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TOWNSHIP OF SOUTH STORMONT
FIRE MASTER PLAN



DILLON
CONSULTING

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LIST OF ACRONYMS

CAO	Chief Administrative Officer
CCG	Community Control Group
CEMC	Community Emergency Management Coordinator
CFSEM	Comprehensive Fire Safety Effectiveness Model
DP	Department Policy
EOC	Emergency Operations Centre
FMP	Fire Master Plan
FPO	Fire Prevention Officer
FPPA	<i>Fire Protection and Prevention Act (1997)</i>
FUS	Fire Underwriters Survey
GIS	Geographic Information Systems
IMS	Incident Management System
MW	Megawatt
NFPA	National Fire Protection Association
OBC	Ontario Building Code
OFC	Ontario Fire Code
OFMEM	Office of the Fire Marshal and Emergency Management (Ontario)
OFSS	Ontario Fire Services Standards

OHSA	<i>Occupational Health and Safety Act, R.S.O. 1990</i>
PFPC	Public Fire Protection Classifications
PFSG	Public Fire Safety Guidelines
SCBA	Self-Contained Breathing Apparatus
SOG	Standard Operating Guideline
SSFR	South Stormont Fire & Rescue

Executive Summary

This Fire Master Plan (FMP) has been developed to provide the Township of South Stormont 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 the optimal 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).

Emphasis has been placed on the use of current Public Fire Safety Guidelines (PFSG) and the resources provided by the Office of the Fire Marshal and Emergency Management (OFMEM). 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 Comprehensive Fire Safety Effectiveness Model and Fire Risk Sub-model are examples of the OFMEM documents that have been utilized to prepare this FMP.

Within the Province of Ontario the delivery of fire protection services are guided by the FPPA including the strategic optimization of the three lines of defence which include:

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

Optimization of the first two lines of defence has proven to be an effective strategy in reducing the impacts of fire, and fire related injuries across the province. The OFMEM has indicated that further optimization of programs targeted specifically at the first two lines of defence must be a priority for fire services within Ontario. Emergency response, including fire suppression resources, 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 education and prevention programs, and utilization of the appropriate fire safety standards and enforcement strategies is the most effective means to further reduce the impacts of fire, and fire related injuries across the province.

The analyses within this report recognize four strategic priorities for the delivery of fire protection services within the Township of South Stormont including:

- i. Recognize the historical dedication and commitment of the members of the South Stormont Fire and Rescue in the transition to **“one single, unified fire department”**;

- ii. The utilization of a Community Risk Profile 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 to be provided by the South Stormont Fire and Rescue services;
- iii. The optimization of the first two lines of defence including public education and fire prevention, and the utilization of fire safety standards and fire code enforcement to provide a comprehensive fire protection program within the Township based on the results of the Community Risk Profile; and
- iv. Emphasis on strategies that support the sustainability of fire protection and emergency services that provide the most effective and efficient level of services resulting in the best value for the community.

The recommendations of this FMP present options for Council's consideration in revising the fire station locations, major apparatus deployment model and organizational structure of the South Stormont Fire and Rescue. Each of these recommendations has been developed based on a thorough analysis of the historical practices and performance of the SSFR in comparison to the Township's legislative responsibilities, recognized industry guidelines, and industry standards reflecting current fire service best practices.

The recommendations of this FMP are presented to assist Council and the SSFR in achieving the four strategic priorities identified.

Summary of Recommendations

The following is a summary of recommendations for each division of the SSFR:

Administration Division:

1. That South Stormont Fire and Rescue services undergo a team building exercise to develop vision and mission statements that reflect the framework of the OFMEM PFSG 03-02-13 "Master Planning Process for Fire Protection" and support the strategic priority of creating "one single, unified fire department";
2. That a formal job description be created for the Administrative Assistant role within the South Stormont Fire and Rescue;
3. That consideration be given to transitioning the position of Administrative Assistant within the South Stormont Fire and Rescue to full-time within the short-term horizon (1 to 3 years) of the proposed Fire Master Plan;
4. That the Fire Chief be directed to prepare a fire department Annual Report including an updated Community Risk Profile for consideration by Council;
5. That consideration be given to updating the dispatch services agreement to reflect the 2016 Edition of NFPA 1221 Standard;
6. That consideration be given to identifying alternatives for the role of Community Emergency Management Coordinator (CEMC).

7. That consideration be given to enhancing the current process for developing and approving department policies, procedures and operational guidelines by developing distinct formats for all Department Policies (DPs) and Standard Operating Guidelines (SOGs) including a date of approval by the Fire Chief or designate;
8. That consideration be given to approving the strategic priorities identified within the proposed Fire Master Plan to guide the development and delivery of fire protection and emergency services within the Township of South Stormont, including:
 - i. Recognize the historical dedication and commitment of the members of the South Stormont Fire and Rescue in the transition to “one single, unified fire department”;
 - ii. The utilization of a Community Risk Profile 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 to be provided by the South Stormont Fire and Rescue services;
 - iii. The optimization of the first two lines of defence including public education and fire prevention, and the utilization of fire safety standards and fire code enforcement to provide a comprehensive fire protection program within the Township based on the results of the Community Risk Profile; and
 - iv. Emphasis on strategies that support the sustainability of fire protection and emergency services that provide the most effective and efficient level of services resulting in the best value for the community.

Fire Prevention/Public Education Division:

9. That subject to Council’s consideration and approval of the proposed Fire Master Plan, that an updated Fire Prevention Policy be created utilizing the framework of PFSG 04-45-12 “Fire Prevention Policy” for consideration and approval by Council, and attached as an appendix to the fire department Establishing and Regulating By-law;
10. That subject to the consideration and approval of the proposed public fire safety education activities and program cycle objectives by Council that they be included within the proposed Fire Prevention Policy and proposed Establishing and Regulating By-Law;
11. That the South Stormont Fire and Rescue Home Smoke Alarm Program be updated as a department Standard Operating Guideline and included within the proposed Fire Prevention Policy for consideration and approval by Council.
12. That the OFMEM Technical Guideline OFM-TG-01-2012 “Fire Safety Inspections and Enforcement” be considered in developing the proposed Fire Prevention Policy for consideration and approval by Council.
13. That subject to the consideration and approval of the proposed fire inspection goals and objectives by Council that they be included within the proposed Fire Prevention Policy and proposed Establishing and Regulating By-Law.

14. That the Fire Chief develop a revised Standard Operating Guideline for fire investigations including origin and cause determination including the training and accreditation required to conduct investigations.
15. That consideration be given to implementing the staff resource plan identified within the proposed Fire Master Plan to achieve the fire inspection and public education performance levels recommended.

Training Division:

16. That the South Stormont Fire and Rescue develop a comprehensive annual training program based on the NFPA Professional Qualifications Standards and the core functions of a comprehensive annual training program identified within the proposed Fire Master Plan.
17. That the South Stormont Fire and Rescue include live fire training as a required element within the proposed comprehensive annual training program.
18. That the Fire Chief be directed to investigate the options available for the delivery of operational level emergency response for incidents including Confined Space Rescue, Trench Rescue, Slope/High Angle Rope Rescue.
19. That the SSFR enhance the training opportunities for Company Officers to achieve the competencies identified within the new NFPA 1021 Standard – Level II for Company Officers.
20. That consideration be given to utilizing the recruitment and retention strategies for volunteer (part-time) firefighters included within the proposed Fire Master Plan as part of enhancing recruitment and retention of volunteer (part-time) firefighters in the Township of South Stormont.
21. That consideration be given to implementing the staff resource plan identified within the proposed Fire Master Plan to oversee the proposed comprehensive annual training plan recommended.

Fire Suppression Division:

22. That the 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 Township of South Stormont should be striving to achieve an initial response deployment of four firefighters to all fire related emergency calls;
 - ii. That the Township of South Stormont should 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;
 - iii. That the Township of South Stormont should be striving to achieve the response time performance objective referenced within the NFPA 1720 Rural Area Demand Zone including a minimum of six firefighters responding within a

14 minute response time (turnout time + travel time) with a performance objective of 80%.

23. That the performance objectives for dispatching emergency calls identified within the FMP be reviewed with the dispatch services provider.
24. That the complement of volunteer firefighters at each fire station operated by the South Stormont Fire and Rescue be increased to 32 volunteer firefighters.
25. That the Township of South Stormont consider the implementation of scheduled volunteer (part-time) firefighters
26. That the SSFR consider options for implementing alternative alerting procedures for volunteer (part-time) firefighters to respond to the closest fire station.
27. That consideration be given to implementing the Option 3B fire station location model.
28. That consideration be given to approving the proposed South Stormont Fire and Rescue Management Team structure including the implementation of Volunteer District Chiefs.

Apparatus & Equipment:

29. That comprehensive Standard Operating Guidelines be developed and approved for all required South Stormont Fire and Rescue apparatus and equipment inspections.
30. That consideration be given to transitioning the SSFR major apparatus fleet replacement plan to 15 years of front-line service, 5 years of reserve service with a total life cycle of 20 years.
31. It is recommended that consideration be given to transitioning the major apparatus fleet of the South Stormont Fire Rescue to combination pump-rescues.
32. That consideration be given to implementing the multi-use vehicles presented within the proposed major apparatus plan presented within the proposed Fire Master Plan.
33. That consideration be given to creating a major apparatus reserve capacity to include a minimum of one pumper.
34. That the South Stormont Fire and Rescue develop a life cycle replacement plan for all equipment including firefighters bunker gear and self-contained breathing apparatus based on industry best practices and manufacturers' directions.

Communications & Technology:

35. That a detailed operational review of the current radio dispatching and mobile radio system be completed.
36. That a review of the Fluent IMS alerting system be completed including a review of standard operating guidelines, technology applications and system efficiency.

Introduction

The Township of South Stormont initiated this Fire Master Plan (FMP) study to assess current and future levels of service and programs provided by the fire and rescue services. The Fire Master Plan is a strategic document that will assist the Township and South Stormont Fire and Rescue (SSFR) with planning the delivery of fire protection services over the next ten year period with consideration for the 20 year planning horizon. Fire Master Plans are typically ten year plans, with a review of the plan conducted at the five-year horizon. Completion of this FMP recognizes the continued commitment of the Township's Council and senior municipal staff in striving to achieve the most cost effective and efficient level of fire protection services resulting in the best value for the community.

This FMP provides a complete review of the current operations of the South Stormont Fire and Rescue to assist Council in establishing key objectives for the department. The plan includes recommendations to address short, medium and long-term strategies for the Township, consistent with the fire master planning process outlined within the Office of the Fire Marshal and Emergency Management, Ontario, Shaping Fire-Safe Communities Initiative. The overarching goal of this report is to present a clear understanding of the existing and future requirements of the South Stormont Fire and Rescue. Referencing best practices, including relevant standards and legislation, this report was prepared by completing an assessment of the following departmental administrative and operational components:

- Administration, Legislation, By-laws, SOGs, Policies & Directives;
- Department staffing, scheduling and succession planning,
- Firefighter staffing and service agreements;
- Community Risk;
- Emergency Response and Station Locations / Adequacy;
- Fire Prevention and Public Education;
- Apparatus / Equipment Replacement and Maintenance; and
- Communications and Technology Requirements.

The Fire Master Plan was developed with a broad and comprehensive internal stakeholder consultation process. This included interviews with fire department and Township staff, roundtable discussion sessions with the volunteer firefighters, and consultation with the Township's Steering Committee.

1.1

Municipal Overview

Located along the St. Lawrence River, the communities within the Township of South Stormont have a long history. The original townships of Osnabruck and Cornwall were a part of the eight “Royal Townships” dating back to the 18th century and the time of the United Empire Loyalists.¹ For decades, the communities had strong agricultural roots, but in 1958 the relocation of nearly 6,500 people and destruction of several communities took place as part of the St. Lawrence Seaway Project (for hydro-electricity and shipping).² Borne out of this project were the communities of Ingleside and Long Sault, the two most populous communities within present-day Township of South Stormont.

The Township itself, part of the United Counties of Stormont, Dundas, and Glengarry, was created in 1998 from the amalgamation of Osnabruck and Cornwall townships. Due to its strategic location and natural heritage features, the Township offers a relaxed country lifestyle with the conveniences of proximity to major metropolitan centres. These centres include the City of Cornwall, bordering the Township to the south, and the City of Ottawa, which is a relatively short 90 kilometres to the north-west. The locational convenience is facilitated by Highway 401, Highway 138, and several paved two-lane County roads including County Road 2.

Home to approximately 12,600 people (2011 Census), the Township is comprised of several communities including Long Sault, Ingleside, Rosedale Terrace, Beaver Glen, St. Andrews West, Osnabruck Centre, Harrisons Corners, Northfield, and Newington. Within the County’s Official Plan, these communities are classified as either Rural or Urban Settlement Areas. Unlike some rural communities in Ontario, the United Counties of Stormont, Dundas, and Glengarry is projected to have modest population growth based on a 2013 study, with the Township of South Stormont’s population stabilized.³ Historically, the Township’s population has grown by almost 9 percent from 1996 to 2011 (based on Census data).

¹ South Stormont. (2015, May 22). Retrieved June 22, 2015, from Wikipedia:

https://en.wikipedia.org/wiki/South_Stormont

² Gorrie, P. (2008, June 29). Our own Three Gorges. Retrieved June 22, 2015, from The Star:

http://www.thestar.com/news/insight/2008/06/29/own_own_three_gorges.html

³ *Population and Growth Projections Study*, United Counties of Stormont, Dundas, and Glengarry, January 2013 Hemson Consulting Ltd.

1.2 Previous Reviews and Recommendations

Research undertaken to develop this FMP identified a number of previous reviews that have been conducted regarding the delivery of fire protection services within the Township of South Stormont. The previous reviews are summarized within this section.

1.2.1 2006 Township of South Stormont Fire & Rescue Services Review

The Township embarked on its first review of the delivery of fire protection services in 2006 following amalgamation. The “2006 Township of South Stormont Fire & Rescue Services Review Report” provides insight into the framework analyses that guided the development of the Township’s first fire master planning process.

This comprehensive document identified a scope of work that included:

“The Master Fire Plan will be a strategic blueprint that will ensure provision of the most cost effective, efficient and safe service based on the cost that the public can afford. The process will be guided by using the Public Fire Safety Guidelines provided by the Office of the Fire Marshal”

A review of this report indicates that the methodology applied was consistent with that of the fire master planning process at that time. A large portion of the information contained within the report recognizes that the SSFR at that time continued to operate as four distinct fire departments.

Information respecting each of the four departments including the Ingleside Fire Department, Long Sault Fire Department, Newington Fire Department and the St. Andrews West Fire Department is presented showing the absence of consistent goals and objectives, a range in organizational structures, and an absence of consistent operating guidelines.

The 2006 review report includes a summary of recommendations that identifies a number of items for consideration, a course of action for each item, a time line and capital cost. A review of the report indicates that although this review was conducted following an appropriate methodology there were no clear recommendations presented to Council for consideration, approval or setting a new vision for an amalgamated fire service. Where applicable the findings of the 2006 Review have been considered in developing this FMP.

1.2.2 2008 Office of the Fire Marshal & Emergency Management – Fire Services Administrative Review

The purpose of the 2008 Office of the Fire Marshal and Emergency Management – Fire Services Administrative Review (2008 OFMEM Review) was identified as to evaluate how best to transition from four independent fire departments to one single, unified fire department

operating under the direction of one Fire Chief. The findings of this review identified three options that included hiring either one full-time Fire Chief, one part-time Fire Chief, or alternatively staying with the existing four department model with a greater amount of oversight by the CAO.

Although this review focused primarily on the administrative and management aspects of the Township's fire services it also identified a number of other issues. These were identified and included within the review report to assist Council and the fire department with ensuring the municipality is achieving its legislative requirements based on local needs and circumstances.

As a result of this report, Council approved and implemented the option of moving to a full-time fire chief and approving this current process to develop a Fire Master Plan.

Today a number of the issues identified in the 2008 OFMEM Review remain relevant to the current administration and operation of the South Stormont Fire and Rescue. Where applicable these issues will be identified throughout this review to provide Council with further reference to the direction of the analyses for this FMP.

1.2.3 2009 Fire Underwriters Survey

The Fire Underwriters Survey (FUS) group is a national organization that collects data on public fire protection services for the purposes of conducting fire insurance statistical work that inform insurance companies that subscribe. FUS conducts fire service surveys that are then used to establish the Public Fire Protection Classifications (PFPC) for each community.

The overall intent of the PFPC system is to provide a standardized measure of the ability of the protective facilities of a community to prevent and control the major fires that may be expected to occur by evaluating in detail the adequacy, reliability, strength and efficiency of the protective facilities and comparing the level of protection against the level of fire risk in the built environment.

In July 2009, FUS conducted a comprehensive review of the fire risks and defenses within the Township of South Stormont. The 2009 FUS review identified that for commercial grade properties the fire insurance classifications for Ingleside, Long Sault and St. Andrews West were downgraded since the last FUS review in 1990 due to a lack of fire prevention/fire safety control inspections.

The 2009 FUS Review identified the challenges of amalgamating fire services and identified six areas that should be addressed when amalgamating fire services, these included:

- Establishing Standard Operating Guidelines/Procedures (SOPs/SOGs)
- Establishing a uniform and recognized firefighter training program
- Maintaining current apparatus fleet and providing reserve funding for fire apparatus replacement programs (i.e., 20 year apparatus replacement program)
- Ensuring sufficient equipment and personal protective clothing are available for firefighters and devising a replacement schedule
- Strengthen Public Education and Fire Prevention Programs
- Evaluating all areas of the fire department and addressing areas perceived to require improvements etc.

The 2009 FUS review also included five recommendations related to highly weighted areas aimed at improving the overall level of fire protection and potentially allowing the Township of South Stormont to improve its fire insurance grading classification. Where applicable the recommendations of the 2009 FUS Review have been considered in developing this FMP.

1.3 Department Background

The Township of South Stormont currently provides fire protection services from four fire stations whose locations reflect a pre-amalgamation fire service. Despite the amalgamation of the Township in 1998, the fire departments continued to operate independently.

Acknowledging the importance of providing a consistent level of service across the Township, a Fire Management Committee was established with the intention to provide oversight across the four departments. In the early 2000s, the Council started considering alternative strategies to provide consistent service across the department. Based on an option presented in a 2008 Office of the Fire Marshal and Emergency Management Review, Council decided to move forward with hiring a full-time fire chief to oversee an amalgamated fire department.⁴

Since that time, the Township has been working towards a single, unified fire department with four stations. Stations 1 and 2 are located within Long Sault and Ingleside respectively. This locates the stations south of Highway 401, less than 1 kilometre north of the St. Lawrence River, and about 9.5 kilometres from each other along County Road 2. Station 4, found in St. Andrews West, is close to the intersection of Highway 138 and County Road 18. Newington, located approximately 2.5 kilometres south of the Township's northern boundary, is home to Station 4 which is at the intersection of County Road 12 and County Road 14. **Figure 1** shows the location of all four stations and their respective apparatus.

⁴ Source: OFMEM Review, 2008

Under the leadership of the full-time Fire Chief the SSFR represents a composite model fire service that includes a part-time Fire Prevention Officer (contract position), part-time administrative assistant, four volunteer Deputy Fire Chiefs, four volunteer assistant deputy fire Chiefs, 12 volunteer Captains, 12 volunteer lieutenants, 8 volunteer training officers and 64 volunteer firefighters.

The department provides fire protection services including emergency response to fires, and other emergency services such as rescues, motor vehicle collisions, medical calls and some hazardous materials incidents. The department provides services to a geographical area of approximately 447.5 square kilometres. This area is transected by Highway 401 which the department also provides protection to.

The current volunteer firefighters are a highly dedicated group that have a strong commitment towards their respective stations and local communities. The history of their local communities and fire stations is an important value to many of the volunteer firefighters.

Based on the consultation with the volunteer firefighters and the analyses of the SSFR, strategies targeted at sustaining a composite model fire service, and optimizing the training available are priorities of the volunteer firefighters.



TOWNSHIP OF SOUTH STORMONT
FIRE MASTER PLAN

STATION LOCATION MAP
FIGURE 1

- FEDERAL BOUNDARY
- SOUTH STORMONT BOUNDARY
- FIRE STATION
- HIGHWAY
- ARTERIAL ROAD
- COLLECTOR ROAD
- LOCAL ROAD
- RAILWAY
- LAKES AND RIVERS

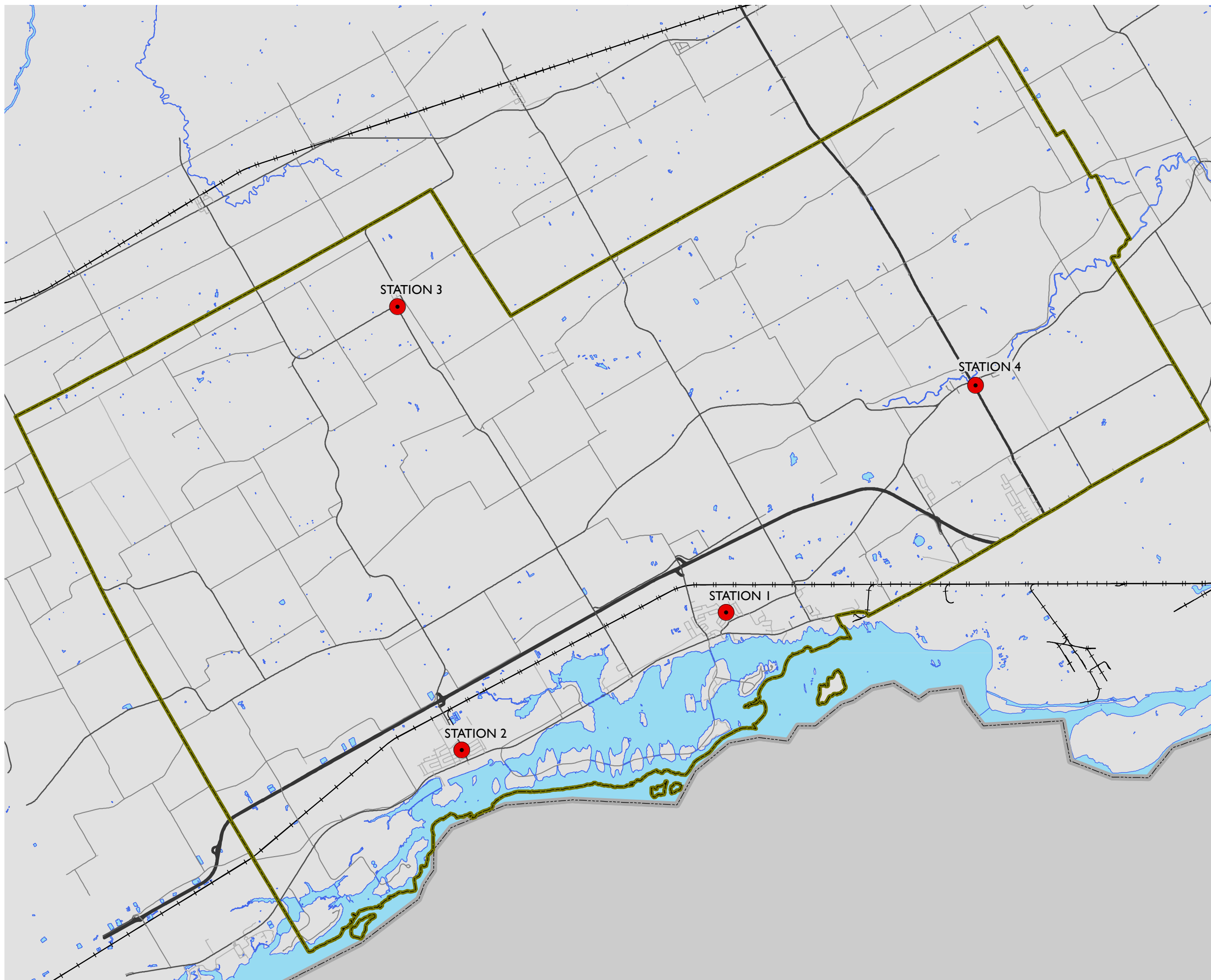


MAP DRAWING INFORMATION:
DATA PROVIDED THE TOWNSHIP OF SOUTH STORMONT

MAP CREATED BY: SMB
MAP CHECKED BY: SLC
MAP PROJECTION: NAD 1983 UTM Zone 18N



PROJECT: 15-1907
STATUS: DRAFT
DATE: 12/15/2015



2.0 Fire Master Plan Process Overview

While much knowledge, experience, and context went into this Fire Master Plan, there are three areas that embody this as a foundational element to the fire master planning process including: *Legislation, Public Fire Safety Guidelines, and Stakeholder Engagement.*

This section describes the relevant legislation, guidelines and the stakeholder engagement process that was undertaken to frame this Fire Master Plan in defining the needs and circumstances of the Township of South Stormont.

2.1 Legislation

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

2.1.1 Fire Prevention and Protection Act, 1997

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

PART I DEFINITIONS	
Definitions	<p>1.(1) In this Act,</p> <p>“fire chief” means a fire chief appointed under section 6 (1), (2) of (4); (“chef des pompiers”)</p> <p>“fire code” means the fire code established under Part IV; (“code de prevention des incendies”)</p> <p>“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”)</p> <p>“Fire Marshal” means the Fire Marshal appointed under subsection 8 (1); (“commissaire des incendies”)</p> <p>“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”)</p> <p>“municipality” means the local municipality as defined in the Municipal Act, 2001; (“municipalite”)</p> <p>“prescribed” means prescribed by regulation (“prescript”)</p> <p>“regulation” means a regulation made under this Act; (“reglement”)</p> <p>“volunteer firefighter” means a firefighter who provides fire protection services either voluntarily or for a nominal consideration, honorarium, training or activity allowance; (“pompier volontaire”)</p>

**PART I
DEFINITIONS**

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.

**PART I
DEFINITIONS**

Fire departments	(1) A fire department shall provide fire suppression services and may provide other fire protection services in a municipality, group of municipalities or in territory without municipal organization. 1997, c. 4, s. 5 (1)
Same	(2) Subject to subsection (3), the council of a municipality may establish more than one fire department for the municipality. 1997, c. 4, s. 5 (2)
Exception	(3) The council of a municipality may not establish more than one fire department if, for a period of at least 12 months before the day this Act comes into force, fire protection services in the municipality were provided by a fire department composed exclusively of full-time firefighters. 1997, c. 4, s. 5 (3)
Same	(4) The councils of two or more municipalities may establish one or more fire departments for the municipalities. 1997, c. 4, s. 5 (4)
Fire chief, municipalities	6. (1) If a fire department is established for the whole or part of a municipality or for more than one municipality, the council of the municipality or the councils of the municipalities, as the case may be, shall appoint a fire chief for the fire department.
Same	(2) The council of a municipality or the councils of two or more municipalities may appoint a fire chief for two or more fire departments.
Responsibility to council	(3) A fire chief is the person who is ultimately responsible to the council of a municipality that appointed him or her for the delivery of fire protection services
Powers of a fire chief	(5) The fire chief may exercise all powers assigned to him or her under this Act within the territorial limits of the municipality and within any other area in which the municipality has agreed to provide fire protection services, subject to any conditions specified in the agreement.

**PART III
FIRE MARSHALL**

Appointment of Fire Marshal	8 (1) There shall be a Fire Marshal who shall be appointed by the Lieutenant Governor in Council.
Powers of Fire Marshal	<p>9.(1) the Fire Marshal has the power,</p> <p>(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;</p> <p>(b) to issue directives to assistants to the Fire Marshal respecting matters relating to this Act and the regulations;</p> <p>(c) to advise and assist ministries and agencies of government respecting fire protection services and related matters;</p> <p>(d) to issue guidelines to municipalities respecting fire protection services and related Matters;</p> <p>(e) to co-operate with anybody or person interested in developing and promoting the principles and practices of fire protections services;</p>

**PART I
DEFINITIONS**

	<p>(f) to issue long service awards to persons involved in the provision of fire protection services; and</p> <p>(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.</p>
Duties of Fire Marshal	<p style="text-align: center;">9.(2) It is the duty of the Fire Marshal,</p> <p>(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;</p> <p>(b) to advise municipalities in the interpretation and enforcement of this Act and the regulations;</p> <p>(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;</p> <p>(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;</p> <p>(e) to maintain and operate a central fire college;</p> <p>(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;</p> <p>(g) to develop and maintain statistical records and conduct studies in respect of fire protection services; and</p> <p>(h) to perform such other duties as may be assigned to the Fire Marshal under this Act.</p>

2.1.2 Occupational Health and Safety Act

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

Where 20 or more workers are regularly employed at a workplace, the OHS Act requires the establishment of a Joint Health and Safety Committee (JHSC). The committee must hold regular meetings including the provision of agendas and minutes.

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

2.2 Public Fire Safety Guidelines (PFSG)

Within the Province of Ontario one of the key roles of the Office of the Fire Marshal and Emergency Management (OFMEM) is to develop Public Fire Safety Guidelines to assist municipalities in achieving their legislative responsibilities in providing the most effective and efficient level of fire protection services for their community based on local needs and circumstances.

2.2.1 Office of the Fire Marshal and Emergency Management, Ontario

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

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

The OFMEM has developed Public Fire Safety Guidelines (PFSG) 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 the Office of the Fire Marshal and Emergency Management (OFMEM) has commenced a comprehensive review of all OFMEM Public Fire Safety Guidelines (PFSGs). The OFMEM anticipates releasing updated guidelines by the end of 2015. Pending the release of the new guidelines, the existing guidelines will remain on our website for reference. In addition, the OFMEM recommends municipalities access other resources from our website such as Technical Guidelines or Communiqués.”

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

2.2.1.1

PFSG 01-02-01 “Comprehensive Fire Safety Effectiveness Model”

The Comprehensive Fire Safety Effectiveness Model (CFSEM) (PFSG 01-02-01, attached as **Appendix A**) 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 Comprehensive Fire Safety Effectiveness Model (CFSEM) confirms that the fire service within Ontario is currently experiencing an evolution of significant 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:

“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 CFSEM 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 CFSEM recognizes more comprehensive risk assessment and optimizing the use of fire prevention and control systems are part of a paradigms shift within the fire service.

Figure 2 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

FIGURE 2: FACTORS IN A COMPREHENSIVE FIRE SAFETY EFFECTIVENESS MODEL



of fire protection provided to a community.

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

FIGURE 3: COMPREHENSIVE MODEL APPLIED TO A TYPICAL FIRE DEPARTMENT



Utilizing the framework of the CFSEM and the fire protection service assessment processes developed by the OFMEM the primary objective of this FMP is to identify, through evidence-based analysis, the presence of any existing gaps in the current delivery of fire protection services within the Township of South Stormont. The FMP also identifies where options for optimizing the level of fire protection services may be available.

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

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

A further description of each line of defence includes:

I. Public Education and Prevention:

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

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

2.2.1.2

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

PFSG 00-00-01 (attached as **Appendix B**) provides an understanding of the municipal and provincial roles and responsibilities in terms of delivering fire protection services at the local level. The following is an excerpt from the background section of this guideline that states 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, PFSGs 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 in PFSG 00-00-01 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.*

2.2.1.3

PFSG 03-02-13 “Master Planning Process for Fire Protection Services”

PFSG 03-02-13 (attached as **Appendix C**) outlines the process to develop a Fire Master Plan as the strategic blueprint for the delivery of fire protection services that address the “*local needs and circumstances*” as defined by the FPPA, and in determining the level of fire protection services the community can afford.

Examples of the guiding principles of PFSG 03-02-13 that are applicable to the Township of South Stormont include the following:

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

2.2.1.4

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

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

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

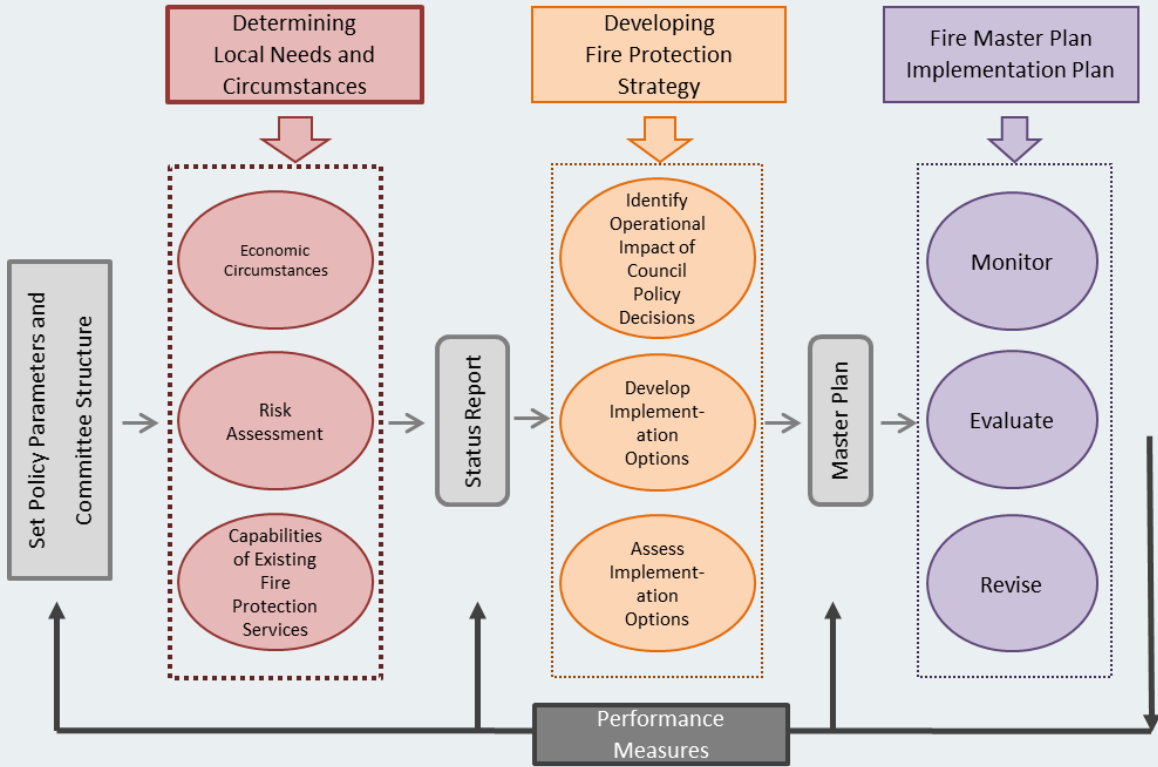
PFSG 01-01-01 describes a number of factors to be considered in conducting the review including:

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

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

Figure 4 reflects the framework for developing a plan for optimizing public fire safety.

FIGURE 4: FRAMEWORK FOR OPTIMIZING FIRE SAFETY



2.2.1.5

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

PFSG 04-08-10 (attached as **Appendix H**) 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 OFMEM 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.”

2.2.1.6

PFSG 04-40-03 “Selection of Appropriate Fire Prevention Programs”

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

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

2.3**Stakeholder Engagement Process**

The process of developing a Fire Master Plan for the Township of South Stormont involved various consultation activities. Effective communication and consultation with stakeholders is essential to the success of the plan. It is essential for two reasons. First, information is collected on local needs and circumstances which feed directly into this FMP. The second reason is to ensure that those responsible for implementing and affected by this Fire Master Plan, understand the basis on which certain decisions are made and why particular actions are required.

2.3.1

Project Steering Committee

The Project Steering Committee to develop this FMP was comprised of the following members, including Township staff and Council members:

- Full-time Fire Chief;
- Four Volunteer Deputy Fire Chiefs;

- CAO;
- Part-time Fire Prevention Officer;
- Mayor; and
- Manager, Public Works.

2.3.2 Project Meetings

Throughout this study, the Dillon team met with the Project Steering Committee to seek input and provide feedback to the planning process. The following meetings took place:

- Project Meeting #1 Project Initiation – June 16, 2015
- Project Meeting #2 Preliminary Findings – September 15, 2015

The Draft report will be presented to the Steering Committee and the Final Report will be presented to Council.

2.3.3 Internal Stakeholder Consultation

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

2.3.3.1 Interviews with Key Staff and Stakeholders

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

- Chief Administrative Officer (CAO)
- Full-time Fire Chief;
- Four Volunteer Deputy Fire Chiefs; and
- Administrative Assistant.

2.3.3.2 Volunteer Firefighter Stakeholder Sessions

Volunteer firefighter stakeholder sessions were held at each of the four fire stations within the Township. The sessions were held over two days – Monday, June 15th, and Tuesday, June 16th, 2015.

In total across the four sessions, approximately 39 volunteer firefighters participated in the stakeholder sessions. Attendees contributed to an open discussion designed to gather

feedback from the volunteer firefighters regarding the strengths, weaknesses, opportunities and challenges of the fire department for consideration in the Fire Master Plan.

2.3.3.3 Council Workshop

A council workshop was held with all members of Council with the intention of providing an overview on the Fire Master Planning process, municipal responsibilities, and some preliminary findings of the previously described stakeholder consultation sessions. This was an opportunity for reciprocal learning where Council could learn about the fire master planning process, and further insight could be provided to the Project Team regarding strengths, weaknesses, opportunities, and constraints facing the department. The presentation given to Council can be found in **Appendix J**.

2.3.4 Stakeholder Consultation Summary

The stakeholder sessions were informative in providing an understanding of the current state of the South Stormont Fire and Rescue. The majority of the stakeholders have a clear understanding of the history and actions that have led to this current state. From these sessions, there seemed to be consensus amongst the stakeholders that the SSFR does not currently operate as a single, unified fire service. However, amongst this same group there is a strong desire to achieve their shared goal of becoming a single, unified fire service.

Consensus is also shared that the strategies proposed to attain the goal of **one single, unified fire department** should not minimize the dedication and commitment of those that have served the SSFR in the past, currently or in the future.

3.0 Administration Division

The full-time Fire Chief is directly responsible for the overall administration of the South Stormont Fire and Rescue services. The Fire Chief reports directly to the Chief Administrative Officer (CAO) and then to Council. The Chief is supported by an administrative assistant that is shared with another department within the Township. The SSFR currently shares administrative support on a 50/50 basis with the public works department. The full-time Fire Chief and administrative assistant both have offices in the Township offices.

The SSFR utilizes a committee structure including the senior officers committee, training committee, prevention committee, and maintenance committee to facilitate the administrative and operational needs of the department. The roles and responsibilities of these committees are discussed within their respective division section of this FMP.

The senior officers committee includes the full-time Fire Chief as chair, four volunteer Deputy Fire Chiefs and four volunteer Assistant Deputy Fire Chiefs. This committee provides input into the overall administration of the SSFR through the senior officers meetings. These meetings are scheduled monthly and provide a forum for the senior officers to discuss items such as equipment replacement, training, new and ongoing initiatives of the department.

The Administration Division is responsible for the preparation and management of budgets, payroll, and personnel management, general administrative duties, arrange for medical services, and liaise with the Stormont, Dundas, and Glengarry County Fire Coordinator.

3.1 Vision and Mission Statements

The OFMEM identifies the importance of a fire department vision and mission statements 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 the goals and objectives of the department, identify the primary stakeholders (e.g., volunteer firefighters), and acknowledge the types of services and commitment of the department in order to achieve success.

The SSFR does not have a vision or mission statement. Creating vision and mission statements for fire and emergency services can be an excellent team building, and vision sharing exercise. This type of exercise would also create an opportunity to align the department with the strategic direction of the Township. The development of a vision and mission statement could be utilized as a strategy in team building and defining a shared vision for the South Stormont Fire and Rescue as ***“one single, unified fire department”***.

The mission statement should relate to the Office of the Fire Marshal and Emergency Management's OFMEM comprehensive fire safety effectiveness model's three lines of defence, as they cover life safety, prevention and education, and emergency response. Subject to Council's consideration and approval of this FMP, consideration should be given to ensuring that the mission statement reflects the strategic priorities outlined and recommendations contained within this FMP. Where possible, the mission statement should include more specific detail with regard to the types of services and programs to be delivered to the community, reflecting alignment with the "needs and circumstances" clause of the FPPA.

Once completed, it is recommended that the vision statement and mission statement of the department be posted in public, visible and prominent locations within all of the department's fire stations. The statements should also be included within any formal reports and correspondence emanating from the department.

During the stakeholder engagement, it was noted that there was a long history of the department that could be shared orally. However, no written sources were available that highlighted the long history of the department. As a part of the team building exercise to develop a single, unified vision and mission for the department, the history of the department could be recorded. This history could be shared on a municipal website, in a brochure or booklet format. The department has a long history of dedicated community members; recognizing this commitment through a written history shared with community members could be one way to recognize it.

It is recommended that South Stormont Fire and Rescue services undergo a team building exercise to develop vision and mission statements that reflect the framework of the OFMEM PFSG 03-02-13 "*Master Planning Process for Fire Protection*" and support the strategic priority of creating "**one single, unified fire department**".

3.2 Department Services

All services currently provided by the SSFR are included within the Establishing and Regulating By-law No. 2009-28 as approved by Council on March 11th, 2009 (and amended by By-law No. 2015-012). The following divisions are identified within the Establishing and Regulating By-law:

- Administration;
- Apparatus, Equipment and Communications (Maintenance);
- Fire Suppression;
- Fire Prevention; and
- Training.

This FMP includes recommendations to revise the organizational structure and divisions of the SSFR.

3.3

Department Staff Resources and Organizational Structure

The Department staff resources and the organizational structure are outlined within By-law No. 2009-28 that states *“In addition to the Fire Chief, the Department personnel shall consist of four (4) Deputy Fire Chiefs, four (4) Assistant Deputy Fire Chiefs, and such number of officers, and Members as from time to time may be deemed necessary by Council”*.

This section outlines the staff identified and their roles and the current organizational structure.

3.3.1

Current Organizational Structure

Council supported the recommendation of the 2008 OFMEM Review to hire a full-time Fire Chief. The current organizational structure of the SSFR represents the implementation of that decision. However, an analysis of the 2008 OFMEM Review suggests there was further reference to how the proposed organizational structure should also be implemented including:

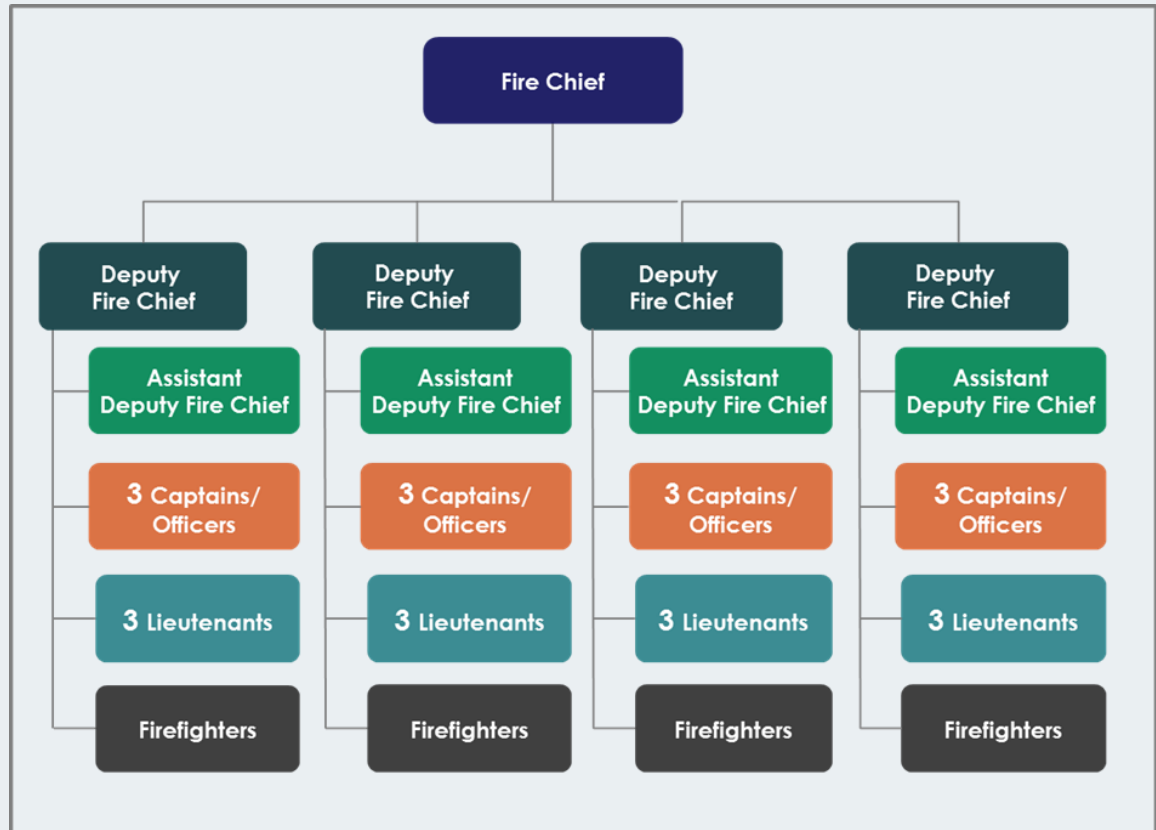
2008 OFMEM Review:

“During the interviews with the fire department it was strongly suggested that all of the existing senior officers should re-apply and compete for the senior positions in the department and be selected by a hiring process administered by the new Fire Chief”

This suggestion of the OFMEM was not applied when the organizational structure of the SSFR was revised. The organizational structure reflected in By-law No. 2009-28 identifies the organization of South Stormont Fire and Rescue when the full-time Fire Chief was appointed. This structure is shown in **Figure 5**. The current organizational structure of the SSFR as graphically represented and approved within the by-law does not represent the current organizational structure of the SSFR. It includes the position of lieutenant that does not exist. It does not reference training officers nor does it include the part-time administrative assistant, part-time fire prevention officer, nor does it reflect the divisions as established in the by-law.

The approved organizational structure continues to reflect the pre-amalgamation structure of operating four fire departments. The exception is that the ranks of each of the positions have been changed, i.e., current Deputy Fire Chiefs are the former Fire Chief positions, and current Assistant Deputy Fire Chiefs are the former Deputy Fire Chief positions.

FIGURE 5: CURRENT SOUTH STORMONT FIRE & RESCUE ORGANIZATIONAL STRUCTURE



(Source: Establishing & Regulating By-law No. 2009-28)

The approved structure reflects a ratio of nearly 40% of officer positions (volunteer deputy fire chiefs, volunteer assistant deputy fire chiefs, volunteer captains, and volunteer lieutenants) with the remaining 60% volunteer firefighters. This ratio of 40/60 is higher than typically utilized within the fire service that seeks to have a typical command structure of one officer for every three to four firefighters.

During the consultation with the firefighters at each station there was a consistent dialogue about the numerous changes in leadership at the fire chief level over the past few years. There were also comments about the differing cultures at each station, and several comments were raised about the level of trust and respect across the department. In our view, these are all symptoms of a fire department expressing frustration over a lack of clear goals and objectives.

Creating an organizational structure with the strategic goal of becoming **“one single, unified fire department”** will be a critical element of this FMP. Options to revise the organizational structure are contained within the fire suppression section of this FMP.

The current total staffing of the department is illustrated in **Table 1**.

TABLE 1: SOUTH STORMONT FIRE & RESCUE CURRENT STAFFING

Role / Division	# Full-Time	# Part-Time	Volunteer
Fire Chief	1	-	-
Deputy Fire Chief	-	-	4
Assistant Deputy Fire Chief	-	-	4
Captains	-	-	11
Training Officers	-	-	8
Chief Fire Prevention Officer	-	0.5	-
Fire Prevention Officers	-	-	8
Volunteer Firefighters	-	-	64
Administrative Assistant	-	0.5	-
Total Staffing:	1	1	99

3.3.2

Fire Chief (Full-Time)

The position of the Fire Chief is defined within By-law No. 2009-28. Within the by-law the role is defined as “*the person appointed by a by-law of the council of the municipality to act as Fire Chief for the delivery of fire protection services as defined by the Fire Protection and Prevention Act*” (p. 1). The Fire Chief reports to Council through the Township’s Chief Administrative Officer.

The position of full-time Fire Chief has been in place and recognized by Council since 2004. Unfortunately there has been a transition of individuals within this position that has hampered the progress of moving further towards “**one single, unified fire department**”. The current Fire Chief has been in place since September 2014 and exhibits the strong team building and leadership skills referenced within the 2008 OFMEM Review as being required to lead the department.

For each of the departmental divisions, the Fire Chief is responsible for ensuring that applicable duties are carried out. Duties related to Administration Division include ensuring that the following actions are met:

- Provide administration facilities for the Department;
- Prepare the Departmental budget and exercise control of the budget;
- Prepare the payroll of the Department and initiate requisitions for materials and services and certify all accounts of the Department;
- Maintain personnel records in accordance with the policy of the corporation;
- Arrange for the provision of medical services;
- Prepare the monthly report of the Department;
- Carry out the general administrative duties of the Department;

- Provide liaison with the Stormont, Dundas, and Glengarry (SDG) County Fire Coordinator; and
- Assist the SDG County Fire Coordinator in preparation of the Mutual and Automatic Aid Plan and Program for the United Counties of Stormont, Dundas, and Glengarry.

In addition to By-law No. 2009-28 the position of Fire Chief is also defined within the Township of South Stormont Position Mandate. The most recent position mandate was approved in September 2013 and describes the key responsibilities of this position including:

- Management and Leadership
- Provision of day-to-day leadership to and supervision of direct reports in the Fire Department (i.e., four Deputy Fire Chiefs), outside contractors and general management of the operations and service delivery of the Department.*
- Participation with the CAO and other Directors in Strategic Planning (i.e., current situation analysis, business/economic outlook, future legislation impact, setting/updating of Fire related goals and strategies).
- Preparation and submission of the annual business plan and budget (operating and capital) for the Fire Department; participation as required in the review and approval process with Council.
- Monitoring of the administrative performance of the Fire Department against business plan and budget; preparation and submission of periodic performance reports to the CAO with initiation of corrective action as necessary.
- Review and approval of contracts and purchase orders according to policies and limits established by Council.
- Development and recommendation of new or revised policies for the Fire Department.
- Participation as a member of the Senior Management Team of the Township; acts as a project leader (when assigned) on Corporate-wide improvement project(s).
- Acts as Incident Commander at emergency and disaster scenes.
- Provision of inputs to the CAO re: maintenance of harmonious employee relations in the Fire Department and the active promotion of health and safety practices for the public, employees and suppliers/contractors.
- The position mandate and by-law should be consistent in defining the roles and responsibilities of this position.

This FMP includes a recommendation to update Establishing and Regulating By-law No. 2009-28 subject to Council's consideration and approval of the recommendations contained within this FMP. In the process to update this by-law consideration should be given to consistency with the position mandate and the strategic priority of moving towards ***“one single, unified fire department”***.

3.3.3 Deputy Fire Chiefs (Volunteer)

Reporting to the full-time Fire Chief are the four volunteer Deputy Fire Chiefs. These positions are authorized by By-law No. 2009-28, the Establishing and Regulating By-law. Within this by-law, the role of the volunteer Deputy Fire Chiefs is defined as *“four (4) persons appointed by by-law of the council of the municipality 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”* (p. 1).

In terms of the duties of the volunteer Deputy Fire Chiefs, the Establishing & Regulating By-law No. 2009-28 (9) states that *“The Deputy Fire Chief is responsible to the Fire Chief for the activities of the divisional functions that are supervised by the Deputy Fire Chief; and the Deputy Fire Chief shall perform all duties of the Fire Chief in the Fire Chief’s absence.”*

It is not clear within the by-law what divisional functions the four volunteer Deputy Fire Chiefs are responsible for individually. It is also not established who would be an Acting Fire Chief in the absence of the Chief. However, further detail on the position of the volunteer Deputy Fire Chiefs is described by SOG 25.02-09 (dated February 2009) and includes:

- Evaluate emergency operations by receiving and reviewing relevant information with the intent to minimize loss of life and property;
- Perform incident command at emergency operations;
- Manage fire department personnel through leadership, evaluation, monitoring, communication, and planning so that staff will function efficiently and effectively;
- Manages fire department divisions by developing a competent management team using a system of management by objectives and incorporating measurable performance indicators so that the department can be directed;
- Facilitates the development and implementation of fire department plans;
- Coordinates the development of capital and operating budgets by identifying and recommending priorities for operating requirements, determining costs and preparing justifications;
- Administers capital and operating budgets by reviewing previous years’ budgets; and
- Ensures compliance with fire codes, building codes, and municipal by-laws.

The roles and responsibilities of the four volunteer deputy fire chiefs as contained within the current Establishing and Regulating By-law No. 2009-28, and SOG 25.02-09 reflect many of the pre-amalgamation roles and responsibilities and organizational structure. There is significant overlap between the roles and responsibilities of the full-time Fire Chief and the four volunteer Deputy Fire Chiefs based on these documents.

The research for this FMP supports that the previous organizational structure and the four department model (four fire stations) in place prior to amalgamation served the former communities very well. There continues to be evidence of the commitment and dedication of the volunteer firefighters to serve and protect their community. However, through process of amalgamation the definition of “community” now represents the broader Township of South

Stormont, and to achieve the strategic priority of moving towards “*one single, unified fire department*” will require recognition, ongoing support and commitment of the volunteer firefighters.

Further analyses and recommendations regarding workspace are contained within **Section 7.8** and **Section 7.12** of this FMP.

3.3.4 Administrative Assistant (Part-time)

The 2008 OFMEM Review highlighted the importance of providing administrative support to the Fire Chief and the broader functions of the department. Administrative support has become a core function within the fire service in response to increasing demands such as the following identified by the 2008 OFMEM Review:

2008 OFMEM Review:

“Increased documentation required by all levels of government for operational matters, including vehicle responses, training records, detailed reports for court cases and injury reports to municipal and provincial agencies”.

The current Administrative Assistant has been providing part-time support to the fire department for just over one year. The current individual is a full-time staff member of the Township of South Stormont with duties split approximately 50% between the Fire Department and Public Works Department. While the role is not currently reflected in the fire department organizational structure, the part-time Administrative Assistant reports to the full-time Fire Chief and is responsible for providing administrative support to the SSFR.

Currently, within the fire department there is no formal job description or defined roles and responsibilities for the Administrative Assistant position. The recommendations of this proposed FMP identify several areas including fire prevention, public education and training where additional programs and activities are recommended. To support these additional programs and activities, as well as the recent purchase of IMS Fluent software, additional administrative support will be required.

Within the proposed organizational structure of this FMP consideration was also given to expanding the roles and responsibilities of this position to include many of the administrative functions currently completed by volunteer Deputy Fire Chiefs and volunteer Assistant Deputy Fire Chiefs to provide greater consistency across the department.

Consideration should be given to defining the roles and responsibilities of this position within a position mandate including consideration of the following:

- Support the Fire Chief in preparing reports to Council;

- Preparation of interoffice memorandums and letters, tenders, quotations, requests for proposal, and promotional/recruitment examinations for firefighters;
- Coordinating fire prevention correspondence, fire marshal orders and zoning and site plan comments;
- Initial point of public inquiries, respond to questions, transfer calls to appropriate individuals, or screen calls and relay messages;
- Maintain administration/prevention/training/maintenance files;
- Process capital and operating budget invoices ;
- Co-ordinate course/conference and/or seminar attendance and registration;
- Coordinate payroll for volunteer firefighters and submit to payroll clerk;
- Sort and distribute various Fire Department forms/mail; and
- Coordination of departmental meetings and preparing of meeting agendas, and minutes.

It is recommended that a formal job description be created for the Administrative Assistant role within the South Stormont Fire and Rescue.

It is recommended that consideration be given to transitioning the position of Administrative Assistant within the South Stormont Fire and Rescue to full-time within the short-term horizon (1 to 3 years) of the proposed Fire Master Plan

3.4 Administrative Workspace

Currently, the workspace (offices) of the full-time Fire Chief and part-time Administrative Assistant are located at the Township office. Shared administrative workspace (office space) can be found in all of the stations for the respective volunteer Deputy Fire Chiefs and volunteer Assistant Deputies.

Through stakeholder engagement, it was heard that current administrative workspace functioned well. (Other than those located in stations where the station is at the end of its life-cycle.) Within the Stations, the administrative work spaces are separated from training areas as well as the apparatus room. These spaces, although shared, appear to be meeting the needs of the staff using these spaces.

The current part-time Fire Prevention Officer is sharing the administrative office space at Station 1. This is a temporary solution as the part-time Fire Prevention Officer is currently a contracted position. This FMP provides further discussion and recommendations related to this position that subject to approval will require further consideration of permanent office space for this position.

Within this FMP there are options for considering alternate fire station locations and the number of stations. In our view, as part of considering these options consideration should be given to developing one of these stations as a headquarters for the South Stormont Fire and Rescue. This strategy would provide the opportunity to locate workspace (offices) for all of the

full-time staff, and administrative functions under one roof in a centralized location. This strategy also presents a unified vision to the community of **“one single, unified fire department”**.

Further analyses and recommendations regarding workspace are contained within **Section 7.8** and **Section 7.12** of this FMP.

3.5 Annual Report

The “Optimizing Public Fire Safety” model recognizes the importance of ongoing monitoring, evaluation and revisions to the fire protection services approved by Council. Fire services across the province have utilized Annual Reports to Council as a tool to provide a high degree of accountability and transparency on behalf of the Fire Chief in reporting to the community and Council on the level of fire protection services provided.

This regular reporting process is also an ideal opportunity to update the Community Risk Profile and fire related by-laws and can provide further value in identifying changes or trends within the community. The full-time Fire Chief currently provides Council with monthly reports per the Establishing and Regulating By-law No. 2009-28. These reports give Council an update of:

- Monthly significant events;
- Fire loss for the month, the year to date, and the past two years;
- Year to date emergency calls by type; and
- Month and year to date prevention and public education activities.

Consolidating the data presented within the current monthly reports, and providing further analyses to identify emerging trends, would further enhance Council’s role in ongoing monitoring and evaluation of the fire protection services provided by the SSFR.

It is recommended that the Fire Chief be directed to prepare a fire department Annual Report including an updated Community Risk Profile for consideration by Council.

3.6 By-Laws

By-laws common to a municipal fire service include the Establishing and Regulating By-law, appointment by-laws, and fees for service by-laws.

3.6.1 Establishing and Regulating By-Law

The Establishing and Regulating By-law for a fire department should provide clear and accurate policy direction reflecting how a municipal council intends fire protection services to function and operate. PFSG 01-03-12 “*Sample Establishing and Regulating By-law*” (**Appendix K**) prepared by the OFMEM provides a description of the primary issues to be addressed, as well

as a template for completing an Establishing and Regulating By-law. The primary components identified by the OFMEM include the following:

- 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 operations.

The Township of South Stormont has an establishing and regulating by-law in place that was approved on March 11, 2009. By-law No. 2009-28 includes an over view of the duty of the Fire Chief as well as the suppression and rescue services provided by each station. The review of By-law No. 2009-28 identified a number of items that should be updated, or alternatively be reviewed as a result of considering the recommendations of this FMP. The by-law does not:

- Clearly delineate the roles of the Deputy Fire Chiefs;
- Clearly establish core services and service levels;
- Outline goals and objectives of the department;
- Include the Fire Prevention Policy as an appendix; and
- Reflect the strategic Priorities of the South Stormont Fire and Rescue.

3.6.2 Appointment By-Laws

Fire Chief: The FPPA requires a municipality to appoint a fire chief through the approval of a municipal by-law. The Township of South Stormont approved By-law No. 2014-077 on September 8, 2014 appointing the current full-time Fire Chief.

Deputy Fire Chiefs: The deputy fire chiefs are appointed through By-law No. 2015-024 read and passed by Council on February 18th, 2015.

Assistant Deputy Fire Chiefs: The most recent by-laws appointing assistant deputy fire chiefs are By-laws No. 2009-0030, and No. 2009-046 dated April 22, 2009, and No. 2015-024 dated February 18th, 2015.

Further analysis and recommendations regarding the appointment of these positions, see **Section 7.13** of this FMP.

3.6.3 Rates and Fees By-law

By-law No. 2015-059 was approved by Council on May 27th, 2015 providing the authority for the Township to impose fees or charges with respect to activities provided by the Township. "Schedule H" of this by-law identifies the various services and activities for which the fire

department can recover fees. The current fees for services provided by SSFR are displayed in **Table 2**.

The Township applies the most recent Ontario Ministry of Transportation rate for cost recovery of fire department response services on Provincial Highways. This relates to the cost of an emergency response including personnel and apparatus. This rate is currently \$410.00 per vehicle for the first hour, for up to three vehicles, and \$205.00 per vehicle per half hour thereafter. The Township applies this rate to various emergency response services, including burning permit violations, false alarm calls (after the second false alarm within a one year period), and fire guard request. Analysis indicates that these current rates and service charges are consistent with those of other comparable municipalities.

There are a number of other services and activities included within this by-law for recovering costs such as those related to fire inspections and burning permits which have lower rates and fees than those of other municipalities.

It is not uncommon for a department to not be recovering costs for all services provided. In some instances, this can in part be associated with not reviewing the rates and fees on an annual basis in comparison to actual costs and/or to a group of comparator municipalities, as well as changes in service delivery such as proposed within this plan. In the Township of South Stormont, the full-time Fire Chief reviews the rates and fees related to the delivery of fire protection services as part of the corporate management team's annual operating budget review and preparation. The Township's finance department also reviews the fees and charges within the United Counties of Stormont, Dundas, and Glengarry on an annual basis. Based on a brief review of fees from other municipalities, a revised fee schedule for consideration as part of the annual corporate review is presented in **Table 2**.⁵

TABLE 2: SUMMARY OF 2015 FEES FOR SERVICE & REVISED FEE FOR CONSIDERATION

Service	Unit/Description	Current Fee (No Tax)	Revised Fee for Consideration
Fire Guard Requests	Per Hour Per Truck	\$410.00*	No Change
False Alarms, within a one (1) year period			
first false alarm	First Notice	No Fee	No Change
second false alarm	N/A	\$100.00	No Change
third false alarm	Per Hour Per Truck	\$410.00*	No Change
Cost for taking action to prevent	Per Hour Per Truck	\$410.00*	No Change

⁵ Other municipal fees reviewed included those from the: Township of Wilmot, Town of Innisfil, Township of Essa, City of Brockville, Municipality of Brighton, Town of Kapuskasing, and the City of Cornwall.

Service	Unit/Description	Current Fee (No Tax)	Revised Fee for Consideration
or fight a fire and/or use of (auto) extrication equipment on Provincial Highway			
Request for File Search	Per File	\$25.00	\$75.00
Request for Incident Report	Per Report	\$40.00	\$50.00
Compliance Letter – Third Party requests, e.g., lawyers, insurance companies (written request received; search of files will be conducted and written response provided from the Fire Chief)	Per Letter	\$40.00	\$60.00
Special Occasion Permit / Inspection LCBO Inspection	Per Inspection	\$85.00	\$100.00
Wood Energy Technology Transfer (WETT) Inspection (solid fuel appliance inspection)	N/A - Services provided by private certified individual(s)		N/A
Licensed Day Care Inspection	Per Inspection	\$75.00	No Change
Transient Trader License Inspection	Cost of this inspection is included in the cost of the Transient Trader License as per Schedule "A" of By-Law 2015-059		N/A
Other Inspection – e.g., Ready to Learn Programs at schools	Per Inspection	No Fee	No Change
Open Air Burn Permit	Per Permit	\$10.00	\$40.00
Individuals in contravention of By-law No. 2009-40, being a by-law to regulate conditions where fires may be set in the open air	Per Hour Per Truck	\$410.00*	No Change
Special event(s) for Fire Protection / Stand-by Supervision only	Per Event	Cost Recovery Fees i.e., personnel, equipment, apparatus, and materials	No Change
Rental of Fire Station	Per Hall Per Hour	\$20.00	No Change

*Current Ministry of Transportation rate (full cost recovery)

3.6.4 Additional By-Laws

Through resolution of Council the Township of South Stormont has approved a number of additional by-laws that provide valuable insight into the operation of the SSFR, these include:

By-law No. 2003-0016: to appoint Recognized Authorities and a Signing Authority for the purpose of developing and maintaining training programs for the Fire Departments within the Corporation of the Township of South Stormont.

By-law No. 2007-25: to impose a fire ban in the Township of South Stormont.

By-law No. 2007-93: that prescribes the time for setting fires in the Township of South Stormont and the precautions to be observed.

By-Law No. 2009-40: that regulates conditions where fires may be set in the open air in the Township of South Stormont.

By-Law No. 2015-12: that amends By-law No. 2009-28 (to establish ice water rescue as a core service at each station).

3.7 Development Charges

The Township of South Stormont has chosen not to exercise its power through the *Development Charges Act, 1997* to charge fees for development. With no development charges and low application and building permit fees, the cost of development in the Township is low.

Eligible categories for inclusion in the collection of development charges are fire stations and firefighting apparatus (including rescue vehicles, pumpers, and aerial devices). Small equipment and protective gear are also eligible. In recent years the definition of small equipment and gear has been cause for much discussion within the industry. This discussion has been led by fire chiefs identifying the high initial capital costs and direct relation of this small equipment and gear to the overall operational functional capability of a fire station and the fire department.

More recent development charge reviews have included consideration of the equipment assigned to the apparatus and station as being within the definition of equipment. Given the escalating costs of equipment such as Self-Contained Breathing Apparatus (SCBA), hose, auto extrication equipment, and equipment such as portable pumps this is an important consideration. Including firefighter protective clothing (bunker gear) has also been identified as a consideration. It is also relevant to consider equipment that is “fixed” to the fire station such as SCBA air filling and air compressor systems that can reflect an initial capital cost in excess of \$100,000, in addition to ongoing air testing and maintenance costs.

3.8 Service Agreements

Within the fire services there are multiple approaches to sharing services or procuring services including mutual aid, automatic aid, tiered response, and dispatch agreements. South Stormont Fire & Rescue has service agreements for emergency planning, automatic aid, hazardous materials, and dispatch.

3.8.1 Mutual Aid Agreement – Fire Suppression

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

The review for this FMP indicates that there is currently no formal mutual aid agreement in place between the United Counties of Stormont, Dundas, and Glengarry regarding working together to provide fire suppression services as described in the scenarios above. Consideration should be given to developing this type of agreement following the consideration and approval of this FMP.

3.8.2 Mutual Assistance Agreement – Emergency Planning

The Township of South Stormont is an active participant in an agreement with the United Counties of Stormont, Dundas, and Glengarry in the form of a Mutual Assistance Agreement for Emergency Planning. This agreement means that the townships within the United Counties and the City of Cornwall can request assistance from each other in the event of an emergency.

Our interpretation of this agreement is that it focuses on the sharing of qualified personnel, services, equipment or material in the event of a significant community emergency. This plan identifies the Chief Administrative Officer of the respective municipality as the primary person responsible for requesting assistance within this agreement. Within the Township's Emergency Response Plan (2015), this mutual assistance agreement is realized through Part 5: Request for Assistance. The Emergency Response Plan states that the Township may request assistance from the United Counties at any time by contacting the warden.

Although it is possible that this agreement could be applied to a fire related emergency, its focus as referenced in the by-law is for the purpose of emergency planning. Consideration

should be given to using this agreement as the framework for developing the mutual aid fire suppression agreement discussed in **Section 3.8.1**.

3.8.3

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 South Stormont Fire and Rescue is an active participant in the following agreements:

- Automatic Aid Agreement with Township of South Dundas (By-law No. 2012-18);
- Automatic Aid Agreement with Township of South Glengarry (By-law No. 2011-74);
- Hazardous Materials Response Agreement with the United Counties of Stormont, Dundas, & Glengarry (By-law No. 10-2004) which enables a Hazardous Materials Response agreement with the City of Cornwall.
- The agreement with South Glengarry was signed in August 2011 for a five year term where South Glengarry provides fire protection services to 18065 Glen Falloch Road. The agreement with South Dundas likewise encompasses a specific portion of the Township of South Dundas, but with service provided by the Township of South Stormont.
- The hazardous materials response agreement between the Township and the United Counties of Stormont, Dundas, & Glengarry enables the agreement between the United Counties and the City of Cornwall. It is this latter agreement between the United Counties and Cornwall that details the level of service the Cornwall Fire Department is to provide to the Township of South Stormont. This agreement states that the City of Cornwall is to provide “an efficient and reliable hazardous material response team on a twenty-four hours per day, seven days per week service”. The agreement also states that the Cornwall Fire Department will provide annual training to the United Counties (the Townships) up to an awareness and operations level of

training. This agreement would also enable the local fire departments to assist the Cornwall Fire Department in the case of an emergency.

3.8.4 Tiered Response Agreement

Within the Province of Ontario emergency response to incidents involving medical aid by the local fire department are commonly included within a regional tiered response agreement. These agreements are valuable in defining the emergency medical levels of service that a fire department will provide in the context of the regionally based provision of ambulance services. The South Stormont Fire and Rescue signed a Tiered Response Agreement with the Cornwall, Stormont Dundas, and Glengarry Emergency Medical Services, and the Ottawa Central Ambulance Communications Centre on May 1, 2012. The agreement is in effect to April 30, 2017.

This agreement was further established through By-law 2013-43. Per the by-law, the Ottawa Ambulance Communications Centre will notify the SSFR for the following conditions at the request of an on-scene crew: not awake (unresponsive, unconscious); and cardiac or respiratory arrest.

As stated in the agreement, “patients residing in a long-term care facility, they are exempt from the tiered response criterion, unless requested by a paramedic crew.”

3.8.5 Dispatch Services Agreement

Dispatch and paging services are currently provided by the City of Brockville Fire Department, under a contract, fee for service agreement. The current agreement covers a five year term commencing January 1, 2012. The agreement defines the fees associated, operations, governance structure and protocols to be followed.

Best practices in Ontario for the provision of emergency call taking and dispatching reflects the use of the National Fire Protection Association (NFPA) “*1221 Standard for the Installation, Maintenance, and Use of Emergency Services Communications Systems*” as the guideline for provision of services. This standard has recently been revised. 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 NFPA standard states that 95% of alarms shall be answered in 15 seconds and 99% of alarms shall be answered in 40 seconds. Alarm processing is the point from when an alarm is answered and then transmitted to the fire department. When it comes to alarm processing, 90% alarm processing shall be completed in 64 seconds and 95% of alarm processing shall be completed in 106 seconds. If a call is to be transferred, the transfer from a primary safety

answering point to a secondary answering point shall not exceed 30 seconds in 95% of incidents.

The dispatch agreement with the City of Brockville outlines performance measures. According to the agreement, the Brockville Fire Department shall:

- Answer 95% of alarms within 20 seconds;
- Answer 99% of alarms within 40 seconds; and
- Complete 95% of the emergency dispatching within 60 seconds.

It is recommended that consideration be given to updating the dispatch services agreement with the City of Brockville to reflect the 2016 Edition of NFPA 1221 Standard.

3.9 Emergency Planning

Fire departments play an integral role in emergency preparedness. This section provides an overview of municipal standards for emergency planning and the Township's Emergency Response Plan.

3.9.1 Municipal Standards for Emergency Planning

Under the Ontario *Emergency Management and Civil Protection Act*, the Solicitor General has authority to make regulations setting standards for the development, implementation and maintenance of emergency management programs required by communities. It is the responsibility of every municipality, minister of the Crown and designated agency, board, commission and other branches of government to ensure that their respective emergency management plans conform to the standards set within the Act. The Act also requires every municipality to adopt the emergency management program by by-law.

The Office of the Fire Marshal and Emergency Management has a core emergency program, with elements focused on supporting emergency preparedness and response activities. The program requires designating a Community Emergency Management Coordinator (CEMC), having a written emergency response plan and forming a program committee. Part II of the *Ontario Regulation 380/04* lays out the Municipal Standards for emergency management.

There are six main standards, relating to:

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

Emergency Response Plans – the last item in the list - are often used to describe the roles and structure of the other standards. The Township’s Emergency Response Plan (updated in January 2015) is authorized by By-law No. 2011-059.

3.9.2 Community Emergency Management Organization

Per the Township’s Emergency Response Plan there are three primary components of the overall emergency management organization: site incident management team; emergency operations centre incident management team; and a community control group. The Community Control Group (CCG) is the group responsible for providing strategic direction to the Head of Council (mayor or alternate) on procedural items such as overall response strategy, incident support, and appointment of incident command. The CCG is comprised of specific individuals as listed below (or their alternates):

- | | |
|--|---|
| 1. Mayor of the Township of South Stormont | 7. Medical Officer of Health |
| 2. CAO | 8. Manager, Cornwall / United Counties of Stormont, Dundas, and Glengarry Social Services |
| 3. United Counties of Stormont, Dundas, and Glengarry OPP Detachment Commander | 9. Community Emergency Management Coordinator (CEMC) |
| 4. Designated Senior Fire Official | 10. Emergency Information Officer |
| 5. Manager, Cornwall / United Counties of Stormont, Dundas, and Glengarry Emergency Medical Services | 11. CCG Scribe |
| 6. Director of Public Works | |

While the duties of the above identified positions are detailed in the Emergency Response Plan, there are two roles most pertinent to this FMP: senior fire official and CEMC.

3.9.3 Role of the Community Emergency Management Coordinator

As described by OFMEM, the CEMC is responsible for the development, implementation, and maintenance of the community’s emergency management program. In the case of an emergency, the Township’s Emergency Response Plan (2015) listed CEMC responsibilities include:

- a) *Set up the EOC ensuring all have the necessary plans, resources, supplies, maps and equipment;*
- b) *Opens and maintains the main event log;*
- c) *Provides advice and clarification about the implementation details of the emergency response plan;*

- d) *Ensures that the operation cycle is met and related documentation is maintained and kept for future reference;*
- e) *Assumes the responsibilities of the Emergency Operations Centre (EOC) Planning Section Head in the EOC incident management team;*
- f) *Maintains the records and logs of the CCG and incident management teams for the purpose of the debriefs and post-emergency reporting;*
- g) *Supervises the EOC and Emergency Information Centre (EIC) decommissioning activities;*
- h) *Produces the post-emergency report; and*
- i) *Replenishes the EOC and EIC supplies in preparation for the next emergency.*

Currently the CEMC position is filled by the full-time fire chief of the SSFR.

3.9.4 Role of the Senior Fire Official

The role of the designated senior fire official during an emergency is outlined within the Emergency Response Plan (2015). These responsibilities of the senior fire official on the CCG include:

- a) *Provides the CCG with information and advice on firefighting and rescue matters;*
- b) *Informs the Mutual Aid Fire Coordinator and trigger mutual aid arrangements for the provision of additional firefighting manpower and equipment if needed;*
- c) *Determines if additional or special equipment is needed and recommend possible sources of supply (e.g., breathing apparatus, protective clothing);*
- d) *Provides assistance to other municipal departments and agencies if necessary; and*
- e) *Provides an Incident Commander if required.*

The role of the designated senior fire official reflects an important operational role. This is the type of role that would typically be suited to a fire chief. A fire chief would have intimate knowledge of the Township as a whole from the perspective of fire and rescue services. Likewise, the position of CEMC plays an important role in a real emergency. Overall the roles and responsibilities of the CEMC are primarily administrative. In instances where the fire chief is identified as the primary CEMC, a conflict may result in the case of an actual emergency. The fire chief may be committed to an operational role within the fire department.

In a community the size of the Township, the regular roles and responsibilities of senior staff can quite often be the most needed since there is a limited number of senior staff. For this reason it is recommended that the position of CEMC be assigned to someone other than the fire chief. Assigning this role to a position within the municipality with related administrative capabilities may provide a more effective strategy in managing the ongoing maintenance and implementation of the Emergency Response Plan. It may, however, be desirable to designate the fire chief as the alternate CEMC.

It is recommended that consideration be given to identifying alternatives for the role of CEMC.

3.10 Departmental Policies and Standard Operating Guidelines

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

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

- 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.

Best practices and the OFMEM indicate that creating and empowering a committee of fire service staff to research, develop, and draft standard operating procedures can be a successful model for administering these core documents. Activities that impact on firefighter safety, the most common emergency operations, or high risk operations should be the top priority for a fire and emergency service to have in place.

Standard operating procedures are required to be finalized and approved by the Fire Chief. Procedures should then be in place within the fire department to ensure that these procedures are distributed to and comprehended by all relevant staff and followed as directed. Applicable procedures to record this process of developing, approving and distributing must be in place to ensure due diligence on behalf of the fire department and the Township, as the employer.

Health and safety is an essential consideration for fire and emergency services. In addition to the relevant sections of Ontario's *Occupational Health and Safety Act* (OHS) the fire service is also required to comply with the OHS Section 21 Guidance Notes.

The 2008 OFMEM Review highlighted the importance of providing clarity to policies, procedures and operational guidelines.

The full-time Fire Chief currently leads an ongoing process of reviewing and updating department guidelines and procedures. Subject to Council consideration and approval of this FMP there will be a need to conduct a review of all existing guidelines and procedures and where necessary complete revisions or develop additional guidelines or procedures to reflect all levels of service approved by Council. Completing this review will reflect the departments continued priority of updating policies and guidelines with emphasis on compliance with the OHS Section 21 Guidance Notes.

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

It is recommended that consideration be given to enhancing the current process for developing and approving department policies, procedures and operational guidelines by developing distinct formats for all Department Policies (DP’s) and Standard Operating Guidelines (SOG’s) including a date of approval by the Fire Chief or designate.

3.11 Departmental Records Management

Records and reports are an important component of fire department administration. The SSFR has recently implemented a new software program to integrate the records management process. Fluent IMS, an information management system, provides records management and reporting capabilities to the department. The SSFR is now utilizing the program to manage records related to prevention, training, incident reporting, and payroll.

Included with the software license is a training service to “train the trainer”. Implementing this type of electronic data management system does require additional training and appropriate licensing in order to achieve the full efficiency of the program. Typically through these types of agreements, there is only one license in place for use by the SSFR. This could limit the efficiency and effectiveness of this software. This may also be limiting the training and holistic application of this software by the various potential users within the department.

Especially with the recent purchase of the Fluent IMS records management software, the SSFR would benefit from developing a Standard Operating Guideline around records management. Such a document would establish guidelines for the maintenance of records and reporting. An SOG could also guide internal records of SSFR activities as well as clearly outline how reporting to OFMEM is carried out.

3.12 Strategic Priorities

The purpose of this FMP is to provide Council and senior staff with a strategic framework to assist in making decisions regarding the provision of fire protection services. This FMP 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 current Public Fire Safety Guidelines and the 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 Comprehensive Fire Safety Effectiveness Model and Fire Risk Sub-model are examples of the OFMEM documents that have been referenced to prepare this Fire Master Plan.

Dillon's interpretation of Council's commitment to the community garnered through the consultation process in developing this FMP is to provide the optimal level of fire protection services as determined through the analysis of the needs and circumstances of the Township of South Stormont as referenced in the FPPA, and in achieving the most effective and efficient level of fire protection services resulting in the best value for the community.

The analyses within this report recognize four strategic priorities for the delivery of fire protection and emergency services within the Township of South Stormont including:

- i. Recognize the historical dedication and commitment of the members of the South Stormont Fire and Rescue in the transition to **“one single, unified fire department”**;
- ii. The utilization of a Community Risk Profile 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 to be provided by the South Stormont Fire and Rescue services;
- iii. The optimization of the first two lines of defence including public education and fire prevention, and the utilization of fire safety standards and fire code enforcement to provide a comprehensive fire protection program within the Township based on the results of the Community Risk Profile; and
- iv. Emphasis on strategies that support the sustainability of fire protection and emergency services that provide the most effective and efficient level of services resulting in the best value for the community.

It is recommended that consideration be given to approving the strategic priorities identified within the proposed Fire Master Plan to guide the development and delivery of fire protection and emergency services within the Township of South Stormont.

3.13

Administration Division Summary and Recommendations

The current organizational model of the SSFR has evolved through the process of community amalgamation to its current state. Under the leadership of the current full-time Fire Chief the SSFR continues to rely on the dedication and commitment of volunteer firefighters as the primary providers of fire protection, fire suppression services.

Through the approval of this master fire planning process Council has indicated a strong desire to sustain the use of volunteer firefighters as the primary providers of fire suppression services within the Township. However, past and current members of Council and members of the fire department have, through their ongoing support, recognized the intrinsic value of working with neighbouring communities to achieve the most effective and efficient level of fire protection services resulting in the best value for the community.

This master fire planning process reflects an opportunity to assess all of the various activities and programs provided by the SSFR, including options for enhancing the organizational model of the department. The following recommendations are presented for Council's consideration in support of achieving the strategic priorities of the FMP.

Recommendations for the Administration Division include the following:

1. *That South Stormont Fire and Rescue services undergo a team building exercise to develop vision and mission Statements that reflect the framework of the OFMEM PFSG 03-02-13 "Master Planning Process for Fire Protection" and support the strategic priority of creating "one single, unified fire department";*
2. *That a formal job description be created for the Administrative Assistant role within the South Stormont Fire and Rescue;*
3. *That consideration be given to transitioning the position of Administrative Assistant within the South Stormont Fire and Rescue to full-time within the short-term horizon (1 to 3 years) of the proposed Fire Master Plan;*
4. *That the Fire Chief be directed to prepare a fire department Annual Report including an updated Community Risk Profile for consideration by Council.;*
5. *That consideration be given to updating the dispatch services agreement with the City of Brockville to reflect the 2016 Edition of NFPA 1221 Standard;*
6. *That consideration be given to identifying alternatives for the role of CEMC*
7. *That consideration be given to enhancing the current process for developing and approving department policies, procedures and operational guidelines by developing distinct formats for all Department Policies (DP's) and Standard Operating Guidelines (SOGs) including a date of approval by the Fire Chief or designate;*
8. *That consideration be given to approving the strategic priorities identified within the proposed Fire Master Plan to guide the development and delivery of fire protection and emergency services within the Township of South Stormont, including:*

- i. *Recognize the historical dedication and commitment of the members of the South Stormont Fire and Rescue in the transition to “one single, unified fire department”;*
- ii. *The utilization of a Community Risk Profile 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 to be provided by the South Stormont Fire and Rescue services;*
- iii. *The optimization of the first two lines of defence including public education and fire prevention, and the utilization of fire safety standards and fire code enforcement to provide a comprehensive fire protection program within the Township based on the results of the Community Risk Profile; and*
- iv. *Emphasis on strategies that support the sustainability of fire protection and emergency services that provide the most effective and efficient level of services resulting in the best value for the community.*

4.0

Community Risk Profile

The Office of the Fire Marshal and Emergency Management Fire Risk Sub-model introduces the importance of community risk in the following paragraph:⁶

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

Community fire risks are further explained in detail within the OFMEM’s Fire Risk Sub-model as follows:

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

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

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

Utilizing the framework provided within the OFMEM’s Fire Risk Sub-model provides the opportunity to assess the potential fire risk scenarios that may be present by creating a Community Risk Profile. The profile can then be used to assess the current level of fire

⁶ Source: *Comprehensive Fire Safety Effectiveness Model, Fire Risk Sub-Model*, June 2009, Office of the Fire Marshal, Ontario

protection services provided, and identify where, if any, potential gaps exist, or areas that a municipal Council may want to consider in determining its own needs and circumstances as defined by the FPPA.

The detailed Community Risk Profile is contained within **Appendix M** and contains detailed analyses of the eight key factors identified OFMEM's *Fire Risk Sub-model*.

4.1 Community Risk Profile Summary

The Community Risk Profile for the Township of South Stormont represents similar levels of risk that would be expected in comparable municipalities within Ontario. This includes municipalities with agricultural roots, residential settlements, and some employment land uses.

4.1.1 Property Stock

The Township of South Stormont represents the typical property stock profile that would be found in comparable municipalities. Residential occupancies (Group C) make up the majority of the SSFR response area at 93.9% of the building stock, reflecting the profile of a typical of similarly sized community. The second largest percentage of property stock (3.4%) consists of business and personal services (Group D) and mercantile (Group E). The township's other occupancies include Group F – Industrial (1.7%), Group A – Assembly (0.6%), and Group B – Detention, Treatment, or Care (0.0%) at three occupancies.

The analysis of the Property Stock Profile for the Township confirms that the largest percentage of major occupancies (93.9%) is Group C - Residential. Significant priority should be given to developing a Fire Master Plan that reflects the risks associated with this occupancy category. A key element in mitigating residential risks is maximizing the use of all three lines of defence.

The priority of addressing the residential fire risk is supported by historic data provided by the Office of the Fire Marshal and Emergency Management that reports for the period from 2009 to 2013 residential fires accounted for 72% of all structure fire losses and for the period from 2004 to 2013 residential fires accounted for 85% of all fire fatalities.⁷

⁷ "Ontario Fatal Fires: Summary." Ministry of Community Safety and Correctional Services. 8 Dec. 2014. Web. 5 Sept. 2015.

"Fire Loss in Ontario 2009-2013 Causes, Trends and Issues." Ministry of Community Safety and Correctional Services. 26 Mar. 2015. Web. 5 Sept. 2015.

4.1.2 Building Height & Area

An analysis of the buildings within the Township revealed that there are no high-rise buildings and there are few buildings with large footprints. As such, building height and area represent a minimal risk in South Stormont. This includes all occupancy classifications. One building of note is the Kraft Canada facility at 70 Dickinson Drive, which has a large footprint (and potentially high fuel load).

4.1.3 Building Age & Construction

Consistent with a rural community, when compared to the Province, South Stormont has a larger proportion of single-detached houses and a lower proportion of medium-, and high-density residential types, such as semi-detached houses, row houses, and apartments. Approximately 92.9% of the 4,795 residential dwelling structures in South Stormont are single-detached houses, which is significantly higher than the Province at 55.6%.

With respect to fire and community risk, building age is an important consideration. As fire codes are updated and revised, newly constructed buildings are required to meet higher standards in terms of building materials (e.g., fire retardant materials) and construction techniques. As such, newer buildings tend to have a lower fire risk. According to Statistics Canada, approximately half (52.8%) of the residential structures in South Stormont were built prior the adoption of the Ontario Fire Code in 1981. This is typical across the Province. Approximately 56.3% of residential structures in Ontario were built prior to 1981.

4.1.4 Building Exposures

Closely spaced buildings, typical of historic downtown core areas and newer infill construction, have a higher risk of a fire propagating (fire spreading to an adjacent exposed building). The majority of buildings in South Stormont are not directly adjacent to another building; this limits the fire risks associated with building exposures.

4.1.5 Demographics

The demographic analysis indicates that South Stormont has a larger proportion of residents older than 44, in comparison to the Province. Resident age and health are two factors considered when identifying vulnerable occupancies. Three buildings were identified as being vulnerable occupancies in South Stormont: Long Sault Villa, Senior Country Living, and Woodland Villa Nursing Home. Optimizing the first two lines of defence should be considered a priority for these facilities as part of the Fire Master Plan.

Approximately 81% of South Stormont residents identify English as their “mother tongue”. This indicates that language barriers are not likely to have a significant effect on the delivery of fire prevention and public education programs.

Income, property value, and home ownership are also important to consider due to their correlation with fire risk. Compared to the Province, South Stormont residents have higher median income levels (+\$14,077), higher home ownership rates (+18.8%), and lower average property values (-\$155,239).

4.1.6 Geography, Topography, Road Infrastructure

The rural nature of the Township poses the greatest fire risk related to geography, topography and road infrastructure. Rural areas pose a challenge for the SSRF as travel times are a critical component of fire suppression. In implementing the Fire Master Plan consideration should be given to prioritizing the delivery of public education and fire prevention programs in these areas. This should include optimization of the department's smoke alarm program and home fire safety planning for areas with extended emergency response travel times.

In terms of infrastructure, South Stormont is characterized primarily by a grid pattern of county roads and local roads. Major population centres include Ingleside, St. Andrews West, Newington, and Long Sault Settlement Areas. The CN Railway poses a risk to the Township, particularly due to its proximity to residential areas. Fortunately most of the crossings with road infrastructure are grade separated which is positive for emergency response times.

4.1.7 Past Fire Loss

According to data provided by the OFMEM, from 2009 to 2013 there were 50 reported property fires. Group C – Residential occupancies accounted for 80% of these fires. The remaining 10 fires occurred in Other Occupancies (4), Group F – Industrial (3), Group A – Assembly (2), and Group D – Business (1). Cumulatively, these fires resulted in \$4,353,699 in property loss.

4.1.8 Fuel Load

Fuel load typically refers to the amount and nature of combustible content and materials within a building. In comparison to the number of buildings within the Township of South Stormont there are a small number of buildings having a site-specific fuel load concern. The three buildings considered important to note in terms of fuel load: Budget Propane – 17567 Amell Road; Kraft Foods – 70 Dickinson Drive; and Trans-Northern Tank Farm – 5285 Farrans Point.

Regular fire prevention inspection cycles and strategies to enforce continued compliance with the Ontario Fire Code (OFC) are considered as best practices to achieving the legislative responsibilities of the Township and providing an effective fire protection program to address fuel load risks.

4.1.9

Community Growth and Development

Since 1996, South Stormont has been growing at an average annual rate of 1.1%; however, this trend is not expected to continue. A recent study by Hemson Consulting Ltd. estimates that the population will remain the same up to 2031. A decline in jobs within the Township is expected to accompany this stagnation of development. (The growth projections are currently being reviewed as part of the update to the United Counties Official Plan.) Of the growth that does occur, most is expected to be greenfield development within existing settlement areas.

5.0

Fire Prevention & Public Education

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

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

“(1) Every municipality shall,

- 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*” (included as **Appendix I**) provides further information defining the minimum acceptable level of fire prevention and fire safety education services that a municipality must provide including:

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

Assessing community 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 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.

5.1

Comprehensive Fire Safety Effectiveness Model

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 Ontario Fire Protection 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 2009 to 2013 the number of fire losses, described as any fire with an injury, fatality or dollar loss reported, have declined from 12,945 in 2009 to 10,733 in 2013 resulting in a decrease of 17%. This occurred during a time period 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 defense to address the findings of the Community Risk Profile (**Appendix M**) should be considered a **strategic priority** of this FMP. For example, this should include prioritizing fire prevention and public education programs in areas of the community where vulnerable occupants such as seniors reside.

5.2 Division Staff Resources

Within the division of Fire Prevention & Public Education, there is a part-time Fire Prevention Officer, Volunteer Fire Prevention Officers and a Fire Prevention Committee.

5.2.1 Fire Prevention Officer (Part-time Contract Position)

The part-time Fire Prevention Officer (FPO) reports directly to the full-time Fire Chief. The FPO is directly responsible for coordinating the delivery of the fire prevention and public education services provided by the department. These services include conducting fire inspections (as a result of a request or complaint) and ensuring continued compliance within the minimum legislated responsibilities for fire prevention and public education as defined by the FPPA.

There is currently no formal job description for the part-time Fire Prevention Officer. Research for this FMP indicates that the following represents an overview of the part-time Fire Prevention Officer's roles and responsibilities including:

- Inspects and conducts investigations on all types of new and existing buildings to ensure conformity with applicable by-laws, codes and regulations;
- Reviews and evaluates building plans and specifications for development proposals and applications;
- Reviews Fire Safety Plans in consultation with the full-time Fire Chief;
- Responds to complaints and inquiries from the public, staff, outside agencies and other enforcement or inspection units regarding fire related matters;
- Investigates complaints and conducts site inspections;
- Collects evidence, obtains statements from witnesses, prepares and swears to information, affidavits, subpoenas and summons;
- Follows up on investigations within established standards, issues tickets, summons and lays charges in accordance with the Provincial Offences Act;
- Conducts educational programs related to fire safety;
- Prepares and presents seminars on fire prevention and safety to groups and members of the public; and
- Represents the department and/or Township with residents, community groups and/or associations, consultants and vendors as required.

The addition of this part-time position has resulted in a very positive impact on the Township's ability to attain compliance with its legislative responsibilities within this area. Further consideration of this position will be required to sustain the Township's legislative compliance, in addition to achieving the proposed **strategic priorities** of this FMP including;

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

Recommendations with respect to this position are contained within the following sections of this FMP.

5.2.2 Fire Prevention Officers (Volunteer)

There are two volunteer Fire Prevention Officers assigned to each of the four stations. Their role has traditionally been to conduct fire inspections and coordinate the public education activities within their respective station response areas. The major responsibilities of this position are described in SOG # 25.07-09 *“Duties of a Fire Prevention Officer”*. Examples of these include:

- Conducts fire and life safety inspections so that the premises meet the requirements of the Fire Protection and Prevention Act, the Ontario Fire Code, the Ontario Building Code and other relevant legislation and an acceptable degree of building and life safety is achieved;

- Evaluates, approves, and enforces fire safety plans so that compliance with the Ontario Fire Code is ensured;
- Develops, delivers and evaluates public education programs using community risk and needs assessments so that incidence of fire, injuries and the loss of life and property are reduced.

The roles and responsibilities of this position have not been formally updated as a result of hiring the part-time Fire Prevention Officer. The volunteer Fire Prevention Officers are an integral component of the SSFR; however, there should be very clear direction with respect to their roles and responsibilities in comparison to the part-time Fire Prevention Officer.

The position of volunteer Fire Prevention Officer has served the Township well in the past and further reflects the dedication and commitment of the volunteer firefighters. The volunteer Fire Prevention Officers are all members of SSFR Fire Prevention Committee.

These members of the SSFR remain a valuable resource in optimizing the department's efforts towards applying the first two lines of defence. Consideration needs to be given to clarifying the skills and competencies required for this position, the number of positions required, and the roles and responsibilities of this position.

Further analyses and recommendations regarding the Volunteer Fire Prevention Officers are contained within **Section 7.13** of this FMP.

5.2.3

Fire Prevention Committee

Chaired by one of the volunteer assistant deputy chiefs, the objective of this committee has been to oversee the delivery of the fire prevention and public education programs of the SSFR. Members include the volunteer fire prevention officers from each of the four fire stations and the part-time fire prevention officer.

The review for this FMP could not find defined terms of reference that has been approved for this committee indicating the goals and objectives, roles and responsibilities, membership, and reporting process. Defined terms of reference would benefit this committee in providing clear direction and accountability.

The purpose of the Fire Prevention Committee is to develop a unified department wide fire prevention and public education program that meets the needs and circumstances of the community. The structure of the program should incorporate and include the development of a comprehensive and overriding fire prevention program for Township of South Stormont. The committee should also develop the structure and program elements of the fire prevention program (based on the Community Risk Profile). The Fire Prevention Committee should benchmark and follow the principles of the NFPA, the Office of the Fire Marshal and

Emergency Management, and municipal policies and procedures that reflect best practices within the fire service and municipal government.

Further analyses and recommendations regarding the Fire Prevention Committee are contained within **Section 7.13** of this FMP.

5.3 Fire Prevention Policy

The components of a Fire Prevention Policy are provided in PFSG 04-45-12 “*Fire Prevention Policy*” (included in **Appendix N**) 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 fire safety education 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.

Council approved a “*Fire Prevention and Public Awareness Policy*” on May 12, 2009 through resolution 141/2009. The current Standard Operating Policy #P-2-2014 “*Fire Prevention Policy*” includes limited descriptions of the components of the policy and does not reflect the best practices required of this document by the OFMEM.

Developing a comprehensive fire prevention policy has been identified as a priority of the current full-time Fire Chief. Work has been initiated in developing an updated fire prevention policy that subject to the recommendations and consideration of this Fire Master Plan should be presented to Council for consideration, approval and inclusion within the updated Establishing and Regulating By-law recommended.

It is recommended that, subject to Council’s consideration and approval of the proposed Fire Master Plan, that an updated Fire Prevention Policy be created utilizing the framework of PFSG

04-45-12 “Fire Prevention Policy” for consideration and approval by Council, and attached as an appendix to the fire department Establishing and Regulating By-law.

5.4 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 cause 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”.*

Standard Operating Policy #P-2-2014 “Fire Prevention Policy” indicates that the policy of the SSFR related to public education includes:

- That SSFR conducts an annual home smoke alarm program;
- That SSFR develop, implement and evaluate a program to address risks associated with carbon monoxide;
- That SSFR provide fire related public information to the residents and media of South Stormont; and
- That the Fire Chief develops and implements various means to bring this policy into effect including programs, guidelines and other policies.

At the time of the data collection process to inform this fire master planning process there was minimal evidence to support what types of programs and activities are consistently conducted by the SSFR to deliver public education initiatives. There was inconsistency identified between the types of programs and level of activity in this area at each of the stations. There is evidence that the volunteer Fire Prevention Officers in consultation with the station volunteer Deputy Fire Chiefs and volunteer Assistant Deputy Chiefs conduct varying levels of participation in this response areas including:

- Home Smoke Alarm Program;
- School visits;
- Fire Prevention Week;
- Fire station tours; and
- Fire prevention signage at the stations promoting fire safety.

Based on research at the time of preparing this plan there is limited information to support that the Township is meeting its legislative responsibilities within the area of public education.

The full-time Fire Chief has recognized this challenge, and in part has applied this to support the request for a part-time Fire Prevention Officer.

Through the consultation with the volunteer firefighters in preparing this plan there is certainly recognition of the importance of public education, and some evidence that programs are being delivered, however there is minimal evidence to support what level and to what specific programs are consistently delivered across the Township.

5.5 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 FMP. 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 Profile. Developing a cycle provides the opportunity to prioritize the delivery of fire safety education programs based on the results of the Community Risk Profile specifically for vulnerable demographics such as children and seniors.

Dillon's research into developing fire safety program delivery cycles looked at the relevant NFPA standards, PFSG's and industry best practices. **Table 3** reflects the proposed public fire safety education activities and program delivery cycles for occupancy classifications.

At a minimum it is recommended that the SSFR public education activities include the following formalized programs that include performance measures to define the goals and objectives of each program and report on the number of activities conducted within each program.

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

TABLE 3: PROPOSED PUBLIC SAFETY EDUCATION ACTIVITIES AND PROGRAMS CYCLE OBJECTIVES

Occupancy Classification (OBC)	Buildings	Proposed Fire Safety Program Delivery Cycle Objectives
Group A – Assembly	Schools, Recreation Centres (Arenas)	1 – 2 Years
Group A – Assembly	Licensed Properties, Nursery/Day Care Facilities, Churches, Special Occasion Permits	1 – 2 Years
Group B – Institutional	B1 - General	1 – 2 Years
Group B – Institutional	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 Upon Request
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
Group F - Industrial	F2 – Medium Hazard	3 – 4 Years

It is recommended that subject to the consideration and approval of the proposed public fire safety education activities and program cycle objectives by Council that they be included within the proposed Fire Prevention Policy and proposed Establishing and Regulating By-Law.

5.6 Smoke Alarm, CO Alarm and Home Escape Planning Programs

The provision of a smoke alarm program and a CO alarm program including home escape planning is a legislated responsibility of the Township. Achieving compliance with the Provincial smoke alarm requirements has been a challenge for fire departments across Ontario. As a result of fire tragedies across the province, the OFMEM has introduced a “zero tolerance policy” for occupancies requiring smoke alarms.

As indicated previously, Dillon’s research indicates that traditionally public fire safety information has been distributed and the smoke alarm program coordinated by each of the stations. Until recently with the hiring of the full-time Fire Chief and part-time Fire Prevention Officer there has been minimal coordination of these activities within the department. The absence of an integrated records management system has also added to the challenges of consistent record keeping.

Historical data provided by the volunteer Deputy Fire Chiefs confirms the inconsistencies in the current home smoke alarm program. For the year 2011 there is a very good record of the number of homes visited, residents available, and compliance of working smoke alarms for each station except Station 1 where no record was available. Data for 2013 indicates Station 2 stopped delivering the program while Station 1 has a record of the compliance ratio, and in 2014 there are some records for Station 1 but none for the other stations.

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 in areas of the community where extended emergency response travel times may be present, and 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 6 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.

It is recommended that the South Stormont Fire and Rescue Home Smoke Alarm Program be updated as a department Standard Operating Guideline and included within the proposed Fire Prevention Policy for consideration and approval by Council.

5.7 Current Fire Inspection Program

The current Establishing and Regulating By-law No. 2009-28 identifies the fire prevention duties that shall be carried out. These include:

- Develop an approved fire prevention, fire safety and public education policy;
- Carry out the duties and activities of the fire prevention, fire safety and public education program;
- Maintain fire loss records; and
- Prepare report(s) and budget, as required, for the Division of Fire Prevention.

The SOG 19.01 2014 Fire Prevention Policy indicated that inspections will be completed upon complaint of a fire safety concern or upon requests made by the owner. The Fire Prevention

Policy approved by Council, however, indicates that “residential buildings that house elderly and handicap persons shall be inspected annually”. From the stakeholder engagement for this FMP, it is understood that the 2014 Fire Prevention Policy most accurately reflects the current fire inspection frequencies.

Table 4 identifies the current goals and objectives (performance measures) for the frequency of fire inspections within the Township of South Stormont. These are consistent with the Township’s minimum legislated requirements as defined by the FPPA.

TABLE 4: TOWNSHIP OF SOUTH STORMONT CURRENT FIRE INSPECTION GOALS AND OBJECTIVES (PERFORMANCE MEASURES)

Occupancy Classification (OBC)	Buildings	Current Fire Inspection Frequencies (Performance Measures)
Group A – Assembly	Schools, Recreation Centres (Arenas), Curling/Golf Centres	Upon Request/Complaint
Group A – Assembly	Licensed Properties, Nursery/Day Care Facilities, Churches, Special Occasion Permits	Upon Request/Complaint
Group B – Institutional	Nursing homes, Homes for Special Care	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 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	Factories and Complexes	Upon Request/Complaint

Developing goals and objectives for fire inspection frequencies that reflect the results of the Community Risk Profile support the **strategic priority** of this FMP, including:

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

A proposed fire inspection program is included within the following sections of the FMP.

5.8 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 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 Occupancy B – Institutional.

Compliance with this new regulation will be 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 was completed by the full-time Fire Chief. This information will assist in providing the SSFR with a tool for managing the workload requirements of this new legislation.

The proposed fire inspection program within this FMP includes the requirements for annual testing of fire safety plans including conducting an evacuation and an inspection of each building affected by this legislation on an annual basis.

5.9 Fire Safety Inspections and Enforcement

The OFMEM developed Technical Guideline OFM-TG-01-2012 “Fire Safety Inspections and Enforcement” includes a scope “to assist municipalities and their fire services in meeting their fire safety inspection and enforcement responsibilities in the most effective and efficient way possible, as provided by the FPPA”.

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.

It is recommended that PFSG OFM-TG-01-2012 be considered in developing the proposed Fire Prevention Policy for consideration and approval by Council.

5.10 Fire Safety Plans

The Ontario Fire Code requires a fire safety plan for specific occupancy types. These plans provide the on-site staff and the responding fire and rescue services with an understanding of the protocols to be utilized in the event of an emergency. Plans typically include building

layouts, evacuation plans, details regarding fire alarm and life safety systems in place, and the protocols for staff in an emergency.

The Ontario Fire Code (Section 2.8) requires a fire safety plan for specific occupancy types. These premises include (but are not limited to):

- an assembly occupancy,
- a care occupancy,
- a care and treatment occupancy,
- a detention occupancy,
- a residential occupancy where the occupant load exceeds 10,
- a retirement home,
- a business and personal services occupancy where the occupant load exceeds 300,
- a mercantile occupancy where the occupant load exceeds 300,
- a high hazard industrial occupancy where the occupant load exceeds 25,
- a medium hazard industrial occupancy where the occupant load exceeds 100, or
- a low hazard industrial occupancy where the occupant load exceeds 300.

The Chief Fire Official (full-time Fire Chief) of the municipality is required by the fire code to review and approve the fire safety plans for the occupancies listed above when the building is first occupied and on an ongoing basis. Fire Safety Plans are currently delegated for review by the part-time Fire Prevention Officer and approved by the full-time Fire Chief.

5.11 Proposed Fire Inspection Program

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

To achieve the proposed goals and objectives, the SSFR 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. This should include increasing the number of hours for the part-time Fire Prevention Officer through incrementally increasing this position to full-time.

Table 5 identifies the proposed goals and objectives (performance measures) for conducting fire inspections within the Township of South Stormont based on the Community Risk Profile presented within this FMP.

TABLE 5: TOWNSHIP OF SOUTH STORMONT PROPOSED FIRE INSPECTION GOALS AND OBJECTIVES (PERFORMANCE MEASURES)

Occupancy Classification (OBC)	Buildings	Current Fire Inspection Frequencies (Performance Measure)	Proposed Fire Inspection Frequencies (Performance Measure)
Group A – Assembly	Schools, Recreation Centres (Arenas), Curling/Golf Centres	Upon Request/Complaint	Annually
Group A – Assembly	Licensed Properties, Nursery/Day Care Facilities, Churches, Special Occasion Permits	Upon Request/Complaint	Annually
Group B – Institutional	Nursing homes, Homes for Special Care	Upon Request/Complaint	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 Home Inspection Program	Upon Request/Complaint Upon Request/Complaint Upon Request/Complaint Upon Request/Complaint	Annually Annually Annually Smoke Alarm Program
Group D – Business	Business and Personal Services Occupancies	Upon Request/Complaint	2- Years
Group E – Mercantile	Mercantile Occupancies	Upon Request/Complaint	2 - Years
Group F – Industrial	Factories and Complexes	Upon Request/Complaint	2 - Years

The proposed fire inspection goals and objectives reflect the results of the Community Risk Profile 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 the consideration and approval of the proposed fire inspection goals and objectives by Council that they be included within the proposed Fire Prevention Policy and proposed Establishing and Regulating By-Law.

5.12 Fire Investigations and Cause Determination

Investigating the origin and cause of a fire is a municipal fire and rescue services’ 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.

SOG 19.01 Fire Prevention Policy (2014) indicates that the SSFR will conduct the investigation and cause determination of fires. SOG #13.05-09 “Fire Cause Determination” establishes a practice for the safe and systematic investigation or analysis of fire and explosion incidents.

Review of the current policy and SOG indicates limited specifics of what best practices would suggest should be present. Subject to the approval of the proposed Fire Prevention Policy it is recommended that a more detailed Standard Operating Guideline be developed and implemented to reflect the intent of the policy. It is recommended that the SOG be developed to outline protocols and responsibilities around origin and cause determination, and fire investigation. This should include:

- 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 Profile.
- The required training to be an SSFR 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 Fire Chief develop a revised Standard Operating Guideline for fire investigations including origin and cause determination including the training and accreditation required to conduct investigations.

The proposed fire inspection goals and objectives reflect the results of the Community Risk Profile 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 the consideration and approval of the proposed fire inspection goals and objectives by Council that they be included within the proposed Fire Prevention Policy and proposed Establishing and Regulating By-Law.

5.13 Fire Prevention/Public Education Workspace

Workspace for Fire Prevention/Public Education activities is spread across three of the stations. The volunteer Fire Prevention Officers operate out of their respective stations sharing office space with the volunteer Deputy Fire Chiefs and volunteer Assistant Deputy Chiefs. The part-time Fire Prevention Officer is based out of the Station 1 administrative area.

The administrative areas of the stations are well placed in that they are separate from the training area and the apparatus room. However, with the enhanced focus on Fire Prevention and Public Education recommended within this FMP the workspace for these activities will need to be reviewed.

This FMP includes recommendations relating to the replacement/relocation of the fire stations. Workspace for the proposed fire prevention and public education programs and activities should be considered as a priority within the station replacement planning process.

Further analyses and recommendations regarding workspace are contained within **Section 7.12** of this FMP.

5.14

Proposed Fire Prevention/Public Education Resource Plan

Best practices within the fire service, and more recent evidence across Ontario indicates that optimizing the delivery of fire prevention and public education programs can have a positive impact in changing human behavior. The result is a reduction in the number of fire related deaths and injuries, and property loss as a result of fire.

This FMP includes strategic priorities to enhance the programs and activities provided by the SSFR in this area. Council's support of hiring a part-time Fire Prevention Officer is a strong indicator of Council's recognition of the value of fire prevention and public education programs. Based on the stakeholder engagement, enhancing the SSFR prevention and education programs is a priority of the full-time Fire Chief.

To implement the proposed public education programs and enhanced fire inspection program proposed within this FMP will require consideration of the current 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.

Further details with respect to the training standards and certification process are contained within the Training Division, **Section 6.0** of this FMP. This includes recognition that the OFMEM and Ontario fire service have now adopted the National Fire Protection Association Professional Qualifications (NFPA Pro-Qual) Standards. The previous Ontario Fire Prevention Officer Standard has now been replaced by the NFPA 1031 – Standard for Professional Qualifications for Fire Inspector and Plans Examiner.

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

TABLE 6: 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 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.

There is a similar certification and designation process for individuals assigned to deliver public education programs that is contained within the NFPA 1035 – Standard for Professional Qualifications for Fire and Life Safety Educator, Public Information Officer, and Juvenile Firesetter Intervention Specialist.

Table 7 summarizes the different public education designations included within the NFPA 1035 standard.

TABLE 7: PUBLIC EDUCATION DESIGNATIONS (NFPA 1035 STANDARD)

Fire & 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.

These NFPA standards should serve as the job performance requirements for this proposed Fire Prevention/Public Education Resource Plan. Several of the current volunteer firefighters delivering these programs have either received these designations, or are working towards them. The part-time Fire Prevention Officer has his NFPA Level II designation.

Table 8 summarizes the proposed staff resource plan to achieve the proposed fire inspection and public education performance levels presented within this FMP.

TABLE 8: STAFF RESOURCE PLAN FOR FIRE PREVENTION / PUBLIC EDUCATION

Staff Resource	Staff Resource Plan
Full-time Fire Inspector II	It is recommended that the current part-time Fire Inspector (contract position) be incrementally transitioned to a full-time position. This full-time position should be required to have at a minimum the designation of the NFPA Level II Fire Inspector. This should be a short-term priority of this FMP to be achieved within the next three years.
Volunteer Fire Inspector I	It is recommended that there be one volunteer Fire Inspector assigned to each of the proposed fire stations. Working in collaboration with the proposed full-time Fire Inspector this position would be assigned fire inspections within his/her fire district.
Volunteer Fire & Life Safety Educator I	It is recommended that there be one volunteer Fire & Life Safety Educator assigned to each of the proposed fire stations. Working in collaboration with the proposed full-time Fire Inspector this position would be assigned to deliver the fire and life safety program within his/her fire district.

It is recommended that consideration be given to implementing the staff resource plan identified within the proposed Fire Master Plan to achieve the fire inspection and public education performance levels recommended.

5.15 Fire Prevention/Public Education Division Summary and Recommendations

Analysis of the current fire prevention and public education activities and programs provided by the SSFR indicates that the Township has historically been challenged in achieving its minimum legislated responsibilities identified within the FPPA. More recently, under the direction of the current full-time Fire Chief supported by the part-time Fire Prevention Officer the Township has been making significant strides towards achieving and sustaining compliance.

The recommendations within this proposed FMP for enhancing the fire prevention and public education activities and programs currently being delivered by the SSFR are intended to optimize the benefits of these activities in reducing the probability and consequences of a fire, resulting in a safer community.

The strategic priorities contained within the proposed FMP are presented to provide Council with a framework to optimize the use of fire prevention and public education programs in providing the most cost effective and efficient level for fire protection services that provides the most value to the community.

Continuing from the eight recommendations provided for the Administration Division, recommendations for the Fire Prevention/Public Education Division include the following:

9. *That subject to Council's consideration and approval of the proposed Fire Master Plan, that an updated Fire Prevention Policy be created utilizing the framework of PFSG 04-45-12 "Fire Prevention Policy" for consideration and approval by Council, and attached as an appendix to the fire department Establishing and Regulating By-law;*

10. *That subject to the consideration and approval of the proposed public fire safety education activities and program cycle objectives by Council that they be included within the proposed Fire Prevention Policy and proposed Establishing and Regulating By-Law;*
11. *That the South Stormont Fire and Rescue Home Smoke Alarm Program be updated as a department Standard Operating Guideline and included within the proposed Fire Prevention Policy for consideration and approval by Council;*
12. *That PFSG OFM-TG-01-2012 be considered in developing the proposed Fire Prevention Policy for consideration and approval by Council;*
13. *That subject to the consideration and approval of the proposed fire inspection goals and objectives by Council that they be included within the proposed Fire Prevention Policy and proposed Establishing and Regulating By-Law;*
14. *That the Fire Chief develop a revised Standard Operating Guideline for fire investigations including origin and cause determination including the training and accreditation required to conduct investigations;*
15. *That consideration be given to implementing the staff resource plan identified within the proposed Fire Master Plan to achieve the fire inspection and public education performance levels recommended.*

6.0 Training Division

Dillon's experience and knowledge of the Ontario Fire Service indicates that firefighter training is an area that has come under a high level of scrutiny over the 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. This division is responsible for ensuring that all SSFR 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 2008 OFMEM review identified a number of issues related to the training program in place at that time. These included:

2008 OFMEM Review:

1. *No one training program that encompasses all the fire departments;*
2. *No formal process of documentation of training that is consistent throughout all the fire departments most training is tracked in a logbook with the exception of Long Sault, which has slightly better training records;*
3. *No understanding of the difference between entry-level training and ongoing requirements for drills to maintain competency along more advanced levels of training required for specialized services;*
4. *Little or no interaction between fire departments to allow firefighters to pick up training missed in their own department;*
5. *No recruit training program that could be by all departments and bring new members along to competency quickly.*

During the stakeholder engagement process with the volunteer firefighters, it was evident that there are still challenges in the area of training. The volunteers reflected concerns related to the level of training at each station, the absence of much training between stations, or with multiple stations attending. They did express that the Tanker Shuttle Accreditation process is one area where they do train with multiple stations, and it is a positive training event.

The training concerns expressed, in part reflect the symptoms of the SSFR continuing to operate in four silos, representing the four historical fire stations and their leadership. In part, this may also be a symptom of the trust and respect issues identified during stakeholder engagement. If the volunteers are not training together regularly it presents a condition whereby they are unsure of the level of training and competency of volunteers from other stations, that may be linked to a lack of trust.

6.1 Division Staff Resources

Staffing resources within the division include a volunteer training captain, volunteer training officer, and a training committee.

6.1.1 Training Captain (Volunteer)

The current organizational model of the SSFR indicates that there is a volunteer Captain assigned to the role of training officer at each of the four stations

SOG #25.08-09 “*Duties of a Training Officer*” indicates that the volunteer training officers report directly to the volunteer assistant deputy chief at their respective station. This position is responsible for reviewing, planning, preparing, modifying, and delivering training programs. Per the SOG, the training officer is required to be recognized as a trainer/facilitator by the Ontario Fire College and to implement the NFPA/Ontario Fire Service curriculum.

The training officer is also required to ensure that personnel are familiar and well trained on all apparatus and equipment including a signed training record in order to achieve compliance with the Provincial OHSA Guidelines.

6.1.2 Training Officer (Volunteer)

As above, the current organizational model indicates that there is a volunteer Lieutenant also assigned to each of the four stations. Dillon’s understanding is that the volunteer Captain and volunteer Lieutenant work together to deliver the SSFR training program.

6.1.3 Training Committee

Chaired by one of the Volunteer Assistant Deputy Chiefs, the objective of this committee has been to oversee the delivery of the training program of the SSFR. Members include the volunteer Training Officers from each of the four fire stations.

A review of information as part of this FMP could not find defined terms of reference that has been approved for this committee indicating the goals and objectives, roles and responsibilities, membership, and reporting process. A defined terms of reference would benefit this committee in providing clear direction and accountability.

The purpose of the training committee is to develop a unified department wide comprehensive training program. The structure of the program should incorporate and include a comprehensive and overriding training program for the South Stormont Fire and Rescue. The committee should also develop the structure and program elements of a training program curriculum (knowledge, practical and sign off components, record keeping tracking), The Training Committee should also benchmark and follow the principles of NFPA, the Office of the Fire Marshal and Emergency Management, and municipal policies and procedures that reflect best practices within the fire service and municipal government.

Further analyses and recommendations regarding workspace are contained within **Section 7.12** of this FMP.

6.2 Training Standards

In partnership with the Ontario Association of Fire Chiefs, the Office of the Fire Marshal and Emergency Management and other fire service stakeholders the Ontario Fire Services Standards (OFSS) were developed. Together these competency-based standards were applied in developing a comprehensive provincial fire service training program that included a firefighter curriculum, Fire Prevention Officer Diploma program, Company Officer Diploma program, and a Training Officer Diploma program.

The OFMEM announced in April of 2013 that the Ontario Fire Service would be adopting the National Fire Protection Association Professional Qualifications (NFPA Pro-Qual) Standards. **Table 9** reflects the results of the comparative analysis between the previous Ontario Standards and the representative NFPA Standards.

TABLE 9: 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 newly created 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 10** reflects the OFMEM’s determination of concordance between the previous Ontario Standards and the representative NFPA Standards.

TABLE 10: 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

Communique 2014 – 04 indicates that “Members of the fire service who wish to take advantage of the grandfathering policy and obtain a Letter of Compliance with NFPA Standards must

submit an application through their fire department, approved and signed by their fire chief, before December 31, 2015.”

As indicated within this communicate the SSFR had until December 31st, 2015 to apply for the grandfathering policy of the new NFPA standards. The department has initiated this process, identifying one coordinator and one representative from each station. These individuals are helping to prepare and submit the documentation for grandfathering a large percentage of the current volunteer firefighters and officers.

Training sessions are currently held at every station twice a month. All firefighters are expected to attend and participate in these training sessions with a minimum attendance requirement of 60% annually. However, within the stakeholder engagement process, it was identified that attendance is not well monitored and the process for accountability is not clear. To provide flexibility in training opportunities, firefighters are invited to attend training held at a station that most suits their individual schedule.

This FMP recommends the development of a comprehensive annual training program based on the new NFPA Professional Qualifications Standards. As part of developing this program consideration should be given to the above observations, and where necessary further consultation and feedback should be sought from the volunteer firefighters.

While there is internal understanding of the training process, there is currently no standard operating guideline or policy in place that directs the training process. SOG #32 “Training Record” is the hard copy form to be completed after training.

6.3 Comprehensive Annual Training Program

The NFPA standards identified should form the basis of a new comprehensive annual training program for all firefighters and officers within the SSFR.

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

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

- ✓ Identifying training needs in relation to services provided;
- ✓ Coordinating / scheduling theoretical and practical training;
- ✓ Monitoring and evaluating in relation to outcomes achieved;
- ✓ Evaluating (on an ongoing basis) in relation to industry best practices and legislative requirements;
- ✓ Overseeing program objectives and records management; and

- ✓ Assessing (on an ongoing basis) program delivery for efficiency and effectiveness.

Through consultation with the full-time Fire Chief it is Dillon's understanding that work has already been initiated in developing a new training program following the NFPA standards.

It is recommended that the South Stormont Fire and Rescue develop a comprehensive annual training program based on the NFPA Professional Qualifications Standards and the core functions of a comprehensive annual training program identified within the proposed Fire Master Plan.

6.4 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 the 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 volunteer firefighter may encounter and provide simulated heat, humidity, restricted vision and smoke conditions. This type of training is also 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".

Live fire training sessions are an element of the SSFR volunteer recruit firefighter training program provided at the Loyalist Fire College. When possible the SSFR also attempts to include live fire training sessions within the annual training schedule. This can include small scale burns held in conjunction with regular training, or alternatively attending training at the fire college.

The SSFR does not have a dedicated training centre with the facilities capable of facilitating this type of training. When possible they utilize donated structures, or attend scheduled training at one of the fire training facilities identified above or the Ontario Fire College.

It is recommended that the South Stormont Fire and Rescue include live fire training as a required element within the proposed comprehensive annual training program.

6.5 Online Training

Access to online training programs can provide greater flexibility in delivering the comprehensive 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.

The Fire Learning Management System (FLMS) is an example of an innovative and cost effective tool for delivering online firefighter training. 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 the training officers.

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. Use of technology such as this would allow the SSFR to build and customize its own training course content and support the proposed comprehensive annual training program. This particular system also allows courses to be shared with other fire departments. The FLMS program is available for all firefighter and company officer subjects and has been revised to reflect the transition to the NFPA firefighter training programs adopted by the OFMEM.

The South Stormont Fire and Rescue may want to consider further use of an online firefighter training program as a component of delivering the proposed comprehensive annual training program.

6.6 Specialized Training Programs

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 review of SSFR identified that the following specialized services are currently being provided by the department:

- Ice / Water Rescue (Operational Level)
- HAZMAT Awareness (Awareness Level)
- Auto Extraction (Operations Level)

Each of these specialized rescues includes a range of training competencies related to the level of services to be provided. For example the awareness level means that the firefighters are trained to be aware of the potential hazards and risks, but have limited training to mitigate the incident. Whereas operational or technical training typically means that the firefighters have been trained to a much higher level of competencies and skills and are able to initiate mitigation tactics.

Hazmat awareness training is to be provided by the Cornwall Fire Department. This is included within the current agreement with the City of Cornwall to support the SSFR in the event of a HAZMAT incident.

There are other specialized services that have a low probability of occurring but a high consequence should one occur. These include:

- Confined Space Rescue;

- Trench Rescue; and
- Slope/High Angle Rescue.

The SSFR should be training to an awareness level for these specialized rescues and providing a level of emergency response service consistent with, an ‘awareness level’ of emergency response.

Consideration should be given to identifying other options, such as expanding the agreement with the City of Cornwall to include any services required above the awareness level for Confined Space Rescue, Trench Rescue and Slope/High Angle Rope Rescue.

It is recommended that the Fire Chief be directed to investigate the options available for the delivery of operational level emergency response for incidents including Confined Space Rescue, Trench Rescue, Slope/High Angle Rope Rescue.

6.7 Company Officer Training

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

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

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

As an employer, the Township of South Stormont is legislated by this section of the OHS Act to ensure that all supervisors, which includes the role of incident commander, be competent.

The OHS Act defines a “competent person” to mean a person who:

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

There is currently no defined Company Officer Training program within the SSFR. The SSFR has traditionally supported additional Company Officer training opportunities such as those offered by the Ontario Fire College. However, these opportunities have been limited and more recently been very difficult to gain access to.

It is recommended that the SSFR enhance the training opportunities for Company Officers to achieve the competencies identified within the new NFPA 1021 Standard – Level II for Company Officers.

6.8 Incident Command Training

Incident command training should be considered a core element of the proposed Company Officer Training. Guidance notes to protect the health and safety of firefighters are developed by the Ontario Fire Service Section 21 Advisory Committee and distributed by the Ministry of Labour. *Firefighters Guidance Note #2-1 – Incident Command* reflects the importance of having an Incident Command System (ICS).

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.

Firefighters Guidance Note #2-1 – Incident Command references a number of recognized systems including the “Phoenix Fireground Command System.” This system was developed by Alan V. Brunacini the former Fire Chief of the Phoenix Fire Department. Chief Brunacini is a renowned expert on incident command. In his book titled “*Fire Command*” (second edition) he includes the following statement:

“To provide continuous command, the first fire department unit or officer arriving at the scene should assume command, until relieved by a ranking officer, or until command is passed (transferred) or terminated. The initial assumption of command is mandatory.”

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.*

SOG #15.04-09 “Incident Command System” details the procedure for incident command. It also includes a “training note” around the incident command system. The training note describes topics such as command procedures, command options, operational strategies, and command structure.

6.8.1 Blue Card Fire Command Training

The Blue Card Fire Command Training Program is a training and certification process that 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.

This training program is based on the work of Chief Brunacini and has been applied in many fire departments across North America including Ontario.

The South Stormont Fire and Rescue may want to consider the adoption of the Blue Card Fire Command Training Program as a component of the Company Officer Training, and proposed Comprehensive Annual Training Program.

6.9 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 SSFR, there is no formal succession planning process in place within the department. 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.

The SSFR is well positioned to consider integrating the elements of succession planning within many of the recommendations of this proposed FMP. These include the Company Officer Program, committee structure, and proposed comprehensive annual training program.

6.10 Volunteer Firefighter Recruitment & Retention

There are numerous factors impacting volunteer firefighters across the province including the requirements for higher training standards, increasing emergency call volumes, and the resulting 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.

Historically volunteer firefighters represented a portion of the community that lived and worked in close proximity to the fire station and individuals were allowed to leave work and respond to emergency calls. Financial compensation although warranted, was not high on the list of those seeking to become a volunteer firefighter. Performance expectations including sustaining training standards and attendance at training sessions, and sustaining minimum response attendance to emergency calls continue to increase the demands municipalities place on being a volunteer firefighter.

Municipalities must begin to develop recruitment and retention strategies for volunteer firefighters that recognize this evolution. Retention strategies can include a range of material rewards such as uniforms, awards and support to attend conferences. Monetary rewards may include benefits such as insurance coverage and access to other benefit programs that full time employees receive. Considering the total compensation package for volunteer firefighters should also recognize the value of the training and experience received. This is particularly relevant to the younger generation seeking a future as a full-time firefighter.

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, and do 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.

Recruitment and retention of volunteers (part-time firefighters) 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.⁸ Recently, the Canadian Association of Fire Chiefs signed an agreement with the

⁸ 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>.

Alberta Fire Chiefs Association to expand their volunteer firefighter recruitment strategy across Canada.

It is recommended that consideration be given to utilizing the recruitment and retention strategies for volunteer (part-time) firefighters included within the Alberta Volunteer Firefighter Recruitment and Retention Strategy as part of enhancing recruitment and retention of volunteer (part-time) firefighters in the Township of South Stormont.

6.11 Training Workspace

Workspace for the Training Officers is also shared amongst the staff resources assigned to each of the stations. This shared space strategy is necessary in order to provide office space for the number of staff resources that require access to desk space and a computer to complete their work.

Classroom-style training space is also available for theory related training sessions at all four stations. The training spaces across the stations are not necessarily of similar quality in terms of functionality; however they appear to be meeting the department's needs.

This FMP includes recommendations relating to the replacement/relocation of the fire stations. Appropriate workspace for supporting the proposed comprehensive training program and training activities should be considered as a priority within the station replacement planning process.

Further analyses and recommendations regarding workspace are contained within **Section 7.8** and **Section 7.13** of this FMP.

6.12 Proposed Training Resource Plan

To implement the proposed comprehensive training program and training initiatives included within this FMP will require consideration of the current 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.

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 FMP. **Table 11** summarizes the different instructor levels included within the NFPA 1041 standard.

TABLE 11: 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.

At a minimum the staff resources delivering firefighter training should have the skills and competencies included within the NFPA 1041 – Instructor Level I. Within the Township of South Stormont it is Dillon’s interpretation of the NFPA 1041 standard that there should be at least one staff resource with the Instructor Level II accreditation.

Table 12 summarizes the proposed staff resource plan to achieve the proposed fire inspection and public education performance levels presented within this FMP.

TABLE 12: STAFF RESOURCE PLAN FOR TRAINING

Staff Resource	Staff Resource Plan
Instructor I	It is recommended that there be a volunteer Instructor level I assigned to each of the proposed fire stations. These reflect the current volunteer training officers (captain position).
Instructor II	It is also recommended that there be one new position created to oversee the volunteer training officers (captain position) to coordinate the delivery of the proposed comprehensive training program. This new position should have the Instructor Level II certification. It is also recommended that the proposed Instructor Level II be allocated 8 hours per week to research, develop, schedule and assist in the delivery of the proposed comprehensive training program

The SSFR represents a relatively large fire department consisting of approximately 96 volunteer firefighters. To ensure that all of the volunteer firefighters and 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* additional staff resources are required.

An appropriate staff resource plan to research, develop, schedule, monitor, and provide quality assurance should include a volunteer Senior Captain with NFPA 1041 Instructor Level II certification, and three volunteer Captains with NFPA 1041 Level I certification.

It is recommended that consideration be given to implementing the staff resource plan identified within the proposed Fire Master Plan to oversee the proposed comprehensive annual training plan recommended.

6.13 Training Division Summary and Recommendations

Under the leadership of the full-time Fire Chief the SSFR has initiated the development of a new training program, and the transition process to the use of the NFPA Professional Qualifications Standards including the optimization of the grandfathering provisions provided by the OFMEM. The SSFR has been proactive and efficient in taking the necessary steps to transition to the new training standards.

The analyses conducted and the consultation completed as a part of this review indicates that the historical delivery of training within the department has been inconsistent, and in many areas not meeting the needs of the volunteer firefighters. This has been recognized and initial plans are underway to revise the training program.

Implementing the proposed comprehensive annual training program, and sustaining this program including managing an ongoing recruitment and retention strategy for volunteer

firefighters require consideration of the proposed staff resource plan contained within this FMP.

This is required to ensure that all of the volunteer firefighters and 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*.

Recommendations for the Training Division include the following:

- 16. That the South Stormont Fire and Rescue develop a comprehensive annual training program based on the NFPA Professional Qualifications Standards and the core functions of a comprehensive annual training program identified within the proposed Fire Master Plan;*
- 17. That the South Stormont Fire and Rescue include live fire training as a required element within the proposed comprehensive annual training program;*
- 18. That the Fire Chief be directed to investigate the options available for the delivery of operational level emergency response for incidents including Confined Space Rescue, Trench Rescue, Slope/High Angle Rope Rescue;*
- 19. That the South Stormont Fire and Rescue enhance the training opportunities for Company Officers to achieve the competencies identified within the new NFPA 1021 Standard – Level II for Company Officers;*
- 20. That consideration be given to utilizing the recruitment and retention strategies for volunteer (part-time) firefighters included within the Alberta Volunteer Firefighter Recruitment and Retention Strategy as part of enhancing recruitment and retention of volunteer (part-time) firefighters in the Township of South Stormont;*
- 21. That consideration be given to implementing the staff resource plan identified within the proposed Fire Master Plan to oversee the proposed comprehensive annual training plan recommended.*

7.0 Fire Suppression Division

The Township of South Stormont shares the characteristics of many primarily rural, agricultural communities in Ontario that include small urban centres surrounded by large sections of rural geography. Providing emergency response in these rural municipalities in the form of firefighting resources 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.

South Stormont Fire and Rescue currently has a full-time Fire Chief who, in addition to performing his administrative/management responsibilities, also oversees the fire suppression, or emergency response functions of the SSFR. Four volunteer Deputy Fire Chiefs support the Chief in overseeing the administrative/operational functions. In addition to fire suppression (firefighting), the SSFR responds to a range of other emergencies including motor vehicle collisions, medical assist calls, and land/water based ice rescues.

The fire master planning process places a strong focus on assessing the municipality's legislative responsibilities within the FPPA and OHSA. This strategy is appropriate and included within this FMP; however, the SSFR is also recognized within the community and by Council for their dedication and commitment in providing many other non-fire related services.

The SSFR currently includes a complement of 91 dedicated volunteer firefighters and officers. This core group of volunteer firefighters is supported through the provision of a number of agreements with surrounding communities including fire protection agreements, automatic aid, and mutual aid.


7.1 Existing Fire Stations

Review of historical data, consultation and site tours indicates that the fire stations operated by the South Stormont Fire and Rescue have all either reached their predicted life expectancy, or are very close to reaching a point where significant capital investment will be required to sustain their use.

The stations are all located in the relation to their previous function within the smaller communities prior to amalgamation. All of the stations are located immediately within four of the communities within the Township – Long Sault, Ingleside, Newington, and St. Andrews West. **Table 13** summarizes the condition of the existing stations. There are recognized challenges with existing space allocation and facility condition at all four stations.

TABLE 13: EXISTING STATIONS – SUMMARY OF CONDITIONS

Station	Description
<p style="text-align: center;">Station 1</p>  <p style="text-align: center;">50 Mille Roches Road, Long Sault</p>	<ul style="list-style-type: none"> • Two Bays • Three Apparatus • One storey • 10,660 square feet Gross Floor Area • Large, well-equipped training room • Administrative workspace (including part-time Fire Prevention Officer) • Kitchen area • Washrooms
<p style="text-align: center;">Station 2</p>  <p style="text-align: center;">1 Maple Avenue, Ingleside</p>	<ul style="list-style-type: none"> • Two Bays • Three Apparatus • One storey • 2,640 square feet Gross Floor Area • Small training room • Administrative workspace • Kitchen area • Washrooms
<p style="text-align: center;">Station 3</p>  <p style="text-align: center;">3931 County Road 12, Newington</p>	<ul style="list-style-type: none"> • 3 Bays • 3 Apparatus • One storey • 3,800 square feet Gross Floor Area • Very small training room • Small kitchen area • Limited administrative workspace • Washrooms • Renovated: 2012

Station	Description
<p style="text-align: center;">Station 4</p>  <p style="text-align: center;">5201 Highway 138, St. Andrews West</p>	<ul style="list-style-type: none"> • 1 Bay (drive-through) • 3 Apparatus • One storey • 3,717 square feet Gross Floor Area • Large training room • Kitchen area • Administrative workspace • Washrooms • End of lifecycle

(Source: Data provided by SSFR and stakeholder engagement)

7.1.1

Station 1

Station 1 has the best overall facility design although it will be nearing the end of its life cycle. The positive features of this station are the large, well-equipped training room, the administrative workspace, and the orientation of these areas in proximity to the apparatus bays. Station 1 only has two bays for three apparatus and insufficient storage capacity.

Station 1 is located in a residential area of the community of Long Sault and is co-located with the community library. The site includes other amenities such as a playground and tennis courts. Access to this station by volunteer firefighters is through the local residential street network as the station is located directly across the street from single-family residential dwellings. During the site visit for this FMP, it was evident that children play on and utilize the fire station parking lot for bike parking while on the playground as well as active play (such as sidewalk chalk) (see **Figure 6**). There is no audio/visual warning system in place to alert citizens nearby to the arrival of personnel vehicles and departure of fire trucks. Volunteer firefighters responding to the station or fire apparatus responding to an emergency must sustain a high degree of awareness of the presence of people and vehicles accessing the community facilities.



FIGURE 6: CITIZENS ACCESSING COMMUNITY FACILITIES AT STATION 1 USING STATION DRIVEWAY

At Station 1 there is the potential for extended turnout times of the volunteer firefighters responding through the local residential neighborhood to get to the station. There is also the potential for extended emergency response times as the fire apparatus navigate the local road network to access the collector and arterial roads in order to travel to other areas of the Township.

7.1.2 Station 2

Station 2, like the other stations, is located in a residential area but within the community of Ingleside at the intersection of Maple Street and Dickinson Drive. This station is also nearing the end of its life cycle. The most notable issue at this station is that it has two bays, with three large very large apparatus. This results in limited floor space to accommodate the current apparatus storage and equipment checks. One vehicle needs to be carefully maneuvered to exit the station which could impact turnout time and have a negative impact on the life cycle of the apparatus.

While this station is not co-located like some of the other stations, a high level of awareness must be maintained for the presence of children due to the proximity of single-family dwellings.

7.1.3 Station 3

Station 3 is located in Newington on the south-east corner of the intersection of County Road 12 and Main Street (also County Road 14). This station is also a neighbour to some single-family dwellings. Although recently renovated, the station has a small training area and limited administrative workspace. It does, however, have a separate bay for each of the apparatus. This station houses the Wildland trailer provided by the United Counties of Stormont, Dundas, and Glengarry.

7.1.4 Station 4

Station 4 is located on Highway 138 just south of the intersection of County Road 18 in St. Andrews West. The station is a typical structural concrete block building with steel roof joist and flat roof. The replacement of Station 4 is a priority of the Township; it is well past its life cycle and does not meet the needs of the department. There is one drive-through bay for three apparatus with limited space to maneuver around the vehicles, which affects the ability to complete equipment checks.

This station shares access with the community pool and tennis courts located on the north-east corner of the fire station site. Volunteer



FIGURE 7: TRAFFIC BLOCKING STATION 4 DRIVEWAY

(Source: Google Street View)

firefighters responding to the station or fire apparatus responding to an emergency must sustain a high degree of awareness of the presence of people and vehicles accessing the pool and tennis courts.

The station location, while providing access to highway motor vehicle collision calls, also places its exit in close proximity to a traffic light at the intersection of County Road 18 and Highway 138. As seen in **Figure 7**, resulting traffic can occasionally block the station driveway making site egress an issue. This station is currently planned for replacement in 2016 on a site immediately adjacent to the existing location.

7.1.5 Diesel Emissions

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

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

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

The fire service industry has responded to the need to limit diesel emission exposure by identifying monitoring equipment and technologies other than direct capture to address this concern.

Prior to this FMP, there has been no consideration of the fire station locations, or number of fire stations that would be required within a larger amalgamated community, or in the context of **one single, unified fire department**.

7.1.6 Summary of Existing Fire Stations

The existing fire stations continue to reflect the pre-amalgamation locations. All of the stations are either at a point, or nearing a point where further renewal, alterations or replacement will be required to accommodate the operational needs of the South Stormont Fire and Rescue.

The analyses within this FMP presents options for Council’s consideration in respect to identifying fire suppression service levels. These are directly related to three factors including fire station locations, staffing (volunteer firefighters) and the apparatus deployment plan.

Further analyses related to these three factors, and recommendations regarding fire station locations and replacement are contained within **Section 7.8** of this FMP.

7.2 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 fail safe 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.*”

To assist with evaluating the level of fire suppression resources required by the Township of South Stormont this study identified 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.

7.3 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.

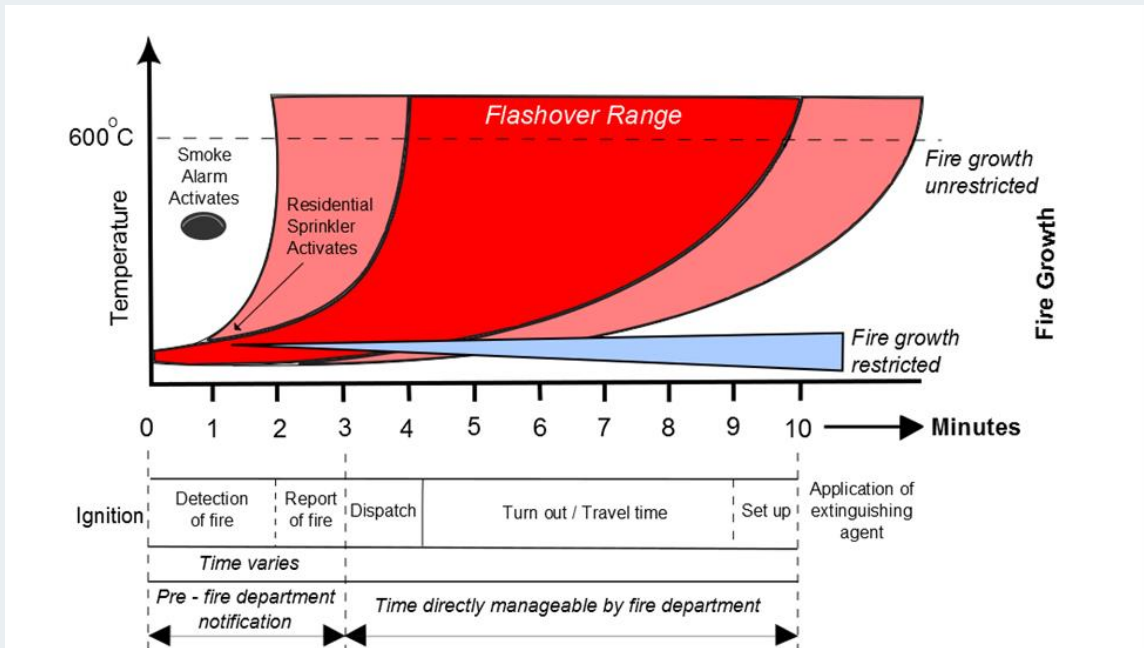
Fire growth rates, defined by the Society of Fire Protection Engineers as slow, medium and fast, are listed in **Table 14**. The fire growth rates are measured by the time it takes for a fire to reach a one megawatt (MW) fire. This is roughly equivalent to an upholstered chair burning at its peak. A two MW fire is approximately equal to a large upholstered sofa burning at its peak.

TABLE 14: 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**

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

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

Within the ten-minute time period, flashover conditions can occur. Flashover occurs when the combustible items within a given space reach a temperature that is sufficiently high for them to auto-ignite. The graph in **Figure 8** highlights the importance of the first two lines of defence including early detection actions of the occupants. Early detection occupant actions include working smoke alarms, home escape planning, and prompt notification of the fire department. The success of firefighting intervention, given the exponential increase in fire temperature and the potential for loss of property/loss of life with the progression of time, further support the importance of public education and prevention programs.

FIGURE 8: 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 travel distances, (i.e., in excess of ten minutes), the potential for the fire to have spread from the room of origin or to have already reached a flashover state will be significantly higher.

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

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

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

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

The 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 South Stormont.

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

PFSG 04-08-10 (**Appendix H**) 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 15** reflects the PFSG 04-08-10 (**Appendix H**) 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 15: 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: <ul style="list-style-type: none"> • LERL = Lower Effective Response Level • UERL = Upper Effective Response Level (together form the critical staffing range) • This tool provides a range of staffing requirements only. Actual numbers may vary depending on the fire risk that exists in the municipality. Tasks performed on fireground based on decisions made by Incident Commander. • Planning moderate, high and extreme risk occupancies/locations will further validate staffing requirements to ensure the optimum level of protection for the municipality. • Simultaneous events will require further consideration due to additional personnel requirements beyond the scope of 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)

7.4.2 National Fire Protection Association (NFPA)

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

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

7.4.3 NFPA 1710 Standard

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

NFPA 1710 is a standard that is designed for larger municipalities that, as a result of many factors, are operating their fire department utilizing primarily 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.

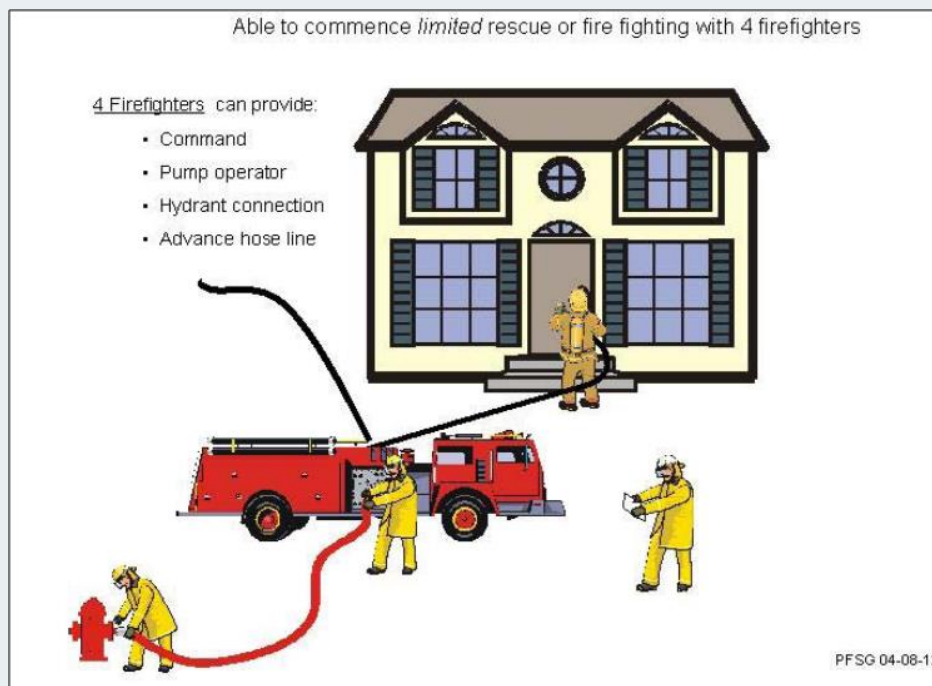
NFPA 1710 refers to the 'Initial Arriving Company' as an 'Engine Company' and further defines the minimum staffing level of an Engine Company as four firefighters whose primary functions are to pump and deliver water and perform basic firefighting at fires, including search and rescue.

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 9**.

FIGURE 9: 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 15** 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”

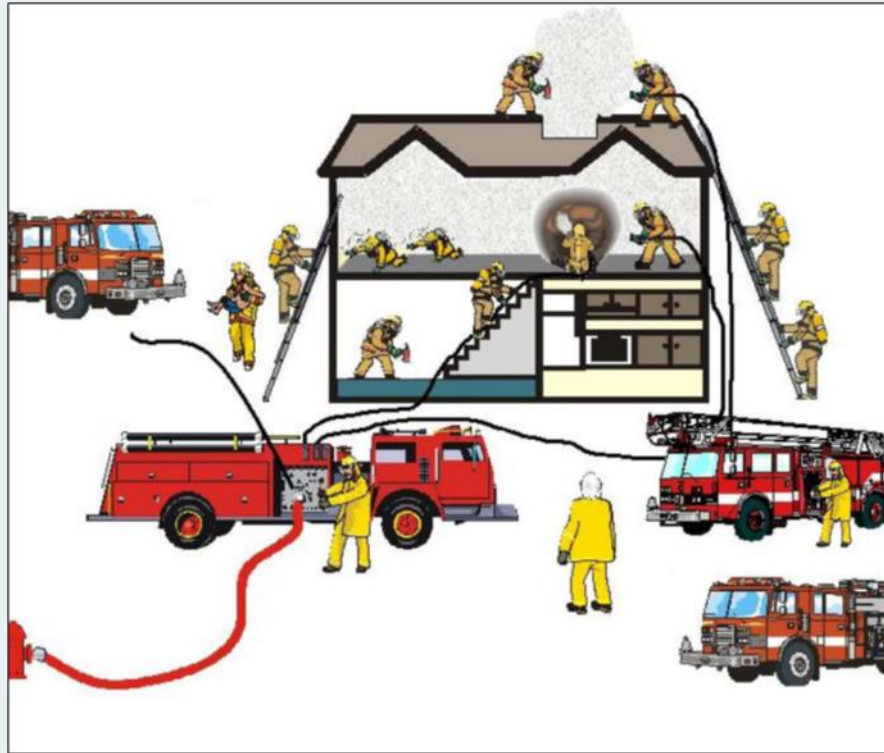
In comparison to the initial response, the depth of response relates to the “total” number of firefighters initially assigned to an incident. Depth of response is also commonly referred to as “First Alarm” or “Full Response.” For example NFPA 1710 defines “*Initial Full Alarm Assignment*” as “*Those 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 fire hydrants**. Within this FMP, this occupancy would be classified as a ‘Group C - Residential Occupancy’ (relating to a moderate risk).

It is very important to recognize that depth of response is referring to the “total” number of firefighters **initially** assigned to an incident. The total number of firefighters assigned to an incident can vary based on the type of occupancy and the level of risk present. Fires involving occupancies that have been assigned a higher level of risk such as high or extreme may require a higher number of firefighters as part of the initial depth of response.

The NFPA 1710 standard for depth of response to the fire risk scenario presented is fourteen firefighters, fifteen if an aerial device is to be used. The NFPA 1710 fire scene responsibilities for depth of response including an aerial are highlighted in **Figure 10**.

FIGURE 10: 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 FMP 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 15**, 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)

7.4.4

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

TABLE 16: NFPA 1720

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.

Analysis indicates that the Township of South Stormont has a population density of 73.0 people per square mile based on the 2011 Statistics Canada census data. This indicates that the **Rural Area Demand Zone** would be the applicable performance measure for assessing the minimum number of firefighters and response time (turnout time + travel time) for the Township of South Stormont with a performance objective of 80%.

7.4.5 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 H)*.

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 reflects a minimum deployment of four firefighters.

An appropriate deployment of an initial response within the Township of South Stormont should include a **minimum initial response of four firefighters** to provide sufficient deployment to effectively, efficiently, and safely 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

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 H**) 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. During the five year period from 2009 to 2013 the Township of South Stormont reported that 80% of fires occurred in Group C - Residential occupancies, which is an even higher percentage than that of the province.

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 Profile included within this FMP (**Appendix M**) provides the analysis for the Township of South Stormont. 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 Profile 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 South Stormont an assessment of the Community Risk Profile; 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:

- ✓ *Incident Command - 1 firefighter/officer*
- ✓ *Pump Operator – 1 firefighter*
- ✓ *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 17**.

TABLE 17: 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 OSHA Section 21 Guidance Notes an appropriate minimum depth of response to the low, moderate and high risks occupancies within the Township of South Stormont 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.

7.5 Fire Suppression Response Performance Objectives

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 this comparative analyses the following performance objectives for the delivery of fire suppression series are presented for consideration:

Initial Response Staffing Performance Objective:

Analyses of the relevant PFSGs, NFPA Standards, and OHSa Section 21 Guidance Notes indicates that the Township of South Stormont should be ***striving to achieve an initial response deployment of four firefighters to all fire related emergency calls.***

Depth of Response Staffing Performance Objective:

Analyses of the relevant PFSGs, NFPA Standards, and OHSa Section 21 Guidance Notes indicates that the Township of South Stormont should 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.***

Response Time Performance Objective:

Analyses of the relevant PFSGs, NFPA Standards, and OHSa Section 21 Guidance Notes indicates that the Township of South Stormont should be ***striving to achieve the response time performance objective referenced within the NFPA 1720 Rural Area Demand Zone including a minimum of six firefighters responding within a 14 minute response time (turnout time + travel time) with a performance objective of 80%.***

It is recommended that the 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.

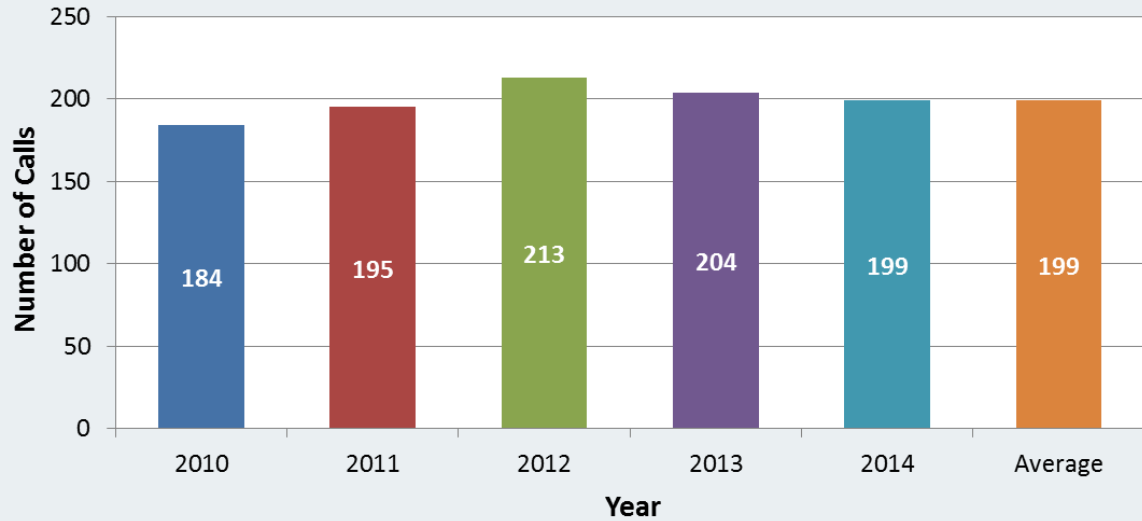
7.6 Historical Emergency Response Capabilities

This section presents analysis of the historical emergency response capabilities of the SSFR. The information within this section was provided by the SSFR and represents the actual data collected by the department for the period from January 1st, 2010 to December 31st, 2014.

7.6.1 Emergency Call Volume

A summary of the total number of emergency calls within the Township is presented in **Figure 11** based on OFMEM data. Over the five year period, the number of emergency calls by the SSFR has remained relatively stable. The total number of emergency calls within the Township has averaged approximately 199 emergency calls per year.

FIGURE 11: CALL VOLUME BY YEAR (2010 TO 2014)



7.6.2 Response Types

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 FMP. **Table 18** illustrates the relationship between the response types used in this FMP and the OFMEM-defined response types. **Appendix O** provides definitions of the OFMEM response types.

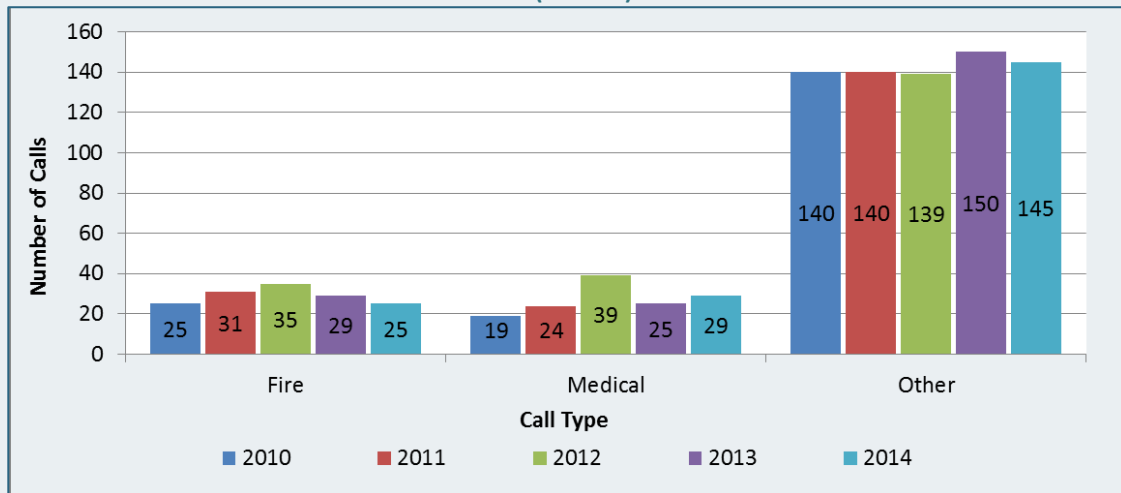
TABLE 18: EMERGENCY RESPONSE TYPES

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

7.6.3 Call Volume Response Types (Dillon)

A more detailed analysis of emergency call response types is presented in **Figure 12**. The peak in call volume occurred in 2012. As shown, the number of fire-related calls over this period peaked in 2012, but has remained relatively stable averaging 29 fire-related calls per year. The number of other call types has also remained relatively stable. The number of medical calls has been more variable over the five-year period, with a peak in 2012 of 39 calls.

FIGURE 12: CALL VOLUME BY RESPONSE TYPES (DILLON) 2010 TO 2014



7.6.4 Percentage of Call Volume Response Types (OFMEM)

The OFMEM response types are presented within **Figure 13** as a percentage of the overall emergency call volume that the SSFR responded to during the period 2010 to 2014. Rescue-related calls are the most frequent type of emergency response call and account for 21% of all emergency calls. Other calls are the second most frequent type of emergency response call and comprise approximately 19% of the total emergency calls. The fire calls represent approximately 15% of the total calls. When compared to the percent of calls by OFMEM response type for the entire province (**Figure 14**), the Township has a higher proportion of fire calls (5% province vs. 15% Township), other calls (11% vs. 19%), and rescue calls (10% vs. 21%). However, the Township has a lower proportion of medical (42% province vs. 14% Township), and false fire calls (17% vs. 11%).

FIGURE 13: PERCENTAGE OF SSFR CALLS BY OFMEM RESPONSE TYPE (2010-2014)

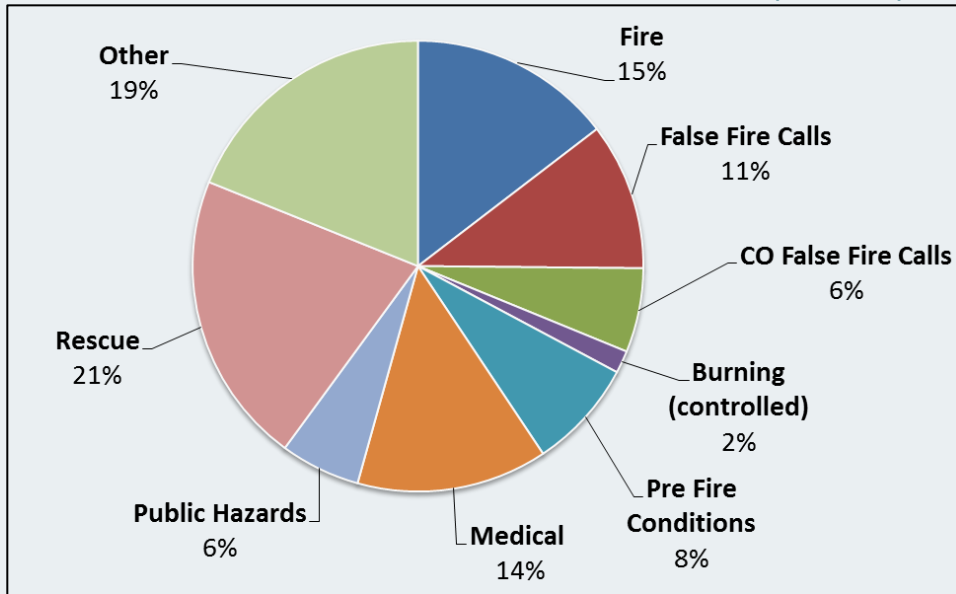
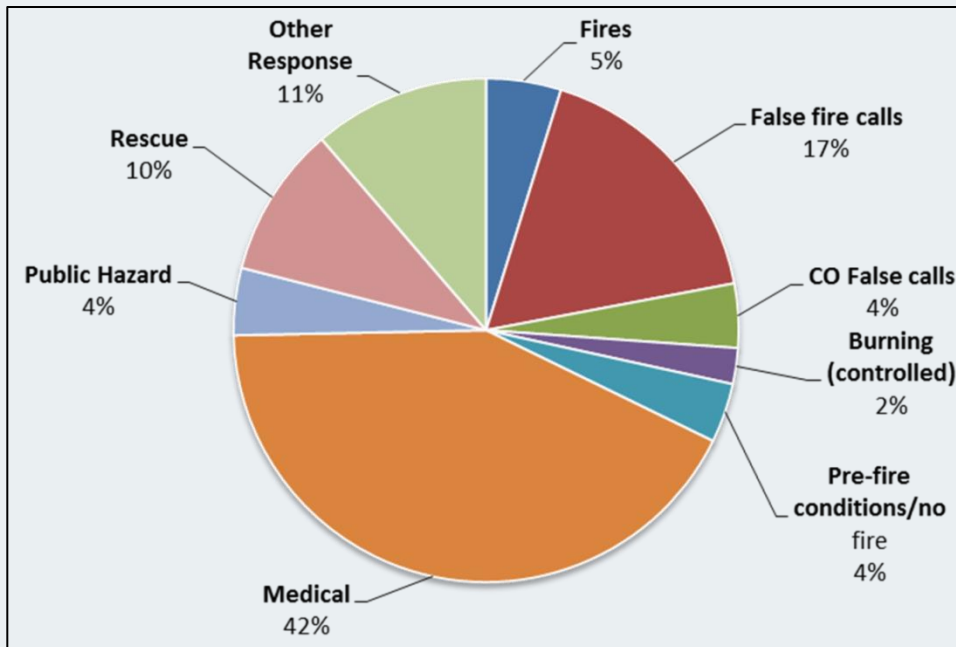


FIGURE 14: PERCENTAGE OF PROVINCE OF ONTARIO CALLS BY OFMEM RESPONSE TYPE (2009-2013)

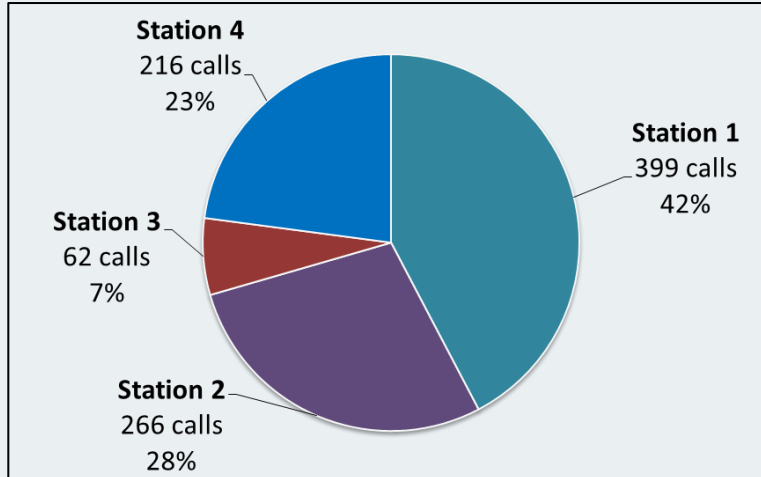


7.6.5 Emergency Call Volume by Station

Across the department as a whole from 2010 to 2014, according to OFMEM data there were 995 emergency calls within the Township. Of those calls, 943 of the call records had an assigned district, allowing for an analysis of emergency call volume by station. The distribution of the 943 calls by station is shown in **Figure 15**. Station 1 responds to the highest number of calls at 42%. Station 3 responds to the fewest number of calls at 62 calls over the five-year

period, or 7% of the total call volume. These values represent the number of calls to which each station was the first to be dispatched. The OFMEM call data did not allow for analysis of station response to assist another station.

FIGURE 15: EMERGENCY CALL VOLUME BY STATION (2010 TO 2014)



Source: Created based on analysis of OFMEM historical call data

This analysis highlights that Station 3 responded to only 7% of the total emergency calls within the Township that occurred over the 5-year period 2010 to 2014. Further detailed analyses of the volume and types of emergency calls that Station 3 responds to was conducted using the more detailed CriSys dispatching software utilized by the Brockville Dispatch Centre since late 2012.

The CriSys data indicates that for the two-year period including 2013 and 2014 there were a total of 370 emergency calls within the Township where specific response districts (station responding) could be identified. During this period, Station 3 responded to a total of 42 emergency calls, 29 of these calls were located within the Station 3 district, or 7.8% of the total emergency calls within the Township for this period. This is consistent with the five-year average of 7%.

Looking closer at the 29 emergency calls, 13 of the calls were identified as fire-related (based on Dillon response type). This represents an average of 6.5 fire-related calls per year occurring within the current Station 3 response district. In comparison to the 370 emergency calls that occurred in the Township over this period, 3.5% of those calls were fire-related that occurred within the current Station 3 response district.

Further analyses and recommendations regarding the current Station 3, and the proposed fire station location model are contained within **Section 7.8** of this FMP.

7.6.6 Response Time Assessment

Response times within the fire service are commonly measured and analyzed according to percentile ranking (i.e., percentage of responses meeting a specified timeframe). The analyses of relevant PFSGs, NFPA Standards, and OSHA Section 21 Guidance Notes within this FMP recommend that the Township of South Stormont should be striving to achieve the response time performance objective of the NFPA 1720 Rural Area Demand Zone including a minimum of six firefighters responding within a 14 minute response time (turnout time + travel time) with an 80% performance objective.

The 80th percentile (i.e., where 80% or 80 out of 100 responses meet a specific response time target) is a common industry best practice for assessing and reporting capabilities of a fire department operated by volunteer firefighters. Fire services commonly utilize 80th percentile response time data for system planning and resource deployment purposes. Aggregate 80th percentiles across the historical years are displayed and discussed for comparison purposes.

7.6.7 Dispatch Time

Dispatch Time within the fire service is defined as: *“The time that it takes for the person responsible for “alarm answering”, and “alarm processing” to be able to receive the call, and dispatch the appropriate apparatus and staff to respond to the emergency.”*

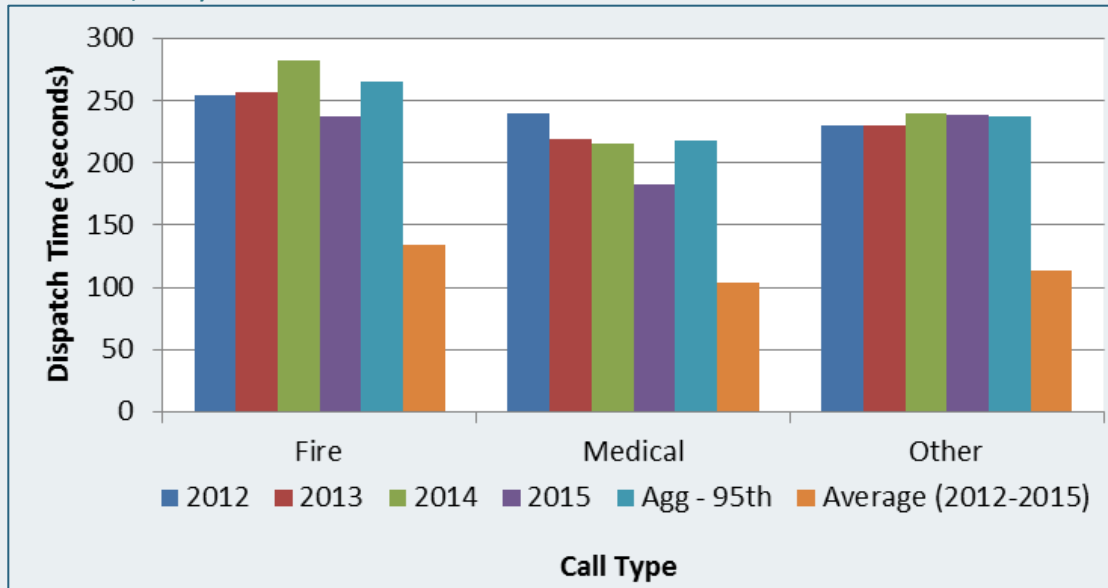
As discussed in **Section 3.8.5**, the Township of South Stormont has a Dispatch Agreement with the City of Brockville in place since 2012. The Dispatch Agreement states that the City of Brockville shall complete emergency dispatching within 60 seconds for at least 95% of emergency calls.

Two sets of call data were provided for analysis: one from the OFMEM and one from CriSys. The data provided by the OFMEM had generalized dispatch time records (showing minutes not seconds) for the year 2010, 2011 and part of 2012. The CriSys data had more detailed records of dispatch times dating from April 4, 2012 to August 22, 2015. Since this data was most recent and the most detailed, it was used for this analysis. Before analyzing the data, several outliers were removed – those calls under five seconds (nine calls) and over five minutes (45 calls).

Based on the CriSys Data, the 95th percentile dispatch times for SSFR is 266 seconds (or approx. 4.4 minutes) for fire calls, 218 seconds (or approx. 3.6 minutes) for medical calls, and 238 seconds (or approx. 4.0 minutes) for other calls based on a Dillon response type. The average dispatch times for SSFR is 134 seconds (or approx. 2.2 minutes) for fire calls, 103 seconds (or approx. 1.7 minutes) for medical calls, and 114 seconds (or approx. 1.9 minutes) for other calls based on a Dillon response type. The overall trend for dispatch services for the department across a five-year period is illustrated in **Figure 16**.

Medical calls overall have been the best performing call types for dispatch. In 2015, both fire and other call types experienced an improvement from the year prior. However, in 2015, the 95th percentile dispatch time for all fire call types improved from the previous year.

FIGURE 16: HISTORICAL DISPATCH TIMES BY TYPE – 95TH PERCENTILE & AVERAGE - (APRIL 4, 2012 – AUGUST 22, 2015)



This analysis indicates that the performance objectives for emergency dispatching within 60 seconds for at least 95% of emergency calls is not being achieved. This analysis should be reviewed with the City of Brockville to determine what can be done to achieve the performance objectives identified within the current Dispatch Agreement.

It is recommended that the performance objectives for dispatching emergency calls identified within the FMP be reviewed with the City of Brockville.

7.6.8

Turnout Time

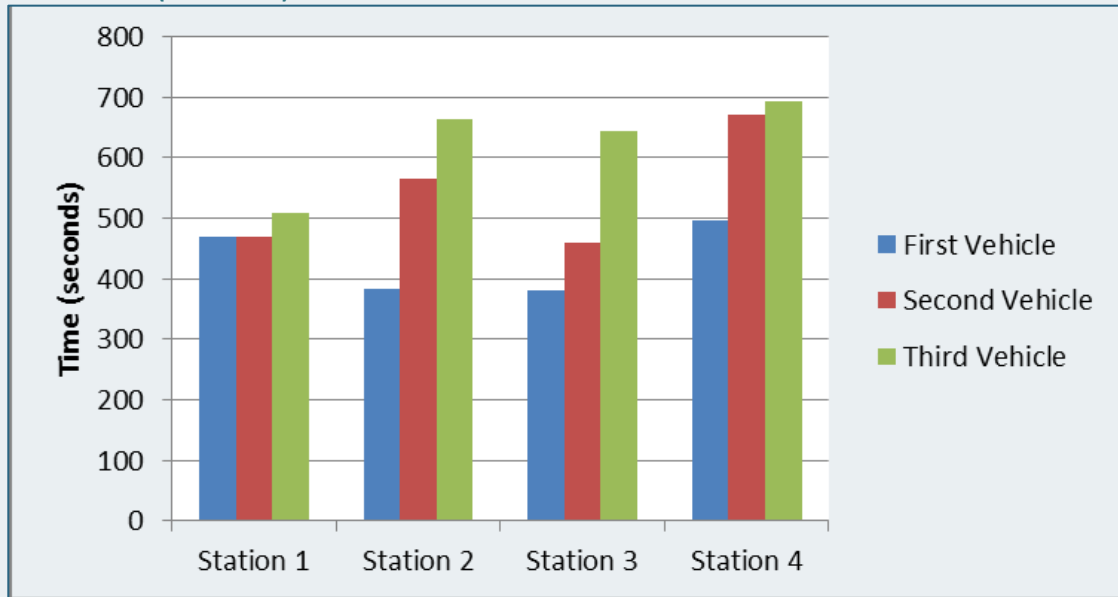
Turnout Time within the fire service is defined as: “the time interval that begins from when the emergency response staff receives the required dispatch notification, and ends at the beginning point of travel time.”

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. SSFR uses the CriSys software for emergency call record management. As mentioned, the CriSys software recorded turnout times for each truck arriving on scene from April 4, 2012 to August 22, 2015.

Figure 17 presents a summary of the SSFR historical turnout times for fire calls by station and truck.

FIGURE 17: HISTORICAL TURNOUT TIMES FOR FIRE CALLS BY STATION AND VEHICLE – 80TH PERCENTILE - (2012-2015)



The aggregate 80th percentile turnout time for the first vehicle (2 volunteer firefighters) responding to a fire call is approximately 426 seconds. The aggregate 80th percentile turnout time for the second vehicle (2 additional volunteer firefighters) responding to a fire call is approximately 513 seconds. The aggregate 80th percentile turnout time for the third vehicle (2 additional volunteer firefighters) responding to a fire call is approximately 586 seconds.

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 South Stormont Fire and Rescue most significant current challenges.

A detailed analysis of the historical turnout times for each station and apparatus is included with **Table 19**. This reflects the current SSFR deployment model of a minimum of two firefighters on the first apparatus, minimum of two firefighters on the second apparatus and a minimum of two firefighters on the third apparatus.

TABLE 19: HISTORICAL TURNOUT TIMES BY STATION

Turnout Time – 80 th Percentile (minutes)					
Apparatus	Station 1	Station 2	Station 3	Station 4	80 th Percentile
First Apparatus	7.8	6.4	6.4	8.3	7.2
Second Apparatus	7.8	9.4	7.7	11.2	9.0
Third Apparatus	8.5	11.0	10.7	11.6	10.5

This analysis indicates that the current 80th percentile for the first 2 volunteer firefighters staffing the first apparatus responding is 7.2 minutes, for the second apparatus and 2 additional firefighters is 9.0 minutes and for the third apparatus and 2 additional firefighters it is 10.5 minutes. In relation to the NFPA Rural Demand Zone performance objective of having 6 firefighters arriving on scene within a response time (turnout time + travel time) of 14 minutes, the current SSFR 80th percentile turnout time for 6 firefighters is 10.5 minutes. This leaves only a 3.5 travel time to achieve this response time performance.

7.6.8.1

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.⁹ **Table 20** represents a comparison of the average 80th percentile turnout times of the six municipalities with those of the SSFR for deploying the first apparatus. Within the Township of South Stormont this analyses presents the average 80th percentile of the second apparatus deployment to reflect the minimum deployment of four volunteer firefighters.

TABLE 20: COMPARISON TURNOUT TIMES

Comparison Municipalities		South Stormont		+ or – Percentage Difference
Deployment	Turnout Time	Deployment	Turnout Time	
Minimum 4 Firefighters (1 st Apparatus)	6.6 Minutes	Minimum 4 Firefighters (1 st and 2 nd Apparatus)	9.0 minutes	36% higher

This analysis highlights the higher turnout times for the volunteer firefighters in South Stormont 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 7.8** of this FMP.

⁹ The comparison municipalities were: Wilmot Township, Town of Innisfil, Town of New Tecumseth, Township of Uxbridge, Essa Township, and Town of Bradford West Gwillimbury.

7.6.9

Response Time (Turnout Time + Travel Time)

The proposed performance objective for assessing the SSFR fire suppression capabilities is represented in the NFPA 1720 Rural Area Demand Zone including a minimum of six firefighters responding within a 14 minute (840 second) time frame for 80% of the emergency calls responded to that is defined as **turnout time + travel time = response time**.

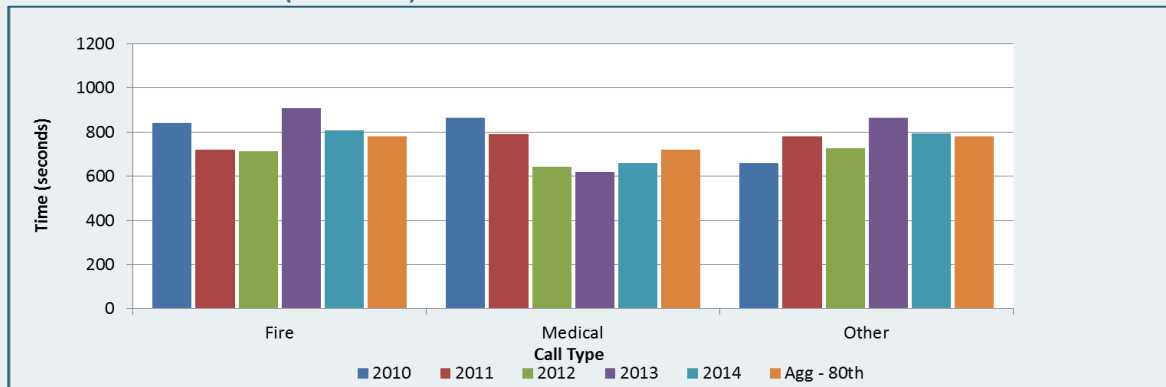
Analyzing this **response time** provides the opportunity to assess the historical performance of the SSFR in comparison to a recognized industry best practice.

The OFMEM data represents a five year 80th percentile **response time** for the SSFR first apparatus of 780 seconds (13 minutes) this exceeds the NFPA standard by one minute, but only includes 2 volunteer firefighters instead of the required 6 firefighters, therefore the SSFR is deficient in comparison to this standard and best practice.

The first apparatus 80th percentile for medical calls was approximately 720 seconds (12 minutes) and approximately 780 second (13 minutes) for other calls during the same time period but with only 2 volunteer firefighters.

Figure 18 presents a summary of the historical SSFR **response time** including the turnout time and travel time for the first apparatus response for the period 2010 to 2014. Therefore, the SSFR is not achieving the performance objective of six firefighters within a **response time** of 14 minutes or less to 80% of the fire incidents.

FIGURE 18: DEPARTMENTAL RESPONSE TIME – FIRST APPARATUS, TWO FIREFIGHTERS – BY RESPONSE TYPE - 80TH PERCENTILE - (2010-2014)



7.6.9.1

Response Time – Peer Comparison

The analysis also compared historical SSFR overall performance related to achieving the deployment of 6 firefighters within a 14 minute response time to 80% of the incidents to the same sample group of six municipalities within Ontario utilizing volunteer fire departments where Dillon has conducted similar analysis. **Table 21** represents a comparison of the average 80th percentile response times of the six municipalities with those of the SSFR.

TABLE 21: COMPARISON RESPONSE TIMES

Type of Call	Comparison Municipalities		South Stormont		+ or – Percentage Difference
	Deployment	Response Time	Deployment	Response Time	
Fire Calls	Minimum 6 Firefighters	756 seconds (12.6 minutes)	Minimum 2 Firefighters	780 seconds (13 minutes)	3.2% higher
Medical Calls	Minimum 6 Firefighters	638 seconds (10.6 minutes)	Minimum 2 Firefighters	720 seconds (12 minutes)	12.9% higher
Other Calls	Minimum 6 Firefighters	774 seconds (12.9 minutes)	Minimum 2 Firefighters	780 seconds (13 minutes)	1.0% higher

This analyses further highlights that the current turnout time of the SSFR related to assembling and deploying the initial 6 volunteer firefighters is the most significant challenge facing the SSFR in achieving this best practice.

7.7 Assessment of Existing Fire Suppression Coverage

In order to assess existing fire suppression coverage, a model was developed using a GIS, historical call data, and the application of the NFPA 1720 Rural Area Demand Zone standard.

7.7.1 Fire Suppression Modelling Methodology

This section provides a brief outline of the scope and methodology used in order to provide insight into the modeling procedures used to assess existing response coverage.

The GIS program was used to assess the fire department's response coverage. Digital copies of GIS layers were provided by the Township of South Stormont and the Ministry of Natural Resources and Forestry (2015). Relevant base road information, such as road length, address ranges, and road class, was extracted from the GIS data to create the existing conditions model.

The historic call locations were then geocoded based on the road data provided. Since the OFMEM call data does not separate turnout times and travel times, this call data could not be used to calibrate the network. Instead the road speeds from a neighbouring municipality was used. Highway 138 varies in speed; using Google street view the posted speed limits were found and entered into the model network. To ensure the model was calibrated accurately, Google maps were used to cross reference travel times. **Table 22** displays the calibrated speeds for the various classes of roads.

TABLE 22: CALIBRATED SPEED

Road Class	Modeled Speeds (km/h)
Highway (401)	95
Highway (138)	75 & 65
Arterial	55
Collector	50
Local (Outside Towns)	45
Local (Inside Towns)	40

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. This assesses whether the Township is providing adequate emergency response coverage in comparison to the requirements of NFPA 1720. As previously mentioned, modelling was completed to assess the department’s ability to meet the rural demand zone standard identified in NFPA 1720. This analysis also identifies the areas where the fire department is not currently able to achieve the response time elements or the staffing elements of the NFPA 1720 performance measure.

Table 23 highlights the performance standards that were considered to assess the fire department’s depth of response coverage.

TABLE 23: PERFORMANCE TARGET ASSESSED

Demand Zones	Demographics	Minimum # of Firefighters Responding	Response Time (Turnout + Travel) in Minutes	Meets Objective (%)
NFPA 1720 Rural Demand Zone	<500 people per square mile	6	14	80

7.7.2

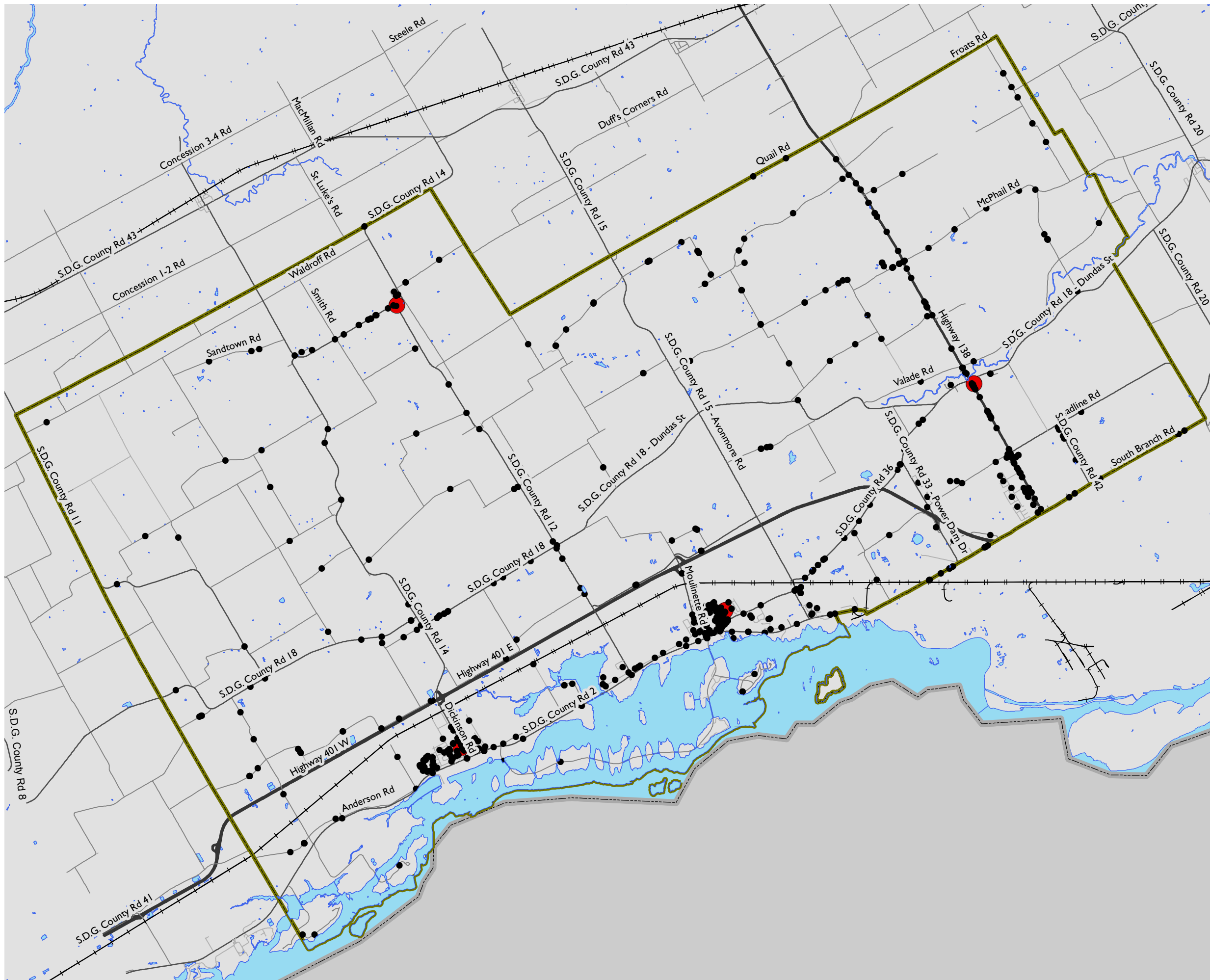
Historic Call Locations

Figure 19 shows the location of all geocoded emergency calls responded to by SSFR from January 2010 to December 2014. The Township of South Stormont covers a large geographic area (447.5 square kilometres according to Statistics Canada) and is predominantly rural, so there are calls distributed across the Township. There are small concentrations of calls within the communities of Ingleside, Long Sault, Newington, and along Highway 138.



TOWNSHIP OF SOUTH STORMONT
FIRE MASTER PLAN

HISTORIC CALL LOCATIONS (2010-2014)
FIGURE 18



- FEDERAL BOUNDARY
- SOUTH STORMONT BOUNDARY
- FIRE STATION
- HISTORIC CALLS (2010-2014)
- RAILWAY
- HIGHWAY
- ARTERIAL ROAD
- COLLECTOR ROAD
- LOCAL ROAD
- LAKES AND RIVERS



MAP DRAWING INFORMATION:
DATA PROVIDED THE TOWNSHIP OF SOUTH STORMONT

MAP CREATED BY: SMB
MAP CHECKED BY: SLC
MAP PROJECTION: NAD 1983 UTM Zone 18N



PROJECT: 15-1907
STATUS: DRAFT
DATE: 12/14/2015

7.7.3 Existing Conditions – Fire Suppression Coverage

The existing conditions of fire suppression coverage are compared to the NFPA 1720 Rural Area Demand Zone, Community Risk Profile, and Superior Tanker Shuttle Accreditation.

7.7.3.1 NFPA 1720 Rural Area Demand Zone

The existing fire suppression capabilities of the SSFR were assessed in comparison to the NFPA 1720 Rural Area Demand Zone performance target as shown in **Figure 20**. Within a fourteen minute response time (turnout + travel time), a minimum of six firefighters is able to respond to 2.4% of historic, geocoded emergency call locations and is able to cover 3.4% of the road network.

**Stations & Staffing
MIN STAFF - 20**

Station 1: Long Sault

Pump - 2 Firefighters
Rescue - 2 Firefighters
Tanker - 1 Firefighter

Station 2: Ingleside

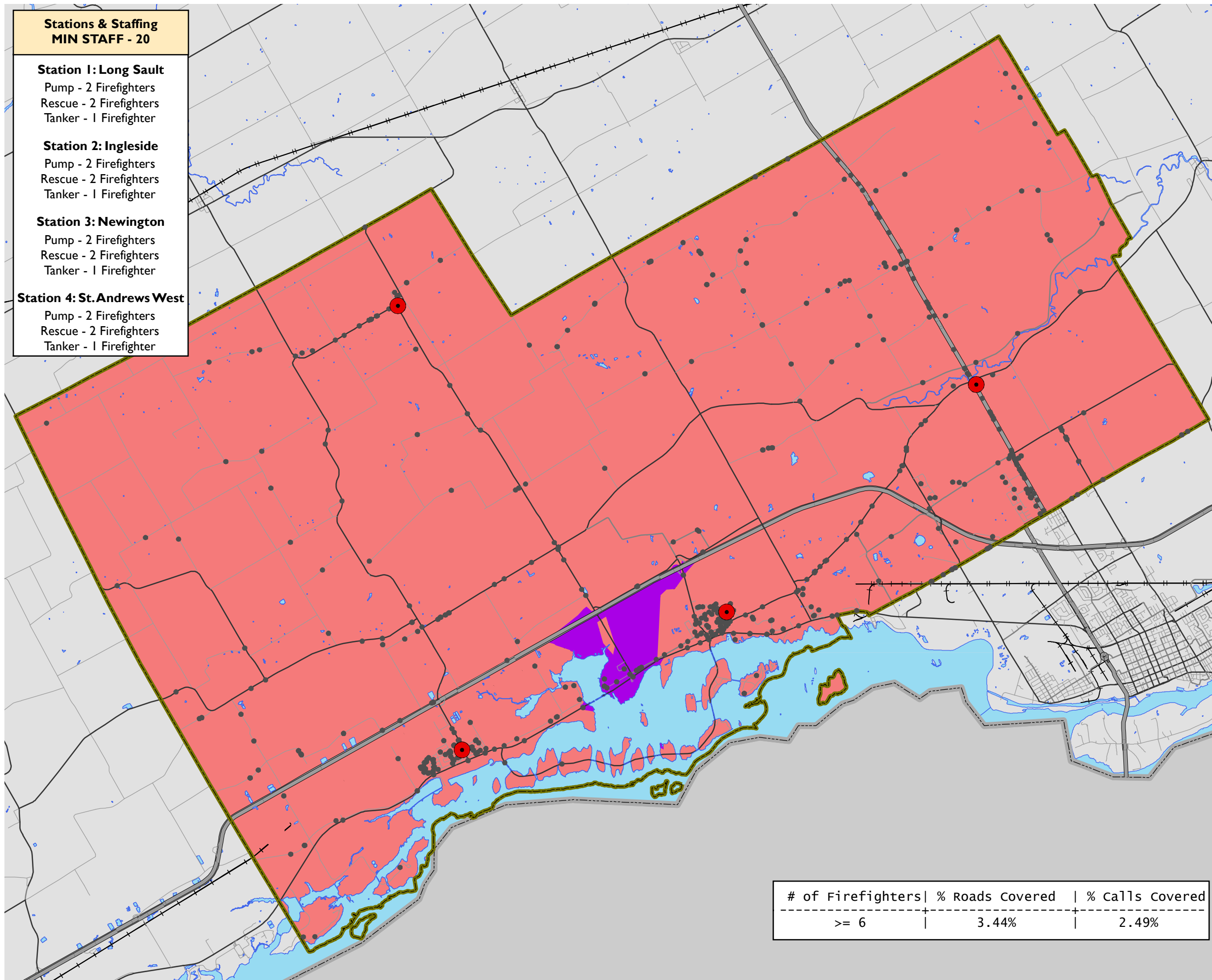
Pump - 2 Firefighters
Rescue - 2 Firefighters
Tanker - 1 Firefighter

Station 3: Newington

Pump - 2 Firefighters
Rescue - 2 Firefighters
Tanker - 1 Firefighter

Station 4: St. Andrews West

Pump - 2 Firefighters
Rescue - 2 Firefighters
Tanker - 1 Firefighter



TOWNSHIP OF SOUTH STORMONT
FIRE MASTER PLAN

**EXISTING CONDITIONS
NFPA 1720 RURAL DEMAND ZONE COVERAGE
FIGURE 20**

- FEDERAL BOUNDARY
- SOUTH STORMONT BOUNDARY
- FIRE STATION
- HISTORIC CALLS (2010-2014)
- HIGHWAY
- ARTERIAL
- COLLECTOR
- LOCAL
- RAILWAY
- LAKES AND RIVERS

**TOTAL NUMBER OF FIREFIGHTERS REACHING AREA
WITHIN 14 MINUTES OF TURNOUT AND TRAVEL TIME**

- < 6 Firefighters
- >= 6 Firefighters



MAP DRAWING INFORMATION:
DATA PROVIDED THE TOWNSHIP OF SOUTH STORMONT

MAP CREATED BY: SMB
MAP CHECKED BY: SLC
MAP PROJECTION: NAD 1983 UTM Zone 18N

# of Firefighters	% Roads Covered	% Calls Covered
>= 6	3.44%	2.49%



PROJECT: 15-1907
STATUS: DRAFT
DATE: 12/21/2015

7.7.3.2 Community Risk Profile

The findings of the Community Risk Profile identify the locations of low, moderate and high risk occupancies within the Township. Within the findings of the Community Risk Profile the SSFR existing emergency response coverage was presented. This indicates the areas of fire risk where the SSFR is currently able to provide the proposed NFPA 1720 Rural Area Demand Zone deployment of a minimum of six volunteer firefighters responding within a response time (turnout time + travel time) of 14 minutes or less to 80% of the emergency incidents.

The existing capabilities of the SSFR are presented in **Figure 21** indicating that the SSFR is currently able to provide an emergency response deployment of six volunteer firefighters to 0.2% of the low risk occupancies, 20.3% of the moderate risk occupancies and is not able to respond to any of the high risk occupancies within the prescribed 14 minutes.

7.7.3.3 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.

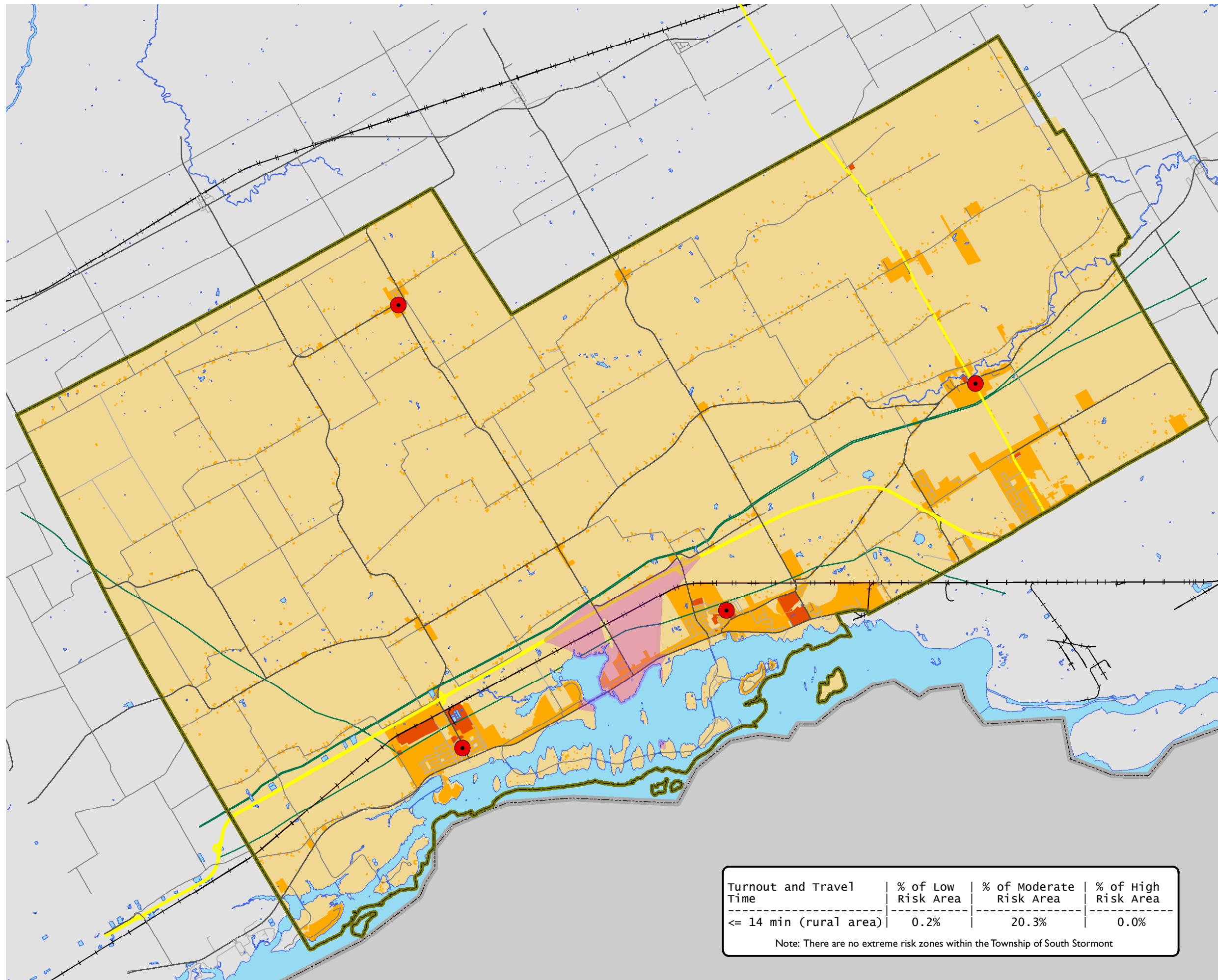
The levels of service assigned with the Tanker Shuttle Accreditation (e.g., Standard Tanker Shuttle Service or Superior Tanker Shuttle Accreditation) are determined by the alternative water supply performance and capabilities provided by the fire services.

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.”*

TOWNSHIP OF SOUTH STORMONT

TOWNSHIP OF SOUTH STORMONT
FIRE MASTER PLAN

COMMUNITY RISK PROFILE EXISTING EMERGENCY RESPONSE COVERAGE FIGURE 21



- FEDERAL BOUNDARY
 - SOUTH STORMONT BOUNDARY
 - NFPA 1720 (RURAL) COVERAGE AREA
 - FIRE STATION
 - HIGHWAY
 - ARTERIAL ROAD
 - COLLECTOR ROAD
 - LOCAL ROAD
 - RAILWAY
 - OIL AND GAS PIPELINES
 - LAKES AND RIVERS
- FIRE RISK**
- High
 - Moderate
 - Low



MAP DRAWING INFORMATION:
DATA PROVIDED THE TOWNSHIP OF SOUTH STORMONT

MAP CREATED BY: SMB
MAP CHECKED BY: SLC
MAP PROJECTION: NAD 1983 UTM Zone 18N

Turnout and Travel Time	% of Low Risk Area	% of Moderate Risk Area	% of High Risk Area
<= 14 min (rural area)	0.2%	20.3%	0.0%

Note: There are no extreme risk zones within the Township of South Stormont



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STATUS: DRAFT
DATE: 12/21/2015

The SSFR was accredited by FUS on May 8th, 2013 having achieved the requirements of the Superior Tanker Shuttle Accreditation. The following fire insurance grades are of specific importance to this review as they relate to the location of approved alternative water supplies, and the current fire station including:

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

Rating 3B: *That indicates the area of the Township without the Superior Tanker Shuttle Accreditation beyond five kilometres by road of an approved dry hydrant location, but within eight kilometres by road of the current 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.

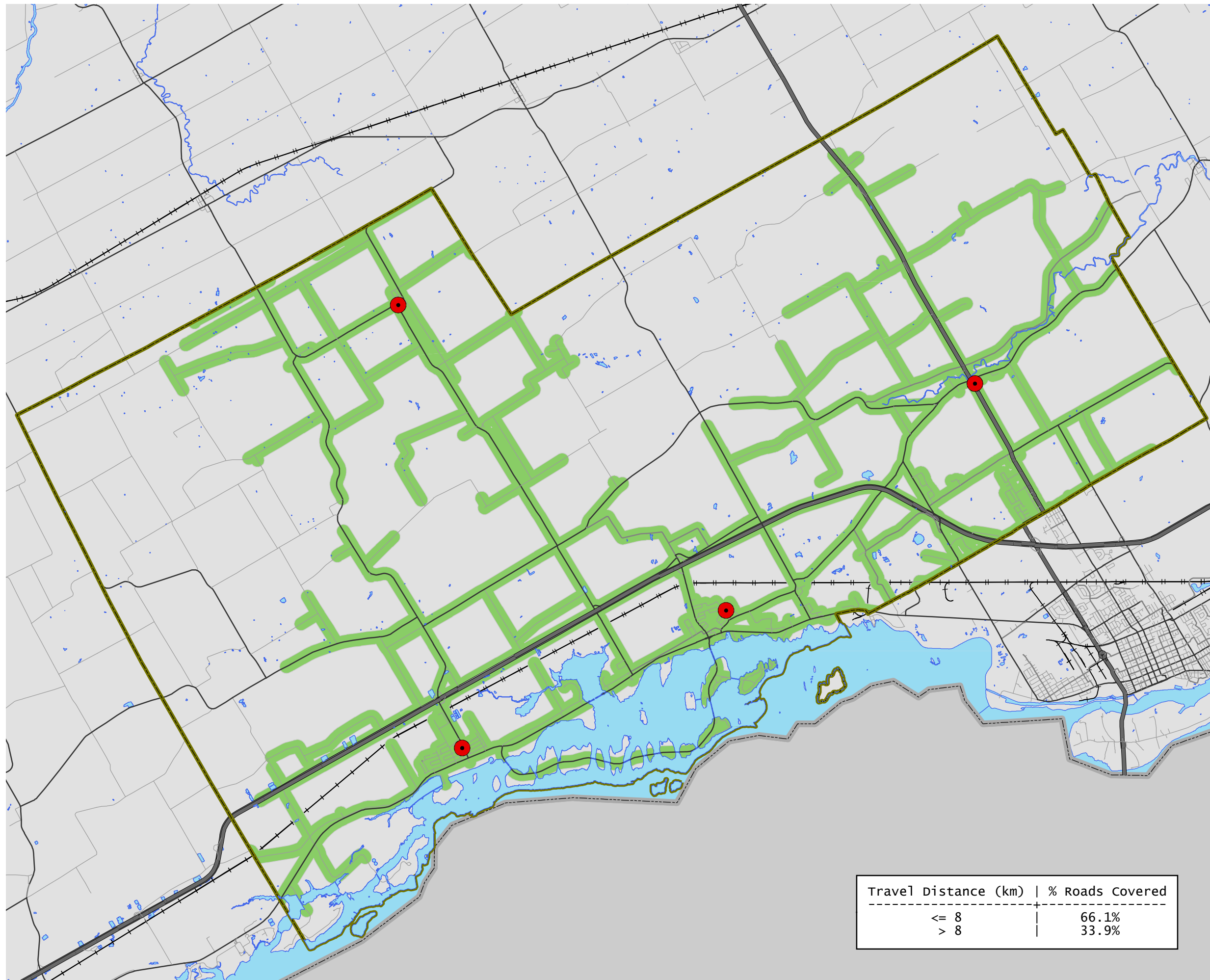
The SSFR recognizes the importance of the Superior Tanker Shuttle Accreditation as a component of providing the most cost effective and efficient level of fire protection services providing the most value to the community. **Figure 22** reflects the current percentage of roads covered by the SSFR tanker shuttle accreditation within an eight kilometres or less travel distance from the closest SSFR fire station. The SSFR can currently provide this service to 66.1% of the roads covered within the Township.

TOWNSHIP OF SOUTH STORMONT

TOWNSHIP OF SOUTH STORMONT
FIRE MASTER PLAN

CURRENT SUPERIOR TANKER SHUTTLE ACCREDITATION

FIGURE 22



-  FEDERAL BOUNDARY
-  SOUTH STORMONT BOUNDARY
-  8KMBOUNDARY_ROADSONLY
-  FIRE STATION
-  HIGHWAY
-  ARTERIAL ROAD
-  COLLECTOR ROAD
-  LOCAL ROAD
-  RAILWAY
-  LAKES AND RIVERS



MAP DRAWING INFORMATION:
DATA PROVIDED THE TOWNSHIP OF SOUTH STORMONT

MAP CREATED BY: SMB
MAP CHECKED BY: SLC
MAP PROJECTION: NAD 1983 UTM Zone 18N

Travel Distance (km)	% Roads Covered
<= 8	66.1%
> 8	33.9%



PROJECT: 15-1907
STATUS: DRAFT
DATE: 12/21/2015

7.8

Fire Suppression Options

The analyses within this report indicate that the SSFR has, since its inception in 1998, 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 the use of automatic aid agreements, mutual aid agreements and fire protection agreements in support of the core fire protection, fire suppression services provided by the dedicated group of volunteer firefighters comprising the SSFR.

This FMP presents the NFPA 1720 Rural Area Demand Zone performance measure as an industry best practice for assessing the existing fire suppression services provided by the SSFR. This best practice requires a deployment of six volunteer firefighters arriving on scene within a fourteen minute response time (turnout time + travel time) to 80% of the fire related emergency calls received. The SSFR has historically achieved this level of performance to a geographic area representing 2.4% of the historical emergency call locations and 3.4% of the road network covered.

The analyses within this report indicates that there are a number of factors contributing to the inability of the SSFR to achieve this recognized fire suppression service level best practice, these include:

- **Turnout time of the current volunteer firefighters;**
- **Number of volunteer firefighters responding as part of the initial deployment; and**
- **The large geographical area of emergency response coverage.**

The current and past members of the SSFR represent a highly dedicated and committed group of full-time staff, part-time staff and volunteer firefighters that have served the SSFR and Township well. Although attempts have been made towards the goal of having **one single, unified fire department** this goal has yet to be fully achieved.

In our view, there is a willingness and desire on behalf of the current members of the South Stormont Fire and Rescue and Council to achieve the goal of **one single, unified fire department** and the level of fire suppression service presented within this FMP as a best practice.

7.8.1

Reducing Turnout Time of Volunteer Firefighters

Implementing strategies to reduce the turnout time of the first six volunteer firefighters at each of the fire stations will be the most effective way for the SSFR to achieve improved performance in relation to the NFPA 1720 Rural Demand Zone performance objectives presented within this FMP.

The analyses 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 SSFR and Council with strategies specifically targeted at reducing the volunteer firefighters turnout time.

7.8.1.1 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.

The work and life balancing of today's volunteer firefighters who are involved in more social activities, work priorities and life's priorities are making it increasingly difficult to commit the time required to sustain the required training competencies and response capabilities of a volunteer firefighter.

Recent trends within the industry are seeing this historical total complement increase to 30 to 40 volunteer firefighters per station.

It is recommended that the complement of volunteer firefighters at each fire station operated by the South Stormont Fire and Rescue be increased to 32 volunteer firefighters.

7.8.1.2 Recruitment and Retention of Volunteer Firefighters

Increasing the complement of volunteer firefighters to 32 at each station will require revising the current recruitment process. This FMP includes a recommendation to utilize the recruitment and retention strategies for volunteer (part-time) firefighters included within the Alberta Volunteer Firefighter Recruitment and Retention Strategy as part of enhancing recruitment and retention of volunteer (part-time) firefighters in the Township of South Stormont.

The recruitment process should consider changing the reference to "*Volunteer Firefighters*" to "*Part-time Firefighters*" and highlighting the compensation related benefits in adding to the historic community involvement benefits.

Consideration should also be given to targeting candidates who live or work in close proximity to the fire station.

The SSFR has initiated a process to recruit auxiliary firefighters. This strategy should be further pursued to develop a training and recruitment pool for part-time firefighters.

7.8.1.3 Scheduling of Volunteer (Part-time) Firefighters

In our experience the scheduling of volunteer (part-time) firefighters, or the use of scheduled on-call firefighters can be found more in western Canada than in Ontario. As many municipalities are recognizing the challenges of recruiting and sustaining volunteer firefighters, this strategy appears to be providing a more affordable option for ensuring a minimum number of responding firefighters.

The application of this strategy is not intended to form the basis of a transition to full-time firefighters. It is intended to be a method to enhance the sustainability of the traditional

volunteer (part-time) firefighter's model while ensuring that there will be an ensured response of the minimum number of volunteer (part-time) firefighters required. In the Township of South Stormont ensuring this minimum response is particularly relevant during the Monday through Friday business hours.

This strategy seeks to develop a process whereby the proposed initial response of 6 volunteer (part-time) firefighters are scheduled to be available. This is defined as being available within the community and ready, willing and able to respond to the fire station when alerted.

This strategy is not intended to provide full-time staffing at the fire station, it is solely intended to ensure that there will be an initial response of the proposed minimum of 6 volunteer (part-time) firefighters from each station.

In our experience where this type of strategy has been applied there has been some form of compensation given to the volunteer (part-time) or scheduled on-call firefighters who participate. Across Canada there is a wide range of ways to compensation practices for firefighters who agree to participate in this type of scheduling process. The amount of compensation is commonly related directly to the duration of time a firefighter is scheduled. For example, the schedule can be created to reflect a commitment for an 8 to 10 hour Monday through Friday daytime schedule, a 24 hour schedule, or a weekly time frame.

Our research indicates that there is currently no consistent method for determining the amount of compensation related to scheduling. In part, this may be associated to the wide range of compensation practices for volunteer (part-time) firefighters across Canada that include annual stipends, honorariums, hourly rates, and differing rates for training and fire suppression.

It is recommended that the Township of South Stormont consider the implementation of scheduled volunteer (part-time) firefighters.

7.8.1.4

Operational/Cultural Change

Consultation with the current volunteer firefighters identified symptoms of an organization struggling with change and a positive level of trust/respect both within the stations and amongst the stations. This is not uncommon with an organization that has undergone a number of leadership changes over the past few years as the SSFR has. In part, it also reflects the remaining silos from the historic community driven fire stations versus that of today's SSFR model.

Under the leadership of the full-time Fire Chief there appears to be a willingness to engage in change in moving to the goal of **one single, unified fire department**. The benefits of this on its own could relate to improved turnout times and participation across the department.

Specifically, within this strategy consideration should be given to an operational model that does not differentiate to which station a volunteer (part-time) firefighter can respond when alerted. Consideration should be given particularly for fire related calls to implement an alerting process whereby a volunteer (part-time) firefighter who may be visiting, shopping or passing through the area of a fire station to which he/she is not regularly assigned can respond to that station and be included within the initial response goal of six firefighters.

It is recommended that the SSFR consider options for implementing alternative alerting procedures for volunteer (part-time) firefighters to respond to the closest fire station.

7.8.2 Predicted Turnout Time

Options to improve the overall performance of the SSFR in achieving the best practices fire suppression performance objectives identified within the NFPA 1720 Rural Demand Zone rely significantly on the successful implementation of the strategies presented to improve the turnout time of volunteer (part-time) firefighters.

The result of the improved turnout time strategies will result in turnout times that are more consistent with the peer comparator communities identified within this FMP. As such, the analyses within this FMP suggests the predicted turnout times for volunteer (part-time) firefighters as outlined in **Table 24**.

TABLE 24: PREDICTED SSFR TURNOUT TIMES

	Comparison Municipalities			South Stormont	
	Deployment	Turnout Time		Deployment	Turnout Time
NFPA -1720 Initial 6 Firefighters	Minimum 4 Firefighters (1 st Apparatus)	6.6 Minutes	NFPA – 1720 Initial 6 Firefighters	Minimum 4 Firefighters (1 st Apparatus)	6.5 minutes
	Minimum 2 Firefighters (2 nd Apparatus)	--		Minimum 2 Firefighters (2 nd Apparatus)	8.5 Minutes

The proposed predicted turnout times of 6.5 minutes for first apparatus including a minimum of four firefighters, and 8.5 minutes for the second apparatus including a minimum of two firefighters have been applied to each of the optional fire station location models presented within this FMP.

7.8.3 Proposed Major Apparatus Deployment Plan

Analyses of the SSFR current major apparatus fleet including pumpers, rescues and tankers indicates that each fire station currently has the same number and type of major apparatus. Research for this FMP indicates that this fleet deployment plan has been in place since pre-

amalgamation and represents the pre-amalgamation deployment of a pumper, rescue and tanker from each fire station.

Over the past decade the fire service industry has been striving to redesign fire trucks in attempting to reduce historical fleet sizes, and improve efficiencies in apparatus deployment. One of the most significant of these initiatives has been the development of pump-rescue. These apparatus combine the historical role of single use rescue trucks and pumpers into one redesigned apparatus capable of achieving both operational roles. The pump-rescue model has been implemented in many municipalities across Ontario replacing the historical need for two major apparatus.

The proposed major apparatus plan for the SSFR (**Table 25**) is to transition to the use of pump-rescues as the current pumpers reach the end of their life cycle, thus reducing the need for rescue trucks at each station. This plan does maintain one rescue truck at Station 1 to carry additional rescue equipment, and specialized rescue equipment for ice/water and other specialized services.

TABLE 25: PROPOSED MAJOR APPARATUS DEPLOYMENT PLAN

Station #	Current Major Apparatus Deployment	Proposed Major Apparatus Deployment
1	2000 Pumper	Pump-Rescue
	1995 Tanker	Tanker
	2008 Rescue	Rescue
2	1997 Pumper	Pump-Rescue
	2007 Tanker	Tanker
	2013 Rescue	
3	1996 Pumper	Pump-Rescue
	2011 Tanker	Tanker
	2004 Rescue	
4	2000 Pumper	Pump-Rescue
	2002 Tanker	Tanker
	1991 Rescue	

The proposed major apparatus deployment plan has been applied to each of the optional fire station location models presented within this FMP.

7.8.4 Optional Fire Station Location Models

The next element of the analyses of options for delivering fire protection services applies the proposed predicted turnout times of 6.5 minutes for the first apparatus, and 8.5 minutes for the second apparatus representing the initial response of 6 volunteer (part-time) firefighters. The fire station location model options also include the proposed major apparatus deployment plan.

7.8.4.1 Option 1 – Four Station Model - Replace Station 4 at Existing Location

This option presents replacing Station 4 at its current location, sustaining the other three stations in their current locations, applying the predicted turnout times, and implementing the proposed major apparatus deployment plan.

The replacement of Station 4 is currently planned for 2016. This fire station has met the end of its life cycle and is not meeting the operational needs of the department. The current location of this station was assessed in regards to its proximity to the current residences of volunteer firefighters deployed to this station, and an alternative to relocate this station to the Township Public Works Yard on Road 36.

This analysis indicates that the current location of the station, although having some site constraints, is the preferred location. During the site planning process for the new station attention should be given to the interaction between the fire department (volunteer firefighters and fire apparatus) and neighbouring community features. Where possible this interaction should be minimized.

The new fire station design should include a minimum of two apparatus bays that are double length and have drive-through capability. This will be required to support the proposed apparatus and equipment deployment plan for the SSFR both in the short-term and long-term planning horizon of the FMP.

Figure 23 presents the four stations in their current locations including Station 4 in its preferred location. The proposed predicted turnout times for the volunteers at all stations of 6.5 minutes for the first apparatus to be deployed, and 8.5 minutes for the second apparatus to be deployed have been applied to this model. This represents the NFPA 1720 minimum deployment of six volunteer firefighters.

As summarized in **Table 26**, in comparison to the existing conditions deployment model and volunteer firefighter turnout times this modeling predicts 47.6% coverage of roads, and 75.0%

coverage of the historical call locations. This is an increase of 44.2% coverage of roads, and 72.6% coverage of historical calls. These results confirm the efficiency that can be achieved if the SSFR is able to implement the predicted turnout times of 6.5 and 8.5 minutes and minimum deployment of 6 volunteer firefighters to meet the NFPA 1720 Rural Demand Zone Standard.

TABLE 26: NFPA 1720 RURAL DEMAND ZONE STANDARD – COMPARISON OPTION 1

NFPA 1720 Rural Demand Zone Standard (6 Firefighters in 14 Minutes)	Existing Conditions	Option 1
% of Road Coverage	3.4%	47.6%
% of Historical Calls Covered	2.4%	75.0%

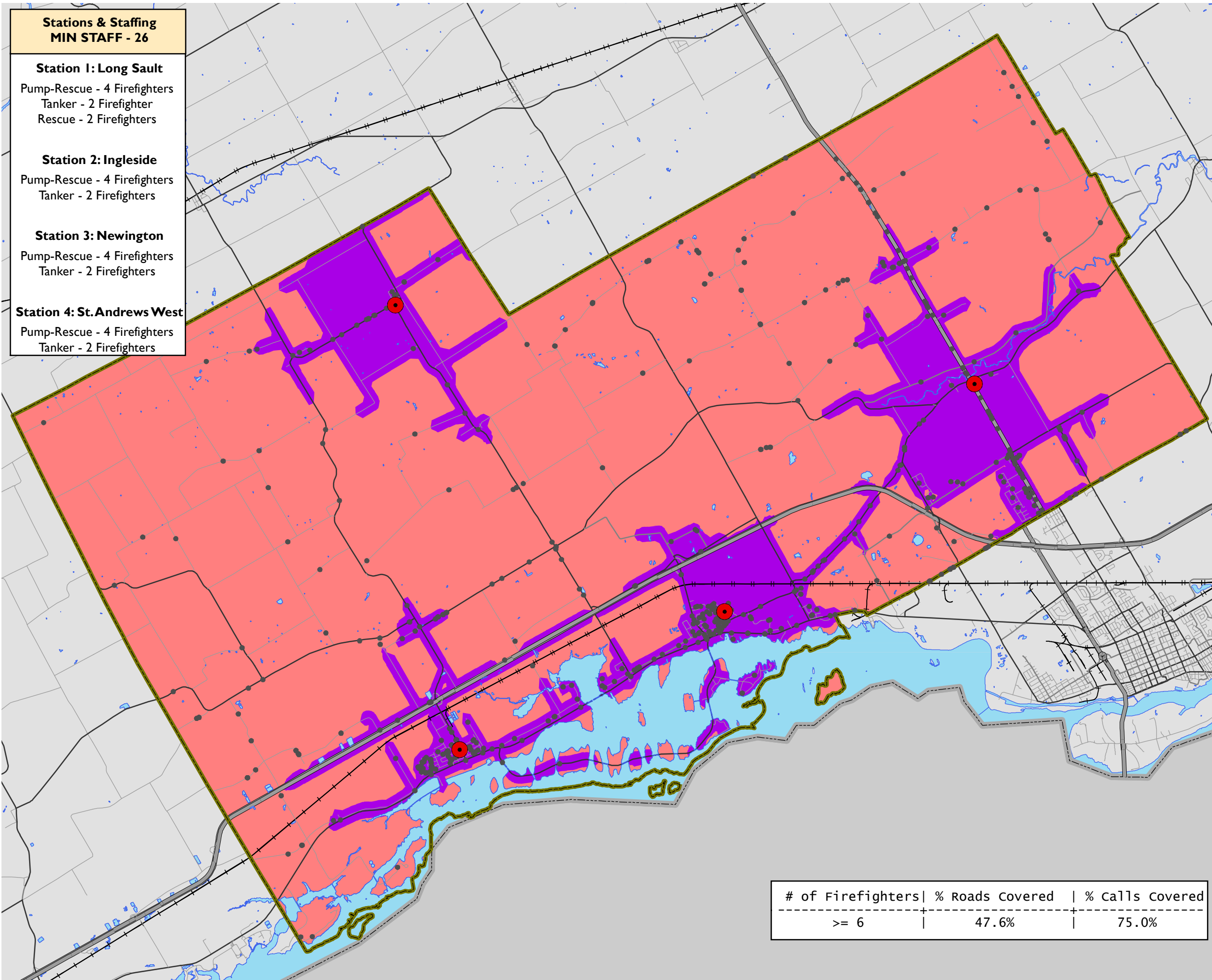
Stations & Staffing
MIN STAFF - 26

- Station 1: Long Sault**
Pump-Rescue - 4 Firefighters
Tanker - 2 Firefighter
Rescue - 2 Firefighters

- Station 2: Ingleside**
Pump-Rescue - 4 Firefighters
Tanker - 2 Firefighters

- Station 3: Newington**
Pump-Rescue - 4 Firefighters
Tanker - 2 Firefighters

- Station 4: St. Andrews West**
Pump-Rescue - 4 Firefighters
Tanker - 2 Firefighters



TOWNSHIP OF SOUTH STORMONT
FIRE MASTER PLAN

OPTION 1
FOUR STATION MODEL
REPLACE STATION 4 AT EXISTING LOCATION

FIGURE 23

- FEDERAL BOUNDARY
- SOUTH STORMONT BOUNDARY
- FIRE STATION
- HISTORIC CALLS (2010-2014)
- HIGHWAY
- ARTERIAL
- COLLECTOR
- LOCAL
- RAILWAY
- LAKES AND RIVERS

TOTAL NUMBER OF FIREFIGHTERS REACHING AREA WITHIN 14 MINUTES OF TURNOUT AND TRAVEL TIME

- >= 6 Firefighters
- < 6 Firefighters



MAP DRAWING INFORMATION:
DATA PROVIDED THE TOWNSHIP OF SOUTH STORMONT

MAP CREATED BY: SMB
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7.8.4.2

Option 2 – Four Station Model – Relocate Station 1

This option presents relocating Station 1, sustaining the other three stations in their current locations, applying the predicted turnout times, and implementing the proposed major apparatus deployment plan.

Station 1 is located in a residential area on a local street in Long Sault and is co-located with the community library. The current station has some positive features, such as its training space, but has limited apparatus room space to accommodate the current and future major apparatus deployment plan. This station is nearing the end of its lifecycle and will require capital investment in the short-term.

The current location of this station is not optimal to its emergency response area coverage. In identifying a preferred site, consideration was given to currently owned Township property and the impacts on travel time of the current volunteers responding to the fire station. This analysis identified a preferred location in the area of Moulinette Road and the Highway 401, north of the station's current location. There is potential to find a site in this area located on an arterial road which would provide faster travel speeds than the existing station location.

This option proposes the purchase of property, construction of a new station in this area, and the decommissioning, or reuse of the existing fire station by the Township. The new fire station design should include a minimum of three apparatus bays that are double length and have drive-through capability. This is recommended to support the proposed apparatus and equipment deployment plan for the SSFR both in the short-term and long-term planning horizon of the FMP.

It is also recommended that consideration be given to identify this station as the Headquarters Station of the South Stormont Fire and Rescue. This station would provide an optimal location for the administrative offices of the SSFR. This would centralize the full-time Fire Chief's office, Administrative Assistant, and proposed full-time Fire Prevention Officer. This strategy supports and presents the South Stormont Fire Rescue as ***a single, unified fire department.***

Figure 24 presents Station 1 in its proposed new location and the other three stations in their current locations including a new Station 4 replaced in its current location. The proposed predicted turnout time for the volunteers of 6.5 minutes for the first apparatus and 8.5 minutes for the second apparatus has been applied. This reflects a deployment of six volunteer firefighters and a continued focus on improved deployment and turnout time, which results in further improvements in the ability to meet the NFPA 1720 Rural Demand Zone standard.

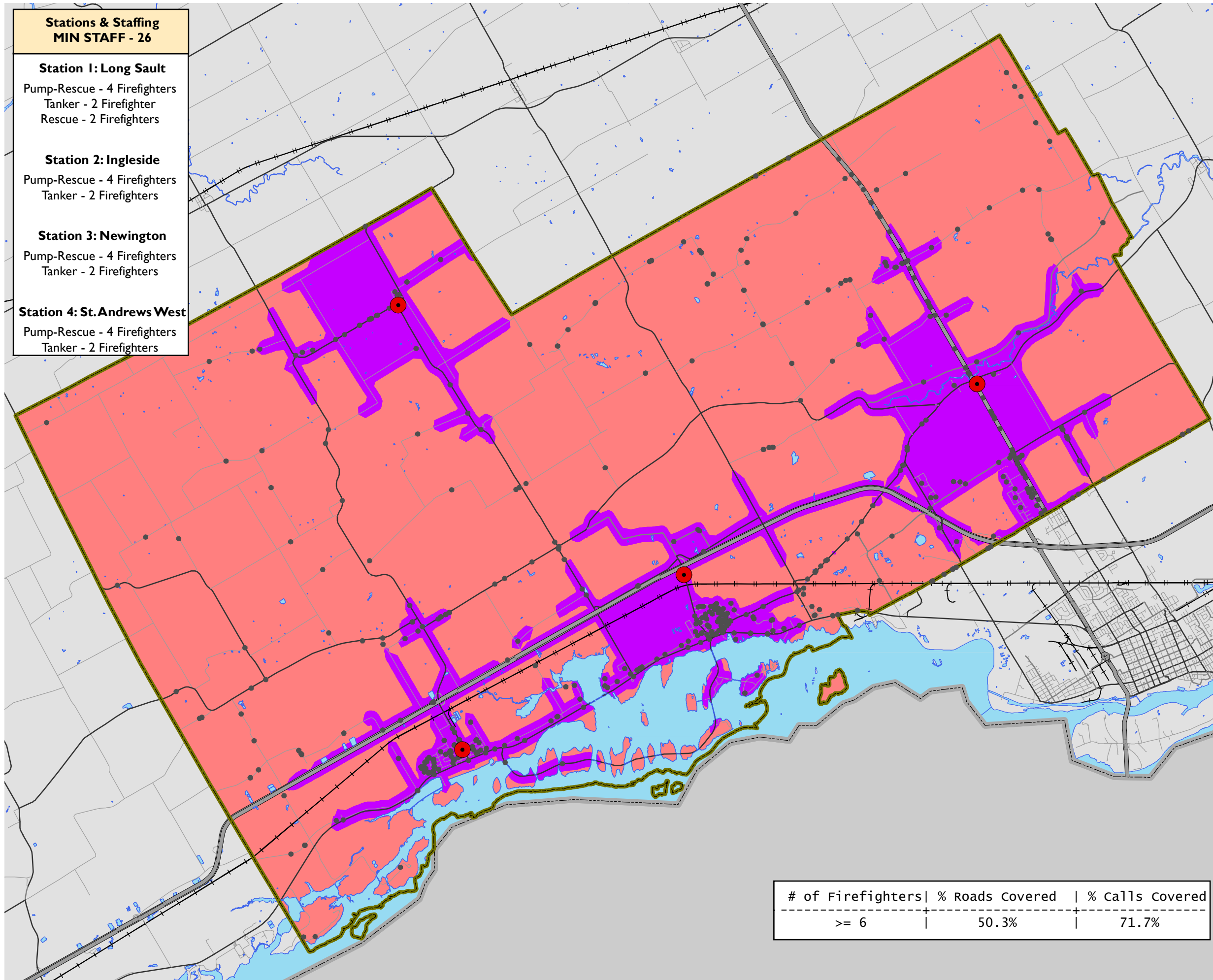
Stations & Staffing
MIN STAFF - 26

Station 1: Long Sault
Pump-Rescue - 4 Firefighters
Tanker - 2 Firefighter
Rescue - 2 Firefighters

Station 2: Ingleside
Pump-Rescue - 4 Firefighters
Tanker - 2 Firefighters

Station 3: Newington
Pump-Rescue - 4 Firefighters
Tanker - 2 Firefighters

Station 4: St. Andrews West
Pump-Rescue - 4 Firefighters
Tanker - 2 Firefighters



TOWNSHIP OF SOUTH STORMONT
FIRE MASTER PLAN

OPTION 2
FOUR STATION MODEL
RELOCATE STATION 1

FIGURE 24

- FEDERAL BOUNDARY
- SOUTH STORMONT BOUNDARY
- PROPOSED FIRE STATIONS
- HISTORIC CALLS (2010-2014)
- HIGHWAY
- ARTERIAL
- COLLECTOR
- LOCAL
- RAILWAY
- LAKES AND RIVERS

TOTAL NUMBER OF FIREFIGHTERS REACHING AREA WITHIN 14 MINUTES OF TURNOUT AND TRAVEL TIME

- >= 6 Firefighters
- < 6 Firefighters



MAP DRAWING INFORMATION:
DATA PROVIDED THE TOWNSHIP OF SOUTH STORMONT

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MAP PROJECTION: NAD 1983 UTM Zone 18N

# of Firefighters	% Roads Covered	% Calls Covered
>= 6	50.3%	71.7%



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As shown in **Table 27**, in comparison to the existing conditions deployment model and volunteer firefighter turnout times, implementing this phase predicts 50.3% coverage of roads, and 71.7% coverage of the historical call locations. This option presents a slightly further increase in % of road coverage of 2.7% than Option 1, and a slightly lower % of historical calls covered of 3.3% than Option 1.

TABLE 27: NFPA 1720 RURAL DEMAND ZONE STANDARD – COMPARISON OPTION 2

NFPA 1720 Rural Demand Zone Standard (6 Firefighters in 14 Minutes)	Existing Conditions	Option 1	Option 2
% of Road Coverage	3.4%	47.6%	50.3%
% of Historical Calls Covered	2.4%	75.0%	71.7%

7.8.4.3

Option 3 – Three Station Model – Combine Stations 2 and 3

This option presents a partnership of Station 2 and 3 with one new station in a centralized location between the two existing stations, sustaining Station 1 and Station 4 in their current locations, applying the predicted turnout times, and implementing the proposed major apparatus deployment plan.

Station 2 as described in **Section 7.1.2** is nearing the end of its lifecycle and not meeting the needs of the department. Station 2 is located in a residential area and only has two bays for its current three apparatus. Due to its location, there is potential for extended turnout times and travel times travelling through the local road network to access the collector and arterial road network.

Station 3 as described in **Section 7.1.3** has had some recent renovations, but is also nearing the end of its lifecycle. The analyses of historical emergency call volume in **Section 7.6.5** indicates that for the 2-year period including 2013 and 2014 there were a total of 370 emergency calls within the Township where specific response districts (station responding) could be identified. During this period Station 3 responded to a total of 42 emergency calls, 29 of these calls were located within the Station 3 district, or 7.8% of the total emergency calls within the Township for this period. This is consistent with the five-year average of 7%.

Looking closer at these 29 calls, 13 of the calls were identified as fire-related (based on Dillon response type). This represents an average of 6.5 fire-related calls per year occurring within the current Station 3 response district. In comparison to the 370 emergency calls that occurred in the Township over this period, 3.5% of those calls were fire-related that occurred within the current Station 3 response district.

Research for this FMP indicates that there is no predicted community growth within the current Station 3 response district that would suggest any further increase in emergency call volume in the future. This research also indicates that the fire station in the community of Finch is located within eight kilometers of the current Station 3. The fire station in the community of Avonmore is also in close proximity to the northern urban boundary of South Stormont.

For these reasons, Option 3 proposes the partnering of apparatus and volunteer firefighters from the current Station 2 and Station 3 into one new Fire Station. The supporting analysis for this option includes consideration of the stations' current emergency response coverage areas, historical emergency call data, station conditions and locations including operating and capital costs related to maintaining and/or replacing stations.

This option was applied to assess the potential of garnering efficiencies in partnering the current complement of volunteers from both stations into one new fire station to be located in a more centralized location.

The analysis of emergency response coverage in these areas looked at alternative site locations in determining the optimal location for one fire station to replace the two existing stations. Consideration was given to currently owned Township property and the impacts on travel time of the current volunteers responding to the fire station. Analyses identified two alternative site locations for this option, which are presented as Option 3A and Option 3B for consideration.

7.8.4.4

Option 3A – Osnabruck Centre Location

Option 3A presents a location for the new station which would see the partnering of Stations 2 and 3 based on property owned by the Township. This site is located in Osnabruck Centre at the intersection of Duffys Road/County Road 18 and County Road 14. The location intersects at two major arterials and is north of Highway 401.

Figure 25 presents the proposed Option 3A station at the Osnabruck Centre location with Station 1 and 4 at their current locations. The proposed predicted turnout time for the volunteers of 6.5 minutes for the first apparatus and 8.5 minutes for the second apparatus has been applied. This reflects a deployment of six volunteer firefighters and a continued focus on improved deployment and turnout time, which results in further improvements in the ability to meet the NFPA 1720 Rural Demand Zone standard.

**Stations & Staffing
MIN STAFF - 22**

Station 1: Long Sault

Pump-Rescue - 4 Firefighters
Tanker - 2 Firefighter
Rescue - 2 Firefighters

Station 2: Ingleside

Pump-Rescue - 4 Firefighters
Tanker - 2 Firefighters

Station 4: St. Andrews West

Pump-Rescue - 4 Firefighters
Tanker - 2 Firefighters



TOWNSHIP OF SOUTH STORMONT
FIRE MASTER PLAN

**OPTION 3A
THREE STATION MODEL
OSNABRUCK CENTRE LOCATION**

FIGURE 25

- FEDERAL BOUNDARY
- SOUTH STORMONT BOUNDARY
- PROPOSED FIRE STATION
- HISTORIC CALLS (2010-2014)
- HIGHWAY
- ARTERIAL
- COLLECTOR
- LOCAL
- RAILWAY
- LAKES AND RIVERS

**TOTAL NUMBER OF FIREFIGHTERS REACHING AREA
WITHIN 14 MINUTES OF TURNOUT AND TRAVEL TIME**

- ≥ 6 Firefighters
- < 6 Firefighters



MAP DRAWING INFORMATION:
DATA PROVIDED THE TOWNSHIP OF SOUTH STORMONT

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# of Firefighters	% Roads Covered	% Calls Covered
≥ 6	39.0%	65.3%

As shown in **Table 28**, in comparison to the existing conditions, this modeling predicts 39.0% coverage of roads, and 65.3% coverage of the historical call locations. This option does not provide as much of an increase in percentage of road coverage as Options 1 and 2, and a slightly lower percentage of the historical calls covered in Options 1 and 2.

TABLE 28: NFPA 1720 RURAL DEMAND ZONE STANDARD – COMPARISON OPTION 3A – THREE STATION MODEL – OSNABRUCK CENTRE LOCATION

NFPA 1720 Rural Demand Zone Standard (6 Firefighters in 14 Minutes)	Existing Conditions	Option 1	Option 2	Option 3A
% Of Road Coverage	3.4%	47.6%	50.3%	39.0%
% Of Historical Calls Covered	2.4%	75.0%	71.7%	65.3%

7.8.4.5

Option 3B – Eamon Road Location

Option 3B proposes an alternate location for the new station which would see the partnering of Stations 2 and 3. This alternate location is at the intersection of Eamon Road and County Road 14. The location intersects at a major arterial and a paved county road located north of Highway 401 in closer proximity to Ingleside.

Figure 26 presents the proposed partnered Station 2 and 3 in this alternate location, Station 1 as presented in Option 2, and Station 4 in its current location. The proposed predicted turnout time for the volunteers of 6.5 minutes for the first apparatus and 8.5 minutes for the second apparatus has been applied. This reflects a deployment of six volunteer firefighters and a continued focus on improved deployment and turnout time, which results in improvements in the ability to meet the NFPA 1720 Rural Demand Zone standard.

As shown in **Table 29**, in comparison to the existing conditions the Option 3B modeling predicts 43.2% coverage of roads, and 67.7% coverage of the historical call locations. All of the options modeled present improvements in comparison to the existing conditions for both the % of roads covered, and the % of historical calls covered.

TABLE 29: NFPA 1720 RURAL DEMAND ZONE STANDARD – COMPARISON OPTION 3A – THREE STATION MODEL – EAMON ROAD LOCATION

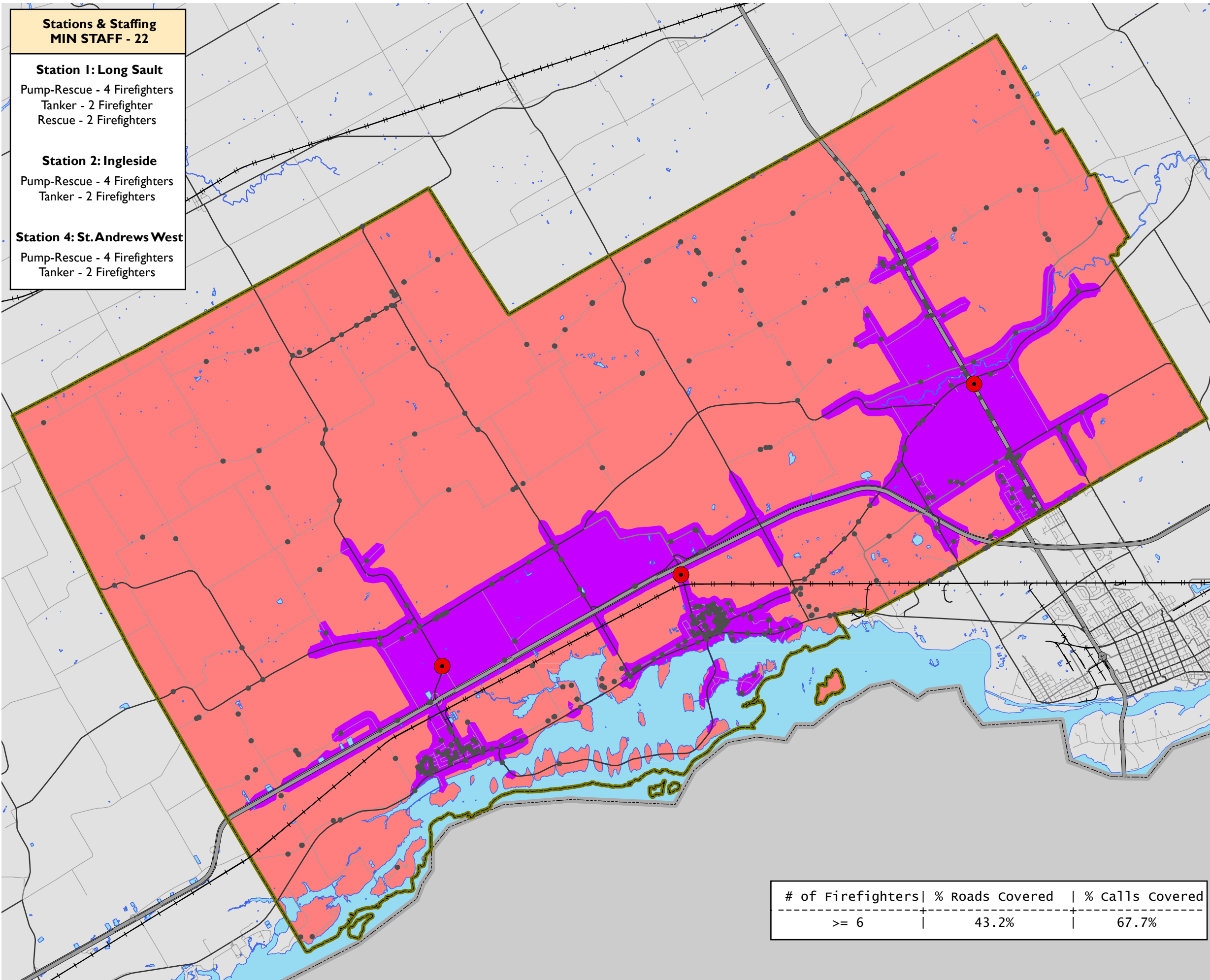
NFPA 1720 Rural Demand Zone Standard (6 Firefighters in 14 Minutes)	Existing Conditions	Option 1	Option 2	Option 3A	Option 3B
% Of Road Coverage	3.4%	47.6%	50.3%	39.0%	43.2%
% Of Historical Calls Covered	2.4%	75.0%	71.7%	65.3%	67.7%

Stations & Staffing
MIN STAFF - 22

Station 1: Long Sault
Pump-Rescue - 4 Firefighters
Tanker - 2 Firefighter
Rescue - 2 Firefighters

Station 2: Ingleside
Pump-Rescue - 4 Firefighters
Tanker - 2 Firefighters

Station 4: St. Andrews West
Pump-Rescue - 4 Firefighters
Tanker - 2 Firefighters



# of Firefighters	% Roads Covered	% Calls Covered
>= 6	43.2%	67.7%



TOWNSHIP OF SOUTH STORMONT
FIRE MASTER PLAN

OPTION 3B
THREE STATION MODEL
EAMON ROAD LOCATION

FIGURE 26

- FEDERAL BOUNDARY
- SOUTH STORMONT BOUNDARY
- PROPOSED FIRE STATIONS
- HISTORIC CALLS (2010-2014)
- HIGHWAY
- ARTERIAL
- COLLECTOR
- LOCAL
- RAILWAY
- LAKES AND RIVERS

TOTAL NUMBER OF FIREFIGHTERS REACHING AREA WITHIN 14 MINUTES OF TURNOUT AND TRAVEL TIME

- >= 6 Firefighters
- < 6 Firefighters



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DATA PROVIDED THE TOWNSHIP OF SOUTH STORMONT

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7.8.5 Option 3C – Station 3 Satellite Station

Option 3C would provide Council with an option to implement the proposed three station model including sustaining Station 4 at its current location, relocating Station 1 and the partnering of Stations 2 and 3 as proposed. Option 3C would sustain the presence of a satellite station in the community of Newington with a single major apparatus and reduced number of volunteer firefighters.

This option could be implemented in conjunction with the proposed three station model as a transition strategy to monitor the performance of the proposed three station model, or alternatively to supplement the proposed three station model.

This option would sustain only a pumper at this station, or alternatively a pumper/tanker combination similar to the pumper/rescue combination apparatus presented within this FMP. Staffing could be reduced to 12 to 16 volunteer firefighters to operate the pumper assigned to this station. Based on the historical emergency call volume within this district, the pumper would be able to address the majority of incidents. When required it could be supported by apparatus and firefighters from the other stations.

This option would sustain the current level of tanker shuttle accreditation within this area of the Township.

7.8.6 Summary of Optional Fire Station Location Models

The analyses of optional fire station location models presents the potential efficiencies of the proposed predicted turnout times in comparison to the existing four station model and the options for a three station model.

All of the station options presented, including both the four station models and three station models present improved performance over the existing conditions in both the percent of roads covered and percent of historical calls covered.

In considering the number of fire stations and their locations required by the SSFR to provide the most effective and efficient level of services resulting in the best value for the community, assessing the percentage of roads covered and percentage of historical calls covered are important factors. However, it should be recognized that future calls may not occur in the same location as they have historically. Assessing the percentage of roads coverage provides a more applicable measure to assess potential future performance of the SSFR.

Based on the percentage of roads covered analyses, Option 2 as presented would be the optimal four station model. Option 3B would be the preferred three station model. The difference between these options representing a 7.1% of roads covered.

Consideration of a four station model or three station model should also include assessing the impacts of the station location model in regards to community fire risk and the level of Superior Tanker Shuttle Accreditation. Each of these is assessed in further detail in the following sections to provide more insight into the impacts of implementing the preferred Option 3B three station model.

7.9 Community Risk Profile – Option 3B – Three Station Model

To provide further insight to the implementation of Option 3B a comparison of the existing fire risk coverage and proposed Option 3B fire risk coverage was completed.

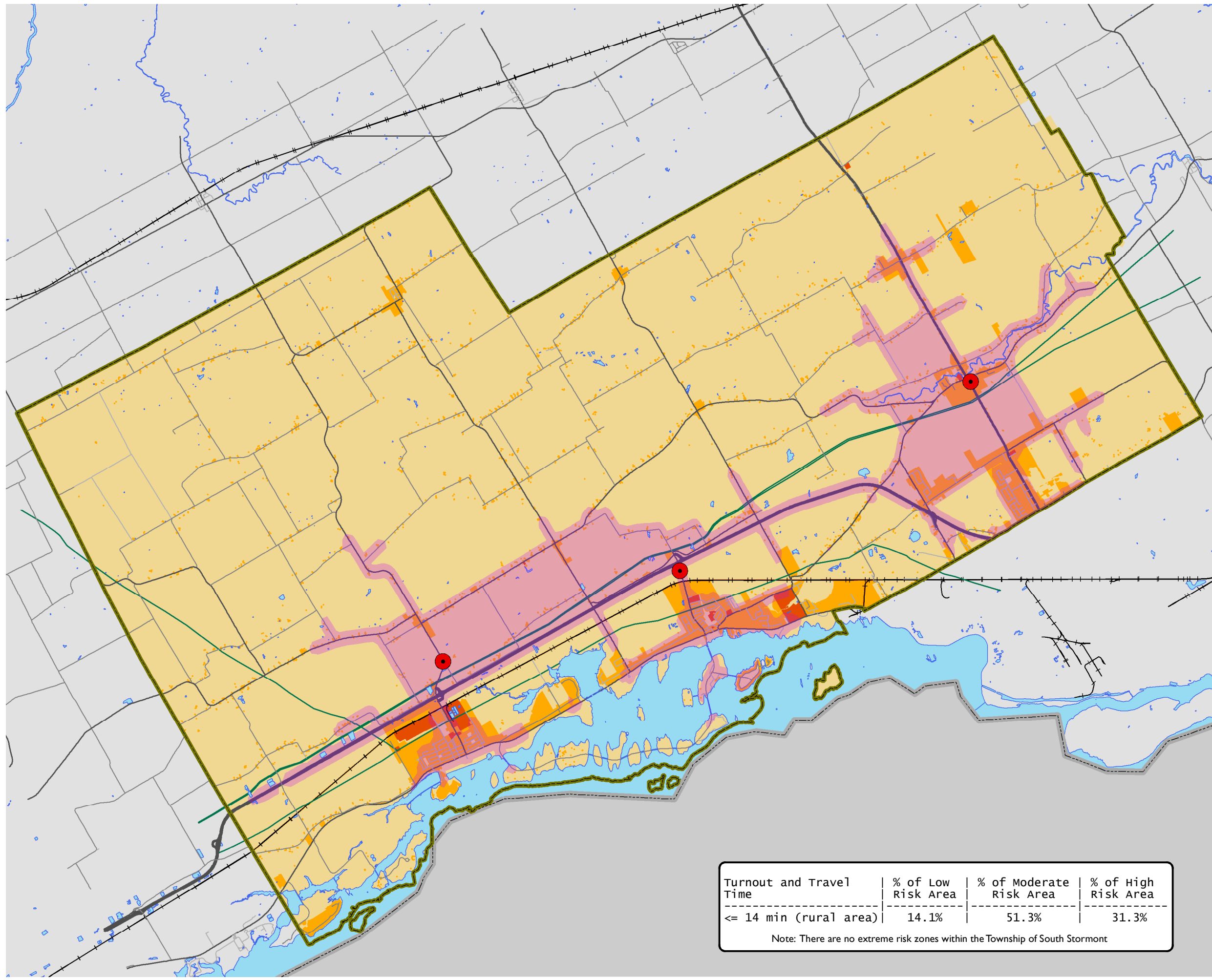
Figure 27 presents the total impact of Option 3B with all proposed station locations implemented, and proposed deployment models applied. The results are an improvement of the low occupancy risk coverage to 14.1%, moderate risk coverage to 51.3%, and high risk coverage to 31.3%.

TOWNSHIP OF SOUTH STORMONT

TOWNSHIP OF SOUTH STORMONT
FIRE MASTER PLAN

COMMUNITY RISK PROFILE OPTION 3B THREE STATION MODEL

FIGURE 27



- FEDERAL BOUNDARY
 - SOUTH STORMONT BOUNDARY
 - NFPA 1720 (RURAL) COVERAGE AREA
 - PROPOSED FIRE STATIONS
 - HIGHWAY
 - ARTERIAL ROAD
 - COLLECTOR ROAD
 - LOCAL ROAD
 - OIL AND GAS PIPELINES
 - RAILWAY
 - LAKES AND RIVERS
- FIRE RISK**
- High
 - Moderate
 - Low



MAP DRAWING INFORMATION:
DATA PROVIDED THE TOWNSHIP OF SOUTH STORMONT

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Turnout and Travel Time	% of Low Risk Area	% of Moderate Risk Area	% of High Risk Area
<= 14 min (rural area)	14.1%	51.3%	31.3%

Note: There are no extreme risk zones within the Township of South Stormont



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As referenced in the Community Risk Profile residential occupancies are classified as moderate risk, and also recognized as the most vulnerable occupancy type. Historically in Ontario, the highest number of fire related fatalities and injuries, and fire related dollar loss has occurred in Group C - Residential occupancies.

Table 30 presents a comparison of the SSFR existing emergency response coverage to the proposed Option 3B station locations and proposed deployment model option. This summary indicates an improvement of 31.0% in emergency response coverage to moderate risk occupancies, and 31.3% improvement to high risk occupancies.

TABLE 30: COMPARISON OF FIRE RISK COVERAGE

NFPA 1720 Rural Demand Zone Standard (6 Firefighters in 14 Minutes)	Low Risk Occupancies	Moderate Risk Occupancies	High Risk Occupancies
Existing Emergency Response Coverage	0.2%	20.3%	0.0%
Proposed Option 3B Station Locations & Deployment	14.1%	51.3%	31.3%

7.10 Superior Tanker Shuttle Accreditation – Option 3B

The existing emergency response coverage of the SSFR to support the Superior Tanker Shuttle Accreditation is presented within **Section 7.7.3** of this FMP. This analysis indicates that the SSFR is currently able to provide this service to 66.1% of the roads within the Township reflecting a distance of eight kilometres or less from the closest fire station.

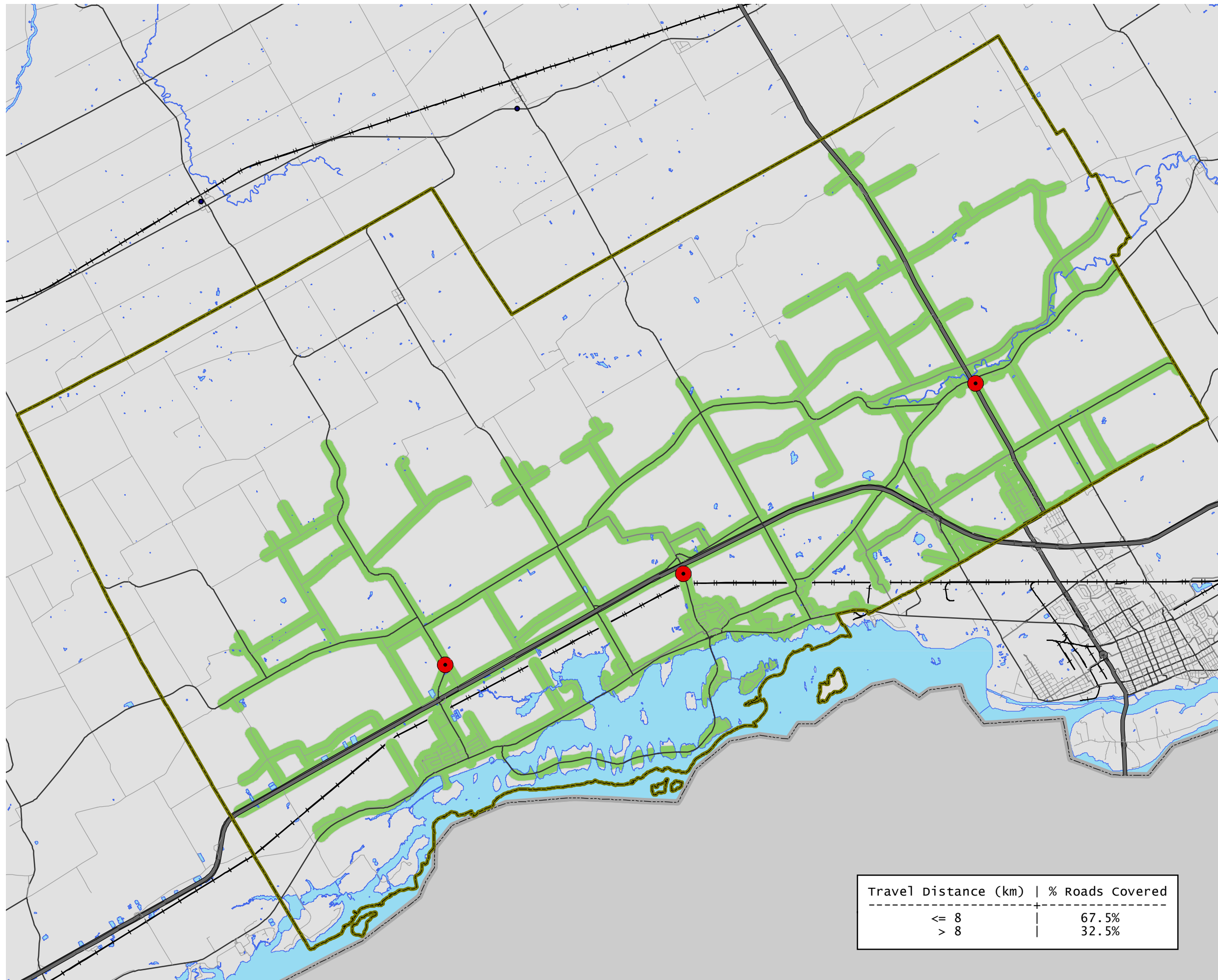
Figure 28 presents the application of the proposed Option 3B fire station location and apparatus deployment model at complete implementation. In comparison to the existing road coverage of 66.1% the predicted road coverage indicates an improvement to 67.5% of the roads in the Township.



TOWNSHIP OF SOUTH STORMONT
FIRE MASTER PLAN

**SUPERIOR TANKER SHUTTLE ACCREDITATION
OPTION 3B**

FIGURE 28



- FEDERAL BOUNDARY
- SOUTH STORMONT BOUNDARY
- 8 KM BOUNDARY FROM A FIRE STATION
- PROPOSED FIRE STATION LOCATIONS
- HIGHWAY
- ARTERIAL ROAD
- COLLECTOR ROAD
- LOCAL ROAD
- RAILWAY
- LAKES AND RIVERS



MAP DRAWING INFORMATION:
DATA PROVIDED BY THE TOWNSHIP OF SOUTH STORMONT

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MAP CHECKED BY: SLC
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Travel Distance (km)	% Roads Covered
<= 8	67.5%
> 8	32.5%



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DATE: 12/21/2015

7.10.1

Superior Tanker Shuttle Accreditation – Enhanced Automatic Aid

The proposed Option 3B emergency response coverage presents an improvement to 67.5% of the roads covered within the Township for providing the Superior Tanker Shuttle Accreditation. Although this reflects an improvement across the Township it also reflects a change to several of the roads currently covered.

The analysis looked at the potential of utilizing automatic aid to further increase the coverage of the Superior Tanker Shuttle Accreditation within the Township, and specifically to those areas in the vicinity of the existing Station 3.

Figure 29 indicates an eight kilometre travel distance from the fire stations located in the communities of Finch and Avonmore operated by the North Stormont Fire Department. Analyses indicates that through the use of automatic aid the Superior Tanker Shuttle Accreditation within the Township of South Stormont could be further improved to reflect 75.1% of the roads covered, including some of the area currently covered by Station 3.

7.11

Summary of Fire Risk and Accreditation

The analyses of turnout times and major apparatus deployment within this FMP present options for Council's consideration to implement strategies to enhance turnout times to achieve the proposed predicted turnout times presented. Strategies are also presented to reduce the size of the major apparatus fleet including the implementation of pump-rescues.

Options to sustain the current four fire station model, or alternatively implement a plan to reduce the number of fire stations to three through the partnering of the existing Stations 2 and 3. Applying the proposed predicted turnout times improves the performance of the SSFR in all of the fire station location models presented.

In our view, transitioning to a three station model provides the Township with the opportunity to reduce the annual operating costs associated with the current four station model, and avoid the capital cost replacement of all four stations in the future.

The proposed Option 3B provides the opportunity to improve the performance of the SSFR in responding to low risk occupancies from 0.2% to 14.1% an improvement of 13.9%, moderate risk occupancies from 20.3% to 51.3% an improvement of 31.0%, and high risk occupancies from 0.0% to 31.3% an improvement of 31.3%.

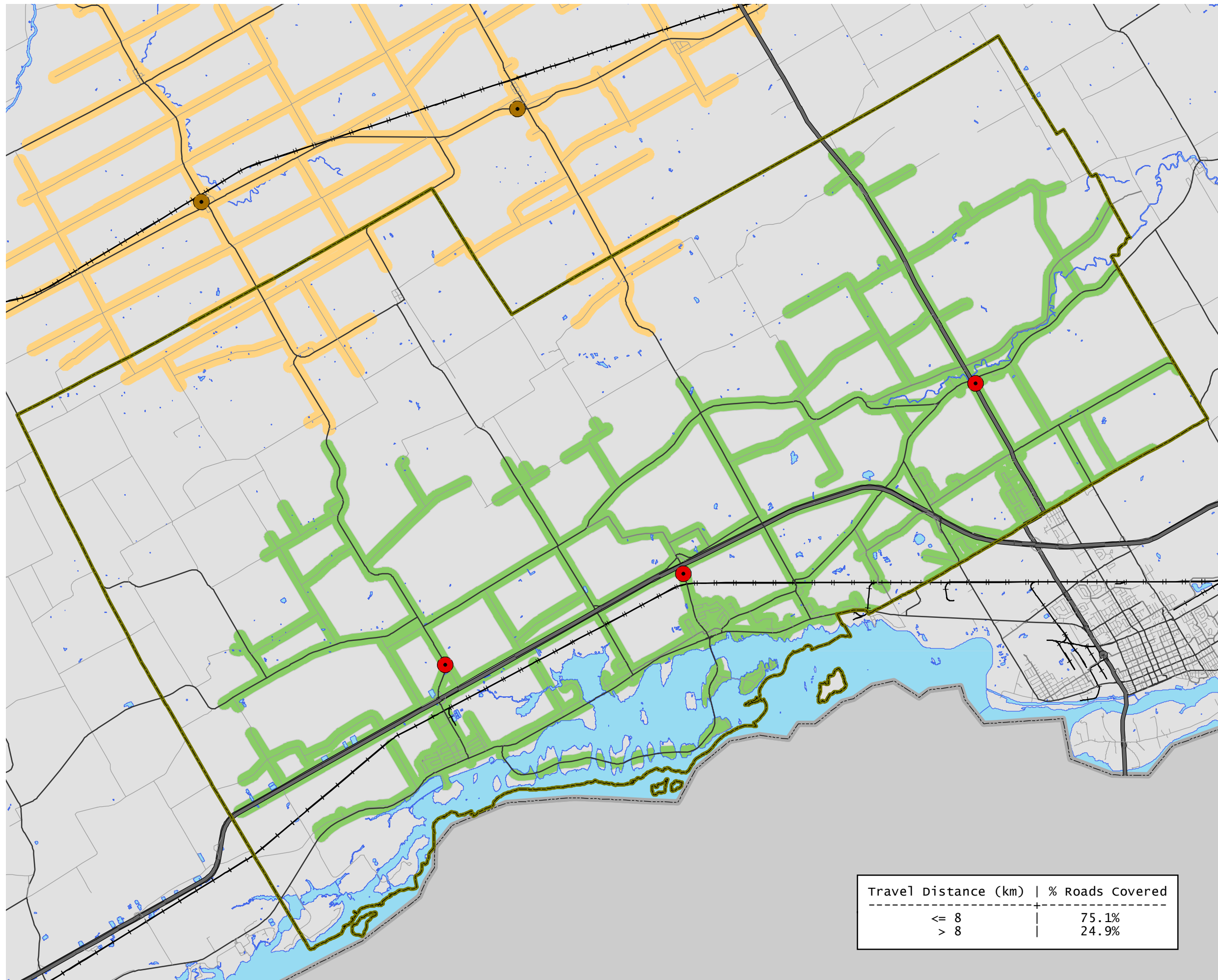
It is recommended that consideration be given to implementing the Option 3B fire station location model.



TOWNSHIP OF SOUTH STORMONT
FIRE MASTER PLAN

**SUPERIOR TANKER SHUTTLE ACCREDITATION
PROPOSED OPTION 3B + ENHANCED
AUTOMATIC AID**

FIGURE 29



- FEDERAL BOUNDARY
- SOUTH STORMONT BOUNDARY
- FIRE STATION WITHIN 8KM
- NORTH STORMONT FIRE STATION WITHIN 8KM
- PROPOSED FIRE STATION LOCATIONS
- NORTH STORMONT FIRE STATIONS
- HIGHWAY
- ARTERIAL ROAD
- COLLECTOR ROAD
- LOCAL ROAD
- RAILWAY
- LAKES AND RIVERS



MAP DRAWING INFORMATION:
DATA PROVIDED THE TOWNSHIP OF SOUTH STORMONT

MAP CREATED BY: SMB
MAP CHECKED BY: SLC
MAP PROJECTION: NAD 1983 UTM Zone 18N

Travel Distance (km)	% Roads Covered
<= 8	75.1%
> 8	24.9%



PROJECT: 15-1907
STATUS: DRAFT
DATE: 12/21/2015

7.12 Fire Station Design and Construction

The proposed Option 3B model presented will require the design and construction of three new fire stations to achieve full implementation. In Dillon's experience working with other smaller municipalities it is common to find fire stations that have been developed through the design/build process, including the use of prefabricated steel structures. There are many examples of these fire stations across Ontario.

More recent examples of these fire stations have reflected total capital costs for design, servicing, construction, landscaping, and construction management of approximately \$250.00 per square foot. This would relate to an estimated design and construction cost of approximately \$650,000 to \$700,000 (excluding land costs) for the typical two apparatus bay fire stations proposed for Stations 2 and 4 within this FMP.

Should Council support the strategy for Station 1 to become the Headquarters of the South Stormont Fire and Rescue the cost of this station would be incrementally higher to accommodate the three apparatus bays proposed, and the additional administrative area for the full-time staff proposed. More recent examples of these types of larger stations reflect a slightly higher square footage price of \$275.00 to \$300.00 per square foot and a total cost ranging from \$1.0 to 1.2 million dollars (excluding land costs).

The estimated capital cost of Option 3B are presented in **Table 31**.

TABLE 31: ESTIMATED CAPITAL COST OF OPTION 3B

Station	Estimated Capital Cost	Recovery
Station 1 (Headquarters)	\$1.2 to \$1.5 Million (Excluding Land Cost)	Sale of Existing Station or reuse by other Organization
New Station 2 (Former 2 and 3)	\$650,000 to \$700,000 (Excluding Land Costs)	Sale of existing Station 2 and Station 3
New Station 3 (Former 4)	\$650,000 to \$700,000 (Excluding Demolition and Site Plan Costs)	-----

7.13 Proposed Organizational Model

The analyses within the previous sections of this FMP present strategies to achieve the goal of **one single, unified fire department**. This includes strategies to achieve the proposed predicted turnout times, implement a new major apparatus deployment plan, implement enhanced fire prevention and public education programs and activities, and transition to a three fire station operating model.

Under the leadership of the current full-time Fire Chief many of the concepts within the FMP have already been introduced. In addition to requiring the support and approval of Council to implement the recommendations of this FMP one of the most important next steps will be creating a united management team to lead the SSFR into the future, and an organizational model able to deliver the levels of service presented within this FMP.

The following sections reflect the proposed strategies and recommendations to revise the current organizational structure of the SSFR leadership, committee structure and organizational components.

7.13.1 Department Management Team

Under the leadership of the full-time Fire Chief (Chair) it is recommended that the proposed organizational model include three Volunteer District Chiefs. A Volunteer District Chief would be assigned to each of the three proposed fire stations and have responsibility for overseeing all activities and functions related to the operation of that fire station.

The full-time Fire Chief and Volunteer District Chiefs would comprise a new South Stormont Fire and Rescue services management team. It is recommended that a formal terms of reference including the goals and objectives and roles and responsibilities be developed for this management team and be presented to Council, for consideration and approval.

Within this model the Volunteer District Chiefs will be required to maintain an active participation in all training within the department, and on a rotational basis act in the position of Fire Chief in his absence.

7.13.2 Fire Prevention Committee

Under the leadership of the proposed full-time Fire Prevention Officer (Chair) it is recommended that the proposed organization model include a formal Fire Prevention Committee. Membership on this committee will include the proposed three volunteer Fire Prevention Officers, and proposed three Fire and Life Safety Educators representing the three proposed fire response districts.

This committee will meet monthly or at the direction of the Chair and report to the department management team. It is recommended that a formal terms of reference including the goals and objectives and roles and responsibilities be developed for this Fire Prevention Committee to be presented to Council, for consideration and approval.

7.13.3 Training Committee

Under the leadership of the proposed senior Training Captain (Chair) it is recommended that the proposed organization model include a formal Training Committee. Membership on this committee will include the proposed three volunteer Training Officers (Captains) representing the three proposed fire response districts.

This committee will meet monthly or at the direction of the Chair and report to the department management team. It is recommended that a formal terms of reference including the goals and objectives and roles and responsibilities be developed for this Training Committee to be presented to Council, for consideration and approval.

7.13.4 Proposed Organizational Structure

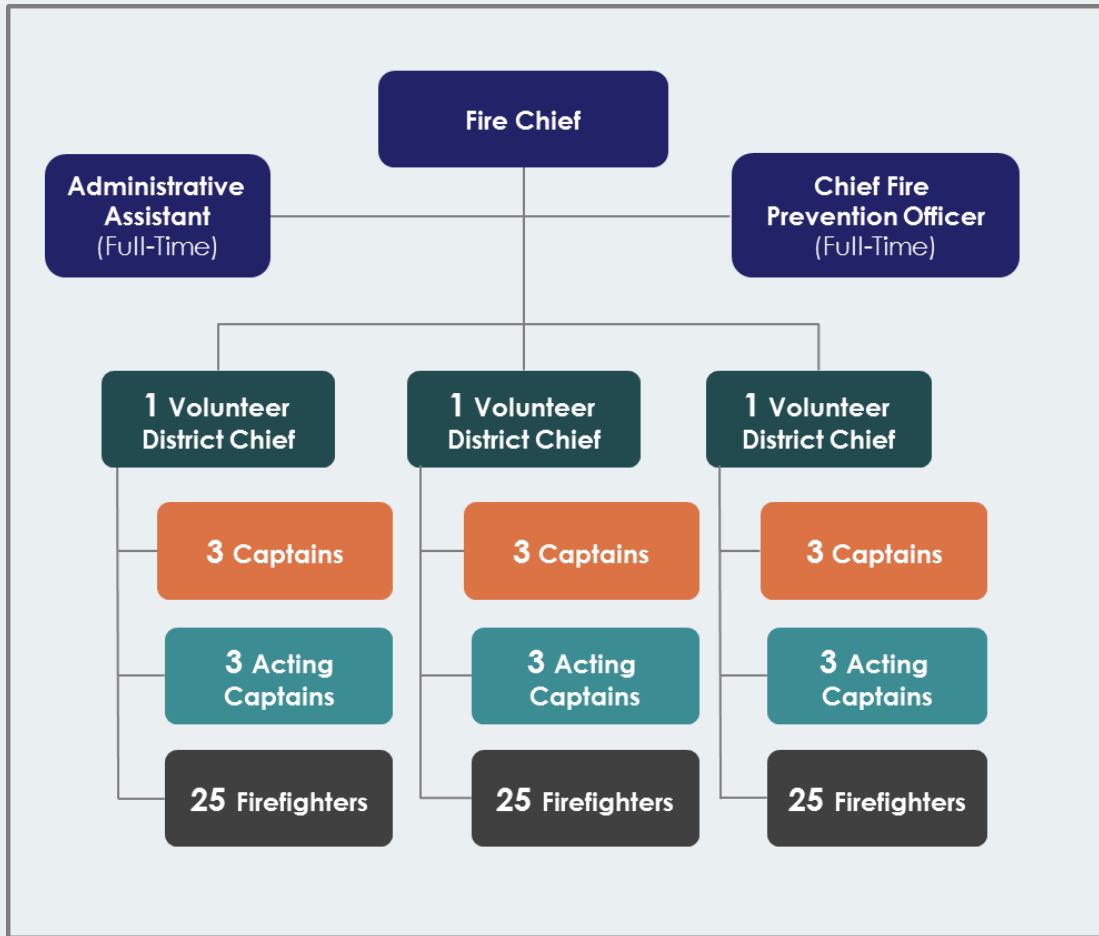
The proposed organizational structure is presented in the version that would be applied during the transition to the recommended three fire station model.

Establishing the proposed management team structure, including the proposed position of volunteer district chief should be considered a priority. Creating a management team within the SSFR that is unified in its commitment to the recommendations of this Fire Master Plan will be critical to both the short-term and longer-term objective of this FMP in creating the desired ***one single, unified fire department.***

The 2008 OFMEM Review suggested that the existing senior officers including volunteer deputy fire chiefs and volunteer assistant deputy fire chiefs re-apply and compete for the proposed senior officer positions (volunteer district chiefs). This is an option that should be considered to expedite the implementation of the proposed SSFR management team structure. In our view, unsuccessful candidates would be assigned a volunteer captain position and through attrition/recruitment the remainder of the proposed organizational structure would be implemented.

Figure 30 presents the South Stormont Fire and Rescue proposed organizational structure.

FIGURE 30: PROPOSED SSFR ORGANIZATIONAL STRUCTURE



It is recommended that consideration be given to approving the proposed South Stormont Fire and Rescue Management Team structure including the implementation of volunteer district chiefs.

7.14 Fire Suppression Summary and Recommendations

In the absence of a legislated standard for the delivery of fire suppression services, municipalities are required by the FPPA to determine an appropriate level of services based on analyses of local needs and circumstances. This Fire Master Plan is intended to provide Council with the required analyses of local needs and circumstances as it relates to the overall delivery of fire protection services within the Township of South Stormont.

The analyses within this section includes a review of relevant PFSG's, NFPA Standards, and OHSA Section 21 Guidance Notes in presenting fire suppression performance targets that the Township of South Stormont should be striving to achieve.

One of the most significant challenges the South Stormont Fire and Rescue service faces in achieving the fire suppression performance targets presented is reducing volunteer firefighter turnout times. This is a challenge facing many communities across Canada as they work towards the goal of sustaining the use of volunteer firefighters as the primary providers of fire suppression services.

The recommendations of this FMP support the transition from the historical four fire station model representing the pre-amalgamation communities, to a three fire station model representing the Township of South Stormont and the strategic priority of this Fire Master Plan to create **one single, unified fire department**.

This FMP also includes a proposed organizational structure including a revised fire department management team structure to provide the leadership required to implement the recommendations of this Fire Master Plan, and to achieve the proposed performance objectives presented.

Recommendations for the Options for Fire Suppression include the following:

22. *That the 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 Township of South Stormont should be striving to achieve an initial response deployment of four firefighters to all fire related emergency calls;*
 - ii) *That the Township of South Stormont should 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;*
 - iii) *That the Township of South Stormont should be striving to achieve the response time performance objective referenced within the NFPA 1720 Rural Area Demand Zone including a minimum of six firefighters responding within a 14 minute response time (turnout time + travel time) with a performance objective of 80%.*
23. *That the performance objectives for dispatching emergency calls identified within the FMP be reviewed with the City of Brockville;*
24. *That the complement of volunteer firefighters at each fire station operated by the South Stormont Fire and Rescue be increased to 32 volunteer firefighters;*
25. *That the Township of South Stormont consider the implementation of scheduled volunteer (part-time) firefighters;*
26. *That the SSFR consider options for implementing alternative alerting procedures for volunteer (part-time) firefighters to respond to the closest fire station;*
27. *That consideration be given to implementing the Option 3B fire station location model;*

28. That consideration be given to approving the proposed South Stormont Fire and Rescue Management Team structure including the implementation of Volunteer District Chiefs.

8.0 Apparatus & Equipment

Review of the current SOG's indicates that guidelines around apparatus and equipment maintenance are amongst those guidelines that have not been drafted to date. However, the review for this plan revealed that all apparatus are inspected weekly by SSFR personnel, and that vehicle annual inspections are performed by a Township Mechanic.

Annual pumper testing is being completed and annual inspections of all small engines and regular maintenance is being performed monthly by a licensed technician. Firefighter protective clothing (bunker gear) is cleaned annually by Sani-Gear and repairs are completed as soon as possible on an as needed basis.

- It was further identified through the stakeholder engagement, that while routine truck checks are done across the department, they may not be completed in the same way across all four stations. This would in part be due to the pre-amalgamation legacy of the stations functioning as an independent department.
- It is recommended that comprehensive Standard Operating Guidelines be developed and approved for all required South Stormont Fire and Rescue apparatus and equipment inspections.

8.1 Types of Major Fire Apparatus

PFSG 04-07-12 *Types of Fire Apparatus and Equipment* was developed to provide smaller communities, such as the Township of South Stormont, 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 provide 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: 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.

In addition to NFPA 1901 the industry commonly refers to the following types of major fire apparatus:

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.

8.2 Current Major Apparatus Fleet

The current major apparatus fleet of the SSFR includes three major types of units including Pumpers, Rescue and Tankers. The current number of major apparatus units is the same at each of the four stations. The current assignment, and number of major apparatus units continues to reflect the pre-amalgamation deployment of the SSFR.

The review of information provided as part of this FMP indicates that the majority of the major apparatus and equipment operated by the SSFR are in good condition and reflect the types of major apparatus that would be expected based on the fire risks present. The exception to this is the current Pumper assigned to Station 4 (2000 GMC Pumper 00-108). This apparatus was designed to fit within the fire station, and not designed for the firefighting capability it is expected to provide. This current apparatus only has seating for two firefighters and is not capable of supporting the best practices deployment of four volunteer firefighters recommended within this FMP. This apparatus should be prioritized for replacement. The replacement strategy for this apparatus should reflect the recommendation of this FMP to transition all current SSFR pumper apparatus to pump-rescue apparatus. The supporting information for pump-rescues is contained within the following sections of the FMP.

Review of the major apparatus replacement and equipment replacement plans for municipalities with similar types of use and wear reflect a best practice strategy of 15 years of service as front-line apparatus and a further five years of service in a reserve capacity reflecting a 20 year overall life cycle for major apparatus such as pumpers and tankers.

This review indicates that the Township is not currently able to replace major apparatus within the presented best practices life cycle planning of 15 years front-line and 20 years overall life cycle. This is not uncommon for smaller municipalities facing challenges in funding their infrastructure replacement needs. However, where possible, consideration should be given to reducing the life cycles of the major apparatus to the identified best practices life cycles.

Table 32 summarizes the current SSFR major apparatus, and replacement plan.

TABLE 32: MAJOR APPARATUS REPLACEMENT SCHEDULE

Station #	Fleet #	Year	Description	Existing Replacement Schedule	Estimated Replacement Cost
1	00-112	2000	Freightliner MVC Pumper	2025*	\$350,000
	95-109	1995	International Tanker	2019*	\$180,000
	08-110	2008	Rescue Truck	2028**	\$300,000**
2	97-05	1997	Freightliner Pumper	2023*	\$350,000
	12-05	2013	Freightliner Tanker	2033**	\$300,000**
	08-04	2007	Sterling Rescue	2027**	\$300,000**
3	96-01	1996	Freightliner Pumper	2012*	\$350,000
	10-01	2011	International Tanker	2031**	\$300,000**

Station #	Fleet #	Year	Description	Existing Replacement Schedule	Estimated Replacement Cost
	04-03	2004	Freightliner Rescue	2031*	\$300,000
4	00-108	2000	GMC Pumper	2029*	\$350,000
	02-120	2002	GMC Tanker	2029*	\$300,000
	91-101	1991	Ford Rescue	2018*	\$300,000
Existing 20-Year Capital Replacement Plan Cost					\$3.68 Million
*Included in 2014 Capital Replacement Plan					
**Not Included in 2014 Capital Replacement Plan					

It is recommended that consideration be given to transitioning the SSFR major apparatus fleet replacement plan to 15 years of front-line service, five years of reserve service with a total life cycle of 20 years.

8.3 Proposed Major Apparatus Plan

The recommendations of this FMP include transitioning to a three fire station model. Subject to the consideration and approval of this strategy there is also an opportunity to reduce the size of the major apparatus fleet. Reducing the size of major apparatus fleet supports the strategic priorities of this FMP.

The proposed major apparatus plan includes transitioning to the use of Pump-Rescue apparatus to reduce the need for rescue trucks at all stations as currently assigned, develop a major apparatus reserve capability not currently in place within the SSFR, and implementing a new type of vehicle to support the deployment of additional firefighters and equipment.

8.3.1 Pump-Rescue Apparatus

Like its name a pump-rescue represents the combination of the historical pumper and rescue apparatus functions into one vehicle. Pumper-rescues have become a common apparatus within many communities across the province seeking to find both financial and operational efficiencies. Pump-rescues are typically slightly larger than the traditional pumper as they are designed to accommodate the equipment storage of a rescue apparatus including extrication equipment, ventilation equipment, and specialized equipment.

Pump-rescues maintain the same firefighting functions as the historical pumpers but provide the additional functions historically provided by stand-alone rescue apparatus. Purchasing cost

can be slightly higher than traditional pumpers but significantly lower than purchasing separate pumpers and rescues.

It is recommended that consideration be given to transitioning the major apparatus fleet of the South Stormont Fire Rescue to combination pump-rescues.

8.3.2 New Multi-use Vehicle

One of the challenges of operating a fire department utilizing volunteer firefighters is providing sufficient capacity to deploy additional firefighters and equipment to and from an emergency incident, and training exercises. The use of personnel vehicles to respond to emergency incidents is not supported as a best practice within the industry. As a result of numerous liabilities, insurance and operational challenges this past practice is becoming redundant within the fire service.

Within the proposed major apparatus plan, and transition to the recommended three fire station model, it is recommended that consideration be given to implementing a multi-use vehicle at each of the proposed three fire stations. A multi-use vehicle such as a four-wheel drive pick-up truck capable of carrying five to six volunteer firefighters and their protective clothing is recommended. This vehicle should be equipped with emergency response equipment required by the Ministry of Transport such as appropriate warning devices, lights, sirens and radio, and the applicable NFPA standards for emergency response apparatus.

It is recommended that consideration be given to implementing the multi-use vehicles presented within the proposed major apparatus plan presented within the proposed Fire Master Plan.

8.3.3 Reserve Major Apparatus

The SSFR does not currently have any reserve apparatus. In the event a pumper, tanker or rescue at any of the stations is out of service at a station, that station and the department lose that function. For example, if the pumper at Station 1 is out of service as a result of preventative maintenance, or a breakdown there would be no pumper available within that community.

Under the current operating model these events are managed by alerting other stations so that they are aware of the situation. Within the proposed three fire station model managing these types of events through implementing a reserve apparatus strategy is recommended.

It is recommended that consideration be given to creating a major apparatus reserve capacity to include a minimum of one pumper.

8.3.4 Proposed Major Apparatus Fleet

To align with the transition to the recommended three fire station model contained within this FMP the following proposed major apparatus fleet plan is also presented for consideration.

This major apparatus fleet plan includes implementing the proposed pump-rescue apparatus recommended, implementing the proposed multi-use vehicles recommended, and reducing the number of major apparatus currently operated by the SSFR.

The result of the proposed major apparatus fleet transition would be sustaining the same number of pumpers (4), although transitioned to front-line (3) and reserve (1), reduce the number of rescue trucks from the current four to one, and implement 3 – multi-use vehicles.

The long-term financial impact of implementing this strategy assumes the reduction of four major apparatus (3 rescue trucks and 1 tanker) the additional cost of transitioning to pump-rescues of \$100,000 each and implementing the proposed multi-use vehicles at a cost of \$50,000 each. The projected 20-year capital cost avoidance is estimated at \$980,000 based on the proposed purchase/replacement plan.

The proposed major apparatus fleet plan is presented in **Table 33**.

TABLE 33: PROPOSED MAJOR APPARATUS FLEET PLAN

Current Apparatus Deployment Existing 4 Station Model			Proposed Apparatus Deployment Proposed 3 Station Model			Proposed Purchase/Replacement Plan	
Station	Year	Apparatus	Station	Year	Apparatus	Year	Estimated Cost
1	2000	00-112 Pumper	1	2000	00-112 Pumper	2020	Pump-Rescue \$450,000
	1995	95-109 Tanker		2011	10-01 Tanker	2031	\$300,000
	2008	08-110 Rescue		2007	08-04 Rescue	2027	\$300,000
				1996	96-01 Reserve Pumper	No additional capital cost, delayed sale of existing apparatus	
					Multi-use Vehicle	2020	\$50,000
2	1997	97-05 Pumper	2	1997	97-05 Pumper	2023	Pump-Rescue \$450,000
	2013	12-05 Tanker		2013	12-05 Tanker	2033	\$300,000
	2013	08-04 Rescue					
3	1996	96-01 Pumper					
	2011	10-01 Tanker			Multi-use Vehicle	2018	\$50,000
	2004	04-03 Rescue					

Current Apparatus Deployment Existing 4 Station Model			Proposed Apparatus Deployment Proposed 3 Station Model			Proposed Purchase/Replacement Plan	
4	2000	00-108 Pumper	3	2000	00-108 Pumper	2016	Pump-Rescue \$450,000
	2002	02-120 Tanker		2002	02-120 Tanker	2029	\$300,000
	1991	91-101 Rescue			Multi-use Vehicle	2016	\$50,000
Proposed 20 – Year Capital Replacement Plan Cost							\$2.7 Million
Apparatus Decommissioned and Sold				Apparatus Relocated			

8.4 Equipment

Where life cycles and conditions warrant, small equipment replacement (e.g., portable pumps, generators, etc.), should coincide with the apparatus capital replacement plan. The department should also budget for equipment replacement within the annual operating budget for smaller equipment replacement.

Industry best practices and manufacturers' directions suggest personal protective equipment, such as firefighters bunker gear, should be replaced based on a ten-year life cycle. Targeting an annual replacement strategy of six to ten sets per year is one way to manage the capital costs of this strategy, as well as maintain an appropriate life cycle replacement plan. There is currently no formal life cycle equipment replacement plan for the department.

It is recommended that the South Stormont Fire and Rescue develop a life cycle replacement plan for all equipment including firefighters bunker gear and self-contained breathing apparatus based on industry best practices and manufacturers' directions.

8.5 Major Apparatus, & Equipment Summary and Recommendations

Review of the major apparatus and equipment used by the SSFR reflects that of a well-equipped and maintained fire department. The recommendations of this FMP include transitioning to a three fire station model. This presents the Township with a unique opportunity to restructure the deployment of the current major apparatus, revise the capital replacement priorities, implement a reserve apparatus strategy and introduce more efficient apparatus such as the Pump-Rescues option presented.

The SSFR faces similar challenges to many smaller fire departments in completing repairs in a timely fashion without impacting the level of services provided. Standardizing equipment through enhanced life cycle planning identified within this review will assist the department.

Recommendations for the Major Apparatus and Equipment include the following:

29. *That comprehensive Standard Operating Guidelines be developed and approved for all required South Stormont Fire and Rescue apparatus and equipment inspections;*
30. *That consideration be given to transitioning the SSFR major apparatus fleet replacement plan to 15 years of front-line service, 5 years of reserve service with a total life cycle of 20 years;*
31. *That consideration be given to transitioning the major apparatus fleet of the South Stormont Fire Rescue to combination pump-rescues;*
32. *That consideration be given to implementing the multi-use vehicles presented within the proposed major apparatus plan presented within the proposed Fire Master Plan;*
33. *That consideration be given to creating a major apparatus reserve capacity to include a minimum of one pumper;*
34. *That the South Stormont Fire and Rescue develop a life cycle replacement plan for all equipment including firefighters bunker gear and self-contained breathing apparatus based on industry best practices and manufacturers' directions.*

9.0 Communications & Technology

This section relates to the internal communications within the SSFR for the distribution of information either face-to-face, through policies and procedures electronically or in printed format. Ensuring that the internal process for communications is a two-way process both presenting information and seeking feedback is a core element of a successful communications plan.

This section also considers the communications system used by emergency responders including the alerting system for volunteer firefighters and the radio system for managing emergency incidents.

9.1 Fire Dispatch Agreement

As previously reported within this FMP, the Township of South Stormont purchases fire dispatching services from the City of Brockville. This report includes the following recommendations with respect to the current fire dispatching agreement:

- *That the performance objectives for dispatching emergency calls identified within the FMP be reviewed with the City of Brockville; and*
- *That consideration be given to updating the dispatch services agreement with the City of Brockville to reflect the 2016 Edition of NFPA 1221 Standard.*

Purchasing dispatching services is an effective and efficient strategy for dispatch, however; it must still be recognized that there is an ongoing role to manage and review the performance of the agreement.

9.2 Radio System

According to information provided by SSFR, the department utilizes a Motorola MTR 2000 Station/Repeater/Receiver that includes a continuous-duty analog base/repeater system. This system relies on sending a radio signal from the Brockville Dispatch Center to a primary repeater located on a 200 foot cellular tower located in Long Sault, and from the repeater tower to a secondary repeater on the fire truck before the radio signal is received on a portable radio carried by firefighters.

This system relies on this repeater system to increase the strength of the signal both to and from a portable radio. One of the most significant challenges of this type of system in a rural community such as South Stormont is that there is no ability to talk directly to someone on an emergency scene without utilizing the repeater system. Therefore, if the emergency incident is at the outer limits of the repeater system, or there are difficulties in transmitting to the

repeater system it can be very difficult to sustain effective radio communications on an emergency incident scene.

Ensuring the repeater system is working properly, and regularly maintained are critical elements of ensuring its operational effectiveness.

During the consultation process with members of the SSFR including volunteer firefighters, officers and the Fire Chief there were numerous concerns expressed related to the current radio system. In part, these concerns could be related to the training and knowledge of those using the current radio system, and their knowledge of its overall operation. There were however examples of incidents where radio communications were either intermittently lost, or alternatively not sufficient to ensure the safety of the firefighters working on the scene.

There is sufficient concern to initiate a more detailed review of the current radio system to assess its current operational state, assess any opportunities for reconfiguration such as changing from analog to digital, or identifying other solutions to ensure the system provides an effective and dependable radio network between the emergency incident scenes and Brockville Dispatch.

A review of the radio system should also assess the number of radios, including repeaters, portable and the procedures for distributing radios on the apparatus and at emergency incidents.

It is recommended that a detailed operational review of the current radio dispatching and mobile radio system be completed.

9.3 Volunteer Firefighter Alerting System

Through a service provided by Fluent IMS, volunteer firefighters respond to Brockville Dispatch by indicating if they will be responding to an emergency call through the use of a “Who’s Responding” cell phone application. This application is connected to an in-station screen that shows who will be arriving to the station. This is an effective tool with the right technological hardware.

It was noted during the volunteer consultation sessions that there are some technological compatibility issues. Certain cell phone models and operating systems are not entirely compatible with the application making consistent use across the department a challenge.

The “Who’s Responding” application system is an effective alerting system. However, it does rely on the interface of the Fluent IMS system and the user’s cell phone.

It is recommended that a review of the Fluent IMS alerting system be completed including a review of standard operating guidelines, technology applications and system efficiency.

9.4 Internal Communications

Internal communications within a volunteer fire department is an ongoing challenge. Due to the nature of the model where volunteer firefighters may not be attending every training session, or every emergency incident, the level of internal communications can fluctuate. Consultation sessions with the volunteer firefighters exhibited the symptoms of not having the optimal level of internal communications.

These symptoms reflect more towards the uncertainty, and transition over the past few years at the Fire Chiefs level. There was an acknowledged level of attention to internal communications on the part of the new full-time Fire Chief that is seen as a positive step forwards.

This FMP recommends a change in the organizational structure and leadership of the SSFR with the adoption of the proposed Volunteer District Chiefs and the proposed department Management Team. Prioritizing two way internal communications should be considered a priority of the proposed management team.

9.5 Communications and Technology Summary and Recommendations

Effective two way communications is an important element of any successful organization. In the fire service the importance of effective communications can be related to the health and safety of the organization and its members.

This FMP reflects a new direction for the South Stormont Fire and Rescue subject to the consideration and approval of Council. Communications in every aspect will be a critical element to the success of the plan.

Recommendations for the Major Apparatus and Equipment include the following:

35. *That a detailed operational review of the current radio dispatching and mobile radio system be completed;*
36. *That a review of the Fluent IMS alerting system be completed including a review of standard operating guidelines, technology applications and system efficiency.*

10.0 Implementation Plan

The recommendations of this FMP have been developed in consideration of the strategic priorities identified within this plan. This includes the overall objective of creating **one single, unified fire department**.

To achieve this objective, this FMP 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**.

10.1 Operational Recommendations

Table 34 summarizes the recommendations of this FMP 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 34: OPERATIONAL RECOMMENDATIONS

Recommendation No.	Operational Recommendations
1	<i>That South Stormont Fire and Rescue services undergo a team building exercise to develop vision and mission statements that reflect the framework of the OFMEM PFSG 03-02-13 "Master Planning Process for Fire Protection" and support the strategic priority of creating "one single-unified fire department".</i>
2	<i>That a formal job description be created for the Administrative Assistant role within the South Stormont Fire and Rescue.</i>
4	<i>That the Fire Chief be directed to prepare a fire department Annual Report including an updated Community Risk Profile for consideration by Council;</i>
5	<i>That consideration be given to updating the dispatch services agreement with the City of Brockville to reflect the 2016 Edition of NFPA 1221 Standard.</i>
6	<i>That consideration be given to identifying alternatives for the role of Community Emergency Management Coordinator (CEMC).</i>
7	<i>That consideration be given to enhancing the current process for developing and approving department policies, procedures and operational guidelines by developing distinct formats for all Department Policies (DP's) and Standard Operating Guidelines (SOG's) including a date of approval by the Fire Chief or designate;</i>
9	<i>That subject to Council's consideration and approval of the proposed Fire Master Plan, that an updated Fire Prevention Policy be created utilizing the framework of PFSG 04-45-12 "Fire Prevention Policy" for consideration and approval by Council, and attached as an appendix to the fire department Establishing and Regulating By-law;</i>

Recommendation	Operational Recommendations
10	<i>That subject to the consideration and approval of the proposed public fire safety education activities and program cycle objectives by Council that they be included within the proposed Fire Prevention Policy and proposed Establishing and Regulating By-Law.</i>
11	<i>That the South Stormont Fire and Rescue Home Smoke Alarm Program be updated as a department Standard Operating Guideline and included within the proposed Fire Prevention Policy for consideration and approval by Council.</i>
12	<i>That PFSG OFM-TG-01-2012 be considered in developing the proposed Fire Prevention Policy for consideration and approval by Council.</i>
13	<i>That subject to the consideration and approval of the proposed fire inspection goals and objectives by Council that they be included within the proposed Fire Prevention Policy and proposed Establishing and Regulating By-Law.</i>
14	<i>That the Fire Chief develop a revised Standard Operating Guideline for fire investigations including origin and cause determination including the training and accreditation required to conduct investigations.</i>
16	<i>That the South Stormont Fire and Rescue develop a comprehensive annual training program based on the NFPA Professional Qualifications Standards and the core functions of a comprehensive annual training program identified within the proposed Fire Master Plan.</i>
17	<i>That the South Stormont Fire and Rescue include live fire training as a required element within the proposed comprehensive annual training program.</i>
18	<i>That the Fire Chief be directed to investigate the options available for the delivery of operational level emergency response for incidents including Confined Space Rescue, Trench Rescue, Slope/High Angle Rope Rescue.</i>
19	<i>That the SSFR enhance the training opportunities for Company Officers to achieve the competencies identified within the new NFPA 1021 Standard – Level II for Company Officers.</i>
20	<i>That consideration be given to utilizing the recruitment and retention strategies for volunteer (part-time) firefighters included within the Alberta Volunteer Firefighter Recruitment and Retention Strategy as part of enhancing recruitment and retention of volunteer (part-time) firefighters in the Township of South Stormont.</i>
23	<i>That the performance objectives for dispatching emergency calls identified within the FMP be reviewed with the City of Brockville.</i>
26	<i>That the SSFR consider options for implementing alternative alerting procedures for volunteer (part-time) firefighters to respond to the closest fire station.</i>
29	<i>That comprehensive Standard Operating Guidelines be developed and approved for all required South Stormont Fire and Rescue apparatus and equipment inspections.</i>
30	<i>That consideration be given to transitioning the SSFR major apparatus fleet replacement plan to 15 years of front-line service, 5 years of reserve service with a total life cycle of 20 years.</i>
34	<i>That the South Stormont Fire and Rescue develop a life cycle replacement plan for all equipment including firefighters bunker gear and self-contained breathing apparatus based on industry best practices and manufacturers' directions.</i>
36	<i>That a review of the Fluent IMS alerting system be completed including a review of standard operating guidelines, technology applications and system efficiency.</i>

10.2

Council Recommendations

Council Recommendations include those that require a policy decision or financial commitment on behalf of the Township. This FMP presents sufficient evidence and analyses to support the transition of the South Stormont Fire and Rescue to a three fire station model. Implementing the recommendations to achieve the three fire station model can be categorized into three primary components including facilities, staffing and apparatus.

Table 35 summarizes the recommendations of this FMP that have been deemed as **Council Recommendations** including the proposed schedule (short-term 1 -3 years, medium-term 4 – 7 years, and long-term 8 – 10 year horizons).

TABLE 35: COUNCIL RECOMMENDATIONS

Recommendation No.	Proposed Schedule	Council Recommendations
3	Short-term	<i>That consideration be given to transitioning the position of Administrative Assistant within the South Stormont Fire and Rescue to full-time within the short-term horizon (1 to 3 years) of the proposed Fire Master Plan.</i>
8	Short-term	<i>That consideration be given to approving the strategic priorities identified within the proposed Fire Master Plan to guide the development and delivery of fire protection and emergency services within the Township of South Stormont, including:</i> <ol style="list-style-type: none"> <i>i. Recognize the historical dedication and commitment of the members of the South Stormont Fire and Rescue in the transition to “one single-unified fire department”;</i> <i>ii. The utilization of a Community Risk Profile 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 to be provided by the South Stormont Fire and Rescue services;</i> <i>iii. The optimization of the first two lines of defence including public education and fire prevention, and the utilization of fire safety standards and fire code enforcement to provide a comprehensive fire protection program within the Township based on the results of the Community Risk Profile; and</i> <i>iv. Emphasis on strategies that support the sustainability of fire protection and emergency services that provide the most effective and efficient level of services resulting in the best value for the community.</i>
15	Short-term	<i>That consideration be given to implementing the staff resource plan identified within the proposed Fire Master Plan to achieve the fire inspection and public education performance levels recommended, including:</i> <ol style="list-style-type: none"> <i>i. That the current part-time Fire Inspector (contract position) be incrementally transitioned to a full-time position. This full-time position should be required to have at a minimum the designation of the NFPA Level II Fire Inspector.</i>

Recommendation No.	Proposed Schedule	Council Recommendations
		<ul style="list-style-type: none"> ii. That there be one volunteer Fire Inspector assigned to each of the proposed fire stations. Working in collaboration with the proposed full-time Fire Inspector this position would be assigned fire inspections within his/her fire district; iii. That there be one volunteer Fire & Life Safety Educator assigned to each of the proposed fire stations. Working in collaboration with the proposed full-time Fire Inspector this position would be assigned to deliver the fire and life safety program within his/her fire district.
21	Short-term	<p>That consideration be given to implementing the staff resource plan identified within the proposed Fire Master Plan to oversee the proposed comprehensive annual training plan recommended.</p> <ul style="list-style-type: none"> i. That there be a volunteer Instructor level I assigned to each of the proposed fire stations. These reflect the current volunteer training officers (captain position); ii. That there be one new position created to oversee the volunteer training officers (captain position) to coordinate the delivery of the proposed comprehensive training program. This new position should have the Instructor Level II certification. It is also recommended that the proposed Instructor Level II be allocated 8 hours per week to research, develop, schedule and assist in the delivery of the proposed comprehensive training program.
22	Short-term	<p>That the 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:</p> <ul style="list-style-type: none"> i. That the Township of South Stormont should be striving to achieve an initial response deployment of four firefighters to all fire related emergency calls; ii. That the Township of South Stormont should 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; iii. That the Township of South Stormont should be striving to achieve the response time performance objective referenced within the NFPA 1720 Rural Area Demand Zone including a minimum of six firefighters responding within a 14 minute response time (turnout time + travel time) with a performance objective of 80%.
24	Short-term	That the complement of volunteer firefighters at each fire station operated by the South Stormont Fire and Rescue be increased to 32 volunteer firefighters.
25	Short-term	That the Township of South Stormont consider the implementation of scheduled volunteer (part-time) firefighters.
27	Short-term	That consideration be given to implementing the Option 3B fire station location model.
28	Short-term	That consideration be given to approving the proposed South Stormont Fire and Rescue Management Team structure including the

Recommendation No.	Proposed Schedule	Council Recommendations
		<i>implementation of Volunteer District Chiefs.</i>
31	Medium-term	<i>That consideration be given to transitioning the major apparatus fleet of the South Stormont Fire Rescue to combination pump-rescues.</i>
32	Medium-term	<i>That consideration be given to implementing the multi-use vehicles presented within the proposed major apparatus plan presented within the proposed Fire Master Plan.</i>
33	Medium-term	<i>That consideration be given to creating a major apparatus reserve capacity to include a minimum of one pumper.</i>
35	Short-term	<i>That a detailed operational review of the current radio dispatching and mobile radio system be completed.</i>

10.3 Proposed Three Station Transition Strategy

The recommendations of this FMP support transitioning the SSFR to a three fire station model from its current four station model. **Table 36** is presented to Council as a proposed transition strategy including estimated financial impacts, and proposed schedule.

TABLE 36: PROPOSED TRANSITION STRATEGY

Proposed Schedule	Transition Strategy	Estimated Financial Impact		
		Operating Budget	Capital Budget	Estimated Recovery/Cost Avoidance
Short-term	Implement proposed Volunteer District Chiefs and proposed Management Team to provide a unified department team to lead the transition process and implementation of the FMP.	Redistribution of existing operating costs.	-----	-----
Short-term	Design and construction of new Station 3 (current Station 4) on the existing site with specific consideration to site plan development and public/vehicle interface.	-----	\$900,000	-----
Medium-term	That consideration be given to transitioning the major apparatus fleet of the South Stormont Fire Rescue to combination pump-rescues.	-----	-----	\$980,000
Medium-term	Site selection, design and construction of new Station 2 (partnering of current Stations 2 and 3) decommissioning /sale of the current Stations 2 and 3.	-----	\$900,000	Sale of existing Stations and Property
Medium-term	Site selection, design and construction of new Station 1, with consideration as the Headquarters of the SSFR including administrative offices.	-----	\$1,200,000	Sale of existing Stations and Property

Appendix A

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

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

Comprehensive Fire Safety Effectiveness Model Considerations

Public Fire Safety Guidelines

Subject Coding

PFSG 01-02-01

Section

Date

General

January 1998

Subject

Page

Comprehensive Fire Safety Effectiveness Model Considerations

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.

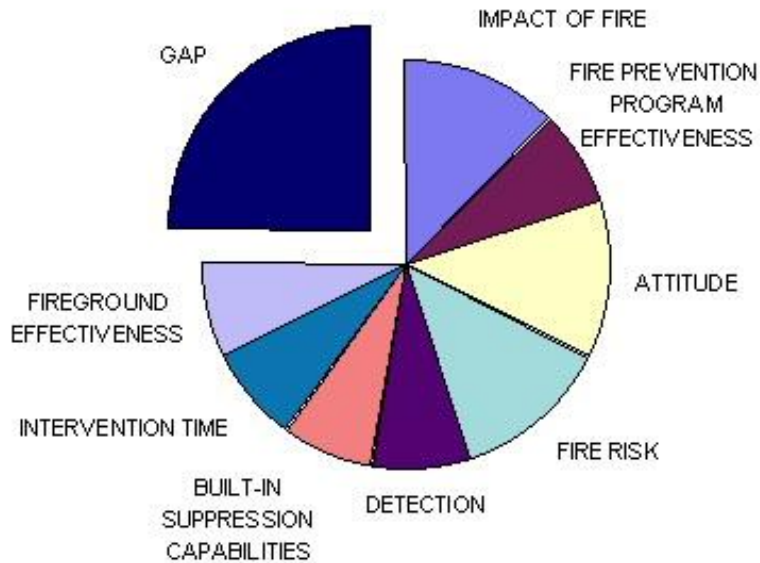
The Office of the Fire Marshal has developed the *Comprehensive Fire Safety Effectiveness Model* which can be used as a basis for evaluating fire safety effectiveness in your community. This model looks at community fire protection as the sum of eight key components, all of which impact on the fire safety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

Community Master Fire Protection Plan

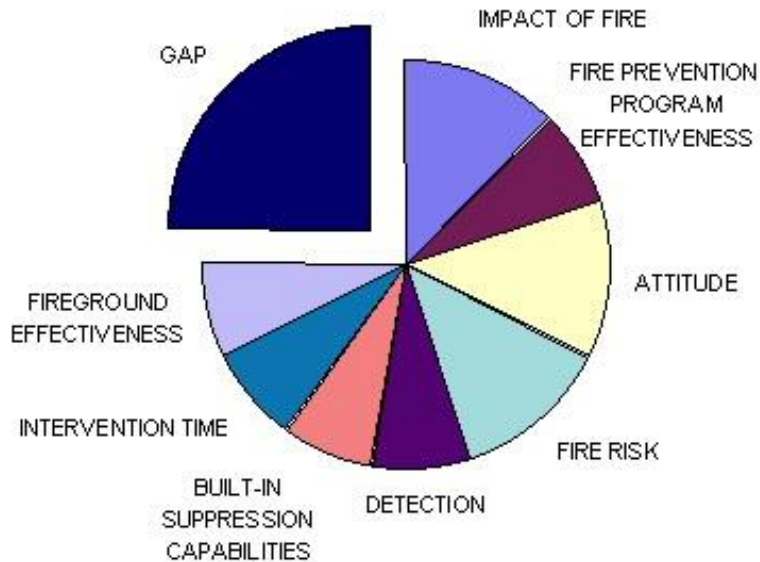
Every fire department should be guided by a master or strategic plan. This *Community Master Fire Protection Plan* traditionally focused on the identification of fire hazards and planning an appropriate suppression force response. Today, hazard or risk assessment has expanded well beyond the fire problem 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.

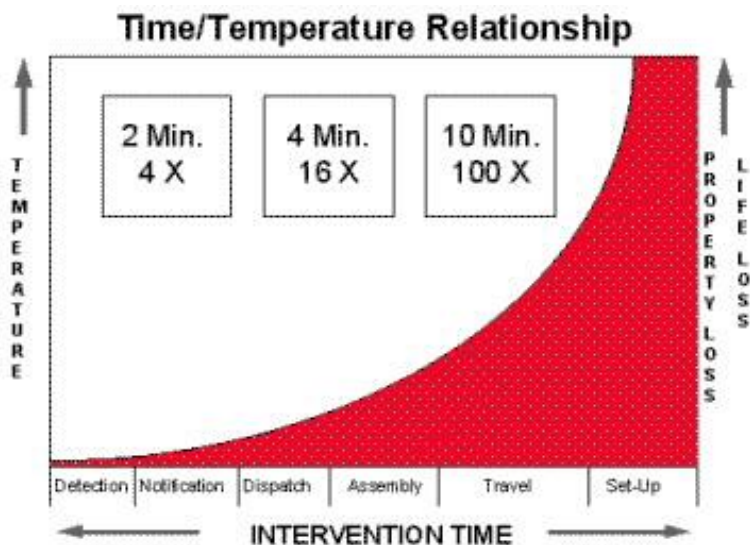
- Does your community promote the use of built-in suppression devices in all types of occupancies
 - residential?
 - commercial?
 - industrial?
 - assembly?
 - institutional?
- Does your community consider built-in suppression devices and early warning detection as an alternative to traditional concepts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

Appendix B

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

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

Framework For Setting Guidelines Within A Provincial- Municipal Relationship

Public Fire Safety Guidelines

**Subject
Coding**

**PFSG 00-00-
01**

Section

Date

General

**January
1998**

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

Page

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.

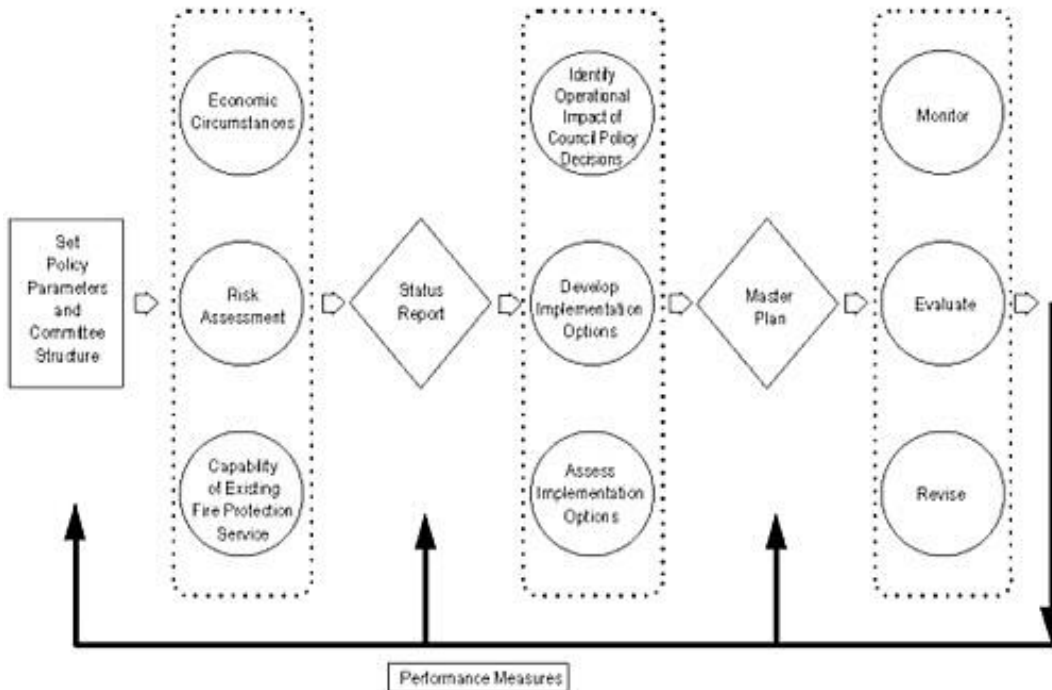
At the same time, this strategy recognizes that the provincial interest would not be met if the level of service provided by a municipality jeopardized public fire safety.

- 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.

Optimizing Public Fire Safety



Appendix C

Master Planning Process for Fire Protection Services (PFSG 03-02-13)

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

Master Planning Process for Fire Protection Services

Public Fire Safety Guidelines

Subject Coding

PFSG 03-02-13

Section

Date

General

March, 2000

Subject

Page

Master Planning Process for Fire Protection Services

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

Appendix D
Fire Protection Review Process
(PFSG 01-01-01)

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

Fire Protection Review Process

Public Fire Safety Guidelines

Subject Coding

PFSG 01-01-01

Section

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General

January 1998

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Fire Protection Review Process

Under Review

Purpose

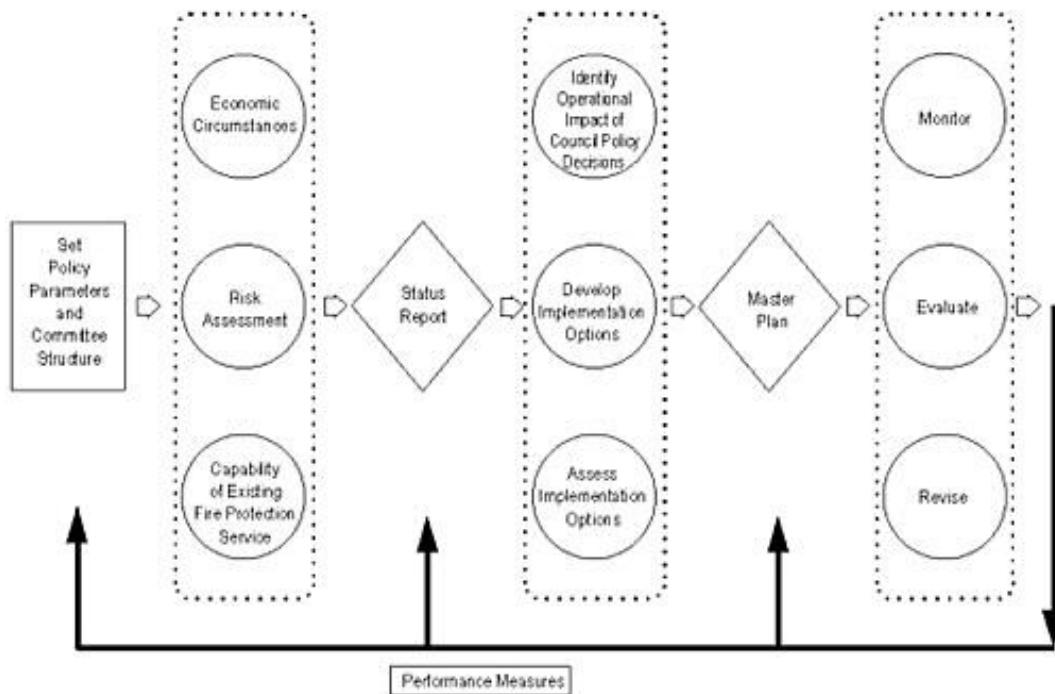
To provide a description of a simple and practicable system to enable decision makers to make informed choices.

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.

Optimizing Public Fire Safety



Overview

Stage 1: Set Policy Parameters

Stage 2: Determine Local Circumstances

Stage 3: Status Report

Stage 4: Determine Fire Protection Strategy

Stage 5: Develop Master Fire Plan

Stage 6: Monitor, Evaluate and Revise

Stage 7: Performance Measures

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

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

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

Stage 2:

Analyse Local Circumstances

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

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

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

Economic Circumstances

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

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

Fire Risk

The Fire Risk in your community is a function of:

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

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

Existing Fire Protection System

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

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

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

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

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

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

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

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

Stage 3:

Status Report

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

Stage 4:

Determine Fire Protection Strategy

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

- For this process to be successful, it is imperative that there be full and open consultation with all of the stakeholders.
- Stakeholders are the people and organizations with an interest in the fire service, including:
 - fire department staff and management
 - municipal staff and management
 - municipal administrators
 - council
 - residents
 - business
 - industry
 - planning and co-ordinating agencies and organizations
 - provincial government ministries
 - county/district/regional organizations
 - other municipalities
- Schematic diagram of the model: Optimizing Public Fire Safety highlighting Stage 3.
 - police
 - ambulance
- other umbrella organizations:
 - firefighter associations (full time and volunteer)
 - AMO
 - OAFIC
 - CAFIC
- 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

Appendix E
Economic Circumstances
(PFSG 02-03-01)



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

Economic Circumstances

Public Fire Safety Guidelines

Subject Coding

PFSG 02-03-01

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Economic Circumstances

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:

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

[02-04-01](#) & [23](#) Capabilities of existing Fire Protection Services

[02-02-12](#) & [03](#) Risk Assessment

Appendix F

Comprehensive Community Fire Risk Assessment (PFSG 02-02-03)

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

Fire Risk Assessment

Public Fire Safety Guidelines

Subject Coding

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Fire Risk Assessment

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

Appendix G

Capabilities of Existing Fire Protection Services (PFSG 02-04-01)

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

Capabilities of Existing Fire Protection Services

Public Fire Safety Guidelines

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Capabilities of Existing fire Protection Services

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

Appendix H

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

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

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

Public Fire Safety Guidelines

Subject
Coding

**PFSG 04-
08-10**

Section

Date

Emergency Response

**January
2011**

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

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 guideline applies to all municipalities.

3.0 Risk Management

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

4.0 Legislation

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

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

- establish levels of service commensurate with needs and circumstances; and
- provide fiscal resources for staffing, apparatus and equipment to support the established level of service.

4.3 Fire Chief

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

4.4 Fire Department

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

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

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

4.5 Clause 2.(1)(b)

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

4.6 Subsection 2.(7)

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

4.7 Subsection 5.(1)

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

4.8 Clause 9.(1)(a)

The Fire Marshal has the power to monitor, review and advise municipalities respecting the

provision of fire protection services and to make recommendations to municipal councils for improving the efficiency and effectiveness of those services.

4.9 Clause 9.(2)(b)

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

4.10 Clause 9.(2)(d)

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

5.0 References

OFM documents, programs and courses

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

National Fire Protection Association standards

- NFPA 1710 and NFPA 1720

6.0 Appendix

Evaluation tool:

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

Workbook

(Guidelines PDF version available on request at [AskOFM](#))

[HTML version](#)

Appendix I

Selection of Appropriate Fire Prevention Programs (PFSG 04-40-03)

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

Selection of Appropriate Fire Prevention Programs

Public Fire Safety Guidelines

Subject Coding

PFSG 04-40-03

Section

Date

Fire Prevention and Public Fire Safety Education

March 2001

Subject

Page

Selection of Appropriate Fire Prevention Programs

Under Review

Purpose:

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

Introduction:

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

Minimum Required Services:

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

(1) Every municipality shall,

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

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

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

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

Simplified Risk Assessment:

A simplified risk assessment must be done for the community to determine the needs and

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

Smoke Alarm Program:

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

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

Fire Safety Material:

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

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

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

Public Fire Safety Education:

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

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

Inspections:

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

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

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

Inspection Program Considerations:

For inspections, the following factors should be considered:

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

Program Selection:

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

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

Service Delivery Options:

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

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

Policy Requirements and Other Relevant Issues:

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

Persons assigned responsibility for delivering programs must be adequately trained.

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

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

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

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

Codes, Standards, and Best Practices:

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

See also PFSG

[01-02-01](#) Comprehensive Fire Safety Effectiveness Model

[04-12-13](#) Core Services

[04-40A-03](#) Simplified Risk Assessments

[04-40B-12](#) Smoke Alarm Programs

[04-40C-12](#) Public Education Programs

[04-40D-12](#) Inspection Programs

Appendix J

Council Workshop Presentation



South Stormont Fire Master Plan

Council Workshop

Steve Thurlow
Dillon Consulting Limited

September 15, 2015

Presentation Outline

- Introduction to Fire Master Plans
- Municipal Responsibilities
- Ontario Fire Protection Model
- Methodology
- Overview of Preliminary Findings
- Community Risk Profile
- Questions & Discussion

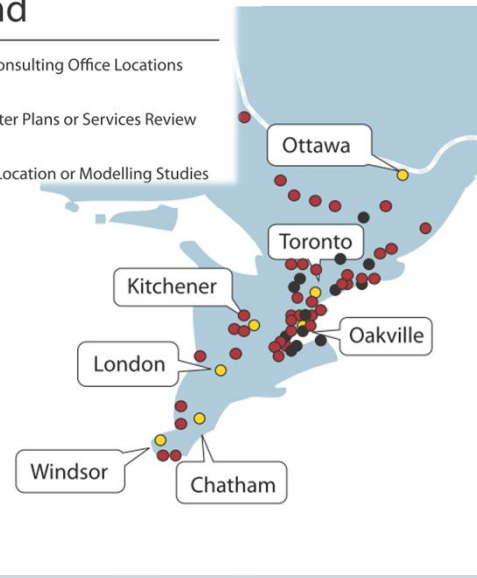


About Dillon

- Canadian company operated by employee shareholders for almost 70 years;
- Staff of over 700 across Canada in most major centres, including Toronto;
- Consulting in fire and emergency services for almost 30 years;
- Fire services team with 85+ years combined operational and technical experience;
- Experience and knowledge of best practices and trends from across the country.

Legend

- Dillon Consulting Office Locations
- Fire Master Plans or Services Review
- Station Location or Modelling Studies



3

What is a Fire Master Plan (FMP)?

Comprehensive evaluation of a fire and rescue service's current operations, staffing and service delivery.

Assessment of current services in relation to legislated standards and municipal best practices.

Creation of a strategic, multi-year plan to deliver services based on the "needs and circumstances" of the community.



4

Benefits of Master Fire Plans

- ✓ Assess Township compliance with current legislative requirements.
- ✓ Further educate Council and the community with respect to the programs and services provided.
- ✓ Provide Council and staff with evidence-based strategic framework for delivering fire protection services in response to identified community fire risks.
- ✓ Opportunity for stakeholder input in developing performance goals and objectives.

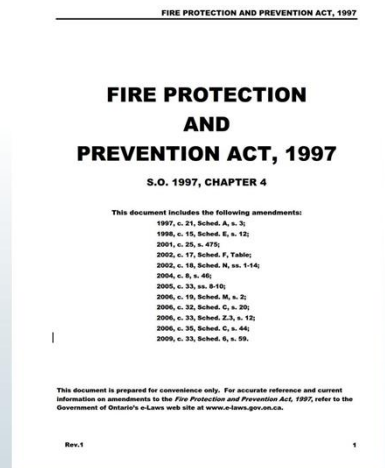


Municipal Responsibilities

Fire Protection and Prevention Act 1997 (FPPA) states that every municipality shall:

(a) Establish a program for public education with respect to fire safety and certain components of fire prevention; and

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



Municipal Responsibilities



Source : Ingleside Firefighter Challenge, Facebook
<https://www.facebook.com/InglesideFirefighterChallenge/>

(a) Establish a program for public education

- Simplified Risk Assessment – to identify the extent of other fire protection services;
- A smoke alarm program;
- Fire safety education activities distributed to residents/occupants; and
- Inspections upon complaint or when requested to assist with code compliance.



Municipal Responsibilities

(b) Provide other fire protection services

- Identify the level of fire protection (suppression) service the municipality deems necessary based on its own “needs and circumstances.”
- Determined through evaluating factors such as: fire risk, liability, financial capabilities, resources, and community and Council expectations.



Ontario Fire Protection Model: Three Lines of Defence

THE THREE LINES OF DEFENCE

Public
Education and
Prevention

- Smoke Alarm Program, school and seniors education, risk management, etc.

Fire Safety
Standards and
Enforcement

- Occupancy Inspections, Licensing Approval, Violation Enforcement, Fire Investigations, etc.

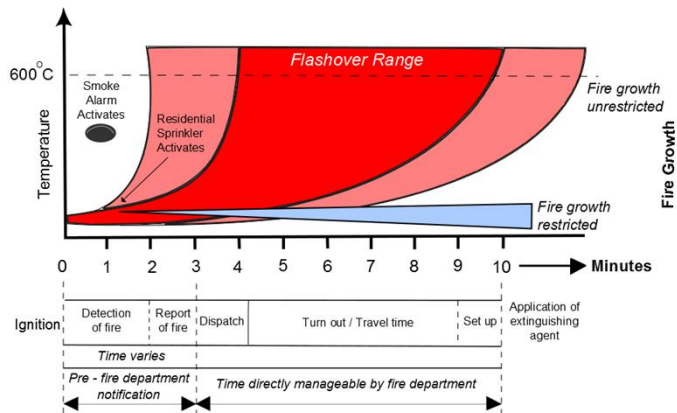
Emergency
Response

- Ontario Fire Marshal's Office guidance notes; National Fire Protection Association Standards (NFPA); Ministry of Labour (Section 21 Guidance Notes); Industry best practices



Fire Propagation Curve

- Emphasis on pre-fire department notification time
- Importance of 1st two lines of defence including:
 - Public Education
 - Fire Prevention
 - Fire Safety Standards and Fire Code Enforcement
- Fire suppression is the fail safe



Industry Trends

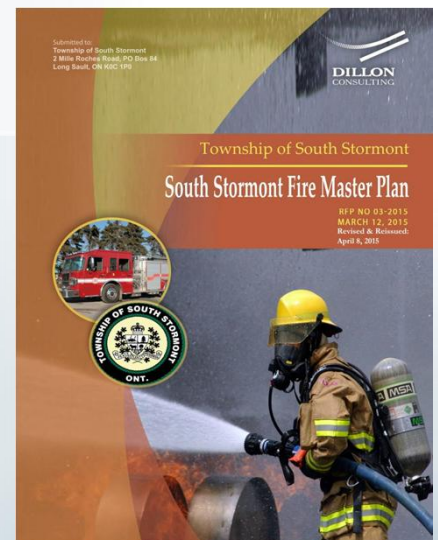
- Use of comprehensive community fire risk assessments - i.e., local needs and circumstances - to select appropriate fire protection services levels.
- Transition to the NFPA training standards for firefighters.
- Increasing cost of wages and benefits for full-time firefighters, the collective bargaining and arbitration process.
- Sustainability of volunteer firefighters particularly for daytime coverage.
- Strategies to optimize the Ontario Fire Protection Model - a.k.a. the "Three Lines of Defence"



Study Scope

Comprehensive review of:

- Administration, Legislation, By-laws, SOGs, Policies & Directives;
- Department staffing, scheduling and succession planning,
- Firefighter staffing and service agreements;
- Community Risk;
- Emergency Response and Station Locations / Adequacy;
- Fire Prevention and Public Education;
- Apparatus / Equipment Replacement and Maintenance; and
- Communications and Technology Requirements.



Stakeholder Engagement

• Township's Project Team

• Fire department divisional leads

• Representative volunteer firefighters from each of the stations

• Township staff

(e.g. Planning, Finance, CAO)



Source : Ingleside Firefighter Challenge, Facebook © Through My Lens Photography by Kylie Zummach
<https://www.facebook.com/InglesideFirefighterChallenge/>



Methodology

High-Level Environmental Scan

- Review fire and rescue services compared to best practices, peers, OFMEM (Public Fire Safety Guidelines), and NFPA.

GIS-based Model Assessment

- Community Risk Profile, Suppression Response

Align with Township Plans & Strategies

- United Counties of SDG Official Plan (2009), Economic Development Strategic Plan (2013), etc.

Consider Options based on Local Needs and Circumstances

- Community Risk

Develop Recommendations & Implementation Plan

- Short (1 to 5 years), medium (6 to 10), and long-term (11 to 20 years)



Public Fire Safety Guidelines

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 the Office of the Fire Marshal and Emergency Management (OFMEM) has commenced a comprehensive review of all OFMEM Public Fire Safety Guidelines (PFSGs). The OFMEM anticipates releasing updated guidelines by the end of 2015. Pending the release of the new guidelines, the existing guidelines will remain on our website for reference. In addition, the OFMEM recommends municipalities access other resources from our website such as Technical Guidelines or Communiques."



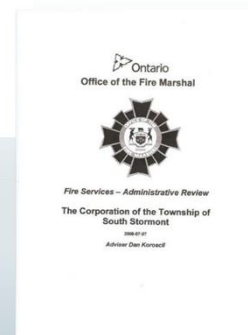
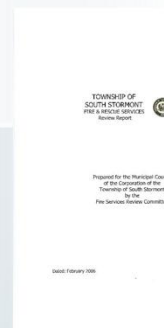
Previous Reviews

2006 Fire & Rescue Services Review:

- Fire Services Review Committee (Council, Community, Departments)
- Confirms *"four distinct fire departments"*
- Included high level recommendations

2007 Office of the Fire Marshal Review

- Purpose *"how best to transition from four fire departments"*
- Included 3 options for organizational structure
- Business case for Full-time Fire Chief



Preliminary Findings

Overall:

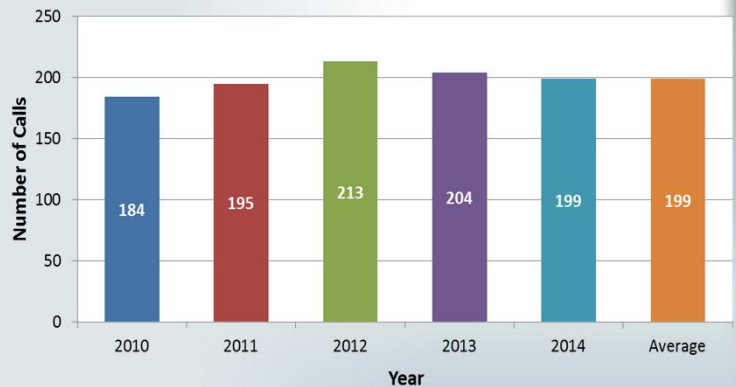
- Dedicated group of volunteer firefighters
- History of Council support and recognition
- Presence of pre-amalgamation legacy including:
 - Station Locations
 - Organizational Structure
 - Apparatus and Equipment
 - Training Program
- Prevention/Education Program Gaps
- Emergency Response Gaps
 - Particularly week day daytime coverage



Emergency Call Volume

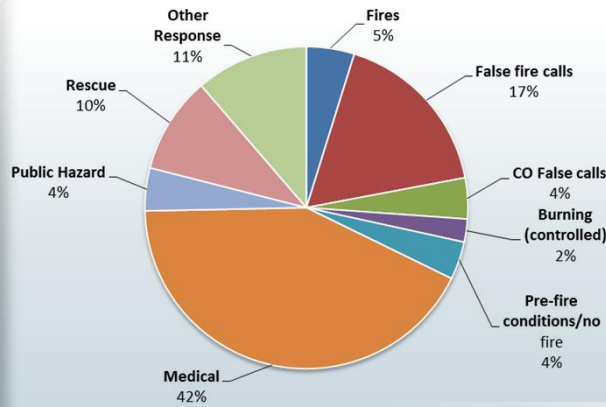
OFMEM REPORTING DATA

- 5-year average of 199 calls per year
- Number of calls has remained relatively consistent over the past 5 years
- Number of calls have been declining since the peak number in 2012
- OFMEM reporting data has been applied for all analyses with the exception of turnout time

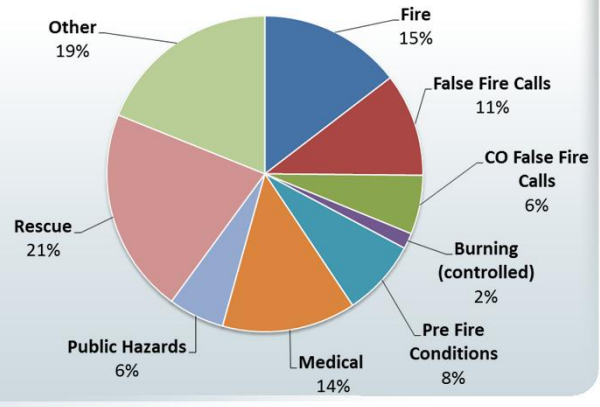


Percentage of Calls (OFMEM Response Type)

ONTARIO (2009 to 2013)

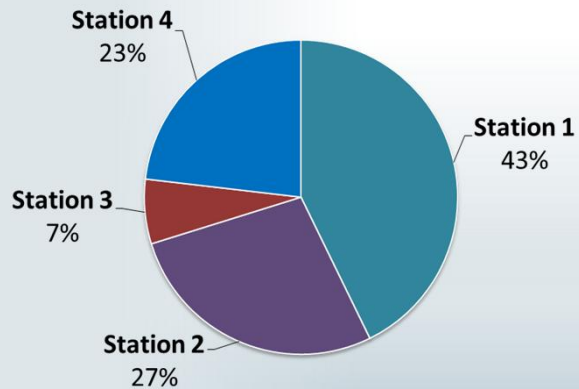


SOUTH STORMONT (2010 to 2014)



Call Volume (By Station)

- For the period 2010 to 2014 there were 933 total calls identified within the OFMEM call data.
- Station 1- Long Sault responded to the largest number of calls
- Station 3 – Newington responded to the least number of calls
- Station 3 is currently automatically responding to all reported structure fires within the Township



Call Volume – Station 3



For the years 2013 - 2014

- Department responded to 403 total calls
- Station 3 responded to 41 calls or 10.2% of the total calls within the Township including:

Fires:

- 1 Chimney Fire
- 2 Structure Fires
- 1 Grass Fire
- 5 Vehicle Fires

Medical:

- 5 Calls

Other:

- 6 Motor Vehicle Collisions
- 6 Burning Complaints
- 2 Hazard Calls
- 1 CO Call

Outside of their District:

- 12 Calls to Assist other Stations or Mutual Aid



Preliminary Findings

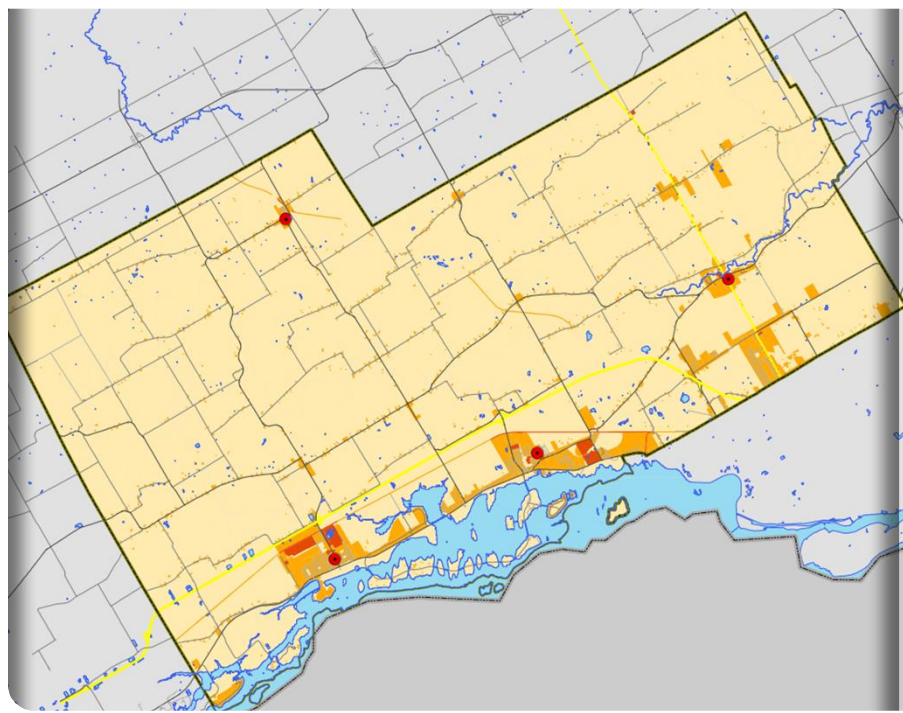
Stations:

- Locations are still pre-amalgamation
- Design, function, space not optimal (restricted)
- Station 4 has reached its life expectancy
- Others are close to their life expectancy.



Community Risk Profile

- 94% of the total property stock is residential occupancies
- Approximately 50% of the residential property stock was built prior to the current Ontario Fire Code (1981)
- Farming structures represent 16% of the residential occupancies
- Significant population growth is not expected partially due to servicing constraints.
- A population shift of approximately 600 monthly tourists occurs during the spring and summer months.
- 16% of population is seniors.
- 3 vulnerable occupancies were identified.
- Some fuel load concerns (e.g., tank farm, Kraft)



Community Risk Profile

	FEDERAL BOUNDARY
	SOUTH STORMONT BOUNDARY
	FIRE STATION
	LAKES AND RIVERS
	HIGHWAY
	ARTERIAL ROAD
	COLLECTOR ROAD
	LOCAL ROAD
FIRE RISK	
	HIGH
	MODERATE
	LOW



FIRE SUPPRESSION

TOTAL RESPONSE TIME =

Dispatch Time

+

Turnout Time

+

Travel Time

Time to receive and dispatch the call.

U

Time required for firefighters to react and prepare to respond.

q

Actual travel time from the fire station to the incident.

f



Emergency Response Performance Measures: NFPA 1720

South Stormont has a population density of 73.1 people/mile²

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

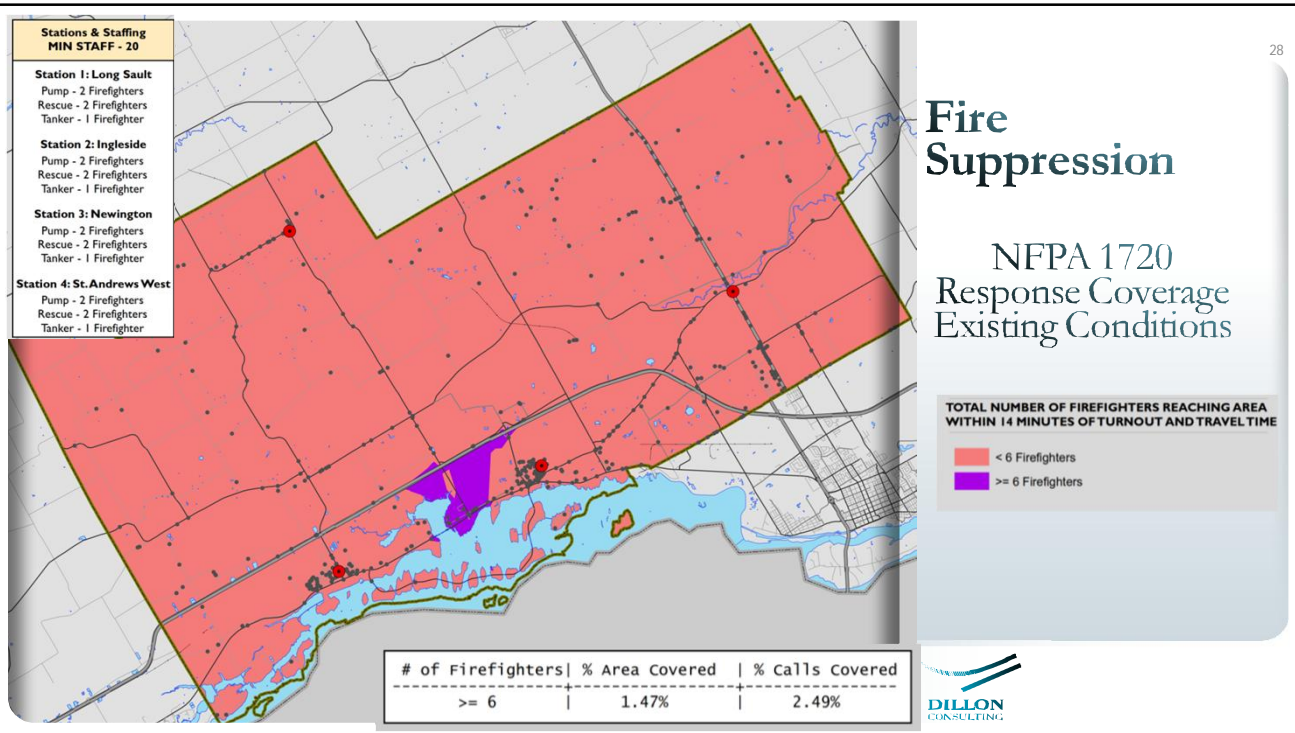


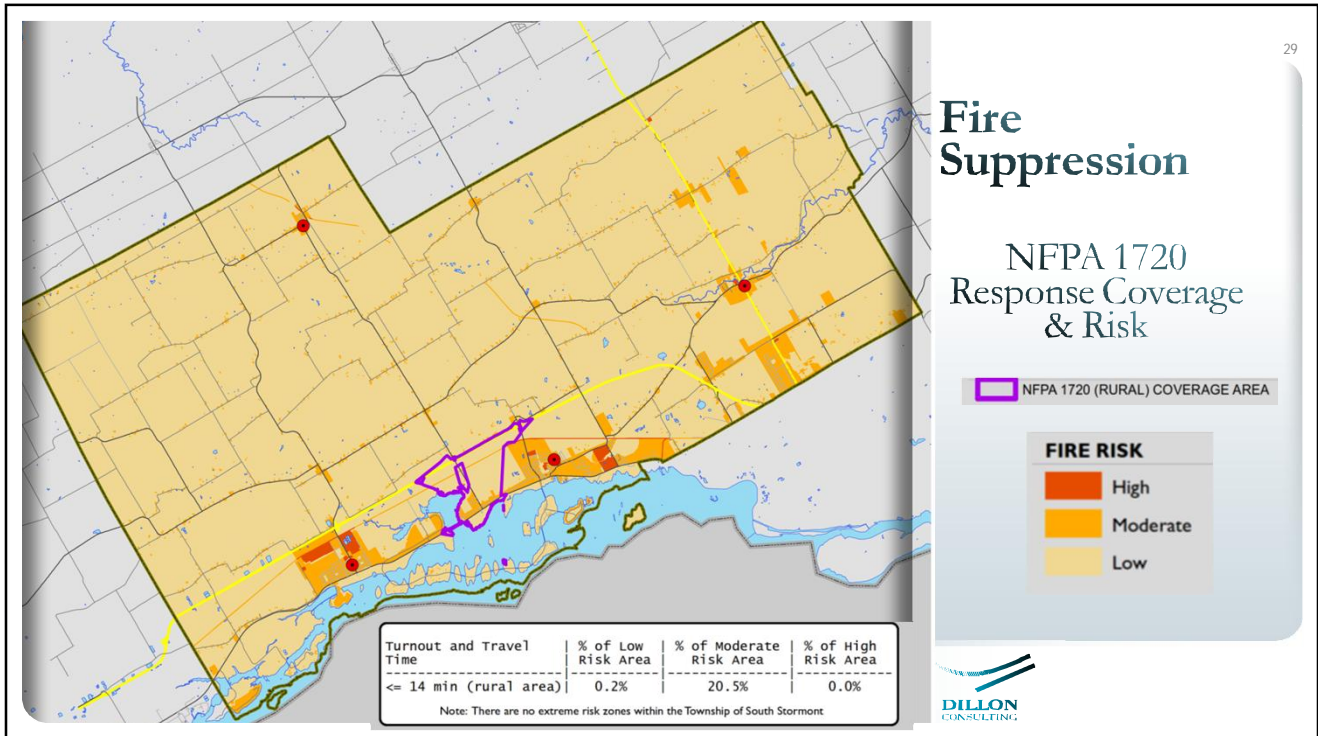
Fire Suppression – Turnout Time

First Vehicle:

- Station 1 – 7.8 minutes
- Station 2 – 6.4 minutes
- Station 3 – 6.3 minutes
- Station 4 – 8.3 minutes

Turnout Time - 80th Percentile (seconds)				
	Station 1	Station 2	Station 3	Station 4
First Vehicle	470	384	381.8	496.2
Second Vehicle	470	565.4	459	670.4
Third Vehicle	508	663	642.6	693



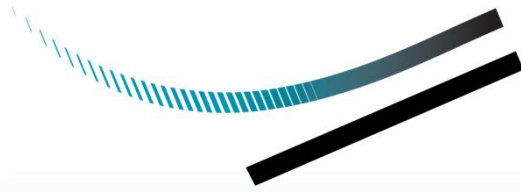


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Next Steps

- Finalize non-suppression & suppression reviews
- Finalize Community Risk / Emergency Response Model
- Draft Recommendations / Draft Report
- Final Report
- Present Final Report to Council

DILLON
CONSULTING



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Questions?

Appendix K

Sample Establishing and Regulating By-law(PFSG 01-03-12)

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

Sample Establishing and Regulating By-law

Public Fire Safety Guidelines

Subject Coding

PFSG 01-03-12

Section

Date

General

March 2000

Subject

Page

Sample Establishing and Regulating By-law

Under Review

Purpose:

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

Introduction:

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

Development:

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

The municipal solicitor, prior to enactment, should review any draft by-laws prepared by council.

**Related
Functions:**

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

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

- authority to effect necessary department operations

**Codes,
Standards and
Best Practices:**

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

See also PFSG

[02-02-12](#) Fire Risk Assessment

[02-03-01](#) Economic Circumstances

[04-01-12](#) Selecting a Fire Suppression Capability

[04-02-01](#) Service Delivery Considerations

fire department

SAMPLE ESTABLISHING AND REGULATING BY-LAW

corporation of the Town of Anywhere

By-Law No.

Whereas the Municipal Act, R.S.O. 1990 c., as amended, and the Fire Protection and Prevention Act, 1997, S.O. 1997, c.4 as amended, permits the council to enact a by-law to establish and regulate a *fire department*;

BE IT THEREFORE ENACTED by the Municipal council of the corporation of the Town of Anywhere, as follows:

1. In this by-law, unless the context otherwise requires, ***Definitions: define any terms or positions which may be of concern to users of the by law***
 - a. **approved**
means approved by the council
 - b. **chief administrative officer**
means the person appointed by council to act as chief administrative officer for the corporation
 - c. **corporation**
means the Corporation of the Town of Anywhere
 - d. **council**
means the council of the Town of Anywhere
 - e. **deputy chief**
means the person appointed by council to act on behalf of the fire chief of the fire department in the case of an absence or a vacancy in the office of fire chief
 - f. **fire chief**
means the person appointed by council to act as fire chief for the corporation and is ultimately responsible to council as defined in the Fire Protection and Prevention Act
 - g. **fire department**

means the Town of Anywhere fire department

h. fire protection services

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

i. member

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

j. volunteer firefighter

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

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

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

***Approved
Organizational Chart***

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

***Identifies appointment
of other officers and
members without
listing all specifically***

5. The *fire chief* may recommend to the *council* the appointment of any qualified person as a *member* of the *fire department*, subject to the *approved* hiring policies of the Town of Anywhere

***Appointment via
approved Hiring Policy***

6. Persons appointed as *members* of the *fire department* to provide *fire protection services* shall be on probation for a period of 12 months, during which period they shall take such special training and examination as may be required by the *fire chief*.

Probationary Members

7. If a probationary member appointed to provide *fire protection services* fails any such examinations, the *fire chief* may recommend to the *council* that he/she be dismissed.

8. The remuneration of the volunteer members shall be as determined by the *council*. **Remuneration and working conditions**
9. Working conditions and remuneration for all firefighters defined in Part IX of the Fire Protection and Prevention Act shall be determined by *council* in accordance with the provisions of Part IX of the Fire Protection and Prevention Act.
10. If a medical examiner finds a member is physically unfit to perform assigned duties and such condition is attributed to, and a result of employment in the *fire department*, *council* may assign the member to another position in the *fire department* or may retire him/her. *council* may provide retirement allowances to members, subject to the Municipal Act. **Other employment, retirement options and/or allowances**
11. The *fire chief* is ultimately responsible to *council*, through the (insert appropriate position for the municipality) for proper administration and operation of the *fire department* including the delivery of *fire protection services*. **Chief ultimately responsible to council through FPPA (via chief administrative officer, clerk, fire committee or specify appropriate position)**
12. The *fire chief* shall implement all *approved* policies and shall develop such standard operating procedures and guidelines, general orders and departmental rules as necessary to implement the *approved* policies and to ensure the appropriate 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 **Divisional responsibilities**

direction of the *fire chief* or a member designated by ***designated by chief*** 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*.

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

Boarding up or

or barricading of buildings or property to guard against fire or other danger, risk or accident, when unable to contact the property owner

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
- 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 coordinator 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

Authority to leave municipal limits

**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.

Appendix L

***Co-ordination, Development, Approval
and Distribution of Standard Operating
Guidelines for Various Disciplines
(PFSG 04-69-13)***

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

Co-ordination, Development, Approval and Distribution of Standard Operating Guidelines for Various Disciplines

Public Fire Safety Guidelines

Subject Coding

PFSG 04-69-13

Section

Date

Fire Administration

March 2000

Subject

Page

**Co-ordination, Development, Approval and
Distribution of Standard Operating Guidelines for
Various Disciplines**

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 M

Community Risk Profile (Township of South Stormont)

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1.0 Detailed Community Risk Profile

1.1 Introduction

The Office of the Fire Marshal and Emergency Management, Ontario (OFMEM) provides a number of tools to assist municipalities, and ultimately municipal councils, in determining local needs and circumstances as required by the *Fire Protection and Prevention Act (FPPA)*. These tools include the Comprehensive Fire Safety Effectiveness Model; the Fire Risk Sub-Model and Public Fire Safety Guideline 01-01-01 "*Fire Protection Review Process*". PFSG 01-01-01 "*Fire Protection Review Process*" further identifies the three primary components of assessing community needs and circumstances including:

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

This section provides a detailed assessment of the current and future (planned growth) fire risk within the Township of South Stormont (the Township).

It is important to note that the OFMEM began a comprehensive review of all Public Fire Safety Guidelines in January 2015. With the Township's approval, Dillon Consulting Limited continued the completion of this MFP utilizing the current PFSGs, recognizing the current review process is underway.

1.2 OFMEM Fire Risk Sub-Model

The community fire risk analysis within this report follows the OFMEM framework and specifically the OFMEM Fire Risk Sub-Model. The model identifies the importance of community risk in the following introductory paragraphs:

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

"The types of fire risks that a community may be expected to encounter are influenced by its defining characteristics. For example, a "bedroom community" presents a different set of circumstances over one that is characterized as an "industrial town". Communities that are

distinguished by older buildings will pose a different set of concerns over those that are comprised of newer buildings constructed to modern building codes. Communities populated by a high percentage of senior citizens present a different challenge over ones with a younger population base.

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

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

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

1.3 Assessing Fire Risk Scenarios

The Fire Risk Sub-Model provides communities with the flexibility to determine how their municipality should be defined in terms of fire risk scenarios. Specifically, the model states that:

"For analyses purposes, the community being assessed can be defined as the municipality in its entirety or as a particular segment of it that distinguishes it from other parts. For smaller municipalities, it may be sufficient to simply define the community based on town boundaries. For larger municipalities, it may be appropriate to subdivide it into separate and distinct components to permit more detailed analysis. For example, it may be convenient to subdivide a municipality based on residential subdivision, downtown sections, industrial park, and a rural area. Hence, the first step in conducting a fire risk analyses is to identify and define the community (s) being analyzed."

The analyses within this Fire Master Plan utilize the major occupancy classifications of the Ontario Building Code (OBC) to define the fire risk scenarios within the Township of South Stormont.

2.0 Property Stock

The OBC categorizes buildings by their major occupancy classifications. Each classification has inherent definitions that distinguish it from other occupancy classifications. Utilizing the OBC as the source for defining the occupancy classifications provides a recognized definition and baseline for developing the Community Risk Profile.

The OBC major occupancy classifications are divided into six major building occupancy classifications (groups). Within each group the occupancies are further defined by division. The OBC major classification groups and divisions are presented in **Table 1**.

TABLE 1: OBC MAJOR OCCUPANCY CLASSIFICATION

Group	Division	Description of Major Occupancies
Group A	1	<i>Assembly occupancies intended for the production and viewing of the performing arts</i>
	2	<i>Assembly occupancies not elsewhere classified in Group A</i>
	3	<i>Assembly occupancies of the arena type</i>
	4	<i>Assembly occupancies in which occupants are gathered in the open air</i>
Group B	1	<i>Detention occupancies</i>
	2	<i>Care and treatment occupancies</i>
	3	<i>Care occupancies</i>
Group C	---	<i>Residential occupancies</i>
Group D	---	<i>Business and personal services occupancies</i>
Group E	---	<i>Mercantile occupancies</i>
Group F	1	<i>High hazard industrial occupancies</i>
	2	<i>Medium hazard industrial occupancies</i>
	3	<i>Low hazard industrial occupancies</i>

2.1 Community Risk Profile – Major Occupancy Classifications

The Fire Risk Sub-model developed by the Office of the Fire Marshal and Emergency Management utilizes the major group classifications only (Group A, B, C, D, E, F). The Fire Risk Sub-model does not use the detailed “Division” classifications provided for the respective

occupancy groups. This strategy provides the ability to assess property stock within a community comparatively by major occupancy groups thus providing a consistent and recognized definition for each major occupancy type. Where necessary this strategy provides the opportunity for further analysis of a specific occupancy group. Subject to any site specific hazards or concerns, individual occupancies within this group can be assessed individually and then included where required within the scope of the broader community risk profile.

Table 2 and the discussion that follows, describes the major occupancy groups used within this community risk profile. 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.

The following describes the major occupancy classifications used within the Fire Risk Sub-model.

TABLE 2: 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	<ul style="list-style-type: none"> • 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 	<ul style="list-style-type: none"> ✓ Regular fire prevention inspection cycles ✓ Automatic fire detection and monitoring systems ✓ Approved fire safety plan and staff training ✓ 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.	<ul style="list-style-type: none"> • Inability to evacuate or relocate patients • Presence of flammable/combustible gases • Vulnerable occupants using overnight accommodations (sleeping) • Combustible furnishings 	<ul style="list-style-type: none"> ✓ Regular fire prevention inspection cycles ✓ Automatic fire detection and monitoring systems ✓ Approved Fire Safety Plan and staff training ✓ 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.	<ul style="list-style-type: none"> • Overnight accommodation (sleeping) • Combustible furnishings • Secondary units (basement apartments) • High population density • Human behaviour (cooking, use of candles, etc.) 	<ul style="list-style-type: none"> ✓ Home smoke alarm programs ✓ Public education programming including home escape planning ✓ Retro-fit and compliance inspection cycles for OFC compliance ✓ 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.	<ul style="list-style-type: none"> • High volume of occupants • High combustible loading • Specialized equipment utilizing high risk substances such as radiation • Consumers unfamiliar with emergency exits and procedures 	<ul style="list-style-type: none"> ✓ Regular fire prevention inspection cycles to maintain OFC compliance ✓ Targeted fire prevention inspections for OFC retro-fit compliance ✓ Staff training in fire prevention and evacuation procedures ✓ Public education programs ✓ 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.	<ul style="list-style-type: none"> • 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 	<ul style="list-style-type: none"> ✓ Regular fire prevention inspection cycles ✓ Automatic fire detection and monitoring systems ✓ Approved Fire Safety Plan and staff training ✓ 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	<ul style="list-style-type: none"> • 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 	<ul style="list-style-type: none"> ✓ Regular fire prevention inspection cycles ✓ Staff training in fire prevention and evacuation ✓ Public education ✓ Pre-planning by fire suppression staff ✓ Installation of early detection systems (smoke alarms, heat detectors) ✓ Installation of automatic sprinkler systems

All occupancies have unique risks assigned to them across the groups. Within the groups, the buildings themselves can also be very different. For residential occupancies (Group C), 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. Statistics Canada defines low-rise buildings as being less than five storeys in building height and high-rise as five storeys and greater. As the primary source for data regarding community risk factors is provided by Statistics Canada this analysis utilizes the Statistics Canada definitions for residential occupancies.

Group D – Business and Personal Services occupancies can also be located in different types of buildings such as remodelled single-family dwellings, low-rise and high-rise buildings. Each of these building types can present different risks including egress for firefighting operations and evacuation by occupants. Group E – Mercantile occupancies also vary in the type of building. They would range in size and potential risk from smaller neighbourhood corner stores to the large “big box” industrial style buildings. Large volumes of combustibles are typically present in all applications. Within the fire service, these two occupancy types are often considered together as “commercial uses.”

While there may be building variation within Group B – Care or Detention facilities, 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 restrained from, or are incapable of, self-preservation because of security measures. Regardless of the type of building Group B – Care or Detention facilities inhabit, this critical aspect of risk remains the same.

As shown in **Table 1**, 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 that are present in storage and utilized in the manufacturing process. This can include highly flammable and corrosive products.

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.

2.2 Property Stock Analysis

Applying the property stock classifications contained within the Fire Risk Sub-model, **Table 3** provides a summary of the property stock within the Township of South Stormont.

TABLE 3: PROPERTY STOCK PROFILE TOWNSHIP OF SOUTH STORMONT (2015)

Occupancy Classification (OBC)	Occupancy Definition Fire Risk Sub-model (OFMEM)	Number of Occupancies	Percentage of Occupancies
Group A – Assembly Assembly	<i>Assembly occupancies</i>	39	0.6 %
Group B – Care or Detention	<i>Care or Detention occupancies</i>	3	0.0 %
Group C - Residential Residential	<i>Residential occupancies</i>	6,217	93.9 %
Group D – Business and Personal Services	<i>Business and Personal Services Occupancies</i>	225	3.4 %
Group E – Mercantile			
Group F - Industrial	<i>Industrial occupancies</i>	113	1.7 %
Other occupancies	<i>Not classified within the Ontario Building Code (i.e. farm buildings)</i>	26	0.4 %
Totals		6,623	100 %

The majority (93.9%) of the Township of South Stormont property stock is Group C - Residential, which is comprised of mainly single-family dwellings including (5,146 occupancies) and farm dwellings (1,001 occupancies). The second largest percentage of property stock (3.4%) consists of Group D/E – Commercial occupancies. This is consistent with the large rural area of the Township that contains many farms and related buildings such as barns and storage buildings.

This particular analysis confirms that as a community the Township of South Stormont represents the typical level of risk that would be found in comparable municipalities within the Province of Ontario. These include smaller urban centres surrounded by large tracts of agriculture forming a larger community. Agriculture is very prevalent throughout the Township. Farm buildings (not classified within the OBC) vary in size and use from small utility sheds to large livestock barns.

2.3 Property Stock Profile Observations

The analysis of the Property Stock Profile for the Township confirms that the largest percentage of major occupancies (93.9%) is Group C - Residential. Significant priority should be given to developing a Fire Master Plan that reflects the risks associated with this occupancy category. A key element in mitigating residential risks is maximizing the use of all three lines of defence.

The priority of addressing the residential fire risk is supported by the historic data¹ provided by the Office of the Fire Marshal and Emergency Management that reports for the period from 2009 to 2013 residential fires accounted for 72% of all structure fire losses and for the period from 2004 to 2013 residential fires accounted for 85% of all fire fatalities.

3.0 Building Height and Area

Buildings that are taller in height, or contain a large amount of square footage (footprint) can have a greater fire loss risk and life safety concern.

3.1 Building Height

One of the unique characteristics and risks of tall / multi-storey buildings is known as the “stack effect.” This is characterized as vertical air movement occurring throughout the building, caused by air flowing into and out of the building typically through open doors and windows. The resulting buoyancy caused by the differences between the indoor/outdoor temperature and elevation differences causes smoke and heat to rise within the building. This can have a dramatic effect on smoke permeation throughout the common areas and individual units within the building. This can be directly related to the high percentage of deaths that occur in high-rise buildings as a result of smoke inhalation.

The nature of taller buildings also brings the presence of higher occupant loads and higher fuel loads due to the quantity of furnishings and building materials. Efficient evacuation can also be a challenging process due to a lack of direction / signage and knowledge / familiarity of the occupants which may result in overcrowding of stairways and exit routes.

¹ "Ontario Fatal Fires: Summary." Ministry of Community Safety and Correctional Services. 8 Dec. 2014. Web. 5 Sept. 2015.

"Fire Loss in Ontario 2009-2013 Causes, Trends and Issues." Ministry of Community Safety and Correctional Services. 26 Mar. 2015. Web. 5 Sept. 2015.

Ensuring all required life safety systems are in place and functioning is a priority for these occupancies. Taller buildings can experience extended rescue / suppression response times for firefighters to ascend to the upper levels. Options such as “shelter-in-place” whereby occupants are directed by the fire department to stay within their units can be an effective strategy. However, ensuring internal building communications systems are in place and functioning is critical to the success of this strategy.

There are no residential high-rise buildings within the Township of South Stormont. The Settlement Areas’ buildings range from approximately one storey to three storeys high. According to Zoning By-law No. 2011-100, the maximum residential building height allowed is 15 metres for an apartment dwelling (zone RS3), and the maximum institutional building height is 20 metres. Assuming approximately three metres per storey, this is a range of five to approximately seven storeys. Thus, while today the municipality is not home to high rise residential uses, there is the potential in the future.

3.2 Building Area

Building area can cause comparable challenges as those present in taller buildings. Horizontal travel distances rather than vertical can mean extended response times by firefighters attempting rescue or fire suppression activities.

Large buildings, such as industrial plants and warehouses, department stores, and the new “big box” stores, can contain large volumes of combustible materials. In many of these occupancies the use of high rack storage is also present. Fires within this type of storage system can be difficult to access and cause additional risk to firefighter safety, due to collapse risks.

The Township has a small number of large industrial/commercial/mixed-use buildings. For example, the Kraft Canada facility located at 70 Dickinson Drive is a large building and the contents of the building are considered to be hazardous. Other examples of buildings with large areas and potential fire loss risk include:

- UAP Logistics Distribution Centre;
- SABIC Innovative Plastics;
- Greyline Instruments; and
- Various mixed use buildings in the settlement areas.

3.3 Building Height and Area Observations

The analysis of the buildings within the Township with regards to height and area represent a minimal risk. This includes all occupancy classifications. There are also a limited number of

large area (by square footage) industrial buildings. The multi-use occupancies present in the settlement areas of South Stormont represent a potential fire loss risk.

The observations of this section are consistent with the need to prioritize a pro-active fire inspection and compliance program. These strategies should be aligned with optimization of the first two lines of defence with the Fire Master Plan.

4.0 Building Age and Construction

In 1998, the Township of South Stormont was established through amalgamation of Cornwall Township and Osnabruck Township, but some settlements within the Township date back to the 18th century. Newer settlements date to the 1950s when the Saint Lawrence Seaway was constructed. Due to its construction, former villages were flooded on July 1, 1958 and residents were relocated to newer settlements including Ingleside and Long Sault. Most of the growth within the Township has occurred within these two communities including commercial and residential growth. Residential development has been mainly in the form of low- and medium-density housing.

4.1 Building/Fire Code Application

The Ontario Building Code (OBC) was adopted in 1975. The Ontario Fire Code (OFC) was similarly adopted in 1981. Together these two documents have provided the foundation for eliminating many of the inconsistencies in building construction and maintenance that were present before their adoption.

The OBC and the OFC were developed to ensure uniform building construction and maintenance standards are applied to all new building construction. The codes also provide for specific fire safety measures depending on the use of the building. Examples of the fire safety issues that are addressed include:

- *occupancy*
- *exits/means of egress including signs and lighting*
- *fire alarm and detection equipment*
- *fire department access*
- *inspection, testing, and maintenance*

In 1983, the OFC was further expanded to include retrofit requirements for many of the building constructed prior to adoption of the code. Retrofit requirements were established to ensure a minimum acceptable level of life safety is present. A number of occupancy types are included within the retrofit requirements including assembly, boarding, lodging and rooming houses, health care facilities, multi-unit residential, two-unit residential, and hotels.

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. Consideration should be given to both residential and non-residential buildings in terms of age and construction methods.

4.2 Residential Buildings

The priority of addressing the residential fire risk is supported by the historic data provided by the Office of the Fire Marshal and Emergency Management that reports for the period from 2009 to 2013 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.²

These facts make understanding the age and construction of a community's residential building stock an important component of developing a Community Risk Profile.

The Township of South Stormont's residential building structural dwelling types, according to Statistics Canada, are summarized in **Table 4**.

TABLE 4: RESIDENTIAL STRUCTURAL DWELLING TYPE (2011 – STATISTICS CANADA)

Structural Dwelling Type	Township of South Stormont	% of Units	Ontario	% of Units
Single-Detached House	4,455	92.9%	2,718,880	55.6%
Semi-Detached House	45	0.9%	279,470	5.7%
Row House	55	1.1%	415,225	8.5%
Apartment-Duplex	20	0.4%	160,460	3.3%
Apartment-more than 5 Storeys	0	0%	789,970	16.2%
Apartment-less than 5 Storeys	170	3.5%	498,160	10.2%
Other single-attached House	5	0.1%	9,540	0.2%
Movable Dwelling	55	1.1%	15,800	0.3%
Total	4,795	100.2%	4,887,510	100%

*Note: Totals and percentages do not equal total amount due to Statistics Canada random rounding policies applied to ensure confidentiality
(Source: Statistics Canada, 2011 Community Profile)*

² "Ontario Fatal Fires: Summary." Ministry of Community Safety and Correctional Services. 8 Dec. 2014. Web. 5 Sept. 2015.

"Fire Loss in Ontario 2009-2013 Causes, Trends and Issues." Ministry of Community Safety and Correctional Services. 26 Mar. 2015. Web. 5 Sept. 2015.

In comparison to the provincial data the Township of South Stormont percentage of single-detached housing of 92.9% represents a significantly larger component of the residential dwelling types than that of the province at 55.6%. Apartments with less than five storeys are the second highest percentage of residential dwellings at 3.5%. There are no apartments with five or more storeys in the Township.

Historical data provided by the Office of the Fire Marshal and Emergency Management indicates that fires in single-detached dwellings equate to nearly two thirds of all residential fires. The data further indicates that detached homes generally account for 80% of all single-family dwelling fires. The period of construction of residential buildings in the Township of South Stormont are summarized in **Table 5**.

TABLE 5: PERIOD OF CONSTRUCTION FOR RESIDENTIAL DWELLINGS (2011)

Period of Construction	Township of South Stormont	% of Units	Ontario	% of Units
Prior to 1960	1,490	31.1%	1,330,235	27.2%
1961 to 1980	1,040	21.7%	1,420,570	29.1%
1981 to 1990	875	18.3%	763,430	15.6%
1991 to 2000	705	14.7%	609,310	12.5%
2001 to 2005	390	8.1%	414,795	8.5%
2006 to 2011	290	6.1%	348,310	7.1%
Total	4,790	100.0%	4,886,655	100%

(Source: Statistics Canada, 2011 National Household Survey)

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 5** indicates that 52.8% of the Township's residential buildings were built prior to 1981 in comparison to 56.3% of those in Ontario. Thus, the Township has only a slightly younger housing stock than that of the province.

4.3 Non-Residential Buildings

During the late 19th century and early 20th 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 the census data is not available for non-residential buildings; however the experience of community planning and development provides a relative comparison when assessing the age and construction of a community. Typically, 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.

4.4 Building Age and Construction Observations

As a community the current building stock of the Township is representative of a small settlement area that has grown over the past century to the mix of urban settlement areas in a rural setting.

Residential single-detached housing units represent 92.9% of the 4,795 residential dwelling structures. Of all residential dwellings, 52.8% was built prior to adoption of the Ontario Fire Code in 1981.

Approximately half of the residential building stock is of newer construction technology including flame retardant materials and construction techniques. Buildings within the settlement areas as well as residential farms represent the highest fire loss risk due to age and construction.

5.0 Building Exposures

Closely spaced buildings, typical of historic downtown core areas and newer infill construction, have a higher risk of a fire propagating (fire spreading to an adjacent exposed building). A fire originating in one building could easily be transferred to neighbouring structures due to the close proximity. The close proximity of buildings can also impede firefighting operations due to the limited access for firefighters and equipment.

Adoption of the OBC and the OFC has required spatial separations and the use of fire retardant materials and constructions methods to reduce the fire risks. In addition to the construction and planning requirements within the respective codes, basic firefighting practices consider the protection of exposures as a primary function and consideration in the event of a response by the fire department.

While much of the property stock was built prior to the adoption of the OFC, there are not many instances in the Township where building exposures fire risk is prevalent due to building proximity.

5.1 Building Exposures Observations

The risk of exposures as a result of a fire can occur in incidents involving buildings that are in compliance with current OBC and OFC requirements as well as those that may have been constructed prior to these public safety initiatives. The majority of buildings in South Stormont are not directly adjacent to another building; this represents a minimal risk for exposure.

6.0 Demographic Profile

A demographic profile is an effective tool in understanding key factors related to the residents of a community. Assessing these factors in relation to provincial statistics can help a fire department understand where there may be vulnerable groups in terms of fire or life risk, or barriers to public education programs. The key factors within the demographic profile include:

- Population Distribution by Age Group
- Population Shifts
- Vulnerable Individuals or Occupancies
- Language Barriers to Public Education
- Income level

6.1 Population Distribution by Age Group

Canada's aging population has been recognized as one of the most significant demographic trends. 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%). Seniors (those 65 years and over) are considered to represent one of the highest fire risk target groups across the country.

The website of the Office of the Fire Marshal and Emergency Management states that while overall fire deaths are decreasing, a high proportion of those deaths occur among seniors putting them at a much higher risk than youth or adults. From 2003 to 2012, 32% of fire fatalities were seniors, with the ignition source most commonly being cigarettes or other smokers' materials. Among senior fatalities, the victim is likely to be asleep or disabled, with 25% of victims with an ambulatory or other disability. Further, amongst the seniors age group,

42% of victims are between ages 70 to 79 and 31% are between 80 and 89.³ This indicates that a decline in cognitive and/or physical abilities is likely contributors to these types of fire fatalities among seniors.

Table 6 was prepared using information from the OFMEM's review of Ontario Fatal Fires during the ten year period from 2001 to 2010 (revised October 2011). Although no particular age group stands out as a significantly higher risk, when the number of fatalities per million population is calculated, the seniors' age group are at the greatest risk of fire death compared to other age groups.

TABLE 6: PROVINCIAL PERCENT OF FIRE FATALITIES BY AGE GROUP

Age Characteristics of the Population	% of Age Group
0 to 10 years	8%
10 to 19 years	6%
20 to 29 years	6%
30 to 39 years	10%
40 to 49 years	19%
50 to 59 years	14%
60 to 69 years	12%
70 to 79 years	13%
80+ years	12%

For these reasons, identifying a community's population by age category is a core component of developing the Community Risk Profile. By understanding population distribution by age, specific measures can be identified that may be required to mitigate risks associated with a specific age group, such as seniors.

Table 7 provides a comparison of the Township's population by age group to that of the provincial statistics according to the 2011 census from Statistics Canada.

³Source: "Ontario Residential Fatal Fires Children, Adults, Seniors." Office of the Fire Marshal and Emergency Management, 17 Dec. 2013. Web. 27 June 2014.
<http://www.mcscs.jus.gov.on.ca/english/FireMarshal/MediaRelationsandResources/FireStatistics/OntarioFatalities/HomeFireFatalitiesChildrenAdultsSeniors/stats_fatal_res.html>

TABLE 7: POPULATION DISTRIBUTION BY AGE GROUP (2011)

Age Characteristics of the Population	South Stormont		Ontario	
	Total	% Total	Total	% Total
0 to 4 years	615	4.9%	704,260	5.5%
5 to 9 years	605	4.8%	712,755	5.5%
10 to 14 years	755	6.0%	763,755	5.9%
15 to 19 years	990	7.8%	863,635	6.7%
20 to 24 years	605	4.8%	852,910	6.6%
25 to 44 years	2,630	20.8%	3,383,890	26.3%
45 to 54 years	2,380	18.9%	2,062,020	16.0%
55 to 64 years	2,020	16.0%	1,630,275	12.7%
65 to 74 years	1,195	9.5%	1,004,265	7.8%
75 to 84 years	595	4.7%	627,660	4.9%
85 years and over	230	1.8%	246,400	1.9%
Total population	12,617	-	12,851,820	-
Median age of the population	45.5	-	40.0	-
% of the population aged 14 and under	1,975	15.7%	2,180,770	17.0%
% of the population aged 65 and over	2,020	16.0%	1,878,325	14.6%

(Source: "South Stormont Census Profile." Statistics Canada. 2 Sept. 2015. Web. 5 Oct. 2015)

The age comparison reflects that the senior's population (over age 65) represents 16.0% of the population of the Township of South Stormont. The Township of South Stormont has a slightly higher percentage of seniors when compared to the province (14.6%). This should be considered significant in relation to the number of fire deaths for this age category.

6.2 Population Shifts

The population within a community can shift at various times during the day or week and throughout the year. This can be as a result of residents that are required to leave the community to seek employment as opposed to those having employment opportunities within the community. Other examples can include tourist and vacation destinations within a community. Large population shifts can occur during summer months as a direct result of the seasonal availability of these activities or tourism draws within a community.

Communities that are home to educational institutions such as colleges and universities can have a different population shift during the fall and winter months when students are attending school and residing in the community (e.g. student residences). In both instances the increased risk due to overnight accommodation (sleeping) either in a trailer/hotel/or school residence can be a major factor which can impact the demand for fire protection services.

According to Township staff, South Stormont experiences a minor population shift throughout the summer months. The tourist industry brings about 600 people per day with peaks of 3,000 during special events on the Long Sault Parkway.

6.3 Vulnerable Individuals or Occupancies

Identifying the location and number of vulnerable individuals, or occupancies within the community will provide insight into the magnitude of this particular demographic within a community. This demographic is typically defined as requiring some type of assistance due to physical/cognitive limitations, disabilities, drug or alcohol use and others that may require assistance to evacuate in the event of a fire.

Occupancies that should be considered when assessing this demographic include hospitals, seniors' apartments, group homes, rooming houses, residential care facilities, daycare centres and long-term care facilities. As listed in **Table 8** there are three such occupancies in South Stormont as identified by SSFR.

TABLE 8: VULNERABLE OCCUPANCIES IN SOUTH STORMONT

Community	Address
Long Sault Villa	53 Long Sault Drive, Long Sault,
Senior Country Living	15434 County Road 18, Lunenburg
Woodland Villa Nursing Home	30 Mille Roches Road, Long Sault

(Source: South Stormont Fire and Rescue)

6.4 Language Barriers to Public Education

Cultural diversity can be a factor that fire departments must consider in developing and delivering programs related to fire prevention and public education. Communication barriers in terms of language and the ability to consume written material can have an impact of the success of these programs. **Table 9** provides a breakdown of the mother tongue of residents within the Township based on the 2011 Statistics Canada census information. The majority of residents in South Stormont (81.2%) have English as their mother tongue, and 14.7% have French.

TABLE 9: MOTHER TONGUE OF SOUTH STORMONT RESIDENTS

Language	South Stormont		Ontario	
	Total	% Total	Total	% Total
Total population	12,455	-	12,028,895	-
English	10,110	81.2%	8,230,705	68.4%
French	1,830	14.7%	488,815	4.1%
Non-official Languages	320	2.6%	3,276,685	27.2%

(Source: Statistics Canada, 2011 Census)

A total of 320 individuals (2.6%) have a non-official, non-Aboriginal language as a mother tongue. The top three languages in this category are Dutch (0.6%), German (0.5%), and Italian (0.2%). For individuals who have a knowledge of English but it is not their mother tongue, it is important to note they may or may not be stronger speaking in their mother tongue. **Table 10** provides a breakdown of knowledge of official languages of residents within the Township based on the 2011 Statistics Canada census information. The majority of residents in South Stormont (67.8%) know English only, and 31.6% know both English and French.

TABLE 10: KNOWLEDGE OF OFFICIAL LANGUAGES OF SOUTH STORMONT RESIDENTS

Language	South Stormont		Ontario	
	Total	% Total	Total	% Total
Total population (non-institutional)	12,455	-	12,722,060	-
English Only	8,450	67.8%	10,984,360	86.3%
French Only	70	0.6%	42,980	0.3%
English and French	3,935	31.6%	1,395,805	11.0%
Neither	0	0.0%	298,920	2.4%

(Source: Statistics Canada, 2011 Census)

Language is not considered to be a barrier to public education in the community, though it may be worthwhile to target specific French speaking populations with specialized outreach.

6.5 Income Levels

It is important to consider income levels when developing a community risk profile due to the sources and factors described in the OFMEM Fire Risk Sub-model that suggests a correlation between income and fire risk. One such factor is that households with lower disposal incomes are less likely to purchase fire safety products (e.g., smoke alarms, fire extinguishers, etc.).⁴

⁴ Source: Comprehensive Fire Safety Effectiveness Model: Fire Risk Sub-model. OFMEM. June 2009, accessed Sept 2015, <http://www.mcscs.jus.gov.on.ca/stellent/groups/public/@mcscs/@www/@ofm/documents/webasset/ecofm001255.pdf>.

Table 11 summarizes household data from the 2011 Census from Statistics Canada. South Stormont, as a township, has a higher population density than the province. South Stormont also has a higher median income. In terms of housing, South Stormont has a lower average dwelling value but a higher ownership rate than the provincial averages. This is typical of a rural town in Ontario.

TABLE 11: STATISTICS CANADA HOUSEHOLD DATA (2011)

Census Characteristic	South Stormont	Ontario
Population Density	28.2	14.1
Median Household Income	\$80,435	\$66,358
Average Value of Owned Dwelling	\$212,189	\$367,428
Total # of Dwellings Owned	4,797	3,235,495
% Owned Dwellings	89.8%	71%
% Rented Dwellings	10.2%	28%

(Source: Statistics Canada, 2011 Census)

6.6 Demographic Profile Observations

The demographic analysis of South Stormont indicates that the Township's population is weighted more towards seniors than the Ontario average. As such there are lower percentages of 20-44 year olds and higher percentages of 45-74 year olds when compared to the Ontario average. There are three buildings identified where the most vulnerable demographic of the community reside. These buildings should be considered as high risk with regard to developing a pro-active fire prevention and protection program. Optimizing the first two lines of defence should be considered a priority for these facilities as part of the Fire Master Plan.

English as the mother tongue is the predominate language within the community representing 81.2% of the population. This indicates that there should be a very minimal language barrier in the delivery of fire prevention and public education programs.

In general the income level in South Stormont is higher and proportion of rental dwellings is lower than the provincial average; as a result the percentage of home ownership is substantially higher than the provincial average.

Geography / Topography / Road Infrastructure

The Township of South Stormont is located along the St. Lawrence River within the United Counties of Stormont, Dundas, and Glengarry approximately 90 kilometres south-east of Ottawa and 130 kilometres west of Montreal. The Township is bordered by the Township of North Stormont to the north, the Township of South Glengarry to the east, the St. Lawrence River and the City of Cornwall to the south, and the Township of South Dundas to the west.

The Township of South Stormont has the second largest population of the six municipalities within the County (12,617).⁵ The Township also has the smallest geographic area at 448 square kilometres and the highest population density at 28.2 people per square kilometre. The majority of the Township's population is located within the Settlements Areas, while the remainder of the population is interwoven into the rural areas. The Settlement Areas include Ingleside, St. Andrews West, Newington, Long Sault, Rosedale Terrace, Beaver Glen, Osnabruck Centre, Harrison's Corners, and Northfield. South Stormont is predominately rural with a mix of agricultural, residential, commercial, institutional, and industrial land uses. Historically the Township has had some wildfires develop in the large amounts of agricultural lands. The settlement areas within the Township, defined as both urban and rural, are shown in **Figure 1**.

According to the Official Plan for the United Counties of Stormont, Dundas, and Glengarry (approved in 2006, and amended in 2009), much of the Township has extensive natural features which result in developmental constraints (per Schedule B4 – Constraints Plan). These features include Natural Heritage such as Woodlands, Areas of Natural and Scientific Interest, and Locally Significant Wetlands. The Township also contains extractive resource lands, and a floodline. Schedule A4 – Land Use for the Township of South Stormont reveal that the Township contains several Provincially Significant Wetlands dispersed throughout the area. Some of these natural features are shown in **Figure 2**. In part to manage the natural resources along the St. Lawrence River, including the islands served by the Long Sault Parkway, some lands are zoned as Open Space. The zoning permits agricultural use (excluding buildings), cemetery, club (non-profit), conservation use, fairground, farm produce outlet, forestry use, golf (course), sawmill (portable), and seasonal camp. In the north portion of the Township there is a large extent of Provincially Significant Wetlands.

⁵ "South Stormont Census Profile." Statistics Canada. 2 Sept. 2015. Web. 5 Oct. 2015.

Within the Township there is a mix of highways, major arterials, and local streets. The major arterial County Road 11 acts as the western boundary. Other major roads include, Highway 401, Highway 138, County Road 2, County Road 18, County Road 11, County Road 12, County Road 14, County Road 15, and County Road 36. The existing road network is depicted below in **Figure 3**.

The Trans-Northern Pipelines Inc. operates one of two pipelines under the Township of South Stormont. The Ontario-Quebec pipeline transports refined petroleum products such as gasoline, diesel fuel, aviation fuel and heating fuel. A daily average of 27,500 cubic metres or 172,900 barrels of refined fuel products is transported through this pipeline.⁶ The main pipeline runs parallel to the St. Lawrence River in close proximity to Highway 401. The branch of the pipeline runs from Ingleside to Ottawa. In addition to this large infrastructure running through the Township, Trans-Northern Pipelines also operates a pump station on Farrans Point Road in Ingleside. The pump station pushes the liquid through the pipeline and is the intersecting point where the Ottawa branch starts. The pipelines are shown in **Figure 3**.

The Canadian National Railway Company (CN) operates a railway through South Stormont. This large infrastructure runs parallel to the St. Lawrence River in close proximity to Highway 401. There are three CN rail stations within the municipal boundary of South Stormont: Long Sault Station, Ingleside Station and Chrysler Station.⁷ Throughout the Township, there are several meeting of rail and road infrastructure. Some crossings are at-grade, but for those rural highways that serve Ingleside and Long Sault (County Roads 14 and 35 respectively), the crossings are grade separated. This is positive for the mobility of emergency response vehicles. Shown in **Figure 3**, the route of the rail line runs through a portion of the Long Sault and Ingleside Urban Settlement Areas. While at the time of writing, the precise nature of all the goods shipped through the Township is unknown, rail can be used to ship a wide variety of products including food, fertilizer, and energy supplies.

⁶ "Our Pipelines." Trans-Northern Pipelines Inc. Trans-Northern Pipelines Inc. Web. 4 Nov. 2015.

⁷ "CN - Network Map." Canadian National Railway Company. Web. 4 Nov. 2015, <http://cnebusiness.geomapguide.ca/>.



TOWNSHIP OF SOUTH STORMONT
FIRE MASTER PLAN

TOWNSHIP SETTLEMENT AREAS

FIGURE I

- FEDERAL BOUNDARY
- SOUTH STORMONT BOUNDARY
- URBAN SETTLEMENT AREAS
- RURAL SETTLEMENT AREAS
- FIRE STATION
- HIGHWAY
- ARTERIAL ROAD
- COLLECTOR ROAD
- LOCAL ROAD
- RAILWAY
- LAKES AND RIVERS



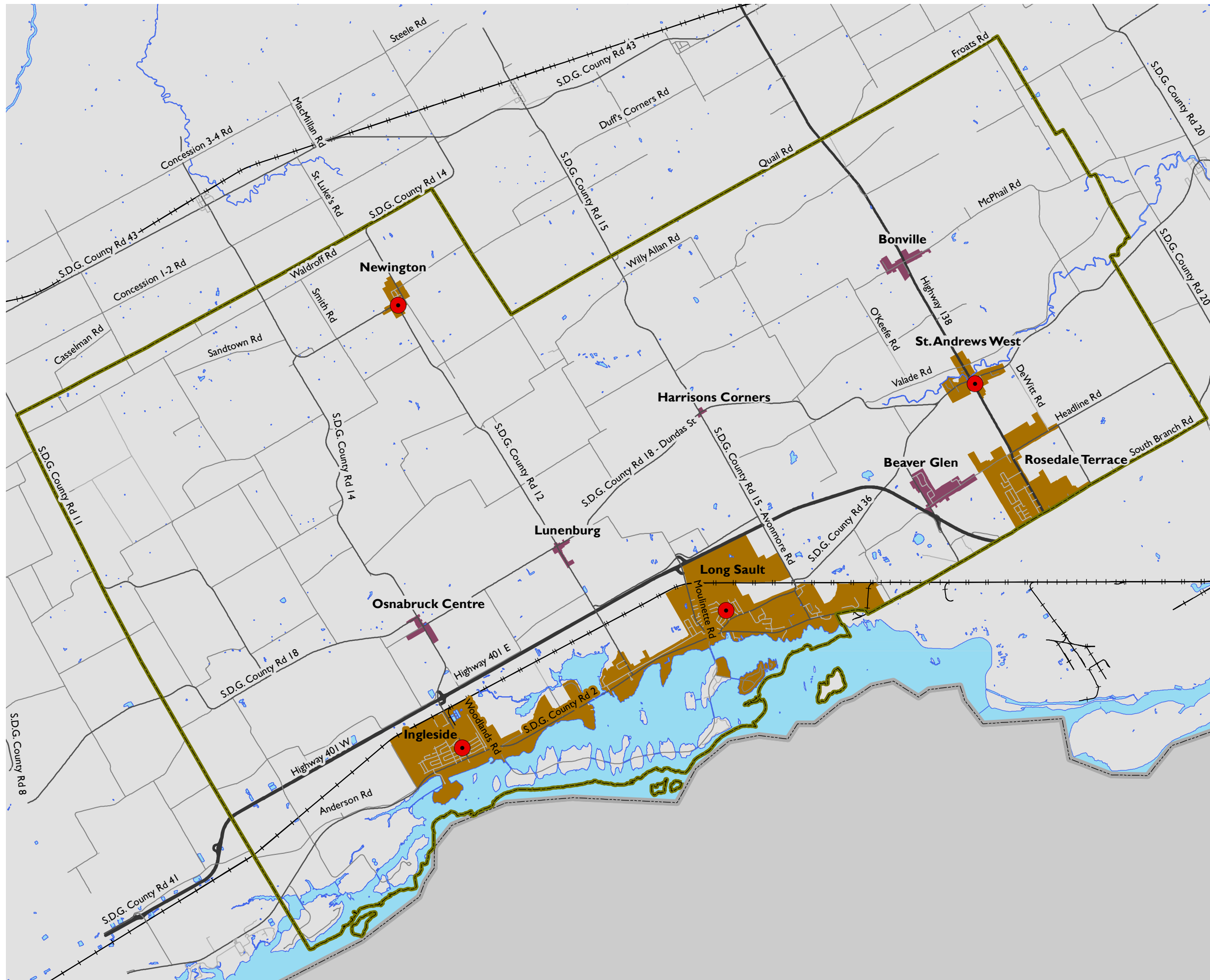
MAP DRAWING INFORMATION:
DATA PROVIDED THE TOWNSHIP OF SOUTH STORMONT

MAP CREATED BY: SMB
MAP CHECKED BY: SLC
MAP PROJECTION: NAD 1983 UTM Zone 18N

FILE LOCATION: \\dillon.ca\DILLON_DFS\Toronto\Toronto CAD\GIS\151907 South Stormont FMP\IMXD



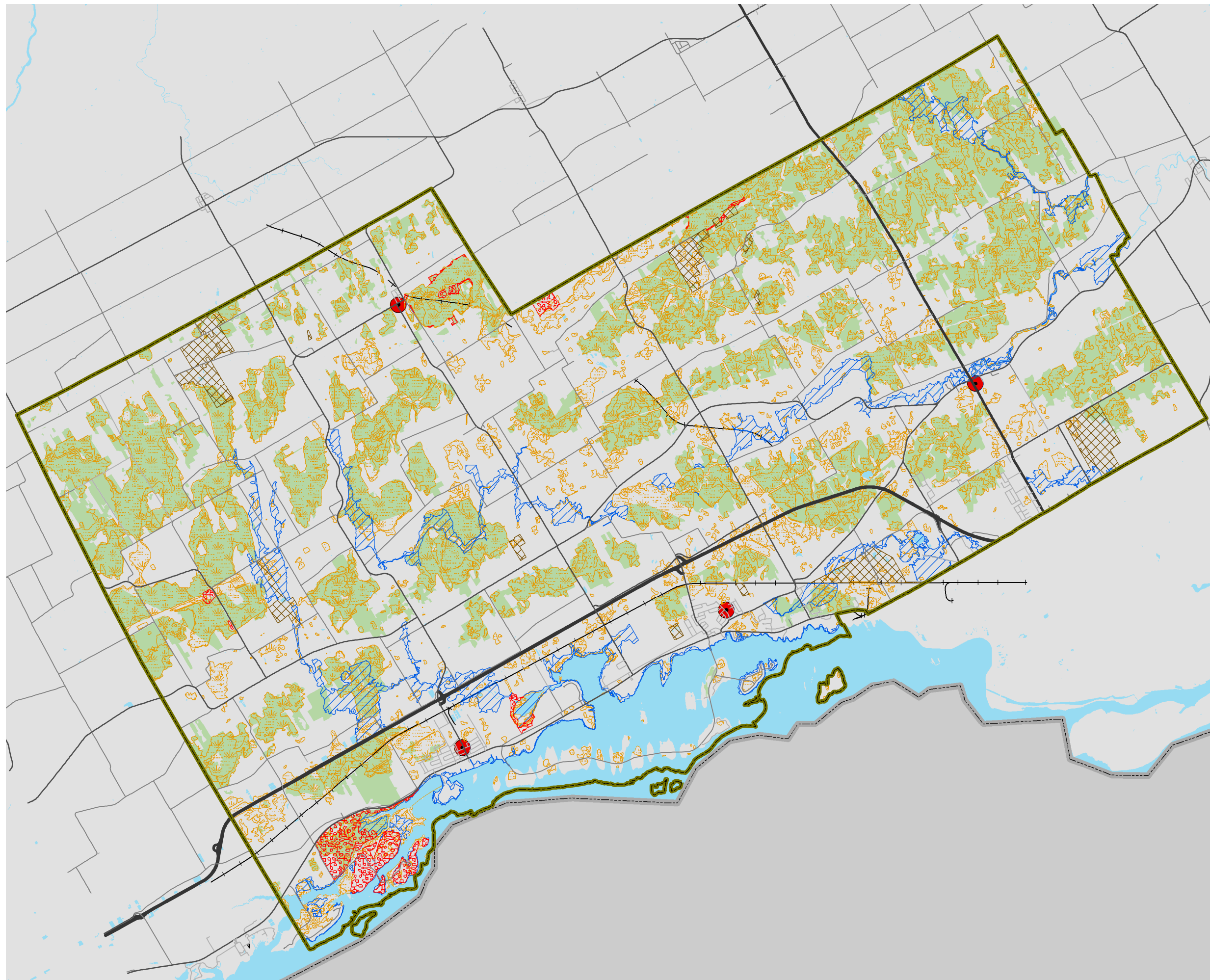
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




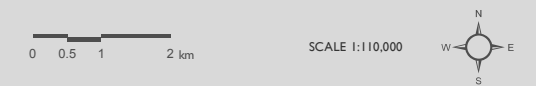
TOWNSHIP OF SOUTH STORMONT

TOWNSHIP OF SOUTH STORMONT FIRE MASTER PLAN

NATURAL FEATURES FIGURE 2



-  FEDERAL BOUNDARY
-  SOUTH STORMONT BOUNDARY
-  AREAS OF NATURAL AND SCIENTIFIC INTEREST
-  FLOOD PLAIN
-  MINERAL AGGREGATE EXTRACTIVE
-  WETLANDS
-  LAKES AND RIVERS
-  WOODLANDS
-  FIRE STATION
-  HIGHWAY
-  ARTERIAL ROAD
-  COLLECTOR ROAD
-  LOCAL ROAD
-  RAILWAY



MAP DRAWING INFORMATION:
DATA PROVIDED THE TOWNSHIP OF SOUTH STORMONT

MAP CREATED BY: SMB
MAP CHECKED BY: SLC
MAP PROJECTION: NAD 1983 UTM Zone 18N

FILE LOCATION: \\dillon.ca\DILLON_DFS\Toronto\Toronto CAD\GIS\151907 South Stormont FMP\MXDs

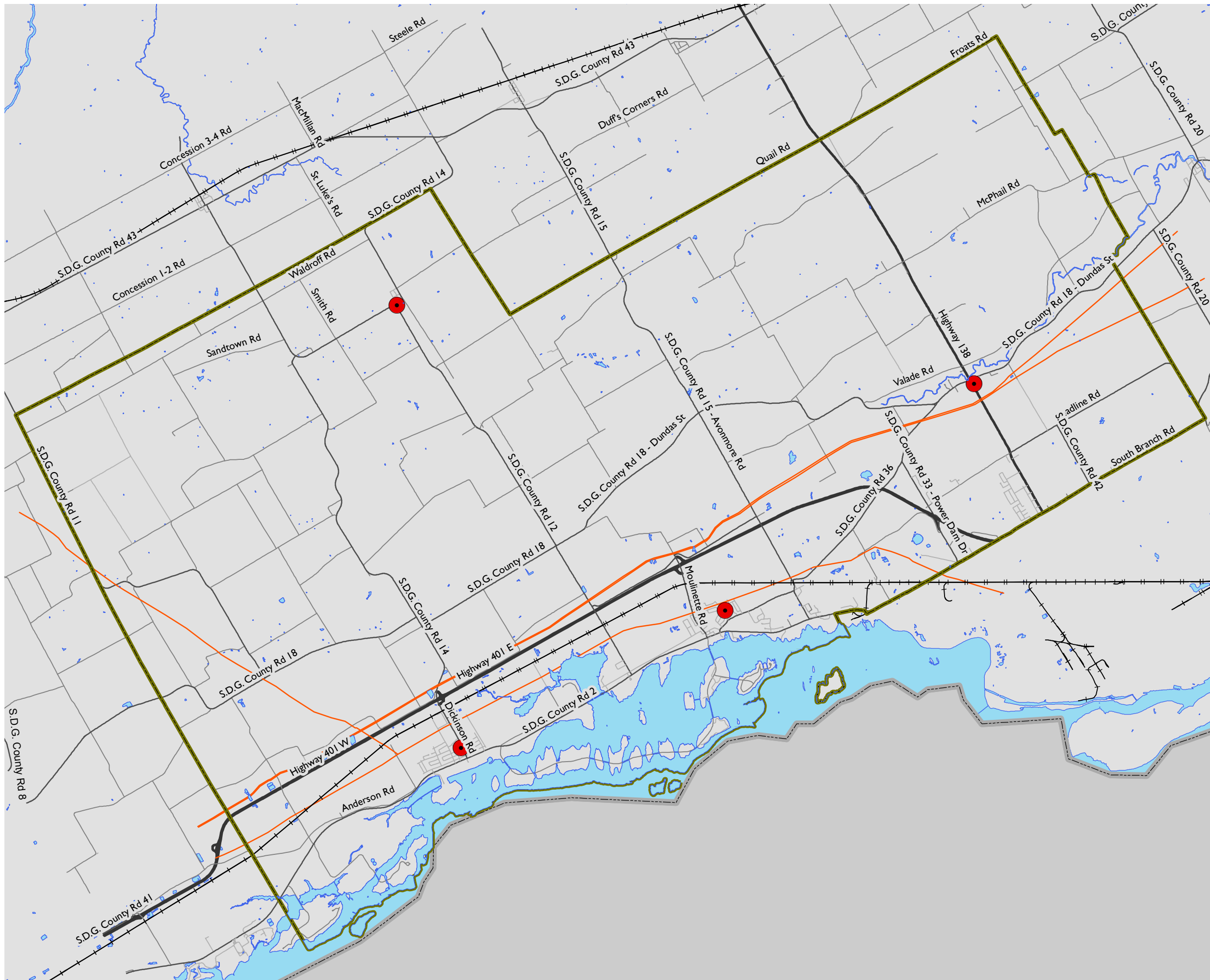


PROJECT: 15-1907
STATUS: DRAFT
DATE: 12/15/2015



TOWNSHIP OF SOUTH STORMONT
FIRE MASTER PLAN

TRANSPORTATION NETWORK
FIGURE 3



- FEDERAL BOUNDARY
- SOUTH STORMONT BOUNDARY
- FIRE STATION
- OIL AND GAS PIPELINES
- RAILWAY
- HIGHWAY
- ARTERIAL ROAD
- COLLECTOR ROAD
- LOCAL ROAD
- LAKES AND RIVERS



MAP DRAWING INFORMATION:
DATA PROVIDED THE TOWNSHIP OF SOUTH STORMONT

MAP CREATED BY: SMB
MAP CHECKED BY: SLC
MAP PROJECTION: NAD 1983 UTM Zone 18N



PROJECT: 15-1907
STATUS: DRAFT
DATE: 12/11/2015

7.1 Geography/Topography/Road Infrastructure Profile Observations

The risks associated with the geography, topography and road infrastructure within the Township are predominantly those associated with the large overall size of the Township and the rural residential areas located outside of the built-up communities. This typically means longer emergency response times from the fire stations, located in the built-up areas, out to the rural areas and occupancies. The large amount of agricultural lands within the Township increases the risk of wildfires. In developing the Fire Master Plan consideration should be given to prioritizing the delivery of public education and fire prevention programs in these areas. This should include optimization of the department's smoke alarm program and home fire safety planning for areas with extended emergency response travel times.

The road network layout is primarily a grid pattern of county roads and local roads which provide access to these rural residential locations. The population centres within the Township, including Ingleside, St. Andrews West, Newington, and Long Sault Settlement Areas and the many small hamlets, are well served and connected by the road network.

Major infrastructure within the Township, including the CN Railway and the Trans-Northern Pipeline, has special risks associated with them due to their proximity to residential areas. In developing the Fire Master Plan consideration should be given to prioritizing the delivery of public education and fire prevention programs related to the large Township infrastructure.

8.0 Past Fire Loss Statistics

Identifying and understanding trends through the analysis of historical fire loss data provides valuable insight into a community's specific trends. Assessing the key factors of life safety risk and fire risk in relation to provincial statistics provides a foundation for evaluating where specific programs or services may be necessary.

8.1 Fire Loss by Occupancy Classification

Table 12 indicates the fire loss by property classification for both South Stormont and the Province for the period 2009 to 2013.

Over this four year period, there were 59,323 fires within Ontario with a loss reported to the OFMEM. During this period 65% or 38,523 of these involved a structure and 27% or 16,015 of these fires involved a vehicle. Of the structure fires with a loss, 72% occurred within a Group C - Residential occupancy. Within the Township of South Stormont, over the same period, 80% of

the fires reporting a loss occurred in Group C - Residential occupancies. The Township did experience a lower percentage of fires with a loss in the other six Occupancy classifications.

TABLE 12: TOWNSHIP OF SOUTH STORMONT FIRE LOSS BY PROPERTY CLASSIFICATION (2009 TO 2013)

Occupancy Classification (OBC)	Occupancy Definition Fire Risk Sub-model (OFMEM)	Township of South Stormont Fire Loss by Occupancy Classification	Ontario Fire Loss by Occupancy Classification
Group A – Assembly Assembly	<i>Assembly occupancies</i>	4%	5%
Group B – Institutional Institutional	<i>Care or Detention occupancies</i>	0%	1%
Group C – Residential Residential	<i>Residential occupancies</i>	80%	72%
Group D - Business	<i>Business and Personal Services Occupancies</i>	2%	3%
Group E - Mercantile	<i>Mercantile occupancies</i>	0%	4%
Group F - Industrial	<i>Industrial occupancies</i>	6%	7%
Other occupancies	<i>Not classified within the Ontario Building Code</i>	4%	6%
	<i>Classified under National Farm Building Code</i>	4%	3%
Reported fires (excluding buildings under National Farm Building code)		50	38,532

(Source: OFMEM historic fire loss data)

8.1.1

Property Fire Loss

Property fire loss is another valuable performance measurement tool in assessing the cumulative impact of the “three lines of defence” utilized by a fire and emergency service.

Table 13 provides the Township of South Stormont’s historical property fire loss for the period from 2009 to 2013. An important consideration in evaluating this data is to consider the impact of a major fire with a large dollar loss and/or a series of larger fires with a combined significant large dollar loss. Overall, there was significant property fire loss in 2009 but this decreased the following years.

TABLE 13: PROPERTY FIRE LOSS (DOLLARS)

Year	Fire Loss
2009	\$1,254,999
2010	\$938,000
2011	\$944,100
2012	\$451,000
2013	\$765,600

(Source: OFMEM historic fire loss data for South Stormont)

8.1.2 Reported Fire Cause

Assessing the possible cause of the fires reported is an important factor in identifying any potential trends, or areas that may be considered for introducing additional public education of fire prevention initiatives as part of the community fire protection plan.

Table 14 provides a summary of the reported possible cause of the 50 fires reported during the period 2009 to 2013 for the Township of South Stormont.

TABLE 14: TOWNSHIP OF SOUTH STORMONT 2009 TO 2013 REPORTED FIRE CAUSE

Nature	Fire Cause	Number of Fires	% of Cause
Intentional	Arson	2	4%
	Vandalism	0	0%
	Children Playing	0	0%
	Design/Construction/Maintenance deficiency	5	10%
Unintentional	Mechanical /Electrical failure	6	12%
	Misuse of ignition source	20	40%
	Other unintentional	1	2%
	Undetermined	5	10%
Other	Other	2	4%
Undetermined	Undetermined	9	18%
Total		50	100.0%

(Source: OFMEM historic fire loss data for South Stormont)

There are four categories of cause utilized to classify the nature of a fire: intentional, unintentional, other, and undetermined.

The “intentional” nature recognizes the cause of a fire to be started for a specific reason. These are typically classified as arson fires, or they can be related to acts of vandalism, or to achieve personal gain through insurance payment. There were two arson fires reported and zero acts of vandalism reported fire for this period.

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 misuse of ignition source represents 40% of the cause for the 50 fires during this period.

The cumulative percentage of “*unintentional–other unintentional (2%), other-other (4%) and undetermined-undetermined (18%)*” represents a total of 24% of all fire causes. This indicates that there was no specific cause identified for almost one quarter all fires during this period.

8.1.3 Reported Ignition Source

Table 15 similarly provides the reported ignition source for the 50 fires that occurred during the period 2009 to 2013. Undetermined ignition source represent the largest percentage at 26%. Out of the main categories of determined ignition sources, miscellaneous was the largest percentage at 16.0% and open flame tools/smoker articles was the second largest at 14%.

TABLE 15: TOWNSHIP OF SOUTH STORMONT IGNITION SOURCE CLASS (2009 TO 2013)

Reported Ignition Source	Number of Fires	% of Cause
Appliances	2	4%
Cooking equipment	4	8%
Electrical distribution	1	2%
Heating equipment chimney etc.	6	12%
Lighting equipment	2	4%
Open flame tools/smokers articles	7	14%
Other electrical/mechanical	4	8%
Processing equipment	0	0%
Miscellaneous	8	16%
Exposure	3	6%
Undetermined	13	26%
Unknown, not reported	0	0%
Total	50	100%

(Source: OFMEM historic data for South Stormont)

8.1.4

Reported Civilian Injuries and Fatalities

Table 16 indicates the number of fire related civilian injuries and fatalities that occurred within the Township of South Stormont during the period 2009 to 2013. During this period there were three reported injuries as a result of a fire in a Group C - Residential occupancy and no fatalities.

TABLE 16: TOWNSHIP OF SOUTH STORMONT – 2009 TO 2013 REPORTED CIVILIAN INJURIES AND FIRE DEATHS

Occupancy Classification (OBC)	Occupancy Definition Fire Risk Sub-model (OFMEM)	Injuries	Fatalities
Group A – Assembly	<i>Assembly occupancies</i>	0	0
Group B - Institutional	<i>Care or Detention occupancies</i>	0	0
Group C - Residential	<i>Residential occupancies</i>	3	0
Group D - Business	<i>Business and Personal Services Occupancies</i>	0	0
Group E - Mercantile	<i>Mercantile occupancies</i>	0	0
Group F - Industrial	<i>Industrial occupancies</i>	0	0
Other occupancies	<i>Not classified within the Ontario Building Code (i.e. farm buildings)</i>	0	0

(Source: OFMEM historic fire loss data for South Stormont)

8.2 Past Fire Loss Profile Observations

Based on the historical data for the period 2009 to 2013, the Township of South Stormont experienced the highest proportion of fires within the Group C - Residential occupancies. This result is consistent with that of the provincial profile.

Causes relating to ‘misuse of ignition source’ represented 40% and the cumulative percentage of fire causes that could not be determined represented 28% of the 50 fires reported during this period.

Undetermined ignition sources (26%), miscellaneous ignition sources (16%), and open flame tools/smokers articles (14.0%) represented the three leading ignition sources of the 50 fires reported during this period.

The analysis of the past fire losses within the Township of South Stormont further defines that Group C- Residential occupancies represent the highest level of risk within the community.

Enhancing the first line of defence, including pro-active prevention and education programs, targeted at the areas identified within this Community Risk Profile, should be considered a priority within the Fire Master Plan.

9.0 Fuel Load Profile

Fuel load typically refers to the amount and nature of combustible content and materials within a building. This can include combustible contents, interior finishes as well as structural materials. Combustible content tends to create the greatest potential fire loss risk. This can include industrial materials, commercial materials or typical office furnishings. Higher fuel loads result in increased fire loss risk due to increased opportunity for ignition and increased fire severity.

In many communities, large amounts of fuel load can be contained within a single occupancy, such as a building supply business, or alternatively within a large multi-occupancy building, such as a historical downtown core.

As presented previously within this report, age and construction of a building can also have an impact on fuel load given that older buildings likely have a larger volume of combustible construction such as wood framing rather than newer construction utilizing concrete and steel products.

Our analysis of fuel load within the Township of South Stormont indicates that there are a small number of buildings or occupancies where significant fuel loads are present that would be cause for any specific identification. There are three noted facilities that have high amounts of fuel load concentration:

- Budget Propane – 17567 Amell Road
- Kraft Foods – 70 Dickinson Drive
- Trans-Northern Tank Farm – 5285 Farrans Point

All three of the above facilities have high fuel load risk particularly the Trans-Northern Tank farm which is a pumping station for the company's Ontario-Quebec pipeline. The pumping station has 27,500 cubic metres of refined petroleum products pumping through it daily.

Regular fire prevention inspection cycles and strategies to enforce continued compliance with the OFC are considered as best practices to achieving the legislative responsibilities of the Township and providing an effective fire protection program to address fuel load risks.

9.1 Fuel Load Profile Observations

In comparison to the number of buildings within the Township of South Stormont there are a small number of buildings having a site-specific fuel load concern. In addition to ensuring compliance to the requirements of the OBC and the OFC there are operational strategies that a

fire department can implement to address fuel load concerns. These include regular fire inspection cycles and pre-planning of buildings of this nature to provide an operational advantage in the event of fire.

10.0 Community Growth & Development

10.1 Historic Growth

The historic populations within the Township of South Stormont, as provided by Statistics Canada, census profiles are shown in **Table 17**. Historic household population statistics are also included where available. The population of the Township of South Stormont has grown slightly from 1996 to 2011, with an overall growth of 8.9%. Households grew by 17.1% 1996 to 2011, at approximately an average annual growth rate of 1.1%. The higher rate of household growth is consistent with a trend towards smaller household sizes overall in the province.

TABLE 17: HISTORIC GROWTH IN POPULATION AND HOUSEHOLDS

Year	South Stormont Population ⁸	% Change in Population	South Stormont Number of Households ⁹	% Change in Households
1996	11,584	--	4,095	--
2001	11,941	3.1%	4,300	5.0%
2006	12,520	4.8%	4,635	7.8%
2011	12,617	0.7%	4,797	3.5%

(Source: Statistics Canada, 1996, 2001, 2006, and 2011 Community Profile)

10.2 Growth Projections

Although the community is not currently experience population decline like some other rural municipalities, such as those in northern Ontario, population and employment growth is not a major consideration within the Township of South Stormont in terms of emergency response. According to the United Counties of Stormont, Dundas, and Glengarry Official Plan (2005), from 2001 to 2021 the population of South Stormont was expected to increase by 2,167 people (p. 12). Based on Statistics Canada census data in 2001, this would increase the population to 14,108 in 2021.

⁸ "South Stormont Census Profile." Statistics Canada. 2 Sept. 2015. Web. 5 Oct. 2015.

⁹ "South Stormont National Household Survey." Statistics Canada. 19 Dec. 2014. Web. 5 Oct. 2015.

In 2013, Hemson Consulting Ltd. completed a Population and Growth Projections Study as part of the Official Plan review and update which included an assessment of the settlement area boundaries in the County (71 settlement areas in total). (Note this is being updated for 2015). As part of the study, number of households, population, and land supply was examined across the County.

According to the study, as summarized in **Table 18**, the Township of South Stormont is expected to experience a growth in the number of households, but not in population size. This is related to a decline in household size (people per unit). Household growth within the Township will be modest with an additional 400 households from 2011 to 2031. Due to the type of anticipated market demand, most of these households will be “ground-related” units, requiring greenfield development (within existing settlement area boundaries).¹⁰ The study also forecasts that on a County-wide basis, the amount of employment will gradually decline due to trends in migration, out-commuting, and an aging population.¹¹

TABLE 18: HOUSEHOLD AND POPULATION FORECAST (2011 TO 2031)

Item	2011	2031	Growth 2011 to 2031
Household Forecast ¹	4,800	5,200	400
Population Forecast ²	13,200 ³	13,200	0

Source: *Population and Growth Projections Study, United Counties of Stormont, Dundas, and Glengarry, January 2013, by Hemson Consulting Limited:*

¹ Table 6, p. 14

² Table 7, p. 15

³ Note that population is higher than Statistics Canada census population of 12,617 because this value includes the undercount.

10.3 Growth Projections Profile Observations

The population of the Township of South Stormont is expected to stabilize from 2011 to 2031. However, due to decreasing household size and aging populations, the number of households added to the housing stock over the same period is forecast to be 400 households. Most of this growth will be through greenfield development within the settlement area boundaries. Over the same time period, 2011 to 2031, an overall decline in the number of jobs in the County is forecast to decline.

¹⁰ Source: *Population and Growth Projections Study, United Counties of Stormont, Dundas, and Glengarry, January 2013, by Hemson Consulting Limited, p. 31.*

¹¹ Source: *ibid, p. 11.*

11.0 Community Risk Profile Model

When it comes to applying known fire risks explored through the eight key factors, the next step is to consider the probability and consequence of fires. The OFMEM Fire Risk Sub-model (2009) 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.”* (p.3)

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 OFMEM Fire Risk Sub-model provides a matrix as one option in arriving at the level of risk for a range of scenarios.

Alternatively the model provides the opportunity *“for analysis purposes, the community being assessed can be defined as the municipality in its entirety or as a particular segment of it that distinguishes it from other parts.”*(p. 23). The model further provides that *“it may be convenient to subdivide a municipality based on residential subdivision, downtown sections, industrial park, and a rural area.”* (p. 23)

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 building use. Each major occupancy classification is assigned a probability level based on the OFMEM Fire Risk Sub-model definitions. A consequence level also using the OFMEM Fire Risk Sub-model definition is then assigned for each major occupancy classification.

The methodology within this report includes a further process of assigning ‘weighting factor’ to each of the eight risk factor categories identified by the OFMEM Fire Risk Sub-model. Utilizing a range from 1 (lowest) to 3 (highest) each of the factors is assigned a weight factor, to calculate a weighted average. The weight factor assigns more or less priority to each of the given factors. For example, the demographic profile that identifies the number of vulnerable residents has been assigned the highest factor weight of 3. This process results in the most relevant categories having more impact on the risk priority level calculated.

The level of risk (Priority Level) for each major occupancy classification is determined by multiplying *“probability x consequence = risk level (priority).”* This provides the ability to determine an overall risk level for each major occupancy classification within the community.

This methodology then coordinates the assigned risk level for each major occupancy classification with the Council approved zoning by-law information and mapping. This process provides the opportunity to create a visual model (map) of the Community Risk Profile. This provides the opportunity to view both the current and projected level of risk within the community based on the County's Official Plan.

Creating the Community Risk Profile Model provides the opportunity to evaluate the current level of fire protection services provided. The model can further identify where risk levels may increase or change based on growth and long-term planning of the community.

11.1 Probability Levels

The probability of a fire occurring can be estimated, in part, based on historical experience of the community. The experience of other similar communities and that of the province as a whole can also provide valuable insight into the probability of a fire occurring. The experience of the evaluator and the local fire service staff in collaborating on determining probability is also a key factor.

The OFMEM Fire Risk Sub-model categorizes the probability of an event occurring into five levels of likelihood. **Table 19** identifies the OFMEM Fire Risk Sub-model categories.

TABLE 19: OFMEM FIRE RISK SUB-MODEL LIKELIHOOD LEVELS (PROBABILITY) LIKELIHOOD LEVELS (PROBABILITY)

Description	Level	Specifics
<i>Rare</i>	1	- may occur in exceptional circumstances - no incidents in the past 15 years
<i>Unlikely</i>	2	- could occur at some time, especially if circumstances change - 5 to 15 years since last incident
<i>Possible</i>	3	- might occur under current circumstances - 1 incident in the past 5 years
<i>Likely</i>	4	- will probably occur at some time under current circumstances - multiple or reoccurring incidents in the past 5 years
<i>Almost Certain</i>	5	- expected to occur in most circumstances unless circumstances change - multiple or reoccurring incidents in the past year

11.2 Consequence Levels

The consequences as a result of a fire relate to the potential losses or negative outcomes associated should an incident occur. The Fire Risk Sub-model identifies four components that should be evaluated in terms of assessing consequence. These include:

- **Life Safety:** Injuries or loss of life due to occupant and firefighter exposure to life threatening fire or other situations.

- **Property Loss:** Monetary losses relating to private and public buildings, property content, irreplaceable assets, significant historic/symbolic landmarks and critical infrastructure due to fire.
- **Economic Impact:** Monetary losses associated with property income, business closures, downturn in tourism, tax assessment value and employment layoffs due to fire.
- **Environmental Impact:** Harm to human and non-human (i.e. wildlife, fish and vegetation) species of life and general decline in quality of life within the community due to air/water/soil contamination as a result of fire or fire suppression activities.

The OFMEM Fire Risk Sub-model evaluates the consequences of an event based on five levels of severity. **Table 20** identifies the OFMEM Fire Risk Sub-model categories.

TABLE 20: OFMEM FIRE RISK SUB-MODEL CONSEQUENCE LEVELS

Description	Level	Specifics
<i>Insignificant</i>	1	- no life safety issue - limited valued or no property loss - no impact to local economy and/or - no effect on general living conditions
<i>Minor</i>	2	- potential risk to life safety of occupants - minor property loss - minimal disruption to business activity and/or - minimal impact on general living conditions
<i>Moderate</i>	3	- threat to life safety of occupants - moderate property loss - poses threat to small local businesses and/or - could pose threat to quality of the environment
<i>Major</i>	4	- potential for a large loss of life - would result in significant property damage - significant threat to businesses, local economy and tourism and/or - impact to the environment would result in a short term, partial evacuation of local residents and businesses
<i>Catastrophic</i>	5	- 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

11.3 Risk Levels

Once probability and consequence are determined for each major occupancy classification the level of risk is calculated by multiplying “**probability x consequence = risk level (priority).**”

Table 21 identifies the four levels of risk identified within the OFMEM Fire Risk Sub-model including the lower and upper range of each risk classification and the relative definition of each.

TABLE 21: OFMEM FIRE RISK SUB-MODEL RISK LEVELS

Risk Level	Probability x Consequence	Definition
<i>Low Risk</i>	Rare x Insignificant	- manage by routine programs and procedures, maintain risk monitoring
	Unlikely x Minor	
	Moderate x Insignificant	
<i>Moderate Risk</i>	Likely x Insignificant	- requires specific allocation of management responsibility including monitoring and response procedures
	Moderate x Minor	
	Rare x Moderate	
	Unlikely x Moderate	
<i>High Risk</i>	Almost Certain x Insignificant	- community threat, senior management attention needed
	Likely x Minor	
	Almost Certain x Minor	
	Moderate x Moderate	
	Likely x Moderate	
	Rare x Major	
	Unlikely x Major	
	Rare x Catastrophic	
<i>Extreme Risk</i>	Almost Certain x Moderate	- serious threat, detailed research and management planning required at senior levels
	Moderate x Major	
	Likely x Major	
	Almost Certain x Major	
	Unlikely x Catastrophic	
	Moderate x Catastrophic	
	Likely x Catastrophic	
	Almost Certain x Catastrophic	

11.4 Ontario Fire Code Compliance

A major determinate in assessing risk within a community and the major building classifications is compliance with the Ontario Fire Code. As discussed in **Section 4.0**, the Ontario Fire Code which was adopted in 1981 and the Ontario Building Code were developed to ensure uniform building construction and maintenance standards are applied for all new building construction.

The codes also provide for specific fire safety measures depending on the use of the building. Examples of the fire safety issues that are addressed include:

- *occupancy*
- *exits/means of egress including signs and lighting*
- *fire alarm and detection equipment*
- *fire department access*
- *inspection, testing, and maintenance*

In 1983, the OFC was further expanded to include retrofit requirements for many of the building constructed prior to 1981. Retrofit requirements were established to ensure a minimum acceptable level of life safety is present. A number of occupancy types are included within the retrofit requirements including assembly, boarding, lodging and rooming houses, health care facilities, multi-unit residential, two-unit residential, and hotels.

Determining the status of compliance or non-compliance including the status of retrofit requirements particularly for major building occupancies is an important component of developing the Community Risk Profile. This is particularly important within the major occupancies classifications where there is a documented history of property loss as a result of fire, and/or injuries and fatalities as a result of fire. Group A – Assembly and Group B – Care or Detention occupancies are the two primary occupancies types where more detailed analysis of compliance and non-compliance should be considered.

Where compliance has been achieved and documented these occupancy classifications can be considered as part of the standard risk identification methodology within this report. Where compliance has not been achieved including retrofit requirements these occupancies should be evaluated independently adding a further assessment of OFC compliance.

Completing the independent evaluation provides the opportunity to assess these buildings on a case by case basis and as such does not impact the overall risk level for the occupancy classification. In the event an individual property is assigned a higher level of risk as a result of non-compliance this methodology provides the opportunity for re-evaluating the risk level for that specific property once compliance is achieved.

Group A – Assembly Occupancies – Non-Compliant OFC

There are no known Group A - Assembly occupancies not in compliance with the OFC.

Group B – Care or Detention Occupancies – Non-Compliant OFC

Information provided by the Township indicates that two Group B – Care or Detention occupancies are currently not in compliance with the OFC. The care and detention centers classified within this occupancy classification can present unique challenges in the event of a fire. Utilizing the “first line of defence” including pro-active fire prevention and public

education programming in addition to a regular fire inspection program to sustain compliance with the OFC is an effective strategy in managing this risk.

Group C – Residential Occupancies – Non-Compliant OFC / Vulnerable Demographics

Information provided by the Township indicates that an inspection program will be started in 2015. The number of non-compliant occupancies is unknown. When starting the inspection program, it should be noted that if Group C – Residential occupancies are in compliance with the OFC, the demographic profile of the occupancy population may benefit from pro-active fire prevention and public education programming in addition to a regular fire inspection program.

Group D – Commercial Occupancies – Non-Compliant OFC

Information provided by the Township indicates that an inspection program will be started in 2015. The number of non-compliant occupancies is unknown.

Group E – Mercantile Occupancies – Non-Compliant OFC

Information provided by the Township indicates that an inspection program will be started in 2015. The number of non-compliant occupancies is unknown.

Group F – Industrial Occupancies – Non-Compliant OFC

Information provided by the Township indicates that an inspection program will be started in 2015. The number of non-compliant occupancies is unknown.

11.5 Township of South Stormont Risk Evaluation

Table 22 presents the risk level that would be assigned based on the lower to upper range of values (resulting from priority and consequence calculations). **Table 23** presents the completed risk evaluation for the Township of South Stormont. The evaluation utilizes the methodology described above following the framework of the OFMEM Fire Risk Sub-model.

The risk evaluation summary incorporates all community risk factors within the Township of South Stormont for each major occupancy classification. The summary identifies that the Township has no extreme risk occupancies.

Group B – Care or Detention occupancies were assigned high risk. This should be reflected in the department's fire prevention and public education program planning. Group A – Assembly and Group C – Residential occupancies are identified as moderate level risks. If, however, any buildings under this occupancy are non-compliant, they may be considered high risk. This would apply specifically to higher density residential units or assembly occupancies. Another consideration would be residential buildings which specifically house higher risk age-groups (e.g., seniors or vulnerable persons), which should be given a higher priority for programming

based on increased risk. Group D – Business and Group E – mercantile occupancies in South Stormont represent a moderate risk.

TABLE 22: RISK AND PRIORITY LEVELS

Risk Level	Priority Level	Lower – Upper Range	Definition
<i>Low Risk</i>	L1	0 to 6.3	- manage by routine programs and procedures, maintain risk monitoring
<i>Moderate Risk</i>	L2	6.4 to 12.5	- requires specific allocation of management responsibility including monitoring and response procedures
<i>High Risk</i>	L3	12.6 to 18.7	- community threat, senior management attention needed
<i>Extreme Risk</i>	L4	18.8 to 25.0	- serious threat, detailed research and management planning required at senior levels

TABLE 23: RISK EVALUATION SUMMARY

Community Risk Profile Factors		Property Stock	Building Height	Building Age	Building Exposures	Demographic Profile	Geography Topography	Past Fire Loss	Fuel Load	Prob. Level	Cons. Level	Priority Level	Risk Level
Weight Factor		1	2	3	1	3	2	3	2				
OBC Major Occupancy Classification		Risk Level Assessment											
Group A	Assembly	3	2	3	2	4	2	3	2	2.8	3	8.4	RL-2
Group B	Care or Detention	3	2	3	2	5	3	3	3	3.2	4	12.8	RL-3
Group C	Residential	4	2	4	2	5	2	4	2	3.3	3	9.9	RL-2
Group D	Business & Personal Services	3	3	3	3	2	2	2	3	2.5	3	7.5	RL-2
Group E	Mercantile	3	3	3	3	2	2	2	3	2.6	3	7.5	RL-2
Group F	Industrial	3	3	2	2	2	3	3	4	2.7	3	8.1	RL-2
Mobile Homes & Trailers		1	2	3	3	5	2	2	2	2.7	3	8.1	RL-2

Probability: 1 – Rare 2 – Unlikely 3 – Possible 4 – Likely 5 – Almost Certain	X	Consequence Level: 1 – Insignificant 2 – Minor 3 – Moderate 4 – Major 5 - Catastrophic	=	Priority Level 0 to 6.2 = Low 6.3 to 12.5 = Moderate 12.6 to 18.7 = High 18.8 to 25.0 = Extreme	=	Risk Level RL-1 – Low Risk RL-2 – Moderate Risk RL-3 – High Risk RL-4 – Extreme Risk
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12.0 Township of South Stormont Risk Model

12.1 Methodology

This section provides a brief outline of the scope and methodology used in order to provide insight into the modeling procedures adopted to assess municipal risk. A Geographic Information Systems (GIS) model was developed to assess risk based on historic call locations, risk geography, land use, the department's existing and predicted emergency response travel times relate to these risks, and the Fire Risk Sub-Model (form 100).

The basis of the GIS risk model is to develop geographical risk zones that represent areas of low, moderate, high and extreme risk categories based on land use. The Township's existing land use zoning was used to determine the boundaries and building occupancies associated with each zone. Subsequently, additional buildings located in agricultural and rural areas were identified using a buildings shapefile provided by the Ministry of Natural Resources. The shapefile displays the buildings as points, thus each point/building was given a 100 metre buffer in order to approximate the building along with its corresponding property. Next, building occupancies were assigned to their associated land use in order to determine the base risk category (which assumes that all buildings are in compliance with the OFC). The base risk zones associated with each occupancy category are listed in **Table 24**. Finally, several occupancies had their risk levels up-graded or down-graded based on a review of the risk evaluation summary with department staff.

TABLE 24: BASE RISK ZONE CATEGORY BY OCCUPANCY

Occupancy Classification	Occupancy Description in Risk Model	Base Risk Zone Category Assigned
Group A – Assembly	<i>Assembly occupancies</i>	<i>moderate</i>
Group B – Care or Detention	<i>Care or Detention occupancies</i>	<i>high</i>
Group C - Residential	<i>Residential occupancies</i>	<i>moderate</i>
Group D – Business and Personal Services	<i>Business and Personal Services Occupancies</i>	<i>moderate</i>
Group E - Mercantile	<i>Mercantile occupancies</i>	<i>moderate</i>
Group F1 - Industrial	<i>Industrial occupancies</i>	<i>low</i>
Group F2 - Industrial		<i>moderate</i>
Group F3 - Industrial		<i>high</i>
Other occupancies or Facilities (or Infrastructure)	Structures Not classified within the Ontario Building Code (i.e. farm buildings)	<i>low</i>
	Rail line through rural area	<i>moderate</i>
	Rail line through urban settlement area	<i>high</i>

12.2 Existing Risk and Response (Municipal Geography)

The GIS NFPA 1720 Rural Demand Zone model was used to approximate existing geographic coverage of the existing risk zones. The existing station locations were represented in this scenario, shown in **Figure 4**. 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. The calculations indicate that 0.2% of the high risk geography, 20.5% of the moderate risk geography and 0.0% of the low risk geography is covered within a 14 minute total response time throughout the municipality.

12.3

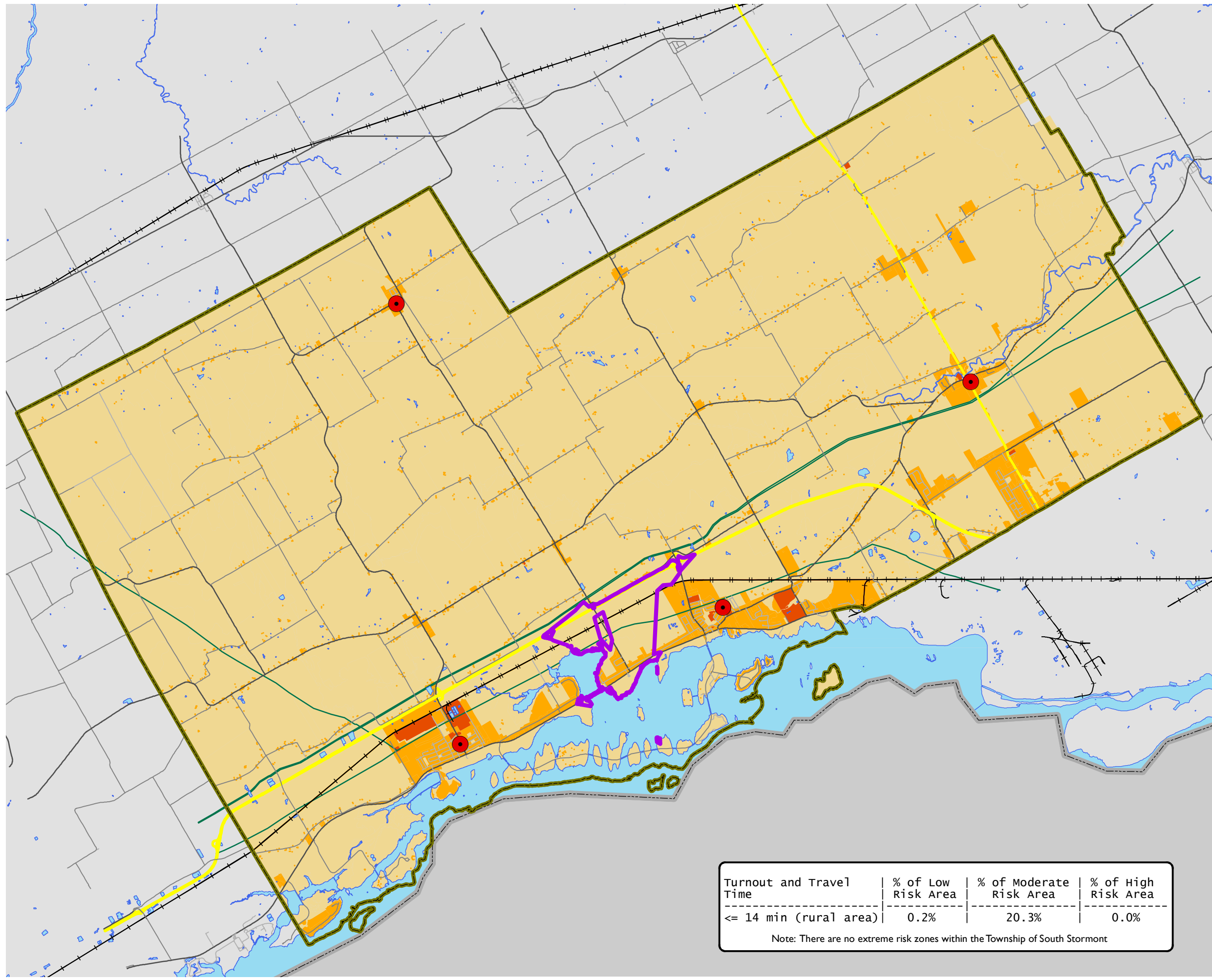
Existing Risk and Response (Historical Call Locations)

Figure 5 depicts historic call locations from 2010 to 2014, which have been placed on top of the existing risk zones. Calculations were carried out to determine the number of calls that are located within each risk zone category and the associated total response time. Based on the calculation results, 0.0% of historic high risk calls, 3.2% of the historic moderate risk calls and 1.3% of the historic low risk calls have been responded to within 14 minutes of total response time. These results indicate that South Stormont Fire and Rescue is not able to respond to the vast majority of calls within the NFPA 1720 standard.

TOWNSHIP OF SOUTH STORMONT

TOWNSHIP OF SOUTH STORMONT
FIRE MASTER PLAN

FIRE RISK AND RESPONSE (GEOGRAPHY) EXISTING CONDITIONS FIGURE 4



- FEDERAL BOUNDARY
 - SOUTH STORMONT BOUNDARY
 - NFPA 1720 (RURAL) COVERAGE AREA
 - FIRE STATION
 - HIGHWAY
 - ARTERIAL ROAD
 - COLLECTOR ROAD
 - LOCAL ROAD
 - RAILWAY
 - OIL AND GAS PIPELINES
 - LAKES AND RIVERS
- FIRE RISK**
- High
 - Moderate
 - Low



MAP DRAWING INFORMATION:
DATA PROVIDED THE TOWNSHIP OF SOUTH STORMONT

MAP CREATED BY: SMB
MAP CHECKED BY: SLC
MAP PROJECTION: NAD 1983 UTM Zone 18N

FILE LOCATION: \\dillon.ca\DILLON_DFS\Toronto\Toronto CAD\GIS\151907 South Stormont FMP\MXDs

Turnout and Travel Time	% of Low Risk Area	% of Moderate Risk Area	% of High Risk Area
<= 14 min (rural area)	0.2%	20.3%	0.0%

Note: There are no extreme risk zones within the Township of South Stormont

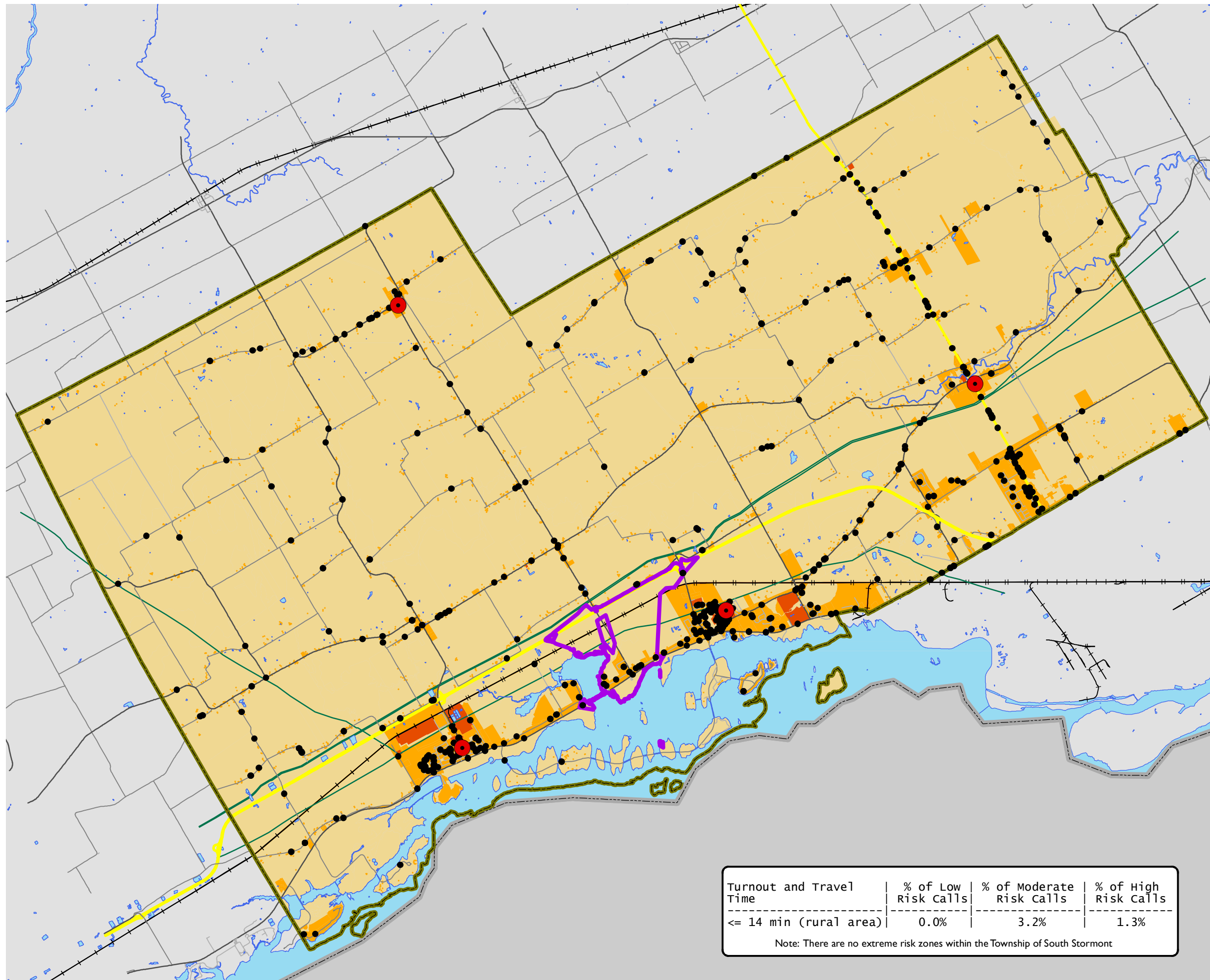


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TOWNSHIP OF SOUTH STORMONT

TOWNSHIP OF SOUTH STORMONT
FIRE MASTER PLAN

FIRE RISK AND RESPONSE (HISTORIC CALLS) EXISTING CONDITIONS FIGURE 5



- FEDERAL BOUNDARY
- SOUTH STORMONT BOUNDARY
- NFPA 1720 (RURAL) COVERAGE AREA
- FIRE STATION
- HISTORIC CALLS (2010-2014)
- HIGHWAY
- ARTERIAL ROAD
- COLLECTOR ROAD
- LOCAL ROAD
- OIL AND GAS PIPELINES
- RAILWAY
- LAKES AND RIVERS

- FIRE RISK**
- High
 - Moderate
 - Low



MAP DRAWING INFORMATION:
DATA PROVIDED THE TOWNSHIP OF SOUTH STORMONT

MAP CREATED BY: SMB
MAP CHECKED BY: SLC
MAP PROJECTION: NAD 1983 UTM Zone 18N

FILE LOCATION: \\dillon.ca\DILLON_DFS\Toronto\Toronto CAD\GIS\151907 South Stormont FMP\MXDs

Turnout and Travel Time	% of Low Risk Calls	% of Moderate Risk Calls	% of High Risk Calls
<= 14 min (rural area)	0.0%	3.2%	1.3%

Note: There are no extreme risk zones within the Township of South Stormont



PROJECT: 15-1907
STATUS: DRAFT
DATE: 12/15/2015

Appendix N

Fire Prevention Policy (PFSG 04-45-12)



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

Fire Prevention Policy

Public Fire Safety Guidelines

Subject Coding

PFSG 04-45-12

Section

Date

Fire Prevention and Public Education

August 1998

Subject

Page

Fire Prevention Policy

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

Appendix O

Definitions of OFMEM Response Types

SUMMARY: REPORTING RESPONSE TYPE ON THE ONTARIO OFM STANDARD INCIDENT REPORT

WAS IT AN UNCONTROLLED FIRE OR AN EXPLOSION?

Response type codes: **1 or 2**
If there is a fire and an explosion at an incident, report as an Explosion – code 2
OR

NO LOSS OUTDOOR FIRE

No loss: no fatality, injury and no \$ loss.
Outdoor: open land, trash container, etc.
And not resulting in an exposure fire
Response type code: **3**

DID THE CALL OCCUR IN ANOTHER MUNICIPALITY AND THE LOCAL F.D. WAS PRESENT?

Response type codes: **910 to 913**

WAS IT A PRECONDITION TO AN UNCONTROLLED FIRE?

(smoke, steam, fireworks, etc. no evidence of uncontrolled burning or fire damage)
Response type codes: **21 to 29**

WAS IT A CONTROLLED FIRE?

The FD did not extinguish the fire.
Response type codes: **23 or 36**

DID THE CALL (non fire) OCCUR AT THE SITE OF AN ILLEGAL GROW OR DRUG OPERATION?

Response type codes: **921 or 922**

WAS IT A FALSE FIRE ALARM?

Response type codes: **31 to 35 or 39**
or

FALSE CO alarm (NO carbon monoxide present)?

Response type code: **37**

Another type of FALSE ALARM?

Response type codes: **58, 699, 899**

WAS IT A CO CALL, and CO WAS PRESENT?

Response type code: **53**

NON FIRE SITUATIONS (use where none of situations noted above are applicable)

What action did the fire department take? Rescue? Medical assistance?

If no "action" codes are applicable:

What was the type of emergency situation? (see shaded codes)

DID ANOTHER AGENCY ALREADY ON THE SCENE REQUEST ASSISTANCE?

Response type codes: **92 or 93**

If **NO CODES** fit the emergency action or emergency incident use Code **99** Other response.

Do not file a report for non emergency FD activities.

RESPONSE TYPE CODES

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, dynamites)
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

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

WAS THE CALL CANCELLED OR THE INCIDENT LOCATION INVALID?
Response type codes: **96 or 97**