty of natural and recreational resources but they also present an increased risk to the community resulting in the form of accidents or incidents occurring while using/navigating these geographic features. This results in a higher potential for the need of technical rescue services provided by the department (e.g., water, swift water, high-angle/low-angle rope rescue, etc.). The Township of Centre Wellington also has windmills located north of Belwood Lake along County Road 16 between side roads 20 and 15. Windmills also present unique risks to the community (e.g., for windmill workers), resulting in the need for windmill rescue services.

Wildland-Urban Interface

NFPA 1730 identifies wildland-urban interface as geography-based risk for consideration. This interface refers to the area of transition between unoccupied land and human development. This transition area could be comprised of woodlots, bush, or grass. As a community that has a significant amount of agricultural lands and natural features, the Township of Centre Wellington is at risk of wildfires (grass fires). Based on this risk, CWFR should consider appropriate training of personnel and the potential challenges faced by emergency vehicles, equipment, and personnel being able to access this type of fire. Fire prevention policies including enforcement and public education can be used to manage and mitigate this risk through open air burn permit systems.

Geographic Profile Observations

In summary, the following are key demographic profile observations:

- The Township is connected by a network of rural arterial, collector, and local roads which directly contribute to the number of motor vehicle collision calls.
- Residential populations around Belwood Lake, Township hamlets, and other rural residences experience extended emergency response times.
- There are a total of 84 bridges in the Town, 12 of which are located within the Fergus-Elora-Salem urban boundary. These bridges cross over some rivers that result in some restrictions to fire apparatus; however, no particular risk was identified based on the current configuration of the road network and bridges.
- The loss of a bridge in a certain area, whether related to planned capital upgrades or a hazard such as a flood, would reduce access to the road network and therefore negatively impact emergency response coverage. The CWFR should be considered a key stakeholder when the Township seeks to address traffic /circulation needs in the case of bridge/road works that could impact the turnout time of volunteers and travel time of the department.
- There are no active rail lines in the community.
- The Township is rich in natural heritage features including the Grand River, the Elora Gorge Conservation Area, the Elora Quarry Conservation Area, and the Belwood Lake Conservation Area. These geographic features result in an increased risk to the community resulting in the form of

accidents or incidents occurring while using/navigating these geographic features. This results in a higher potential for the need of technical rescue services provided by the department (e.g., water, swift water, high-angle/low-angle rope rescue, etc.).
- Windmills also present unique risks to the community (e.g., for windmill workers), resulting in the need for windmill rescue services.
- As a rural community with a mix of agricultural uses and other natural features, there are risks related to wildland-urban interface.

3.3 Building Stock Profile

NFPA 1730 and OFMEM Public Fire Safety Guideline 04-40A-12 highlight highlights a number of characteristics of building stock that should be considered pertaining to fire risk which are described in this section. This includes: building stock, building density, building age and construction, potential high-fire risk occupancies, vulnerable occupancies, and historic or culturally significant buildings.

3.3.1 Building Code Occupancy Classifications

The Ontario Building Code (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 a community risk assessment.

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 10.

Table 10: OBC Major Occupancy Classification

Group	Division	Description of Major Occupancies
Group A	1	*Assembly occupancies intended for the production and viewing of the performing arts*
	2	*Assembly occupancies not elsewhere classified in Group A*
	3	*Assembly occupancies of the arena type*
	4	*Assembly occupancies in which occupants are gathered in the open air*
Group B	1	*Detention occupancies*
	2	*Care and treatment occupancies*
	3	*Care occupancies*
Group C	---	*Residential occupancies*
Group D	---	*Business and personal services occupancies*

Group	Division	Description of Major Occupancies
Group E	---	*Mercantile occupancies*
Group F	1	*High-hazard industrial occupancies*
	2	*Medium-hazard industrial occupancies*
	3	*Low-hazard industrial occupancies*

Source: Ontario Building Code, 2012

The Fire Risk Sub-model developed by the Office of the Fire Marshal and Emergency Management only utilizes the major group classifications (i.e. 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. Subject to any site specific hazards or concerns, occupancies within this group can be assessed individually and then included where required within the scope of the broader Community Risk Assessment.

Table 11 and the discussion that follows describe the major occupancy groups used within this Community Risk Assessment. Definitions of the major occupancies from the Ontario Building Code are provided. The typical type of risk related to these occupancies and the potential proactive measures to reduce risk are also introduced.

All occupancies have unique risks based on their occupancy classification group. Within the groups, the buildings themselves can also be very different. For Group C - Residential occupancies, there are many types of buildings that can meet this description that would present their own unique risks - for example, mobile homes/travel trailers versus a single-detached dwelling. Consideration also needs to be given to high-rise residential occupancies which represent unique risk and operational challenges. Group D – Business and Personal Services occupancies can also be located in different types of buildings, such as remodelled single-family dwellings, low-rise, or high-rise buildings. Each of these building types can present different risks including egress for firefighting operations and evacuation by occupants. Group E – Mercantile occupancies can also present varied risks depending on the type of building which houses them. They range in size and potential risk from smaller neighbourhood corner stores to the large big box-style buildings. Large volumes of combustibles may be present in all forms of mercantile and business and personal services occupancies. Within the fire service, these two occupancy types are often considered together as “commercial uses.”

While building variation applies within Group B – Care or Detention occupancies, the important consideration in this case is the nature of the occupancy. Such occupancies are for individuals that require special care or treatment due to cognitive or physical limitations. These occupancies could also be for individuals who are incapable of self-preservation because of security measures. Regardless of

the type of building Group B – Care or Detention occupancies inhabit, this critical aspect of risk remains the same.

As shown in Table 11, the Group F – Industrial occupancy group is divided into low-hazard (Division 3), medium-hazard (Division 2) and high-hazard (Division 1) based on the 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 utilized in the manufacturing process and present in storage. This can include highly flammable and corrosive products.

Table 11: Definitions, Risks and Proactive Measures for Risk Reduction by Major Occupancy Group

Major Occupancy Classification	Definition (Defined by Ontario Building Code)	Occupancy Risks	Proactive Measures for Reducing Risk
Group A – Assembly	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	· Overcrowding by patrons · Lack of patron familiarity with emergency exit locations and procedures · Staff training in emergency procedures · Large quantities of combustible furnishings and decorations	ü Regular fire prevention inspection cycles ü Automatic fire detection and monitoring systems ü Approved fire safety plan and staff training ü Pre-planning by fire suppression staff
Group B – Care or Detention	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.	· Inability to evacuate or relocate patients · Presence of flammable/combustible gases · Vulnerable occupants using overnight accommodations (sleeping) · Combustible furnishings	ü Regular fire prevention inspection cycles ü Automatic fire detection and monitoring systems ü Approved Fire Safety Plan and staff training ü Pre-planning by fire suppression staff
Group C – Residential	An occupancy 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.	· Overnight accommodation (sleeping) · Combustible furnishings · Secondary units (basement apartments) · High population density · Human behaviour (cooking, use of candles, etc.)	ü Home smoke alarm programs ü Public education programming including home escape planning ü Retro-fit and compliance inspection cycles for OFC compliance ü Pre-planning by fire suppression staff
Group D – Business and Personal Services	An occupancy that is used for the transaction of business or the provision of professional or personal services.	· High volume of occupants · High combustible loading · Specialized equipment utilizing high risk substances such as radiation · Consumers unfamiliar with emergency exits and procedures	ü Regular fire prevention inspection cycles to maintain OFC compliance ü Targeted fire prevention inspections for OFC retro-fit compliance ü Staff training in fire prevention and evacuation procedures ü Public education programs ü Pre-planning by fire suppression staff
Group E – Mercantile	An occupancy that is used for the displaying or selling of retail goods, wares, and merchandise.	· High volume of occupants/staff · High volume of combustible loading/high rack storage · Lack of occupant familiarity with emergency exit locations and procedures · Size of building	ü Regular fire prevention inspection cycles ü Automatic fire detection and monitoring systems ü Approved Fire Safety Plan and staff training ü Pre-planning by fire suppression staff
Group F – Industrial	An occupancy that is used for the assembly, fabrication, manufacturing, processing, repairing or storing of goods and materials	· Large dollar loss as a result of a major fire · Economic loss in the event of plant shut downs and job loss · Environmental impacts · Presence of ignition sources related to processing activities	ü Regular fire prevention inspection cycles ü Staff training in fire prevention and evacuation ü Public education ü Pre-planning by fire suppression staff ü Installation of early detection systems (smoke alarms, heat detectors) ü Installation of automatic sprinkler systems

In addition to the six major occupancy classifications, there are other occupancies and features that should be considered as part of developing the Community Risk Assessment. These include occupancies that may be regulated under other legislation, or other federally or provincially owned features/ facilities. Examples of these other considerations include: major railway lines; major highways and transportation corridors; outdoor tire storage facilities; and farm / agricultural buildings.

3.3.1.1 Building Stock Analysis

The majority of the building stock profiles of most Canadian municipalities are Group C – Residential occupancy classifications. Table 12 provides a summary of the property stock within the Township of Centre Wellington.

Table 12: Building Stock Analysis

Occupancy Classification (OBC)	Occupancy Definition Fire Risk Sub-model (OFMEM)	Number of Occupancies	Percentage of Occupancies
Group A – Assembly	Assembly occupancies	21	0.2%
Group B – Care or Detention	Care or Detention occupancies	5	0.0%
Group C – Residential	Single Family	8,125	95.2%
	Multi-unit residential	1,820	
	Hotel / Motel	3	
Group D & E – Business & Mercantile	Business and Personal Services and Mercantile Occupancies	411	3.9%
Group F – Industrial	Industrial occupancies	69	0.7%
Other occupancies	Not classified within the Ontario Building Code (i.e. farm buildings)	-	-
	Total	10,454	100.0%
Mixed Use Buildings	Not classified within the Ontario Building Code (i.e. Group C and Group F)	-	-

(Source: Centre Wellington Fire and Rescue)

The vast majority (95.2%) of the Township of Centre Wellington property stock is Group C – Residential. Of this occupancy classification, 81.7% of the occupancies identified by the CWFR are single-family residential dwelling and 18.3% are multi-unit dwellings. Group D & E – Business and Mercantile combine to make the second largest parcel property stock accounting for 3.9%. The third largest building occupancy if Group F – Industrial with 0.7%. There is also a relatively small number of Group A – Assembly (0.2%) and Group B – Care or Detention occupancies (0.0% or 5 occupancies). This analysis indicates that that Centre Wellington is primarily a residential community.

Group C – Residential occupancies are a notable risk due to the probability of fire occurring and the potential life-loss consequences. This is demonstrated by the proportion of fire loss and injuries or death within this occupancy classification within both Centre Wellington and the Province of Ontario (Section 3.4). A key element in mitigating Group C – Residential occupancy risks is maximizing the first two lines of defence.

3.3.2 Building Age and Construction

The Ontario Building Code (OBC) was adopted in 1975, and the Ontario Fire Code (OFC) was 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 that 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; and
- Inspection, testing, and maintenance.

In 1983, the OFC was further expanded to include retrofit requirements for many of the buildings 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.

3.3.2.1 Residential Buildings

The priority of addressing the residential fire risk is supported by the historic data[8] provided by the OFMEM that reports for the period from 2010 to 2014 residential fires accounted for 73% of all structure fire losses and for the period from 2004 to 2013 residential fires accounted for 85% of all fire fatalities. Historical data from the OFMEM also shows that fires in single-detached dwellings account for

[8] Source: "Ontario Fatal Fires: Summary." Ministry of Community Safety and Correctional Services. 8 Dec. 2014. Web. 5 Sept. 2015: http://www.mcscs.jus.gov.on.ca/english/FireMarshal/MediaRelationsandResources/FireStatistics/OntarioFatalities/FatalFiresSummary/stats_fatal_summary.html.

nearly two thirds of all residential fires. The data further indicates that detached homes generally account for 85% of all single-family dwelling fires.[9]

These facts make understanding the age and construction of a community's residential building stock an important component of developing a Community Risk Assessment. The Township's residential building structural dwelling types are summarized in Table 13.

Table 13: Residential Structural Dwelling Type- Township of Centre Wellington vs. Ontario (2011)

Structural Dwelling Type	Centre Wellington	% of Units	Ontario	% of Units
Single-Detached House	7,560	76.0%	2,718,880	55.6%
Semi-Detached House	365	3.7%	279,470	5.7%
Row House	360	3.6%	415,225	8.5%
Apartment-Duplex	90	0.9%	160,460	3.3%
Apartment-more than 5 Storeys	5	0.1%	789,970	16.2%
Apartment-less than 5 Storeys	1345	13.5%	498,160	10.2%
Other single-attached House	20	0.2%	9,540	0.2%
Movable Dwelling	200	2.0%	15,800	0.3%
Total	9,945	100%	4,887,505	100%

Source: Statistics Canada - 2011 Census Data

In comparison to the province, the Township of Centre Wellington has a higher proportion of single-detached dwellings (76.0% vs. 55.6%), but a much lower proportion of apartment buildings greater than five storeys (0.1% vs. 16.2%).

Statistics Canada reports on the age of construction for residential dwellings. Centre Wellington's residential buildings age are summarized in Table 14 and shown in Figure 4. 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 14 indicates that 49.7% of the Township's residential buildings were built prior to 1981. In comparison, 56.3% of all dwellings in Ontario were built prior to 1981, identifying that the Township of Centre Wellington has a younger building stock compared to that of the province with more buildings

[9] Source: Office of the Fire Marshal and Emergency Services. June 2012. Web. 20 July 2015. <http://www.mcscs.jus.gov.on.ca/english/FireMarshal/FireServiceResources/ComprehensiveFireSafetyEffectivenessModel/FireRiskSub-Model/Fire_risk_submodel.html>

built after the adoption of the OBC. Overall, the Township still has nearly half of its residential dwellings built prior to 1983. This is readily evident in looking at the downtowns of both Fergus and Elora. There are both residential and non-residential occupancies that were established in the 1800s. Many of these buildings are constructed with stone exteriors but have wood interiors and were built prior to the standards of the fire code requiring separation. As a result, the historic downtown cores of Fergus and Elora are at an increased fire risk due to age, construction, and exposures. Further information on the age of the building stock can be found in Section 3.3.7 of this CRA. Further information on building exposures can be found in Section 3.3.3 of this CRA.

Figure 4: Period of Construction for Residential Buildings

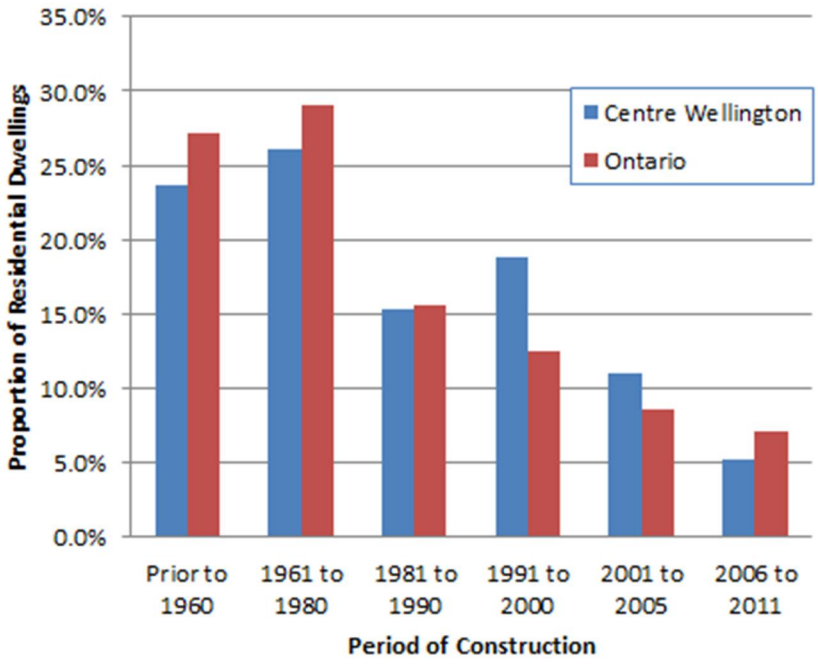


Table 14: Age of Construction of Residential Dwellings (2011)

Period of Construction	Centre Wellington	% of Units	Ontario	% of Units
Prior to 1960	2,350	23.6%	1,330,235	27.2%
1961 to 1980	2,595	26.1%	1,420,570	29.1%
1981 to 1990	1,515	15.2%	763,430	15.6%
1991 to 2000	1,870	18.8%	609,310	12.5%
2001 to 2005	1,095	11.0%	414,795	8.5%
2006 to 2011	520	5.2%	348,310	7.1%
Total	9,945	100%	4,886,655	100%

Source: Statistics Canada - 2011 Census Data

Centre Wellington is currently experiencing growth. With this growth comes the construction and potential related risks due to exposed materials. For example, wood-frame buildings are currently under development with this material exposed, which poses additional risk to Centre Wellington. Table 15 shows new residential construction projects identified in Centre Wellington.

Table 15: New Residential Construction Projects Identified in Centre Wellington

Development	Number of Permits
Wrighthaven Homes (First Line Elora)	50 + Permits
South River Road (East of Elora)	50 + Permits
Beatty Line (Between Fergus and Elora)	100 + Permits
Highway #6/ County Rd 18 (Fergus)	100 + Permits
Gartshore Street (Fergus)	100 + Permits

3.3.2.2 Non-Residential Buildings

During the late nineteenth century and early twentieth century, 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 utilized.

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.

Specific information such as census data is not available for non-residential buildings; however, based on experience in planning and development, it is assumed that the age of the non-residential property stock is similar to that of the residential property stock. As previously described, this is especially the case in the downtowns of Elora and Fergus where there are residential and non-residential occupancies that were built in the 1800s with stone exteriors and wood framing.

3.3.3 Building Density (Exposures)

NFPA 1730 lists building density as a key factor for understanding potential fire risk with particular consideration given to core areas (downtowns). Closely spaced buildings, typical of historic downtown core areas and newer infill construction, have a higher risk of a 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 and emergency services.

Exposure risk can be experienced through new development as well. One consideration is infill development. In some centres, this means higher density development in existing building up areas. In Centre Wellington, most of its growth will occur through greenfield development. Centre Wellington is experiencing a considerable amount of growth. This type of growth can also create exposure risk. Depending on the type and number of residential units being constructed, there could be exposure risks in these future developments as well. (See Section 5.2 of this CRA for further information on projected growth and locations of growth.)

3.3.4 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. 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, knowledge, or 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. 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.

The Ontario Building Code has detailed considerations to define a high-rise building based on the occupancy classification, floor area, occupant load, and what exactly is being measured. Within all occupancy classifications, when a building is 18 metres in height, additional OBC requirements are in effect.[10] The CWFR does not currently identify any high rise buildings in the community.

There are, however, a number of buildings that have large floor areas. As part of this review, CWFR identified some buildings of note that present an increased fire risk due to building area (Table 16). All of these buildings are industrial which may result in a higher fuel load as well. Industrial occupancies have strict requirements to assist in managing and mitigating risk and these various factors. Consideration should be given by CWFR to proactive inspection, pre-planning, and fire safety planning activities to mitigate risk in these occupancies.

Table 16: Buildings with Large Area Considerations

Building Name	Address	Description
Jefferson, Elora	60 1 Line, Elora	Car Parts Manufacturing
A.O. Smith, Fergus	599 Hill Street West Fergus, ON	Warehousing
Nexans, Fergus	670 Gzowski St, Fergus	Commercial/ Residential Wire & Cable Manufacturing and Warehousing
R.R. Donnelly, Fergus	650 Victoria Terrace, Fergus	Commercial Printing/ Warehousing

(Source: Centre Wellington Fire and Rescue)

[10] Ontario Association of Architects. (n.d.). Ontario Association of Architects. Retrieved January 20, 2016, from Presentation for Course on the Ontario Building Code: http://www.oaa.on.ca/oaamedia/documents/Ontario%20Building%20Code%20-%20Concepts%20and%20Code%20Analysis.pdf

In addition to industrial occupancies, commercial properties such as department stores and big box developments 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 Township has some such buildings including Home Hardware, Wal-mart Superstore, and Canadian Tire.

3.3.5 Potential High-Fire Risk Occupancies (Fuel Load)

Potential high-fire risk occupancy consideration is another factor within building stock profile per NFPA 1730. This section of the Community Risk Assessment will focus primarily on fuel load for industrial occupancies. 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 which 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, propagation, 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, within a large multi-unit residential building, or within an historic downtown core. As presented previously within this CRA, 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.

As illustrated in Table 17, the CWFR has identified five occupancies with fuel load concerns which is to be expected due to the size and role of the Township as a primarily residential and agricultural community. In addition to ensuring compliance to the requirements of the OBC and the OFC, there are operational strategies that a fire service 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.

Table 17: Buildings with Site Specific Fuel Load Concerns in the Township of Centre Wellington

Building Name	Address	Concern
Nexans	670 Gzowski St, Fergus	Large amount of Nylon Pellets. Used for processing, large amount of store wire & cable with Nylon Coating
C.P. Industries	535 Dickson Dr, Fergus	Hazardous Chemicals
Fergus Pallet	865 Gartshore St. Fergus	Pallets/ Fuel Load
Polycorp	33 York St. W, Elora	Large amounts of vulcanized rubber stored and processed

Herwynen Saw Mill	5953 6 Line, Guelph/Eramosa	Kiln dried hard wood in large quantities

(Source: Centre Wellington Fire and Rescue)

3.3.6 Vulnerable Occupancies (Potential High-life Safety Risk Occupancies)

In addition to the consideration of vulnerable individuals and demographics discussed in Section 3.1.4, identifying the location and number of occupancies within the community provides insight into the magnitude of this particular demographic within a community.

Occupancies that should be considered when assessing this demographic typically include those in Group B – Care or Detention occupancies. Example of such occupancies are hospitals, seniors' apartments, group homes, rooming houses, residential care facilities, daycare centres, elementary schools and long-term care facilities. Table 18 lists the occupancies identified by the CWFR as long-term care facilities that are vulnerable. Schools and day cares are also considered to be vulnerable occupancies. These facilities and locations are presented in Table 19. It is important that the fire department complete proactive inspections, fire safety plans and pre-planning in these buildings to prevent an incident and mitigate risk should an incident occur.

Table 18: Vulnerable Occupancies in Centre Wellington - Long term Care

Facility	Address	Number of Beds
Caressant Care Bourget Nursing Home	450 Queen Street East, Fergus	129
Highland Manor Nursing/ Retirement	110 Belsyde Avenue East, Fergus	120
Wellinton Terrace Nursing	474 Wellington County Road 18, Fergus	176
Heritage River Retirement	25 Wellington Drive, Elora	114
Kerry's Place Home for Autistic	6871 Fifth Line, Fergus	10

(Source: Centre Wellington Fire and Rescue)

Table 19: Vulnerable Occupancies in Centre Wellington – Schools and Day Cares

Facility	Address
Ponsonby Public School	5923 Wellington Road 7, Guelph
Elora Public School	288 Mill Street East, Elora
James McQueen Public School	365 St. George Street West, Fergus
St. Mary's Catholic School	251 Irvine Street, Elora
St. Joseph's Catholic School	150 Strathallan Street, Fergus
Maranatha Christian School	8037 Wellington 19, Fergus
Victoria Terrace Public School	500 Victoria Terrace, Fergus
John Black Public School	150 Lamond Street, Fergus

J.D. Hograth School	360 Belsyde Avenue East, Fergus
Little Angels Fergus	10 Sideroad 18, Fergus
Little Angels Elora	30 Geddes Street, Elora
J.D. Hograth Before & After School	360 Belsyde Avenue East, Fergus
Elora Public Before & After School	288 Mill Street East, Elora

(Source: Centre Wellington Fire and Rescue)

3.3.7 Historic or Culturally Important Building or Facilities

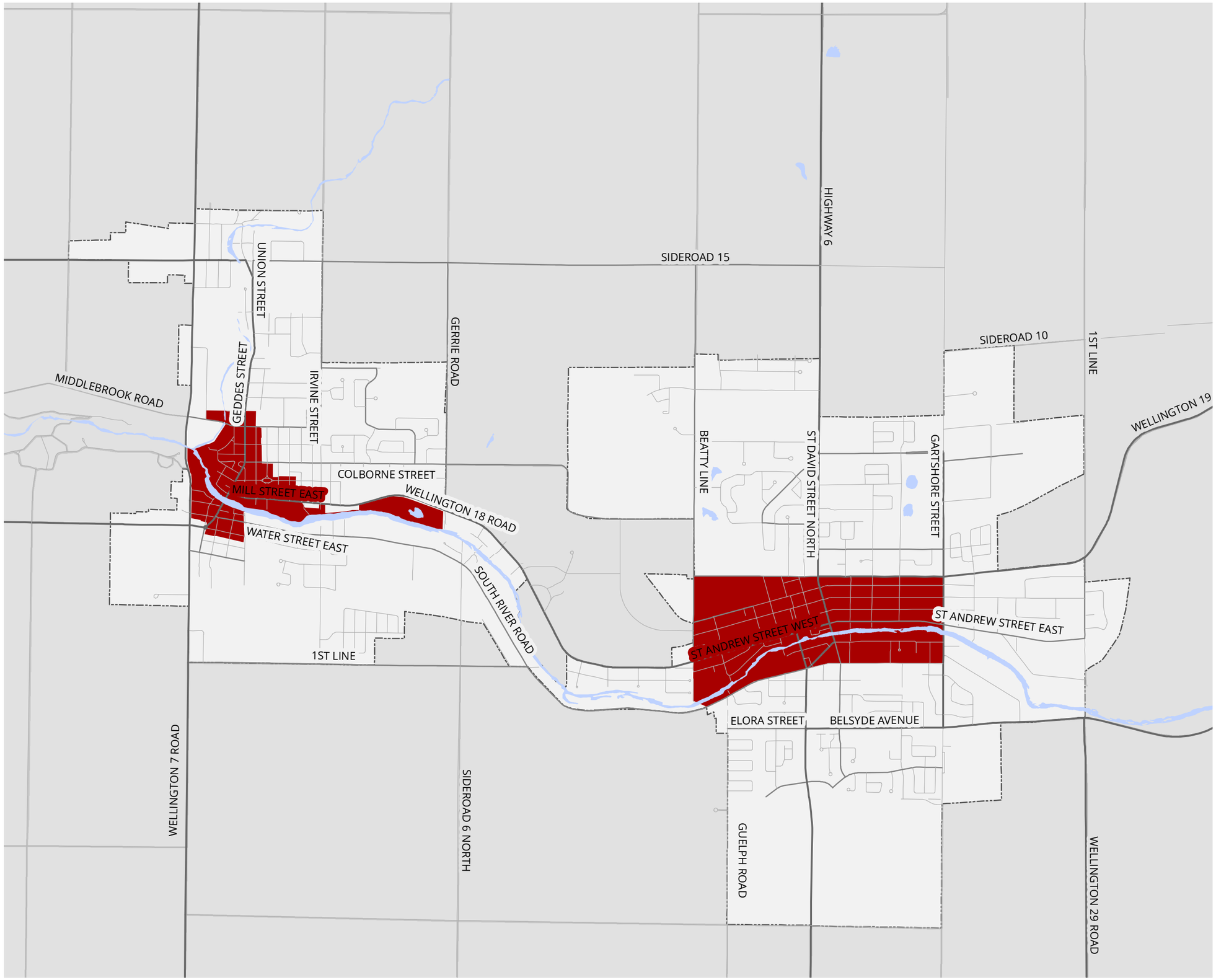
In addition to the consideration of building age and construction, understanding the location of historic or culturally important buildings or facilities is important. Such building or facilities may be keystone features to the community. They may provide a sense of heritage, place, and pride and act as tourism destinations which could result in an economic impact in the case of their loss.

Figure 5: Downtown Elora

Heritage conservation is a priority for Centre Wellington with the Planning Department, as well as the Heritage Centre Wellington Committee, responsible for protecting, promoting, documenting and improving the heritage properties in Centre Wellington.

The Township of Centre Wellington Official Plan highlights two heritage areas. These areas are located in the downtowns of Elora and Fergus and are shown in Figure 6 – Official Plan Heritage Area. As discussed in the Township's Official Plan, the intent of these areas is to "*identify an area in which a significant number of buildings contain heritage values and to ensure proper consideration is given to protecting these building when development proposals are put forward*" (p.g., 7). Downtown Elora is shown in Figure 5.

In addition to these general areas, several properties have been designated as buildings of historical and architectural value or interest under the *Ontario Heritage Act*: 104 buildings in Centre Wellington designated under the *Ontario Heritage Act;* and 6 homes along Brock Avenue designated as a heritage



Township of Centre Wellington
Fire Service Master Plan

Official Plan Heritage Area

Figure 6

- Fire Station
- Official Plan Heritage Area
- Urban Centre Boundary
- Waterbody
- Arterial Road
- Collector Road
- Local Road

The number of units is indicated within each subdivision. When a subdivision was separated by two polygons the number of units was dispersed evenly.

SCALE 1:30,000

0 0.25 0.5 1 km

MAP DRAWING INFORMATION:
DATA PROVIDED BY MNR AND THE TOWNSHIP OF CENTRE WELLINGTON

MAP CREATED BY: SMB
MAP CHECKED BY: AJN
MAP PROJECTION: NAD 1983 UTM Zone 17N

FILE LOCATION: I:\GIS\163644 - Centre Wellington Master Fire Plan\MXDs\Hertitage2.mxd

DILLON CONSULTING

PROJECT: 16-3644
STATUS: FINAL
DATE: 2017-02-24

conservation district under the Act. In addition, there are 567 recognized properties listed and approved by Council in 2012 but that are not designated.[11]

The abundance of heritage buildings and properties in the Township provide a unique opportunity for tourism. There is a number of walking tours, bus tours and self-guided tours throughout the community in order to visit various historic properties. The loss of these buildings could impact the economic success of the Township as well as part of its sense of place.

3.3.8 Building Stock Profile Observations

The following is a summary of key Building Stock Profile observations:

- Group C – Residential occupancies are the highest proportion of occupancies comprising 95.2% of the occupancies.
- Single-detached homes represent 76% of residential buildings within the Township of Centre Wellington which is a higher proportion than the Province (55.6%).
- Centre Wellington has an older building stock with 49.7% of the Township's residential buildings built prior to the adoption of the 1981 Ontario Building Code.
- The downtown core areas of Elora and Fergus represent an increased risk due to the age (built in 1800s), construction method and materials (wood frame), and exposures of the buildings (not spatially separated).
- While there is minimal risk in the Township related to building height, there is some risk related to industrial occupancies that have a large building footprint (area).
- The Township of Centre Wellington has 18 vulnerable occupancies including four long term care facilities with over 100 beds.
- There are some fuel load concerns within the Township primarily within industrial occupancies but also within big box commercial occupancies.
- Known in part for its built heritage, Centre Wellington has two identified heritage areas (in downtown Fergus and downtown Elora), 104 designated heritage properties, and 567 non-designated, Council recognized heritage properties.

[11] *Source: Township of Centre Wellington. "Improve Centre Wellington: A Community Improvement Discussion Paper." Township of Centre Wellington. May 2014. http://www.centrewellington.ca/livehere/Documents/PlanningDevelopment/SpecialProjects/FINAL%20CIP%20DISCUSSION%20PAPER%20(May%2027%20-14)%20compressed.pdf (accessed December 2016).*

3.4 Past Fire Loss Profile

Past fire loss statistics can be assessed to understand trends within a community and design a community risk reduction plan accordingly. This section reviews overall fire loss, fires loss by occupancy type, death or injury by occupancy type, fire deaths or injuries by age and gender, reported fire cause, smoke alarm status, and fire suppression system status.

3.4.1 Overall Fire Loss

Analysis of historical data provides valuable insight into understanding the specific trends within a community. 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.

In terms of overall property loss as a result of fires, Table 20 shows the total number of fires, and property loss for the Township of Centre Wellington for the period 2010 to 2014. An important consideration in evaluating this data is the impact of a major fire with a large dollar loss and/or a series of smaller fires with a combined significant large dollar loss. The Township of Centre Wellington had $7,071,330 in property loss from 95 fires. Over the five year period, structure fires accounted for 73% of the total fires, and 89% of the total dollar ($) loss. For the period from 2010 to 2014 there were 57,010 fires within Ontario with a loss reported to the OFMEM. During this period 65% (37,308) of these involved a structure and 27% (15,279) of these fires involved a vehicle.

Table 20: Township of Centre Wellington Total Fire Loss (2010 - 2014)

Year	Structures		Outdoor		Vehicle		TOTAL	
	# of Fires	Loss ($)	# of Fires	Loss ($)	# of Fires	Loss ($)	# of Fires	Loss ($)
2010	17	$1,073,000	3	$15,500	2	$2,025	22	$1,090,525
2011	10	$658,305	1	$300,000	5	$120,000	16	$1,078,305
2012	19	$1,713,500	3	$22,500	6	$52,500	28	$1,788,500
2013	13	$2,329,000	0	$0	3	$35,000	16	$2,364,000
2014	10	$540,000	1	$100,000	2	$110,000	13	$750,000
Total	69	$6,313,805	8	$438,000	27	$319,525	95	$7,071,330

(Source: OFMEM Standard Incident Reporting)

When looking specifically at structure fires, Table 21 shows the proportion of structure fires and the property loss related to structure fires for the period of 2010 to 2014 based on total number of fires and total property loss for all fires (structures, outdoor, and vehicle). This shows that the proportion of structure fires in the province is fairly consistent compared to the Township. The proportion of structure fire property loss is variable both within the Township and the Province. However, there is greater variability within the Township.

Table 21: Township of Centre Wellington and Province of Ontario Structure Fires and Property Loss (2010-2014)

	Township of Centre Wellington				Province of Ontario			
Year	Structure Fires	Property Loss ($)	% Fires	% Property Loss	Structure Fires	Property Loss ($)	% Fires	% Property Loss
2010	17	$1,073,000	18%	15%	8,037	$506,170,287	14%	15%
2011	10	$658,305	11%	9%	7,522	$571,503,039	13%	17%
2012	19	$1,713,500	20%	24%	7,496	$543,140,732	13%	16%
2013	13	$2,329,000	14%	33%	7,192	$575,879,175	13%	17%
2014	10	$540,000	11%	8%	7,061	$785,361,080	12%	24%
Total for All Loss Fires	95	$7,071,330	-	-	57,010	$3,327,469,270	-	-

(Source: OFMEM Standard Incident Reporting)

3.4.2 Fires by Occupancy Type

Historical fires by occupancy type highlight occupancies which may be more vulnerable to fires. Using this data, combined with the percentage of housing stock in the Township, a targeted public education and inspection program can be initiated. Of the total structure fires which occurred in Centre Wellington between 2010 and 2014, 49 fires (71%) occurred in Group C – Residential occupancies. As shown in Table 22, Group C – Residential occupancies account for a similar proportion of property loss ($) at 68.0%. Group F – Industrial occupancies account for the second most significant source of property loss at 30.4% but accounts for 13% of the total structure fires over the same period.

Table 22: Township of Centre Wellington Fires and Fire Loss by Property Classification (2010-2014)

Occupancy Classification	Property Classification	Fires	% Fires	Property Loss	% Loss
Group A	Assembly occupancies	*0*	*0%*	$0	0.0%
Group B	Care or Detention occupancies	*0*	*0%*	$0	0.0%
Group C	Residential occupancies	*49*	*71%*	$4,294,305	68.0%
Group D	Business and Personal Services Occupancies	*1*	*1%*	$15,000	0.2%
Group E	Mercantile occupancies	*2*	*3%*	$40,000	0.6%
Group F	Industrial occupancies	*9*	*13%*	$1,921,000	30.4%
Other occupancies	Not classified within the Ontario Building Code	*7*	*10%*	$33,500	0.5%
	Classified under National Farm Building Code	*1*	*1%*	$10,000	0.2%
	Total	69	*100%*	*$6,313,805*	100.0%

(Source: OFMEM Standard Incident Reporting)

Table 23 indicates the fire loss by property classification for the period 2010 to 2014 for Ontario and Centre Wellington. For this period, 73% of the fires with a loss in Ontario occurred within Group C - Residential occupancies compared to 71% in Centre Wellington. Aside from this, the largest discrepancy between the provincial and local distributions was for Group F – Industrial occupancies. Industrial fires account for 13% of fire loss in Centre Wellington, whereas the provincial average is 7%. Centre Wellington had a lower percentage of fire losses in Group E – Mercantile occupancies with fires accounting for 3% of fire loss while the provincial average is 4%. The other difference between Centre Wellington and provincial proportion of fire loss is related to Group D – Business and Personal Services occupancies. The Township has lower proportion of fires in Group D – Business and Personal Service occupancies (1% versus 3%).

Some of these differences between the Province as a whole and Centre Wellington may be attributed to the building stock within the Township. For example, there are very few Group A or Group B occupancies. However, based on the information provided and presented in Section 3.3.1.1 of this CRA, it is notable that there is not a higher proportion of fires occurring within Group C – Residential occupancies in the Township when 95.2% of the building stock is classified as Group C. Additionally, the proportion of fire loss within Group F – Industrial occupancies within the Township seems high compared to the proportion of the building stock (0.70% of total building stock).

Table 23: Township of Centre Wellington and Province of Ontario Proportion of Structure Fires by Major Occupancy Classification

Occupancy Classification (OBC)	Occupancy Definition Fire Risk Sub-model (OFMEM)	Township of Centre Wellington Proportion of Structure Fires	Ontario Proportion of Structure Fires
Group A	Assembly occupancies	0%	4%
Group B	Care or Detention occupancies	0%	1%
Group C	Residential occupancies	71%	73%
Group D	Business and Personal Services Occupancies	1%	3%
Group E	Mercantile occupancies	3%	4%
Group F	Industrial occupancies	13%	7%
Other occupancies	Not classified within the Ontario Building Code	7%	5%
	Classified under National Farm Building Code	1%	3%
Reported structure fires		*69*	*37,308*
(Source: OFMEM Standard Incident Reporting)			

3.4.3 Fire Deaths or Injuries by Age and Gender of Victims

As mentioned in Section 3.1.1, seniors represent the highest proportion of fire fatalities in the Province of Ontario. As mentioned in Section 3.1.2, the NPFA states males are more likely to be injured from a fire or lose their life in a fire. Reviewing historic fire deaths or injuries by age and gender of victims can help to provide insight for the purposes of targeted community risk reduction programs. These trends can be used to inform programming for the Township of Centre Wellington.

As shown in Table 24, according to the 2010 to 2014 OFMEM's Standard Incident Reporting, during this period there were two reported civilian injuries in the Township. Both occurred in Group C – Residential occupancies. This finding is consistent with the fire loss statistics by occupancy, whereby the majority of fire losses in in the Province occurred in Group C – Residential occupancies. The OFMEM does not specify the gender or age of the injured or deceased. To provide targeted public education it would be beneficial for the Centre Wellington Fire and Rescue to track age and gender of injured or deceased individuals.

Table 24: Township of Centre Wellington Reported Civilian Injuries and Fire Deaths (2010 – 2014)

Occupancy Classification (OBC)	Occupancy Definition Fire Risk Sub-model (OFMEM)	Injuries	Fatalities
Group A – Assembly	Assembly occupancies	0	0
Group B – Care or Detention	Care or Detention occupancies	0	0
Group C - Residential	Residential occupancies	2	0
Group D - Business	Business and Personal Services Occupancies	0	0
Group E - Mercantile	Mercantile occupancies	0	0
Group F - Industrial	Industrial occupancies	0	0
Other occupancies	Not classified within the Ontario Building Code (i.e. farm buildings)	0	0
	Total	2	0

(Source: OFMEM Standard Incident Reporting)

3.4.4 Reported Fire Cause

Assessing the possible cause of the fires reported is an important factor in identifying potential trends, or areas that may be considered for introducing additional public education or fire prevention initiatives as part of the community fire protection plan.

Within OFMEM fire loss reporting, there are four categories of cause utilized to classify the cause of a fire. These include intentional, unintentional, other, and undetermined. Table 25 provides a summary of the reported possible cause of the fires reported during the period of 2010 to 2014 in Centre Wellington.

Table 25: Township of Centre Wellington Fire Loss by Major Acts or Omissions (2010-2014)

Nature	Fire Cause	Township of Centre Wellington		Province of Ontario	
		# of Fires	% of Fires	# of Fires	% of Fires
Intentional	Arson	2	2.9%	2,388	6.4%
	Vandalism	0	0.0%	1,130	3.0%
	Other Intentional	0	0.0%	9	0.0%
Unintentional	Children Playing	0	0.0%	192	0.5%
	Design/Construction/Maintenance deficiency	5	7.2%	3,137	8.4%

Nature	Fire Cause	Township of Centre Wellington		Province of Ontario	
		# of Fires	% of Fires	# of Fires	% of Fires
	Mechanical /Electrical failure	10	14.5%	5,378	14.4%
	Misuse of ignition source	13	18.8%	11,218	30.1%
	Other unintentional	5	7.2%	2,654	7.1%
	Undetermined	6	8.7%	2,499	6.7%
	Vehicle Collision	0	0.0%	28	0.1%
Other	Other	11	15.9%	1,686	4.5%
Undetermined	Undetermined	17	24.6%	6,929	18.6%
Unknown, not reported	Unknown, not reported	0	0.0%	60	0.2%
Total number of fires and percentage		69	100.0%	37,308	100.0%

(Source: OFMEM Standard Incident Reporting)

The "intentional" category recognizes 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. As indicated in the table, 2.9% of the fires reported in Centre Wellington for this period were intentional. This is lower than the reported cause of fires in Ontario where 9.5% of fires were intentional.

The "unintentional" category recognizes 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 causes represented 56.5% of the cause for the 69 fires during this period, with the leading unintentional cause being misuse of an ignition source (13 fires). Within the province as a whole, 67.2% of fires were caused unintentionally with a similarly leading cause of misuse of ignition source. This suggests a need for targeted education programs about fire causes and prevention. The percentage of undetermined fires represents a total of 24.6% of all fire causes compared to 18.6% for the province.

3.4.4.1 Ignition Source

Table 26 illustrates the fire loss by source of ignition based on an analysis of the data provided from 2010 to 2014 from the Office of the Fire Marshal for the Township of Centre Wellington and the Province. Most commonly, the ignition source is undetermined within both the province (24.0% of fires) and the Township (27.5%). The three most common known causes of fires in the home within the Township are exposure (15.9%), heating equipment (14.5%), and cooking equipment and electrical

distribution (7.2% for both sources). This differs from the province as a whole where the leading known cause are cooking equipment (17.9%), open flame tools/smokers articles (14.0%) and miscellaneous (9.8%).

Table 26: Township of Centre Wellington and the Province of Ontario Fire Loss by Major Source of Ignition (2010 - 2014)

Reported Ignition Source	Township of Centre Wellington		Province of Ontario	
	# of Fires	% of Fires	# of Fires	% of Fires
Appliances	3	4.3%	1,719	4.6%
Cooking equipment	5	7.2%	6,667	17.9%
Electrical distribution	5	7.2%	3,322	8.9%
Heating equipment, chimney etc.	10	14.5%	3,188	8.5%
Lighting equipment	4	5.8%	1,318	3.5%
Open flame tools/smokers articles	3	4.3%	5,213	14.0%
Other electrical/mechanical	3	4.3%	1,440	3.9%
Processing equipment	2	2.9%	480	1.3%
Miscellaneous	4	5.8%	3,670	9.8%
Exposure	11	15.9%	1,265	3.4%
Undetermined	19	27.5%	8,967	24.0%
Unknown, not reported	0	0.0%	59	0.2%
Total	69	100.0%	37,308	100.0%

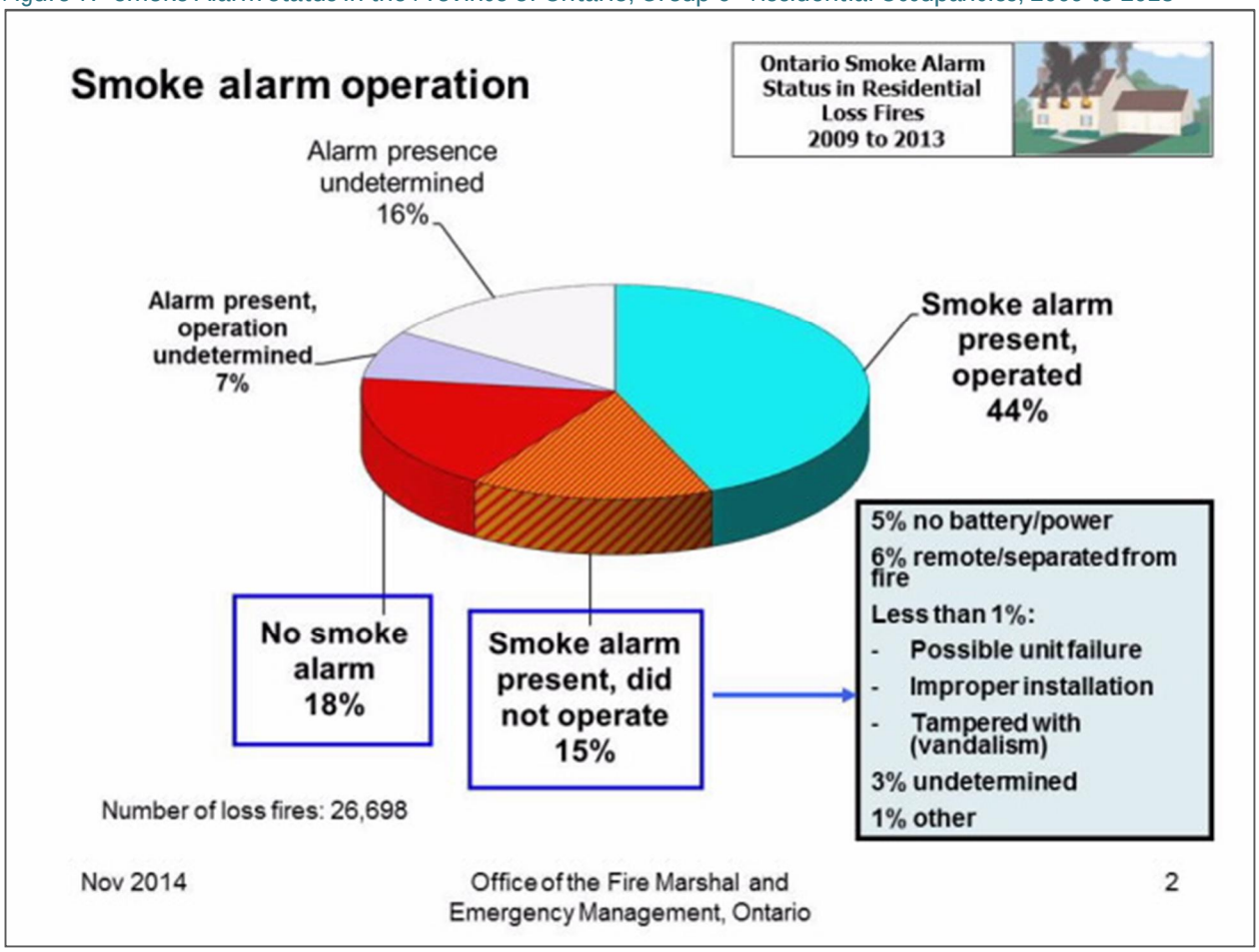
(Source: OFMEM Standard Incident Reporting)

3.4.5 Smoke Alarm Status

Smoke alarms are required on every storey of a dwelling in the Province of Ontario. Data is publicly available at the Provincial level for the smoke alarm status in the event of a fire but not at the municipal level. The OFMEM reported on the fires in Group C – Residential occupancies that resulted in a fire loss (financial or casualty) for the period 2009 to 2013 across the province. The results are shown in Figure 7 (from OFMEM) and highlights that in 33% of the instances, there was no smoke alarm or one was present but did not operate. Of the 15% of instances where a smoke alarm was present but did not operate, 33% had no battery or power (5% of the total home fires with a causality or property loss).

More than half (56%) of the homes with a casualty or property loss did not have a smoke alarm in place that operated as anticipated.[12]

Figure 7: Smoke Alarm Status in the Province of Ontario, Group C - Residential Occupancies, 2009 to 2013



(Source: OFMEM, http://www.mcscs.jus.gov.on.ca/english/FireMarshal/MediaRelationsandResources/FireStatistics/OntarioFires/SmokeAlarmStatusinHomeFires/stats_sa_status.html)

These provincial statistics support having a targeted and proactive smoke alarm program in place. The statistics also suggest that there is value in formally compiling and analyzing this data at a local level. This information could be used to enhance the existing smoke alarm program, and, over time, measure trends.

[12] Source: "Ontario Smoke Alarm Status in Residential Fires 2009 to 2013." Ontario Ministry of Community Safety and Correctional Services. Updated 5 Feb. 2016. Web. 18 Nov. 2016: http://www.mcscs.jus.gov.on.ca/english/FireMarshal/MediaRelationsandResources/FireStatistics/OntarioFires/SmokeAlarmStatusinHomeFires/stats_sa_status.html.

3.4.6 Fire Suppression System Status

Fire suppression systems are essentially automatic systems that extinguish fires without human intervention, such as fire sprinklers. These systems can detect fires using a variety of methods including heat sensors, wiring, or manual detection. These systems are often required in Group F – Industrial occupancies that may have a high fuel load, result in a large fire loss, or be home to hazardous materials. In 2013 Ontario became the first province to require fire suppression systems in long-term care facilities or other facilities home to vulnerable occupants. Previously fire suppression systems were only required in facilities built in Ontario after 1998. These are important systems that prevent the loss of life and property in part due to the fire growth and time for flashover combined with occupants with mobility or cognitive issues.

Understanding the status of a fire suppression system in the case of a fire can be used as a check regarding prevention (e.g. inspection) activities. Although the OFMEM requires fire departments to report on the presence of fire suppression system status in every structure fire they attend, the data is not available as part of Standard Incident Reporting. Although the Township of Centre Wellington has a number of industrial buildings, many of them are equipped with a full sprinkler system or are equipped with a fire alarm system. Industrial buildings also have "pre-plans" which are designed to mitigate any emergency incident. Consideration should be given to formally tracking and reporting on this data as a means of informing and assessing the success of public education and prevention programming.

3.4.7 Past Fire Loss Profile Observations

The following is a summary of key past fire loss profile observations:

- Over the five year period from 2010 to 2014, structure fires accounted for 73% of the total fires, and 89% of the total dollar ($) loss in the Township.
- For the Township and the Province, the greatest number of fires and the greatest property loss occurs in Group C – Residential occupancies (71% vs. 68% respectively).
- Considering the high proportion of Group C – Residential occupancy building stock within the Township (95.2%), this occupancy type reflects a particularly high level of risk.
- The proportion of fire loss within Group F – Industrial occupancies within the Township seems high compared to the proportion of the building stock (0.70% of total building stock).
- Group C – Residential occupancies in the Township accounted for the two injuries occurring from a structure fire.
- Within the Township, unintentional causes represented 56.5% of the causes for the 69 fires, with the leading unintentional cause being misuse of an ignition source (13 fires).
- The three most common known causes of fires in the home within the Township are exposure (15.9%), heating equipment (14.5%), and cooking equipment and electrical distribution (7.2% for both sources).

- Within the Province of Ontario for the period 2009 to 2013, more than half (56%) of the homes with a casualty or property loss did not have a smoke alarm in place that operated as anticipated. This highlights the importance of the first two lines of defence.

3.5 Response Profile

The breakdown of calls for emergency response can be used to target education and inspection programs both generally and to specific occupancies. An extensive analysis of the calls for the Township of Centre Wellington can be found in Section 8.6 of the Fire Service Master Plan. As it pertains to Community Risk Assessment, there are several key, high-level observations:

- The overall call volume by year is increasing with 518 calls in 2015.
- Fire related call volume has been relatively consistent for the past five years.
- Medical and other calls have both increased in 2015.
- There is a high proportion of false alarm calls (19% of all calls).

It is important to note that the use of enhanced fire prevention and public education efforts can reduce the number of fire calls a municipality has even with the presence of population growth. As part of employing the first two lines of defence, there is potential for the Township of Centre Wellington to assess these calls spatially to identify trends in geographies or specific occupancies.

3.6 Hazard Profile

Hazards are important to consider from a fire risk, emergency response and overall public safety perspective. NFPA 1730 and the OFMEM identify three types of hazards: natural, human-caused, or technological. Table 27 summarizes examples of hazards within these categories as defined by the OFMEM.

Table 27: OFMEM Natural, Human-Caused, or Technological Hazards[13]

Natural Hazards	Human-Caused Hazards	Technological Hazards
agricultural and food emergency (food emergency, farm animal disease, and plant disease and pest infestation)	civil disorder	building/structural collapse
drinking water emergency	cyber-attack	critical infrastructure failure

[13] Office of the Fire Marshal and Emergency Management. (2016, May 25). *Hazard Identification and Risk Assessment for the Province of Ontario*. Retrieved November 206, from Ministry of Community Safety & Correctional Services: https://www.emergencymanagementontario.ca/english/emcommunity/ProvincialPrograms/hira/hira_2012.html

Natural Hazards	Human-Caused Hazards	Technological Hazards
drought/low water	sabotage	dam failure
earthquake	special event	energy emergency (supply)
erosion	terrorism/CBRNE	explosion/fire
extreme temperatures (heat wave, cold wave)	war and international emergency	hazardous materials incident (fixed site incident, transportation incident)
flood (riverine flooding, urban flooding, seiche, storm surge)	hazards that have been added to the 2005 Ontario Provincial Hazard Identification and Risk Assessment	human-made space object crash
fog		mine emergency
forest/wildland fire		nuclear facility emergency
freezing rain		oil/natural gas emergency
geomagnetic storm,		radiological emergency
hail		transportation emergency (air, marine, rail, road)
human health emergency (epidemic, pandemic)		
hurricane		
land subsidence		
landslide		
lightning		
natural space object crash		
snowstorm/blizzard		
tornado		
windstorm		

Table 28 highlights the hazards identified at the provincial level including the risk levels based on a consideration of frequency (probability) and consequence. The top three hazards identified at a provincial level are related to natural causes including flood, forest/wildland fire, and freezing rain.

Table 28: Provincial Hazards Identified by OFMEM[14]

Hazard	Risk Level
Flood	Extreme
Forest/Wildland Fire	Extreme
Freezing Rain	Extreme
Hazardous Materials Incident	Extreme
Snowstorm/Blizzard	Extreme
Tornado	Extreme
Drinking Water Emergency	Very High
Human Health Emergency	Very High
Oil/Natural Gas Emergency	Very High
Explosion/Fire	High
Geomagnetic Storm	High
Transportation Emergency	High
Agricultural and Food Emergency	Moderate
Building/Structural Collapse	Moderate
Civil Disorder	Moderate
Critical Infrastructure Failure	Moderate
Dam Failure	Moderate
Drought/Low Water	Moderate
Extreme Temperature	Moderate
Human-Made Space Object Crash	Moderate
Hurricane	Moderate
Landslide	Moderate
Nuclear Facility Emergency	Moderate
Terrorism	Moderate
Windstorm	Moderate

[14] Office of the Fire Marshal and Emergency Management. (2016, May 25). *Hazard Identification and Risk Assessment for the Province of Ontario*. Retrieved November 206, from Ministry of Community Safety & Correctional Services: https://www.emergencymanagementontario.ca/english/emcommunity/ProvincialPrograms/hira/hira_2012.html

Hazard	Risk Level
Cyber Attack	Low
Earthquake	Low
Fog	Low
Hail	Low
Lightning	Low
Mine Emergency	Low
Natural Space Object Crash	Low
Radiological Emergency	Low
Special Event	Low
Energy Emergency (Supply)	Very Low
Erosion	Very Low
Land Subsidence	Very Low
Sabotage	Very Low
War and International Emergency	Very Low

While NFPA 1730 highlights the importance of hazard considerations, there are other avenues utilized by municipalities that assess risks at a more detailed level. In Ontario, municipalities are required to have a municipal emergency plan. The Township has a by-law in place approving their Emergency Response Plan. As part of this process, municipalities may identify the highest risk hazards for their respective communities. On its website, Wellington County lists the most probable hazards identified within the County. These hazards include:[15]

- Severe weather;
- Winter power failure;
- Flood;
- Transportation incident;
- Hazardous transportation incident;
- Energy emergency;
- Water emergency;
- Human health emergency;

[15] Wellington County. *Emergency Preparedness.* 2016. http://www.wellington.ca/en/Personal-Preparedness.asp (accessed February 2017).

- Foreign animal disease; and
- Terrorism.

The hazards that could be experienced within the Township are similar to those found at the County level.

The key observations for the hazard profile are:

- The Township has an approved Emergency Response Plan in place; and
- The top three hazards identified within the County include severe weather, winter power failure, and floods.

3.7 Economic Profile

According to NFPA 1730, the Economic Profile of a community considers particular facilities, employers, or events in a community that may contribute to its financial vitality and sustenance. If these facilities, employers, or events are impacted through a fire or emergency event, it could have a negative impact on the overall well-being of the Township.

According to the Township of Centre Wellington, the community has a history of employment in agriculture and manufacturing. The 2011 National Household Survey showed that 24.8% of the Township was employed in manufacturing and construction, and 19.8% in health and education.[16]

A 2014 economic update for the County of Wellington provides information on specific employers in the Township. The top employers, the number of employees, and the sector as of 2014 can be found in Table 29. The top manufacturing employers at the time were Jefferson Elora Corporation, Nexans Canada Inc., and Plycorp Ltd. Wellington Terrace Long-term Care Home and the Groves Memorial Community Hospital/North Wellington Health Care Alliance reflect the highest number of jobs in health care in the Township.

[16] *Source:* Township of Centre Wellington. *Business Sectors.* 2016. http://www.centrewellington.ca/dobusiness/Pages/Investing%20Here/Investment%20Profile/Business-Sectors.aspx (accessed December 2016).

Table 29: Top Employers in Centre Wellington and Size Range as of 2014

Company Name	Employee Size Range	Types	Sector
Jefferson Elora Corporation	400		Manufacturing
Wellington Terrace Long-term Care Home	280		Health Care
Groves Memorial Community Hospital/ North Wellington Health Care Alliance	276		Health Care
Township of Centre Wellington	240	105 FT, 87 PT, 48 Volunteer	Government
Nexans Canada Inc	215		Manufacturing
Zehrs Markets - Fergus	186		Retail
Polycorp Ltd.	160		Manufacturing
RR Donnelly	140		Business Forms Printing
Centre Wellington District High School	120		Education
Grand River Racway	110		Equestrian and Spectator Sport
OLG Slots	110		Casino
Caressant Care - Fergus	95		Health Care
Canadian Tire Corporateion	80	20 FT, 60 PT	Retail
McDonald's - Fergus	80		Retail
Hunter Amenities International Soap Plan	77	65 FT, 12 PT	Manufacturing
Belwood Lodge and Camp	60	Seasonal	Recreational Camp
The Gund Co (Canada)	59		Manufacturing
Fresh Co - Fergus	55		Retail

Source: County of Wellington. "Economic Update." *County of Wellington.* July 2014. http://www.wellington.ca/en/business/resources/keyfacts/county_of_wellington_economic_profile_2014_acc.pdf (accessed January 2017).

If an incident were to occur at a manufacturing facility, health care centre, or government facility, there could be a major economic impact. In addition, services delivered by the Township could be impacted. The potential impacts and mitigation strategies should be considered as part of the Township's emergency plan.

In summary, there are several key events and occupancies where if a fire loss were to occur, there would be an economic loss to the Township and its residents. As key observations:

- The loss of a major manufacturing facility would impact residents' ability to work.

- The loss of a health care or government facility would impact both residents' ability to work as well as service delivery and response.
- The loss of agricultural production or retail facilities could also result in economic loss.

By optimizing the first two lines of defence with such occupancies, (e.g., inspection, education, enforcement, pre-planning, etc.), related economic losses could be prevented or mitigated.

4.0 Risk Model

As mentioned in the introduction to this Community Risk Assessment, the Ontario Office of the Fire Marshal and Emergency Management (OFMEM) has provided a tool assessing community risk called the Fire Risk Sub-model. This process of Community Risk Assessment is considered a best practice in Canada and partially informed NFPA 1730. The OFMEM 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 OFMEM 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.*" (p.5) The Sub-model also provides a matrix as one option in arriving at the level of risk for a range of scenarios. Creating the Community Risk Assessment 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.

The sections that follow describe the risk model methodology including assigned levels of probability, consequence, and risk. This methodology is then applied to Centre Wellington and the risk model in a GIS is described.

4.1 Risk Model Methodology

For analytical purposes, the methodology within this study uses the OFMEM Fire Risk Sub-model major occupancy classifications as the basis for segmenting the community by primary property parcel use. At a very high level, there are four steps to the development of a risk model:

1. Assign a probability level to each of the occupancy classifications;
2. Assign a consequence level to each of the occupancy classifications;
3. Establish the risk level and risk category for each based on the identified probability and consequence for each of the occupancy classifications; and
4. Develop a GIS risk model based on the Risk Level / Risk Category.

The sections that follow describe the basis of the first three high level steps.

4.1.1 Probability Levels

The first step to identifying a risk level is to assign probability. 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 OFMEM Fire Risk Sub-model categorizes the probability of an event occurring into five levels of likelihood. The description and specifics of each probability level from the Fire Risk Sub-model are shown in Table 30. The numerical weighted value assigned to the probability level has been revised from the OFMEM values to reflect broader risk management industry practices.

As shown in Section 4.2, each major occupancy classification is assigned a probability level, (i.e., 1, 2, 3, 15, or 30), based on the OFMEM Fire Risk Sub-model definition and the adapted probability level. Within the methodology for this Fire Services Master Plan, the probability is further assigned to each major occupancy classification within eight categories of the profile assessments that directly inform fire risk.

Table 30: Fire Risk Model Probability Levels

Description*	Level**	Definition*
Rare	1	- may occur in exceptional circumstances - no incidents in the past 15 years
Unlikely	2	- could occur at some time, especially if circumstances change - 5 to 15 years since last incident
Possible	3	- might occur under current circumstances - 1 incident in the past 5 years
Likely	15	- will probably occur at some time under current circumstances - multiple or reoccurring incidents in the past 5 years
Almost Certain	30	- expected to occur in most circumstances unless circumstances change - multiple or reoccurring incidents in the past year

**Directly from OFMEM Fire Risk Sub-model.*
** Numerical weighted value assigned adapted from the OFMEM Fire Risk Sub-model based on risk management industry practices for assigning risk levels.

4.1.2 Consequence Levels

The second step to identifying risk levels by major occupancy type is to assign a consequence level. 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 OFMEM Fire Risk Sub-model evaluates the consequences of an event based on five levels of severity. The description and definition of each consequence level from the Fire Risk Sub-model are shown in Table 31. Similar to the probability levels, the numerical weighted value assigned to the identified consequence levels have been revised from the OFMEM values to reflect broader risk management industry practices for assigning risk levels.

As shown in Section 4.2, each major occupancy classification is assigned a consequence level, (i.e., 1, 10, 100, 1,000, or 10,000), based on the OFMEM Fire Risk Sub-model specifics and the adapted consequence level.

Table 31: Fire Risk Model Consequence Levels

Description*	Level**	Definition*
Insignificant	1	- no life safety issue - limited valued or no property loss - no impact to local economy and/or - no effect on general living conditions
Minor	10	- potential risk to life safety of occupants - minor property loss - minimal disruption to business activity and/or - minimal impact on general living conditions

Description*	Level**	Definition*
Moderate	100	- 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
Major	1,000	- 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
Catastrophic	10,000	- 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

**Directly from OFMEM Fire Risk Sub-model.*
*** Numerical weighted value assigned adapted from the OFMEM Fire Risk Sub-model based on risk management industry practices for assigning risk levels.*

4.1.3 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"*. The risk level is then attributed to a risk category. The NFPA 1730 identifies three risk categories: low, moderate and high. Table 32 lists the three risk categories with a relative definition of each and presents the numerical value assigned to identify the associated risk levels.

The level of risk (Priority Level) for each major occupancy classification is determined by multiplying "*probability x consequence = risk level*." This provides the ability to determine an overall risk level for each major occupancy classification within the community.

Table 32: OFMEM Fire Risk Sub-Model Risk Levels

Risk Category*	Level**	Definition*
Low Risk	1 to 250	- manage by routine programs and procedures, maintain risk monitoring
Moderate Risk	251 to 5,000	- requires specific allocation of management responsibility including monitoring and response procedures
High Risk	5,001 to 300,000	- community threat, senior management attention needed or serious threat, detailed research and management planning required at senior levels

**Directly from OFMEM Fire Risk Sub-model.*
*** Numerical weighted value assigned based on risk management industry practices for assigning risk levels.*

4.2 Township of Centre Wellington Risk

Table 33 presents the completed risk evaluation for the Township of Centre Wellington. The evaluation utilizes the methodology described above following the framework of NFPA 1730, OFMEM Fire Risk Sub-model, and risk management industry practices. The risk evaluation summary considers community risk factors within the Township for each major occupancy classification. This base risk informs the application of these risk levels to a spatial GIS model (discussed in Section 4.3).

Table 33: Risk Evaluation Summary – Assignment of Probability, Consequence, and Risk Level Calculations

OBC Major Occupancy Classification		Key Fire Risk Assessment Factors								Prob. Level	Cons. Level	Risk Level	Risk Category
		Building Stock	Building Height / Area	Building Age	Building Density (Exposures)	Demographic Profile	Geography	Past Fire Loss	Fuel Load				
Group A	Assembly	1	2	2	1	30	3	2	2	5.4	100	540	Moderate
Group B	Care or Detention	1	2	2	1	30	2	2	3	5.4	1,000	5,400	High
Group C	Residential	30	3	3	15	15	15	30	3	14.3	100	1,430	Moderate
Group D	Business	3	3	3	15	2	1	3	3	4.1	100	410	Moderate
Group E	Mercantile	3	3	3	15	2	1	3	3	4.1	100	410	Moderate
Group F	Industrial	2	15	2	2	2	3	15	15	7.0	1,000	7,000	High
Mobile/Manufactured Homes & Trailers		3	3	3	15	30	15	30	15	14.3	1,000	14,300	High

Probability Level	X	Consequence Level	=	Risk Level	=	Risk Category
1 – Rare 2 – Unlikely 3 – Possible 15 – Likely 30 – Almost Certain	X	1 – Insignificant 10 – Minor 100 – Moderate 1,000 – Major 10,000 - Catastrophic	=	1 to 250 251 to 5,000 5,001 to 300,000	=	Low Risk Moderate Risk High Risk

4.3 Township of Centre Wellington GIS Risk Model

This section provides a brief outline of the scope and methodology used in order to provide insight into the modelling procedures adopted to assess Township risk. A geographic information system (GIS) model was developed to assess risk based on geography, land use, building occupancy, and predicted emergency response travel times to the related risks. The basis of the GIS risk model is the development of geographic risk zones. Due to the nature of available spatial data for building occupancies, this process is iterative.

To begin, municipal zoning data is reviewed and forms the basis of the GIS model. Zoning data is a valuable resource in identifying risk as the Township's existing Zoning and By-law No. 2009-045 provides a general indication of the type of buildings (i.e. major occupancy classification) allowed in each zone category. The first step is to link the zoning category to a base risk level (low or medium) which is directly informed by the risk evaluation shown in Table 33. This analysis is completed and shown in Table 34.

Table 34: Base Risk Zone Category by Land Type

Township of Centre Wellington Zoning	Base Risk Assigned
Environmental and Open Space Zones	Low
Rural System Zones	Low
Residential Zones	Moderate
Institutional Zones	Moderate
Commercial Zones	Moderate
Industrial Zones (Service)	Moderate
Industrial Zones (General)	Moderate
Industrial Zones (Extractive)	Low
Trail Corridors	Low
Future Development Zones	Low

The second step is to update the risk levels in certain zone categories and areas based on site-specific considerations as explored in this Community Risk Assessment. In particular, this updates the model to address the high risk considerations for Group B – Care or Treatment, Group C – Residential (mobile homes), and Group F – Industrial uses that have a high risk (e.g. specific fuel load concerns, building area concerns) that is addressed in Table 33.

To more accurately display the building occupancy risk within rural, agriculture, and future development areas of the Township, buildings located in these areas were identified using a buildings shapefile provided by The Ministry of Natural Resources and Forestry (2016). A point was assigned to the centroid of each building and a 25 metre buffer was created around the point to approximate the building and its

corresponding property. These areas were then assigned moderate risk. The completed GIS risk model is shown in Figure 8. With this completed model, historic emergency response coverage including geographic coverage of the entire municipal geography as well as historic calls (2011 to 2016) was conducted.

4.3.1.1 Existing Risk and Response (Municipal Geography)

The GIS NFPA 1720 Rural Demand Zone response standard was used to approximate existing geographic coverage of the existing risk zones, shown in Figure 9. Total response times were calculated by taking the 80th percentile of turnout times 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 by six firefighters within an estimated 14 minute total response time (NFPA 1720 Rural Demand Zone target). The calculations indicate that 35% of the high risk geography, 51% of the moderate risk geography and 8% of the low risk geography is covered within a 14 minute total response time throughout the municipality.[17] The CWFR is unable to respond to the urban centre area (Elora-Salem and Fergus) with a minimum of ten firefighters within a ten minute response time (NFPA 1720 Suburban Demand Zone target).

4.3.1.2 Existing Risk and Response (Historic Calls **2011-2015**)

Figure 10 depicts historic call locations from 2011 to 2015, 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 can be responded to within the NFPA 1720 Rural Demand Zone target of six firefighters within an estimated 14 minute total response time. The calculations indicate that 45% of the calls in high risk geographies, 88% of the moderate risk calls, and 17% of the low risk calls are covered within a 14 minute total response time throughout the municipality. Some of the high risk geographies (mobile home parks) are located near Belwood Lake which experiences extended emergency response times. The CWFR is unable to respond to the urban centre area (Elora-Salem and Fergus) with a minimum of ten firefighters within a ten minute response time (NFPA 1720 Suburban Demand Zone target).

[17] Note: The percentage of geographic risk covered as presented is based on an assessment of the property parcels and how they overlap with the emergency response polygons. The emergency response polygons are directly related to the extent and configuration of the modelled road network. Therefore, while only part of a property parcel may be 'covered', it is possible that the department could fully access the site depending on the property parcel site configuration, including internal access roads. It is also possible that the department may not be able to not fully access the centre of large rural property parcels. For example, coverage may be restricted due to the time needed to travel on foot or the ability or inability to navigate apparatus through rough terrain.

Township of Centre Wellington
Fire Service Master Plan

Existing Fire Risk

Figure 8

- Fire Station
- Township Boundary
- Waterbody
- Local
- Arterial
- Collector

Risk

- High
- Moderate
- Low

0 0.5 1 2 km

SCALE 1:85,000

MAP DRAWING INFORMATION:
DATA PROVIDED BY MNR AND THE TOWNSHIP OF CENTRE WELLINGTON

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

FILE LOCATION: I:\GIS\163644 - Centre Wellington Master Fire Plan\MXDs\Risk (for presentation).mxd

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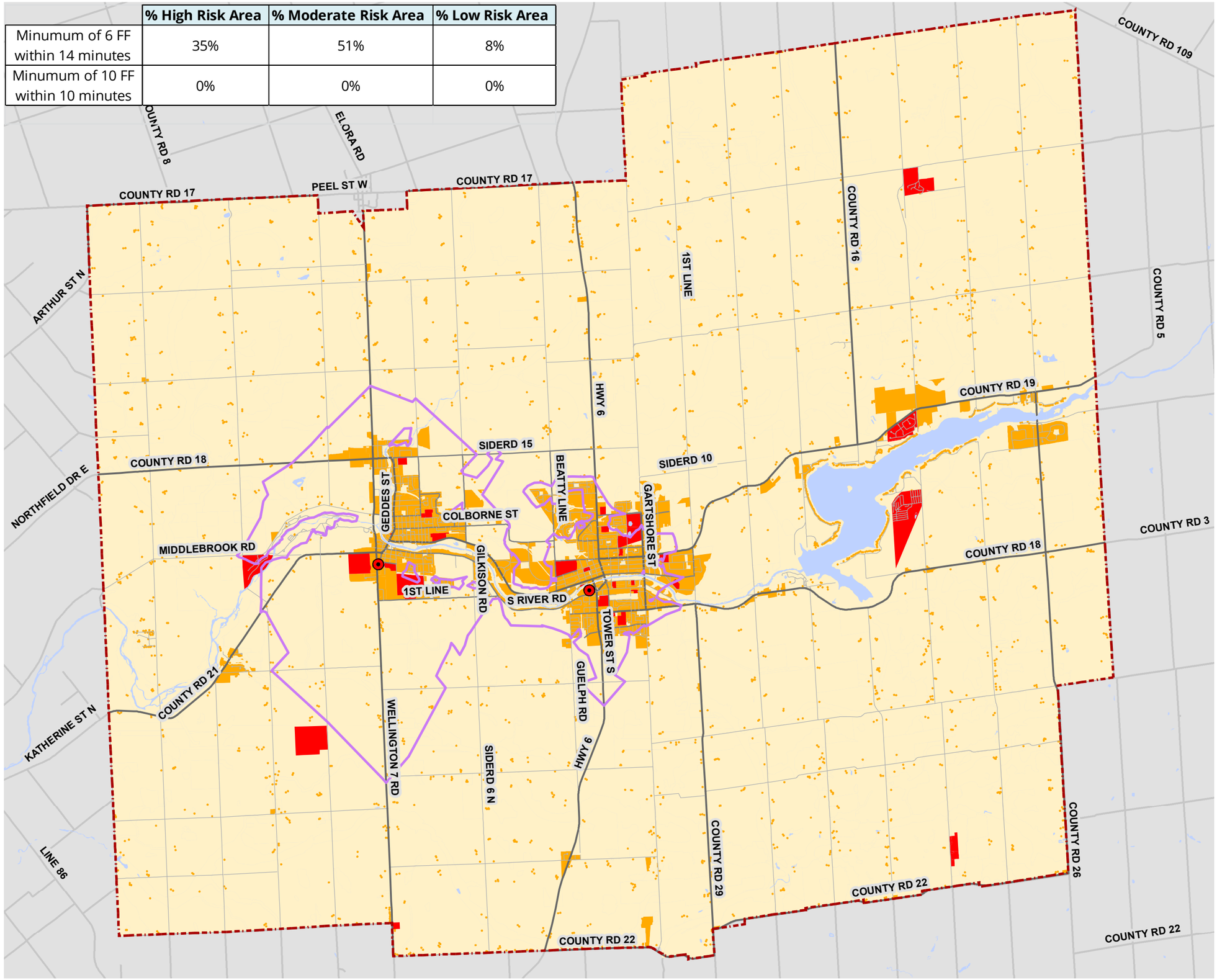
PROJECT: 16-3644
STATUS: FINAL
DATE: 2017-02-24

	% High Risk Area	% Moderate Risk Area	% Low Risk Area
Minumum of 6 FF within 14 minutes	35%	51%	8%
Minumum of 10 FF within 10 minutes	0%	0%	0%



Township of Centre Wellington
Fire Service Master Plan

Existing Fire Risk and Response (Geography)

- Fire Station
- Township Boundary
- Waterbody
- Local
- Arterial
- Collector
- Minimum of 6 Firefighters Arriving in 14 Minutes

Risk

- High
- Moderate
- Low

0 0.5 1 2 km

SCALE 1:85,000

MAP DRAWING INFORMATION:
DATA PROVIDED BY MNR AND THE TOWNSHIP OF CENTRE WELLINGTON

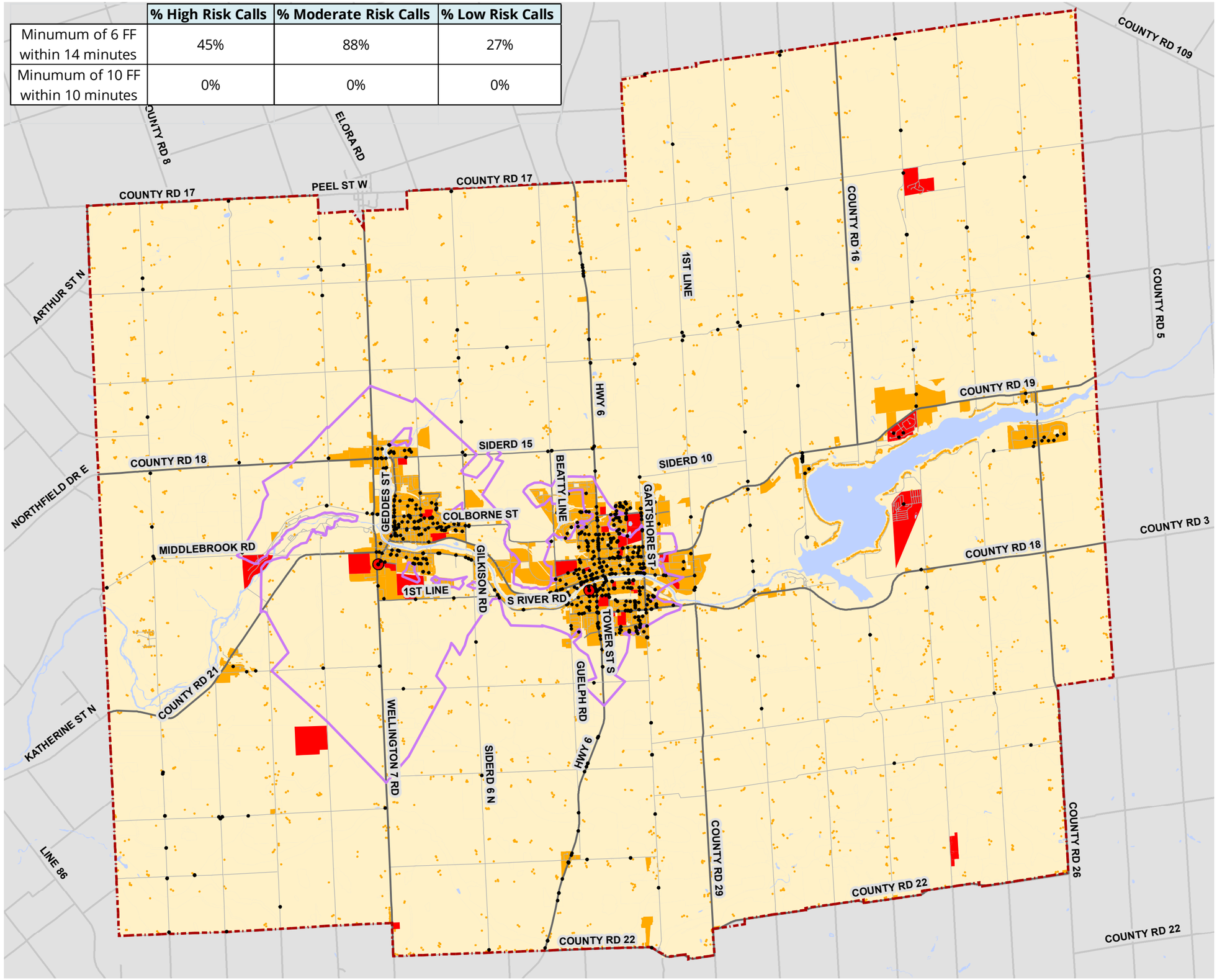
MAP CREATED BY: SMB
MAP CHECKED BY: SLC
MAP PROJECTION: NAD 1983 UTM Zone 17N

FILE LOCATION: I:\GIS\163644 - Centre Wellington Master Fire Plan\MXDs\Risk and Response_Geography.m

DILLON CONSULTING

PROJECT: 16-3644
STATUS: FINAL
DATE: 2017-02-24

	% High Risk Calls	% Moderate Risk Calls	% Low Risk Calls
Minumum of 6 FF within 14 minutes	45%	88%	27%
Minumum of 10 FF within 10 minutes	0%	0%	0%



Township of Centre Wellington
Fire Service Master Plan

Existing Fire Risk and Response (Historic Calls)

- Fire Station
- Historic Calls (2011-2015)
- Township Boundary
- Waterbody
- Local
- Arterial
- Collector
- Minimum of 6 Firefighters Arriving in 14 Minutes

Risk

- High
- Moderate
- Low

0 0.5 1 2 km

SCALE 1:85,000

MAP DRAWING INFORMATION:
DATA PROVIDED BY MNR AND THE TOWNSHIP OF CENTRE WELLINGTON

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

FILE LOCATION: I:\GIS\163644 - Centre Wellington Master Fire Plan\MXDs\Risk and Response_Historic Calls

DILLON CONSULTING

PROJECT: 16-3644
STATUS: FINAL
DATE: 2017-02-24

5.0 Growth Considerations

Historic growth provides a sense of trends within the community and planned growth reveals the strategic direction for long-term planning for Centre Wellington Fire and Rescue.

5.1 Historic Growth

Table 35 displays the Township of Centre Wellington's historic growth from the perspective of households and population. From 1996 to 2016 the population of Centre Wellington grew by 19.8%, approximately 1.1% per year on average (compounding). In the 20-year period from 1996 to 2016, the number of households within the Township grew by 32.8%, which is approximately 2.0% per year on average (compounding). (It should be noted that these calculations do not include the Statistics Canada population undercount that is often considered when doing detailed projection analysis.)

Table 35: Historic Growth in Population and Households

Year	Centre Wellington Population	% Change in Population	Centre Wellington Households	% Change in Households
1996	22,610	-	7,730	-
2001	24,260	6.8%	8,590	10.0%
2006	26,049	6.9%	9,540	10.0%
2011	26,693	2.4%	10,729	11.1%
2016	28,191	5.3%	11,499	6.7%

(Source: Statistics Canada 1990, 2001, 2006, 2011, 2016 Census)

5.2 Projected Growth

Within the Township there are two main urban centres, Fergus and Elora-Salem, and three Hamlets. The Centre Wellington Official Plan applies to only the urban centres previously identified. All other land uses are governed by the County Official Plan. However, the County does provide population projections for the entire municipality in accordance with the provincial Growth Plan.

According to the County of Wellington Official Plan Amendment 99 (OPA 99) (dated May, 12, 2016), the trend of population and household growth within the community is projected to continue. Table 36 summarizes the growth projections for the Township from 2016 to 2041.

Table 36: Population and Employment Growth Projections

Year	2016	2036	2041
Population	29,885[1]	48,520	52,310
Households	10,785	17,245	18,690
Employment	11,970	20,130	22,780

[1] *The 2016 population projection for the Township is different from the reported 2016 Statistics Canada census population. This is in part because the 2016 projected population shown in this table includes the population undercount adjustment which is estimated at roughly 4.1%.*

(Source: County of Wellington OPA 99 – May 12, 2016, pg. 10)

The OPA 99 projections identify that the majority of this growth will occur in the Elora-Salem and Fergus urban centres. It is projected that as of 2016, 85% of the population will reside within the existing urban centres. The population within the existing urban centre boundary is expected to increase by 2036 to 40,860 people (compared to 25,540 in 2016).

The existing boundary of these urban centres can be found in Figure 10. The Township of Centre Wellington is currently undertaking a Growth Management Strategy to plan for this projected growth. Preliminary results identify several greenfield areas within the existing urban centre boundary that is projected to absorb both greenfield and employment growth. The majority of these greenfield areas are projected for growth in the next ten years is shown in Figures 11 and 12. It should be noted that this information is in draft stages and has not been finalized. It reflects best available information at the time of writing.

A major development includes the North-West Fergus area which has a Secondary Plan in place, including a conceptual future road network. No other greenfield residential development areas have known road networks planned. The assumed future road networks in emergency response modelling greatly impact the modelled coverage of geography. As a result, it is important to monitor planned developments with consideration to access and egress from those areas.

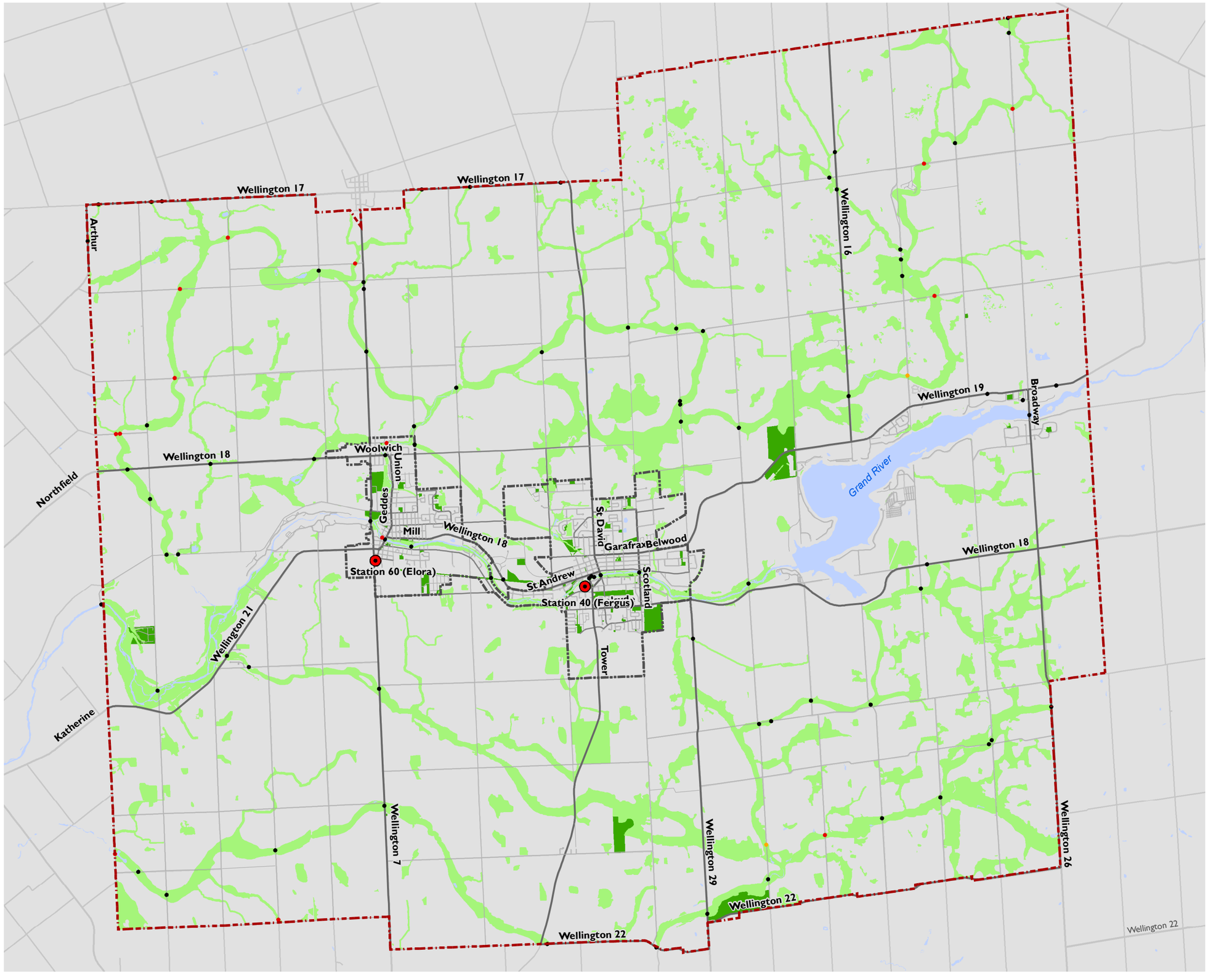
In addition to the growth within the existing urban centres, there is also growth slated to take place between the two urban centres in the Aboyne area referred to as the Wellington Place lands. These lands are planned to include a future hospital by 2018. The remainder of these lands are designated for offices, institutional, community, public, and recreational purposes. Wellington Place is also permitted to include affordable housing, special needs housing, and seniors housing. As identified by planners from the County of Wellington, the timing of development for these lands is currently not known other than for the hospital site. Limited development is anticipated outside of these areas; however, it is noted that there are two large parcels of land in Belwood that are available for development but that have not been serviced.

This projected growth including the geography and timing of this growth is used to inform the emergency response analysis conducted and presented within the Fire Suppression Division section of the Fire Services Master Plan. As the Township continues to grow, and the Fire Services Master Plan is reviewed and updated, the nature of the growth and its impact on local needs and circumstances from an emergency services and risk perspective should likewise be monitored.

Township of Centre Wellington
Fire Service Master Plan

Urban Centre Boundaries: Fergus-Elora-Salem

Figure 11



- Fire Station
- Open Bridges
- Recommended Closing Bridges
- Closed Bridges
- Township Boundary
- Urban Centre Boundary
- Waterbody
- Environmental Protection
- Parks, Open Space, and Stormwater Management
- Arterial Road
- Collector Road
- Local Road

0 0.5 1 2 km

SCALE 1:85,000

MAP DRAWING INFORMATION:
DATA PROVIDED BY MNR AND THE TOWNSHIP OF CENTRE WELLINGTON

MAP CREATED BY: SMB
MAP CHECKED BY: AJN
MAP PROJECTION: NAD 1983 UTM Zone 17N

FILE LOCATION: I:\GIS\163644 - Centre Wellington Master Fire Plan\MXDs\Road Network.mxd

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PROJECT: 16-3644
STATUS: FINAL
DATE: 2017-02-24

Township of Centre Wellington
Growth Management Strategy
Residential Lands

Residential Land

- 1 Site ID
- Registered Plan with unbuilt units
- Draft Plan / Zoned Multiples
- Vacant Land

Built-Up Area
Urban Centre Boundary
Core Greenland
Greenfield

Salem
Elora
Fergus

Wellington Rd 18
Woolwich St E
Irvine St
Geddes St
David St
Colborne St
Gerrie Rd
East Mill St
Wellington Rd 21
McNab St
Bridge St
South River Rd
Wellington Rd 7
Gilkison St
First Line
Sideroad 18
Sideroad 19
Beatty Line N
St David St N
Gordon St
Gregson Ct
Dickson Dr
Glengarry Cres
Garthshore St
Forfar St E
Garafraxa St W
First Line
St Andrew St W
St Andrew St E
Bridge St
Tower St St
Scotland St
Elora St
Belsyde St E
Guelph St
Second Line

4 1 5 6 7 3 2 10 17 16 8 9 11 20 20 12 21 13 18 14 19 15 22

Elora \ Salem Urban Centre

Registered Plans With Unbuilt Units	
Site ID	Total Units
1	19
2	23
Subtotal	42

Draft Approved Plans of Subdivision or Condominium/Zoned Multiples	
Site ID	Total Units
3	49
Subtotal	49

Vacant Designated Lands - No Plan		
Option 1		
Site ID	Density	Total Units
4	16 u/ha	199
5	16 u/ha	206
6	16 u/ha	348
7	16 u/ha	190
Subtotal		944
Elora-Salem Total		**1035**
Option 2		
Site ID	Density	Total Units
4	12 u/ha	149
5	12 u/ha	155
6	12 u/ha	261
7	12 u/ha	143
Subtotal		708
Elora-Salem Total		**799**
Option 3		
Site ID	Density	Total Units
4	16 u/ha	274
5	12 u/ha	284
6	12 u/ha	261
7	12 u/ha	143
Subtotal		962
Elora-Salem Total		**1053**

Fergus Urban Centre

Registered Plans with Unbuilt Units	
Site ID	Total Units
8	46
9	37
10	29
11	27
12	15
13	98
14	64
15	100
Subtotal	416

Draft Approved Plans of Subdivision or Condominium/Zoned Multiples	
Site ID	Total Units
16	115
17	57
18	133
19	24
Subtotal	329

Vacant Designated Lands - No Plan		
Option 1		
Site ID	Density	Total Units
20	16 u/ha	1368
21	16 u/ha	170
22	16 u/ha	1109
Subtotal		2647
Fergus Total		**3392**
Option 2		
Site ID	Density	Total Units
20	22 u/ha	1881
21	22 u/ha	234
22	22 u/ha	1525
Subtotal		3640
Fergus Total		**4385**
Option 3		
Site ID	Density	Total Units
20	22 u/ha	1881
21	16 u/ha	170
22	22 u/ha	1525
Subtotal		3576
Fergus Total		**4321**

500 0 500 1,000

Township of Centre Wellington
Growth Management Strategy
Employment Lands

Employment Land
1 Site ID

Built-Up Area
Urban Centre Boundary
Core Greenland
Greenfield

Salem
Elora
Fergus

Wellington Rd 18
Woolwich St E
Irvine St
Geddes St
David St
Colborne St
Gerrie Rd
East Mill St
Wellington Rd 21
McNab St
Bridge St
South River Rd
Wellington Rd 7
Gilkison St
First Line
Sideroad 18
Sideroad 19
Beatty Line
St David St N
Gordon St
Dickson Dr
Gregson Dr
Glengarry Cres
Gartshore St
Forfar St E
Garafraxa St W
St Andrew St W
St Andrew St E
Bridge St
Tower St St
Scotland St
Belsyde St E
Elora St
Guelph St
Second Line

15 16 1 2 3 4 5 6 7 8 17 18 19 20 21 22 23 24 25 26 27 32 9 10 11 28 29 30 31 13 14 12

Highway Commercial

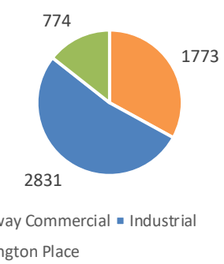
Site ID	Hectares	Density Rate	Jobs
1	0.65	35 Jobs/Ha	23
2	4.46	35 Jobs/Ha	156
3	0.08	35 Jobs/Ha	3
4	0.08	35 Jobs/Ha	3
5	0.21	35 Jobs/Ha	7
6	0.40	35 Jobs/Ha	14
7	2.51	35 Jobs/Ha	88
8	2.28	35 Jobs/Ha	80
9	1.20	35 Jobs/Ha	42
10	0.55	35 Jobs/Ha	19
11	1.88	35 Jobs/Ha	66
12	2.23	35 Jobs/Ha	78
13	24.64	35 Jobs/Ha	862
14	9.50	35 Jobs/Ha	332
Subtotal	50.66		1773

Industrial

Site ID	Hectares	Density Rate	Jobs
15	2.12	25 Jobs/Ha	53
16	2.38	25 Jobs/Ha	59
17	5.48	25 Jobs/Ha	137
18	0.46	25 Jobs/Ha	11
19	0.35	25 Jobs/Ha	9
20	14.84	25 Jobs/Ha	371
21	1.19	25 Jobs/Ha	30
22	2.47	25 Jobs/Ha	62
23	1.08	25 Jobs/Ha	27
24	0.14	25 Jobs/Ha	3
25	0.89	25 Jobs/Ha	22
26	0.54	25 Jobs/Ha	14
27	0.76	25 Jobs/Ha	19
28	9.78	25 Jobs/Ha	245
29	14.60	25 Jobs/Ha	365
30	20.16	25 Jobs/Ha	504
31	36.03	25 Jobs/Ha	901
Subtotal	113.25		2831

Other

Site ID	Hectares	Jobs
32	77.4	774
Total	**241.32**	**5379**



500 0 500 1,000

5.3 Growth Consideration Observations

Some key observations based on historic and planned growth are:

- According to Statistics Canada, from 1996 to 2016 the population of Centre Wellington grew by 19.8%, approximately 1.1% per year on average (compounding);
- The County of Wellington Official Plan Amendment 99 projections identify that the majority of projected growth will occur in the Elora-Salem and Fergus urban centres.
- It is estimated that as of 2016, 85% of the population resides within the existing urban centres of Elora-Salem and Fergus.
- The population within the existing urban centre boundaries is expected to increase to 40,860 people (compared to 25,540 in 2016) by 2036.
- The Township of Centre Wellington is currently undertaking a Growth Management Strategy to plan for this projected growth.
- Preliminary results identify several greenfield areas within the existing urban centre boundary that are projected to absorb both greenfield and employment growth (Figures 11 and 12).
- In addition to the growth within the existing urban centres, there is also growth slated to take place between the two urban centres in the Aboyne area referred to as the Wellington Place lands. These lands are planned to include a future hospital by 2018.
- As the Township continues to grow, and the Fire Services Master Plan is reviewed and updated, the nature of the growth and its impact on local needs and circumstances from an emergency services and risk perspective should be monitored.

6.0 Community Risk Assessment Overview

Through this Community Risk Assessment exercise, key risks have been identified following the NFPA 1730 risk profiles:

- Demographic;
- Building Stock;
- Past Fire Loss;
- Response;
- Hazard; and
- Economic.

Growth considerations including historic and future growth are also considered and a Fire Risk Model was developed based in part of NFPA 1730 and the Ontario Office of the Fire Marshal's Fire Risk Sub-model. The results of this Community Risk Assessment directly inform the Fire Services Master Plan and should be used to inform the development and implementation of public education programs, suppression, training, and prevention activities. The CRA should be reviewed annually and updated every five years per NFPA 1730 or if something significant changes. This can be completed in alignment with the review and update of the Fire Services Master Plan.

Appendix B

Public Fire Safety Guidelines

DILLON CONSULTING

Public Fire Safety Guidelines

Throughout the FSMP, several Public Fire Safety Guidelines are referenced to support the analysis, strategic direction, recommendations, and options presented. This appendix contains the PFSGs referenced which are found on the OFMEM website. The PFSGs as provided in this appendix are shown in the table below.

Public Fire Safety Guidelines in this Appendix	
PFSG 00-00-01	Framework for Setting Guidelines within a Provincial-Municipal Relationship
PFSG 01-01-01	Fire Protection Review Process
PFSG 01-02-01	Comprehensive Fire Safety Effectiveness Model
PFSG 01-03-12	Sample Establishing and Regulating By-law
PFSG 02-02-03	Fire Risk Assessment
PFSG 02-03-01	Economic Circumstances
PFSG 02-04-01	Capabilities of Existing Fire Protection Services
PFSG 03-02-13	Master Planning Process for Fire Protection
PFSG 04-05-12	Mutual Aid
PFSG 04-07-12	Types of Apparatus and Equipment
PFSG 04-08-10	Operational Planning: An Official Guide to Matching Resource Deployment and Risk
PFSG 04-40-03	Selection of Appropriate Fire Prevention Programs
PFSG 04-40A-03	Simplified Risk Assessment
PFSG 04-40A-12	Simplified Risk Assessment
PFSG 04-40B-03	Smoke Alarm
PFSG 04-40B-12	Smoke Alarm Program and Home Escape Planning
PFSG 04-40C-03	Distribution of Public Fire Safety Education Materials
PFSG 04-40C-12	Distribution of Public Fire Safety Education Materials
PFSG 04-40D-03	Inspections Upon Request of Complaint
PFSG 04-40D-12	Inspections Upon Request or Complaint (Fire Code)
PFSG 04-45-12	Fire Prevention Policy
PFSG 04-60-12	Records Management
PFSG 04-69-13	Co-ordination, Development, Approval, and Distribution of Standard Operating Guidelines for Various Disciplines

Framework For Setting Guidelines Within A Provincial-Municipal Relationship

Public Fire Safety Guidelines	**Subject Coding** **PFSG 00-00-01**
Section **General**	Date **January 1998**
Framework For Setting Guidelines Within A Provincial-Municipal Relationship	Page

Under Review

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.

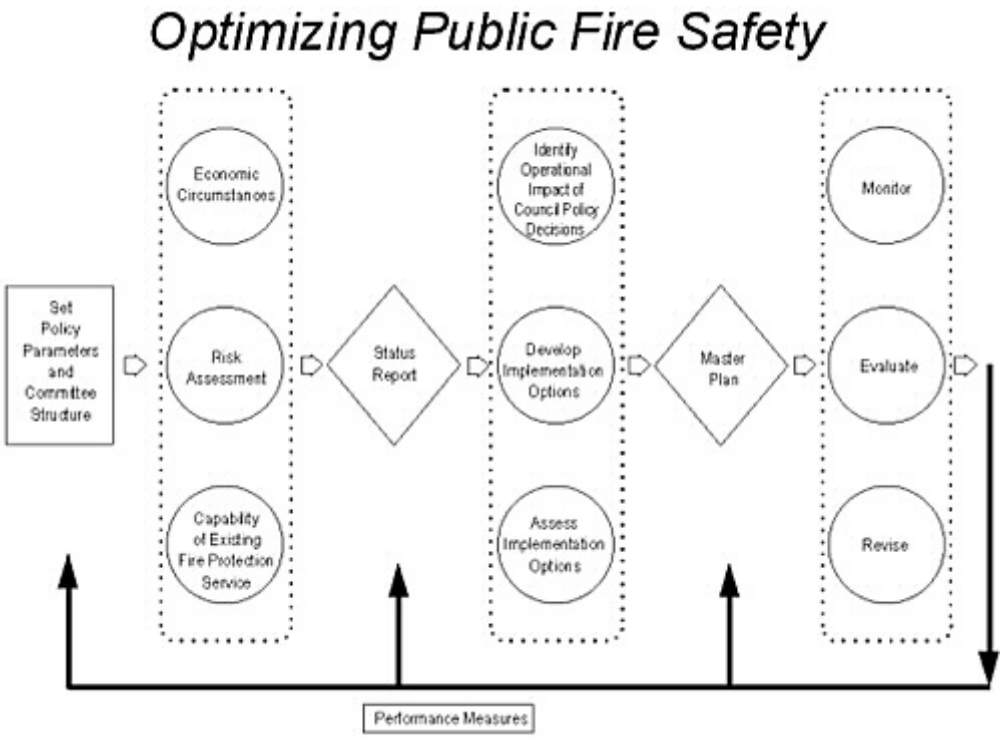
This strategy recognizes that municipalities, with the aid of appropriate tools and support, are fully capable of ensuring adequate fire protection for their communities.

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.



Fire Protection Review Process

Public Fire Safety Guidelines	**Subject Coding** **PFSG 01-01-01**
Section **General**	Date **January 1998**
Subject **Fire Protection Review Process**	Page

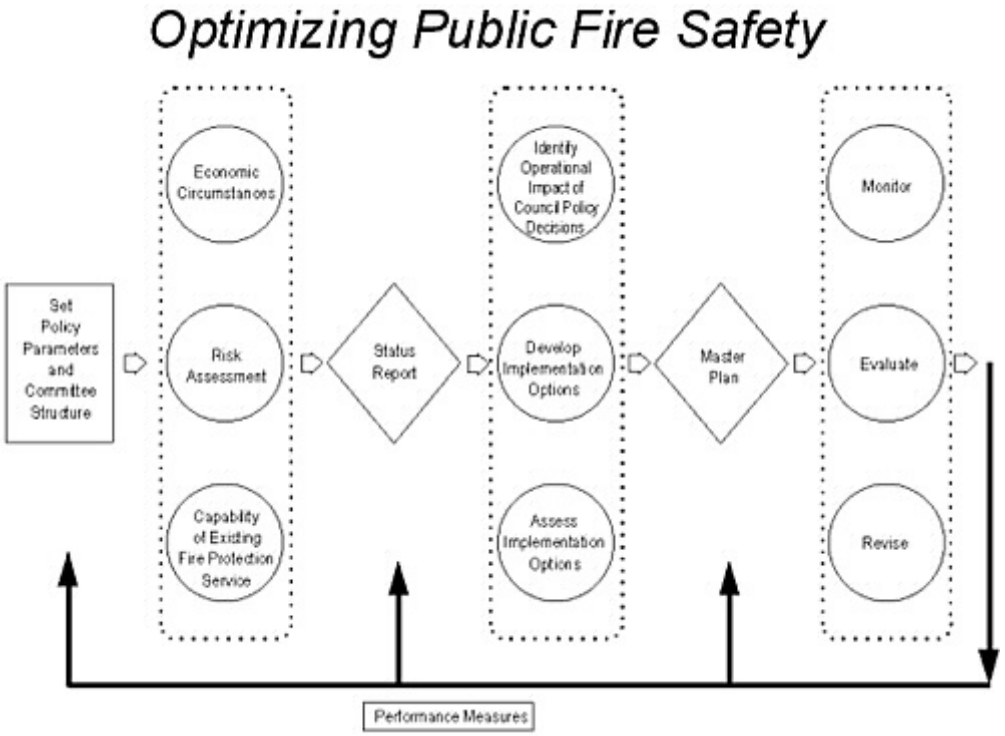
Under Review

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.



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
    - OAFC
    - 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 needs 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/.**. 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 & **23** Capabilities of Existing Fire Protection Services
02-03-01 Economic Circumstances
02-02-12 & **03** Fire Risk Assessment
03-01-13 Preparation of Draft Report
04-39-12 Fire Prevention Effectiveness Model

Comprehensive Fire Safety Effectiveness Model Considerations

Public Fire Safety Guidelines	**Subject Coding** **PFSG 01-02-01**
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Under Review

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

Fire Protection & Prevention In Your Community

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

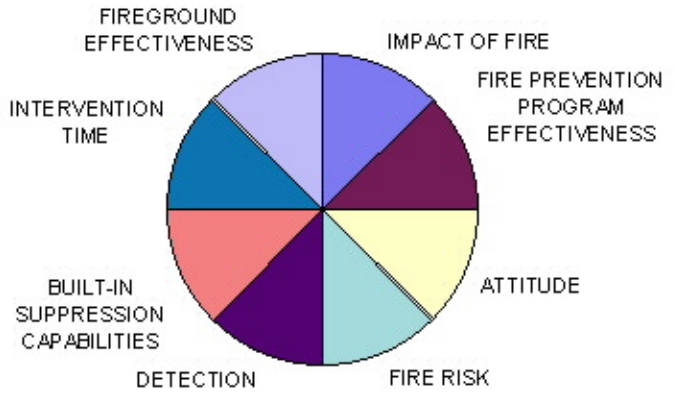
The provision of fire protection in Ontario is a municipal responsibility. The level and amount of fire protection provided is determined by the residents of the community through decisions made by and support provided by the local municipal council. Due to a wide variety of factors, the Ontario fire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

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

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

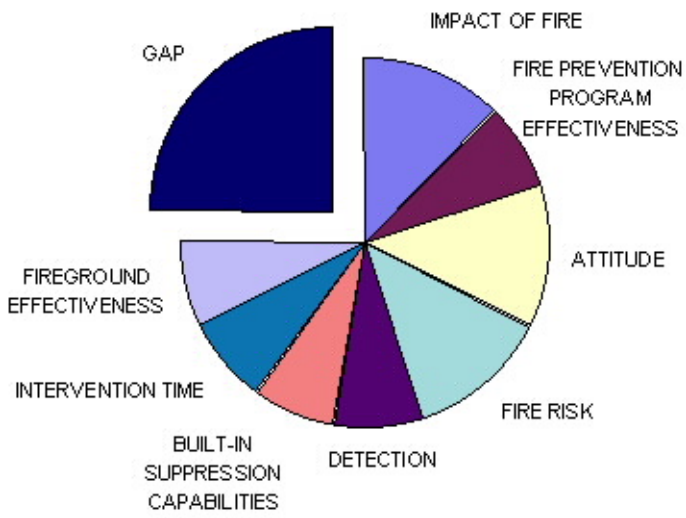
Community Master Fire Protection Plan

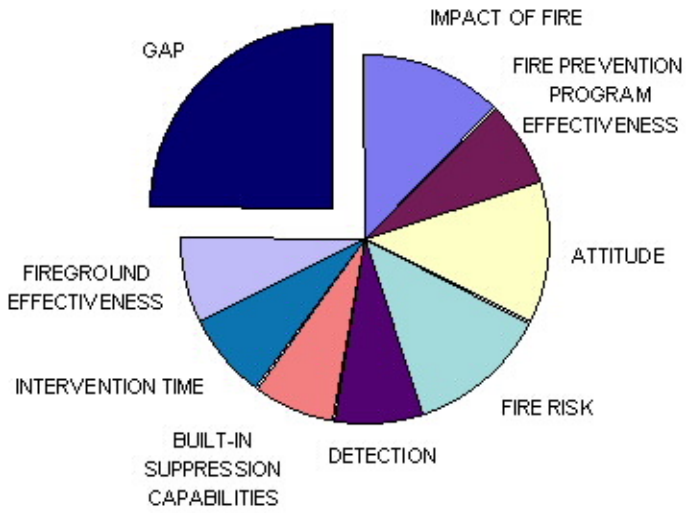
Every fire department should be guided by a master or strategic plan. This *Community Master Fire Protection Plan* traditionally focused on the identification of fire hazards and planning an appropriate suppression force response. Today, hazard or risk assessment has expanded well beyond the fire problem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

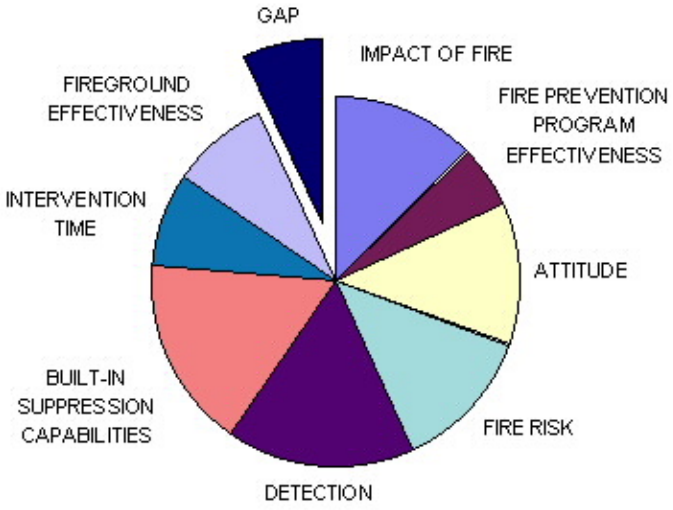


This chart shows each of the factors which make up the comprehensive model. Although the chart is divided equally, each factor will in reality contribute differently to the total level of protection provided to a community.

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







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

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

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

1. **Impact Of Fire:**

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

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

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

2. **Fire Prevention Program Effectiveness:**

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

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

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

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

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

3. **Public Attitude:**

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

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

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

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

4. **Fire Risk:**

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

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

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

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

5. **Detection Capabilities:**

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

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

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

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

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

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

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

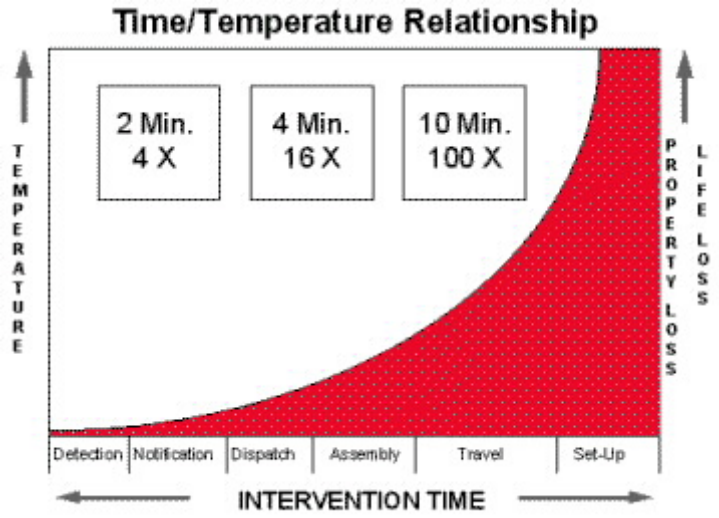
- Does your community promote the use of built-in suppression devices in all types of occupancies
    - residential?
    - commercial?
    - industrial?
    - assembly?
    - institutional?
- Does your community consider built-in suppression devices and early warning detection as an alternative to traditional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

7. **Intervention Time:**

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

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

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



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

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

8. Fireground Effectiveness:

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

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

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

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

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

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

Sample Establishing and Regulating By-law

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

Under Review

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

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

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

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

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

Codes, Standards and Best Practices: Codes, Standards, and Best Practices resources available to assist in establishing local policy on this assessment are listed below. All are available at **www.ontario.ca/firemarshal**

See also PFSG
02-02-12 Fire Risk Assessment
02-03-01 Economic Circumstances
04-01-12 Selecting a Fire Suppression Capability
04-02-01 Service Delivery Considerations

fire department

SAMPLE ESTABLISHING AND REGULATING BY-LAW

corporation of the Town of Anywhere
By-Law No.

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

1. In this by-law, unless the context otherwise requires,
    a. **approved**
    means approved by the council
    b. **chief administrative officer**
    means the person appointed by council to act

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

as chief administrative officer for the corporation

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

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

e. **deputy chief**
means the person appointed by council to act on behalf of the fire chief of the fire department in the case of an absence or a vacancy in the office of fire chief

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

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

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

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

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

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

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

Approved Organizational Chart

4. In addition to the fire chief, the council shall appoint a deputy chief and such number of other officers and members as may be deemed necessary by the council	***Identifies appointment of other officers and members without listing all specifically***
5. The *fire chief* may recommend to the *council* the appointment of any qualified person as a *member* of the *fire department*, subject to the *approved* hiring policies of the Town of Anywhere	***Appointment via approved Hiring Policy***
6. Persons appointed as *members* of the *fire department* to provide *fire protection services* shall be on probation for a period of 12 months, during which period they shall take such special training and examination as may be required by the *fire chief*.	***Probationary Members***
7. If a probationary member appointed to provide *fire protection services* fails any such examinations, the *fire chief* may recommend to the *council* that he/she be dismissed.	
8. The remuneration of the volunteer members shall be as determined by the *council*.	***Remuneration and working conditions***
9. Working conditions and remuneration for all firefighters defined in Part IX of the Fire Protection and Prevention Act shall be determined by *council* in accordance with the provisions of Part IX of the Fire Protection and Prevention Act.	
10. If a medical examiner finds a member is physically unfit to perform assigned duties and such condition is attributed to, and a result of employment in the *fire department*, *council* may assign the member to another position in the *fire department* or may retire him/her. *council* may provide retirement allowances to members, subject to the Municipal Act.	***Other employment, retirement options and/or allowances***
11. The *fire chief* is ultimately responsible to *council*, through the (insert appropriate position for the municipality) for proper administration and operation of the *fire department* including the delivery of *fire protection services*.	***Chief ultimately responsible to council through FPPA (via chief administrative officer, clerk, fire committee or specify appropriate position)***

12. The *fire chief* shall implement all *approved* policies and shall develop such standard operating procedures and guidelines, general orders and departmental rules as necessary to implement the *approved* policies and to ensure the appropriate care and protection of all *fire department* personnel and *fire department* equipment. ***Developing SOP's, guidelines, rules and regulations***

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

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

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

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

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

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

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

20. A volunteer firefighter shall not be dismissed without the opportunity for a review of termination, if he/she makes a written request for such a review within seven working days after receiving notification of the proposed dismissal. A person appointed by the municipality, who is not employed in the *fire department*, shall conduct the review. ***Provides volunteers with the same opportunity for review as full-time members***

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

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

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

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

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

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

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

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

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

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

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

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

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

Fire Risk Assessment

Public Fire Safety Guidelines	**Subject Coding** **PFSG 02-02-03**
Section **General**	Date **January 1998**
Subject **Fire Risk Assessment**	Page

Under Review

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:

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

See also PFSG

01-02-01 Comprehensive Fire Safety Effectiveness Model Considerations
02-04-01 & **23** Capabilities of Existing Fire Protection Services
04-39-12 Fire Prevention Effectiveness Model

Economic Circumstances

Public Fire Safety Guidelines	**Subject Coding** **PFSG 02-03-01**
Section **General**	Date **January 1998**
Subject **Economic Circumstances**	Page

Under Review

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**
- **Capabilities of Existing Fire Protection Services**

Codes, Standards, Best Practices:

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See also PFSG
02-04-01 & **23** Capabilities of existing Fire Protection Services
02-02-12 & **03** Risk Assessment

Capabilities of Existing Fire Protection Services

Public Fire Safety Guidelines	**Subject Coding** **PFSG 02-04-01**
Section **General**	Date **January 1998**
Subject **Capabilities of Existing fire Protection Services**	Page

Under Review

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**
- **Economic Circumstances**

Codes, Standards, Best Practices:

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

See also PFSG

02-03-01 Economic Circumstances
02-02-12 & **03** Fire Risk Assessment
04-39-12 Fire Prevention Effectiveness Model
04-61-12 Human Resources Practices
04-64-12 Communications/Resource Centre

Master Planning Process for Fire Protection Services

Public Fire Safety Guidelines	**Subject Coding** **PFSG 03-02-13**
Section **General**	Date **March, 2000**
Subject **Master Planning Process for Fire Protection Services**	Page

Under Review

Purpose:

To outline a process and identify the components that may be used in the development and preparation of an effective master fire plan for approval by council and implementation by appropriate persons.

Introduction:

This guideline is a framework for municipal decision making which should link council policy setting responsibility and the fire service operational expertise to accommodate short, medium or long term planning.

Principles:

Goal:

The master fire plan is a strategic blueprint for fire protection that addresses all local needs and circumstances based upon costs the community can afford

Guiding Principles:

- The residents of any community are entitled to the most effective, efficient and safe fire services possible
- The content of existing collective agreements will be respected and the collective bargaining process will be recognized as the appropriate channel for resolving labour relations issues under collective agreements and the Fire Protection and Prevention Act
- Collective bargaining issues affecting public safety will be identified
- Those responsible must work within these parameters in making recommendations for improving municipal fire services

Process:

The master fire plan is a component of the optimizing public fire safety model and the master fire plan process should generate the following:

- a stated council commitment sanctioning development and preparation of the plan

- identification of council approved fire protection options and the operational impacts of the policy decisions on providing services
- identification of persons responsible for preparation of the draft plan for council approval with appropriate time lines

Components:

The master fire plan components should include:

- the mission statement, values and roles of the department
- the necessary programs or projects approved by council
- projected expenditures that the public can afford
- schedules for developing, implementing and maintaining appropriate services

Are the RESULTS what we wanted?
NOTE: See **PFSG #01-01-01** for the complete Optimizing Model

Codes, Standards, Best Practices:

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

See also PFSG
01-01-01 Fire Protection Review Process
02-04-01 & **23** Capabilities of Existing Fire Protection Services
02-03-01 Economic Circumstances
02-02-12 & **03** Risk Assessment
03-01-13 Report on Existing Fire Protection Services
04-39-12 Fire Prevention Effectiveness Model

Mutual Aid

Public Fire Safety Guidelines	**Subject Coding** **PFSG 04-05-12**
Section **Emergency Response**	Date **March 2000**
Subject **Mutual Aid**	Page

Under Review

Purpose:

To describe requirements for fire department participation in a county, district or regional mutual aid plan.

What:

- Mutual aid plans allow a participating fire department to request assistance from a neighbouring fire department authorized to participate in a plan approved by the Fire Marshal.
- Mutual aid is not immediately available for areas that receive fire protection under an agreement. The municipality purchasing fire protection is responsible for arranging an acceptable response for back-up fire protection services. In those cases where the emergency requirements exceed those available through the purchase agreement **and** the back up service provider, the mutual aid plan can be activated for the agreement area.

When:

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

How:

- Generally, the requirements for participation in county, district or regional mutual aid plans include the following:
    - participating municipalities or agencies must own, or operate fire departments, adequate to meet their day to day fire protection obligations
    - fire departments must be established by by-law or agreement
    - fire chiefs of participating fire departments must be appointed by by-law or similar acceptable authorization
    - participating municipalities or agencies must pass by-laws or similar authorization permitting fire departments to leave their jurisdiction to participate in the mutual aid plan

- responding fire departments must meet the requirements of the Occupational Health and Safety Act
- fire departments have a first obligation to emergencies in their municipality or jurisdiction, a second obligation to mutual aid calls, and then to calls in areas covered by fire protection agreements
- the fire chief or designate of the municipality or jurisdiction in which the emergency occurs, has responsibility for managing the emergency
- the fire co-ordinator and the fire chiefs participating in the plan in consultation with the Office of the Fire Marshal shall assess suitability of participating fire departments
- the mutual aid plan may stipulate that the departments provide or receive assistance through
    - additional or specialized vehicles and/or equipment
    - additional or specialized personnel
    - specialized advice and/or command assistance

- fire departments must adhere to the accepted response, reporting and other provisions of the mutual aid plan

Cost:

Assistance is reciprocal with no fees involved for mutual aid

Related Functions:

Click on the related function below to view that function:

- automatic aid
- fire protection agreements

Codes, Standards and Best Practices:

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

Types of Apparatus & Equipment

Public Fire Safety Guidelines	**Subject Coding** **PFSG 04-07-12**
Section **Emergency Responses**	Date **January 1998**
Subject **Types of Apparatus & Equipment**	Page

Under Review

Purpose:

To provide options for **small municipalities** to follow in determining the level of fire suppression and the types of apparatus and equipment that will be provided in the community.

Introduction:

• Demands on municipal resources force all communities to re-evaluate the level and nature of services they provide.

• Traditional approaches to the delivery of fire suppression with full-size triple combination pumpers may not necessarily be the most appropriate way to deliver this component of community fire safety, particularly in small communities with limited availability of firefighting personnel.

• The primary mission of all fire departments should be to ensure that the community is provided with an optimal level of fire protection in a cost effective and efficient manner. This optimal level may require a much greater emphasis on fire prevention and public education activities - with residents being responsible for protection within their own residences.

• new technology provides options

• must be appropriate to the fire suppression needs of the community

• dependent upon availability of human resources
need to work closely with neighbouring communities

• focus must still be on community fire safety initiatives

Service Delivery Options:

There are many fire protection options available to small communities in Ontario.

• The amount, type and capacities of firefighting apparatus will vary with the intended service of the vehicle.

• Pump size and amount of water, hose and equipment carried will vary with the intended type of service such as urban, suburban or rural. The total pumper capacity should not be less than the required fire flows of the community.

• The basic firefighting vehicle used in Ontario is the pumper which carries a wide variety of equipment and tools for firefighting and rescue. This basic equipment is designed to make these vehicles self-sustaining firefighting units and includes:

o pump

o hose

o water tank
ladders

o wide selection of portable tools and appliances

• Other types of apparatus used by the Ontario fire service include:

o aerial ladders

o elevating platforms and aerial towers

o specialised support vehicles

§ rescue trucks

§ hazmat

§ lighting

§ air supply

§ command

o mobile water supply apparatus

o boats

o pumper/rescues

o support vehicles

• It is not reasonable to expect that a single vehicle will provide all of the operational capabilities needed on the fireground. In those areas requiring aerial devices, a pumper/ladder combination may be used as initial attack fire apparatus. Good staffing is needed for effective use of such combination apparatus even if personnel are assigned to supporting apparatus.

• Where a single vehicle is provided for both types of service, it should carry a minimum amount of both types of equipment because of space and load limitations. An overloaded piece of apparatus, or one with inadequate hose carrying capability must be avoided.

Option	Considerations	Staffing	Package Cost[1]
Portable Pumps	• limited flow rates • limited structural capability - normally used for exterior / wildland fire suppression only • dependent upon static water sources • no insurance reduction incentive	minimal (at least 4)	$30,000[2]
Skid Mount Firefighting Packages	• limited flow rates • limited structural capability - normally used for exterior / wildland fire suppression only[3] • limited water supply on vehicle • normally restricted to exterior firefighting and limited rescue • no insurance reduction incentive	minimal (at least 4) highly dependent on type of fire attack see fireground staffing guideline	$75,000[4]
Initial Attack / Rescue Mini-pumper	• increased flow rates • basic level for structural firefighting capability • greater range of equipment • recognized for insurance reduction	highly dependent on type of fire attack see fireground staffing guideline	$140,000[5]
Tanker	• supplements pumper • no insurance reduction incentive	minimal when used as water shuttle	$75,000

Triple Combination Pumper	• basic level of equipment for structural firefighting / rescue • greater flow rate • increased water capacity • additional equipment • mobility provides flexible utilization • recognized for insurance reduction	highly dependent on type of fire attack see fireground staffing guideline	$225,000

[1] None of the costs reflect equipment accommodation, insurance, workers compensation, or annual operating costs.
[2] Estimate reflects cost of pump, firefighter protective clothing, hose, nozzles. etc.
[3] The capability of this type of unit is to a large extent dependent upon its design. Skid mount units with compressed air class A foam provide greater flexibility than units using water only.
[4] Estimate reflects the cost of vehicle, pumping equipment, protective clothing, hose, nozzles, etc.
[5] Estimate reflects cost of pump, firefighter protective clothing, hose, nozzles. etc.

Service Delivery Implications:

• Firefighting apparatus and equipment are the tools for the provision of fire suppression and other emergency services and are a critical component of

• departments must have access to appropriate tools and must have the knowledge and skills to use these tools if they are to be successful.
A relatively high percentage of fire calls are handled successfully by the first arriving suppression vehicle, provided it arrives quickly, has an adequate crew and does not have to perform multiple duties such as search and rescue or laddering as well as extinguishment.

Quality and Performance Measures:

• Adequate water supply for firefighting is established by determining minimum rates of fire flow needed to control potential fires in representative structures and exposures in the fire area

• the fire flow rates are based on estimates of the number of hose streams needed to control potential fires

• includes demand for hose streams together with water for automatic fire sprinkler systems

o significant reductions in needed fire flow often can be achieved by the installation of an approved automatic fire sprinkler system throughout the building

• fire department should predetermine fire flow needs for proposed projects

• need to co-ordinate with Building Department and Building Code requirements

o satisfactory water flows should be a condition of issuing a building permit

• see **OFM Communiqué 96-022** re water supply requirements and the Ontario Building Code

Codes, Standards, and Best Practices

• Apparatus should be designed and powered adequately for the service to be carried out and the territory in which it is used.

• Pumper

o CAN/ULC-S515, *Standard for Automobile Firefighting Apparatus*

o CAN/ULC-S523, *Standard for Light Attack Firefighting Apparatus*

o NFPA 1901, *Standard For Pumper Fire Apparatus*

o NFPA 1902, *Standard For Initial Attack Fire Apparatus*

• Aerial Ladders & Elevating Platforms

o CAN/ULC-S515, *Standard for Automobile Firefighting Apparatus*

o NFPA 1904, *Standard For Aerial Ladder and Elevating Platform Fire Apparatus*

o NFPA 1914, *Standard For Testing Fire Department Aerial Devices*

• Portable Pumps

NFPA 1921, *Standard For Fire Department Portable Pumping Units*

• Ladders

o NFPA 1931, *Standard For Fire Department Ground Ladders*

o NFPA 1932, *Standard on Use, Maintenance and Service Testing of Fire Department Ground Ladders*

• Hose

o NFPA 1961, *Standard for Fire Hose*

o NFPA 1962, S*tandard for the Care, Use, and Maintenance of Fire Hose, Including Connections and Nozzles*

o NFPA 1963, *Standards for Screw Threads and Gaskets for Fire Hose Connections*

o CAN4-S543 *Standard for Quick Connect Internal Lug Couplings For Fire Hose*

o ULC-S513 S*tandard for 1.5" and 2.5" Threaded Fire Hose Couplings*

o CAN/ULC-S522 *Standard for Fire Extinguisher and Booster Hose*

o ULC-S511 *Standard For Rubber Lined Fire Hose*

• Water Supply

o NFPA 1903, *Mobile Water Supply Fire Apparatus*

o NFPA 1231, *Standard on Water Supplies for Suburban and Rural Firefighting*

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.ofm.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 **04-01-12** Selecting Fire Suppression Capability

Definitions:

• Pumper

o A vehicle equipped with a permanently mounted fire pump of 625 gpm (3000 L/min) rated capacity or greater, a water tank of at least 500 gal. 2300 litres), and a hose body that meet or exceed the requirements of ULC-S515. The primary purpose of this type of apparatus is to combat structural or associated fires.

• Mobile Water Supply Apparatus (Tanker, Tender)

o A vehicle equipped with a water tank of at least 1000 gal. (3800 litres) and designed primarily for transporting (pickup, transporting and delivering) water to fire emergency scenes to be applied by other vehicles or pumping equipment.

• Initial Attack Fire Apparatus

o A vehicle equipped with an attack pump [(250 through 750 gpm, 950 through 2650 L/min)], a water tank, and minimum hose and equipment that is designed primarily for rapid response and initiating fire attack on structural, vehicular, or vegetation fires and supporting associated fire department operations.

• Aerial Ladder & Elevating Platform Fire Apparatus

o A vehicle equipped with a permanently mounted, power operated aerial ladder or with a passenger carrying platform attached to the uppermost boom of a series of telescoping and/or articulating booms and designed to provide rescue capability from elevated positions, and the positioning of firefighters and elevated master streams for fire suppression tasks.

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

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

Under Review

1.0 Purpose

1.1 Municipalities are responsible for the funding and delivery of fire protection services in accordance with Section 2 of the *Fire Protection and Prevention Act, 1997* (FPPA).
In order to meet the intent of Section 2 of the FPPA, municipalities are expected to implement a risk management program.
The evaluation tool ***Operational Planning: An Official Guide to Matching Resource Deployment and Risk***, found in the Appendix, is to be used as part of a risk management program. The purpose of this guideline is to encourage municipalities and fire departments to use this tool so that they can make informed decisions regarding the delivery of fire suppression services.

2.0 Scope

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

3.0 Risk Management

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

4.0 Legislation

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

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

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

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

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

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

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

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

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

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

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

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

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

5.0 References

OFM documents, programs and courses

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

National Fire Protection Association standards

- NFPA 1710 and NFPA 1720

6.0 Appendix

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

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

Selection of Appropriate Fire Prevention Programs

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

Under Review

Purpose:

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

Introduction:

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

Minimum Required Services:

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

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

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

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

Simplified Risk Assessment:

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

Smoke Alarm Program:

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

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

Fire Safety Material:

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

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

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

Public Fire Safety Education:

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

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

Inspections:

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

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

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

Inspection Program Considerations:

For inspections, the following factors should be considered:

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

Program Selection:

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

Service Delivery Options:

The Fire Prevention Effectiveness Model may also assist with informed decision making about fire prevention and public education programs. Once the needs analysis component of the model has been completed, fire department managers can decide what programs are appropriate to address their identified local risks.
There are a number of options for delivery of selected fire prevention programs. They can be provided by fire department staff - personnel dedicated to fire prevention and/or fire suppression staff. Other persons in the community may be used. Agreements with other communities may be made for provision of services. The OFM provides assistance in delivery of fire prevention programs through the Assist Program.

Policy Requirements and Other Relevant Issues:

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

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

Codes, Standards, and Best Practices:

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

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

Public Fire Safety Guidelines

Public Fire Safety Guidelines	**Subject Coding** **PFSG 04-40A-03**
Section **Fire Prevention and Public Fire Safety Education**	Date **January 2006**
Subject **Simplified Risk Assessment**	Page

Under Review

Purpose:

Municipalities have a legislated responsibility under the Fire Protection and Prevention Act (FPPA) to provide public education with respect to fire safety and certain components of fire prevention. Conducting a simplified risk assessment is the first step towards compliance with these requirements and is intended to identify information required by a municipality to make informed decisions about the programs and activities necessary to effectively manage the community fire risk based upon local needs and circumstances.
In general terms, needs and circumstances relate to a municipality's economic situation, geography, population, building profiles and service delivery system, e.g., volunteer fire department.

Simplified Risk Assessment:

Conducting a simplified risk assessment is a practical information gathering and analyzing exercise intended to create a community fire profile that will aid in identifying appropriate programs or activities that can be implemented to effectively address the community's fire safety needs.
The simplified risk assessment is designed to serve the needs of smaller municipalities and should also be used as a first step (basic foundation) for larger municipalities that face more complex fire safety challenges within their communities. It is recommended that larger municipalities then apply the OFM Fire Prevention Effectiveness Model to develop a more comprehensive fire profile and to identify and address their public education and fire prevention needs. Reference can be made to Public Fire Safety Guideline **04-39-12** for further details.
As a minimum requirement, a community fire safety program must include:

- a simplified risk assessment
- a smoke alarm program
- distribution of fire safety education materials, and
- participating in inspections upon complaint or when requested to assist with Fire Code compliance.

(Refer to **PFSG 04-40-12** in respect of public education and fire prevention services.)
As each community is different, the simplified risk assessment and ensuing fire concern profile will assist in identifying the degree to which these activities are required in accordance with local needs and circumstances. The simplified risk assessment is made up of the following components:

- demographic profile
- building stock profile
- local and provincial fire loss profiles
- information analysis and evaluation
- priority setting for compliance
- implementing solutions

Reference can be made to the Sample Simplified Risk Assessment located on the OFM website **www.ofm.gov.on.ca**, under the Fire Service heading.
The following information, sample templates and worksheets may be used to help compile and analyse the data gathered for the simplified risk assessment.

DATA COLLECTION COMPONENT

DEMOGRAPHIC PROFILE

It is important to examine local demographic data to determine the following:

- population makeup, based on age groupings
- vulnerable individuals or occupancies
- cultural differences such as language and customs
- seasonal population shifts in tourist areas such as cottages, mobile homes, trailer parks, student influx in university/college locales
- other considerations specific to certain municipalities

You may be able to obtain data about your population from your local planning office or town clerk. Other excellent sources of information include: Statistics Canada **www.statcan.ca** (800) 263-1136; Municipal Financial Information Return **http://www.oraweb.mah.gov.on.ca/fir/welcome.htm**; and Financial Demographic Information **www.fin.gov.on.ca**.
It may be helpful to obtain provincial demographic data at the same time so you can compare your local data with provincial data.

Demographic Profile

This demographic is based on the 2001 Census. (PDF version available on request at **AskOFM**)

Ages of population	**Number**	**% of Total Population**
0-14		
15-64		
65 and over		
Total Population		

Vulnerable groups / individuals	**Population fluctuation**
Barriers to Public Education	

Information Analysis and Evaluation

Demographic Profile Commentary

Demographic Profile Concerns

BUILDING STOCK PROFILE

Occupancy Classification		**# of Occupancies**
Group A	Assembly	
Group B	Institutional	
Group C	Single family	
	Multi-unit residential	
	Hotel / Motel	
	Mobile Homes & Trailers	
	Other	
Groups D & E	Commercial	
Group F	Industrial	
Other occupancies not classified in OBC such as farm buildings.		

Totals	
Total # of mixed occupancy buildings	

Building Stock Profile Commentary

Building Stock Profile Concerns

MUNICIPAL FIRE LOSS PROFILE

TABLE 1 - Municipal Fire Deaths and Injuries								
Occupancy Classification		**2003**		**2004**		**2005**		**Total Deaths+Injuries (2003-2005)**
		Deaths	**Injuries**	**Deaths**	**Injuries**	**Deaths**	**Injuries**	
Group A	Assembly							
Group B	Institutional							
Group C	Residential							
Groups D & E	Commercial							
Group F	Industrial							
Mobile Homes & Trailers								
Other								
Total Dollar Loss								

Municipal Property Dollar Loss

TABLE 2 - Municipal Property Dollar Loss								
Classification Occupancy		**2003**		**2004**		**2005**		**% of Total Dollar Loss (2003-2005)**
		# of Fires	**$**	**# of Fires**	**$**	**# of Fires**	**$**	
Group A	Assembly							
Group B	Institutional							
Group C	Residential							
Groups D & E	Commercial							
Group F	Industrial							

Mobile Homes & Trailers								
Other								
Total Dollar Loss								

TABLE 3 - Fire Cause			
Incident type	**2003**	**2004**	**2005**
Smoking Articles			
Chimney fires/woodstove			
Open air fires/grass/brush			
Mischief / Arson			
Electrical			
Accidental			
Other / undetermined			
Total			

Information Analysis and Evaluation

Municipal Fire Loss Profile Commentary

Municipal Fire Loss Profile Concerns

Codes, Standards, and Best Practices

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

See also PFSG
01-02-01 Comprehensive Fire Safety Effectiveness Model
02-02-12 &
02-02-03 Fire Risk Assessment
02-03-01 Economic Circumstances
04-12-13 Core Services
04-40-12 & **03** Selection of Appropriate Fire Prevention Programs
04-40A-12 Simplified Risk Assessment
04-45-12 Fire Prevention Policy
04-56-12 Use of Fire Related Statistics

Simplified Risk Assessment

Public Fire Safety Guidelines	**Subject Coding** **PFSG 04-40A-12**
Section **Fire Prevention and Public Fire Safety Education**	Date **March 2001**
Subject **Simplified Risk Assessment**	Page

Under Review

Purpose:

Municipalities have a legislated responsibility under the Fire Protection and Prevention Act (FPPA) to provide public education with respect to fire safety and certain components of fire prevention. Conducting a simplified risk assessment is the first step towards compliance with these requirements and is intended to identify information required by a municipality to make informed decisions about the programs and activities necessary to effectively manage the community fire risk based upon local needs and circumstances.

Simplified Risk Assessment:

Conducting a simplified risk assessment is a practical information-gathering and analysing exercise intended to create a community fire profile that will aid in identifying appropriate programs or activities that can be implemented to effectively address the community's fire safety needs.
As a minimum, a community fire safety program must include:

- a smoke alarm program,
- distribution of fire safety education materials, and
- participating in inspections upon complaint or when requested to assist with Fire Code compliance.

(Refer to PFSG **04-40-12** in respect of public education and fire prevention services.)
As each community is different, the simplified risk assessment will indicate the degree to which these activities take place in accordance with its local needs and circumstances.

Assessment Components and Risk Considerations:

The following categories of information are important to consider when gathering data and developing a community fire profile through a simplified risk assessment.

Community Demographic Profile

- Population makeup, based on age groupings
- Vulnerable individuals or occupancies
- Cultural differences, such as language and customs
- Seasonal population shifts in tourist areas, mobile homes, trailer parks, university/college locales, etc.
- Other considerations specific to certain municipalities

Building Stock Profile

- Breakdown by Ontario Building Code occupancy classification
- Building density (core areas)
- Age of building stock
- Potential high fire risk occupancies (industrial, commercial, residential)
- Potential high life safety risk occupancies (hospitals, nursing homes, detention centres, group homes, residential care, retirement homes)
- Potential economic/employment/environmental impact

Municipal Fire Loss Profile

- Deaths/injuries
- Dollar loss
- Breakdown by occupancy classification
- The information gathered in each of the 3 categories must be examined, evaluated and analysed to identify the community fire profile and to identify potential fire concerns.

Provincial Fire Loss Profile

To assist municipalities in interpreting and understanding the significance of their municipal fire loss data, provincial data is provided in the following areas:

- fires by property type
- fire deaths by property type
- fire deaths by age of victim
- fire loss ($) by property type
- smoke alarm status in fatal fires

Examining, Evaluating and Analysing the Information:

Municipalities are encouraged to compare these provincial statistics with their municipal fire loss profile. When insufficient municipal data exists in this regard, it is recommended that the provincial profile data be used to establish program and resource priorities.

Priority Setting for Compliance

By reviewing the information gathered in the areas of demographics, building stock and fire loss experience, fire safety concerns can be identified and prioritised. No two communities will have the same fire profile, as local needs and circumstances vary.

Selecting and Implementing Options:

Once the community risks have been identified and prioritised, while at the same time taking into consideration resources and other factors, an implementation strategy would be developed. The strategy would involve:

- Council approval of activities
- Resource allocation
- Assignment of responsibilities
- Development of program operational guidelines

Ongoing program assessment

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.ofm.gov.on.ca**. Please feel free to copy and distribute these documents. We ask that these documents 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 the following Public Fire Safety Guidelines:

01-02-01 Comprehensive Fire Safety Effectiveness Model
02-02-12 & 03 Risk Assessment
02-03-01 Economic Circumstances
04-12-13 Core Services
04-40-03 Selection of Appropriate Fire Prevention Programs
04-40A-03 Simplified Risk Assessment
04-45-12 Fire Prevention Policy
04-56-12 Use of Fire Related Statistics

Smoke Alarm Program and Home Escape Planning

Public Fire Safety Guidelines	**Subject Coding** **PFSG 04-40B-03**
Section **Fire Prevention and Public Fire Safety Education**	Date **September 2004**
Subject **Smoke Alarm Program**	Page

Under Review

Purpose:

To assist municipalities to develop, implement and evaluate effective smoke alarm programs in accordance with the minimum acceptable model for the provision of fire prevention and fire safety education under section 2 (1)(a) of the **Fire Protection and Prevention Act, 1997**. (FFPA)

Introduction

Fire statistics show that having a working smoke alarm in the home will increase the chances of surviving a fire. Most fatal fires occur in the home while occupants are asleep. Fire deaths and injuries could be reduced significantly if every home had working smoke alarms and a home fire escape plan.

An effective smoke alarm program will help fire department staff protect residents from fire. Implementing a smoke alarm program will help:

- Ensure that owners have properly installed working smoke alarms in all residential occupancies
- Reduce fire deaths, injuries and property losses
- Educate residents about the importance of installing and maintaining smoke alarms
- Assist residents to develop and practice an effective home fire escape plan
- Assists the municipality in meeting its legislative requirements under the FPPA
- Create positive public relations between the community and the fire department

Identification

Local needs should be identified through a risk assessment that involves a review of demographics, residential building stock, residential fire losses, residential smoke alarm surveys and fire service experience. The risk assessment will assist the fire department staff in designing a smoke alarm program focusing on high-risk areas identified through analysis. Communities may also take advantage of various public fire safety programs that incorporate smoke alarm related elements.

Selection and Design

The objective of an effective smoke alarm program is to verify the provision, installation and maintenance of smoke alarms and the adoption of home fire escape planning activities in all residential occupancies. Fire department staff should develop operational guidelines for the smoke alarm programs consistent with the municipality's fire prevention policy. The activities associated with a smoke alarm program should include any combination or all of the following:

- Providing smoke alarm and home fire escape planning information
- Promoting regular testing and maintenance of smoke alarms
- Providing or replacing smoke alarms and/or batteries
- Encouraging residents to regularly maintain their smoke alarms
- Educating residents about the legal requirements for smoke alarms
- Enforcement of all legislation relating to smoke alarms
  Effectively tracking and evaluating your smoke alarm program
- Modifying the program where necessary to ensure success

Many municipalities may already be involved in a smoke alarm program. However, in some instances, the current program may not be meeting the specific needs of the community. The revised Alarmed for Life program provides some ideas and suggestions on developing, organizing and implementing an effective smoke alarm program in your community. The program design stage should take into consideration how the program will be tracked, measured and evaluated. This enables one to demonstrate the results of the program in an objective manner.

Implementation

Implementing a smoke alarm program must involve careful planning and development of appropriate operational guidelines. A smoke alarm program can be implemented in a variety of ways within the community including:

- Comprehensive training of firefighters involved in the delivery of the program, including public educators and/or community members on the selection, proper installation, maintenance and testing of smoke alarms and enforcement of the smoke alarm legislation
- Fire officials may wish to consider recruiting sponsors and partners in fire safety from local community organizations that share a vested interest in the fire safety of the community
- Providing public service announcements to local media such as newspapers, community cable television stations or local radio stations, including success stories
- Activities during fire prevention week or specific community events
- Programs such as Risk Watch, Older and Wiser, Kitchen Safety, Babysitting, Heroes or TAPP-C
- Networking with other community agencies which advocate life safety skills such as your community health unit
- Fire safety houses which teach community members fire safety skills including home escape planning
- Use of volunteers, such as retired school teachers or firefighters to assist with smoke alarm initiatives
- Media days
- Smoke alarm checks following emergency responses
- Door to door awareness activities

Evaluations

Evaluation of every smoke alarm program is essential to ensure the most appropriate use of the community's resources and to determine the impact of the program. Evaluation should be on going and will provide valuable information to measure the program's effectiveness and assist in determining where to focus program activities. The evaluation will also assist in determining the costs of developing and implementing the program. Evaluation criteria and information will be helpful, should the community wish to develop partnerships and acquire program sponsorship.
To evaluate your programs, measures of effectiveness and efficiency need to be established. This can be accomplished in a variety of ways, such as:

- Analysing responses to surveys from community members
- Tracking the number of households reached by the program
- Comparing fire loss statistics using the Standard Incident Report (SIR)
- Comparing fire deaths or injuries
- Recording success stories within your community
- Reviewing smoke alarm status at emergency responses
- Obtaining feedback from all those delivering the program
- Establishing a baseline to use as a benchmark

A smoke alarm tracking form may be helpful for documenting activities associated with the program, including such things as the number of smoke alarms distributed and installed, smoke alarms tested, batteries provided/replaced, etc.
Program evaluation results will determine success or identify the need to modify the program to ensure success and desired goals are achieved.
A sample tracking form is included as an appendix to this guideline. (PDF version available on request at **AskOFM**) / **HTML**)

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/ .**

See also;
CAN/ULC-S553 M86 Standard for the Installation of Smoke Alarms
OFM-TG-01-2000 Fire Safety Enforcement
OFM-TG-04-98 Maintenance of Smoke Alarms
01-01-01 Fire Protection Review Process
04-40-12 & **03** Selection of Appropriate Fire Prevention Programs
04-40A-12 Simplified Risk Assessments
04-40B-12 Smoke Alarm Program
04-40C-12 &
04-40C-03 Distribution of Public Fire Safety Education Materials
04-40D-12 Inspections upon Request or Complaint
04-60-12 Records Management
Alarmed for Life! Program Information
For further information about *Alarmed for Life* contact your Regional OFM office or your local Fire Protection Adviser

Smoke Alarm Program

Public Fire Safety Guidelines	**Subject Coding** **PFSG 04-40B-12**
Section **Fire Prevention and Public Fire Safety Education**	Date **March 2001**
Subject **Smoke Alarm Program and Home Escape Planning**	Page

Under Review

Purpose:

To assist municipalities in developing smoke alarm programs required to meet the minimum requirements of the Fire Protection and Prevention Act.

Introduction:

The loss of life and property in Ontario due to fire has continued to decrease since the introduction and widespread use of smoke alarms listed by an accredited agency such as ULC.

Development:

All municipalities are required to implement a smoke alarm program that meets local needs and circumstances. Local needs may be identified through a simplified risk assessment, a review of emergency response data, residential surveys and fire service experience. Municipalities may also take advantage of various smoke alarm initiatives that take place throughout the province sponsored by the Fire Marshal's Public Fire Safety Council.

Related Functions:

The objective of a smoke alarm program is the provision, locating, installation 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 and batteries
- installation of smoke alarms
- inspecting premises to determine and ensure compliance with the smoke alarm provisions of the Fire Code
- departmental programs to evaluate smoke alarm usage and effectiveness in the community

Codes, Standards, and Best Practices:

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

See also;
PFSG
04-40-12 & **03** Selection of Appropriate Fire Prevention Programs
04-40A-12 Simplified Risk Assessments
04-40C-12 Distribution of Public Fire Safety Education Materials
04-40D-12 Inspections upon Request or Complaint

Distribution of Public Fire Safety Education Materials

Public Fire Safety Guidelines	**Subject Coding** **PFSG 04-40C-03**
Section **Fire Prevention and Public Fire Safety Education**	Date **September 2004**
Subject **Distribution of Public Fire Safety Education Materials**	Page

Under Review

Purpose:

To assist municipalities in developing strategies for the distribution of public fire safety educational materials in accordance with the minimum acceptable model for the provision of fire prevention and fire safety education under section 2 (1)(a) of the Fire Protection and Prevention Act, 1997.

Introduction

The FPPA recognizes the importance of implementing three lines of defense (Public Education, Fire Safety Standards and Enforcement and Emergency Response) to achieve an acceptable level of fire safety within communities. Distribution of public fire safety education materials fall under the first line of defense.
The loss of life and property in Ontario due to fire has continued to drop for several years. Changing public attitude and improved public knowledge of fire safety can help account for this decrease.

Selection

Public fire safety education materials can vary between communities depending on each community's needs and circumstances as determined by the risk assessment process.
The methods of delivery of these materials to the public can also vary greatly depending on the types of information being disseminated and the audience being targeted (e.g. children, seniors, specific cultural communities and overcoming language barriers, etc.)
Local needs should be identified through a risk assessment, which includes a review of emergency response data, residential surveys and fire service experience. A risk assessment will assist the fire department in identifying high-risk groups and activities so that effective strategies can be developed to successfully distribute appropriate public fire safety education materials to those at highest risk of fire.
Community needs may also be identified through the use of fire safety surveys and focus groups. These may help to determine the community's knowledge and attitudes regarding fire safety as well as providing insight into the type of fire safety information that is needed in a community. Surveys are also helpful to gauge the impact of fire safety information that has been distributed.
Fire safety education materials focus on fire prevention, detection and escape. These materials and messages will change depending upon the target audience.

Implementation

Fire safety education materials may be distributed to residents in one or more of the following ways:

- Distributing pamphlets or other educational material (e.g. through mailings, on a web site, by a resident calling a phone number to request information, by making materials available in municipal buildings, distributing material to critical contact organizations, through door to door campaigns, etc.)
- Distributing public service announcements utilizing available media resources (television, print and radio)
- Providing instruction to residents/occupants on fire safety planning and related fire safety matters
- Presenting to groups such as seniors, children or special interest groups like girl guides/boy scouts, business or professional associations
- Using effective training aids such as the safety villages, fire safety trailers, videos, articles and photos related to actual fires
- Participating in displays and public events
- Providing fire safety messages on municipal vehicles and on sign boards throughout the community
- Providing training and resources to target group contacts (e.g. a community leader, homecare worker, seniors' events coordinator, building manager, etc.)
- And other methods

Fire officials should identify the most effective means for their residents who are most at risk. Responsibility should be assigned to ensure materials are delivered. Accurate records should be kept
of the materials distributed.
Fire officials may wish to consider recruiting sponsors and partners in fire safety, from local community organizations that share a vested interest in the fire safety of the community.
Other communities may have excellent public fire safety education program materials and resources already in place. Consider contacting them for suggestions and additional information, which may be available. For information on ordering OFM or Fire Marshal Public Fire Safety Council (FMPFSC) materials contact the OFM
Regional Office. For enquiries about appropriate materials for your programs, contact your local fire protection adviser. Fire safety education materials may also be found on the OFM website, **http://www.mcscs.jus.gov.on.ca/ .** or through the Fire Marshal's Public Fire Safety Council Distribution Centre, **www.safecommunities.com**.
It is important for fire officials to track the distribution of materials for evaluation purposes. Fire officials may wish to review relevant chapters of the *IFSTA Fire and Life Safety Educator*, as a resource for the evaluation process of educational materials. As a minimum, the number of target residents reached should be recorded.

Resources

Resources and additional information that will assist in establishing local policies and appropriate programs, are listed below. All are available at **http://www.mcscs.jus.gov.on.ca/ .** Please feel free to copy and distribute this document. We ask that the document not be altered in any way,

that the Office of the Fire Marshal be credited and that the documents be used for non-commercial purposes only.
Public Education Activity Form (**html**)

Resource Material & Codes Standards & Best Practices

Public Fire and Life Safety Educator Course
PFSG **04-40-12** & **03** Selection of Appropriate Fire Prevention Programs Fire Marshal's Public Fire Safety Council @ **www.firesafetycouncil.com**
OFM website – **www.ofm.gov.on.ca** for the following links:
Fire Prevention: Fire Marshal's Public Fire Safety Council

- Resource Catalogue
- Public Education Programs
- Media Information

Fire Prevention Week:

- Information and resource kits for fire prevention week activities

Fire Safety Information:

- Pamphlets
- Public Service Announcements

Publications:

- News Releases
- Risk Guardian
- Fire Statistics
- Ontario Fire Services Messenger
- OFM Communiqus

National Fire Protection Association materials (**www.nfpa.org**)
Neighbouring communities and their fire departments/services.

Public Fire Safety Guidelines

Public Fire Safety Guidelines	**Subject Coding** **PFSG 04-40C-12**
Section **Fire Prevention and Public Fire Safety Education**	Date **March 2001**
Subject **Distribution of Public Fire Safety Education Materials**	Page

Under Review

Purpose:

To assist municipalities in developing smoke alarm programs required to meet the minimum requirements of the Fire Protection and Prevention Act.

Introduction:

The loss of life and property in Ontario, due to fire, has continued to drop for several years. One of the reasons for this decrease is believed to be changes in public attitude and the public's knowledge of fire.

Development:

All municipalities are required to develop a program for the distribution of fire safety education materials to residents based on local needs and circumstances. Local needs may be identified through a simplified risk assessment, a review of emergency response data, residential surveys and fire service experience.

Related Functions:

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 available media
- instruction to residents/occupants on approved fire safety plans and related fire safety matters
- presentations to resident groups such as Risk Watch, TAPP-C and Older and Wiser
- presentations, displays and 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.

Codes, Standards, and Best Practices:

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

See also;
04-40-12 & **04-40-03** Selection of Appropriate Fire Prevention Programs
Fire Marshal's Public Fire Safety Council

Inspections Upon Request or Complaint

Public Fire Safety Guidelines	**Subject Coding** **PFSG 04-40D-03**
Section **Fire Prevention and Public Fire Safety Education**	Date **September 2004** Revision Date **February 2014**
Subject **Inspections Upon Request or Complaint**	Page

Under Review

1.0 Purpose:

To assist fire departments with the development and implementation of a process to ensure fire safety inspections are conducted upon complaint, request and as necessary to meet the mandatory requirements of the ***Fire Protection and Prevention Act, 1997*** (FPPA) and associated regulations.

2.0 Introduction

The FPPA recognizes the importance of implementing three lines of defence (Public Education, Fire Safety Standards and Enforcement and Emergency Response) to achieve an acceptable level of fire safety within communities. Inspections upon request and complaint fall under the second line of defence.

Buildings maintained in accordance with the provisions of the Fire Code are more fire safe for the occupants and the responding fire fighters. While building owners are responsible for carrying out the provisions of the Fire Code, fire services have a public safety interest in ensuring that buildings are maintained in accordance with the provisions of the Fire Code.

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

- A complaint is received regarding the fire safety of a property;
- A request is made by a property owner or occupant for assistance to comply with the Fire Code where the involvement of the Chief Fire Official is required; and
- The fire department becomes aware of Fire Code violations and/or other fire hazards at a particular property.

3.0 Ontario Regulation 365/13 – Mandatory Assessment of Complaints and Requests for Approval

Ontario Regulation 365/13 requires that fire safety assessments and inspections, if necessary, be undertaken as directed by the Fire Marshal for:

(1) every building or property for which a fire safety complaint is received; and

(2) every building or property for which a request for assistance to comply with the Fire Code is received and the involvement of the Chief Fire Official is required.

4.0 Ontario Regulation 364/13 – Mandatory Inspection – Fire Drill in Vulnerable Occupancy

Ontario Regulation 364/13 requires that fire safety inspections be undertaken, as directed by the Fire Marshal, for every care occupancy, care and treatment occupancy and retirement home for which an annual fire drill is required by Sentence 2.8.3.2.(2.1) of Division B of the Fire Code.

5.0 Integration with OFMEM Guidelines and Directives

This guideline is intended to be used as part of an overall municipal fire risk management program – therefore all other OFMEM guidelines are intended to be utilized when applicable.

Clause 9(1)(b) of the *Fire Protection and Prevention Act, 1997* (FPPA) states:

The Fire Marshal has the power to issue directives to assistants to the Fire Marshal respecting matters relating to this Act and the regulations.

And further

Clause 11 (1) states:

The following persons are assistants to the Fire Marshal and shall follow the Fire Marshal's directives in carrying out this Act,

(a) the fire chief of every fire department;

(b) the clerk of every municipality that does not have a fire department;

(c) any member of a fire prevention bureau established by a municipality; and

(d) every person designated by the Fire Marshal as an assistant to the Fire Marshal

The following directives have been created in conjunction with this Guideline to assist Municipalities in understanding and complying with their responsibilities as set out in O. Reg. 213/07 as amended by O. Reg. 150/13, and with O. Reg. 364/13 and O. Reg. 365/13.

- Fire Marshal Directive 2014-001, Registry of Vulnerable Occupancies
- Fire Marshal Directive 2014-002, Vulnerable Occupancies – Fire Drill Scenarios, Fire Drill Observations, Fire Safety Inspections
- Fire Marshal Directive 2014-003, Inspections of All Buildings

This guideline is intended to be used as part of an overall municipal fire risk management program, therefore it is expected that all other OFMEM guidelines will be utilized where applicable.

6.0 Inspection Program

The fire department's fire prevention policy and operational guidelines should contain criteria to determine how quickly and in what manner a complaint/request is addressed as well as appropriate follow-up with enforcement, as necessary, to ensure corrective action has been taken to ensure Fire Code compliance. Technical Guideline TG-01-2012 "Fire Safety Inspections and Enforcement" will assist in the process of inspection through to

enforcement. Appropriate follow-up with enforcement, as necessary, must be conducted to ensure corrective action has been taken to eliminate any identified violations and/or hazards.

The following factors should be considered when developing Fire Department Operational Guidelines and Policies:

- The type of inspections to be conducted and the buildings to be inspected.
- 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 classification of buildings being inspected and the skills and knowledge required to inspect them. The more complicated the building, the more skill and knowledge required.
- Technical assistance required to assist with conducting the inspection, e.g. Electrical Safety Authority, Professional Engineer.
- The seriousness of the complaint received.
- Records management policies (Inspection history of the building including non-compliance or Inspection Orders issued).

6.1 Request Inspections

In order to meet the obligations set out in Section 2(1)(a) of the *Fire Protection and Prevention Act, 1997* (FPPA), fire departments are expected to respond to requests to assist owners to comply with fire safety legislation in accordance with Directive 2014-003. Certain provisions of the Fire Code require the approval of the Chief Fire Official (e.g. fire safety planning), where the property owner cannot comply with the Fire Code without the assistance of the Chief Fire Official. This type of activity assists in improving the fire safety of properties in the community. It also allows the property owner to propose alternate means for compliance for certain Fire Code requirements.

Request inspections referred to in this guideline do not include inspections for licensing, property resale, insurance letters or other similar purposes. These inspections may be conducted at the discretion of council, however, should not take priority over inspections that are considered as mandatory to meet the requirements of the FPPA.

6.2 Complaint Inspections

A complaint may be received from a number of sources including: the public, fire suppression crews, outside agencies or government ministries. Complaints are often initiated as a result of a dispute. Therefore it is important that the inspector must demonstrate impartiality and remain focused on the fire safety concern that has been raised. Conducting complaint inspections will assist communities and their fire departments to mitigate liability concerns.

The review of the complaint determines if the complaint is justified. Any fire code violations or other fire and/or life safety hazards identified during the inspection must be reported to the property owner or other person having responsibility for the property.

Note: This type of inspection may not address every hazard on the property.

6.3 Inspections Where The Fire Department Becomes Aware of a Fire Code Violation or Other Fire Safety Hazard at a Property

When a fire department becomes aware of a Fire Code violation or other fire and/or life safety hazard at a property, it is necessary to conduct an inspection to confirm the violation or hazard, and steps are taken to ensure the owner corrects the violation or eliminates the hazard.

When an owner is unwilling to comply with the Fire Code or correct a fire and/or life safety hazard voluntarily, the fire official should exercise their enforcement authority provided by the FPPA. Refer to Technical Guideline TG-01-2012 "Fire Safety Inspections and Enforcement". Failure to do so could expose the municipality to potential liability for failing to exercise due diligence.

6.4 Inspections identified in the Community's Simplified Risk Assessment

Utilization of the Simplified Risk Assessment Tool may identify a number of high risk properties in a community. Code enforcement inspections of high risk properties are strongly encouraged. Ensuring the fire safety of these properties is a vital component of the overall fire protection of a community. High risk properties include:

- Properties where a fire would have a significant impact on the community, (employment, social, environmental impact);
- Assembly occupancies;
- Multi-unit residential occupancies;
- Industrial occupancies;
- Older buildings in downtown core;
- Care and treatment occupancies;
- Care occupancies; and
- Retirement homes.

Once a community's fire risks have been identified, inspection programs, which are most likely to address these risks, should be implemented. Inspection priority should be based on the degree of risk. The frequency of the inspections will depend on the resources provided by the municipality or as regulated.

The skills necessary to conduct some of these inspections may not be available in the community and it may be necessary to arrange for assistance from other sources such as a neighbouring fire department or OFMEM staff.

The Office of the Fire Marshal and Emergency Management offers an "Inspection Assist Program" to communities and fire departments that may require advice and/or assistance with a particular inspection. This assistance can be arranged through the local Fire Protection Adviser or OFMEM regional office.

7.0 Fire Safety Inspections and Enforcement – OFMEM TG 01-2012

OFMEM Technical Guideline TG-01-2012 "Fire Safety Inspections and Enforcement" assists 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. To ensure efficient and effective fire safety inspections are carried out, the technical guideline provides compliance options. The option(s) selected should ensure that the Fire Code contraventions are dealt with in the most expeditious manner. Any inspection conducted must include appropriate follow-up and enforcement, as necessary. These inspections should be conducted within a short timeframe, relevant to the seriousness of the complaint.

8.0 Records, Documentation and Forms

Samples of records management, documentation and forms may be found in **Technical Guideline TG-01-2012 "Fire Safety Inspection and Enforcement"**. This document will assist you in the process of inspection through to enforcement.

The benefits of a good record keeping system include assisting with:

- Needs assessment;
- Resource planning;
- Program evaluation;
- Effective prosecutions;
- Inspection planning; and
- Mitigating liability concerns.

There are three attachments provided which may be used to assist in record management:

- Request Tracking Form (**html**, PDF version available on request at **AskOFM**)
- Complaint Tracking Form (**html**, PDF version available on request at **AskOFM**)
- Inspection Tracking Form (**html** PDF version available on request at **AskOFM**)

9.0 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 the **Ministry of Community Safety and Correctional Services OFMEM Home page http://www.mcscs.jus.gov.on.ca/**.

04-38-15 Role of Assistant to the Fire Marshal

04-39-12 Fire Prevention Effectiveness Model

04-40-12 & **03** Selection of Appropriate Fire Prevention Programs

04-40A-12 & **03** Simplified Risk Assessment

04-40B-12 & **03** Smoke Alarm Program

04-40C-12 & **03** Distribution of Public Fire Safety Education Materials

04-40D-12 & 03 Inspections Upon Request of Complaint (Fire Code)

04-41-12 Community Fire Safety Officer/Team

04-41A-13 Community Fire Safety Program

04-45-12 & **03** Fire Prevention Policy

04-47-12 Development of Fire Prevention By-laws

04-48-12 Liaison With Building Department

04-49-12 Liaison With Other Government Agencies and Individuals

04-50-12 Fire Safety Inspection Practices

04-52-12 & **03** Fire Investigation Practices

04-60-12 Records Management

04-80-01 & **23** Fees for Services

OFMEM TG-01-2012 - Fire Safety Inspections and Enforcement

10.0 Legal Disclaimer – Use of this Guideline

Inspections Upon Request or Complaint (Fire Code)

Public Fire Safety Guidelines	**Subject Coding** **PFSG 04-40D-12**
Section **Fire Prevention and Public Fire Safety Education**	Date **March 2001**
Subject **Inspections Upon Request or Complaint (Fire Code)**	Page

Under Review

Purpose:

To assist fire services in developing procedures to ensure that fire safety inspections are conducted, pursuant to the Fire Code, upon request or complaint and to meet minimum requirement of the Fire Protection and Prevention Act.

Introduction:

Buildings maintained in accordance with the provisions of the Fire Code perform well during fire incidents. While building owners are responsible for carrying out the provisions of the Fire Code, fire services have a public safety interest in ensuring that buildings are maintained in accordance with the Fire Code.

Development:

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 to ensure the owner remains in compliance with the Ontario Fire Code.
- the fire department is aware of violations in a particular property

Related Functions:

Any inspection conducted must include notification of the property owner or responsible person and appropriate follow-up with enforcement, if necessary. It is imperative that these inspections be conducted within a short timeframe, befitting the seriousness of the complaint.
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 should be identified in the fire department fire prevention policy.

Codes, Standards, and Best Practices:

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

See also;
04-40-12 & **04-40-03** Selection of Appropriate Fire Prevention Programs
Fire Marshal's Public Fire Safety Council

Fire Prevention Policy

Public Fire Safety Guidelines	**Subject Coding** **PFSG 04-45-12**
Section **Fire Prevention and Public Education**	Date **August 1998**
Subject **Fire Prevention Policy**	Page

Under Review

Purpose:

To identify essential considerations for the development of a municipal fire prevention policy.

Service Delivery Implications:

- Fire prevention includes public fire safety education.
  Fire prevention is an integral part of overall fire protection.
  2(1) Fire Protection and Prevention Act
  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
- the fire department establishing and regulating by-law provides direction from council and sets out the principal fire prevention responsibilities
- specific policy should be developed to establish:
- level of service
- types of activities and programs
- responsibilities of personnel

Policy Requirements:

Policy statement should reflect the following fire prevention activities:

- inspection
- code enforcement
- fire and life safety education
- fire investigation and cause determination
- fire loss statistics
- Fire department operational guidelines will dictate how, when and where activities will be conducted.

Quality and Performance Measures:

The policy should:

- encourage the participation of all fire department personnel in prevention and fire and life safety education.
- provide clear direction from council to the chief, members of the department and the public.

Related Functions/ Considerations:

The fire prevention policy should describe:

- public fire and life safety education programs such as: *Learn Not To Burn; Older & Wiser; Alarmed For Life; The Arson Prevention Program For Children; and Risk Watch.*
- inspections, code enforcement programs such as: routine inspections; home safety checks; complaint inspections; request inspections; open air burning regulation; new construction inspection; and plans examination
- fire investigation / fire origin and cause determination - liaison with appropriate agencies

Codes, Standards, and Best Practices:

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

See also PFSG
01-02-01 Comprehensive Fire Safety Effectiveness Model
02-02-12 & **03** Fire Risk Assessment
02-03-01 Economic Circumstances
02-04-01 & **02-04-23** Capabilities of Existing Fire Protection Services
04-12-13 Core Services
04-39-12 Fire Prevention Effectiveness Model
04-40-12 & **04-40-03** Selection of Appropriate Fire Prevention Programs
04-41-12 Community Fire Safety Officer/Team

Records Management

Public Fire Safety Guidelines	**Subject Coding** **PFSG 04-60-12**
Section **Fire Administration**	Date **September 2004**
Subject **Records Management**	Page

Under Review

Purpose:

To assist fire departments in developing a records management system which will assist with the effective and efficient management of the fire department and meets the requirements of the Municipal Act.

Introduction

Management of fire department records is critical to meeting its core business needs. Effective record keeping is also required to meet the requirements of the Ministry of Labour Firefighters Guidance Notes. Fire department records are contained in written documents, computer systems and other formats.
Information is a key resource that:

- Enables effective program and service delivery
- Enables informed decision making, tracks performance, sets benchmarks and identifies areas for improvement
- Provides a record of fire department decisions and actions essential for fire department accountability, and demonstrating due diligence

Fire department records are municipal records, and therefore subject to the Municipal Act and the Municipal Freedom of Information and Protection of Privacy Act. Legal advice is recommended to ensure compliance with these acts and with any required records management and retention schedules within your municipality. Under the Municipal Act municipalities have a legislated responsibility to have a records management program, which would include fire department records. Municipal staff may be available to assist in developing or enhancing a records management system specific to the needs of the fire department, and to ensure compliance with applicable legislation.

Records Management Systems

The development of a records management system can be based on the main divisions or functional areas of the fire department. These functions include:

- Administration;
- Communications;
- Apparatus and Equipment;
- Fire Prevention and Public Education;
  Training; and
- Fire Suppression and Rescue.

Data should be sorted into groups that can be managed and retrieved efficiently. For example records can be organized by:

- Year;
- Address of property;
- Subject (with further sub components as required); and
- Other appropriate means.

Records having short-term value can be filed separately, so that they can be disposed of sooner, in accordance with an established records retention schedule.
Any system from the most basic paper based record system to an advanced computer based record system should:

- Allow for the progressive assignment of file numbers to subjects as they are arranged within logical groups;
- Allow for expansion of the system as required to meet new record requirements; and
- Assist the user in filing and retrieving records in a timely manner.

Record Types

Fire department records can come in all forms. This can include but not be limited to the following: letters, maps, plans, drawings, reports, forms, memos, films, micro-fiche, videotapes, photographs, personal computers, disks, 911 recordings, and recorded radio communications.

Record Retention Schedules

A records retention schedule is a binding agreement that stipulates how long records are kept and whether they are eventually transferred to an archival facility. Records retention schedules require the approval of the municipal auditor, therefore fire departments are advised to ensure that their records are retained in accordance with an approved retention schedule. If a records retention schedule does not exist then the fire department is advised to develop one. In developing a records management program you should consult within your municipality to ensure compliance with the Municipal Act.
Records and data should only be retained as long as they have value. Once they have outlived their value they should be disposed of in accordance with a records retention schedule. For example, active files may be kept for a specified period of time and inactive files may be retained for a specified period of time and then sent for final disposition. (Archives or destruction)
Records Retention schedules:

- Identify and describe recorded information holdings
- Indicate where, how long, and in what medium recorded information is retained

- Designate records' final disposition when no longer required for fire department programs and operations. (either destruction or transfer to an archival facility)

Quality of Records

Proper records management supports the business function of the fire department. Records should identify the originator, the date the document was created and why the document was created. Quality assurance of records is required to ensure that records maintained by the fire department are:

- Complete;
- Accurate;
- Relevant;
- Authentic;
- Authoritative;
- Reliable;
- Audited; and
- Maintained according to a records management system.

Security and Integrity of Recorded Information

- Protection of recorded information in your fire department's custody is everyone's responsibility. Records should be protected from unauthorized access, alteration, removal or destruction. By taking the following steps and developing guidelines the security and integrity of recorded information can be enhanced:
- Developing and adhering to a records retention schedule
- Protecting access
- Anticipating disaster (e.g., flood, fire)
- Organization/back-up of information

Electronic Records

The use of electronic records can improve the efficiency of a fire department. However, their ease of use and rapidly changing technologies present ever evolving challenges including:

- Accidental or arbitrary deletion;
- Unstable storage media;
- Security threats; and
- Incompatible systems.
- As a minimum electronic records should be backed up and securely stored.

These challenges and others become particularly critical for electronic records of long-term or permanent value which may require that special steps be taken to ensure their ongoing accessibility and integrity. It is imperative that steps be taken to ensure system compatibility so that previously recorded information can still be retrieved.

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/ .**

Municipal Act, 2001
Municipal Freedom of Information and Protection of Privacy Act, 1990

Co-ordination, Development, Approval and Distribution of Standard Operating Guidelines for Various Disciplines

Public Fire Safety Guidelines	**Subject Coding** **PFSG 04-69-13**
Section **Fire Administration**	Date **March 2000**
Subject **Co-ordination, Development, Approval and Distribution of Standard Operating Guidelines for Various Disciplines**	Page

Under Review

Purpose:

The purpose of this guideline is to assist fire departments to develop written operational guidelines.

Guideline:

A statement written to guide the performance or behaviour of departmental staff, whether functioning alone or in groups.
These guidelines;

- enhance safety
- increase individual and team effectiveness
- allow for easier training and better entry level orientation
- improve risk management practices
- help to avoid litigation
- form the basis of objective post incident evaluations
- permit flexibility in decision making

Co-ordination:

- Fire department managers may consider creating and empowering a committee to research, develop, and draft operational guidelines.
- Committees should involve the members directly affected by various guidelines; examples include;
    - training personnel for live fire training guidelines,
    - fire Prevention personnel for inspection procedures, active firefighters for laying hose or taking hydrants.
    - two or three firefighters, two or three company officers and possibly a senior officer.
- The committee should select its own chair and establish a regular meeting schedule.

- The committee could become permanent, with membership assigned, as required, to assist the fire chief with the continuous improvement process demanded of modern fire departments.
- The permanent committee could also be comprised of all company or senior officers with the SOG's as part of the monthly officers meeting agendas.

Development:

- The order of developing procedures will be driven by local needs.
- Activities that impact on firefighter safety, the department's most common emergency operations, or high risk operation should be top priority.
- Each operational guideline should deal with a single objective and must describe what is to be accomplished, but not necessarily how to do the task.
- When the subject matter has been decided upon, the committee will begin to gather the resources needed to prepare the guideline.
- Each guideline can be broken into five basic components: purpose, scope, responsibility, performance and references.

Approval:

- Specific items should be assigned to each committee member by the chairperson for review.
- Each committee member will present a synopsis of the item at a future meeting for review, revision and refinement of the guideline.
- A written draft of the operational guideline should be prepared next.
- The draft should be posted for input from other department members. .

Distribution:

- A copy should be provided to each member of the department.
- Each of the guidelines should be printed on a standard form. An introductory statement should be developed for the operational guideline manual. Key information offered:
    - why the guidelines have been developed
    - why they are called guidelines
    - definition of the term "guidelines"

Responsibility:

- Guidelines, that have been finalized and approved by the fire chief, should be implemented by the staff members who are responsible for training.

DRAFT SOG #101: STATEMENT of INTENT

ISSUE DATE:

REVISION DATE:

PURPOSE:

Standard operating guidelines **(SOG)** have been developed to provide information to all members of the fire department in a prompt and consistent manner.

SCOPE:

These guidelines are to be followed by all members of the department.

Every member has a responsibility to learn and understand what is required in performance of their duties and to stay current with information provided in standard operating guidelines. Direction will be provided from officers and senior staff, as required.

POLICY:

Standard operating guidelines allow administrators to accurately predict how their resources will be mobilized when called upon under emergency circumstances.
Standard operating guidelines also act as a guide for officers to follow when assigning routine activities as well as emergency responses.
Standard operating guidelines will be reviewed annually by the fire chief and all officers, updated or amended as required to improve fire protection and will be circulated for all members to reference.
Please reference SOG #102: DISTRIBUTION and SOG #103: DEVELOPING STANDARD OPERATING GUIDELINES.

NOTE:

These guidelines have been developed to be consistent with those recommended by various evaluating agencies of fire protection in the province and for the safety of firefighters and residents while endeavouring to protect life and property from fire.

DRAFT SOG #102: DISTRIBUTION O STANDARD OPERATING GUIDELINES

ISSUE DATE:

REVISION DATE:

PURPOSE:

To implement a standard procedure for consistent transfer of information to all members of the fire department.

SCOPE:

These guidelines are to be followed by all members of the department.
Every member has a responsibility to learn and understand what is required in performance of their duties and to stay current with information provided in standard operating guidelines with direction from officers and senior staff, as required.

POLICY:

New and revised standard operating guidelines will be circulated to all members through the shift and station officers in charge.
At the **beginning** of their tour of duty, shift officers will read or summarize the content of a new or revised SOG, which has been issued for all on-duty personnel. Where necessary, the SOG will be discussed with on-duty persons to ensure understanding and methods of implementation.
At the **beginning** of the first scheduled training or meeting night, volunteer station officers will read or summarize the content of a new or revised SOG which has been issued for all on-duty personnel. Where necessary, the SOG will be discussed with on-duty persons to ensure understanding and methods of implementation.

The SOG will then be circulated and each member will read and sign the acknowledgement log book maintained by the shift or station officer.
Shift and station officers will review the acknowledgement log book monthly and every three months will provide the training officer with a list of persons and the SOG numbers they have not acknowledged.
Shift and station officers will also post a notice of receipt for a new or revised SOG on the station bulletin board for persons not present when the SOG is initially circulated.

DRAFT SOG #103: DEVELOPING & REVISING STANDARD OPERATING GUIDELINES

ISSUE DATE:

REVISION DATE:

PURPOSE:

To implement a consistent method of developing new standard operating guidelines and revising existing guidelines to improve fire protection services.

SCOPE:

These guidelines are to be followed by all members of the department.

POLICY:

All standard operating guidelines will be reviewed annually by the fire chief and all officers for necessary updates or amendments.
Where any officer or member of the department identifies a procedure or operation which may require new or revised standard instructions for end users, the person will notify the shift or station officer in charge as soon as possible following this recognition.
The shift or station officer will first review existing SOGs for content that may apply to the reported need and discuss their findings with other on-duty officers and members.
The officer in charge will notify the chief or deputy by written memo on the same or next business day of any immediate action taken and if a new or revised procedure is recommended.
Where safety of firefighters or potential damage to department equipment is imminent, the fire chief or deputy will issue interim written guidelines until the normal process for developing or revising SOGs is initiated.
Where interim written guidelines are temporary or not necessary for safety or damage to fire department equipment, the following process will be followed:

1. The fire chief or deputy will circulate draft SOGs to each shift and station officer to discuss with all available members for their suggestions as end users,

2. shift or station officers will add appropriate comments and return the draft to the training officer within the specified time,

3. all draft SOGs will be discussed at the next scheduled officers meeting for final approval of the fire chief and/or deputy, and,

4. approved standard operating guidelines, replacing interim guidelines, will be circulated as described in SOG #102: DISTRIBUTION.

Codes, Standards and Best Practices:

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

See also;
Health and Safety Guidelines for Ontario's Fire Services
Additional Reference:
Standard Operating Procedures and Guidelines, Cook, John Lee Jr., Saddle Brook NJ: PenWell Pub. Co. 1998

Appendix C
External Stakeholder Engagement

DILLON CONSULTING

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Tables

1.0 External Stakeholder Engagement

Stakeholders can provide valuable input at each step of the master fire planning process, providing information about context and background from different perspectives. Stakeholder input helps to identify issues and needs associated with the fire services and provides insight into customer service expectations as well as potential partnership opportunities. Consultation results also provide information that informs study analysis and recommendations. As part of developing the Master Fire Plan for the Township of Centre Wellington, in addition to the internal stakeholder consultation, external stakeholders were consulted in the form of targeted telephone surveys. This appendix describes the methodology and the results of these surveys.

1.1 Methodology

The telephone survey was designed in collaboration with Centre Wellington Fire and Rescue and Dillon Consulting. The purpose of the engagement was to solicit feedback from key stakeholders regarding their experiences and understanding of the current services CWFR provides. The survey was structured into three main sections: (1) general information, (2) core services, and (3) general comments. General information gathered included the name of the business or community group and the core services accessed by the group or business. The core services section was composed of multiple questions for each of the service areas:

- Rescue
- Training
- Public Education
- Fire Prevention
- Fire suppression

The last section of the survey provided opportunity for general comments related to the provision of services by CWFR.

A list of eight key stakeholders was developed by CWFR staff for targeted stakeholder interviews. The key stakeholders contacted included a mix of local business organizations, industry, local community organizations, and institutions. These stakeholders were contacted and requested to participate in a thirty minute telephone survey.

1.2 Key Stakeholder Survey Results

Of the eight key stakeholders contacted and followed up with, four telephone interviews were conducted. The telephone surveys took place in the summer of 2016. The responding stakeholders included:

- Centre Wellington Chamber of Commerce;
- Groves Memorial Hospital;
- Jefferson Elora Corp; and
- Elora Research Station/University of Guelph.

Responses to individual questions including the question, the possible responses, and the frequency with which that option was selected are presented below. The total frequency of responses for each question varies since not every respondent replied to every question.

1.2.1 Results for General Information

Table 1 indicates the most recent occurrence that the respondents have used the emergency response services of CWFR. The majority of respondents have used CWFR in the last five years.

TABLE 1: Has Your Business, Community Group Or Institution Used Any Services As Provided By The Centre Wellington Fire And Rescue Department In The Past Years?

Selected Response	Frequency
Yes	3
No	0
Unsure	1

Table 2 indicates the CWFR services that have been accessed by the respondents in the last five years. The most commonly accessed services were fire suppression and emergency medical services. The least commonly accessed service was emergency rescue and fire investigations.

TABLE 2: Which Services Did You Or Your Organization Access?

Selected Response	Frequency
Fire Suppression	3
Emergency Medical Services	2
Emergency Rescue	0
Training	1
Public Education	1
Fire Investigation	0
Fire Inspection	1

Table 3 highlights how familiar respondents were with the current organization of CWFR. All respondents indicated that they were aware the CWFR is comprised of volunteer/ paid response firefighters.

TABLE 3: Did You Know That The Centre Wellington Fire And Rescue Department Is Comprised Of Volunteer/ Paid Response Firefighters?

Selected Response	Frequency
Yes	4
No	0
Unsure	0
No Response	0

Table 4 identifies organizations which have policies in place to allow their own employees to depart the workplace to respond to emergency calls. All of the respondents indicated that their organizations had these policies already in place.

TABLE 4: Does Your Organization Have Policies In Place To Allow Volunteer/ Paid Response Firefighters To Depart The Workplace In Order To Respond To An Emergency Call?

Selected Response	Frequency
Yes	4
No	0
Unsure	0
Not Applicable	0

1.2.2 Results for Core Services

Respondents were asked about their experiences with the core services provided by CWFR including fire suppression, technical rescue, training, public education, and fire prevention.

1.2.2.1 Fire Suppression

Table 5 illustrates the respondents' perception of the reliability of the Centre Wellington Fire and Rescue to respond to fire incidents. The majority of respondents feel that CWFR response to fire incidents is 'very reliable'.

TABLE 5: A Core Service Of The Fire And Rescue Department Is To Respond To Fire-Related Emergencies. How Would You Rate The Reliability Of Responses To Fire Incidents From Centre Wellington Fire And Rescue Department?

Selected Response	Frequency
Very reliable	3
Somewhat reliable	1
Unreliable	0
No opinion	0

Table 6 shows the number of respondents that feel CWFR policies or procedures impede, or otherwise impact, how they do business. Three of four respondents indicated that they are not impacted by CWFR policies.

TABLE 6: Do Any Current Policies Or Procedures Of Centre Wellington Fire And Rescue Department Impede Or Impact How You Do Business?

Selected Response	Frequency
Yes	1
No	3

Respondents were also free to make comments on how the policies or procedures impede or impact how they do business. Stakeholders said that staffing organization of the department with volunteer/ paid response firefighters changes response times, and changes how business is operated.

1.2.2.2 Rescue

Table 7 indicates respondent awareness of specialized rescue services offered by the Centre Wellington Fire and Rescue. The majority of respondents were aware of each service. Respondents were least aware of Windmill Rescue.

TABLE 7: The Centre Wellington Fire And Rescue Department Provides Specialized Rescue Services. Which Rescue Services Are You Aware Of?

Selected Response	Aware	Not Aware	No Response
Rope Rescue	4	0	0
Vehicle Extrication and Rescue	4	0	0
Medical Response	4	0	0
Water Based Search and Rescue	4	0	0
Water-Ice Rescue	4	0	0
Swift Water Rescue	4	0	0
Windmill Rescue	2	2	0

TABLE 8: Are These Rescue Activities A Valuable Component Of The Services Delivered By The Centre Wellington Fire And Rescue Department?

Selected Response	Frequency
Yes	4
No	0
Unsure	0

Respondents were able to provide feedback on the specialized rescue services CWFR provides. Some respondents were unaware that CWFR performed such as Windmill Rescue. However, respondents

indicated that the services provided by CWFR reflected the needs of the community, specifically emergency rescue involving Rope Rescue.

1.2.2.3 Training

It is recognized that training is a core element of a fire and rescue department's ability to respond quickly and effectively to emergencies. Table 9 highlights if respondents have participated in training with CWFR. Three out of the four participants indicated that their organizations did not participate in training.

TABLE 9: Training Is A Core Element Of Preparing To Respond Quickly, Safely, And Effectively To Emergencies. Does Your Group/ Organization Participate In Familiarization Or Orientation Training With Fire And Rescue Department Staff?

Selected Response	Frequency
Yes	1
No	3
Unsure	0

Table 10 shows how effective the training by CWFR was to those who participated. Of the respondent who had participated in training with CWFR, they identified that it was somewhat effective, because there were challenges getting all staff members trained.

TABLE 10: If Yes, How Would You Rate This Training?

Selected Response	Frequency
Very effective	0
Somewhat effective	1
Ineffective	0
Undecided	0

Table 11 shows respondents who indicated that their organizations would benefit from emergency response training with CWFR. Two respondents indicated that this would be beneficial.

TABLE 11: If No, Would Your Business / Facility Benefit From This Type Of Training?

Selected Response	Frequency
Yes	2
No	0

1.2.2.4 Public Education

Public education of fire safety and prevention strategies is the primary defence for reducing occurrences and consequences of fire-related emergencies. Table 12 illustrates how well the CWFR is meeting stakeholders' needs for fire prevention services. Three of the four respondents indicated that CWFR is meeting their group's needs for fire education services. The fourth respondent was unsure.

TABLE 12: Public Education Of Fire Safety And Prevention Strategies Is The Primary Defense For Reducing Occurrences And Consequences Of Fire-Related Emergencies. Is The Centre Wellington Fire And Rescue Department Meeting Your Group's Needs For Fire Education Services?

Selected Response	Frequency
Yes	3
No	0
Unsure	1

Table 13 asks respondents' if they would be interested in creating a public education partnership with CWFR in order to effectively communicate fire and safety prevention. At the time of the interviews, the majority of respondents were not in a position to indicate with confidence the level of interest in the creation of a public education partnership.

TABLE 13: If Not Already In Place, Would Your Group Be Interested In Creating A Public Education Partnership In Order To Effectively Communicate Fire Safety And Prevention Programming?

Selected Response	Frequency
Yes	0
No	1
Unsure	2

1.2.2.5 Fire Prevention

Another strategy to reduce the number of fire-related emergencies is through fire prevention which includes inspections, fire safety plans and investigations. Table 14 summarizes stakeholder perception to the effectiveness of CWFR fire prevention strategies. All of the respondents indicated that CWFR fire prevention strategies were 'somewhat effective' or 'very effective'.

TABLE 14: Another Strategy To Reduce The Number Of Fire-Related Emergencies Is Through Fire Prevention Which Includes Inspections, Fire Protection Plans And Investigations. How Would You Rate The Fire Prevention Services Of The Centre Wellington Fire And Rescue Department?

Selected Response	Frequency
Very Effective	2
Somewhat Effective	2
Ineffective	0
Undecided/ Not sure	0

Table 15 illustrates the awareness of the role of CWFR has in investigating fires within the Township of Centre Wellington. All respondents were aware of the capability of CWFR to investigate the cause and determination of fires.

TABLE 15: Are You Aware Of The Capability Of The Centre Wellington Fire And Rescue Department To Investigate The Cause And Determination Of Fires Within The Township Of Centre Wellington?

Selected Response	Frequency
Yes	4
No	0
Unsure	0

Table 16 illustrates stakeholders' perception of the ability of the CWFR to investigate fires. Three of the four respondents were 'Undecided / Not Sure', and one indicated that the investigation capabilities were 'very effective'.

TABLE 16: How Would You Rate The Investigation Capabilities Of The Centre Wellington Fire And Rescue Department?

Selected Response	Frequency
Very Effective	1
Somewhat Effective	0
Ineffective	0
Undecided/ Not Sure	3

Table 17 indicates whether or not respondents' businesses or facilities have been recently inspected by CWFR. Where applicable, all respondents indicated that they were inspected by CWFR in the last 5 years.

TABLE 17: Has Your Business/ Institution/ Facility Been Inspected By The Centre Wellington Fire And Rescue Department?

Selected Response	Frequency
Yes, within the past 5 years	3
Yes, within the past 2 years	1
Yes, within the past year	1
Unsure	0
No	1

Table 18 illustrates stakeholders' perception of the ability of the CWFR to investigate fires. All respondents who were inspected in the past 5 years indicated that they were satisfied with the process.

TABLE 18: If Yes, Were You Satisfied With The Inspection Process?

Selected Response	Frequency
Yes	3
No	0
Not Applicable	1

Respondents were given the opportunity to comment on what they liked or disliked about the inspection process. Feedback was generally positive and respondents indicated that they liked how thorough and quick the inspection process was.

1.2.3 Results for General Comments

Table 19 summarizes the perception of the alignment of the CWFR services with the needs of the Township. All of the respondents believe that the services are aligned with the needs of the community. It was specifically observed that as an agricultural community the ability to provide grain silo rescue services and having an awareness of other potential farm hazards is an asset to the community.

TABLE 19: In Your Experience, Are The Services As Described In This Survey Aligned With The Needs Of The Needs Of The Township?

Selected Response	Frequency
Yes	4
No	0

The last closed ended question invited respondents to rate Centre Wellington Fire and Rescue (on a scale of one to ten). When it came to the overall performance and perception of the department, the lowest rate indicated was an eight and the highest was a ten.

The remaining questions were open-ended questions where respondents were invited to describe what they thought the department does well and what could be improved. Overall, the commitment, compassion, and responsiveness of the CWFR staff were recognized. The dedication and knowledge of the volunteer / paid response suppression staff were especially seen as a strength. Other key strengths identified included their rescue services specifically rope rescue considering the natural features (e.g., gorges) in the community, and the current station locations.

In terms of weaknesses, one respondent questioned the suitability of a two-station model as the Township continues to grow, in particular around Fergus and with the new proposed hospital. There was also a perceived weakness with response capabilities to fires in industrial buildings and it was suggested that this could be an opportunity for improvement. Another recommended area for improvement was the frequency and opportunity of training for institutional (hospital) staff.

1.3 Summary

The targeted stakeholder survey was designed to gain detailed information about the Centre Wellington Fire and Rescue from important community organizations and businesses. While there were only four respondents to the survey, the detail provided helps shape the direction of the Master Fire Plan and identifies both strengths and weaknesses of the department.

To summarize:

- Most respondents have accessed services provided by CWFR in the past five years including fire suppression, medical services, training, public education, and fire inspection.
- All respondents knew that CWFR is comprised of volunteer firefighters and have policies in place that enable employees to depart the work place to respond to calls.
- All respondents were aware of the technical rescue services provided by CWFR with the exception of windmill rescue services.
- All of the respondents indicated that CWFR fire prevention strategies were 'somewhat effective' or 'very effective'.
- When it came to the overall performance and perception of the department, all respondents rated the department between eight and ten out of ten.
- In terms of weaknesses, one respondent questioned the suitability of a two-station model as the Township continues to grow.
- Another recommended area for improvement was the frequency and opportunity of training for institutional (hospital) staff.
- The majority of respondents were satisfied with the services provided by the CWFR, but it was identified that enhanced hands-on training and increased public education would be a mutual benefit for the groups and the CWFR.
- Overall, the commitment, compassion, and responsiveness of the CWFR staff were recognized. In all, respondents were very positive of the CWFR, stating that *"the strength of the Centre Wellington Fire Department is the staff"*.

Appendix D
Municipal Peer Comparators

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1.0 Introduction

The use of benchmarking and key performance indicators can be used as a tool to help ensure that Township residents are receiving the most efficient and effective service possible within the fiscal realities of the municipality. Benchmarks and indicators can be used across municipal services. However, within the fire service in particular, it can be a challenge to successfully compare and benchmark municipal performance to peers comparators.

An industry-wide challenge is consistency in what data and how departments collect performance data, as well as access to that information. Without consistent metrics and a standard data source, peer comparisons are very difficult. In 2015, this challenge was acknowledged by the Canadian Association of Fire Chiefs (CAFC) and the federal agency Defence Research & Development Canada (DRDC). To work towards a solution, the DRDC announced at the CAFC Conference in September 2015 that a three-year pilot project will be launched to develop a National Fire Information Database. At the time of writing, this project is still in progress.

Until such time that there is a comprehensive database, desktop review and surveys of fire departments will need to be utilized to establish municipal peer comparisons. As part of this FSMP, such an exercise was undertaken to inform decision making.

To conduct the analysis of municipal comparators, the CWFR provided a list of peer comparators typically used internally. Seven performance indicators were analyzed as a part of the peer comparison:

- Fire department operating budget;
- Fire department operating budget per capita;
- Fire department operating budget per dwelling unit;
- Full-time staff per capita;
- Fire prevention staff per capita;
- Fire suppression staff per capita; and
- Fire suppression staff per training staff.

Additional research was conducted to inform and provide context for these indicators. The contextual data collected included:

- Department Type;
- Number of Stations;
- Organizational structure, including total staffing including and staffing by division; and
- Minimum staffing.

The initial sources of data for this analysis were web-based research and information provided by peer fire departments. The initial findings were supplemented with information collected from email and phone interviews. Not all peer departments were contacted directly.

2.0 Municipal Comparators

A list of six comparable communities for the municipal peer comparison was provided by the CWFR. The identified comparators included:

- Town of Orangeville
- Town of Halton Hills
- Town of Caledon
- Town of New Tecumseth
- Town of Innisfil
- Town of Bradford West Gwillimbury

The selected group of peer communities is presented in Table 1, along with the following indicators:

- ü Population (2016);
- ü Geographic Area of the Municipality;
- ü Population Density per Square Kilometre;
- ü Population Growth between 2011 and 2016;
- ü Number of Private Dwellings; and
- ü Private Dwelling Growth between 2011 and 2016.

Statistics Canada's Census Profiles were the data sources used to research these indicators.

TABLE 1: MUNICIPAL COMPARATORS

Municipality	Population (2016)	Area (km^2)	Population Density (people/km^2)	Population Growth (2011-2016)	Dwellings (2016)	Dwellings Growth (2011-2016)
Centre Wellington	28,191	407.54	69.2	5.6%	11,499	7.2%
Town of Orangeville	28,900	15.61	1,851.9	3.3%	10,696	4.2%
Town of Halton Hills	61,161	276.27	221.4	3.6%	21,475	4.5%
Town of Caledon	66,502	688.16	96.6	11.8%	22,021	12.1%
Town of New Tecumseth	34,242	274.21	124.9	13.3%	13,191	13.3%
Town of Innisfil	36,566	262.71	139.2	11.7%	14,875	7.8%
Town of Bradford West Gwillimbury	35,325	201.04	175.7	25.8%	11,918	19.4%
Average	41,555	303.65	382.7	10.7%	15,096	9.8%

(*Source: Statistics Canada, Municipal Census Profiles 2016*)

Of the municipal comparators identified, the Township of Centre Wellington has the lowest population and experienced the third lowest population growth and dwelling growth from 2011 to 2016 (5.6% and 7.2%, respectively). However, aside from Caledon, it is one of the largest municipalities geographically.

2.1 Fire Department/Service Overviews

Table 2 shows a general overview of the fire departments and fire services that serve the municipal comparators. It summarizes the type of fire department/service, number of stations, total staff, administration team, and suppression staff. A combination of emails, telephone interviews, and web-based research were used to collect this data. With the exception of Centre Wellington, all the departments are serviced by a combination of full-time and volunteer fire suppression staff. This difference in operating model will greatly impact operating budgets of the peer comparators explored.

TABLE 2: FIRE DEPARTMENT/SERVICES OVERVIEW

Municipality	Department Type	# of Stations	Total Department Staff	Administration Team	# of Suppression Staff
Centre Wellington	Composite	2	4 Full time 59 Volunteer	1 Fire Chief 1 District Chief / Public Safety Officer 1 Chief Training Officer / Public Fire Safety Education 1 District Chief (Volunteer) 1 Administrative Assistant	58 Volunteer
Town of Orangeville	Composite	1	19 Full time 40 Volunteer	1 Fire Chief 1 Deputy (vacant) 1 Administration	12 Career 40 Volunteer
Town of Halton Hills	Composite	3	42 Full time 125 Volunteer 4 Rehabs	1 Fire Chief 2 Deputy Chiefs 1 Assistant Deputy Chief Volunteer: 3 District Chiefs, 3 Deputy District Chiefs	32 Career 121 Volunteer
Town of Caledon	Composite	1 Headquarters 1 Composite 8 Volunteer	33 Full time 1 Part time 280 Volunteer	1 Fire Chief 2 Deputy Chiefs 1 Administrative Assistant	20 Career 280 Volunteer
Town of New Tecumseth	Composite	3	3 Full time 124 Volunteer	1 Fire Chief 2 Deputy Chiefs	3 Career 124 Volunteer

Municipality	Department Type	# of Stations	Total Department Staff	Administration Team	# of Suppression Staff
Town of Innisfil	Composite	1 Composite 3 Volunteer	26 Full time 68 Volunteer*	1 Fire Chief 1 Deputy Chiefs 1 Acting Deputy 1 Administrative Assistant	20 Careers 68 Volunteer*
Town of Bradford West Gwillimbury	Composite	1	22 Full time 0.5 Part time 35 Volunteer	1 Fire Chief 1 Deputy Chiefs 1 District Chief (Volunteer) 1 Administrative Assistant 0.5 Administrative Assistant	17 Career 35 Volunteer

**At the time of data collection, the Town of Innisfil was going through a recruitment process to bring the in recruitment to increase the volunteer complement up to approximately 98 volunteer firefighters.*

(*Source: Web-based research, email interviews, and phone interviews*)

Table 3 shows a detailed breakdown of the organizational structures for the fire departments/ services in each of the peer municipalities.

TABLE 3: ORGANIZATIONAL STRUCTURE COMPARISON

Fire Department	Administration										
	Chief	Deputy/ Assistant / District Chief	Clerk/Administrative Assistant	Manager/Executive Officer	Prevention/Education	Training	Mechanical	Communications	Suppression	Other	Volunteer Firefighters
Centre Wellington	1	0.5 FTE 1 Vol.	1		1	0.5 FTE		1			57
Town of Orangeville	1	1	1	-	3	1	-	-	12		40
Town of Halton Hills	1	3	1	1	5	2	-	4 P/T	25	4 Rehab Vol.	121
Town of Caledon	1	2	3		4	2			20		280

Fire Department	Administration				Prevention/Education	Training	Mechanical	Communications	Suppression	Other	Volunteer Firefighters
	Chief	Deputy/ Assistant / District Chief	Clerk/Administrative Assistant	Manager/Executive Officer							
Town of New Tecumseth	1	2	1		1*	1*			127		124
Town of Innisfil	1	2	1	-	1	1	-	-	20	-	98
Town of Bradford West Gwillimbury	1	1	1.5	-	2	1	-	-	16	-	35

** It should be noted that the Deputy Chiefs in the Town of New Tecumseth respectively oversee prevention/education and training services which is reflected in the table.*

(Source: Web-based research, email interviews, and phone interviews)

2.2 Municipal Comparator Analyses

A summary of the peer analyses is presented in Table 4. This includes a comparison of the cost per capita for delivering fire protection services, the cost per dwelling unit for delivering fire protection services, and the full-time equivalent staff for every 10,000 residents. In the sections that follow, a detailed comparison by topic (e.g., department operating cost per capita, training division staff per suppression personnel, etc.) is presented. This analysis is based on the 2016 Statistics Canada Census population and household information presented in Table 1.

TABLE 4: MUNICIPAL COMPARATOR ANALYSES

Municipality	2015 Operating Budget (millions)	Fire Protection Cost Per Capita	Fire Protection Cost per Dwelling Unit	Full-time Equivalents (FTE) per 10,000 Residents
Centre Wellington	$1.27	$45.19	$110.78	1.8
Town of Orangeville	$2.60	$89.97	$243.08	6.6
Town of Halton Hills	$6.30	$103.01	$293.36	6.9
Town of Caledon	$7.25	$109.04	$329.30	5.3
Town of New Tecumseth	$2.25	$65.71	$170.57	0.9
Town of Innisfil	$3.90	$106.66	$262.18	7.1

Municipality	2015 Operating Budget (millions)	Fire Protection Cost Per Capita	Fire Protection Cost per Dwelling Unit	Full-time Equivalents (FTE) per 10,000 Residents
Town of Bradford West Gwillimbury	$3.36	$95.18	$282.10	4.8
Average	$3.85	$92.60	$254.91	4.8

(*Source: Web-based research, email interviews, and phone interviews*)

2.2.1 Operating Budget Comparison

Figure 1 presents the 2015 Centre Wellington Fire and Rescue operating budget in comparison to its peer comparators. The CWFR operating budget is $2.6 million (-66.9%) less than the average operating budget of the peer group.

FIGURE 1: FIRE DEPARTMENT OPERATING BUDGET COMPARISON

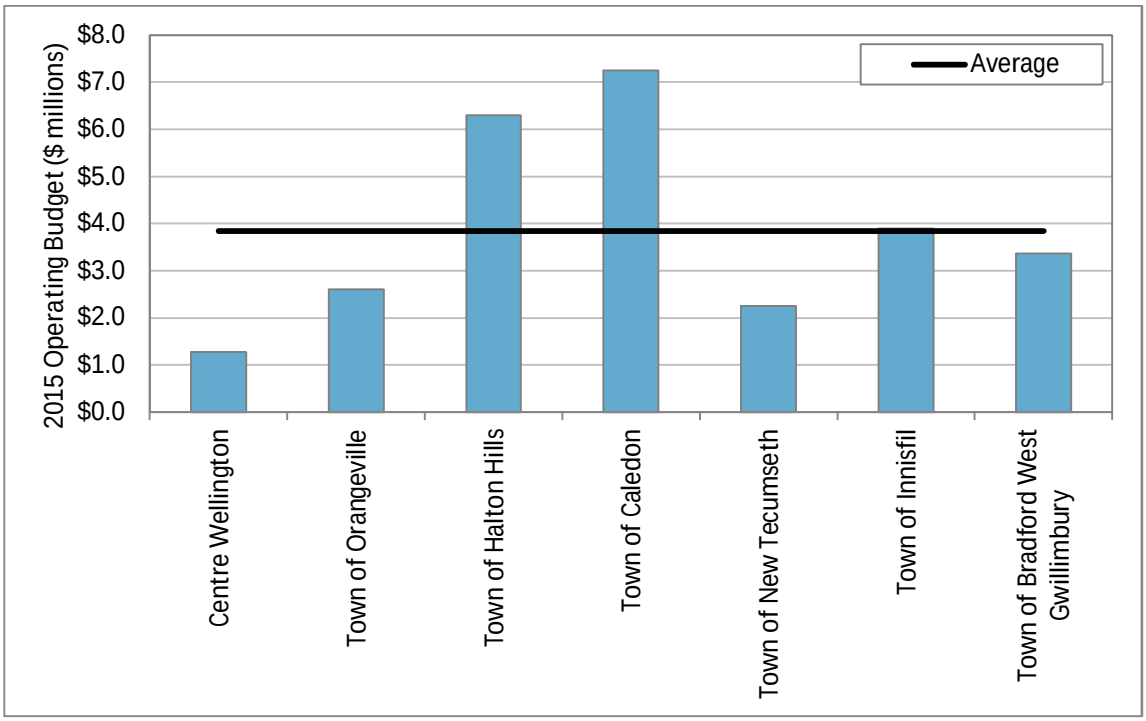


Figure 2 shows the operating cost per capita. The CWFR 2015 operating cost is $45.19 per capita less (-51.2%) than the average ($92.60 per capita) of the peer group.

FIGURE 2: FIRE DEPARTMENT OPERATING COST PER CAPITA COMPARISON

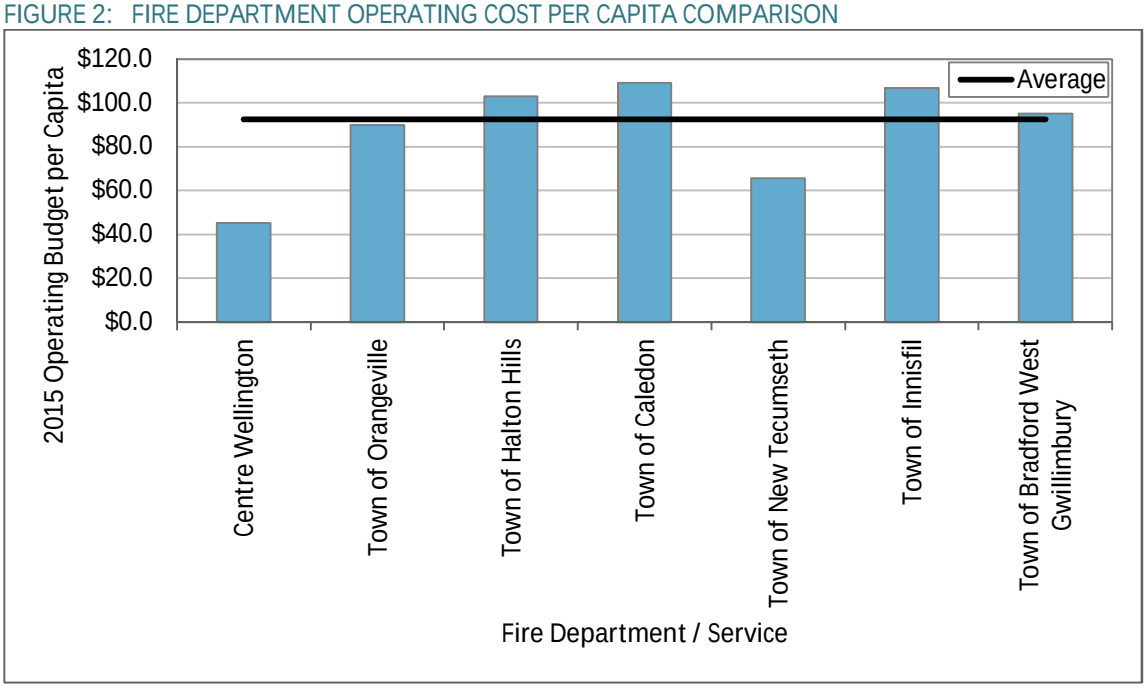
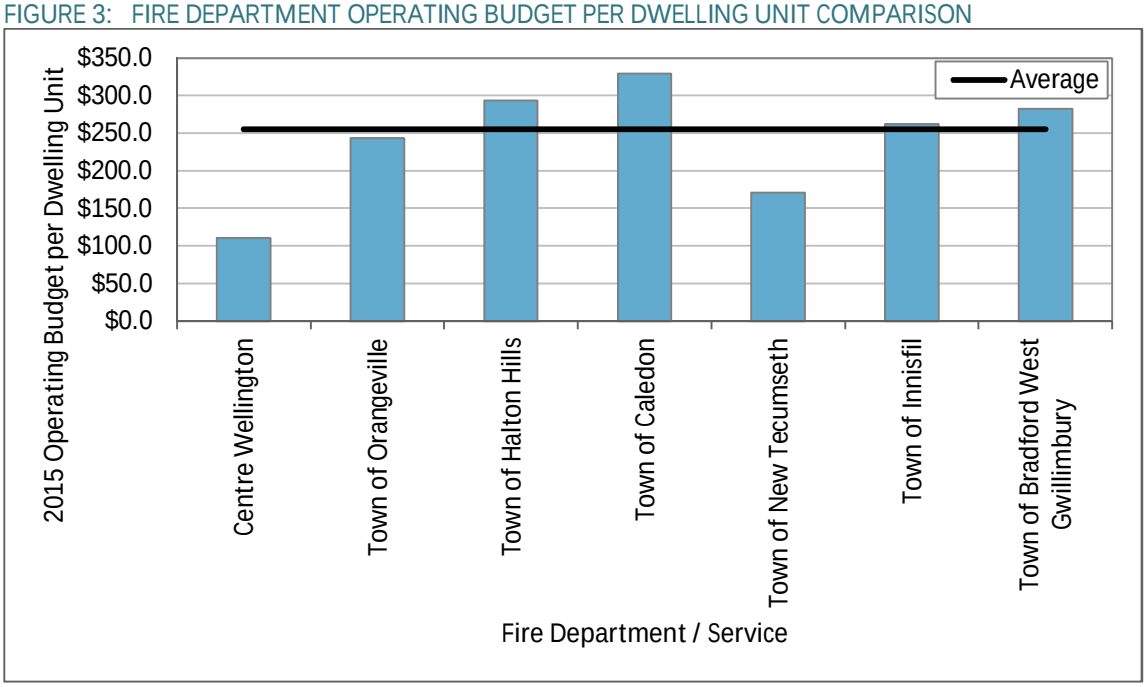


Figure 3 shows the operating costs per dwelling unit for the CWFR and each of its peer comparators. The CWFR operating costs per dwelling unit is $160.10 lower (-57.4%) than the average ($278.83 per dwelling unit).

FIGURE 3: FIRE DEPARTMENT OPERATING BUDGET PER DWELLING UNIT COMPARISON

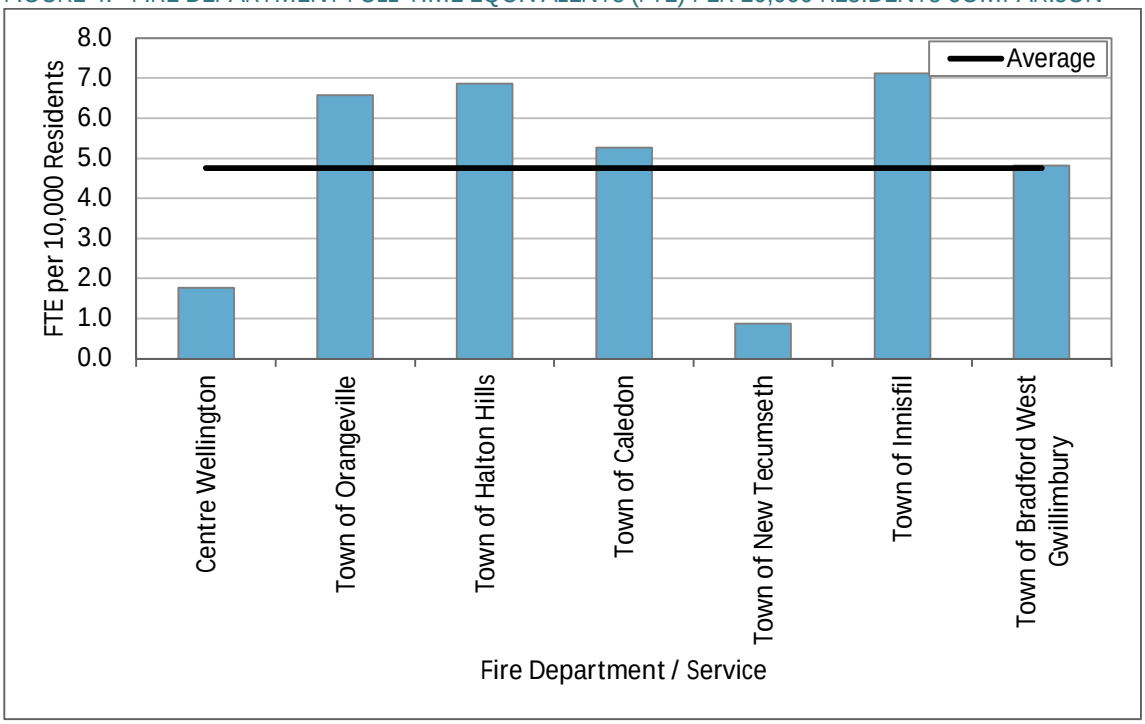


The lower operating budget for Centre Wellington Fire and Rescue is in part directly attributed to the higher proportion of full-time staff found in the peer departments. This fact is highlighted in Section 2.2.2 that follows.

2.2.2 Fire Department Full-time Equivalents (FTE) Comparison

Figure 4 shows a comparison of the full-time equivalent (FTE) staff for CWFR and each of the peer comparators. The CWFR has 3.0 fewer FTE (-62.7%) staff per 10,000 residents than the average (4.8 FTE per 10,000 residents).This includes all full-time staff including suppression, prevention, and training. It should be noted that volunteer personnel are not included in this comparison.

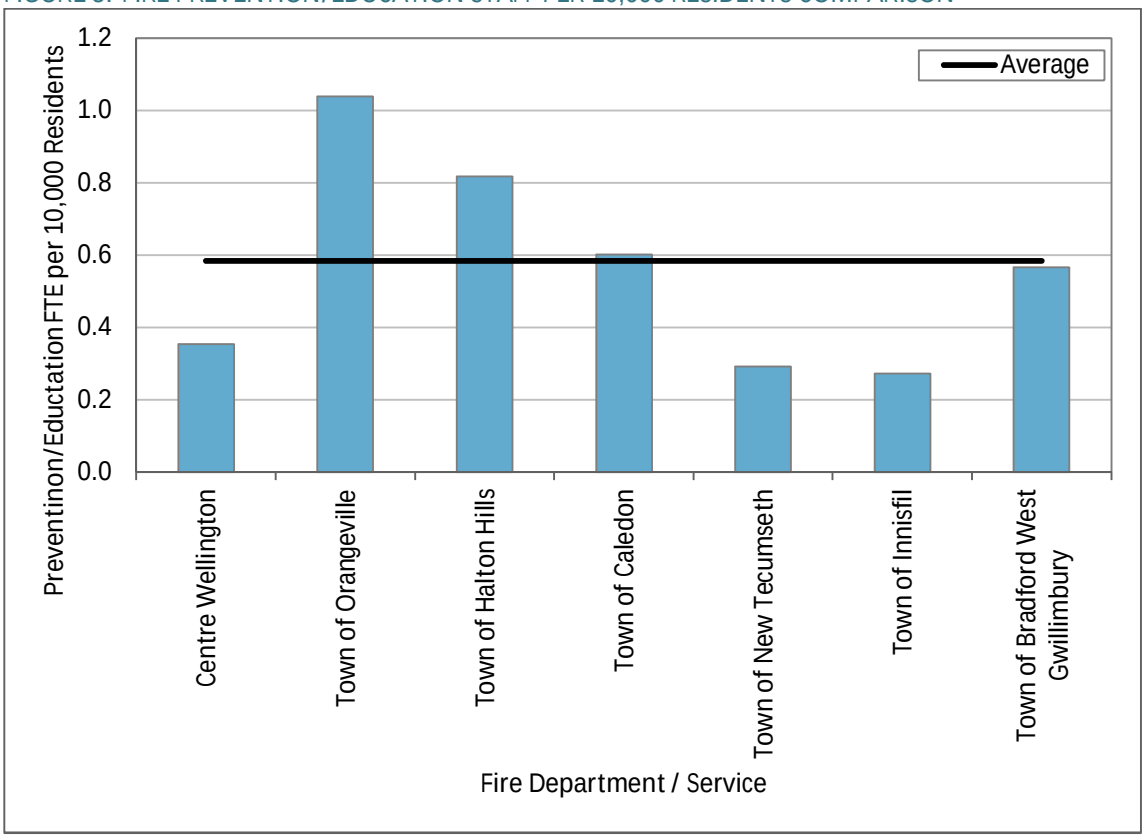
FIGURE 4: FIRE DEPARTMENT FULL-TIME EQUIVALENTS (FTE) PER 10,000 RESIDENTS COMPARISON



2.2.3 Fire Prevention Division Staff Comparison

Figure 5 shows a comparison of the full-time equivalent (FTE) fire prevention/education staff for Centre Wellington and each of the peer comparators. The CWFR has 0.23 fewer FTE (-39.3%) fire prevention/education staff per 10,000 residents than the average (0.58 FTE per 10,000 residents).

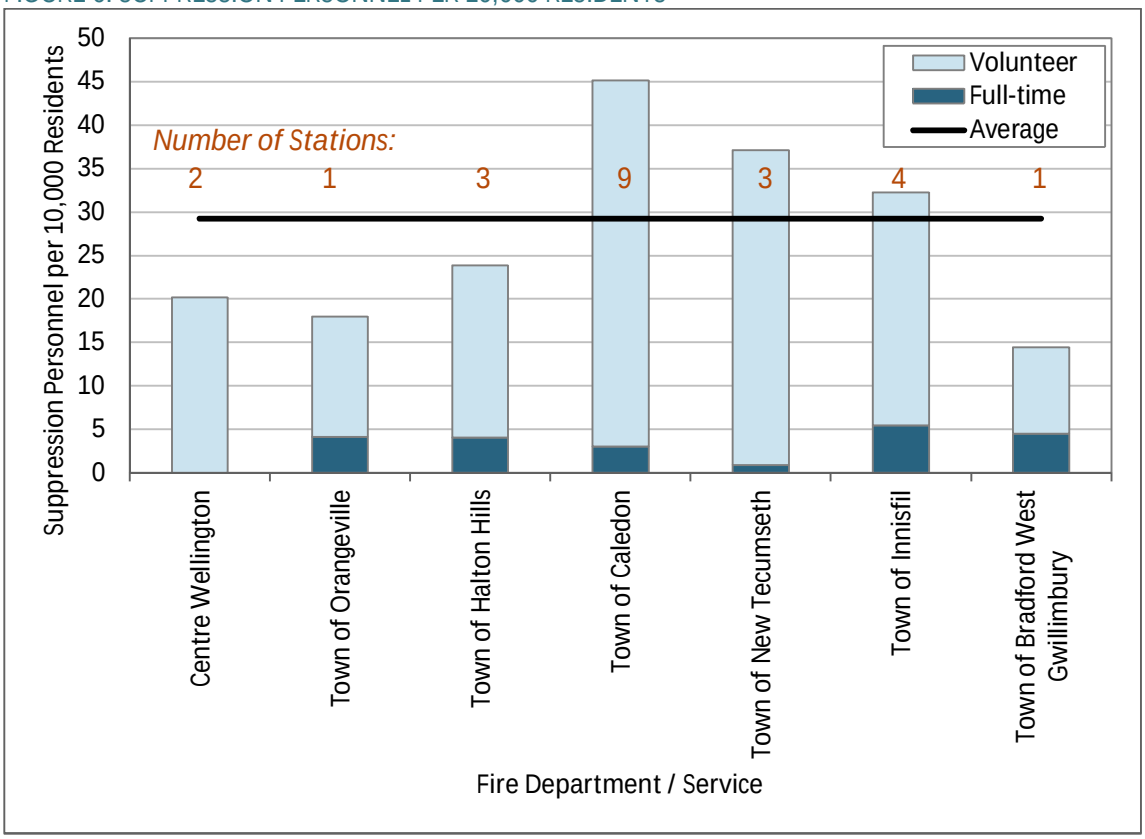
FIGURE 5: FIRE PREVENTION/EDUCATION STAFF PER 10,000 RESIDENTS COMPARISON



2.2.4 Fire Suppression Division Staff Comparison

Figure 6 shows a comparison of the full-time equivalent (FTE) suppression personnel for CWFR and each of the peer comparators. The CWFR has 9.0 fewer (-30.9%) suppression personnel per 10,000 residents than the average (29.3 suppression personnel per 10,000 residents). Volunteer personnel were included when calculating this average. With just one station more than Centre Wellington, it is notable that the Town of New Tecumseth has a substantially higher proportion of volunteer suppression personnel than Centre Wellington. It is recognized that New Tecumseth has moved to a strategy of increasing the complement of volunteers per station in order to enhance their response capabilities. Their current target complement per station is 40 volunteer firefighters.

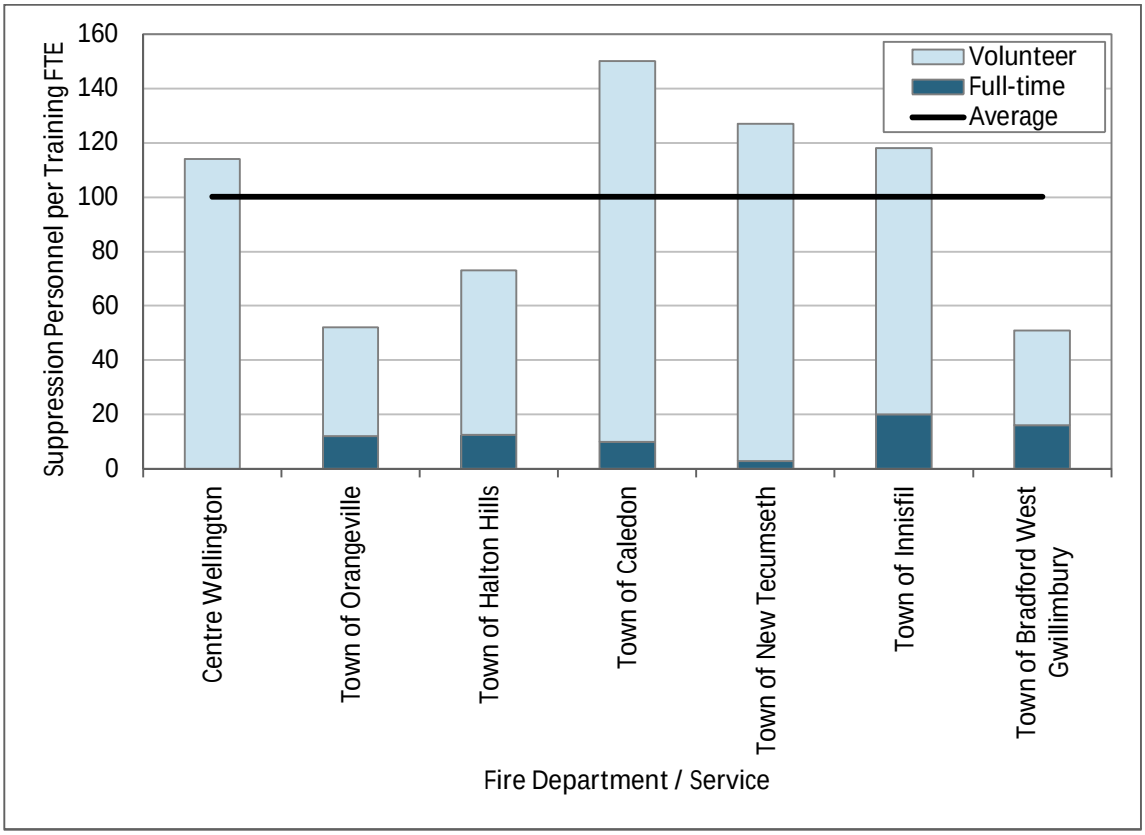
FIGURE 6: SUPPRESSION PERSONNEL PER 10,000 RESIDENTS



2.2.5 Training Division Staff Comparison

Figure 7 shows a comparison of the full-time equivalent (FTE) training staff relative to the suppression personnel (volunteer and full-time) for Centre Wellington and each of the peer comparators. The CWFR has 13.9 more (+13.9%) suppression personnel per full-time training staff than the average (100.1 suppression personnel per training FTE). Volunteer personnel were included when calculating this average.

FIGURE 7: PEER COMPARISON OF SUPPRESSION PERSONNEL PER TRAINING FTE



3.0 Summary

The municipal peer comparison of the six municipalities results in the following observations:

- Of the municipal comparators identified, the Township of Centre Wellington has the lowest population and is one of the largest municipalities by geography.
- The CWFR has 3.0 FTE fewer (-62.7%) staff per 10,000 residents than the average (4.8 FTE per 10,000 residents).This includes all full-time staff including suppression staff, prevention, and training.
- Compared to the identified peers, the CWFR has a lower 2015 operating budget including being:
  - $2.6 million (-66.9%) less than the average operating budget of the peer group.
  - $45.19 per capita less (-51.2%) than the average ($92.60 per capita) of the peer group.
  - $160.10 lower (-57.4%) costs per dwelling unit than the average ($278.83 per dwelling unit).
- The lower operating budget for Centre Wellington Fire and Rescue is in part directly attributed to the higher proportion of full-time staff found in the peer departments.
- The CWFR has 0.23 fewer FTE (-39.3%) fire prevention/education staff per 10,000 residents than the average (0.58 FTE per 10,000 residents).
- The CWFR has 9.0 fewer (-30.9%) suppression personnel per 10,000 residents than the average (29.3 suppression personnel per 10,000 residents). Volunteer personnel were included when calculating this average.

- With just one station more than Centre Wellington, it is notable that the Town of New Tecumseth has a substantially higher proportion of volunteer suppression personnel than Centre Wellington. It is recognized that New Tecumseth has moved to a strategy of increasing the complement of volunteers per station in order to enhance their response capabilities. Their current target complement per station is 40 volunteer firefighters.
- The CWFR has 13.9 more (+13.9%) suppression personnel per full-time training staff than the average (100.1 suppression personnel per training FTE).

Appendix E
OFMEM Response Types

The Office of the Fire Marshal

Ontario

Standard Incident Report Codes List

Jan 2009 **Bolded code** indicates new in 2009

ALL EMERGENCY RESPONSES

AID To/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 rcv'd - incident discovered by FD personnel

RESPONSE TYPE

Property Fires/Explosions

1	Fire
2	Explosion (exc. codes 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)
29	Other pre fire conditions (no fire)

Burning (controlled)

23	Open air burning/unauthorized controlled burning (no uncontrolled fire)
36	Authorized controlled burning - complaint

False fire calls

31	Alarm System Equipment - Malfunction
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
57	Public Hazard no action required
58	Public Hazard call false alarm
59	Other public hazard

Rescue

61	Vehicle Extrication
62	Vehicle Collision
63	Building Collapse
64	Commercial/Industrial Accident
65	Home/Residential Accident
66	Persons Trapped in Elevator
67	Water Rescue
68	Water Ice Rescue
69	Other Rescue
601	Trench rescue (non fire)
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

Medical/resuscitator call

701	Oxygen administered
702	CPR administered
703	Defibrillator used
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
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)**
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
97	Incident not found
98	Assistance not required by other agency
99	Other Response

FIRES AND EXPLOSIONS

STATUS ON ARRIVAL

1	Fire extinguished prior to arrival
2	Fire with no evidence from street
3	Fire with smoke showing only - including vehicle, outdoor fires
4	Flames showing from small area (one storey or less, part of a vehicle, outdoor)
5	Flames showing from large area (more than one storey, large area outdoors)
7	Fully involved (total structure, vehicle, spreading outdoor fire)
8	Exposure involved
9	Unclassified

WATER

1	Hydrant within 150 meters
2	Hydrant within 150 to 300 meters
3	Hydrant 300 or more meters
4	Tanker shuttle service available (NO hydrant)
5	None of the above
9	Undetermined

FIRE CONTROL

1	Extinguished by fire department
2	Extinguished by automatic system
3	Extinguished by occupant
4	Fire self extinguished
5	Action taken unclassified

PROPERTY TYPE	
Group A Assembly	
Production/Viewing performing arts	
101	Theatre - Motion Picture
102	Theatre - Concert Hall, Live
103	TV, radio, motion picture studio
104	Opera House
Museum/Art gallery/Auditorium	
111	Museum
112	Art Gallery
113	Library
114	Auditorium
115	Lecture Hall
Recreation/sports facility	
121	Bowling Alley, Billiard Centre, pool hall
122	Dance Studio
123	Community/Exhibition/Dance Hall
124	Sports/Country/Social/Yacht Club
125	Gymnasium
126	Non Residential Club
127	Casino
128	Bingo Hall
Education facility	
131	School - Pre-Elementary
132	School – Elementary
133	School - Secondary Junior High (Gr. 7 & 8)
134	School - Secondary/Senior High (Gr. 9+)
135	School - Technical, Industrial Trade
136	School - Business, Commerce, Secretarial
137	School - Post Secondary (University)
138	School – Post Secondary (College)
Transportation Facility	
141	Airport, Heliport
142	Bus Terminal
143	Railway Station
144	Subway Station
145	Marine Terminal
Other assembly	
151	Restaurants (occupant load greater than 30 persons, licensed)
152	Bar, Tavern, Night Club
153	Church, Other Similar Place of Worship
154	Funeral Facility
155	Legislative Facility/Building
156	Court Facility
157	Day Care Centre
158	Church Hall
Arenas/Swimming pools	
161	Arena
162	Ice Rink
163	Indoor Swimming Facility
Participating/Viewing open air facilities	
171	Theatre - Drive-In
172	Stadium
173	Exhibition or Amusement Park Structure
174	Bleacher, Grandstand, Reviewing Stand
175	Tent or temporary structure for assembly activity

Other assembly	
199	Other Assembly
Group B Care and Detention	
Persons under restraint	
201	Jail, Prison, Penitentiary
202	Reformatory (with detention quarters)
203	Adult Detention Camp (minimum security)
204	Police Station (with detention quarters)
205	Young Offender Detention Facility
206	Psych Hospital (with detention quarters)
Persons under supervisory care	
211	Psychiatric Hospital (without detention quarters)
212	Public/Private Hospital
216	Convalescent Home or long term care (excluding senior care)
217	Infirmary
218	Hospice
219	Children Custodial Home
Care facility	
222	Institute for the blind, deaf
223	Seniors long term care facility, licensed
229	Other care facility
Transitional shelter	
231	Shelter for displaced/abused persons
232	Halfway/transitional house
Group/Retirement Home	
233	Group Home
234	Retirement Home
Other Care and Detention	
299	Other Care or Detention not classified
Group C Residential	
Detached/semi/attached residential	
301	Detached Dwelling
302	Semi-Detached Dwelling
303	Attached Dwelling (e.g. rowhouse, townhouse, etc.)
Dual Residential/Business	
331	Apartment/flat/tenement with Business
332	Detached Dwelling with Business
333	Semi-Detached Dwelling with Business
334	Attached Dwelling with Business
335	Detached/Semi/Attached residence with Accessory Apartment above grade
336	Detached/Semi/Attached residence with Accessory Apartment below grade
Rooming/Boarding	
311	Rooming/Boarding House
Multi unit dwelling	
321	Multi-Unit Dwelling - 2 to 6 Units
322	Multi-Unit Dwelling - 7 to 12 Units
323	Multi-Unit Dwelling - Over 12 Units
Seasonal dwelling/Mobile home	
341	Motor Home, Camper, Trailer
342	Mobile Home
343	Tent
344	Houseboat
345	Cottage

Hotel/Motel/Lodging	
355	Hotel, Motel, Lodging - 4 or more guests or suites
356	Hotel, Motel, Lodging - Less than 4 guests or suites (inc B&B)
Other residential	
361	School/College Dormitory (detached from education facility)
363	Military Barrack
364	Bunkhouse, Workers Barrack
365	Detached Garage
366	Residential Club (inc sorority, fraternity)
367	Hostel
368	Residential Camp
369	Convent, Monastery
399	Other Residential
Group D Business and Personal Services	
401	Bank
402	Post Office
403	Barber Shop, Hairdresser, Beauty Parlour, tanning salon
404	Laundry, Dry Cleaner (inc self-service)
405	General Business Office
406	Police Station (without detention quarters)
407	Dental/Medical Office
408	Animal Hospital
409	Radio Station
410	Small Tool/Appliance Rental/Service Establishment
411	Fire Station
412	Engineering, Architect or Tech office
413	Mailing, photocopying office
414	Document centre, record repository (inc archives)
415	Computer, electronic data processing, records storage
416	Furniture, upholstery repair without sales
417	Shoe repair
418	Tent or temporary structure for business or personal service activity
Other Business/personal services	
498	Garage: General Auto parking - Structure
499	Other Business or Personal Services
Group E Mercantile	
Food/beverage sales	
501	Restaurant (occupant load less than 30 persons)
502	Supermarket, Grocery Store
503	Specialty Food Store (butcher, deli, etc.)
504	Convenience/Variety Store
505	Liquor/Wine/Beer Store
506	Market - Outdoors (flowers, fruit, etc.)
507	Market - Indoors (flowers, fruit, etc.)
Department store/catalogue/mail outlet	
510	Mall - public area common to multi store facility
511	Department Store

PROPERTY TYPE CONTINUED	
512	Catalogue/Mail Order Outlet
Specialty stores	
521	Clothing Store, Accessories, fur
522	Fabric Store
523	Furniture/Appliance Store
524	Paint/Wallpaper Store
525	Hardware Store
526	Building Supply Store
527	Lumber Yard
528	Garden Supply
529	Book/Stationery/Art Supply Store
530	Pharmacy
531	Florist
532	Hobby Shop, Sporting Goods, music store
533	Pet Shop
534	Video Rental Shop
535	Computer/electronics store, service or repair
536	Fireworks sales
537	Rug, floor covering store
538	Newsstand, tobacco shop
539	Gifts, jewellery, leather goods, mixed gds.
541	Tent or temporary structure for Mercantile activity
Other mercantile	
543	Big Box Store
599	Other Mercantile
Group F Industrial	
Vehicle sales/service	
601	Motor Vehicle Sales
602	Service Station
603	Motor Vehicle Repair Garage
604	Motor Vehicle Parts, Accessory Sales
605	Car Wash
606	Watercraft Sales
607	Marina, Marine Service Station
609	Other Vehicle Sales/Service
Utilities	
611	Hydro Generating Plant
612	Hydro Distribution Facility
613	Gas Processing Plant
614	Gas Distribution Facility
615	Water Works
616	Water Distribution Facility
617	Sanitary Services (includes plant)
618	Flammable Liquid Distribution Facility
619	Other Utilities
620	Heating plant - central/district heating plant, steam, etc.
Manufacturing or processing (Mfg:) Chem/Petroleum /Paint/ Plastic products	
621	Mfg:Petroleum Products
622	Mfg:Chemicals, inc hazardous chemicals
623	Mfg:Plastics
624	Mfg:Paint, Varnishes, Lacquers
625	Mfg:Drugs, Cosmetics, Pharmaceutical
626	Mfg:Rubber Goods
627	Mfg:Asphalt Products
628	Mfg:Coal Products
629	Mfg:Other Chemical/Petroleum/ Paint/ Plastic Products
Mfg/process Agr/Food/Bev/Tobacco products	
631	Mfg:Meat/Poultry/Fish Products
632	Mfg:Dairy Goods, Produce
633	Mfg:Grain Products, Bakery Goods
634	Mfg:Alcoholic Beverages
635	Mfg:Soft Drinks
636	Mfg:Tobacco Products
637	Mfg:Vegetable/Animal Oil Products
638	Mfg:Sugar Refining, Sugar Products
639	Mfg:Other Agr/Food/Beverage/Tabac
640	Mfg:Canning, preserving, processing fruits vegetables
Mfg/process textiles/cloth/leather products	
641	Mfg:Textile (e.g. preparing fibres, spinning, weaving)
642	Mfg:Tannery
643	Mfg:Footwear
644	Mfg:Wearing Apparel
645	Mfg:Dry Cleaning Plant
646	Mfg:Floor covering and coated fabrics (exc rubber, ceramic)
649	Mfg:Other Textiles, Clothing, Leather Goods
Mfg/process Wood/Furn/Paper/print products	
651	Mfg:Pulp/Paper
652	Mfg:Primary Processing (e.g. sawmill, plywood manufacturer, etc)
653	Mfg:Secondary Processing (e.g. finished goods, furniture, etc)
654	Mfg:Printing, Publishing (e.g. newspapers, magazines, books)
655	Mfg:Job Printing (e.g. forms, greeting cards, etc.)
659	Mfg:Other Wood, Furniture, Paper Products, Printing
Mfg/process vehicles parts	
661	Mfg:Road Vehicles, Parts
662	Mfg:Rail Vehicles, Parts
663	Mfg:Watercraft, Parts
664	Mfg:Aircraft, Parts
665	Mfg:Specialty Vehicles, Parts
669	Mfg:Other Vehicles, Parts
Mfg/process other metal/elect/misc products	
671	Mfg:Primary Metal Processing (e.g. refining, melting, etc.)
672	Mfg:Secondary Metal Processing (e.g. rolling, drawing, polishing)
673	Mfg:Prec. Goods/Instruments (e.g. surgical instr., cameras, etc.)
674	Mfg:Precious Metals, Jewellery
675	Mfg:Sporting Goods, Toys, bicycles
676	Mfg:Appliances, Appliance Parts
677	Mfg:Photo film processing (inc motion and still)
678	Mfg:Glass & glass products, china, pottery
679	Mfg:Other metal/elect/misc. products
Storage Chem/Petrol/Paint/Plastic products	
681	Sto:Petroleum Products
682	Sto:Chemicals, inc hazardous chemicals
683	Sto:Plastics
684	Sto:Paint, Varnishes, Lacquers
685	Sto:Drugs, Cosmetics, Pharmaceutical
686	Sto:Rubber Goods
687	Sto:Asphalt Products
688	Sto:Coal Products
689	Sto:Medical Supplies - Cold Storage
690	Sto:Tank, Tank Farm - Flammable or Combustible liquids/gases
691	Sto:Tank, Tank Farm - Other Liquids
692	Sto:Tank, Tank Farm - Empty
699	Sto:Other Chemical/Petroleum/Paint/Plastic Products
Storage Agr/Food/Bev/Tobac products	
701	Sto:Meat/Poultry/Fish Products
702	Sto:Dairy Goods, Produce
703	Sto:Grain Products, Bakery Goods
704	Sto:Alcoholic Beverages
705	Sto:Soft Drinks
706	Sto:Tobacco Products
707	Sto:Vegetable/Animal Oil Products
708	Sto:Sugar Refining, Sugar Products
709	Sto:Cold Storage - Processed Food
710	Sto:Cold Storage - Beverages
711	Sto:Tank, Tank Farm - Agricultural Products
712	Sto:Tank, Tank Farm - Processed Food, Beverages
713	Sto:Elevator – Seed, Bean, Grain, etc.
714	Sto:Elevator - Other Goods
715	Sto:Elevator - Empty
716	Sto:Packed food stuffs (not classified by other codes)
717	Sto:Fertilizers, peat moss
719	Sto:Other Agricultural Products, Food, Beverages, Tobacco
Storage Textile/cloth/leather products	
721	Sto:Textiles
722	Sto:Footwear
723	Sto:Wearing Apparel
724	Sto:Dry Cleaning Plant
725	Sto:Furs - Cold Storage
729	Sto:Other Textile Goods
Storage Wood/Furn/Paper/print products	
731	Sto:Pulp, Paper
732	Sto:Primary Products (e.g. plywood, banded lumber, etc.)
733	Sto:Secondary Products (e.g. finished goods, furniture, etc.)
734	Sto:Printing, Publishing
735	Sto:Job Printing (e.g. forms, greeting cards, etc.)
739	Sto:Other Wood, Furniture, Paper Products, Printing

PROPERTY TYPE CONTINUED	
Storage vehicles, parts	
741	Sto:Road Vehicles, Parts
742	Sto:Rail Vehicles, Parts
743	Sto:Watercraft, Parts
744	Sto:Aircraft, Parts
745	Sto:Specialty Vehicles, Parts
749	Sto:Other Vehicles, Parts
Storage Metal/Elect/misc	
751	Sto:Primary Metal Products (e.g. ingots, bars, etc.)
752	Sto:Secondary Metal Products
753	Sto:Precision Goods/Instruments
754	Sto:Precious Metals/Jewellery
755	Sto:Sporting Goods/Toys
756	Sto:Appliances, Appliance Parts
759	Sto:Other Metal/Electrical/Miscellaneous Products
760	Sto:Warehouse, variety of items, not classified by codes
761	Sto:Glass & glass products, pottery, chinaware
Other Industrial	
769	Sto:Tent or temporary structure for industrial storage
791	Recycling Facility
792	Waste Transfer Station
793	Laboratory
794	Aircraft Hangar
796	Wind Turbine
799	Other Industrial
Structures/Properties not classified by the Ontario Building Code	
Mine/Well	
801	Mine
802	Petroleum/Natural Gas Well
803	Quarry
Transportation facility	
811	Chair Lift, Cable Car, Ski Lift
812	Bridge, Overpass, Trestle, Tunnel, Underpass
Communications facility	
821	Radio Transmission Site, Microwave Tower
822	Telephone Exchange
823	Weather Station, Lighthouse
Open (outdoor) storage	
831	Agricultural Products
832	Processed Food Beverages
833	Flammable/Combustible Liquids, Gases
834	Chemicals, Plastics, Rubber Products
835	Textiles, Fibres, Clothing
836	Metal Products, Machinery, Appliances
837	Vehicles or Vehicle Parts
838	General Goods
Miscellaneous structure	
839	Tent or temporary structure not classified under other occupancy
841	Mailbox
842	Fence
843	Shed, Children's Playhouse
844	Privy
845	Telephone Booth
846	Hydro/Telephone Pole
847	Toll Station, Weather/Bus Shelter
848	Trash/Rubbish Container
849	Tarpot
850	Parking Lot Kiosk
852	Clothing Drop Box, etc.
853	Gazebo
854	Sauna - Outdoors
855	Outbuildings - structures not classified elsewhere
856	Free standing deck
Miscellaneous property	
860	Lawn around structure
861	Open Land (e.g. light ground cover, bush, grass, etc.)
862	Forest, Standing Timber
863	Tree, Hedge
864	Dump, Land Fill Site
867	Crops
Classed under National Farm Building Code	
866	Silo, Storage Facility
868	Greenhouse
869	Other farm building (e.g. curing shed, growing facility)
870	Barn - containing equipment or produce only
871	Barn - housing animals
Other Miscellaneous property, structure	
872	Animal shelter - excluding barns
890	Composting site (large scale, e.g. municipal)
891	Outdoor general auto parking
893	Cemetery
896	Sidewalk, street, roadway (do not use for fire incidents)
897	Structure under 10 sq. metres not classified
898	Other property non structure not classified
Vehicles	
Road vehicles	
901	Automobile
902	Small Truck (e.g. pick-up, van, etc.)
903	Large Truck (Excluding Truck Trailer)
904	Trailer Combin. (egg. auto trailer, small t&t, t&t,etc.)
905	Motorcycle
906	Bus, Trackless Trolley
907	Emergency Vehicle
909	Multiple road vehicles
Rail vehicles	
911	Railway Train
912	Subway Train
914	Multiple rail vehicles
Watercraft	
921	Private or Business Watercraft
922	Commercial Watercraft
923	Military Watercraft
924	Multiple watercraft
Aircraft	
931	Private or Business Aircraft
932	Commercial Aircraft
933	Military Aircraft
934	Multiple aircraft
Misc/specialty vehicle	
941	Construction
942	Industrial
943	Agricultural
944	Multiple specialty vehicles
945	Tank truck - Compressed or LP gas, flammable liquid, chemicals
946	Other specialty vehicle
994	Multiple vehicles - combination of types
999	Other Vehicle

AREA OF ORIGIN	
Means of Egress	
11	Lobby, Entranceway
12	Hallway, Corridor
13	Stairway, Escalator
18	Covered Court, Atrium, mall concourse
19	Other Means of Egress
Functional Area	
21	Living Area (e.g. living, T.V., recreation, etc)
22	Sleeping Area or Bedroom (inc. patient's room, dormitory, etc)
23	Dining or Beverage Area (inc. lunchroom, café, mess, etc)
24	Cooking Area or Kitchen
25	Washroom or Bathroom (inc. locker rooms)
26	Sauna
27	Laundry Area
28	Office
29	Electronic equipment area
30	Sales, Showroom Area
31	Process Manufact. (inc. product assembly, repair, etc)
32	Assembly Area (inc. school room, spectator area, church, etc)
33	Laboratory
34	Operating Room, Treatment or Examination Area
35	Performance Area (inc. stage, rink, boxing ring, gym floor, etc)
36	Backstage, dressing room
39	Other Functional Area
Storage Area	
41	Closet (e.g. clothes, broom, linen, etc.)
42	Garage
43	Locker (apartment storage)
44	Trash, Rubbish Storage (inc. chute room, indust. waste area etc)
45	Supply Storage Room (inc. maintenance/document storage etc)

AREA OF ORIGIN CONTINUED	
46	Product Storage (inc. products to be assembled, sold, shipped etc)
47	Shipping/Receiving/Loading Platform
48	Records storage area (inc vaults)
49	Other Storage Area
Building Services/Support Facilities	
51	Elevator (includes shaft)
52	HVAC Equipment Room (furnace room, water heater closet, boiler)
53	Chimney/Flue Pipe
54	Incinerator Room
55	Mechanical/Electrical Services room
56	Conv. Shaft or Chute (inc. dumbwaiter, laundry/garbage chute)
57	Ducting - Heating, Air Conditioning
58	Ducting - Exhaust (inc. cooking, fumes, etc.)
59	Utility Shaft (e.g. electrical wiring/phone, etc.)
60	Other Building Services/Support Facilities
Structural Area	
50	Basement/cellar not partitioned
61	Exterior Wall
62	Roof
63	Awning or Canopy
64	Porch or Balcony
65	Crawl Space (includes sub-structure)
66	Concealed Ceiling Area
67	Concealed Floor Area
68	Concealed Wall Area
69	Attic Area
70	Other Structural Area
Outside Area	
71	Open Area (inc lawn, field, farmyard, park, playing field)
72	Court, Patio, Terrace
73	Parking Area, Parking Lot
74	Storage Area (outside)
75	Trash, rubbish area (outside)
76	Fuel dispensing area (outside)
78	Attached deck
79	Other Outside Area
Vehicle Areas	
81	Engine Area
82	Running Gear (e.g). wheels and braking systems, transmission)
83	Electrical Systems
84	Fuel Systems (e.g. fuel tank, etc.)
85	Operator/Control Area
86	Passenger Area
87	Trunk/Cargo Area
89	Other Vehicle Area
Miscellaneous	
91	Multiple Areas of origin
92	Residential/Business: restaurant area
93	Residential/Business: other business area
97	Other - unclassified
99	Undetermined

SOURCE OF IGNITION	
Cooking equipment	
11	Stove, Range-top burner
12	Oven
13	Microwave
14	Open Fired Barbeque - Fixed or Portable
15	Range Hood
16	Deep Fat Fryer
19	Other Cooking Items (e.g.. toaster, kettle, electric frying pan)
Electrical distribution equipment	
20	Service/Utility Lines (includes power/hydro transmission lines)
21	Transformer
22	Meter
23	Distribution Equipment (includes panel boards, fuses, circuits)
24	Circuit Wiring - Copper (inc conductors)
25	Circuit Wiring - Aluminum (inc conductors)
26	Terminations – Copper (inc receptacles, switches, lights)
27	Terminations – Aluminum (inc receptacles, switches, lights)
28	Cord, Cable for Appliance, Electrical Articles
29	Extension Cord, Temporary Wiring
30	Other Electrical Distribution Item
Heating equipment, chimney etc.	
17	Wood burning stove
31	Central Heating/Cooling Unit
32	Water Heater
33	Space Heater - Fixed
34	Space Heater - Portable
35	Fireplace - Factory Built
36	Fireplace - Masonry
37	Fireplace Insert
38	Chimney - Factory Built
39	Chimney - Masonry
40	Flue Pipe
41	Other Heating Equipment
Appliances	
42	Television, Radio, Stereo, Tape Recorder, etc.
43	Clothes Dryer
44	Iron, Pressing Machine
45	Washing Machine
46	Electric Blanket, Heating Pad
47	Refrigerator, Freezer (inc vending machine)
48	Air Conditioner - Window or Room Unit
49	Other Appliances
Lighting equipment	
51	Incandescent Lamp - Light Bulb, Spotlight
52	Florescent Lamp - bulb or tube (includes ballast)
53	Christmas Lights, Decorative Lighting
54	Lamp (e.g.. coal, oil, naphtha, etc.)
55	Candle
56	Halogen lamp or light
59	Other Lighting Equipment

Processing equipment	
61	Incinerator
62	Heat Treatment Equip. (furnace, oven, kiln, quench tanks, etc.)
63	Painting Equipment
64	Chemical Processing Equipment (e.g.. reactors, distilling unit)
69	Other Processing Equipment
Open flame tools, smokers' articles	
71	Smokers' Articles (e.g.. lit cigarettes, pipes NOT matches or lighters)
72	Cutting/Welding Equipment
73	Blow Torch, Bunsen Burner
74	Salamander
75	Matches (open flame)
76	Lighters (open flame)
77	Matches or Lighters (unable to distinguish)
79	Other Open Flame Tools/Smokers' Articles
Other mechanical, electrical	
80	Portable generator
81	Vehicle - Electrical
82	Vehicle - Mechanical
83	Other Electrical
84	Other Mechanical
Miscellaneous	
85	Vehicle collision
88	Multiple Ignition Source or Igniting Equip (suspected arson)
90	Explosives
91	Fireworks
92	Open Fire (e.g.. camp fire, rubbish fire, etc.)
93	Hot Ashes, Embers, Spark
94	Static Electricity (spark)
95	Lightning
96	Chemical Reaction (e.g.. spontaneous combustion, etc.)
97	Rekindle
98	Other, not classified
100	Outdoor fireplace/heater
Exposure	
101	Exposure, source structure detached
102	Exposure, source structure semi-detached or attached
103	Exposure, source outside storage container, tank
104	Exposure, source open fire (inc campfire, rubbish fire)
105	Exposure, source forest, trees, wildland
106	Exposure, source grass, shrubs, bush
107	Exposure, source vehicle (outside structure)
108	Exposure, source other
999	Undetermined

FUEL OF IGNITION SOURCE	
1	Gasoline
2	Diesel Fuel/Fuel Oil
3	Propane
4	Electricity
5	Natural Gas
6	Hydrogen
7	Wood
8	Alcohol (methanol)
9	Mixed Fuel
10	Aviation Fuel
12	Other unknown gas
13	Smoker's materials, matches or lighters
14	Ethanol
15	Pyrophoric metals
96	Exposure fire
97	Other, unclassified
98	Not applicable (igniting equip/source does not use fuel)
99	Undetermined

OBJECT FIRST IGNITED	
Building Component	
11	Exterior Roof Covering
12	Exterior Cladding (excluding roof)
13	Floor
14	Interior Wall/Ceiling
15	Structural Member
16	Insulation
19	Other Building Component
Furniture	
21	Upholstered Sofa, Chair, etc.
22	Non-upholstered Chair, etc.
23	Cabinetry
29	Other Furniture
Soft goods, wearing apparel	
31	Mattress, Pillow
32	Bedding
33	Linen Other than Bedding
34	Wearing Apparel on a Person
35	Curtain, Drapery
36	Rug, Carpet
39	Other Soft Goods, Wearing Apparel
Other Objects	
40	Christmas Tree
41	Books, Magazines, Newspapers
42	Cleaning Supplies
43	Electrical Wiring Insulation
44	Creosote (chimney, flue pipe)
45	Nest
46	Rubbish, Trash, Waste
47	Vehicle
48	Multiple Objects or Materials
Materials	
51	Bush, Grass, Tree, Leaves, etc.
52	Agricultural Product - Grown (e.g. straw, seeds, etc.)
53	Agricultural Product - Other (e.g. pesticide, fertilizer)
54	Plastic
55	Wood, wood shavings
56	Paper, Cardboard
57	Fabric - Natural (e.g. cotton, wool, etc.)
58	Fabric - Synthetic, Combination
59	Asphalt, Tar Product
Gases	
61	Propane
62	Natural Gas
63	Hydrogen
69	Other Gases
Flammable, combustible liquids	
71	Gasoline
72	Diesel Fuel/Fuel Oil
73	Alcohol (methanol)
74	Cooking Oil, Grease
75	Stored Paint, varnish
79	Other Flammable, Combustible Liquid
Other Materials	
81	Rubber, not classified above
82	Oxidizing material (inc bleach, peroxide)
83	Oily rags (inc. paint rags, etc)
86	Pyrophoric metals
87	Other chemicals, not classified above
Miscellaneous	
96	Multiple diverse objects ignited
97	Other
99	Undetermined

POSSIBLE CAUSE	
Intentional	
1	Suspected Arson
2	Riot/Civil Commotion
3	Suspected Vandalism
4	Suspected Youth Vandalism (Ages 12 to 17)
Unintentional	
11	Children Playing (Ages 11 and under)
12	Vehicle Collision
Design/Construction/Maintenance deficiency	
20	Design/Construction/Installation/Maintenance Deficiency
28	Routine maintenance deficiency, e.g. creosote, lint, grease buildup)
Misuse of ignition source/material ignited	
44	Unattended
45	Improperly Discarded
46	Used or placed too close to combustibles
47	Improper handling of ignition source or ignited material
48	Used for purpose not intended
49	Improper storage
50	Other misuse of ignition source/material ignited
Mechanical/Electrical Failure	
51	Mechanical Failure
52	Electrical Failure
Other Unintentional	
60	Other unintentional cause, not classified
Other	
72	Rekindle
73	Natural cause
80	Exposure fire
Undetermined	
98	Unintentional, cause undetermined
99	Undetermined

VEHICLE PURPOSE/USE	
1	Passengers
2	Flammable Liquids
3	Compressed Flammable Gas
4	Other Dangerous Goods
5	Both Dangerous Goods and General Cargo
6	General Cargo
7	Mobile Utility, Service Vehicle
8	Abandoned, junked
9	Other
10	Stolen
99	Undetermined

VEHICLE FUEL	
1	Gasoline
2	Diesel Fuel/Fuel Oil
3	Propane
4	Electricity
5	Natural Gas
6	Hydrogen
7	Wood
8	Alcohol (methanol)
9	Dual Fuel
10	Mixed Fuel
11	Aviation Fuel
14	Ethanol
15	Hybrid
97	Other
99	Undetermined

INSURANCE ESTIMATE OF LOSS	
1	Yes
2	No
8	Not applicable
9	Undetermined

ESTIMATED VALUE AT RISK	
1	$0
2	$1 to $9,999
3	$10,000 to $49,999
4	$50,000 to $99,999
5	$100,000 to $199,999
6	$200,000 to $499,999
7	$500,000 to $749,999
8	$750,000 to $999,999
9	$1 MIL to $1.9 MIL
10	$2 MIL +
99	Undetermined

RESCUED PERSONS: PHYSICAL CONDITION	
1	No person(s) present with evacuation difficulties
2	Person(s) rescued under age 5
3	Person(s) rescued with age related impaired mobility, e.g. seniors
4	Person(s) rescued with mobility impairment NOT age related
5	Person(s) rescued with visual impairment
6	Person(s) rescued with hearing impairment
7	Person(s) rescued with other impairment (mental or physical)
8	Suspected impairment (alcohol, drugs)
98	Not applicable, no persons rescued
99	Undetermined

CIVILIAN ACTION: FIRE CONTROL	
1	Attempted to extinguish fire (without moving ignited object)
2	Moved ignited object to extinguish or prevent spread
3	Did not attempt to extinguish fire
4	Not applicable, no persons present
9	Undetermined

CIVILIAN ACTION: EVACUATION	
1	All evacuated
2	Some evacuated
3	No one evacuated
4	Not applicable, no one present
9	Undetermined

CIVILIAN ACTION: REASON FOR NOT EVACUATING	
1	Person(s) did not perceive incident as emergency
2	Age related (infants, children)
3	Age related (seniors)
4	Person(s) physically or mentally challenged
5	Suspected impairment (alcohol, drugs)
6	Smoke/fire blocked exit
7	Physical barriers to exit (exit locked or obstructed)
8	Not applicable - all evacuated or no persons present
9	Undetermined

PERSON ASSOCIATED WITH IGNITION: GENDER	
1	Male
2	Female
8	Not applicable
9	Unknown

PERSON ASSOCIATED WITH IGNITION: AGE CATEGORY	
1	0-9
2	10-19
3	20-39
4	40-64
5	65-79
6	80+
8	Not applicable
9	Unknown

KEY HUMAN FACTOR IN IGNITION	
1	Asleep (excludes suspected impairment alcohol or drugs)
2	Possible temporary loss of judgment, panic (excluding impairment)
3	Physical or mental disability
4	Possible impairment alcohol
5	Possible impairment other (e.g. drugs)
6	Unaware of hazard
7	Distracted, preoccupied, fatigued
8	Delay in calling fire department
9	Not applicable (e.g. suspected arson, exposure fire, natural fire etc)
10	No person present at the time of the fire
99	Undetermined

STRUCTURE FIRES

INITIAL DETECTION	
1	Smoke alarm device sounded
2	Fire alarm system sounded
3	Automatic sprinkler system activated
4	Automatic system other than sprinkler
5	CO detector sounded
6	Person detected - visual sighting, smell or sound
7	Other initial detection
8	No initial detection (burned out before detection)
9	Undetermined

EXTENT OF FIRE	
1	Confined to object of origin
2	Confined to part of room/area of origin
3	Spread to entire room of origin
4	Spread beyond room of origin, same floor
5	Multi unit bldg: spread beyond suite of origin but not to separate suite(s)
6	Multi unit bldg: spread to separate suite(s)
7	Spread to other floors, confined to building
8	Entire Structure
9	Confined to roof/exterior structure
10	Spread beyond building of origin
11	Spread beyond building of origin, resulted in exposure fire(s)
99	Undetermined

SMOKE SPREAD	
2	Confined to part of room/area of origin
3	Spread to entire room of origin
4	Spread beyond room of origin, same floor
5	Multi unit bldg: spread beyond suite of origin but not to separate suite(s)
6	Multi unit bldg: spread to separate suite(s)
7	Spread to other floors, confined to building
8	Entire Structure
9	Confined to roof/exterior structure
10	Spread beyond building of origin
99	Undetermined

POSSIBLE BUSINESS IMPACT	
1	No business interruption
2	May resume operations within a week
3	May resume operations within a month
4	May resume operations within a year
5	May NOT resume operations
8	Not applicable (not a business)
9	Undetermined

COMPLEX	
1	Airport, Air Terminal
2	Amusement Park, Exhibition, Fair Grounds
3	Apartment
4	Arena, Stadium, Cultural Centre, Auditorium
5	Business Residential
6	Church/Religious Complex
7	Country/Yacht/Sports/Recreation Club
8	Convention Centre
9	Education Institution
10	Farm
11	Hospital
12	Hotel, Motel, Motor Hotel
13	Marine Terminal
14	Manufacturing/Storage Complex
15	Market
16	Military Base
17	Office Building
18	Prison, Penitentiary, Reformatory, Detention Centre
19	Railway Terminal, Railway Yard
20	Shopping Centre, Plaza
21	Utility
97	Other
98	Not Applicable
99	Undetermined

OCCUPANCY STATUS	
1	Permanent - Person(s) Present
2	Permanent - No Person(s) Present
3	Seasonal (In Use) - Person(s) Present
4	Seasonal (In Use) – No Person(s) Present
5	Seasonal (Not in Use)
7	Illegally occupied
8	Not applicable
9	Undetermined

OCCUPANT TYPE	
1	Owner(s) occupied (business or residential)
2	Renter(s) only (business or residential, exc. students)
3	Student renter(s) (residential only)
4	Other
8	Not applicable (not occupied)
9	Undetermined

BUILDING STATUS	
1	Normal (no change)
2	Under Renovation
3	Under Construction
4	Under Demolition
5	Abandoned, vacant (long term)
8	Not Applicable
9	Undetermined

ILLEGAL BUILDING USE	
1	Illegal use: marijuana grow operation
2	Illegal use: methamphetamine lab
3	Illegal use: Crack house/drug den
4	Illegal use: other
8	Not applicable
9	Undetermined

BUILDING HEIGHT	
001	1 storeys
002	2 storeys
	:
100	100 storeys
997	Other
998	Not applicable

LEVEL OF ORIGIN	
001	1ST floor
002	2nd floor
	:
100	100th floor
B01	1st floor below grade
B02	2nd floor below grade
	:
996	Roof level
997	Other
998	Not applicable
999	Undetermined

AGE OF STRUCTURE	
1	Designated an historic building
2	Constructed pre 1946 (older)
3	Constructed between 1946 to 1970 (old)
4	1971 to 2000 (recent)
5	2001 to 2010 (newly constructed)
6	After 2010
9	Undetermined

SMOKE ALARMS	
ALARM ON FLOOR OR SUITE OF FIRE ORIGIN: PRESENCE AND OPERATION	
1	No smoke alarm
2	Smoke alarm present and operated
3	Smoke alarm present, did not operate
4	Smoke alarm present, operation undetermined
9	Smoke alarm presence undetermined
ALARM ON FLOOR/SUITE: REASON FOR FAILURE TO OPERATE	
1	No battery
2	Dead battery
3	Electrical line or battery not connected
4	Remote from fire – smoke did not reach alarm
5	Separated from fire (e.g. wall, etc)
6	Improper installation of unit
7	Unit failure
8	Tampered with (vandalism)
9	Other reason
98	Not applicable: Alarm operated, presence/ operation undetermined OR no alarm
99	Reason for failure undetermined
ALARM ON FLOOR/SUITE: TYPE	
1	Battery operated
2	Hardwired (standalone)
3	Wireless
4	Interconnected (hardwired)
8	Not applicable - no smoke alarm or presence undetermined
9	Type undetermined
SMOKE ALARM ON OTHER FLOORS: PRESENCE AND OPERATION	
1	Other floor(s): No smoke alarms
2	Other floor(s): Smoke alarm(s) present and operated
3	Other floor(s): Smoke alarm(s) present did not operate
4	Other floor(s): Smoke alarm(s) present, operation undetermined
8	Not applicable: Single level
9	Other floor(s): Smoke alarm presence undetermined
SMOKE ALARM ON EVERY LEVEL	
1	Yes, Operational alarms on every level
2	No, alarms present on every level, **not all operational**
3	No, alarms **not present on every level**
4	No alarms present
8	Not applicable: Non residential structure
9	Undetermined
IMPACT OF SMOKE ALARM OPERATION EVACUATION OF PERSONS AT RISK	
1	All persons (at risk of injury) self evacuated as a result of hearing alarm
2	Some persons (at risk) self evacuated as a result of hearing alarm
3	No one (at risk) self evacuated as a result of hearing alarm
4	Alarm operated but failed to alert occupant(s) (at risk)
7	Not applicable: Occupant(s) first alerted by other means
8	Not applicable: No alarm, no persons present
9	Undetermined
Number of persons at risk who self evacuated due to smoke alarm	
	Input the number of persons or codes below
98	98 persons or more
99	Undetermined
FIRE ALARM SYSTEM PRESENCE	
1	Fire alarm system present
2	No Fire alarm system
8	Not applicable for structure type (detached/semi, town residential, other buildings etc)
9	Undetermined
FIRE ALARM SYSTEM OPERATION	
1	Fire alarm system operated
2	Fire alarm system did not operate
8	Not applicable, no fire alarm system
9	Operation Undetermined
FIRE ALARM IMPACT	
1	All persons (at risk) evacuated as a result of hearing fire alarm
2	Some persons (at risk) evacuated as a result of hearing fire alarm
3	No one (at risk) evacuated as a result of hearing fire alarm
4	Fire Alarm system operated but failed to alert occupant(s) (at risk)
7	Not applicable: Occupant(s) first alerted by other means
8	Not applicable: No fire alarm system, no persons present
9	Undetermined
SPRINKLER SYSTEM PRESENCE	
1	Full sprinkler system present
2	Partial sprinkler system present
3	No sprinkler system present
9	Undetermined
SPRINKLER SYSTEM OPERATION	
1	Sprinkler system activated
2	Sprinkler did not activate: remote or separated from fire
3	Sprinkler did not activate: fire too small to trigger system
4	Sprinkler did not activate: other reason
5	Sprinkler did not activate: reason unknown
8	Not applicable - no sprinkler system present
9	Activation/Operation undetermined