DILLON CONSULTING

TOWNSHIP OF WHITEWATER REGION

Fire Master Plan Report

December 2017

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Acronyms, Abbreviations, Definitions

ANSI	American National Standards Institute
CAO	Chief Administrative Officer
CFSEM	Comprehensive Fire Safety Effectiveness Model
CO	Carbon Monoxide
DP	Departmental Policy
EMS	Emergency Medical Services
FLMS	Fire Learning Management System
FMP	Fire Master Plan
FMPIC	Fire Master Plan Implementation Committee
FPO	Fire Prevention Officer
FPPA	*Fire Protection and Prevention Act, 1997*
FUS	Fire Underwriters Survey™
GIS	Geographic Information System
Gpm	Gallon per minute
HTA	Highway Traffic Act
IC	Incident Commander
ICS	Incident Command System
IMS	Incident Management System
JHSC	Joint Health and Safety Committee
LERL	Lower Effective Response Level
Lpm	Litres per minute
MRU	Medical Response Unit
MW	megawatt
NFPA	National Fire Protection Association
NFPA Pro-Qual	National Fire Protection Association Professional Qualifications
OFC	Ontario Fire Code
OFMEM	Office of the Fire Marshal and Emergency Management
OFS	Ontario Fire service
OFSS	Ontario Fire Services Standards
OG	Operating Guideline
OHSA	*Occupational Health and Safety Act, R.S.O. 1990*
PFPC	Public Fire Protection Classification™
PFSG	Public Fire Safety Guidelines
SCBA	Self-contained Breathing Apparatus
Township	Township of Whitewater Region
UERL	Upper Effective Response Level
ULC	Underwriter's Laboratories of Canada
WRFD	Whitewater Region Fire Department
WHMIS	Workplace Hazardous Materials Information System

Executive Summary

This Fire Plan Master (FMP) provides a review of the current operations of the Whitewater Region Fire Department (WRFD) to assist Council in establishing key objectives for the department. This plan includes analyses and recommendations that have been prepared following the fire master planning process outlined within the Office of the Fire Marshal and Emergency Management (OFMEM), *Shaping Fire-Safe Communities Initiative.*

One of the primary roles of the OFMEM is to provide assistance to municipalities through the provision of information and processes to support determining the fire protection services a municipality requires, based on its local needs and circumstances. The OFMEM has developed Public Fire Safety Guidelines (PFSGs) to assist municipalities in making informed decisions to determine local needs and circumstances and achieve compliance with the FPPA.

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

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

- *Public Education and Prevention;*
- *Fire Safety Standards and Enforcement; and*
- *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 should be a priority for fire services within Ontario.

The findings included within this FMP identify areas where the WRFD is currently challenged to meet legislative requirements. The report provides strategies and recommendations to support the department in successfully achieving legislative compliance.

As part of the FMP project, Dillon has prepared a Simplified Risk Assessment for the Township (included as **Appendix A**). Completing and maintaining an updated Simplified Risk Assessment is part of the legislative responsibilities of the Whitewater Region Fire Department.

Another area of potential legislative gaps relate to defining and measuring the goals and objectives for distributing public education materials and delivery of the department's home smoke/carbon monoxide (CO) alarm program.

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

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

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

The analyses within this FMP recognize four strategic priorities for the delivery of fire protection and emergency services within the Township of Whitewater Region including:

1. *That the Township of Whitewater Region assume a leadership role as an employer within the community in supporting its employees and other employers' employees participating as volunteer firefighters including during normal business hours;*
2. *That the Township of Whitewater Region prioritize the delivery of ongoing health and safety training for all members of the fire department;*
3. *That the Township of Whitewater Region endorse the optimization of the first two lines of defence; including public education and prevention and the utilization of fire safety standards and enforcement, to provide a comprehensive fire protection program within the Township; and*
4. *That the Township of Whitewater Region endorse strategies that support the sustainability of fire protection services that provide an effective and efficient level of fire protection services resulting in the best value for the community.*

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

Fire Master Plan Process Recommendations:

Recommendation #1: ***That a specific Whitewater Region Fire Department Joint Health and Safety Committee be formed, with employee representatives from all of the stations, as well as a management representative.*** *(Section 2.3, p.14)*

Recommendation #2: ***That the Township prioritize the completion and documentation of delivering of health and safety training for all members of the Whitewater Region Fire Department as referenced within the proposed Fire Master Plan.*** *(Section 2.3, p.15)*

Recommendation #3: ***That subject to consideration and approval of the 2017 Fire Master Plan, the Fire Chief be directed to update the current Establishing and Regulating By-law.*** *(Section 2.4, p.16)*

Recommendation #4: ***That the current automatic aid agreement with the Township of Admaston/Bromley be reviewed and revised to further define the scope of services to be provided by the Township of Whitewater Region.*** *(Section 2.5, p.18)*

Recommendation#5: ***That the Fire Chief be directed to prepare and submit to Council a fire department Annual Report that includes an updated Simplified Risk Assessment, and additional multi-year analyses of services and programs provided by the department.*** *(Section 2.6, p.19)*

Recommendation #6: ***That consideration be given to approving the strategic priorities identified within the 2017 Fire Master Plan to guide the development and delivery of fire protection and emergency services within the Township of Whitewater Region.*** *(Section 2.7, p.20)*

Recommendation #7: ***That all department operating guidelines be reviewed and updated to provide clear direction to all department staff and ensure compliance with applicable OHSA Section 21 Guidance Notes.*** *(Section 2.8, p.22)*

Administration and Organizational Structure Recommendations:

Recommendation #8: ***That subject to consideration and approval of the proposed organizational structure new job descriptions be developed for all positions within the WRFD.*** *(Section 3.2, p.26)*

Recommendation #9: ***That the proposed Organizational Committee Structure identified within the 2017 Fire Master Plan be implemented as presented.*** *(Section 3.2.1, p.28)*

Recommendation #10: ***That consideration be given to developing a formal hiring and promotional policy and performance evaluation process for all WRFD personnel in keeping with any Township***

human resources policies, the Ontario Human Rights Code, Accessibility for Ontarians with Disabilities Act and the Municipal Freedom of Information and Protection of Privacy Act. *(Section 3.2.2, p.28)*

Recommendation #11: ***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 Whitewater Region.*** *(Section 3.2.2, p.29)*

Recommendation #12: ***That the fire department implement a records management system in keeping with the requirements of the Municipal Freedom of Information and Protection of Privacy Act and any municipal records retention policy***. *(Section 3.3, p.30)*

Emergency Management Recommendations:

Recommendation #13: ***That Township's Emergency Response Plan and By-law #10-12-457 be updated to reflect the revised roles and positions assigned in 2017.*** *(Section 4.1, p.31)*

Recommendation #14: ***That the Township's current Emergency Plan be updated to include the proposed Community Emergency Management Coordinator (CEMC) and Alternate CEMC presented within the proposed Fire Master Plan.*** *(Section 4.2, p.34)*

Fire Prevention and Public Education Recommendations:

Recommendation #15: ***That subject to Council's consideration and approval of the 2017 Fire Master Plan, the Fire Chief be directed to update the current Fire Prevention and Public Fire Safety Education Policy and Fire Prevention-Public Education Operating Guideline.*** *(Section 5.2, p.37)*

Recommendation #16: ***That subject to consideration and approval of the proposed public fire safety education activities and program cycle objectives by Council, that they be included within the updated Fire Prevention and Public Fire Safety Education Policy.*** *(Section 5.5, p.41)*

Recommendation #17: ***That the Fire Chief be directed to develop an Operating Guideline describing the goals, objectives and requirements of the department's Smoke Alarm/Carbon Monoxide Program, and that this program be included in the updated Fire Prevention and Public Fire Safety Education Policy.*** *(Section 5.6, p.42)*

Recommendation #18: ***That the existing operating guideline be developed to clearly present the requirements for conducting a fire inspection in a vulnerable occupancy as referenced within the proposed Fire Master Plan.*** *(Section 5.8, p.44)*

Recommendation #19: ***That Public Fire Safety Guideline OFM-TG-01-2012 regarding inspections and enforcement be considered when updating the Fire Prevention and Public Fire Safety Education Policy and Fire Prevention-Public Education operating guideline for consideration and approval by Council.*** *(Section 5.9, p.44)*

Recommendation #20: ***That the Fire Prevention and Public Fire Safety Education Policy be updated to include requirements for conducting Fire Safety Plan review and approval.*** *(Section 5.10, p.45)*

Recommendation #21: ***That subject to the consideration and approval of the proposed fire inspection goals and objectives by Council that they be included within the updated Fire Prevention and Public Fire Safety Education Policy.*** *(Section 5.11, p.46)*

Recommendation #22: ***That following the proposed update of the current Fire Prevention Policy the Fire Chief develop a department Operating Guideline for fire investigations, including origin and cause determination and the training and accreditation required to conduct investigations.*** *(Section 5.12, p.48)*

Recommendation #23: ***That consideration be given to implementing the staff resource plan identified within the proposed 2017 Fire Master Plan to achieve the fire inspection and public education performance levels recommended.*** *(Section 5.13, p.51)*

Recommendation #24: ***That the Township ensure all individuals performing fire safety inspections be designated as Assistants to the Fire Marshal and that those responsible for approving certain elements of the Ontario Fire Code be formally delegated the authority of Chief Fire Official for those purposes.*** *(Section 5.11, p.46)*

Fire Department Training Recommendations:

Recommendation # 25: ***That the Whitewater Region Fire Department 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 2017 Fire Master Plan.*** *(Section 6.2, p.57)*

Recommendation #26: ***That the Township of Whitewater Region investigate both public and private sector opportunities to use existing training facilities in the area.*** *(Section 6.3, p.57)*

Recommendation #27: ***That the Whitewater Region Fire Department consider further use of an online firefighter training program as a component of delivering the proposed comprehensive annual training program.*** *(Section 6.4, p.58)*

Recommendation #28: ***That the Township of Whitewater Region further considers the areas of specialized services to be provided by the Whitewater Region Fire Department for consideration and approval by Council and inclusion within an updated Establishing and Regulating By-law.*** *(Section 6.5, p.59)*

Recommendation #29: ***That the Township of Whitewater Region reviews other options, such as implementing agreements with neighbouring communities or the private sector to include any specialized services required above the "awareness" level of those identified within the 2017 Fire Master Plan.*** *(Section 6.5, p.59)*

Recommendation #30: ***That the Whitewater Region Fire Department enhance the training opportunities for Company Officers to achieve the competencies identified within the new NFPA 1021 Standard – Level II for Company Officers.*** *(Section 6.6, p.60)*

Recommendation #31: ***Whitewater Region Fire Department draft and implement an operational guideline specific to Incident Command as presented within the 2017 Fire Master Plan.*** *(Section 6.7, p.61)*

Recommendation #32: ***That the Whitewater Region Fire Department consider adoption of an Incident Command Training Program (such as the Blue Card Fire Command Training Program) as a component of the Company Officer Training, and proposed Comprehensive Annual Training Program.*** *(Section 6.7.1, p.62)*

Recommendation #33: ***That Township policies referring to Volunteer Firefighter minimum training/attendance be revised to ensure that within any calendar year a Volunteer Firefighter is required to complete 100% of the department's minimum training standard.*** *(Section 6.8, p.63)*

Recommendation #34: ***That the Fire Chief be directed to develop a department Operating Guideline defining the goals, objectives and procedures for completing and collecting firefighter training records as required by the Occupational Health and Safety Act.*** *(Section 6.9, p.63)*

Recommendation #35: ***That the proposed training staff resource plan contained within the 2017 Fire Master Plan be considered for implementation.*** *(Section 6.10, p.65)*

Station Location, Emergency Response and Suppression Services Recommendations:

Recommendation #36: ***That consideration for diesel emissions exhaust systems, as recommended in the Section 21 Guidance Note #3-1, be incorporated into future station design, construction or renovations.*** *(Section 7.1.1, p.71)*

Recommendation #37: ***That until the key fire department training concerns highlighted within this FMP are addressed, Council should adopt an exterior operations level of service for the Whitewater Region Fire Department.*** *(Section 7.5.2.1, p.78)*

Recommendation # 38: ***It is recommended that subject to addressing the key fire department training concerns identified within the proposed Fire Master Plan and ensuring that the proposed comprehensive training program is in place the Fire Chief be directed to develop Operating Guidelines for the provision of full service operations as presented within the proposed Fire Master Plan.*** *(Section 7.5.2.3, p.79)*

Recommendation #39: ***That the Fire Chief be directed to develop a Business Plan identifying the operational and financial requirements for the Whitewater Region Fire Department to seek the Superior Tanker Shuttle Accreditation, including consideration of the required Automatic Aid Agreements.*** *(Section 7.5.6.3, p.91)*

Recommendation #40: ***That, following the fire department's achievement of the Superior Tanker Shuttle Accreditation, the Township request the Fire Underwriters Survey conduct an update to the fire insurance grade classifications for the Township of Whitewater Region.*** *(Section 7.5.6.3, p.92)*

Recommendation #41: ***That the Township of Whitewater Region benchmark its fire suppression initial response capabilities utilizing the NFPA 1720 Rural Demand Zone deployment model of a minimum of six firefighters responding to all fire related calls within a 14 minute response time (turnout time + travel time) to 80% of all fire related incidents.*** *(Section 7.5.8.2, p.96)*

Recommendation #42: ***That the Township of Whitewater Region benchmark its depth of response fire suppression emergency response capabilities in comparison to a deployment of 14 firefighters to moderate risk occupancies and 24 firefighters to high risk occupancies.*** *(Section 7.5.8.2, p.96)*

Recommendation #43: ***That the Fire Chief be directed to develop a process for tracking the turnout time of all responding volunteer firefighters as referenced within the proposed Fire Master Plan.*** *(Section 7.6.6.2, p.108)*

Recommendation #44: ***That as part of preparing the implementation plan for the proposed Fire Master Plan the Fire Chief be directed to identify strategies to improve the turnout time and initial apparatus staffing as presented within the proposed Fire Master Plan.*** *(Section 7.6.6.3, p.109)*

Recommendation #45: ***That the minimum complement of Volunteer Firefighters within the Township of Whitewater Region be approved by Council as 100 volunteer firefighters.*** *(Section 7.6.8.3, p.115)*

Recommendation #46: ***That subject to Council's consideration and approval of a preferred Fire Station Location option that the proposed organizational model for that option as presented within the proposed 2017 Fire Master Plan be implemented.*** *(Section 7.8.2.2, p.127)*

Recommendation #47: ***That the Township of Whitewater Region implement a senior officer on-call policy within the Whitewater Region Fire Department.*** *(Section 7.8.2.3, p.128)*

Recommendation #48: ***That in consultation with the Fire Chief, Council considers the merits of implementing the proposed senior management team referenced in the proposed Fire Master Plan.*** *(Section 7.8.2.4, p.128)*

Apparatus, Equipment and Maintenance Recommendations:

Recommendation #49: ***That the Township of Whitewater Region consider the implementation of the proposed major apparatus replacement plan contained within the 2017 Fire Master Plan, associated with the Station Location Option selected by Council.*** *(Section 8.3.1, p.141)*

Recommendation #50: ***That consideration be given to creating major apparatus reserve capacity including a minimum of one pumper.*** *(Section 8.3.2, p.141)*

Recommendation #51: ***That consideration be given to implementing light passenger / multi-use vehicles presented within the proposed major apparatus plan within the proposed 2017 Fire Master Plan.*** *(Section 8.3.3, p.142)*

Recommendation #52: ***That the Township of Whitewater Region consider the purchase of equipment to wash and dry firefighter bunker gear in-house.*** *(Section 8.4, p.142)*

Recommendation #53: ***That the Township of Whitewater Region consider the implementation of a life cycle replacement plan, targeting department-wide standardization, for all equipment including firefighters' bunker gear and self-contained breathing apparatus based on industry best practices and manufacturers' directions.*** *(Section 8.4, p.142)*

Recommendation #54: ***That the Township of Whitewater Region review and update the capital reserve fund and annual contributions in consideration of the financial strategy required to implement the capital recommendations of the 2017 Fire Master Plan.*** *(Section 8.5, p.143)*

Communications Recommendations:

Recommendation #55: ***That the Township of Whitewater Region seek to negotiate with the County of Renfrew the inclusion of the performance objectives of the NFPA 1221 Standard for the Installation,***

Maintenance, and Use of Emergency Services Communications Systems (2016 Edition) within an updated Fire Dispatch Agreement. *(Section 9.1, p.145)*

Recommendation #56: ***That the Fire Chief be directed to draft and implement and Operating Guideline respecting radio procedures to include training requirements, pre-planning and other interim strategies such as the use of cellular telephones to maintain firefighter safety while operating at emergency incidents.*** *(Section 9.2.2, p.147)*

Recommendation #57: ***That the Fire Chief be directed to review the status of the County of Renfrew's efforts to update the fire communications system and further update Council with respect to next steps in upgrading the overall fire communications system.*** *(Section 9.2.3, p.147)*

Recommendation #58: ***That the Fire Chief be directed to develop an ongoing communication strategy with the volunteer firefighters to enhance the "two way" communications within the WRFD.*** *(Section 9.3, p.147)*

Recommendation #59: ***That the Township and WRFD consider options for utilizing web-based / smartphone applications that provide volunteer firefighters with the ability to communicate their response status to the stations and other department staff members.*** *(Section 9.4, p.148)*

1.0 Introduction

The Township of Whitewater Region (Township or Whitewater) is a picturesque community located in the Ottawa Valley, situated within an hour's drive of the City of Ottawa. The Township is known for, and named after, a series of white water rapids. The river and rapids offer remarkable outdoor experiences and adventures for residents, tourists and visitors year round.

The Township has initiated this Fire Master Plan (FMP or Plan) to help it guide the delivery of fire protection services over the next ten or more years. Development of a FMP reflects the continued commitment of Council and senior staff to providing the highest level of services and programs to the community in the most cost-effective and efficient manner even as the community continues to grow. The plan should be reviewed and updated regularly. Typically a five year cycle is considered best practices for updating a municipal fire master plan.

The foundation of this plan is based on the local and national context. Industry best practices, including relevant standards, legislation, and analysis techniques directly inform the plan methodology. The plan is also driven by the community context, including existing services. Using this foundation, the FMP presents an assessment of the Whitewater Region Fire Department and provides future direction to meet the local needs and circumstances of the Township.

1.1 Municipal Overview

The Township of Whitewater Region is located in Renfrew County (County) and covers a geographic area of approximately 538 square kilometres. As shown in **Figure 1**, Whitewater Region is neighboured by the Township of Admaston/Bromley, Town of Petawawa, City of Pembroke, Town of Renfrew, and the Townships of Bonnechere Valley, Laurentian Valley and North-Algona Wilberfore.

The Township is the result of a 2001 amalgamation of the former municipalities of Beachburg, Cobden, Ross and Westmeath. In addition to the rural areas throughout the Township, residential areas include: Beachburg, Chenaux, Cobden, Finchley, Foresters Falls, Garden of Eden, The Glen, Grants Settlement, Haley Station, Kerr Line, La Passe, Ledgerwoods Corner, McLaren's Settlement, Meath, Millars Corner, Perretton, Pleasant Valley, Queens Line, Rocher Fendu, Shields Crossing, Snake River and Westmeath.

Across the Township's geography there is a mix of residential areas, natural features and agricultural lands. The Township is rich in natural heritage features which include its agricultural lands, and a world-renowned stretch of white water rapids. The area showcases more than 160 kilometres of waterfront, recreational activities such as hiking, cycling, paddle sports fishing, snowmobiling, snowshoeing and ice fishing. Situated along the Ottawa River, the Township features wetlands, general wildlife areas as well as Areas of Natural and Scientific Interest (ANSI).

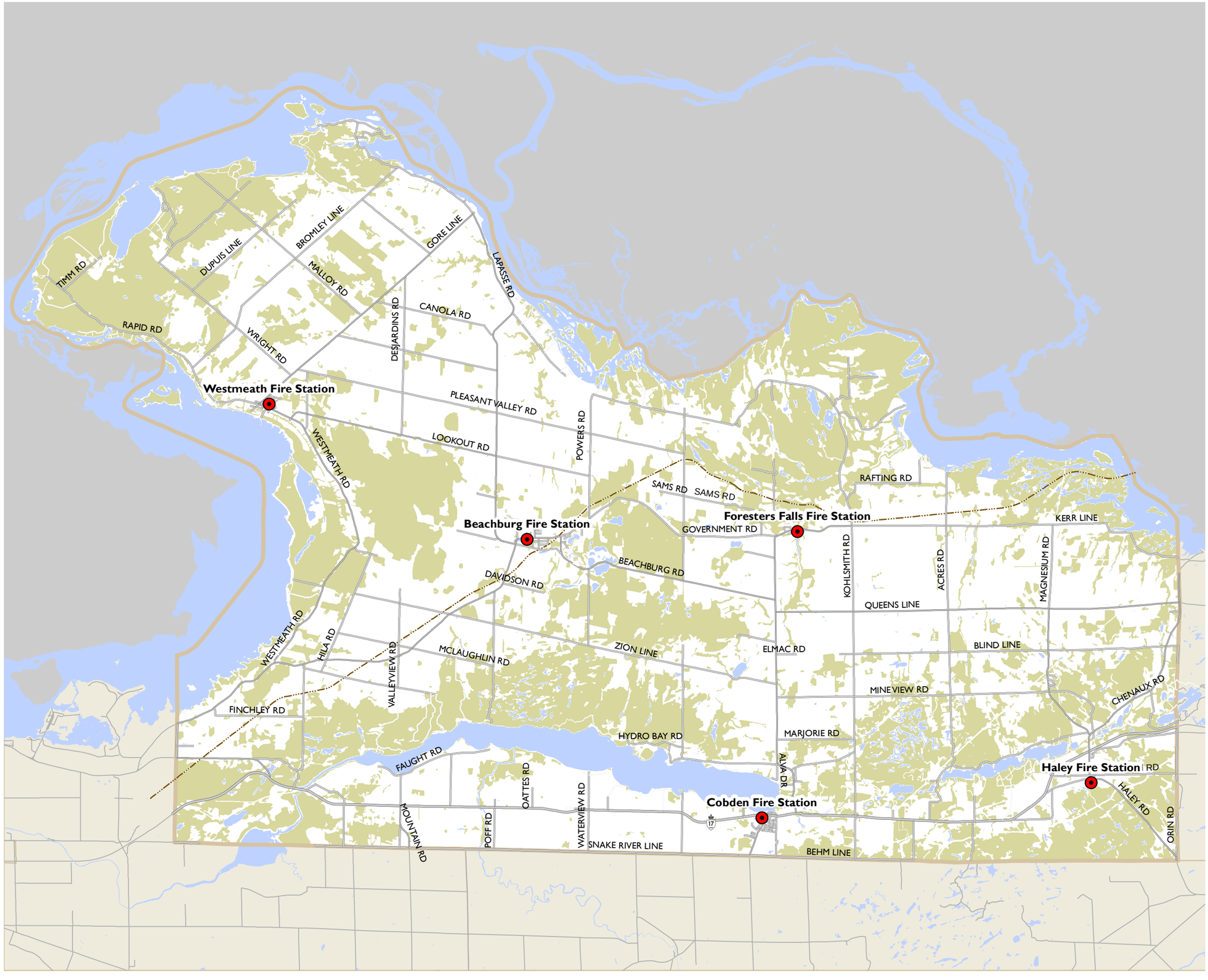
Figure 1: Township of Whitewater Region Location

(Source: http://www.countyofrenfrew.on.ca/online-services/maps/)

1.2 Whitewater Region Fire Department Overview

The Whitewater Region Fire Department is a fire service that is a result of municipal amalgamation. The Township is currently served by a fire department comprised of volunteer suppression staff. Further detail on department staffing and organizational structure is discussed within the *Administration Division* section of this Fire Master Plan.

The five existing station locations are based on their historic locations within the settlement areas of Haley, Cobden, Beachburg, Foresters Falls and Westmeath, as shown in **Figure 2**.



WHITEWATER REGION

WHITEWATER REGION
FIRE MASTER PLAN

Existing Fire Station Locations

Figure 2

- Existing Fire Station
- Provincial Highway Road
- County Road
- Municipal Maintained Road
- Municipal Seasonal Road
- Private Road
- Recreational Trail
- Ohn Waterbody
- Wooded Area
- Township of Whitewater Region
- Renfrew County

0 0.5 1 2 km

1:120,000

MAP DRAWING INFORMATION:
DATA PROVIDED BY MNR AND WHITEWATER REGION

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

DILLON CONSULTING

PROJECT: 17-5880
STATUS: DRAFT
DATE: 2017-12-19

1.3 Related Plans and Reports

This Fire Master Plan was completed with consideration to applicable plans and reports including the 2006 Smoke Alarm Survey Synopsis, the 2016 Renfrew County Fire Communications Systems Study, and the 2016 verdict of the Coroner's Jury. The background data collection and review process also included reviewing the 2005 Fire Station & Staffing Review (conducted by W.A. (Bill) Bowles Consulting Services) and the 2007 Township of Whitewater Region Master Fire Plan (also prepared by W.A. (Bill) Bowles Consulting Services).

1.3.1 2007 Master Fire Plan

The Whitewater Region Master Fire Plan was prepared by W.A. (Bill) Bowles in 2007 and includes 28 recommendations in the areas of Organization, Administration, Fire Stations, Operations, Operating Guidelines, Communications, Training and Public Fire Safety Education. There are a number of recommendations from the 2007 Master Fire Plan which have not been addressed and will be referenced throughout this plan as they remain outstanding.

1.3.2 2006 Smoke Alarm Survey Synopsis

The Smoke Alarm Survey Synopsis was prepared by W.A. (Bill) Bowles Consulting Services in March 2007 to summarize and analyze the results of a 2006 survey conducted within the Township of Whitewater regarding the installation and maintenance of smoke and carbon monoxide alarms in homes within the Township. The synopsis speaks to the distribution of public education materials within the community, and a home smoke alarm program. The synopsis recommends the retention of the smoke alarm program, carbon monoxide awareness campaign and a portable fire extinguisher testing and maintenance programming. It is our understanding the home smoke alarm program has been discontinued but that the distribution of public education materials continues and that fire extinguisher training is currently provided to care facility staff as well as public works staff.

1.3.3 2016 Renfrew County Fire Communications Systems Study

The Renfrew County Fire Communications Systems Study was drafted by Dawnex Corp to review existing fire communication systems within the County and to make recommendations using a 10-15 year horizon. We understand the study and its recommendations continue to be explored by the partner municipalities. This study will be discussed further in **Section 9.0** of this plan.

1.3.4 2016 Verdict of Coroner's Jury

Mandated under the *Coroners Act*, 1990, coroners specialize in death investigation for certain deaths as identified under the Act. In Ontario, the Office of the Chief Coroner has a mandate to: *"…serve the living through high quality death investigations and inquests to ensure that no death will be overlooked,*

concealed or ignored. The findings are used to generate recommendations to help improve public safety and prevent deaths in similar circumstances".[1]

As a result of a fatal fire in Whitby in 2012, and another in the Town of East Gwillimbury in 2013, the Office of the Chief Coroner initiated an inquest to determine the events surrounding all of the fire-related deaths that occurred. It included all of the various aspects related to fire safety, before and during a fire situation, and local emergency services response to a fire. The intent of an inquest such as this is designed to focus public attention on the circumstances of a death through an objective examination of facts. The findings of this inquest resulted in 33 recommendations to a range of organizations and stakeholders within Ontario, including municipalities.

Our review of these recommendations and their relevance to this Fire Master Planning process highlight the importance of the ***"three lines of defence"*** identified within this FMP. In our view, each of the 33 recommendations is important and related to enhancing public safety. Examples of these recommendations included directly from the inquest report are presented to support the analyses and recommendations of this FMP:[2]

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

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

Directed to Municipalities:

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

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

- ✓ *To continue and expand public education on the fact that upon discovery of smoke or fire every person must immediately get out and stay out of the building; and*

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

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

- ✓ *As part of public education, promote awareness of different types and appropriate use of fire extinguishers. Included in this education, could be demonstrations and hands-on practice.*

Directed to the Ontario Association of Fire Chiefs:

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

1.4 Report Purpose and Structure

The purpose of this FMP is to establish strategic priorities to guide decision making and the future direction of the department. This included the development of a Fire Master Plan for the provision of local fire and emergency services based upon growth, trends, regulatory requirements, and financial capabilities of the Township. The plan also identifies existing fire risks, fire protection capabilities, public education, fire risk reductions and management (e.g. fire prevention), emergency response, opportunities for optimizing service delivery, a review of the staffing and operating models, as well as funding and fiscal measures related to fire protection. This resulted in an implementation plan based on immediate (2018), short-term (2019-2020), medium-term (2021-2022), and long-term (2023 to 2027) horizons.

The plan development included a targeted consultation processes to gather input from internal and external stakeholders. The internal consultation included members of Council, key staff and the volunteer firefighters. The analysis conducted as part of this FMP is based on existing community fire risk, service gaps, municipal best practices and industry trends.

In alignment with the scope of this FMP, this report is structured into ten sections:

1. Introduction;
2. Fire Master Plan Process (Governance, including legislation, by-laws, service agreements, core services, policies and regulations);
3. Administration and Organizational Structure;
4. Emergency Management;
5. Fire Prevention and Public Education;
6. Fire Department Training;
7. Station Location, Emergency Response and Suppression Services;
8. Apparatus, Equipment & Maintenance;
9. Communications; and
10. Implementation Plan.

2.0 Fire Master Plan Process

There are three areas that, in our experience, embody the foundational elements of the Fire Master Plan process: *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 and in defining the recommendations of this plan to guide Council in its decisions with respect to the delivery of fire protection services.

Another key component tied to conducting a Fire Master Plan is the completion of a risk assessment. As part of this fire master plan process, a Simplified Risk Assessment was completed. It is included as **Appendix A**.

2.1 Governance (Legislation, By-laws, Service Agreements, Core Services, Policies and Regulations)

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 and Protection Act, 1997 (FPPA),* and the *Occupational Health and Safety Act, R.S.O., 1990 (OHSA).*

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.

Fire Prevention and Protection Act, 1997 (Excerpt)	
PART I **DEFINITIONS**	
Definitions	1.(1) In this Act, **"fire chief"** means a fire chief appointed under section 6 (1), (2) of (4); ("chef des pompiers") **"fire code"** means the fire code established under Part IV; ("code de prevention des incendies") **"fire department"** means a group of firefighters authorized to provide fire protection services by a municipality, group of municipalities or by an agreement made under section 3; ("service d' incendie") **"Fire Marshal"** means the Fire Marshal appointed under subsection 8 (1); ("commissaire des incendies") **"fire protection services"** includes fire suppression, fire prevention, fire safety education, communication, training of persons involved in the provisions of fire protection services, rescue and emergency services and the delivery of all those Services; ("services de protection contre les incendies")

Fire Prevention and Protection Act, 1997 (Excerpt)	
	"municipality" means the local municipality as defined in the Municipal Act, 2001; ("municipalite") **"prescribed"** means prescribed by regulation ("prescript") **"regulation"** means a regulation made under this Act; ("reglement") **"volunteer firefighter"** means a firefighter who provides fire protection services either voluntarily or for a nominal consideration, honorarium, training or activity allowance; ("pompier volontaire")
Application of definition of firefighter	(3) The definition of firefighter in subsection (1) does not apply to Part IX. 1997, c. 4, s. 1 (2)
Automatic aid agreements	(4) For the purposes of this Act, an automatic aid agreement means any agreement under which, (a) a municipality agrees to ensure the provision of an initial response to fires and rescues and emergencies that may occur in a part of another municipality where a fire department in the municipality is capable of responding more quickly than any fire department situated in the other municipality, or (b) a municipality agrees to ensure the provision of a supplemental response to fires, rescues and other emergencies that may occur in a part of another municipality where a fire department situated in the municipality is capable of providing the quickest supplemental response to fires, rescues and other emergencies occurring in the part of the other municipality. 1997, c. 4, s. 1 (4)
PART II RESPONSIBILITY FOR FIRE PROTECTION SERVICES	
Municipal responsibilities	2.(1) Every municipality shall (a) establish a program in the municipality which must include public education with respect to fire safety and certain components of fire prevention, and (b) provide such other fire protection services as it determines may be necessary in accordance with its needs and circumstances.
Services to be provided	(3) In determining the form and content of the program that it must offer under clause (1)(a) and the other fire protection services that it may offer under clause (1)(b), a municipality may seek the advice of the Fire Marshal
Automatic aid agreements	(6) A municipality may enter into an automatic aide agreement to provide or receive the initial or supplemental response to fires, rescues and emergencies.
Review of municipal fire services	(7) The Fire Marshal may monitor and review the fire protection services provided by municipalities to ensure that municipalities have met their responsibilities under this section, and if the Fire Marshal is of the opinion that, as a result of a municipality failing to comply with its responsibilities under subsection (1), a serious threat to public safety exists in the municipality, he or she may make recommendations to the council of the municipality with respect to possible measures the municipality may take to remedy or reduce the threat to public safety.
Failure to provide services	(8) If a municipality fails to adhere to the recommendations made by the Fire Marshal under subsection (7) or to take any other measure that in the opinion of the Fire Marshal will remedy or reduce the threat to public safety, the Minister may recommend the Lieutenant Governor in Council that a regulation be made under subsection (9).
Regulation	(9) Upon the recommendation of the Minister, the Lieutenant Governor in council may make regulations establishing standards for fire protection services in municipalities and requiring municipalities to comply with the standards.
Fire departments	(1) A fire department shall provide fire suppression services and may provide other fire protection services in a municipality, group of municipalities or in territory without municipal organization. 1997, c. 4, s. 5 (1)
Same	(2) Subject to subsection (3), the council of a municipality may establish more than

Fire Prevention and Protection Act, 1997 (Excerpt)	
	one fire department for the municipality. 1997, c. 4, s. 5 (2)
Exception	(3) The council of a municipality may not establish more than one fire department if, for a period of at least 12 months before the day this Act comes into force, fire protection services in the municipality were provided by a fire department composed exclusively of full-time firefighters. 1997, c. 4, s. 5 (3)
Same	(4) The councils of two or more municipalities may establish one or more fire departments for the municipalities. 1997, c. 4, s. 5 (4)
Fire chief, municipalities	6. (1) If a fire department is established for the whole or part of a municipality or for more than one municipality, the council of the municipality or the councils of the municipalities, as the case may be, shall appoint a fire chief for the fire department.
Same	(2) The council of a municipality or the councils of two or more municipalities may appoint a fire chief for two or more fire departments.
Responsibility to council	(3) A fire chief is the person who is ultimately responsible to the council of a municipality that appointed him or her for the delivery of fire protection services.
Powers of a fire chief	(5) The fire chief may exercise all powers assigned to him or her under this Act within the territorial limits of the municipality and within any other area in which the municipality has agreed to provide fire protection services, subject to any conditions specified in the agreement.
PART III FIRE MARSHAL	
Appointment of Fire Marshal	8 (1) There shall be a Fire Marshal who shall be appointed by the Lieutenant Governor in Council.
Powers of Fire Marshal	9.(1) the Fire Marshal has the power, (a) to monitor, review and advise municipalities respecting the provision of fire protection services and to make recommendations to municipal councils for improving the efficiency and effectiveness of those services; (b) to issue directives to assistants to the Fire Marshal respecting matters relating to this Act and the regulations; (c) to advise and assist ministries and agencies of government respecting fire protection services and related matters; (d) to issue guidelines to municipalities respecting fire protection services and related Matters; (e) to co-operate with anybody or person interested in developing and promoting the principles and practices of fire protections services; (f) to issue long service awards to persons involved in the provision of fire protection services; and (g) to exercise such other powers as may be assigned under this Act or as may be necessary to perform any duties assigned under this Act.
Duties of Fire Marshal	9.(2) It is the duty of the Fire Marshal, (a) to investigate the cause, origin and circumstances of any fire or of any explosion or condition that in opinion of the Fire Marshal might have caused a fire, explosion, loss of life, or damage to property; (b) to advise municipalities in the interpretation and enforcement of this Act and the regulations; (c) to provide information and advice on fire safety matters and fire protection matters by means of public meetings, newspaper articles, publications, electronic media and exhibitions and otherwise as the Fire Marshal considers

Fire Prevention and Protection Act, 1997 (Excerpt)	
	available; (d) to develop training programs and evaluation systems for persons involved in the provision of fire protection services and to provide programs to improve practices relating to fire protection services; (e) to maintain and operate a central fire college; (f) to keep a record of every fire reported to the Fire Marshal with the facts, statistics and circumstances that are required under the Act; (g) to develop and maintain statistical records and conduct studies in respect of fire protection services; and (h) to perform such other duties as may be assigned to the Fire Marshal under this Act.

2.1.2 Office of the Fire Marshal and Emergency Management, Ontario (OFMEM)

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.*

2.2 Public Fire Safety Guidelines (PFSG)

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

> ***"Please be advised that Office of the Fire Marshal and Emergency Management Public Fire Safety Guidelines are currently under review but continue to be made available for reference purposes."***[3]

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

With the Township's approval, Dillon Consulting Limited continued the completion of this Fire Master Plan utilizing the existing PFSGs, recognizing the current review process was 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 B**) was developed by the OFMEM to assist communities in evaluating their level of fire safety. The model recognizes that there is more to providing fire protection services than just building fire stations, purchasing equipment and deploying firefighters. The Comprehensive Fire Safety Effectiveness Model (CFSEM) confirms that the fire service within Ontario is currently experiencing an evolution towards 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."***

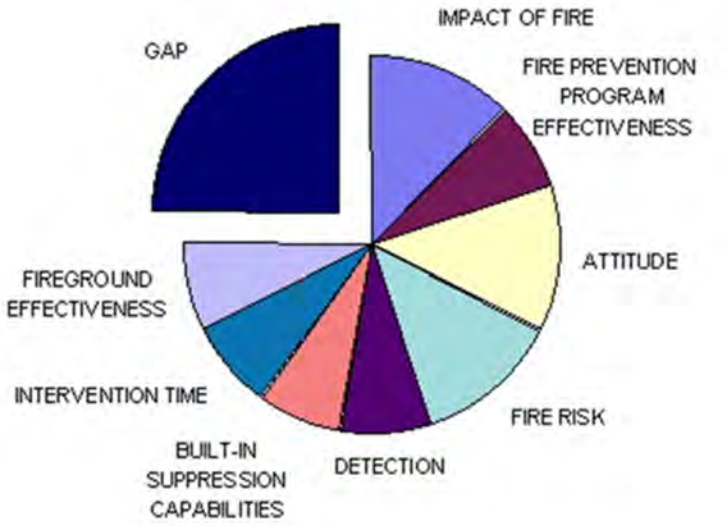
The CFSEM identifies that every municipality should be guided by a master or strategic plan covering a planning horizon of five to ten years. Shifting from the traditional focus of hazard identification and fire suppression response the CFSEM recognizes more comprehensive risk assessment and optimizing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

Figure 3 illustrates 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 fire protection provided to a community.

Figure 3: Factors in a Comprehensive Fire Safety Effectiveness Model

Figure 4 shows how the comprehensive model can be applied to a typical fire department. The "gap" depicts the difference between the existing level of protection and the ideal.

Figure 4: Comprehensive Model Applied to a Typical Fire Department



Utilizing the framework of the CFSEM and the fire protection service assessment processes developed by the OFMEM the primary objective of this FMP to identify, through evidence-based analysis, the presence of any existing gaps in the current delivery of fire protection services within the Township of Whitewater Region. 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 C**) 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 Marshal's Public Fire Safety Council.*

2.3 Occupational Health and Safety Act

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

Where 20 or more workers are regularly employed at a workplace, the OHSA requires the establishment of a Joint Health and Safety Committee (JHSC). The committee must hold regular meetings, including the provision of agendas and minutes. Currently, the WRFD has a representative on the Township's JHSC.

***Recommendation #1:* That a specific Whitewater Region Fire Department Joint Health and Safety Committee be formed, with employee representatives from all of the stations, as well as a management representative.**

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 Operating Guidelines (OGs) or Departmental Policies (DPs) that are consistent with the direction of the OHSA Section 21 Guidance Notes for the fire service.

Through the stakeholder engagement process, we learned the Whitewater Region Fire Department was not providing ongoing health and safety awareness training to all of its members, and was not providing supervisory training to staff assigned as supervisors e.g. Captains. This training is mandatory under the OHSA. It is our understanding that the Township has initiated a program to deliver Health and Safety awareness and supervisory training as of December 2017.

First responders are twice as likely to suffer from Post -Traumatic Stress Disorder (PTSD) due to the traumatic events they are potentially exposed to as part of their occupation. Under the provisions of the *Supporting Ontario's First Responders Act,* a diagnosis of PTSD is presumed to be work related for first responders. Employers that have employees identified under the Act are required to have a PTSD prevention plan and submit same to the Ministry of Labour (MOL). Fire chiefs and firefighters are covered under the PTSD presumption. A toolkit as well as sample plans are available on the MOL website for employers which require assistance in preparing a PTSD plan. Whitewater Region submitted a plan in October 2017.

In our view ensuring the ongoing health and safety of the Township's volunteer firefighters should be considered a strategic priority of Council. At a minimum this should include the delivery and documentation of awareness level health and safety training for all members of the WRFD, and applicable health and safety supervisory training for all members of the WRFD who fulfill a supervisory role.

Recommendation #2: ***That the Township prioritize the completion and documentation of delivering of health and safety training for all members of the Whitewater Region Fire Department as referenced within the proposed Fire Master Plan.***

2.4 By-laws

By-laws provide direction for the day-to-day operations of a municipality and have impact on the long term health and well-being of a jurisdiction.

2.4.1 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 D**) 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 Whitewater Region has an establishing and regulating by-law in place that was approved by Council February 21, 2001. *By-law No.01-02*-17 does not currently outline the general functions and services provided by the Whitewater Region Fire Department.

***Recommendation #3:* That subject to consideration and approval of the 2017 Fire Master Plan, the Fire Chief be directed to update the current Establishing and Regulating By-law.**

In addition to the Establishing and Regulating By-law, we reviewed the by-laws set out below as provided by the Township:

Table 1: Summary of By-law Review

By-law Number	Title	Date	Comments
09-12-409	By-law authorizing the Township to enter into a Development Agreement regarding fire route #2 with White Water & Wild Land Tours Ltd.	December 16, 2009	Township assumed ownership of a Fire Route.
10-03-422	By-law to authorize the Mayor and CAO to execute Municipal Forest Fire Management Agreement with Ministry of Natural Resources	March 17, 2010	The 2007 Master Fire Plan referenced the need for a by-law to authorize the agreement, which has since been addressed.
11-01-464	By-Law to Charge Fees for Services Provided by Fire and Emergency Services for Emergency and Non-Emergency Incidents	January 11, 2011	The hourly rate per apparatus was increased November 2015 by the Ministry of Transportation to $450; the current by-law lists $410 per hour.
11-01-465	By-law to regulate parking on highways and streets within municipality	January 11, 2011	Restricts parking in front of fire stations; no fire route by-law provided.
11-01-466	By-law to impose user fees for monitored automatic alarms (false)	January 11, 2011	First false alarm warrants a warning letter; subsequent false alarms within 12 month period invoiced at $260.95.
11-01-476	By-law to authorize the Mayor and CAO to execute an agreement with the Corporation of the Township of Admaston/Bromley with	January 11, 2011	The agreement authorized by this by-law will be discussed under the heading Automatic Aid.

By-law Number	Title	Date	Comments
	respect to automatic aid fire protection		
13-09-648	By-law regulating open air burning and recreational burning in the Township of Whitewater Region and the provision of fire permits and the conditions to be observed	September 4, 2013	Includes set fines for 16 offences related to open air and recreational burning.

2.5 Service Agreements

Service agreements, also known as fire protection agreements, set out the terms and conditions under which fire services are purchased, provided and/or required between two or more jurisdictions. Municipalities may choose to enter this type of agreement for a number of reasons, including but not limited to:

- *the jurisdiction does not have a fire department;*
- *the area for which protection is required is geographically distant from fire station;*
- *specialized equipment or services are not available through a mutual aid plan;*
- *the provision of mutual aid or automatic aid; or*
- *the provision of dispatch or communications services.*

2.5.1 Mutual Aid Agreements

Mutual aid agreements are predetermined plans that allow a participating fire department to request assistance from a neighbouring fire department. Public Fire Safety Guideline (PFSG 04-05-12 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 Whitewater Region Fire Department currently participates in the Renfrew County Mutual Aid Plan.

2.5.2 Automatic Aid Agreements

In contrast to mutual aid agreements, automatic aid agreements are programs designed to provide and/or receive assistance from the closest available resource, irrespective of municipal boundaries, on a day-to-day basis.

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

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

The Township of Whitewater Region currently provides fire protection services to the Township of Admaston/Bromley under an automatic aid agreement. The term of the agreement is January 1, 2015 until December 31, 2018. The Township of Admaston/Bromley pays the Township of Whitewater Region $6,500 per year under the terms of the agreement. Our review indicates that the current agreement identifies the services to be provided as "fire protection services". In our experience that can be defined as a much broader scope of services than what is defined within the current agreement. In our view this agreement should be reviewed and revised to ensure it accurately reflects the services to be provided by the Township of Whitewater Region and that both parties are comfortable with what is included.

Recommendation #4: That the current automatic aid agreement with the Township of Admaston/Bromley be reviewed and revised to further define the scope of services to be provided by the Township of Whitewater Region.

2.6 Annual Report

The "Optimizing Public Fire Safety" model recognizes the importance of ongoing monitoring, evaluating and revising of 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 to Council on the level of fire protection services provided.

This regular reporting process is also an ideal opportunity to update the Township's Simplified Risk Assessment and fire-related by-laws, as well as to provide further value in identifying changes or trends within the community. The Whitewater Region Fire Department has not historically provided Council with an annual or year-end report. The Fire Chief does prepare and submit quarterly reports to Council. These quarterly reports could be utilized to develop a fire department annual report.

Typically fire department annual reports contain many of the following core elements:

- *Overview of the Department's Smoke Alarm and Carbon Monoxide Detector Program;*

- *Overview of the Fire Inspection Program;*
- *Overview of that years emergency responses; and*
- *Following year's priorities.*

In our view detailed year-end reporting through an annual report could be provided to staff and Council to outline the achievements of the fire department in meeting the Township's legislative requirements. This includes a focus on the areas of fire prevention and public education. The report could also present trend analysis by including multi-year results of the services and programs provided (such as emergency response statistics). In our experience multi-year analyses of emergency response activities can be beneficial in identifying trends within the Township that may warrant further consideration of the services and programs being delivered.

***Recommendation#5:* That the Fire Chief be directed to prepare and submit to Council a fire department Annual Report that includes an updated Simplified Risk Assessment, and additional multi-year analyses of services and programs provided by the department.**

2.7 Strategic Priorities

The purpose of this Fire Master Plan is to provide Council and senior staff with a strategic framework to assist in making decisions regarding the provision of fire protection services. This 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*.

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

In our experience municipalities are looked upon for their leadership in delivering effective and efficient municipal services, including fire protection. In smaller communities, such as the Township of Whitewater Region, this leadership role must be extended to acknowledge the critical role volunteer firefighters provide in delivering cost effective fire protection services. Where possible the Township should encourage other employers within the municipality to support the role of volunteer firefighters, including supporting their response during working hours.

The analyses within this FMP recognize four strategic priorities for the delivery of fire protection and emergency services within the Township of Whitewater Region including:

1. *That the Township of Whitewater Region assume a leadership role as an employer within the community in supporting its employees and other employers' employees participating as volunteer firefighters including during normal business hours;*
2. *That the Township of Whitewater Region prioritize the delivery of ongoing health and safety training for all members of the fire department*
3. *That the Township of Whitewater Region endorse the optimization of the first two lines of defence; including public education and prevention and the utilization of fire safety standards and enforcement, to provide a comprehensive fire protection program within the Township; and*
4. *That the Township of Whitewater Region endorse strategies that support the sustainability of fire protection services that provide an effective and efficient level of fire protection services resulting in the best value for the community.*

***Recommendation #6:* That consideration be given to approving the strategic priorities identified within the 2017 Fire Master Plan to guide the development and delivery of fire protection and emergency services within the Township of Whitewater Region.**

2.8 Departmental Policies and 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.

Best practices reflect that fire department policies should be guided by and be consistent with any applicable Township policies. Where necessary, department policies should be developed by the Fire Chief in consultation with other applicable Township staff. Department policies should also be formatted to ensure no duplication or conflict with department operating guidelines.

Operating Guidelines (OGs) are commonly used within the fire service to establish a written statement to guide the performance or behaviour of departmental staff, whether functioning alone or in groups. PFSG 04-69-13 *"Co-ordination, Development, Approval and Distribution of Standard Operating Guidelines for Various Disciplines"* (included as **Appendix E**) 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 department staff to research, develop, and draft operating guidelines (OGs) can be a successful model for administering these core documents. This FMP recommends implementing a proposed Operating Guideline Committee to provide leadership in the area of operating guideline development. This committee will be discussed in **Section 3.2.1.** of this plan.

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

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

Our review of existing departmental operating guidelines, as well as the in-progress drafted SOGs, has identified several areas requiring attention with respect to the department's current practices. We understand that there are draft versions of new OGs which have not yet been finalized or approved.

Our review of the current operating guidelines provided by the department identified several areas related to compliance with the OHSA Section 21 Guidance Notes where operating guidelines are not in place. Based on our research the department may have regular practices and procedures in place to attain compliance with these guidance notes, however, approved current operating guidelines were not provided as part of this review. For example, the OHSA **Section 21 Guidance Note #4-9 – Respiratory Protection Program** requires that an employer should develop a respiratory program covering a wide range of elements, such as written records documenting the respiratory program, a proper training program for use of all types of respirators, and a fit testing process. No operating guideline could be found that fully defines the department's current respiratory protection program.

Subject to Council's consideration and approval of this FMP there will be a need to conduct a review of all existing operating guidelines (as well as the drafted, in-progress versions) and, where necessary, complete revisions to the existing or develop additional guidelines or procedures to reflect all levels of service approved by Council. Completing this review will reflect the department's continued priority of

updating policies and guidelines with emphasis on compliance with the OHSA Section 21 Guidance Notes.

In our view, implementation of the proposed Operating Guideline Committee is an effective strategy to enhance the current process for researching, developing and approving department operating guidelines by developing distinct formats for all Department Policies (DPs) and Operating Guidelines (OGs) including a date of approval by the Fire Chief. As previously mentioned, the proposed Operating Guideline Committee will be discussed further in **Section 3.2.1.** of this FMP.

***Recommendation #7:* That all department operating guidelines be reviewed and updated to provide clear direction to all department staff and ensure compliance with applicable OHSA Section 21 Guidance Notes.**

2.9 Stakeholder Engagement Process

The process for completing this Fire Master Plan involved meeting with various municipal administrative staff members, volunteer firefighters and volunteer captains as well as the former fire chief and former deputy fire chief. Effective communication and consultation with stakeholders is essential to the success of the review. It is essential for two reasons; first, information is collected regarding local needs and circumstances which is relevant to this review. The second reason is to ensure that those responsible for implementation and those affected by this review understand the bases on which certain decisions are made and why particular actions are required.

Internal 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 delivery of fire protection services. As well it provides information that is used for the review, analysis and recommendation phases. Engaging internal stakeholders helps to ensure that multiple perspectives can be brought forward and reflected within the review process.

2.9.1 Council Workshop

A Council Workshop session was held with all members of Council as a Special Council Meeting on July 19th, 2017. The intention of the work shop was to provide an overview of the fire master planning process and the municipality's legislative responsibilities. It was also an opportunity to discuss some of the preliminary findings garnered from the station tours and first portion of stakeholder consultation. The workshop was an opportunity for reciprocal learning; with Council learning about the FMP process and receiving a refresher on legislative roles and responsibilities relating to municipal fire service delivery, and the Consultant Team learning about the strengths, weaknesses, opportunities, and constraints of the fire department from Council's perspective.

2.9.2 Interviews with Key Staff and Stakeholders

Information and feedback was collected from key staff and stakeholders via informal interviews. This was an opportunity to gather background information for the environmental scan and input on

strengths, weaknesses, opportunities, challenges and constraints from the point of view of these key staff and stakeholders. This was an essential stage in developing strategic goals and objectives for the review process. The following key staff and stakeholders were interviewed:

- Chief Administrative Officer (CAO) / Clerk
- Treasurer
- Volunteer Fire Chief (in place at the outset of the study)
- Volunteer Deputy Chief (in place at the outset of the study)
- Two Volunteer Captains/Fire Prevention Officers
- Health and Safety Committee Lead / Volunteer Captain
- Township Mechanic

2.9.3 Volunteer Firefighter Stakeholder Session

Volunteer firefighter stakeholder sessions were facilitated on the evenings of July 18th and 19th, 2017. The sessions were well attended by the department's volunteer complement. Attendees contributed to an open discussion designed to gather feedback regarding the strengths, weaknesses, opportunities and challenges of the fire department for consideration in the Fire Master Plan process. Within the feedback provided there was a level of consensus between the volunteers operating from the five stations, which framed the key considerations of the FMP. One such area of consensus amongst the volunteer firefighters was that Whitewater Region Fire Department does not currently operate as a single, unified fire service, but there is a strong desire across the five existing stations to achieve the shared goal of becoming one.

2.9.4 Stakeholder Consultation Summary

The stakeholder sessions were informative in providing an understanding of the current state of the Whitewater Region Fire Department. The majority of the stakeholders have a clear understanding of the history and actions that have led to the current state. From these sessions there seemed to be consensus amongst the stakeholders that the department has reached a critical point where change is not only necessary but must be considered a priority for all stakeholders.

2.9.5 Fire Master Plan Process Recommendations

The FMP process included a review of a variety of the existing by-laws, service agreements, SOGs and policies. It also included a stakeholder engagement process, as outlined above. The recommendations with respect to the Fire Master Plan Process have been informed by the documents reviewed and information gathered during the stakeholder sessions. A summary of the recommendations for this section of this FMP are below:

Recommendation #1: ***That a specific Whitewater Region Fire Department Joint Health and Safety Committee be formed, with employee representatives from all of the stations, as well as a management representative.***

Recommendation #2: ***That the Township prioritize the completion and documentation of delivering of health and safety training for all members of the Whitewater Region Fire Department as referenced within the proposed Fire Master Plan.***

Recommendation #3: ***That subject to consideration and approval of the 2017 Fire Master Plan, the Fire Chief be directed to update the current Establishing and Regulating By-law.***

Recommendation #4: ***That the current automatic aid agreement with the Township of Admaston/Bromley be reviewed and revised to further define the scope of services to be provided by the Township of Whitewater Region.***

Recommendation#5: ***That the Fire Chief be directed to prepare and submit to Council a fire department Annual Report that includes an updated Simplified Risk Assessment, and additional multi-year analyses of services and programs provided by the department.***

Recommendation #6: ***That consideration be given to approving the strategic priorities identified within the 2017 Fire Master Plan to guide the development and delivery of fire protection and emergency services within the Township of Whitewater Region.***

Recommendation #7: ***That all department operating guidelines be reviewed and updated to provide clear direction to all department staff and ensure compliance with applicable OHSA Section 21 Guidance Notes.***

3.0 Administration and Organizational Structure

3.1 Department Administration Staffing

At the time of study initiation the department was overseen by a volunteer Fire Chief and a volunteer Deputy Chief, supported by volunteer Station Captains and volunteer firefighters. Soon after the initiation of the fire master planning process the department experienced some staff changes with the retirement of the volunteer Fire Chief and subsequent resignation of the volunteer Deputy Chief.

The Township then appointed an Interim Fire Chief through a service agreement with the Town of Renfrew. The Interim Fire Chief, supported by a volunteer Acting Deputy Chief, provided management to the department and the fire master planning process while the Township undertook the recruitment and hiring process for a full-time Fire Chief. As of November 2017 the department is managed by a newly hired full-time Fire Chief, with the support of the Acting Volunteer Deputy Chief.

3.2 Department Organizational Structure

Table 2 below outlines the fire department positions and roles. As of November 2017 there is one full-time position in the department (role of Fire Chief) and 74 volunteer positions.

Table 2: **Fire Department Staffing**

Division	Role	# Full-Time Staff (including vacancies)	# Part-Time (including vacancies)
Administration	Fire Chief/CEMC	1 (as of November 2017)	
	Deputy Fire Chiefs		*1 (currently vacant / acting position filled by Volunteer Captain)*
	Administration Assistants		N/A
	Station Captains		5
Fire Suppression / Operations	Acting Deputy Chiefs		*2 (currently filled by 2 Volunteer Captains)*
	Captains		10
	Firefighters		61
Training	Chief Training Officer		*1 (filled by a Volunteer Captain)*
	Training Officers		*15 (filled by Volunteer Captains / Volunteer Firefighters)*
Fire Prevention	Fire Prevention Officers		*2 (filled by Volunteer Captains/Fire Prevention Officers)*
Fleet / Maintenance	Mechanics	(Full-time Township Mechanic)	N/A
	Total Staffing:	***1 (As of November 2017)***	**76**

Each of Whitewater Region's five fire stations is managed by a volunteer Station Captain in charge of the day to day operations of the station with the assistance of the other station volunteer captains and firefighters. In addition a number of the volunteer captains / firefighters take on the role of trainer/facilitators to provide training for the volunteer complement. Two individuals also perform the function of Volunteer Fire Captain/Fire Prevention Officer.

Job descriptions exist for the positions of Fire Chief, Deputy Fire Chief, Senior Officer/Acting Deputy Chief, Station Captain, Captain, Chief Training Officer, Trainer Facilitator, Fire Prevention Officer, however, many of the job descriptions are vague, outdated and require updating to reflect current department staffing and industry best practices. Recognizing that a job may change over time, job descriptions require updating to reflect such changes. Best practice also indicates that skills and qualifications align with the duties that are to be performed by an individual responsible for carrying out a role. Using the example of the current job description for fire prevention officer provided by the Township, it does not specify the requirement to perform fire safety inspections and public education activities, nor does it include the preferred skills, qualification and/or experience to perform the role competently. It is important that job descriptions accurately reflect the needs of the employer while also ensuring job requirements are neutral and non-discriminatory under the Ontario Human Rights Code. Further training and qualification considerations are included in **Section 6.0** of this FMP. Following the adoption of this Fire Master Plan, it is recommended that the department review and update its job descriptions.

***Recommendation #8:* That subject to consideration and approval of the proposed organizational structure new job descriptions be developed for all positions within the WRFD.**

3.2.1 Proposed Organizational Committee Structure

In our experience working with volunteer fire departments across Canada, we have observed successful models of utilizing committees to oversee various organizational needs. In our view there is opportunity within this department to engage an organizational committee structure to improve the effectiveness and efficiency of the department. Under the proposed committee structure, each committee would be chaired by the volunteer Deputy Chief or volunteer senior officer. This structure is intended to provide a necessary link to the full-time Fire Chief. The proposed organizational committees and related structures are proposed as follows:

Proposed Training Committee

Under the leadership of either the volunteer Deputy Chief or one of the volunteer senior officers, the purpose of the proposed Training Committee would be to provide coordinated leadership and oversight of a unified department-wide training program. This committee would include the Chief Training Officer and the trainer/facilitators from each station (who are responsible for delivering the identified training curriculum). The committee initiative would incorporate and include a comprehensive annual training program for the WRFD to provide structure to department training. The roles and responsibilities of the

committee would be to develop the structure and program elements of a training program curriculum, including knowledge-based and practical training, sign-off components, and record keeping. The proposed Training Committee would be required to benchmark department training and follow the principles of NFPA, OHSA, the OFMEM, local policies and procedures and the best practices within the municipal fire service.

Proposed Operating Guideline Committee

The proposed Operating Guideline Committee would be chaired by either the volunteer Deputy Chief or one of the volunteer senior officers. The purpose of this committee would be to provide coordinated leadership and oversight of reviewing and updating all department operating guidelines. This committee would include a representative group of volunteer officers and firefighters from each station. These documents would incorporate and include a comprehensive and overriding operational and administrative structure of the Whitewater Region Fire Department. The proposed Operating Guideline Committee would be required to benchmark and follow the principles of NFPA, OHSA, the OFMEM, municipal policies and procedures and the best practices within the fire service. Further, this Committee would be responsible for ensuring new policies and operating guidelines well as changes to existing policies and operating guidelines are communicated to all fire department personnel.

Proposed Apparatus and Equipment Committee

The proposed Apparatus and Equipment Committee would be chaired by either the volunteer Deputy Chief or one of the volunteer senior officers. The purpose of this committee would be to provide coordinated leadership and oversight of the purchasing, maintenance and operation of all department apparatus and equipment. This committee would include a representative group of volunteer officers and firefighters from each station.

Proposed Fire Prevention/Public Education Committee

Under the leadership of the either the volunteer Deputy Chief or one of the volunteer senior officers and with the assistance of the existing fire prevention personnel, the purpose of the proposed Fire Prevention/Public Education Committee would be to provide coordinated leadership and oversight of a unified fire prevention and public education program that meets the needs and circumstances of the community. In addition to the existing two volunteer Captains who operate as Volunteer Fire Captain/Fire Prevention Officers, this committee would include membership of the volunteer officers and firefighters from each station responsible for delivering fire prevention and public education programs. The structure of the program would incorporate and include the development of a comprehensive and overriding fire prevention program for the WRFD. The committee would also develop the structure and program elements of the fire prevention/public education program based on the Township's Simplified Risk Assessment. The proposed Fire Prevention/Public Education Committee would be required to benchmark and follow the principles of NFPA, OHSA, the OFMEM, municipal policies and procedures and the best practices within the fire service.

***Recommendation #9:* That the proposed Organizational Committee Structure identified within the 2017 Fire Master Plan be implemented as presented.**

3.2.2 Volunteer Firefighter Recruitment and Retention

There are numerous factors affecting firefighter recruitment and retention of 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 increasingly 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 to respond to emergency calls. Financial compensation, although warranted, was not the primary motivation of those seeking to become a volunteer firefighter. Performance expectations, including sustaining training standards, attendance at training sessions, and sustaining minimum response attendance to emergency calls continue to increase the demands municipalities presently place on being a volunteer firefighter. The need for a formal hiring and promotional process and performance evaluation program was recommended in the 2007 Master Fire Plan. Our conversations during the stakeholder engagement process did not suggest any progress has been made in this regard. It is our recommendation that:

***Recommendation #10:* That consideration be given to developing a formal hiring and promotional policy and performance evaluation process for all WRFD personnel in keeping with any Township human resources policies, the Ontario Human Rights Code, Accessibility for Ontarians with Disabilities Act and the Municipal Freedom of Information and Protection of Privacy Act.**

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 external training and conferences. Monetary rewards may include benefits such as insurance coverage or access to other benefit programs that full time Township 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 they 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 the role of a volunteer firefighter more accurately as a ‘part-time’ or ‘paid response’ 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 volunteer 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.[4] Recently, the Canadian Association of Fire Chiefs signed an agreement with the Alberta Fire Chiefs Association to expand their volunteer firefighter recruitment strategy across Canada.

***Recommendation #11:* 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 Whitewater Region.**

3.3 Fire Department Records Management

The current reporting requirements for fire departments are significant, with documentation being a key method of exercising due diligence. Fire records management software can be utilized to incorporate training records, fire safety inspection reports, invoicing, personnel files, Standard Operating Guidelines and provincial incident reporting. This type of software streamlines administrative duties (including training records documentation, which will be discussed in **Section 6.9** of this plan, and can be networked to link stations and municipal offices. Many programs can be customized to work with other municipal programs. Our interactions with fire department and municipal staff indicate that the Whitewater Region Fire Department does not currently utilize a records management system. The need for fire department records management was referenced in the 2007 Master Fire Plan and appears to remain as an issue that has not be addressed. We learned through the stakeholder engagement process that records are stored at various off site locations, which is not in keeping with best practices relating to the collection, retention, use, disclosure and disposal of information under the *Municipal Freedom of Information and Protection of Privacy Act* and municipal records retention policy.

***Recommendation #12:* That the fire department implement a records management system in keeping with the requirements of the Municipal Freedom of Information and Protection of Privacy Act and any municipal records retention policy**.

[4] 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.

3.4 Administration and Department Organization/Staffing Summary and Recommendations

The current organizational model of the Whitewater Region Fire Department has served the department and the community well for many years. In our view this is largely due to the dedication and commitment of the complement of volunteer firefighters.

This FMP reflects an opportunity to assess all of the various activities and programs provided by the Whitewater Region Fire Department, 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 and recommendations of the FMP.

The following recommendation applies to the Department/Organization/Staffing section of this plan:
***Recommendation #8:* That subject to consideration and approval of the proposed organizational structure new job descriptions be developed for all positions within the WRFD.**

***Recommendation #9:* That the proposed Organizational Committee Structure identified within the 2017 Fire Master Plan be implemented as presented.**

***Recommendation #10:* That consideration be given to developing a formal hiring and promotional policy and performance evaluation process for all WRFD personnel in keeping with any Township human resources policies, the Ontario Human Rights Code, Accessibility for Ontarians with Disabilities Act and the Municipal Freedom of Information and Protection of Privacy Act.**

***Recommendation #11:* 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 Whitewater Region.**

***Recommendation #12:* That the fire department implement a records management system in keeping with the requirements of the Municipal Freedom of Information and Protection of Privacy Act and any municipal records retention policy**.

4.0 Emergency Management

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

4.1 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 (ERP) was last updated January 2016. Although the ERP was updated in January 2016, it would appear that the by-law authorizing the Plan (By-law #10-12-457) has not been updated. The Emergency Response Plan should be revised to reflect the roles and positions assigned in 2017 and the by-law updated to reflect the revised version of the plan.

***Recommendation #13:* That Township's Emergency Response Plan and By-law #10-12-457 be updated to reflect the revised roles and positions assigned in 2017.**

4.1.1 Community Emergency Management Organization

The Township's Emergency Response Plan sets out emergency operations and procedures for the Emergency Operations Centre (EOC) and the responsibilities of each individual with a role in the

Community Control Group (CCG). The 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 Township of Whitewater Region's CCG is comprised of specific individuals as listed below (or their alternates):

1. Mayor
2. CAO/Clerk
3. CEMC
4. Public Works Supervisor
5. Environmental Services Manager
6. Chief Building Official
7. Fire Chief
8. Emergency Information Officer
9. Evacuee Services Manager

Additional personnel called or added if necessary:

10. Ontario Provincial Police
11. Field Officer, Emergency Management Ontario
12. County of Renfrew, CEMC, Deputy Chief Paramedic Services
13. Ministry of Natural Resources

While the duties of the above identified positions are detailed in the Emergency Response Plan, there is one role most pertinent to this FMP: Fire Chief. Recently, the Township recruited and hired for the full-time position of full time Fire Chief/CEMC. The ERP will require updating to incorporate the role change.

The Township's Emergency Operations Centre is located at Whitewater Region's Council Chambers, 44 Main Street, Cobden Ontario. It is equipped with a natural gas generator, washrooms and kitchen facilities. It does not have shower facilities.

We were advised by Township staff that in the past there have been communications challenges between the CCG and EMS during previous emergencies. It is anticipated that the newly created position of Fire Chief/CEMC will mitigate this challenge.

4.1.2 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 2016 listed CEMC responsibilities as follows:

a) *Activating the emergency notification system, including set up of the EOC and secretary of regular meetings;*
b) *Providing information, advice and assistance to members of the CCG on Emergency Management programs and principles; also to provide administrative support to the CAO/Operations Officer.*

c) *Providing direction to EOC support staff as required in support of the CCG, and ensure proper operation of the EOC;*
d) *Coordinating activities and deployment of CERV team;*
e) *Maintaining the Emergency Response Plan in accordance with requirements of the Emergency Management Act;*
f) *In conjunction with the CAO, coordinating a post-emergency debriefing and assisting in the development of a final report to Mayor and Council;*
g) *Ensuring a master record of all events and actions taken is maintained (main events board).*
h) *Maintaining a personal log; and*
i) *Participating in the post emergency de-brief sessions.*

It is our understanding that this position has been filled by a variety of people in the past due to staff turnover. While the position is currently held by the Manager of Community Services, it is our understanding a new Fire Chief/CEMC is expected to assume his role effective January 1, 2018. While the Fire Chief assumes the role of CEMC the Deputy Fire Chief can provide on-scene leadership during emergency events.

4.1.3 Role of the Fire Chief

The role of the designated senior fire official during an emergency is outlined within the Emergency Response Plan 2016. These responsibilities of the senior fire official on the CCG include:

a) *Activating the emergency notification system;*
b) *Providing the CCG with the information and advice on firefighting rescue matters;*
c) *Establishing an ongoing communications link with the senior fire official at the scene of the emergency;*
d) *Initiating mutual aid as require (i.e. additional fire fighters, equipment, etc.);*
e) *Determining if additional or specialized equipment is required, i.e. breathing apparatus, protective clothing; and*
f) *Coordinating or providing assistance with rescue, first aid, casualty collection, evacuation, etc.*
g) *Providing an Emergency Site Manager as required.*

The role of the designated Fire Chief reflects an important operational role. The Fire Chief has intimate knowledge of the Township as a whole from the perspective of fire and emergency 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. Typically, the Deputy Fire Chief can assume the operational role.

In a community the size of the Township, the regular roles and responsibilities of senior staff can quite often overlap since there is a limited number of senior staff. For this reason it is recommended that the

position of Alternate CEMC be assigned to someone outside the fire department. 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 is our understanding that a supervisor from the Township's Public Works Department is designated as the Alternate CEMC. The Alternate CEMC can fill the role of CEMC when the Fire Chief is required to assume an operational role at the scene of the emergency event.

4.2 Emergency Management Recommendations

The 2016 Statement of Completion as signed by both the Mayor and Community Emergency Management Coordinator on January 23, 2017 indicates that the Township of Whitewater Region is meeting its legislative requirements for emergency planning. There are however two areas that have been identified through this review that the Township should act upon, these include:

Recommendation #13: ***That Township's Emergency Response Plan and By-law #10-12-457 be updated to reflect the revised roles and positions assigned in 2017.***

Recommendation #14: ***That the Township's current Emergency Plan be updated to include the proposed Community Emergency Management Coordinator (CEMC) and Alternate CEMC presented within the proposed Fire Master Plan.***

5.0 Fire Prevention and Public Education

The minimum requirements of fire prevention and fire safety education programs are outlined within the *Fire Protection and Prevention Act,* 1997 (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 F*** *and* ***G*** respectively) 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 towards optimizing the first two lines of defence are responsible for reducing fire losses and improving the overall level of fire protection within the community.

In our view, strategies that optimize the use of the first two lines of defence 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 Fire Prevention Policy

The components of a Fire Prevention Policy are provided in PFSG 04-45-12 "*Fire Prevention Policy*" (included in **Appendix H**) 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 operating guidelines identifying how, when and where activities will be conducted.*

The existing Fire Prevention and Public Fire Safety Education policy was approved by Council in April 2004. An operating guideline entitled Fire Prevention-Public Education became effective January 2006. Both documents speak to public education material distribution, fire safety inspection frequency and the enforcement of legislation. Neither document provides procedural guidance to ensure these tasks are completed consistently and comprehensively by fire department personnel. It is our recommendation that consideration be given to harmonizing and updating the Fire Prevention and Public Fire Safety Education policy and the Fire Prevention-Public Education operating guideline for currency and consistency. Further, adding the Fire Prevention and Public Fire Safety Education policy to the Establishing and Regulating By-law (once updated) confirms council's commitment to the first two lines of defence while providing direction to those with fire prevention and public education responsibilities.

***Recommendation #15:* That subject to Council's consideration and approval of the 2017 Fire Master Plan, the Fire Chief be directed to update the current Fire Prevention and Public Fire Safety Education Policy and Fire Prevention-Public Education Operating Guideline.**

5.3 Current Staff Resource Plan

The department currently utilizes volunteer firefighters who have completed some additional training in order to deliver the current public education activities and fire inspection program. This staff resourcing model is typical of many smaller communities in Ontario that are similar to the Township of Whitewater Region. Within the WRFD there are currently two Volunteer Captains/Fire Prevention Officers who have been grandfathered to NFPA 1031 Fire Inspector Level I, based on experience. Both of these individuals have also taken training specific to fire safety planning. Our research indicates that the two Volunteer Captains/Fire Prevention Officers have been mentoring two other volunteer firefighters that have expressed an interest in public education and fire inspections.

This staff resourcing model has worked very well for the Township in the past and reflects an example of the dedication that the volunteer firefighters provide. When necessary the department has historically requested support from the OFMEM when a higher degree of technical experience has been required to conduct a fire inspection. This FMP supports the continued use of volunteer firefighters in this area. However, there are requirements for additional training and certification that will need to be provided for these staff to implement the proposed public education and fire inspection activities and programs included within this FMP. The training and certification requirements are presented in the following sections of this plan.

It is our understanding that the newly hired Fire Chief will be responsible for performing fire safety inspections as part of his role. It is understood that he may request assistance from the Volunteer

Captains/Fire Prevention Officers from time to time. This may include inquiries about past inspections or previous interactions with property owners to ensure a smooth transition for both the Township and residents.

5.4 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".*

Information provided by the department outlines the education programs that are delivered by the department including the workload associated with each program. **Table 3** provides a summary of the department's current public education activities.

Table 3: Current Public Education Activities

Focus Demographic	Education Program	Number of Times the program is offered Annually	Estimated Number of Staff Required to Deliver Program	Estimated Number of Hours to Prepare and Deliver Program Once	Estimated Total Number of Hours Annually
Age 0 – 4 (Infant)	No programs specified	N/A	N/A	N/A	N/A
Age 5 – 14 (Youth)	Fire Prevention Week school visits	1	14	50	50
Age 15 – 64 (Adult)	Home show	1	8	2	16
	Fairs	1	4	1	16
	Plowing Match	1	2	3	5
	Fire extinguisher training	1	3	2	5
Age 65+ (Seniors)	Newspaper Public Service Announcements	Not currently tracked	Not currently tracked	Not currently tracked	Not currently tracked
	Older & Wiser	Not currently tracked	Not currently tracked	Not currently tracked	Not currently tracked
	Library visits	As requested	2	3	3

Our consultation with the Volunteer Fire Captains/Fire Prevention Officers in completing this review indicates that although there is recognition of the importance of public education, and some evidence that programs are being delivered, there is minimal evidence to support what level and what specific

programs are consistently delivered across the Township. Fire department personnel spoke to us about utilizing materials provided by Community Safety Net. In our experience, these materials ensure key messages, such as home escape planning and the importance of working smoke alarms are delivered consistently by all fire department personnel. These materials are typically cost effective for fire departments, drawing on the support of local service clubs and businesses.

In our view, public education programs within the Township of Whitewater Region could be enhanced. The development of supporting operating guidelines to promote consistent and targeted fire and life safety messaging is imperative. This direction is reflected in a previous recommendation that indicates that subject to Council's consideration and approval of the 2017 Fire Master Plan that the Fire Chief be directed to draft these documents for approval and implementation.

There is also a need to improve the tracking of delivery of public education materials and required resources. This is another area that could be improved with the implementation of a fire department records management system.

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 a regularly scheduled program and activities (cycles) for providing fire safety education to priority demographics and occupancies identified by the department's Simplified Risk Assessment (e.g. 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 4** reflects the proposed public fire safety education activities and program delivery cycles for occupancy classifications.

At a minimum it is recommended that the WRFD public education activities include the following formalized programs, or approved alternatives supported by defined goals and objectives for each program and report on the number of activities conducted within each program.

- *Alarmed for Life;*
- *Older & Wiser;*
- *Remembering When;*
- *Kitchen Safety;*
- *Risk Watch;*
- *TAPP-C, and*
- *Fire Station Tours.*

In our view these education programs and activities should be further supported by objectives that define a regular delivery cycle for each program based on the results of the Township's Simplified Risk Assessment and occupancy classification as presented in **Table 4.**

Many of the occupancies included in Table 3 are used by persons of all ages, such as residential occupancies which most commonly refers to a person's home be it a house, apartment or private room. Others, such as institutional occupancies are typically occupied by seniors or individuals who are considered vulnerable due to physical or cognitive limitations. The risk of a fire in a mercantile or business occupancy is less and individuals working or using these facilities are typically able to self-evacuate in the event of an emergency.

Table 4: Proposed Public Safety Education Activities and Programs Cycle Objectives

Occupancy Classification (OBC)	Buildings	Proposed Fire Safety Program	Proposed Fire Safety Program Delivery Cycle
Group A – Assembly	Schools, Recreation Centres (Arenas)	Fire drills Community Safety Net presentations	1 – 2 Years
Group A – Assembly	Licensed Properties, Nursery/Day Care Facilities, Churches, Special Occasion Permits	Fire drills Fire extinguisher training	1 – 2 Years
Group B – Institutional	B1 – General	Fire drill scenarios	1 – 2 Years
Group B – Institutional	B-2 & B-3 Long-Term Care and Care Facilities	Fire drill scenarios Staff fire extinguisher training; Older and Wiser	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	Home escape planning Carbon monoxide awareness Smoke alarm program Newspaper Public Service Announcements Tax bill inserts Public events including the Plowing Match, Fairs, Home Show	1 - 2 Years
Group D – Business	Business and Personal Services Occupancies	Fire safety presentations Fire drills	Upon Request
Group E - Mercantile	Mercantile Occupancies	Fire safety presentations	Upon Request
Group F – Industrial	F1 – High Hazard	Fire extinguisher training	Upon Request
Group F – Industrial	F2 – Medium Hazard	Fire extinguisher training	Upon Request

Recommendation #16: ***That subject to consideration and approval of the proposed public fire safety education activities and program cycle objectives by Council, that they be included within the updated Fire Prevention and Public Fire Safety Education Policy.***

5.6 Smoke Alarm, Carbon Monoxide Alarm and Home Escape Planning Programs

The provision of a smoke alarm program and a Carbon Monoxide (CO) alarm program including home escape planning is a legislated responsibility of the Township. In our experience achieving compliance with the Provincial smoke alarm requirements has been a challenge for many 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.

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 15, 2015 homeowners and property owners/tenants in buildings that contain no more than six suites must also 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.

A Smoke Alarm Survey Synopsis prepared by W. A. (Bill) Bowles Consulting Services in 2006, indicates 40.9% of homes in the Township use wood as a primary or secondary source of heat. This statistic suggests the importance of a public education program specific to woodstove and chimney safety in addition to smoke alarm, carbon monoxide detection and awareness and home escape planning. The 2007 Master Fire Plan recommended maintaining the home smoke alarm program.

Through the stakeholder engagement process we learned at one time the WRFD offered a smoke alarm program to residents but that program has been discontinued. Support for reviving the program was indicated during interviews with fire prevention personnel and during the stakeholder sessions with the volunteer firefighters.

In our view this analyses is a further example of the existing gap in the department's ability to accurately define, and report on the public education services and programs required.

Some jurisdictions have been successful in securing partnerships local insurance brokers or other corporate sponsors interested in donating smoke/carbon monoxide alarms. This option could be explored should the costs associated with a door to door campaign be considered prohibitive. Consideration could also be given to modifying the program, whereby alarms are made available at the fire halls or municipal offices during fire prevention week or at public events like fairs or the home show, leaving the onus of installation on the resident rather than fire department. This option eliminates the staffing costs of a door-to-door campaign, but may present challenges for seniors and those with physical limitations. Other fire departments have opted to sell smoke/carbon monoxide alarms at low cost to residents, installing alarms only when requested.

This review recommends that the Fire Chief be directed to develop the required public education operating guidelines and procedures to support the Township's compliance with the Fire Prevention and Protection Act (1997), and that these documents be utilized to inform Council in considering the updated Fire Prevention and Public Fire Safety Education Policy and Fire Prevention-Public Education Operating Guideline.

***Recommendation #17:* That the Fire Chief be directed to develop an Operating Guideline describing the goals, objectives and requirements of the department's Smoke Alarm/Carbon Monoxide Program, and that this program be included in the updated Fire Prevention and Public Fire Safety Education Policy.**

5.7 Current Fire Inspection Program

Fire Safety Inspections are performed on "regular and continuous basis" according to the existing Fire Prevention-Public Education Operating Guideline, with the exception of schools and vulnerable occupancies which are inspected annually. Introducing appropriate enforcement options complemented with a proactive inspection cycle would enhance the Township's approach to the first two lines of defence.

Table 5 identifies the current goals and objectives for the frequency of fire inspections within the Township of Whitewater Region.

Table 5: Current Fire Inspection Goals and Objectives

Occupancy Classification (OBC)	Buildings	Current Fire Inspection Frequencies
Group A – Assembly	Schools	Annually
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

This FMP includes proposed goals and objectives for the delivery of a proactive fire inspection program based on the findings of the Township's Simplified Risk Assessment that supports the proposed **Strategic Priority** identified within this FMP, including:

The optimization of the first two lines of defence; including public education and prevention and the utilization of fire safety standards and enforcement, to provide a comprehensive fire protection program within the municipality.

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 known as care, care and treatment and retirement homes.

Compliance with this new regulation will be achieved through a multi-pronged strategy including mandatory inspections and fire drills as well as upgrades to existing buildings. The installation of automatic sprinkler systems in such occupancies is also a mandatory requirement of this new legislation.

The proposed fire inspection program within this FMP includes the legislative requirement for conducting fire inspections in vulnerable occupancies on an annual basis. Of importance to the fire inspection process is that a member of the fire department witness the required annual fire drill scenario and perform a mandatory fire safety inspection using the Annual Checklist. This is deemed to be minimum requirements of completing the legislative inspection requirements for vulnerable occupancies.

***Recommendation #18:* That the existing Operating Guideline be developed to clearly present the requirements for conducting a fire inspection in a vulnerable occupancy as referenced within the proposed Fire Master Plan.**

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 Ontario Fire Code) in situations where achieving compliance has or may be difficult to achieve.

***Recommendation #19:* That Public Fire Safety Guideline OFM-TG-01-2012 regarding inspections and enforcement be considered when updating the Fire Prevention and Public Fire Safety Education Policy and Fire Prevention-Public Education operating guideline 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 emergency services with an understanding of the protocols to be utilized in the event of an emergency incident. 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):

- *assembly occupancy;*

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

The Chief Fire Official (i.e. Fire Chief) is required by the fire code to approve the fire safety plans for the occupancies listed above when the building is first occupied and on an ongoing basis. If Fire Safety Plans are to be reviewed and approved by someone other than Fire Chief, delegation of the Chief Fire Official designation for the purpose approving fire safety plans should be in writing. The current Fire Prevention Policy does not refer to the review and approval of fire safety plans. Within the process to update the current Fire Prevention and Public Fire Safety Education Policy is recommended that consideration be given to referencing the role of the fire department in reviewing and updating Fire Safety Plans.

***Recommendation #20:* That the Fire Prevention and Public Fire Safety Education Policy be updated to include requirements for conducting Fire Safety Plan review and approval.**

5.11 Proposed Fire Inspection Program

Based on an analysis of the Simplified Risk Assessment and the new Ontario Regulation 150/13, revised fire inspection goals and objectives 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 WRFD 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. For more complex fire safety inspections and/or those requiring approvals by the Chief Fire Official (e.g. vulnerable occupancies) the Fire Chief may choose to be involved or delegate his authority to one or more of the individuals already participating in fire safety inspections

Table 6 identifies the proposed goals and objectives for conducting fire inspections within the Township of Whitewater Region based on the Township's current Simplified Risk Assessment.

Table 6: Proposed Fire Inspection Goals and Objectives

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	Annually	Annually
Group A – Assembly	Licensed Properties, Nursery/Day Care Facilities, Churches, Special Occasion Permits	Annually/Upon Request/Complaint or Prior to Licensing	Upon request/complaint
Group B – Institutional	Nursing homes, Homes for Special Care	Annually	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	Upon request/complaint Smoke Alarm Program
Group D – Business	Business and Personal Services Occupancies	Upon Request/Complaint	Upon request/complain
Group E - Mercantile	Mercantile Occupancies	Upon Request/Complaint	Upon request/complaint
Group F - Industrial	Factories and Complexes	Upon Request/Complaint	2 – Years

The proposed fire inspection goals and objectives reflect the results of the current Simplified Risk Assessment and 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.

Recommendation #21: ***That subject to the consideration and approval of the proposed fire inspection goals and objectives by Council that they be included within the updated Fire Prevention and Public Fire Safety Education Policy.***

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 department can request assistance from the OFMEM to conduct

these investigations. The criteria and process for this request are contained within Fire Marshal's Directive 2015-02.

The Fire Protection and Prevention Act explains the duty of the Fire Marshal to investigate the origin, cause and circumstances of any fire or explosion he/she determines appropriate. In order to carry out this duty, fire departments across the Province are required to report the details of certain fires to the Office of the Fire Marshal and Emergency Management by contacting the Provincial Emergency Operations Centre (PEOC). Fires that must be reported include:

- Fires resulting in a fatality or serious injury requiring admission to hospital;
- Explosions;
- Fires of any size that occur in a vulnerable occupancy;
- Suspected incendiary fires requiring expert investigative assistance to determine origin, cause or circumstance;
- Large loss fires (over $500,00) or significant loss to community;
- Usual origin or circumstance require expert investigative assistance to determine origin, cause or circumstance;
- Unusual smoke or fire spread
- Fires which may cause widespread public concern (e.g. environmental impact);
- Fires in multi-unit residential occupancies, which have spread beyond the unit of origin or where Ontario Fire Code violations have impacted the event;
- Clandestine drug or marijuana grow ops;

Not all calls to the PEOC will result in an OFMEM investigator being assigned to an investigation due to available resources.

As part of updating the current Fire Prevention Policy consideration should be given to reviewing the OFMEM's current requirements for fire origin and cause determination. Once this is complete a department Operating Guideline should be developed and implemented to reflect the intent of the policy. It is recommended that the OG 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 Simplified Risk Assessment:*
- *The required training to be an WRFD fire investigator;*
- *The documentation and filing procedure for fire investigations, prosecutions, and litigations; and*
- *Clear direction for when an OFMEM Investigator must be notified.*

Recently a partnership between the OFMEM and Laurentian University was announced which offers a four course program leading to Specialization in Fire Scene Management and Investigation. The courses

are offered in an e-learning format and are fully recognized by the OFMEM's Academic Standards and Evaluation Unit as well as IFSAC and ProBoard. The courses offered include: Scientific Inquiry and Fire Scene Management; The Law and Fire Scene Management; Fire Scene Investigation; and a 40 hour practicum, which is offered in an intense one week format at locations throughout the Province. Due to the e-learning format of these courses, this may be an option for consideration, perhaps in partnership with neighbouring departments in Renfrew County that may also be interested in the program. If there is enough interest, it may be possible to bring the practicum component to a location within the County.

Recommendation #22: That following the proposed update of the current Fire Prevention Policy the Fire Chief develop a department Operating Guideline for fire investigations, including origin and cause determination and the training and accreditation required to conduct investigations.

5.13 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 WRFD in this area. To implement the proposed public education programs and enhanced fire inspection program proposed within this FMP will require consideration of the current staff resource plan. This should include a review of the skills and competencies, and certification of the staff resources assigned to this area.

This FMP 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 7 summarizes the different fire inspector designations included within the NFPA 1031 standard.

Table 7: 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, which we understand was included as a preferred qualification in the Fire Chief/CEMC job posting.

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

Table 8: 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 the proposed Fire Prevention/Public Education Resource Plan. Our interpretation of the standard suggests at least one individual should be qualified to NFPA 1035 Level I and one individual to Level II. The Whitewater Region Fire Department does not currently have any personnel with NFPA 1035 Fire & Life Safety Educator qualifications.

Table 9 summarizes the proposed staff resource plan to achieve the proposed fire inspection and public education performance levels presented within this FMP.

Table 9: Staff Resource Plan for Fire Prevention / Public Education

Staff Resource	Staff Resource Plan
1 full-time fire chief	Ensure the Chief Fire Official has completed a course acceptable to the Fire Marshal as per OFC Div. C Sentence 1.2.4.2(1). Fire Chief to be qualified to NFPA 1031 Fire Inspector Level II and NFPA 1035 Level II. The Fire Chief will be responsible for performing fire safety inspections, but may request the assistance of the existing Volunteer Captains/Fire Prevention Officers to request information regarding previous inspections to ensure smooth transition for both the Township and residents.
2 existing Volunteer Captains/Fire Prevention Officers	Continue to enhance the capacity of the existing Volunteer Captains/Fire Prevention Officers through ongoing training opportunities outlined below. Encourage the mentorship of the two additional mentees previously identified. Ensure existing inspectors are designated as Assistants to the Fire Marshal. If fire inspectors are responsible for approving fire safety plans, etc., ensure this authority has been formally delegated and they have successfully completed course acceptable to the Fire Marshal. Require existing inspectors to complete NFPA 1035 Fire & Life Safety Educator Level II training. While the existing Volunteer Captains/Fire Prevention Officers will no longer be responsible for day to day inspections within the Township, their experience and local knowledge will be valuable in providing assistance to the Fire Chief.
2 volunteer firefighters as prevention mentees	Continue to provide for the mentoring of two fire inspectors, and provide training for NPFA 1031 Fire Inspector Level I and NFPA 1035 Fire & Life Safety Educator Level I. This mentorship of these individuals and on-going training is valuable from a depth of knowledge and succession planning perspective.

The importance of competent inspectors is a challenge faced by fire departments across the Province, and is not specific to the Township of Whitewater Region as highlighted in a recent Coroner's Inquest that examined the circumstances surrounding the tragic loss of life of three teenagers in Whitby and a family of four in East Gwillimbury, as previously mentioned in **Section 1.3.4** of this FMP. The jury recommended mandatory training and certification for fire department personnel conducting fire safety inspections.

Both Volunteer Captains/Fire Prevention Officers have been granted equivalency under the grandfathering process to NFPA 1031 Fire Inspector Level I, based on experience. It is our understanding that two other individuals within the volunteer firefighter complement have expressed interest in fire prevention and are currently being mentored by the existing inspectors. The following courses would enhance the capacity and competency of the inspectors: Effective Inspections for Commercial Cooking Equipment, NFPA 1033 Fire Investigator, NFPA 1035 Fire & Life Safety Educator, Courtroom Procedures, OFMEM workshops on Fire Safety Planning/Fire Safety Inspection Orders as well as Part I Procedures.

Individuals responsible for performing fire safety inspections are required to be identified as Assistants to the Fire Marshal by the OFMEM. Our research indicates three individuals have been named as Assistants to the Fire Marshal for the Whitewater Region Fire Department, however, recent staff changes require this information be updated. Further, it is our understanding that the expertise of the local OFMEM Inspection and Enforcement Unit Specialist is drawn on frequently by WRFD fire

prevention personnel. We would encourage department personnel to continue to liaise with the OFMEM as appropriate, while also building internal prevention skills, currency and capacity through ongoing training and education offered at the Ontario Fire College, Regional Training Centres and locally hosted workshops offered from time to time by the OFMEM.

Recommendation #23: ***That consideration be given to implementing the staff resource plan identified within the proposed 2017 Fire Master Plan to achieve the fire inspection and public education performance levels recommended.***

Recommendation #24: ***That the Township ensure all individuals performing fire safety inspections be designated as Assistants to the Fire Marshal and that those responsible for approving certain elements of the Ontario Fire Code be formally delegated the authority of Chief Fire Official for those purposes.***

5.14 Fire Prevention/Public Education Division Summary and Recommendations

Analysis of the current fire prevention and public education activities and programs provided by the WRFD indicates that the Township has actively performed fire safety inspections and engaged the community through a variety of public education opportunities, including school visits and participation at local events. These activities provide evidence of the commitment of the volunteers to serve both those who live in and those who visit the Township of Whitewater Region. The WRFD has however been challenged to maintain a smoke alarm program within the community.

The recommendations within this proposed FMP for enhancing the fire prevention and public education activities and programs currently being delivered by the WRFD 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 of fire protection services that provide the most value to the community.

Regarding the department's Fire Prevention and Public Education services, it is recommended that:

Recommendation #15: ***That subject to Council's consideration and approval of the 2017 Fire Master Plan, the Fire Chief be directed to update the current Fire Prevention and Public Fire Safety Education Policy and Fire Prevention-Public Education Operating Guideline.***

Recommendation #16: ***That subject to consideration and approval of the proposed public fire safety education activities and program cycle objectives by Council, that they be included within the updated Fire Prevention and Public Fire Safety Education Policy.***

Recommendation #17: ***That the Fire Chief be directed to develop an Operating Guideline describing the goals, objectives and requirements of the department's Smoke Alarm/Carbon Monoxide Program, and that this program be included in the updated Fire Prevention and Public Fire Safety Education Policy.***

Recommendation #18: ***That the existing operating guideline be developed to clearly present the requirements for conducting a fire inspection in a vulnerable occupancy as referenced within the proposed Fire Master Plan.***

Recommendation #19: ***That Public Fire Safety Guideline OFM-TG-01-2012 regarding inspections and enforcement be considered when updating the Fire Prevention and Public Fire Safety Education Policy and Fire Prevention-Public Education operating guideline for consideration and approval by Council.***

Recommendation #20: ***That the Fire Prevention and Public Fire Safety Education Policy be updated to include requirements for conducting Fire Safety Plan review and approval.***

Recommendation #21: ***That subject to the consideration and approval of the proposed fire inspection goals and objectives by Council that they be included within the updated Fire Prevention and Public Fire Safety Education Policy.***

Recommendation #22: ***That following the proposed update of the current Fire Prevention Policy the Fire Chief develop a department Operating Guideline for fire investigations, including origin and cause determination and the training and accreditation required to conduct investigations.***

Recommendation #23: ***That consideration be given to implementing the staff resource plan identified within the proposed 2017 Fire Master Plan to achieve the fire inspection and public education performance levels recommended.***

Recommendation #24: ***That the Township ensure all individuals performing fire safety inspections be designated as Assistants to the Fire Marshal and that those responsible for approving certain elements of the Ontario Fire Code be formally delegated the authority of Chief Fire Official for those purposes.***

6.0 Fire Department Training

Dillon's experience and knowledge of the Ontario fire service indicates that fire department 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 high priority for municipalities in their role as employer; as fire service leaders; and as supervisors.

Under the direction of the former Fire Chief, the current volunteer Chief Training Officer was responsible for ensuring that all WRFD personnel received 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). A further eighteen volunteers assisted with training at the five WRFD stations.

During the stakeholder engagement process with the volunteer firefighters it was evident that there are a number of gaps and challenges regarding department training. The volunteers relayed concerns related to the level of training, lack of consistency across the department, lack of joint training between the five stations, limited access to training resources, inconsistent training records, and lack of live fire training. These concerns will be addressed in more detail later in this section and in Section 7 of this FMP.

Our research indicates that the current volunteer Chief Training Officer is qualified to NFPA 1041 Level II, the recommended training requirement for anyone responsible for delivering and preparing lesson plans. Seventeen other fire department personnel are qualified to NFPA 1041, Level I, recommended for those delivering training sessions, but not responsible for preparation of the training materials.

It is our understanding that the newly hired full time fire chief has experience and is qualified to design and deliver firefighter training as well. We have been advised that the new fire chief will be responsible for overseeing the development and delivery of training programs for WRFD personnel.

6.1 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 developed the Ontario Fire Services Standards (OFSS). 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 10** reflects the results of the comparative analysis between the previous OFSS and the representative NFPA Standards.

Table 10: 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

6.1.1 OFMEM Grandfathering Process

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 11** reflects the OFMEM's determination of equivalency between the previous OFSS and the representative NFPA Standards.

Table 11: 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 communique WRFD had until December 31st, 2015 to apply for the grandfathering policy of the new NFPA standards. The OFMEM grandfathering process required the fire chief, or other designated municipal official, to submit applications for each individual seeking grandfathered equivalency. The application attested to the individual's knowledge, gained through taking courses recognized by the OFMEM, or experience, with a threshold of a five year minimum. Our research indicates that a total of twenty-four applications were submitted to the OFMEM by the WRFD for consideration of equivalency. It is important to note that some applicants applied for and received equivalency for more than one standard. The WRFD did not submit any applications related to the NFPA 1035 Public Information Officer, NFPA 1035 Fire and Life Safety Educator or NFPA 1031 Inspector Level II.

This research is of importance to this fire master planning process as it indicates that approximately only one third of the department's volunteer firefighters applied for equivalency with the new NFPA training standards. The results of the grandfathering process are also concerning in that only two of the department's volunteer firefighters were granted equivalency with either NFPA 1001 or 1002 standards representing the training required for basic firefighting. Although other volunteer firefighters applied for, and were granted equivalencies such as the NFPA 1021 Fire Officer I their applications did not also request equivalency for the NFPA 1001 standard which is the required prerequisite. As a result many of the WRFD personnel may be required to complete additional training in order to be deemed qualified under the new NFPA standards.

Table 12 provides a summary of the grandfathered equivalencies that were granted:

Table 12: Summary of WRFD Grandfathered Equivalencies

		OFMEM Grandfathering Granted	
NFPA Standard	Number of Applications	Equivalency based on *knowledge*	Equivalency based on *experience* (minimum five years)
NFPA 1041 Fire Service Instructor Level I	17	16	1
NFPA 1041 Fire Service Instructor Level II	1	1	0
NFPA 1021 Fire Officer Level I	13	3	10
NFPA 1021 Fire Officer Level II	1	1	0
NFPA 1031 Fire Inspector Level I	2	0	2
NFPA 1001 Fire Fighter Level I	2	0	0
NFPA 1001 Fire Fighter Level II	1	1	0

NFPA standards are intended to be a path to qualification. This means that a firefighter must meet prerequisites before enrolling in subsequent courses to be qualified before being eligible to pursue other NFPA standards, and later, to become certified (where certification is relevant). For example, if a firefighter has not been grandfathered to NFPA 1001 Level II, but has been grandfathered to NFPA 1021, he or she will not be able to certify to the higher standard without first certifying to NFPA 1001 Level II. This does not mean the firefighter is unable to train. It does mean that the firefighter may have to take (or re-take in some cases) additional training courses.

The grandfathering process placed the onus on the municipality to ensure the information submitted to the OFMEM was comprehensive and accurate. Our research indicates that a sampling of municipal fire department's applications was audited by the OFMEM however the Whitewater Region Fire Department was not included in this audit. Because the deadline for grandfathering has now passed, no further grandfathering equivalencies will be granted by the OFMEM.

6.1.2 Firefighter Certification

In addition to the transition to the NFPA standards, fire departments in Ontario now have the opportunity to consider certification. This is currently an optional process that may be considered following the completion of the qualification process. The certification process is governed by the International Fire Services Accreditation Congress (IFSAC) and Pro Board Fire Service Professional Qualifications System with the OFMEM as the certifying organization in Ontario.
In many cases, successful qualification to an NFPA standard for the knowledge portion requires a 60% score and the ability to satisfactorily demonstrate skills described in the standard. For certification, the knowledge score requirement is typically 70%, making it a more stringent evaluation of training and skills development. Determining the type of training or standards (e.g. IFSTA, Jones and Bartlett or others) to be used and whether to qualify or certify staff are all considerations for the fire department.

It is important to note that while at this point neither qualification nor certification are required by legislation, recent inquests involving issues with fire prevention and firefighter training have highlighted the importance of qualification and certification as industry best practices. In our view it is reasonable for a municipality to anticipate and prepare for new regulations aimed to introduce legislative requirement for fire department staff including volunteer firefighters to train and certify to NFPA standards.

6.2 Comprehensive Annual Training Program

In our view the NFPA standards identified should form the basis of a new comprehensive annual training program for all firefighters and officers within the WRFD.

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.

Recommendation # 25: ***That the Whitewater Region Fire Department 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 2017 Fire Master Plan.***

6.3 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”.

Through the stakeholder engagement process we learned that live fire training sessions had been included as part of WRFD training program in the past through partnerships in Renfrew County, but have not occurred in recent years. A number of volunteers expressed interest in this and other training.

The WRFD does not have a dedicated training center with the facilities capable of providing this type of training. In our view the Township should consider a strategy of investigating partnership opportunities for live fire training with private sector, other public sector services and neighboring jurisdictions. Some areas of the province have collaborated to purchase and operate Mobile Training Units (MTU), providing local live fire training opportunities. Another option worth consideration would be investigating the possibility of engaging with Ottawa Fire Services to discuss rental use of their fire training facility.

Recommendation #26: ***That the Township of Whitewater Region investigate both public and private sector opportunities to use existing training facilities in the area.***

6.4 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 location of receiving the training, as they can be accessed from the fire station, at home or a location with internet access. 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. The program also maintains a record of the courses completed. Used in conjunction with a fire department records management system, as discussed in **Section 3.3** of this plan, an FLMS provides a documented training record for all fire department personnel. These courses can be self-delivered or supervised and delivered by qualified instructors.

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 WRFD 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.

Supporting online training at the stations would require the acquisition of at least one computer for each fire station and the provision of internet capabilities at all fire stations.

***Recommendation #27:* That the Whitewater Region Fire Department consider further use of an online firefighter training program as a component of delivering the proposed comprehensive annual training program.**

6.5 Specialized Training Programs

In addition to basic firefighting training, when fire departments are considering the delivery of other emergency services they must also consider the training needs associated with these 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.
Specialized services can include the following:

- *Medical Responses;*
- *Motor Vehicle Extrication;*
- *Ice/Water Rescue;*
- *Confined Space Rescue;*
- *Slope/High Angle Rescue;*
- *Trench Rescue; and*
- *HAZMAT Response.*

Each of these specialized emergency responses 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.

Where the need for these services is identified through the Simplified Risk Assessment, the level of services (awareness, operational or technical) should be identified and included within the Establishing and Regulating By-law to authorize the department's delivery of these services.

Based on our review of the department's current Simplified Risk Assessment and previous year's emergency calls the department should be focusing on the following specialized services and capabilities:

- *Motor Vehicle Extrication - Operational including Heavy Hydraulics*
- *Ice/Water Rescue – Water and Shore Based Rescue Operations*
- *Confined Space Rescue – Awareness Level*
- *Slope/High Angle Rescue – Awareness Level*
- *Trench Rescue – Awareness Level*
- *HAZMAT Response – Awareness Level*

Consideration should be given to identifying other options, such as implementing agreements with neighboring communities or the private sector to include any services required above the awareness level of those identified.

***Recommendation #28:* That the Township of Whitewater Region further consider the areas of specialized services to be provided by the Whitewater Region Fire Department for consideration and approval by Council and inclusion within an updated Establishing and Regulating By-law.**

***Recommendation #29:* That the Township of Whitewater Region review other options, such as implementing agreements with neighbouring communities or the private sector to include any specialized services required above the "awareness" level of those identified within the 2017 Fire Master Plan.**

6.6 Company Officer Training

Today's fire service continues to be a paramilitary organization that relies on a rank structure to manage the roles and responsibilities of the organization and the operational services it delivers. As presented within this FMP the organizational 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 Whitewater Region is legislated by this section of the OHSA to ensure that all supervisors, which includes the role of incident commander, be competent.
The OHSA defines a "competent person" to mean a person who:

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

Our review indicates that there is currently no defined Company Officer Training program within the WRFD. The WRFD has traditionally supported additional Company Officer training opportunities, such as those offered by the Ontario Fire College in Gravenhurst, and as previously mentioned, thirteen individuals have received grandfathered equivalency to NFPA 1021 Level I and an additional individual has been grandfathered to Level II. A more accessible option due to proximity would be to consider participating in training offered at the Leeds Thousand Island Emergency Services Training Centre, located in Lyndhurst, Ontario. This facility has been recognized by the OFMEM as a Regional Training Centre, providing the same courses as those offered at the OFC in Gravenhurst.

***Recommendation #30:* That the Whitewater Region Fire Department enhance the training opportunities for Company Officers to achieve the competencies identified within the new NFPA 1021 Standard – Level II for Company Officers.**

6.7 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 (i.e. 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.*

While operating guidelines labelled "Incident Command Accountability ", "Incident Command-Sectors" and "Incident Command- Entering Upon Premises" have been drafted, we learned through interviews with key stakeholders that the guidelines are not followed consistently. We were told about incidents where accountability was absent or incident command was ignored. In our view operating guidelines should be drafted to reflect the strategies contained within the **OHSA Section 21 Firefighters Guidance Note #2-1 – Incident Command**, particularly in the area of developing an "Incident Action Plan" at an emergency incident scene.

***Recommendation #31:* Whitewater Region Fire Department draft and implement an operational guideline specific to Incident Command as presented within the 2017 Fire Master Plan.**

6.7.1 Incident Command Training Programs

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 throughout Ontario. It is an example of an Incident Command Training Program that could be considered by WRFD.

Recommendation #32: ***That the Whitewater Region Fire Department consider adoption of an Incident Command Training Program (such as the Blue Card Fire Command Training Program) as a component of the Company Officer Training, and proposed Comprehensive Annual Training Program.***

6.8 Volunteer Firefighter Training Attendance

The requirements for volunteer firefighters to participate in the department's training program are described in a few departmental documents. The job description for the role of firefighter states the following with respect to training attendance:

(a) *The majority of any firefighter's time is not spent on actual firefighting, rescue or general duties, but in training. The vast amount of knowledge required for a volunteer or career department is to safely conclude any incident; which requires firefighters to be up to date with current methods and means.*

(b) *Firefighters depend on each other and work as a team. Members that do not attend training sessions are a risk to themselves and fellow firefighters.*

(c) *It is the responsibility of each individual to consult with any Station Captain or Trainer Facilitator on training that has been missed. Commitment to the Department is a commitment to yourself, fellow members, and the community.*

(d) *Chronic absence from functions without undue reason will result in dismissal from service, as per Whitewater Policy.*

(e) *The position requires time and dedication. It is understood that members have lives and jobs, but it is not unreasonable to expect some commitment.*

The Operational Guideline entitled "Training" sets out the following requirements for training attendance:

(a) *Attendance at fire department training sessions is required to maintain current levels of firefighting methods and techniques and the implementation of Whitewater directives.*

(b) *Members that do not keep up to date with operations and training may become a danger to themselves, as well as other members of this department.*

(c) *After three (3) missed training sessions, without cause, his/her respective Captain(s) will interview that firefighter as to the reason(s) for their absence and report the findings to the Deputy Chief. If the findings are not favourable, the Deputy Chief may recommend to the Fire Chief that the said firefighter's name be submitted to the Fire Committee for termination.*

The departmental form entitled "Attendance" includes the following statement:

(a) *As a member of the Whitewater Region Fire Department, you have agreed to comply with the Standard Operating Guidelines, a copy of which is available for your review. Accordingly, the Guideline states as follows: Any Firefighter or Officer who has missed more than three (3) training sessions without cause, shall be asked to explain his/her absence at the request of the Station Captain."*

Our review of these documents indicates a gap whereby a volunteer firefighter may not sustain 100% of the required minimum training required to maintain compliance with OHSA requirements, and the new NFPA training standards. A Comprehensive Annual Training Plan consistent across the entire department would provide those individuals who may miss a training session at their home station with the opportunity to make up the missed session at one of the other stations. Further, those struggling with a particular evolution would also have the opportunity attend an additional training session for further assistance at one of the other stations.

***Recommendation #33:* That Township policies referring to Volunteer Firefighter minimum training/attendance be revised to ensure that within any calendar year a Volunteer Firefighter is required to complete 100% of the department's minimum training standard.**

6.9 Training Records

The status of volunteer firefighter training records has been consistently identified by department stakeholders during this review as an area of concern.

OHSA ***Section 21 Guidance Note #7-3 – Documentation of Training plus Daily Training Report*** requires a municipality to complete accurate records of all training. Training records are to identify the objectives of the training program in relation to the level of service being provided. Under *Section 54 (1) (p) of the Occupational Health and Safety Act*, a Ministry of Labour Inspector may require an employer to produce documentation that training has been provided to workers.

Our research as part of this review could not identify a department operating guideline, or policy containing the training record requirements and procedures of the Whitewater Region Fire Department. Training records were provided for a sampling of 12 volunteer firefighters. The records provided suggest that training documentation has been a challenge for the WRFD. The challenge was also referenced in the 2007 Master Fire Plan. We discuss fire records management in **Section 3.3** and on-line learning in **Section 6.4** of this plan.

In our view developing and implementing a guideline or policy for training records should be considered a priority.

***Recommendation #34:* That the Fire Chief be directed to develop a department Operating Guideline defining the goals, objectives and procedures for completing and collecting firefighter training records as required by the Occupational Health and Safety Act.**

6.10 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 skills, competencies and certifications should also be considered a priority of this FMP. **Table 13** summarizes the different instructor levels included within the NFPA 1041 standard.

Table 13: 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. It is Dillon's interpretation of the NFPA 1041 standard that the Township of Whitewater Region should have at least one staff resource with the Instructor Level II accreditation.

Table 14 summarizes the proposed staff resource plan to achieve the proposed comprehensive training program.

Table 14: 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.
Instructor II	It is recommended that the Volunteer Training Officer position be assigned to coordinate the delivery of the proposed comprehensive training program. This position should have the Instructor Level II certification. It is also recommended that the proposed Instructor Level II be allocated eight hours per week to research, develop, schedule and assist in the delivery of the proposed comprehensive training program.

The WRFD represents a fire department consisting of 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,* our review indicates that the proposed additional staff resources are required. In our view, the proposed training staff resource plan is consistent with and reflects the membership of the proposed Training Program Development Committee. Under the leadership of the volunteer Deputy Chief or volunteer District Chief and including the Volunteer Training Officer and Volunteer Instructors, the proposed Training Program Development Committee would be responsible to research, develop and oversee the delivery of the proposed comprehensive annual training program.

There are currently seventeen WRFD members who hold grandfathered equivalency to NFPA 1041 Level I, qualifying them to deliver training programs. The Volunteer Chief Training Officer has been grandfathered to NFPA 1041 Level II, qualifying him to develop and deliver training programs. We understand the qualifications of the newly hired full time fire chief will augment the existing training capabilities of the Whitewater Region Fire Department. It is our opinion that this complement is sufficient to develop and deliver the comprehensive annual training program for the Whitewater Region Fire Department.

Recommendation #35: That the proposed training staff resource plan contained within the 2017 Fire Master Plan be considered for implementation.

6.11 Firefighter Department Training Recommendation Summary

A number of challenges specific to firefighter training were identified as part of the 2007 Master Fire Plan and remain outstanding today. Those outstanding training challenges include:

- Inconsistent fire department training program for all fire department personnel;
- Absence of a functioning accountability system;
- Lack of basic firefighter training; and
- Lack of training records management system.

We identify the following issues as further training challenges:

- Insufficient company officer training program, and specifically Incident Command training;
- Lack of Health and Safety Awareness training and Supervisory training under the Occupational Health and Safety Act, as identified in Section 2.3 of this FMP; and
- Absence of clear Operating Guidelines.

While some of the challenges respecting fire department training will be addressed as recommendations within this section, others are more appropriately addressed as part of Section 7 in this report.

The following recommendations take into consideration industry best practices, standards and information learned through the stakeholder consultation process as well as a review of existing training documentation.

Recommendation # 25: ***That the Whitewater Region Fire Department 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 2017 Fire Master Plan.***

Recommendation #26: ***That the Township of Whitewater Region investigate both public and private sector opportunities to use existing training facilities in the area.***

Recommendation #27: ***That the Whitewater Region Fire Department consider further use of an online firefighter training program as a component of delivering the proposed comprehensive annual training program.***

Recommendation #28: ***That the Township of Whitewater Region further considers the areas of specialized services to be provided by the Whitewater Region Fire Department for consideration and approval by Council and inclusion within an updated Establishing and Regulating By-law.***

Recommendation #29: ***That the Township of Whitewater Region reviews other options, such as implementing agreements with neighbouring communities or the private sector to include any specialized services required above the "awareness" level of those identified within the 2017 Fire Master Plan.***

Recommendation #30: ***That the Whitewater Region Fire Department enhance the training opportunities for Company Officers to achieve the competencies identified within the new NFPA 1021 Standard – Level II for Company Officers.***

Recommendation #31: ***Whitewater Region Fire Department draft and implement an operational guideline specific to Incident Command as presented within the 2017 Fire Master Plan.***

Recommendation #32: ***That the Whitewater Region Fire Department consider adoption of an Incident Command Training Program (such as the Blue Card Fire Command Training Program) as a component of the Company Officer Training, and proposed Comprehensive Annual Training Program.***

Recommendation #33: ***That Township policies referring to Volunteer Firefighter minimum training/attendance be revised to ensure that within any calendar year a Volunteer Firefighter is required to complete 100% of the department's minimum training standard.***

Recommendation #34: ***That the Fire Chief be directed to develop a department Operating Guideline defining the goals, objectives and procedures for completing and collecting firefighter training records as required by the Occupational Health and Safety Act.***

Recommendation #35: ***That the proposed training staff resource plan contained within the 2017 Fire Master Plan be considered for implementation.***

7.0 Station Location, Emergency Response & Suppression Services

The existing fire suppression model of the Whitewater Region Fire Department is comprised of a complement of approximately 76 volunteer firefighters responding from five fire halls, located in pre-amalgamation locations. The suppression services and staff resources are overseen by the Fire Chief, now a full-time position, with support from a volunteer Deputy Chief (currently an Acting position).

7.1 Existing Fire Stations

The review of available background data, staff and stakeholder consultation, and station site tours indicate that all five stations have reached life-cycle capacity or have reached a point where significant capital investment will be required to sustain their use. None of the existing facilities are equipped with ventilations systems to control diesel emissions produced by fire apparatus or released from equipment. This is further discussed below. There are space constraints, including lack of space to properly store bunker gear and not all stations are equipped with both male and female washroom and change room facilities. There are also challenges related to compliance with Accessibility for Ontarians with Disabilities Act (AODA) at all existing stations.

The stations are located in: Haley, Cobden, Foresters Falls, Beachburg and Westmeath. **Table 15** summarizes the existing station facilities and conditions.

Table 15: Existing Stations – Summary of Conditions

Station	Description
Station No. 1 – 17 Firehall Lane, Haley Station 	Haley Station is a one storey brick building with two bays and no drive through bays. It currently houses two apparatus. The facility is showing age and wear. There is a lack of dedicated training / meeting space. The station has limited storage. Most storage is located inside the apparatus bays. Some features of this hall include: • male and female washrooms / shower • an open area with couches and television (utilized for training) • a small kitchenette • One office / radio room • exterior parking for the volunteers • underground water cistern (well-fed, electric pumping, approximately 3000 gallons)

Station	Description
	• generator in station to provide emergency back-up power • security alarm system
Fire Station No. 2 – 44 Gould Street, Cobden 	Cobden station is a two storey, corrugated steel, volunteer fire hall in fair condition, as some repairs and renovations have been completed over the years. The station was rebuilt in the 1990s, following damage from a fire. The hall includes two bays, neither of which are drive through bays. The bays house two apparatus and are tight for space. Bunker gear is stored in open cabinets along one wall of the bays. Parking is limited on site. The Township's Public Works Department has use of the rear portion of the station building. There is also an outbuilding behind the station that is used by a local service club. Other features of this hall include: • one washroom on the apparatus floor (shared with Public Works Department) and vanity, sink and toilet in a small room shared with storage on the second floor • Small kitchenette on second floor • Two offices upstairs • Training room / meeting room on second floor
Fire Station No. 3 - 2038 Foresters Falls Road, Foresters Falls 	Constructed in 1963, Fire Station No. 3 was converted from an old farm dealership. Some renovations were completed in 1995. The hall is in poor condition. The main building is concrete block construction with an addition on the front and a shed-type addition at the rear which is only suitable for outbuilding storage. This extension should be reviewed by the Township's Chief Building Inspector. The hall includes two bays, neither of which are drive through bays. Currently there is only one apparatus housed at this station. Bunker gear is stored on racks on the bay wall. There is no potable water at the station; however, a water cooler is provided. Other features of this hall include: • One office on main floor • Open room, used for training room (with television, computer, photocopier, etc.)

Station	Description
	• Washrooms: one men's washroom off the bay floor and both male and female washrooms with showers off training room • Small kitchenette • Heated with forced air oil furnace • Station back-up emergency generator • Firefighters have constructed a wooden training maze (search and rescue prop) in the attic of the station • Parking in front, beside and behind hall • Shed behind the station used in the past for RIT training
Fire Station No. 4 – 17 Hannah Street, Beachburg 	This Fire Hall is an old one storey corrugated steel building which includes three bays (no drive through bays) in fair condition. Two heavy apparatus and a pick-up truck are stored at this hall. It was formerly a Public Works garage. Space on the apparatus floor is limited. Bunker gear is stored on racks on the bay floors. Other features of this hall include: • Two offices • Small training room with air conditioning • Small kitchen with washer and dryer • One washroom with a shower located off the bay floor • Fuel tanks off parking lot • Solar panels on roof • Ample parking
Fire Station No. 5 – Westmeath 	Westmeath Fire Station is a two bay (no drive through) corrugated steel fire hall in fair condition which houses one heavy apparatus and one pick-up truck. Bunker gear is stored on open racks on the bay floor. The layout of the hall is disjointed and less than ideal. Other features of this hall include: • One office • Meeting /training room (including desks. Chairs and television) • One washroom off the bay floor • Small kitchenette in meeting room, with fridge stored on apparatus floor

Station	Description
	• Adequate parking and ceiling fans regulate diesel emissions inside the bay.

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 WRFD.

Consideration of the number of fire stations and the strategies that could be adopted to address the facility replacement needs are considered within the following sections. The analysis below provides options for Council's consideration with 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.

7.1.1 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. Planning for station updating and renewal in Whitewater should incorporate considerations to address diesel emissions.

Recommendation #36: That consideration for diesel emissions exhaust systems, as recommended in the Section 21 Guidance Note #3-1, be incorporated into future station design, construction or renovations.

7.2 Existing Suppression Staffing

The suppression operations of the department are overseen by the full-time Fire Chief and volunteer Deputy Chief. Each of the WRFD's five fire stations is managed by a Station Captain who is in charge of the day to day operations of the station with the assistance of the other station volunteer captains and firefighters. The total approved complement of volunteer firefighters is currently set at 75. This includes one Deputy Fire Chief, two Senior Officers, five Station Captains, seven Captains and 60

volunteer firefighters. Under existing conditions the current76 volunteer members are not evenly distributed across all five stations. Station 1 has 14 members, Station 2 has 19 members, Station 3 has 10 members, Station 4 has 18 members and Station 5 has 15 members.

7.3 Emergency Response Analyses

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 times 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 (e.g., career or 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 Whitewater Region this FMP 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.

7.4 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 16**. 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.

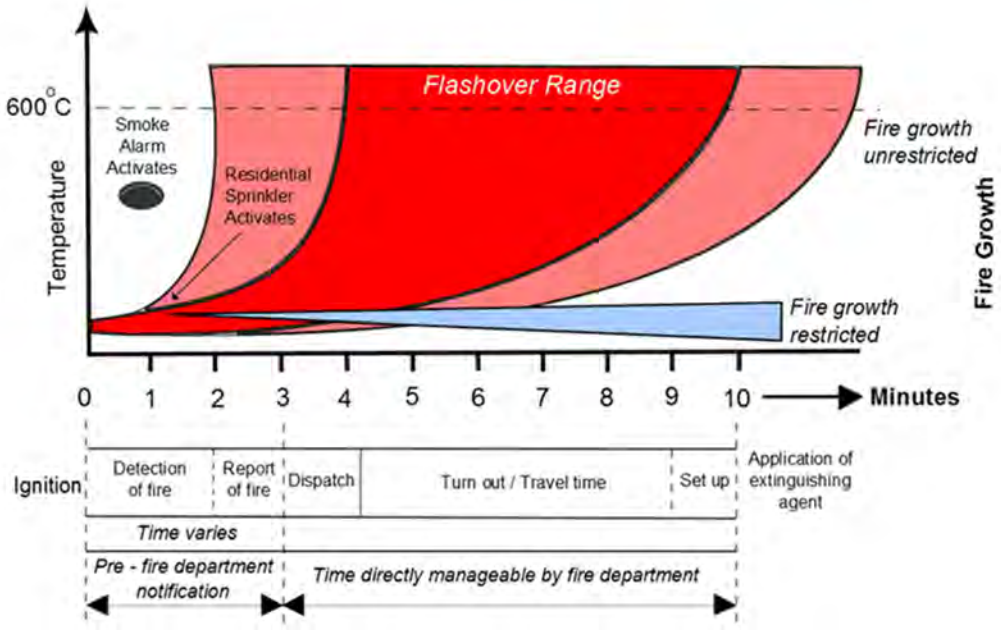
Table 16: Time to Reach 1 MW and 2 MW Fire Growth Rates in the Absence of Fire Suppression

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

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

Within the ten minute time period, flashover conditions can occur. Flashover occurs when the combustible items within a given space reach a temperature that is sufficiently high for them to auto-ignite. The graph in **Figure 5** 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 and or loss of life with the progression of time, further supports the importance of public education and prevention programs.

Figure 5: 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 – 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 a municipality's fire suppression capabilities. 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 enhancing 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.

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

Over the past decade there has been a transition within the fire service industry across North America to the use community risk assessments to inform fire suppression needs. Community risk assessments can be used in part to determine the appropriate level of firefighter deployment based on the critical tasks to be performed to effectively, efficiently and safely conduct fire suppression operations.

Within the Province of Ontario the Office of the Fire Marshal and Emergency Management (OFMEM), and the National Fire Protection Association (NFPA) are the most highly recognized authorities available to assist municipalities in determining their local needs and circumstances with respect to providing fire suppression services. These agencies cumulatively represent the authorities for identifying an appropriate methodology and process for determining firefighter deployment in the Township of Whitewater Region. The sections that follow explore the fire suppression guidelines, industry standards, and industry best practices released by the OFMEM, the NFPA, and other industry best practices.

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

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

> "*The critical Task Matrix is based on the Incident Management System (IMS). It will assist in identifying fireground staffing capabilities based upon low, moderate, high and extreme risk levels within your community. The Office of the Fire Marshal (OFMEM) has identified the*

critical tasks from the Incident Management System that are used during fireground operations. These tasks are consistent with applicable legislation, industry best practices and the Ontario Fire College Curriculum."

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; and
- Some tasks will never be assigned based on the tactical approach chosen by the incident commander (offensive versus defensive).

The Critical Task Matrix provides a lower and upper range of the number of firefighters required to respond for each of the four risk levels. The actual number of firefighters within each range is based upon analysis of actual fires, the *Occupational Health and Safety Act Section 21 Guidance Notes* affecting firefighters, and industry best practices. **Table 17** reflects the PFSG 04-08-10 (**Appendix B**) Critical Task Matrix.

The OFMEM Critical Task Matrix indicates that the lower and upper level incident response range to effectively, efficiently and safely conduct fire suppression operations to safely complete the tasks associated with a fire in moderate risk (Group C - Residential occupancy) would be ***16 to 43***.
In comparison, the matrix indicates that the lower and upper level incident response range to effectively, efficiently and safely conduct fire suppression operations tasks associated with high risk occupancy (e.g., Group B – Care or Detention occupancy) would be ***36 to 83***.

Table 17: PFSG 04-08-10 Critical Task Matrix

Fireground Critical Task		Low Risk		Moderate Risk		High Risk		Extreme Risk	
		LERL	UERL	LERL	UERL	LERL	UERL	LERL	UERL
Incident Response (Note: Where zero or no number has been assigned, the task may be performed at the direction of the incident commander.)	Incident Command*	1	1	1	1	1	1	1	1
	Pump Operator	1	1	1	1	1	1	1	1
	Attack Line (Confine & Extinguish)	2	2	2	2	2	2	2	2
	Additional Pump Operator(s)	0	0	0	2	2	4	4	6
	Additional Attack Line Backup	0	0	0	4	4	8	8	12
	Search & Rescue	0	0	2	4	2	6	2	8
	Initial Rapid Intervention Team (IRIT)	0	0	4	6	8	16	12	22
	Ventilation	0	2	2	2	2	4	2	8
	Water Supply – Pressurized	0	1	1	1	1	1	1	2
	Water Supply – Non Pressurized	0	3	1	4	2	6	4	8
	Forcible Entry Team	0	0	0	0	0	1	0	1
	Utilities	0	1	1	1	1	1	1	1
	Laddering (Ground Ladders)	0	2	0	2	0	4	0	6
	Laddering (Aerial or Elevating Device Operator)	0	0	0	2	0	2	0	2
	Exposure Protection			0	4	2	6	2	6
	Incident Safety Officer			0	1	1	1	1	1
	Accountability			1	1	1	1	1	1
	Entry Control			0	2	1	4	1	4
	Rehabilitation			0	1	1	1	1	1
	Salvage			0	2	2	2	2	2
	Lighting					0	2	0	2
	Directing Occupants					0	4	0	4
	Scribe					1	1	1	1
	Sector Officers					1	4	1	4
	Air Management (Air Refilling Station, etc.)							1	2
Other Or Additional Response Considerations	Logistics Officer								
	Administrative and/or Finance Officer								
	Planning Officer								
	Evacuations (Large Scale)								
	Communications (Dispatch)								
	Public Information Officer								
	Overhaul								
	Additional Firefighters								
Summary	Incident Response Range	4	13	16	43	36	83	49	108
	Total Fire Department Including External								
	Fire Call Incident Response Range								

Notes:

- LERL = Lower Effective Response Level
- UERL = Upper Effective Response Level (together form the critical staffing range)
- This tool provides a range of staffing requirements only. Actual numbers may vary depending on the fire risk that exists in the municipality. Tasks performed on fireground based on decisions made by Incident Commander.
- Planning moderate, high and extreme risk occupancies/locations will further validate staffing requirements to ensure the optimum level of protection for the municipality.
- Simultaneous events will require further consideration due to additional personnel requirements beyond the scope of the matrix.
- Incident Command will assume responsibilities for the accountability and entry control tasks when no person has been assigned, or until a person has been assigned the task.

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

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

The B.C. Playbook describes and establishes three different service levels that are directly linked to the ***training level*** of the department. In our view, the most recent addition amended in May of 2015 provides valuable insight into determining the level of fire suppression services to be provided by a municipality, including those in Ontario. This information is provided as an example of industry best practices.

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

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

7.5.2.1 Exterior Operations Service Level

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

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

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

The description and guidelines provided by the BC Playbook are considered to represent municipal best practices within Canada. Therefore, we consider them to be applicable within the Township of Whitewater Region. Until the key department training concerns, as summarized in **Section 6,** are addressed it is recommended that WRFP adopt an exterior operations service level, as described above.

Recommendation #37: ***That until the key fire department training concerns highlighted within this FMP are addressed, Council should adopt an exterior operations level of service for the Whitewater Region Fire Department.***

7.5.2.2 Interior Operations Service Level

With an Interior Operation Service Level fire departments may engage in internal fire suppression activities within simple structures or objects such as a vehicle, single-family dwelling or other small structure. Interior Operations may also include larger or more complex structures that the Authority Having Jurisdiction (AHJ) has assessed and pre-planned for, such that it determines that structure to be safe for Internal Operations qualified firefighters. Firefighters must be trained specifically to the risks associated with these structures.
Interior Operations Service Level fire departments shall have written Operational Guidelines enforced by the department that describe advanced training in fire operations activities that allow for a calculated fire attack within permitted structures and objects.

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

7.5.2.3 Full Service Operations Level

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

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

The goal of providing full service operations level fire suppression services is an attainable objective for the WRFD. Subject to addressing the key training concerns identified within this FMP and ensuring that the proposed comprehensive training program is in place and sustainable are key elements of achieving this objective. In our view the department must ensure that its volunteer firefighters and supervisors (Chiefs and Captains) have attained the skills and competencies, including current training records, prior to considering implementation of the full service operations level.

Recommendation # 38: ***That subject to addressing the key fire department training concerns identified within the proposed Fire Master Plan and ensuring that the proposed comprehensive training program***

is in place the Fire Chief be directed to develop Operating Guidelines for the provision of full service operations as presented within the proposed Fire Master Plan.

7.5.3 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).

7.5.4 NFPA 1710 Standard

The NFPA identifies two relevant standards with regards to fire suppression operations. The first is NFPA 1710 *"Standard for the Organization and Deployment of Fire suppression Operations, Emergency medical Operations, and Special Operations to the Public by Career Fire Departments"* provides a resource for determining and evaluating the number of career firefighters required based upon recognized industry best practices.

NFPA 1710 is a standard that is designed for larger municipalities that, as a result of many factors, are operating their fire department utilizing primarily full-time (career) firefighters.

Relevant references from NFPA 1710 include the following:

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

The 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.

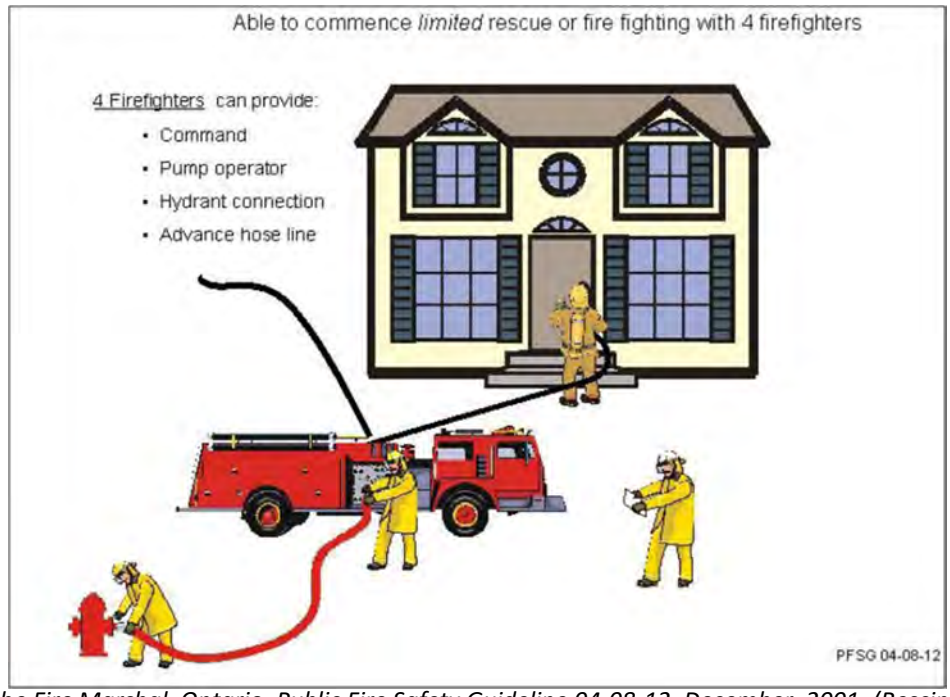
NFPA 1710 refers to the 'Initial Arriving Company' as an 'Engine Company' and further defines the minimum staffing level of an Engine Company as four firefighters whose primary functions are to pump and deliver water and perform basic firefighting at fires, including search and rescue.

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 6**.

Figure 6: 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 17,** 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."*

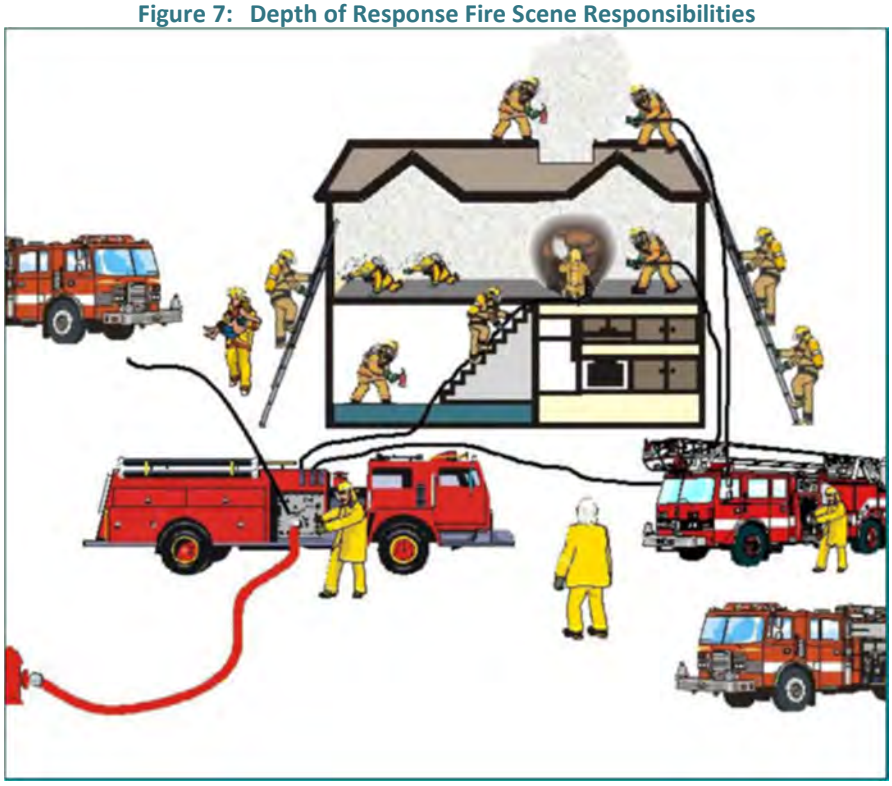
The standard utilizes the example of a fire risk scenario in a 2,000 square foot, two-storey single-family dwelling without a basement and with no exposures present. This represents a typical home of wood frame construction located in a suburban neighbourhood **having access to a municipal water supply 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 14 firefighters, 15 if an aerial device is to be used. The NFPA 1710 fire scene responsibilities for depth of response including an aerial are highlighted in **Figure 7**.

Figure 7: 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 17,** 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)

7.5.5 NFPA 1720 Standard

As noted above the NFPA identifies two relevant standards with regards to fire suppression operations. The first is NFPA 1710, explained above, the second is NFPA 1720 *"Standard for the Organization and Deployment of Fire suppression Operations, Emergency medical Operations, and Special Operations to the Public by Volunteer Fire Departments"* provides a resource for determining and evaluating the number of volunteer firefighters required based upon recognized industry best practices. The NFPA 1720 definition of a combination and volunteer fire department is as follows:
An organization providing rescue, fire suppression, emergency medical services, and related activities to the public.
Combination Fire Department. *A fire department having emergency service personnel comprising less than 85 percent majority of either volunteer or career membership.*
Volunteer Fire Department. *A fire department having volunteer emergency service personnel comprising 85 percent or greater of its department membership.*

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

Within this standard the NFPA identifies five different categories described as "Demand Zones" that relate to the type of risk that may be found within a typical community; either by population density, travel distance, or special circumstances. The standard then identifies a minimum level of firefighters that would be recommended for each of these categories. **Table 18** presents the NFPA 1720 standard minimum staffing levels by demand zone.

Table 18: NFPA 1720 Standard

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 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 Whitewater Region has a population density of ***33.6 people per square mile*** based on the 2016 Statistics Canada census data. This indicates that the ***Rural Area Demand Zone*** would be the applicable performance measure benchmark for assessing the minimum number of firefighters and response time (turnout time + travel time) for the Township of Whitewater Region with a performance objective of 80%.

7.5.6 Fire Underwriters Survey

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) maintain a system of insurance ratings and grade classifications. The gradings provide assistance to municipalities in planning their fire protection services. The Township's fire defences, measured as fire insurance gradings, were assessed in 1996 (and prior to that in 1985) by the Fire Underwriters Survey (FUS). The Township's Public Fire Protection Classification (PFPC) and Dwelling Protection Grades (DPG) are presented and discussed below.

7.5.6.1 Public Fire Protection Classification (PFPC)

Public Fire Protection Classification is defined by FUS as follows:

> *"The **Public Fire Protection Classification (PFPC)** is expressed on a 1 to 10 scale. Commercial Lines property underwriters and risk managers will more easily recognize these classifications as "town*

grades". Class 1 represents the "ideal" or highest level of public fire protection while Class 10 reflects the absence of any effective public fire protection. Many insurers will subsequently group these "town grades" into Protected, Semi Protected and Unprotected categories, to be used when calculating underwriting capacity. The Grades indicate how well communities are equipped to combat major fires that may be expected to occur in commercial, industrial, institutional and multi-family residential properties and are developed from a comprehensive review of all facets of the fire defense system as it relates to the level of risk present within the community.

Fire Underwriters Survey collects information on public fire protection efforts in communities all across Canada. In each of those communities, FUS analyzes the relevant data using our Classification Standard for Public Fire Protection (CSPFP). The applicable PFPC from 1 to 10 is then assigned to the community.

By classifying communities' ability to suppress fires, Fire Underwriters Survey helps the communities evaluate their public fire protection services. The program provides an objective, national standard that helps fire departments in planning and budgeting for facilities, equipment, and training. With the objective of securing lower fire insurance premiums for communities with better public fire protection, the PFPC program provides incentives and rewards for communities that choose to improve their fire protection levels and thereby the community PFPC classification."[5]

The existing PFPC for the Township of Whitewater Region, updated by FUS in 1996, are presented in **Table 19** below.

Table 19: Public Fire Protection Classification (PFPC) for Township of Whitewater Region, FUS 1996 Update

Sub-Districts / Contract Protection Areas	Public Fire Protection Classification (PFPC)	Comments
Station 1 – Haley	**9**	Fire Hall Protected Area – Commercial Lines insured properties within 5 kilometres by road of a fire hall, but not within 150 metres of a hydrant.
Station 2 – Cobden	**7**	Hydrant Protected Area – Commercial Lines insured properties within 150 metres of a fire hydrant and within 5 kilometres by road of a fire hall.
Station 3 – Foresters Falls	**9**	Fire Hall Protected Area – Commercial Lines insured properties within 5 kilometres by road of a fire hall, but not

[5] Fire Underwriters Survey, http://www.fireunderwriters.ca/public-fire-protection-classification.html

Sub-Districts / Contract Protection Areas	Public Fire Protection Classification (PFPC)	Comments
		within 150 metres of a hydrant.
Station 4 – Beachburg	**7**	Hydrant Protected Area – Commercial Lines insured properties within 150 metres of a fire hydrant and within 5 kilometres by road of a fire hall.
Station 5 – Westmeath	**9**	Fire Hall Protected Area – Commercial Lines insured properties within 5 kilometres by road of a fire hall, but not within 150 metres of a hydrant.
Fire Hall Protected Area (Rural Areas)	**9**	Fire Hall Protected Area – Commercial Lines insured properties within 5 kilometres by road of a fire hall, but not within 150 metres of a hydrant.
Rest	**10**	Unprotected Area – Commercial Lines insured properties further than 5 kilometres by road of a fire hall.

As shown in the table above, the highest PFPCs in the Township of Whitewater are in the Cobden and Beachburg areas with ratings of 7 as they are identified as Hydrant Protected Areas.

7.5.6.2 Dwelling Protection Grades (DPG)

FUS defines a Dwelling Protection Grade (DPG) as: "*a numerical system scaled from 1 to 5. One (1) is the highest grading possible and 5 indicates little or no recognized public fire protection. This grading reflects the ability of a community to handle fires in small buildings (e.g. single family dwellings).*"[6]

The requirements for the DPGs are outlined in **Table 20.**

Table 20: Dwelling Protection Grades (DPGs)

Dwelling Protection Grade (DPG)	Water Works System	Fire Department Apparatus	Firefighters	Public Fire Protection Classification (PFPC) Minimum Requirements
1	Water supply system	Response from within	Minimum Response:	Water Supply and Fire

[6] Fire Underwriters Survey, http://www.fireunderwriters.ca/dwelling-protection-grade.html

Dwelling Protection Grade (DPG)	Water Works System	Fire Department Apparatus	Firefighters	Public Fire Protection Classification (PFPC) Minimum Requirements
	designed in accordance with Fire Underwriters Survey standard "Water Supply for Public Fire Protection" with a relative classification of 5 or better	8 kilometre by road of a triple combination pumper	- On-duty: 3 career fire fighters, plus - Off-duty: fire chief or other officer	Department must grade PFPC Relative Class 5 or better
2	Water supply system designed in accordance with Fire Underwriters Survey standard "Water Supply for Public Fire Protection" with a relative classification of 6 or better	Response from within 8 kilometre by road of a triple combination pumper	Minimum Response: - On-duty: 1 career fire fighter, plus - On-call: 15 auxiliary fire fighters	Water Supply and Fire Department must grade PFPC Relative Class 6 or better
3A	Water supply system designed in accordance with, and meeting the minimum requirements of, Fire Underwriters Survey "Water Supply for Public Fire Protection"	Response from within 8 kilometre by road of a triple combination pumper	15 auxiliary fire fighters	No Public Fire Protection Classification required
3B	Not required - however fire department must have adequate equipment, training and access to approved water supplies to deliver standard shuttle	2 units required. Triple combination pumper plus a mobile water supply with a combined water carrying capacity of not less than 6820 L (1500 IG)	15 auxiliary fire fighters	No Public Fire Protection Classification required

Dwelling Protection Grade (DPG)	Water Works System	Fire Department Apparatus	Firefighters	Public Fire Protection Classification (PFPC) Minimum Requirements
	service in accordance with NFPA 1142, Standard on Water Supplies for Suburban and Rural Fire Fighting			
4	Not required - however fire department must have adequate equipment, training and access to approved water supplies to deliver shuttle service in accordance with NFPA 1142, Standard on Water Supplies for Suburban and Rural Fire Fighting	2 units required. Triple combination pumper plus a mobile water supply with a combined water carrying capacity of not less than 6820 L (1500 IG)	15 auxiliary fire fighters	No Public Fire Protection Classification required
5	Unprotected communities or communities not qualifying for Grades 1, 2, 3A, 3B, or 4 above	Unprotected communities or communities not qualifying for Grades 1, 2, 3A, 3B, or 4 above	Unprotected communities or communities not qualifying for Grades 1, 2, 3A, 3B, or 4 above	No Public Fire Protection Classification required

NOTES:

[1] *Refer to additional notes and requirements for interpretation*

[2] *The P.F.P.C. is a sophisticated municipal fire protection grading system utilized for Commercial Lines insurance. PFPC fire insurance grades are scaled from 1 to 10. One (1) represents a high level of fire protection and 10 indicates little or no recognized fire protection. This system evaluates the ability of a community's fire defences to prevent and control major fires that may occur in commercial, industrial and institutional buildings and/or districts.*

[3] *Dwelling Protection Grade 4 is reserved for communities that contract for fire protection services from fire service agencies with a Dwelling Protection Grade of 3B.*

Requirements for Dwelling Protection Grade 4 are the same as for Dwelling Protection Grade 3B, however in some cases, an allowance may be

Dwelling Protection Grade (DPG)	Water Works System	Fire Department Apparatus	Firefighters	Public Fire Protection Classification (PFPC) Minimum Requirements

considered for Dwelling Protection Grade 4 where all of the criteria for Dwelling Protection Grade 3B have been met with one exception. If more than one criteria has not been met (ex. less than 15 auxiliary fire fighters and a single pumper apparatus) Dwelling Protection Grade 5 is applied.

Where Dwelling Protection Grade 4 is applied, a signed letter of intent from the community is to be sent to Fire Underwriters Survey indicating that improvements will be made, within an agreed timeframe, to meet the criteria of Dwelling Protection Grade 3B.

It is important to note that the absolute minimum number of auxiliary fire fighters considered within the fire insurance grading is 10 and that maximum age of apparatus that can be considered is 30.

The existing DPGs for the Township of Whitewater Region, updated by FUS in 1996, are presented in **Table 21.**

Table 21: Dwelling Protection Grades (DPGs) for Township of Whitewater Region, FUS 1996 Update

Sub-Districts / Contract Protection Areas	PFPC	Comments
Station 1 – Haley (Fire Hall Protected Area)	**4**	Limited Protection – Personal Lines insured properties within 8 kilometres by road of a fire hall, but not within 300 metres of a fire hydrant; assigned to stations without a Tanker Apparatus.
Station 2 – Cobden (Hydrant Protected Area)	**3A**	Hydrant Protected – Personal Lines insured properties within 300 metres of a fire hydrant and within 8 kilometres by road of a fire hall.
Station 2 – Cobden (Fire Hall Protected Area)	**3B**	Fire Hall Protected – Personal Lines insured properties within 8 kilometres by road of a fire hall, but not within 300 metres of a hydrant.
Station 3 – Foresters Falls (Fire Hall Protected Area)	**4**	Limited Protection – Personal Lines insured properties within 8 kilometres by road of a fire hall, but not within 300 metres of a fire hydrant; assigned to stations without a Tanker Apparatus.
Station 4 – Beachburg (Hydrant Protected Area)	**3A**	Hydrant Protected – Personal Lines insured properties within 300 metres of fire hydrant and within 8 kilometres by road of a fire hall.
Station 4 – Beachburg (Fire Hall Protected Area)	**4**	Limited Protection – Personal Lines insured properties within 8 kilometres by road of a fire hall, but not within 300 metres of a fire hydrant; assigned to stations without a Tanker Apparatus.

Sub-Districts / Contract Protection Areas	PFPC	Comments
Station 5 – Westmeath (Fire Hall Protected Area)	**4**	Limited Protection – Personal Lines insured properties within 8 kilometres by road of a fire hall, but not within 300 metres of a fire hydrant; assigned to stations without a Tanker Apparatus.
Rest	**5**	Unprotected – Personal Lines insured properties further than 8 kilometres by road of a fire hall.

As shown in the table above, the highest DPGs in the Township of Whitewater are in the Hydrant Protected Areas of Cobden and Beachburg with DPGs of 3A. The Fire Hall Protected Area in Cobden is rated as a 3B.

7.5.6.3 Superior Tanker Shuttle Accreditation

The Superior Tanker Shuttle Accreditation is a proprietary process managed by the FUS. It is 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.*"

In our view 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 location of current and future fire stations including:

Rating 3B(S): *Describes the Superior Tanker Shuttle Accreditation rating that could be achieved within the area of the Township located within five kilometres by road of an approved dry hydrant location, and within eight kilometres by road of a fire station; and*

Rating 3B: *Describes the Superior Tanker Shuttle Accreditation rating that could be achieved within the area of the Township located beyond five kilometres by road of an approved dry hydrant location, but within eight kilometres by road of a fire station.*

These insurance ratings present two core elements for consideration within this review including:

- ***Pre-determining the location of year round available water supplies, and establishing five kilometer supply zones for each approved water source; and***
- ***Assessing the eight kilometer travel distance from each current and proposed fire station location.***

Whitewater Region Fire Department does not currently have accreditation from FUS for Superior Tanker Shuttle Accreditation. In our experience successful participation in the Superior Tanker Shuttle Accreditation can relate to a reduction in home ownership insurance premiums depending on the applicable fire insurance grading and the insurance provider.

In our experience the Superior Shuttle Accreditation Process is becoming a common core service provided by rural volunteer fire departments. It includes a proven operational model for the identification of approved water sources, operational methods for transporting water, and the application of water at a fire incident in a rural area with no municipal water supply system.

Municipalities recognize that this service may not be available to every property within a community due to travel distances, the number of fire stations and location of fire stations. Although these properties may not benefit from a change in insurance rating, they would benefit from a more effective and efficient fire department that has an accredited process for shuttling water.

In our experience, attaining the proposed Superior Tanker Shuttle Accreditation will require the Township to consider developing an Automatic Aid Agreement(s) with neighboring communities. Most communities do not have a sufficient number of Tanker trucks to sustain the required water flow to achieve the accreditation requirements.

Recommendation #39: ***That the Fire Chief be directed to develop a Business Plan identifying the operational and financial requirements for the Whitewater Region Fire Department to seek the Superior Tanker Shuttle Accreditation, including consideration of the required Automatic Aid Agreements.***

It would be timely for the Township to request an update of the Fire Underwriters Survey review of fire insurance grade ratings following the WRFD's successful achievement of the Superior Tanker Shuttle Accreditation.

<u>Recommendation #40:</u> That, following the fire department's achievement of the Superior Tanker Shuttle Accreditation, the Township request the Fire Underwriters Survey conduct an update to the fire insurance grade classifications for the Township of Whitewater Region.

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

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

7.5.7.1 Initial Response Staffing Deployment

Having considered PFSG 04-08-10, and the NFPA 1720 Rural Area Demand Zone Standard, in addition to 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 limited initial fire suppression operations reflects a minimum deployment of four firefighters.

In our view an appropriate deployment of an initial response within the Township of Whitewater Region should include a **minimum initial response of four firefighters** on the first responding apparatus to provide sufficient deployment to effectively, efficiently, and safely conduct limited 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*

<u>Depth of Response Staffing Deployment</u>

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, specifically single family residences, provide an example of the type of fire risk present and fireground critical tasks required to effectively, efficiently and safely mitigate an incident. This is particularly relevant to Ontario where residential occupancies have historically accounted for 72% of all structure fires and 86% of all fire related deaths.

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

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

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

The identification of fire risk classifications (e.g. low, moderate, high and extreme) is determined based on analyzing and reviewing all available information that defines the characteristics of a community. The Simplified Risk Assessment included within this FMP (**Appendix A**) provides the basis for risk analysis in the Township of Whitewater Region.

The fire suppression resources necessary to complete the fireground critical tasks can vary based on the type of occupancy. For example, a fire scenario in the example of a single family dwelling (moderate risk) will require sufficient fire suppression resources that are determined based on community risk 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.

Best practices for firefighter deployment to complete the fireground critical tasks associated with each occupancy risk level are summarized within this FMP. 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 22**.

Table 22: Recommended Depth of Response According to Risk Levels

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

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

7.5.8 Proposed Township of Whitewater Region Emergency Response Performance Objectives

The Township of Whitewater Region does not currently have Council approved performance objectives for fire suppression or emergency response, therefore the current fire suppression guidelines and industry best practices will inform the performance measures used within this FMP.

The analyses within the preceding sections 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 our review of current Fire Suppression Guidelines, Industry Standards, and Industry Best Practices the following fire suppression benchmarks are recommended for the Township of Whitewater Region.

7.5.8.1 Initial Response and Depth of Response Staffing Performance Objective:

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

7.5.8.2 Response Time Performance Objective:

An analysis of the relevant NFPA Standards indicates that the Whitewater Region Fire Department is defined as a volunteer fire department, within the only full-time position being the Fire Chief. Therefore the NFPA 1720 Standard is the appropriate standard to use. Based on the 2016 Canada Census data, the Township's population density is approximately 76 people per square mile. The density, being less than 500 people per square mile, indicates the applicable NFPA 1720 demand zone with regards to NFPA 1720 is the ***Rural Area Demand Zone.*** This indicates the applicable performance measure benchmark for assessing the minimum number of firefighters and response time (turnout time + travel time) for the Township of Whitewater Region with a performance objective of 80%. The NFPA 1720 rural area

demand zone performance target aims to achieve six firefighters responding to a fire incident within 14 minutes of combined turnout and travel time (i.e. response time) for 80% of fire-related incidents.

This FMP has identified the NFPA 1720 Rural Area Demand Zone Standard of deploying an initial depth of response of six firefighters. In addition to this deployment the Township should also consider deploying additional firefighters based on the fire risk present in various occupancies types including, 14 firefighters to moderate risk occupancies and 24 firefighters to high risk occupancies.

***Recommendation #41:* That the Township of Whitewater Region benchmark its fire suppression initial response capabilities utilizing the NFPA 1720 Rural Demand Zone deployment model of a minimum of six firefighters responding to all fire related calls within a 14 minute response time (turnout time + travel time) to 80% of all fire related incidents.**

In addition to benchmarking the NFPA 1720 Rural Demand Zone, the review of current Fire Suppression Guidelines, Industry Standards, and Industry Best Practices indicates that the Township should also be benchmarking its fire suppression deployment capabilities in comparison to occupancy risk. This includes 14 firefighters to moderate risk occupancies and 24 firefighters to high risk occupancies.

***Recommendation #42:* That the Township of Whitewater Region benchmark its depth of response fire suppression emergency response capabilities in comparison to a deployment of 14 firefighters to moderate risk occupancies and 24 firefighters to high risk occupancies.**

7.6 Historical Emergency Response Capabilities

This section presents analysis of the historical emergency response capabilities of the WRFD. The information within this section was attained from a range of sources. Where possible the information represents a summary of the historical emergency response capabilities of the WRFD for the period from January 1st 2012 to December 31st 2016.

Emergency calls are referred to and categorized by response type. These call response types are defined by the Office of the Fire Marshal and Emergency Management (OFMEM) and are used by jurisdictions throughout Ontario for reporting purposes.

7.6.1 Data Sources & Availability

Research into preparing this Fire Master Plan indicates that there are several gaps within the current records management process utilized by the WRFD. In our view these gaps are in part the result of inconsistent reporting processes, the absence of a single integrated records management program, the absence of a regular review process and the resulting inconsistency of data that is collected.

As a result, this FMP presents information from a range of information sources in order to present the findings of our research and analyses, identify where inconsistencies may exist and support the need for

enhanced data collection processes in order for the department to inform key decisions in the future. The analyses within the section include information provided by the following:

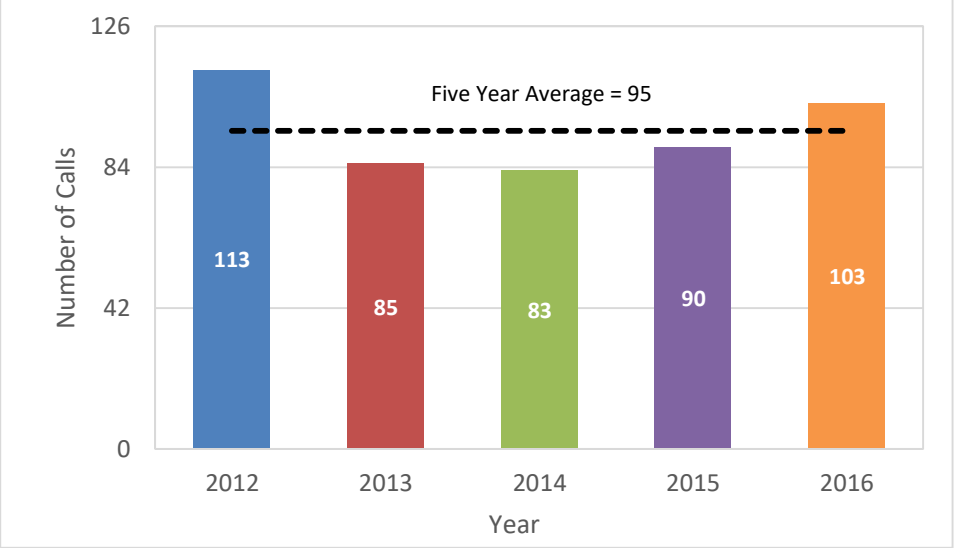
- County of Renfrew – CACC
- Office of the Fire Marshal and Emergency Management – Standard Incident Reports
- Office of the Fire Marshal and Emergency Management – Key Provincial Facts
- Township of Whitewater Fire Department – Historical Data

The analyses presented within this section has included in-depth consultation with senior staff from the Township in order to present the most accurate information available to inform the findings and recommendations contained within this FMP. Where applicable specific recommendations are included within this section of the report to improve and enhance the data collection practices of the WRFD.

7.6.2 Emergency Call Volume

Figure 8 presents a summary of the annual emergency call volume for the years from 2012 to 2016. There is little variation in call volume over these past five years, with a difference in only 30 calls between the highest and lowest annual call volumes. The five year average for department-wide call volume is 95 calls per year. This is a relatively low volume of call, especially considering the Township operates five fire stations to respond to these calls.

Figure 8: Annual Emergency Call Volume by Year (2012-2016)

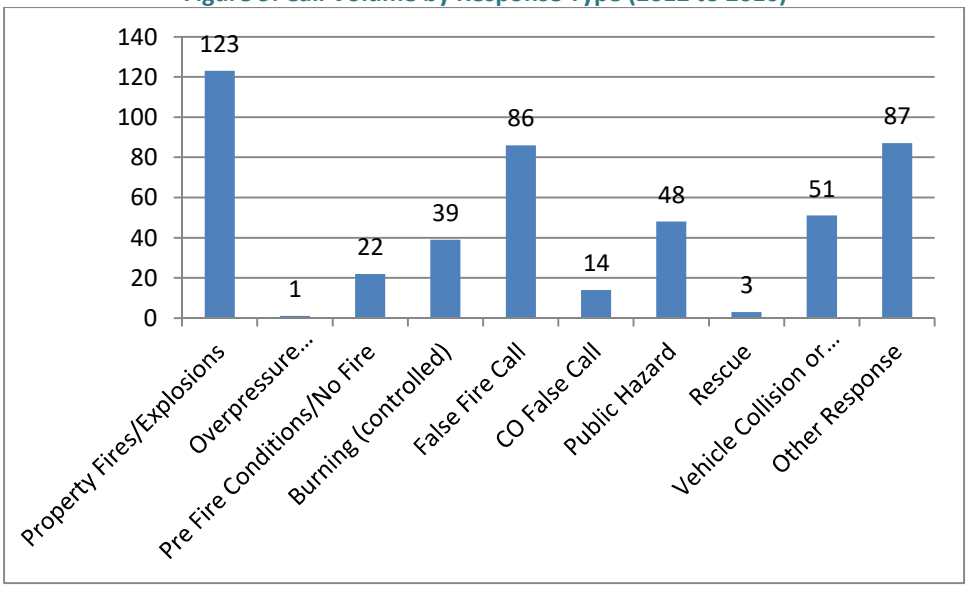


(source: OFMEM Call Data for Whitewater Region Fire Department)

7.6.3 Call Volume by OFMEM Response Type

The department's call volume from 2012 to 2016 was divided into call type, as per the OFMEM call type categories. The results are summarized in **Figure 9**. The data indicates that the department's workload is largely driven by property fires, false fire calls, other responses (which include mutual aid calls, automatic aid calls, assisting other agencies and cancelled calls), vehicle collisions and public hazard calls.

Figure 9: Call Volume by Response Type (2012 to 2016)

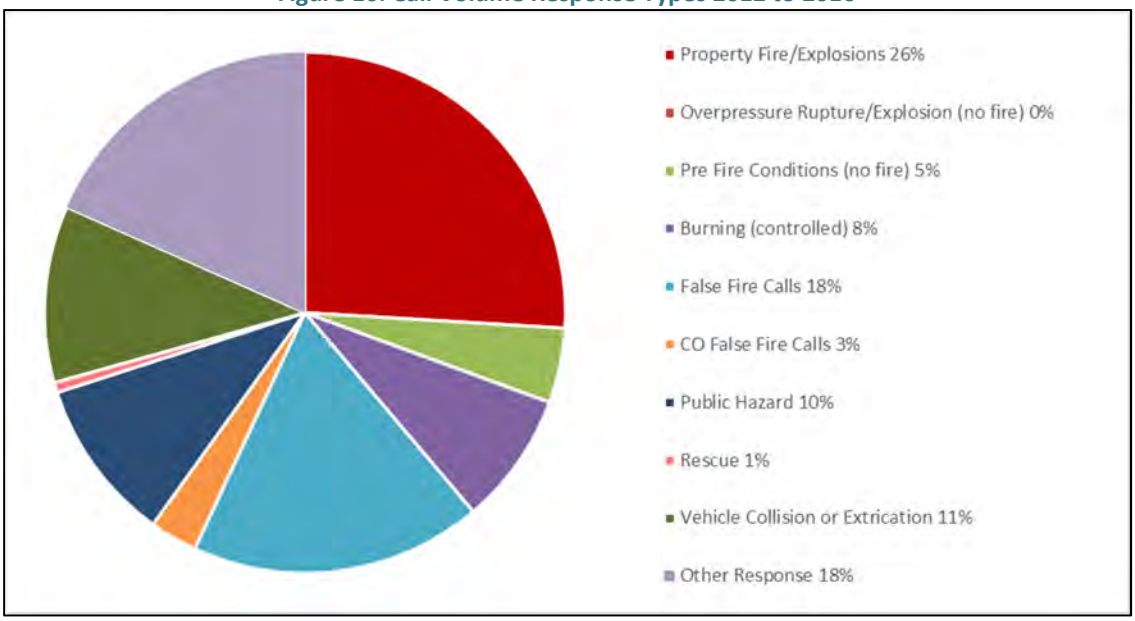


(source: OFMEM Call Data for Whitewater Region Fire Department)

7.6.4 Whitewater Region Fire Department Call Percentage by Type

Analysis of emergency call response types for the period 2012 to 2016 is presented in **Figure 10.** This analysis indicates that property fires represent 26% of the total calls, which is the largest volume of calls by type. False fire calls, such as false alarms, represent 18% of the total call volume. Other calls, including assistance to other agencies, mutual aid and automatic aid calls also represent 18% of the call volume. Vehicle Collision / Extrication calls represent 11% of the total call volume. The WRFD does not response to medical calls. This is one of the key differences in the call type breakdown between the Township of Whitewater Region and the Province of Ontario, as a whole. The provincial call type breakdown is shown and discussed below.

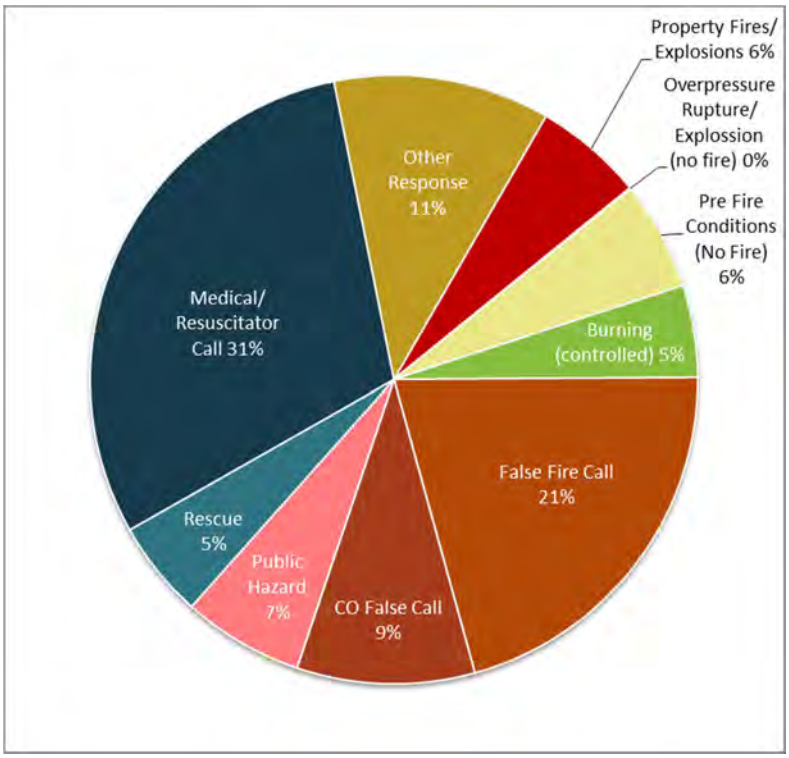
Figure 10: Call Volume Response Types 2012 to 2016



(source: OFMEM Call Data for Whitewater Region Fire Department)

When compared to the percent of calls by OFMEM response type for the entire province (2012 – 2016) (**Figure 11**), the Township has a higher proportion of fire calls (6% province vs. 26% Township), other calls (11% province vs. 18% Township), and rescue calls (5% province vs. 12% Township (rescue and vehicle collision combined). However, the Township has no medical calls, where this represents 31% of provincial call types. False fire calls are comparable between the two (21% province vs. 18% Township).

Figure 11: Percentage of Province of Ontario Calls by OFMEM Response Type (2012-2016)



(Source: OFMEM– Ontario Key Facts Emergency calls and Fires)

7.6.5 Emergency Call Volume by Station (2012, 2013 and 2016)

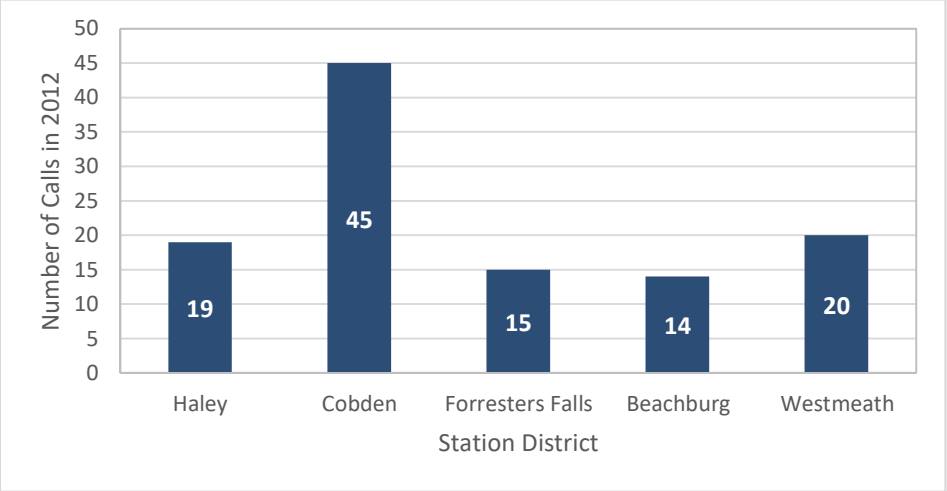
Determining the percentage of call volume by identifying the primary station responding required analysis of both the OFMEM and data collected from the Renfrew CACC and department records (including station call logs and fire faxes). As the department currently alerts all of the volunteers to respond to any given incident within the Township it is difficult to determine through the existing data which station was closest to the incident and therefore identified as the primary responding station. No datasets were available that listed all of the responding apparatus units to all calls. This would be the best assessment of workload by station. Instead, the available data provided a primary station for each call. Due to an error in the data the calls from October 2014 to July 2015 did not list a primary station. As a result, the data for call volume by primary station is only available for 2012, 2013 and 2016.

There are some differences in total volume of calls per year between the OFMEM data and the Renfrew CACC data, as well as differences in which station was listed as the primary station. This again supports the need for WRFD to improve the data management processes to track, record and manage information, such as historic call volume.

The call volumes from 2012, 2013 and 2016 were analyzed to assess annual call volume by station. The results are presented in **Figures 12 to 17** below. These station specific call volumes represent calls

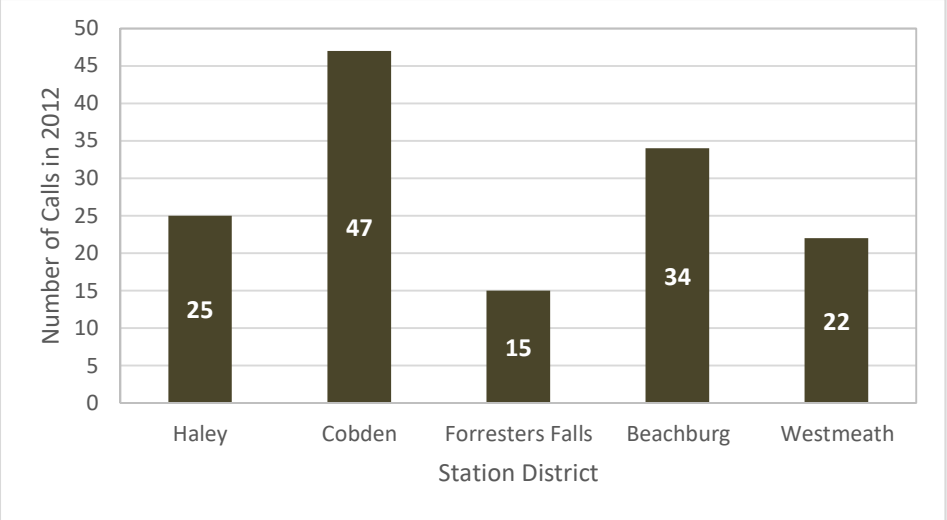
where the station was recorded as the initial responding unit. It does not reflect the total number of calls where the stations were called as part of the overall department response.

Figure 12: Primary Station Call Volumes, OFMEM Data, 2012



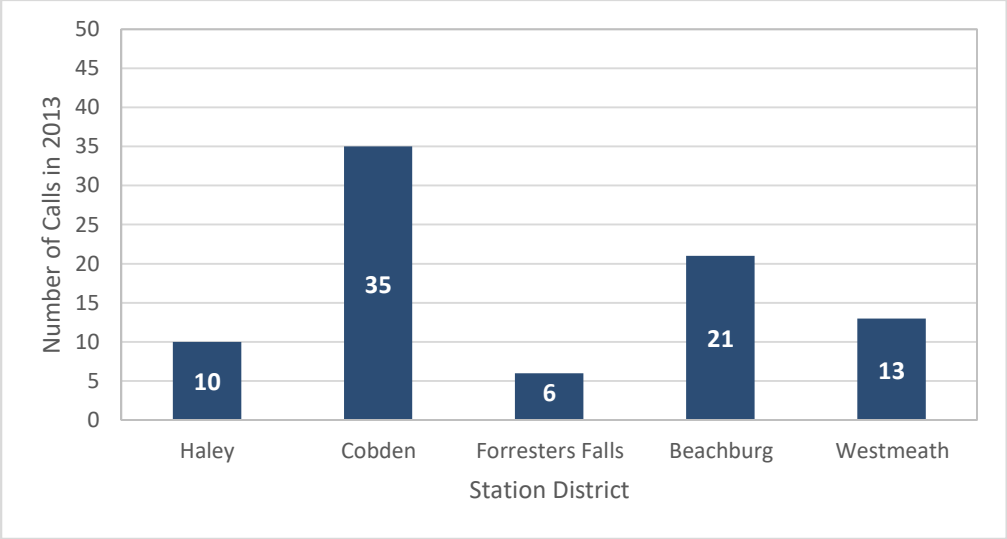
(source: OFMEM Call Data for Whitewater Region Fire Department)

Figure 13: Primary Station Call Volumes, Renfrew CACC Data, 2012



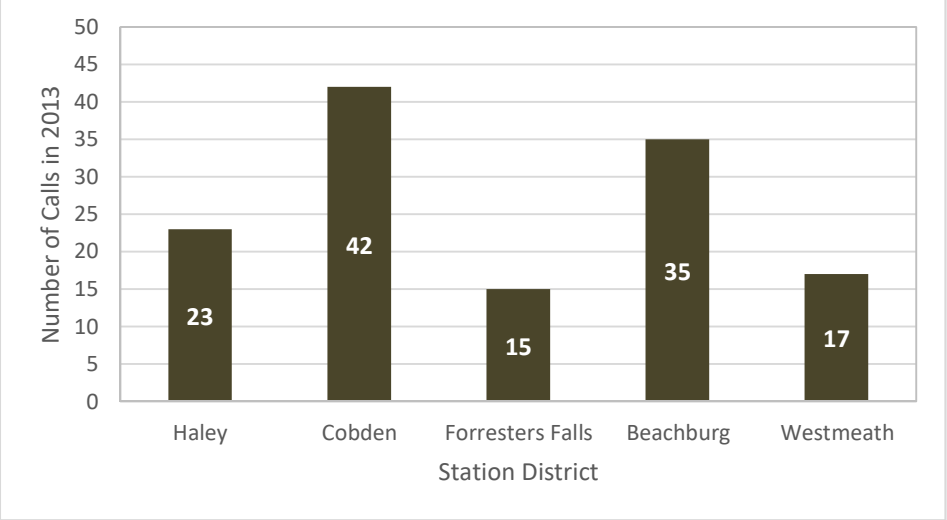
(source: Renfrew CACC Call Data for Whitewater Region Fire Department)

Figure 14: Primary Station Call Volumes, OFMEM Data, 2013



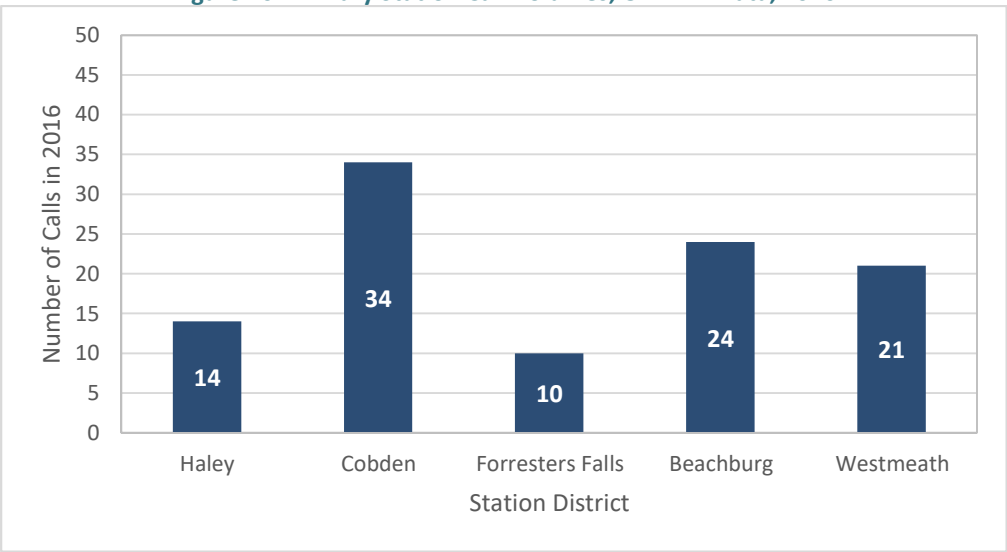
(source: OFMEM Call Data for Whitewater Region Fire Department)

Figure 15: Primary Station Call Volumes, Renfrew CACC Data, 2013



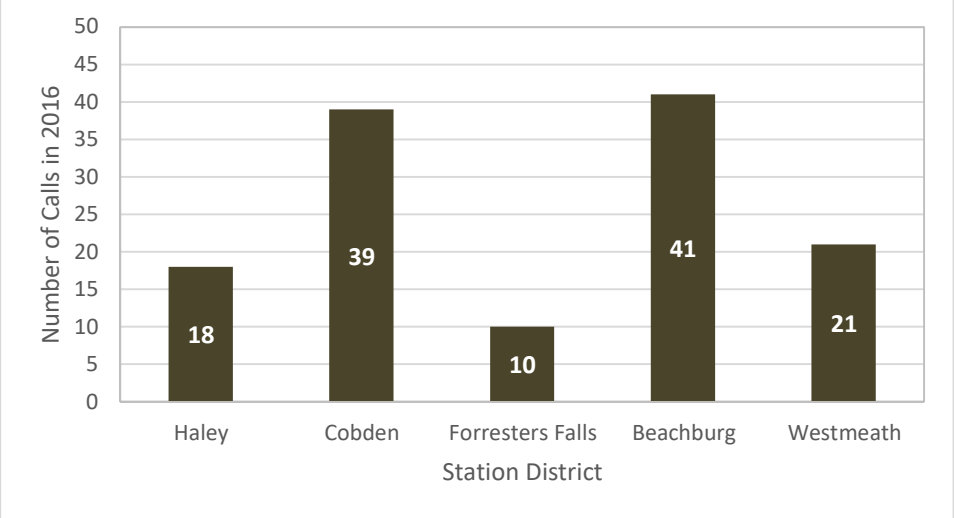
(source: Renfrew CACC Call Data for Whitewater Region Fire Department)

Figure 16: Primary Station Call Volumes, OFMEM Data, 2016



(source: OFMEM Call Data for Whitewater Region Fire Department)

Figure 17: Primary Station Call Volumes, Renfrew CACC Data, 2016



(source: Renfrew CACC Call Data for Whitewater Region Fire Department)

Though there are data discrepancies between the OFMEM historical calls and the Renfrew CACC historic calls data sets, there are visible trends regarding the volume of calls that are considered as primary calls for the five existing stations. The call volume is typically highest at Station 2 (Cobden), followed by Station 4 (Beachburg). Station 1 (Haley) and Station 5 (Westmeath) have similar call volumes as the primary station and Station 3 (Foresters Falls) typically has the lowest volume of calls as the primary station.

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 OHSA Section 21 Guidance Notes within this FMP recommends that the Township of Whitewater Region should be benchmarking fire suppression capabilities utilizing 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 utilizing 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.

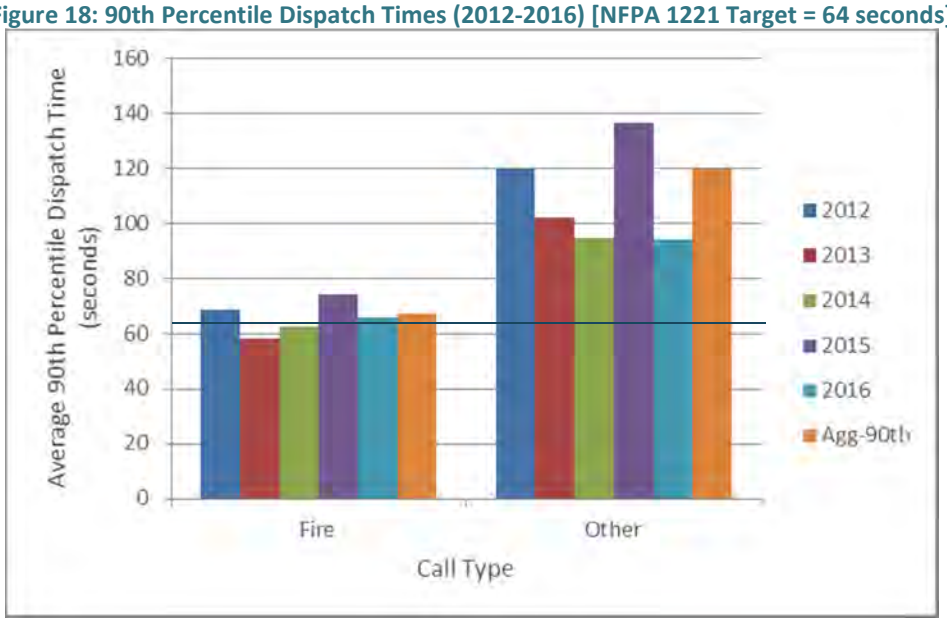
7.6.6.1 Dispatch Time Township of Whitewater Region

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 previously within this FMP, the Township contracts fire dispatching to the Renfrew County. Best practices within the fire service reflects the use of the NFPA 1221 Standard for the Installation, Maintenance, and Use of Emergency Services Communications Systems, 2016 Edition as the benchmark for assessing fire dispatching times.

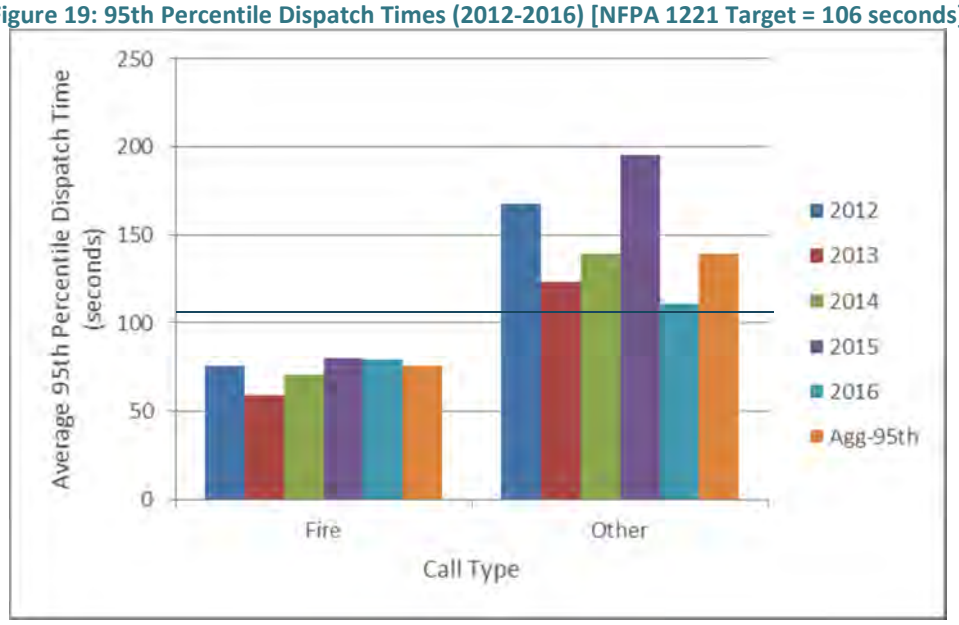
For the purposes of this review an analyses of the NFPA 1221 Standard for call taking and dispatching was complete. This benchmark requires these tasks to be completed within 64 seconds for 90% of incident dispatch and tasks to be completed within 106 seconds for 95% of the incidents dispatched. **Figure 18** presents the 2012 to 2016 dispatching performance in comparison to the NFPA 1221 90th benchmark. **Figure 19** presents the 2012 to 2016 dispatching performance in comparison to the NFPA 1221 95th benchmark. For presentation purposes this information is provided for fire and other types of calls.

Figure 18: 90th Percentile Dispatch Times (2012-2016) [NFPA 1221 Target = 64 seconds]



This analysis indicates that the performance objective for emergency dispatching within 64 seconds for at least 90% of fire calls between 2012 and 2016 was well-achieved, however, was not met for other call types.

Figure 19: 95th Percentile Dispatch Times (2012-2016) [NFPA 1221 Target = 106 seconds]



This analysis indicates that the performance objective for emergency dispatching within 106 seconds for at least 95% of fire calls was well-achieved, however, for other call types was not met.

7.6.6.2 Turnout Time – Whitewater

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 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).

We learned during interviews with key stakeholders including the volunteer firefighters that they respond directly to the scene of an emergency, rather than reporting to a fire station to respond on the fire apparatus. The consultation process also identified that on more than one occasion all of the responding volunteer firefighters responded to the scene, resulting in no volunteer firefighters responding to the fire station to bring the apparatus and equipment to the scene. We also learned that the volunteer firefighters are not always affiliated with the station closest to their home. There are currently no operational guidelines or policies directing personnel to report to the station.

The WRFD does not currently have any process to track the number of volunteer firefighters that respond directly to an incident that would inform how many volunteer firefighters responded and the time they arrived at the scene. The only historical data available for determining the turnout time of the volunteer firefighters was obtained from Renfrew CACC dispatch reports. These are faxed to the department following every incident. In some incidents these contained hand written notes identifying the number of volunteer firefighters responding to determine turnout time. The staffing per apparatus was calculated as the 80th percentile staffing level on the initial arriving apparatus from the OFMEM call data.

Based on the available data, **Table 23** provides a summary of the turnout times by apparatus (responding from the fire stations) for fire calls from 2014 to 2016.

Table 23: Historical Turnout Times by Station and Apparatus

Station	Apparatus	80th Percentile Fire Call Turnout Time *min:s*	Assumed Minimum Staffing per Apparatus
Station 1 - Haley	Pump 9625	10:32	2 Firefighters
	Tanker 9719	12:19	1 Firefighter
Station 2 – Cobden	Pump 9633	10:30	4 Firefighters
	Tanker 9723	14:54	1 Firefighter
Station 3 – Foresters Falls	Pump 9640	13:51	2 Firefighters
Station 4 – Beachburg	Pump 9634	8:01	2 Firefighters
	Tanker 9718	12:32	1 Firefighter
Station 5 - Westmeath	Pump 9639	15:58	2 Firefighters

The turnout times for the first responding apparatus are fastest at Station 4 (Beachburg), Station 2 (Cobden) and Station 3 (Haley). Both Station 3 (Foresters Falls) and Station 5 (Westmeath) have turnout times that exceed the response time target of 14 minutes.

Industry best practices indicate that the WRFD should develop a process to identify the turnout time and number of volunteer firefighters responding to every emergency incident. Regardless of whether the

volunteer firefighter responds directly to the emergency incident, or to the fire station the WRFD must be able to determine the turnout time for each volunteer firefighter. Ideally this process should be initiated at the Renfrew CACC and tracked electronically. It should also link to the department's accountability system to ensure a seamless tracking of all responding volunteer firefighters.

Recommendation #43: ***That the Fire Chief be directed to develop a process for tracking the turnout time of all responding volunteer firefighters as referenced within the proposed Fire Master Plan.***

7.6.6.3 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 and two more on the second responding apparatus was completed.[7] **Table 24** presents the results of the peer assessment of the averaged 80th percentile turnout times of the six municipalities.

Table 24: Comparison Turnout Times

Comparison Municipalities	
Deployment	**Turnout Time**
Minimum 4 Firefighters (1st Apparatus)	6 minutes 30 seconds
Minimum 2 Firefighters (2nd Apparatus)	8 minutes 30 seconds

Compared to the WRFD turnout times presented in **Table 23** the department's turnout times are longer and volunteer firefighter responses are less per first and second responding apparatus. Turnout time is an area noted for improvement for WRFD. Improving turnout times would improve the response times to emergency incidents and improve the ability to provide fire response coverage, as measured against the NFPA 1720 rural demand zone performance target. As well, it should be noted that the minimum deployment procedure for all of comparable communities requires four firefighters on the first responding apparatus. This reflects municipal best practices for the fire service in Ontario.

Of importance to this review is the current practice of the Whitewater Region Fire Department that does not require the volunteers to respond directly to the fire station, and the current deficiency of all first responding apparatus to accommodate at least four firefighters.

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

Recommendation #44: ***That as part of preparing the implementation plan for the proposed Fire Master Plan the Fire Chief be directed to identify strategies to improve the turnout time and initial apparatus staffing as presented within the proposed Fire Master Plan.***

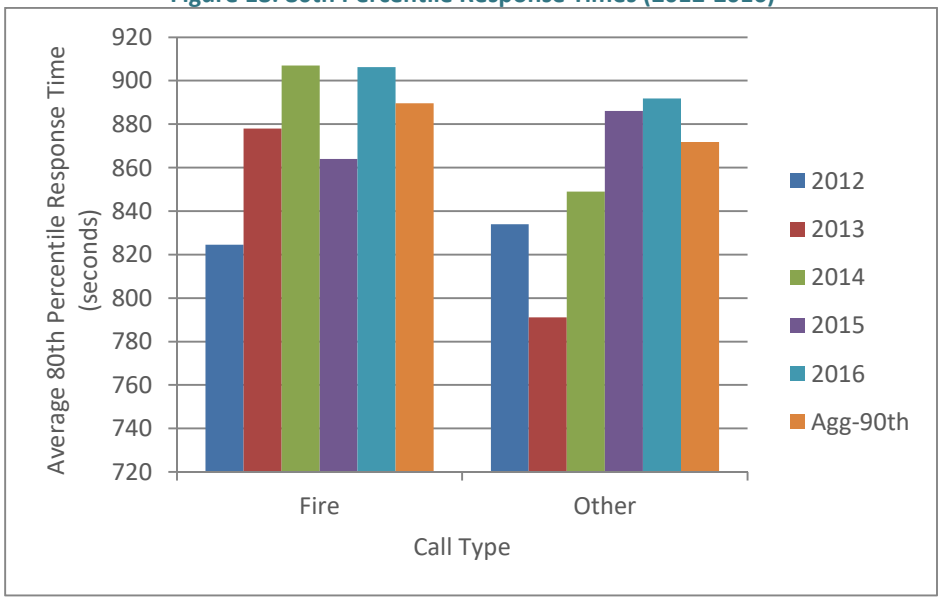
7.6.7 Response Time (Turnout Time + Travel Time)

The NFPA 1720 Rural Area Demand Zone Standard provides an appropriate benchmark for assessing WRFD fire suppression capabilities. This standard targets a minimum of six firefighters responding within a 14 minute (840 second) time frame for 80% of emergency calls. Response time is defined as the sum of turnout time plus travel time.

Analyzing the historical call data provided by the fire department offers an opportunity to assess the response time performance of the WRFD in comparison to a recognized industry best practice.

Figure 18 illustrates the 80th percentile response times (turnout time + travel time) by station for all call types. The graph indicates that in 2012 both fire calls and other calls, and other calls in 2013, had 80th percentile response times of less than the 14 minute (840 second) performance objective. Fire response times from 2013 to 2016 and other calls from 2014 to 2016 exceeded the 14 minute target. These response times represent the first apparatus arriving on-scene, not the successful arrival of the targeted six firefighters on-scene. Therefore the WRFD is deficient in comparison to the NFPA 1720 performance target.

Figure 18: 80th Percentile Response Times (2012-2016)



7.6.7.1 Travel Time – Whitewater

The calculated travel time available for each responding apparatus was determined by subtracting the historical turnout time for each apparatus from the corresponding response time (i.e. 14 minutes

response time for the rural standard). This provides an accurate representation of the available travel time for each apparatus for the fire stations to the incident. Based on the available data, **Table 25** provides a summary of the turnout times and calculated travel times by apparatus for fire calls from 2014 to 2016. These values will be used to model the existing emergency response performance within this FMP.

Table 25: Historical Turnout Times by Station and Apparatus (2014 to 2016)

Station	Apparatus	80th Percentile Fire Call Turnout Time *min:s*	NFPA 1720 Calculated Travel Time (14 minute Total Response Time – 80th percentile Turnout Time) *min:s*	Assumed Minimum Staffing per Apparatus
Station 1 - Haley	Pump 9625	10:32	3:28	2 Firefighters
	Tanker 9719	12:19	1:41	1 Firefighter
Station 2 – Cobden	Pump 9633	10:30	3:30	4 Firefighters
	Tanker 9723	14:54	0:0 (turnout time exceeds 14 minutes of total response time)	1 Firefighter
Station 3 – Foresters Falls	Pump 9640	13:51	0:09	2 Firefighters
Station 4 – Beachburg	Pump 9634	8:01	5:59	2 Firefighters
	Tanker 9718	12:32	1:28	1 Firefighter
Station 5 - Westmeath	Pump 9639	15:58	0:0 (turnout time exceeds 14 minutes of total response time)	2 Firefighters

As shown in the table above, there is no remaining travel time for the first departing apparatus from Stations 3 and 5 as well as the second departing apparatus from Station 2 due to turnout times that exceed the 14 minute response time target.

7.6.8 Volunteer Firefighter Emergency Response

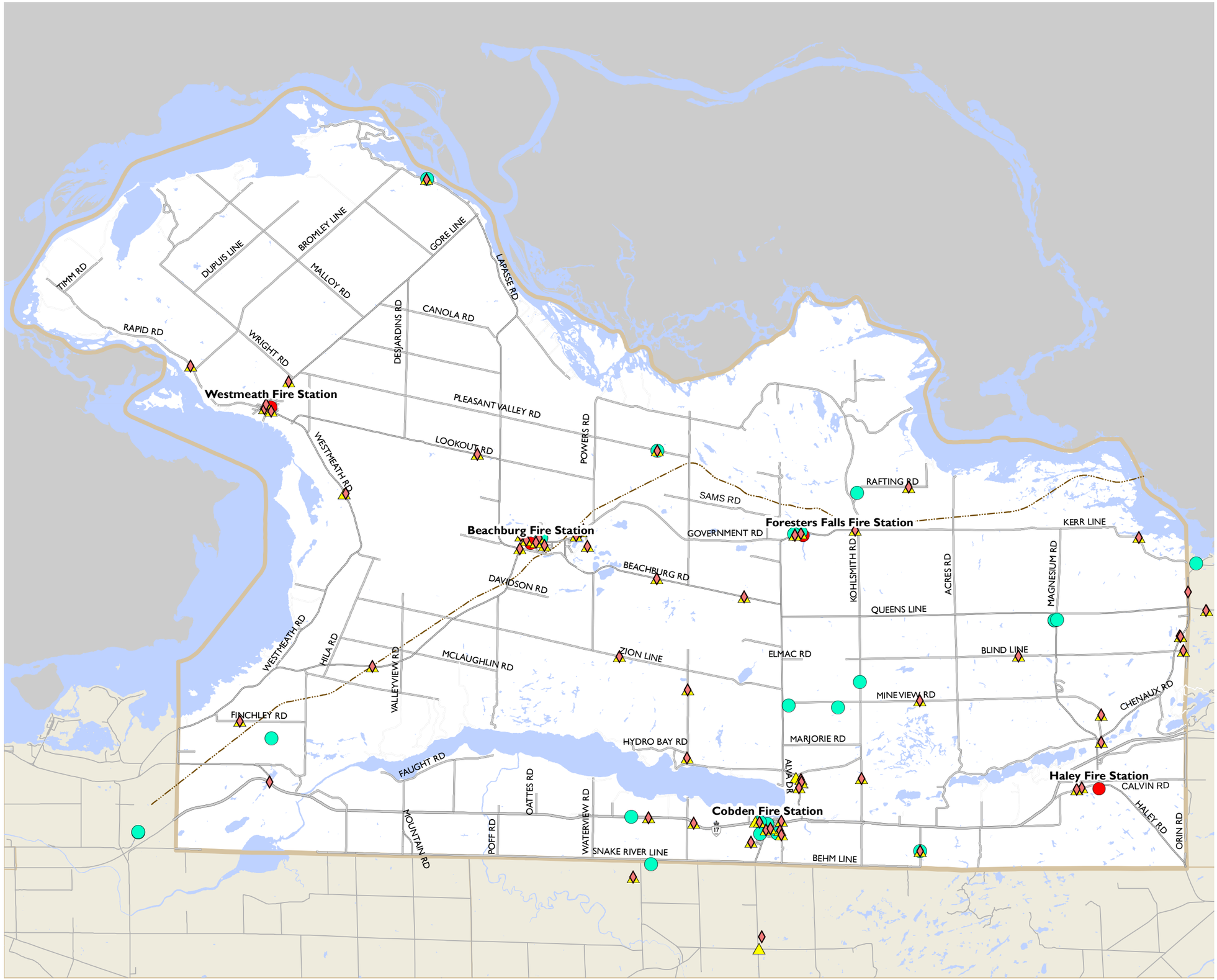
One of the most significant challenges facing the department, as noted during stakeholder consultation, is the availability and response of volunteer firefighters, particularly Monday through Friday during normal business hours. In response to this challenge the department has historically alerted multiple

stations or all volunteer firefighters to respond to incidents. Currently, firefighters do not necessarily respond to the station closest to their home or work.

7.6.8.1 Location of the Volunteers

The analysis of a volunteer emergency response needs to take into account where the volunteers live, work and spend recreational time. **Figure 19** presents the locations within the Township of Whitewater Regional where the current complement of volunteers live, their currently location of work and where they tend to be on weekends. As shown on the map, there is the greatest concentration of volunteers located in Cobden and Beachburg. There is a good distribution of residences and places of employment surrounding the Haley Fire Station. The volunteer locations around Foresters Falls appear to be distributed more widely and overlap with the catchment areas of Beachburg, Cobden and Haley. The concentration of volunteers in the Westmeath area is notably the lowest. It was noted during the volunteer firefighter stakeholder consultation sessions that recruitment and retention in the Westmeath area is an ongoing challenge.

As with many rural areas, several of the volunteer firefighters work or spend weekends and recreational time outside of the Township boundary. These addresses are presented in **Figure 20**. A few of the volunteer firefighters for WRFD also live outside of the exact Township boundary, though within reasonably close proximity.



WHITEWATER REGION

WHITEWATER REGION
FIRE MASTER PLAN

Locations of Volunteer Firefighters (Home, Work and Weekends)
Figure 19

- Existing Fire Station
- Volunteer Home Address
- Volunteer Weekend Address
- Volunteer Work Address
- Provincial Highway Road
- County Road
- Municipal Maintained Road
- Municipal Seasonal Road
- Private Road
- Recreational Trail
- Ohn Waterbody
- Township of Whitewater Region
- Renfrew County

0 0.5 1 2 km

1:120,000

MAP DRAWING INFORMATION:
DATA PROVIDED BY MNR AND WHITEWATER REGION

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

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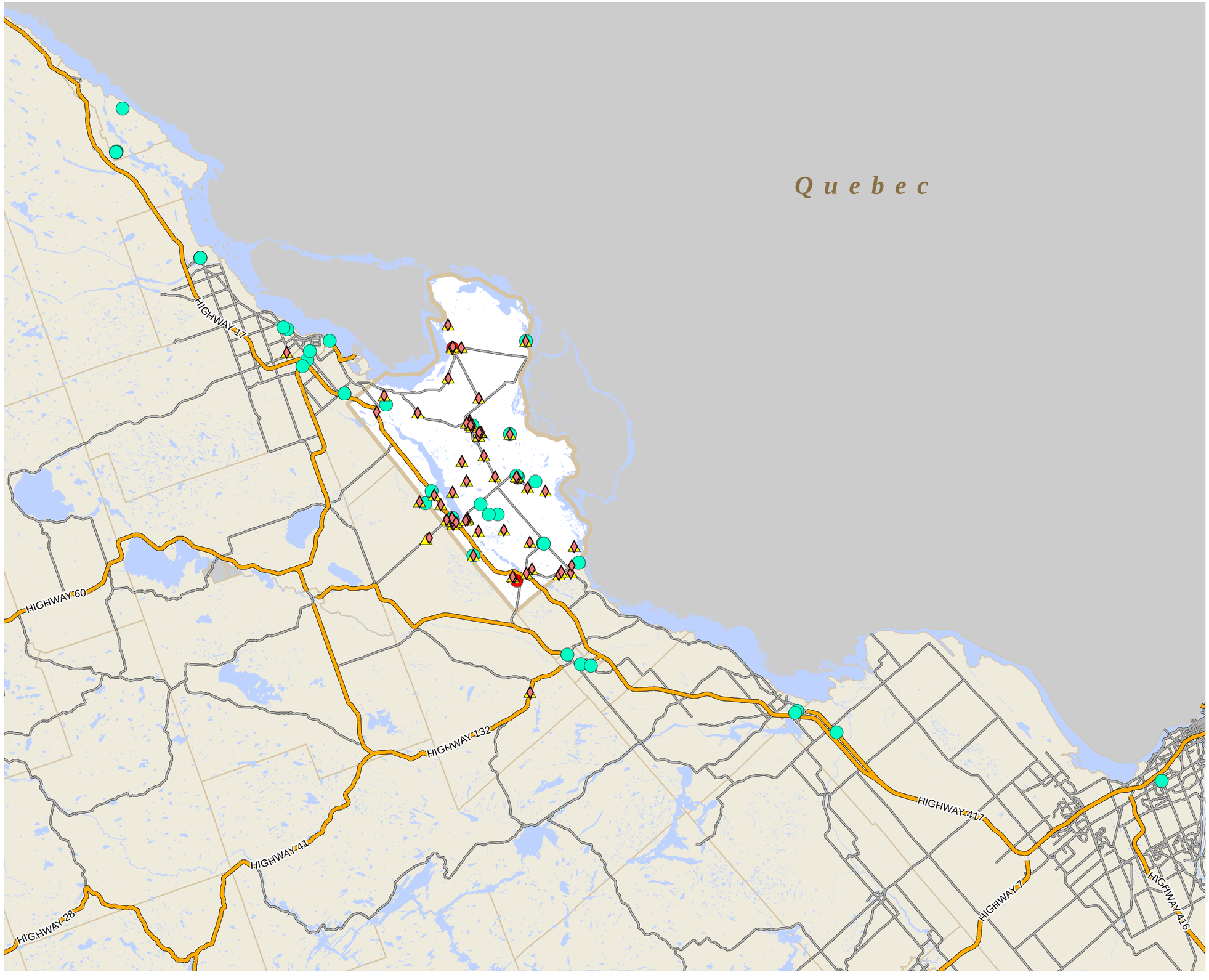
PROJECT: 17-5880
STATUS: DRAFT
DATE: 2017-12-19



WHITEWATER REGION

WHITEWATER REGION
FIRE MASTER PLAN

Locations of Volunteer Firefighters (Home, Work and Weekends) - Regional Extent
Figure 20

- Existing Fire Station
- Volunteer Home Address
- Volunteer Weekend Address
- Volunteer Work Address
- Highway or Freeway
- Major Road
- Ohn Waterbody
- Township of Whitewater Region
- Municipal Boundary

0 2.5 5 10 km

1:450,000

N W E S

MAP DRAWING INFORMATION:
DATA PROVIDED BY MNR AND WHITEWATER REGION

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

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DATE: 11/21/2017

7.6.8.2 Volunteers Responding to the Emergency Scene

Another historic practice of the department has been to allow volunteer firefighters to respond directly to an emergency incident utilizing their personal vehicles. The Highway Traffic Act (HTA), 1990 allows volunteer firefighters to display a flashing green light in their personal vehicle when responding to emergencies. Volunteer firefighters may use flashing green lights on personally owned vehicles while proceeding to emergencies, including response to the scene or to the fire station. This information is also contained within **PFSG 04-89-03 Emergency Response.**

The practice of allowing volunteer firefighters to respond directly to an incident has both benefits and risks including:

Potential Benefits:

- A faster response time (turnout time + travel time) of the volunteer firefighters directly to an emergency incident; and
- A faster assembly of the required number of volunteer firefighters to initiate the critical fire ground tasks required to mitigate the incident.

Potential Risks:

- No pre-determined minimum number of volunteer firefighters assigned to the response of a fire apparatus;
- The potential of no volunteer firefighter responding to the fire station to staff apparatus;
- OHSA requirements to work in pairs on an emergency scene and have a qualified supervisor present; and
- OHSA requirements for gear (e.g. bunker gear, breathing apparatus) cleaning, maintenance and storage.

In our experience fire departments utilizing volunteer firefighters prioritize the need for the volunteer firefighters to respond directly to the fire station. The exception to this would be where a volunteer firefighter, while enroute to the fire station, may pass the scene of a medical call where his/her direct response may be warranted to provide first aid. The use of personnel vehicles to respond to emergency incidents, in our experience, does not reflect an industry best practice. As a result of numerous liabilities, insurance and operational challenges; this past practice is becoming obsolete within the fire service.

Within the Township of Whitewater Region the volunteer firefighters are currently limited by the capacity (seating) of the fire apparatus to support the industry best practice of deploying a minimum of four firefighters on the initial responding vehicle. This FMP includes recommendations to update the current fleet of fire apparatus, in part to support the industry best practices of a minimum initial response of four firefighters. It also recommends the purchase of bunker gear cleaning equipment to ensure that firefighters clean their gear following attendance at a working fire call. This is an important

consideration for situations where bunker gear is transported in personal vehicles, as it can release toxins that develop on the gear during working fire calls.

7.6.8.3 Assigning Volunteer Firefighters by Station

The need to assign volunteer firefighters by station is a core component of how the insurance industry assigns dwelling protection grading. In Canada this process is overseen by the Fire Underwriters Survey™ (FUS), The following description of the organization is provided on the FUS website:

"FUS provides data on public fire protection for fire insurance statistical work and underwriting purposes of subscribing insurance companies. Subscribers of Fire Underwriters Survey represent approximately 85 percent of the private sector property and casualty insurers in Canada.

Fire Underwriters Survey™ Certified Fire Protection Specialists conduct detailed field surveys of the fire risks and fire defenses maintained in built up communities (including incorporated and unincorporated communities of all types) across Canada and the results of these surveys are used to establish a Public Fire Protection Classification™ (PFPC) for each community.

While Fire Underwriters Survey is not involved in rate making matters, the information provided through the Fire Insurance Grading Index is a key factor used in the development of Commercial Lines property insurance rates. The PFPC is also used by underwriters to determine the capacity of risk they are willing to assume in a given community or section of a community."

The Dwelling Protection Grading System applied by FUS requires a minimum of 15 auxiliary firefighters (i.e. volunteer firefighters) to be assigned to a fire station to determine whether a fire department meets the necessary benchmarks to effectively fight fires in small buildings, such as one and two family dwellings. Based on our experience working with volunteer department throughout Ontario we would suggest that municipal best practices reflect a minimum of 20 to 25 volunteer firefighters per station. In our view a minimum total complement of 100 volunteer firefighters would be required to appropriately staff the existing five Whitewater Region Fire Department stations.

This Fire Master Plan includes further analysis of options for the number and location of fire stations within the Township. Due to the ongoing turnover rate and recruitment and retention challenges of volunteer firefighters, this FMP recommends that the actual Council approved minimum complement of 100 volunteer firefighters, regardless of the number of stations. This strategy provides the department with some flexibility in sustaining the FUS required 15 volunteer firefighters per station at all times

***Recommendation #45:* That the minimum complement of Volunteer Firefighters within the Township of Whitewater Region be approved by Council as 100 volunteer firefighters.**

7.7 Assessment of Existing Fire Suppression Capabilities

In order to assess existing fire suppression capabilities we modelled department performance using a GIS-based model, 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 methodology used to provide insight into the modelling procedures applied to assess existing response coverage, station location considerations and staff deployment options.

A roads- based GIS program, using the online ESRI calibrated transportation network, was used to assess the fire department's response coverage capabilities. The online ESRI platform provides base road information, such as road length, address ranges, and road travel speeds. The model reflected travel speeds at 12:00 noon on weekdays. This was applied as a proxy to represent the general traffic conditions experienced by the fire department.

The historic call locations were geographically located along the road network, to allow them to be mapped and presented.

The existing conditions were based on the existing road network and Township boundary. This information, combined with the station location, was used to build graphical "response polygons" around the stations. 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.

7.7.2 Existing Response Capabilities Model

The current Whitewater Region Fire Department includes a five station model, with fire halls located throughout the Township in Haley, Cobden, Foresters Falls, Beachburg and Westmeath. Through analysis of the Township's historical call data, the turnout time, available travel time and assumed number of volunteer firefighters arriving on the first and second responding apparatus from each fire station was utilized to determine the existing response capabilities. Although we recognize that there may have been additional volunteer firefighters who responded directly to the emergency incidents there is currently no data available to substantiate this. As well there were instances noted during stakeholder interviews, although rare, where no volunteer firefighters responded to the fire station to transport the apparatus and equipment to the emergency scene. In our view this raises the importance of a volunteer firefighter response model that requires an assured response to the fire station and the

response of a minimum of four volunteer firefighters on the first apparatus and two volunteer firefighters on the second apparatus from each station.

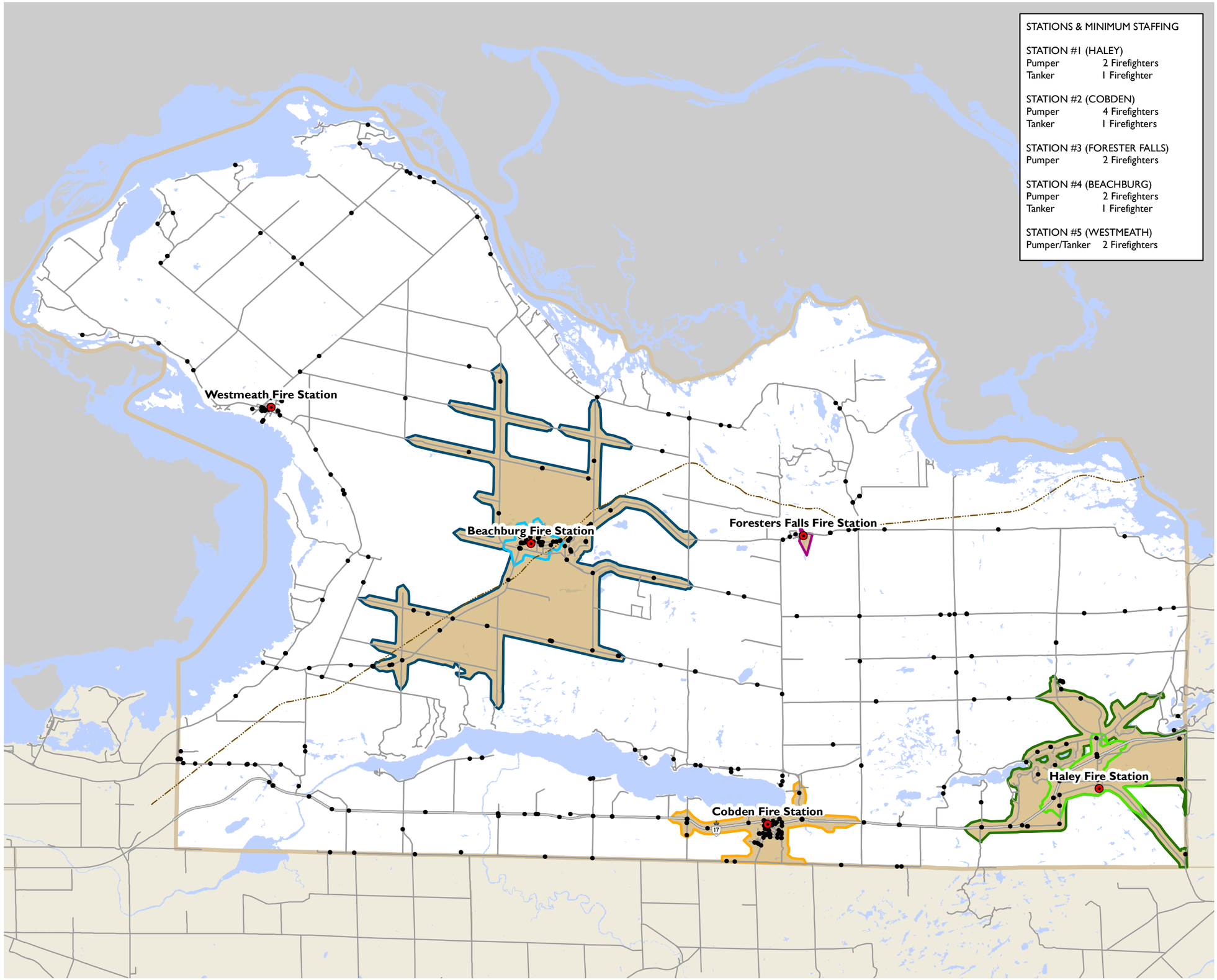
The existing conditions of fire suppression response capabilities are compared to the NFPA 1720 Rural Area Demand Zone. For the purposes of assessing existing emergency response capabilities and assessing station location performance we applied the assumed minimum staffing levels per apparatus (based on historic call data from the OFMEM) and the available travel time for each apparatus (based on 14 minutes of response time as per the NFPA 1720 rural standard, subtracting the actual 80th percentile turnout time per apparatus from fire call data (collected from Renfrew CACC faxes) from 2014 to 2016, summarized in **Table 26**.

Table 26: Turnout Times, Travel Times and Minimum Staffing – Existing Conditions Baseline Conditions

Station	Apparatus	80th Percentile Fire Calls (2014-2016) Turnout Time *min:s*	NFPA 1720 Calculated Travel Time (14 minute Total Response Time – 80th percentile Turnout Time) *min:s*	Assumed Minimum Staffing per Apparatus (based on 80th percentile staffing from OFMEM call data 2012-2016)
Station 1 - Haley	Pump 9625	10:32	3:28	2 Firefighters
	Tanker 9719	12:19	1:41	1 Firefighter
Station 2 – Cobden	Pump 9633	10:30	3:30	4 Firefighters
	Tanker 9723	14:54	0:0 (turnout time exceeds 14 minutes of total response time)	1 Firefighter
Station 3 – Foresters Falls	Pump 9640	13:51	0:09	2 Firefighters
Station 4 – Beachburg	Pump 9634	8:01	5:59	2 Firefighters
	Tanker 9718	12:32	1:28	1 Firefighter
Station 5 - Westmeath	Pump 9639	15:58	0:0 (turnout time exceeds 14 minutes of total response time)	2 Firefighters

7.7.3 Existing Response Capabilities Results

The results of the existing fire suppression response capabilities are shown below in **Figure 21**. Under existing conditions (and based on the available data), the WRFD is not able to meet the performance target of six firefighters arriving in 14 minutes of response time anywhere within the Township. There are, however, significant areas around Station 4, Station 1 and Station 2 where at least one apparatus can respond to within 14 minutes of response time. There is a small area where Station 3 can respond with its first departing apparatus, but it is quite limited due to the short amount of travel time available. As well there is no travel time available for a response from Station 5. The response map also presents the locations of historic emergency calls from 2012 to 2016. The highest concentrations of calls are shown to be located in the areas of Cobden and Beachburg. There are also a significant number of calls around the Haley Station, though less concentrated than within the higher population centres of Cobden and Beachburg.



STATIONS & MINIMUM STAFFING

STATION #1 (HALEY)
Pumper 2 Firefighters
Tanker 1 Firefighter

STATION #2 (COBDEN)
Pumper 4 Firefighters
Tanker 1 Firefighters

STATION #3 (FORESTER FALLS)
Pumper 2 Firefighters

STATION #4 (BEACHBURG)
Pumper 2 Firefighters
Tanker 1 Firefighter

STATION #5 (WESTMEATH)
Pumper/Tanker 2 Firefighters

WHITEWATER REGION

WHITEWATER REGION
FIRE MASTER PLAN

EXISTING FIRE RESPONSE CAPABILITIES - FIVE STATION MODEL

Figure 21

- Existing Fire Station
- Historic Fire Call (2012-2016)
- Provincial Highway Road
- County Road
- Recreational Trail
- Township of Whitewater Region
- Renfrew County

Service Area

- Station 1 Tanker - 1min 41s Travel Time Availability
- Station 1 Pumper - 3min 28s Travel Time Availability
- Station 2 Pumper - 3min 30s Travel Time Availability
- Station 3 Pumper - 9s Travel Time Availability
- Station 4 Pumper - 5min 59s Travel Time Availability
- Station 4 Tanker - 1min 28s Travel Time Availability

Staffing

- Less than 6 Firefighters
- 6 or More Firefighters

Note:
Station 5's pumper/tanker and Station 2's Tanker had 0 second travel time availabilities. As a result, their service areas were not modelled.
Existing response capability of assembling 6 firefighters with a combined 14 minute turnout time and travel time to 0% of the township's existing road network.

0 0.5 1 2 km

1:120,000

MAP DRAWING INFORMATION:
DATA PROVIDED BY MNR AND WHITEWATER REGION

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

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STATUS: DRAFT
DATE: 2017-12-19

7.8 Fire Station Location and Operating Model Options

During the stakeholder engagement sessions we learned that the Township is interested in investigating alternatives to the existing five station model. The analyses of fire station locations and operating model alternatives must consider all factors, including the required capital investment for fire station improvements; apparatus needs based on the number of fire stations and volunteer firefighters; and the operating model to provide sufficient volunteer firefighters to make the operating model financially and operationally effective and efficient in order to be sustainable. The analysis within this section assesses two fire station location models and the supporting operating model requirements. This section does not assess the capital financing requirements for the options presented.

7.8.1.1 Option 1: Sustain Existing Five Station Model

The first option for Council's consideration is to sustain the existing five fire station model. This option focuses on making changes to the current distribution of volunteer firefighters at each fire station to align with the minimum complement of 15 volunteer firefighters per fire station recommended by the Fire Underwriters Survey™, and the proposed total complement of 100 volunteer firefighters recommended within this FMP.

This option would require the implementation of following operational improvements:

- Implementing a targeted recruitment strategy to increase the number of volunteer firefighters available at each fire station to attain a complement of 20 volunteer firefighters per fire station, and the recommended total complement of 100 volunteer firefighters;
- In addition to focusing the recruitment strategy on specific areas such as Station 3 (Foresters Falls) and Station 5 (Westmeath) consideration should be given to the proposed volunteer firefighters availability Monday through Friday daytime;
- Identifying strategies to enhance the current retention practices and policies of the WRFD to sustain the increased volunteer firefighter complement;
- The implementation of strategies to improve the data collection process and procedures to record the turnout times of all responding volunteer firefighters and apparatus ; and
- The implementation of strategies to ensure the recommended minimum response of volunteer firefighters on each apparatus from each fire station.

Subject to successfully implementing the identified operational improvements it is anticipated that the WRFD could improve turnout times to reflect those closer to the peer group turnout times presented previously in **Table 24**. These turnout times would reflect the first apparatus departing the stations at 6 minutes 30 seconds, staffed with a minimum of four firefighters and the second apparatus where applicable departing the station at 8 minutes 30 seconds staffed with a minimum of two firefighters.

The modelled fire suppression capabilities resulting from this scenario are shown in **Figure 22**. This option results in 52.2% of the Township's existing road network being covered by six firefighters responding within 14 minutes of travel time. It also increases the area where at least four firefighters

can respond within 14 minutes of response time, which improves the initial response performance of the department. This scenario doesn't achieve the 80% performance objective of NFPA 1720, but represents a significant improvement from the existing response coverage performance.

Based on our research and the consultation process with the volunteer firefighters the successful implementation of the proposed operational improvements will be a challenge in the areas of the community where it is has been historically challenging to recruit and retain volunteer firefighters. It should be recognized that this challenge is not uncommon. The recruitment and retention of volunteer firefighters is a significant issue facing the fire service across Canada.

During the volunteer stakeholder consultation sessions it was specifically noted that the Westmeath Station and the Foresters Falls Station have both been historically challenged regarding volunteer firefighter recruitment and retention. In our view this should not discourage the efforts to develop targeted recruitment strategies to attain the operational improvements identified within this option.

STATIONS & MINIMUM STAFFING

STATION #1 (HALEY)
Pumper 4 Firefighters
Tanker 2 Firefighter

STATION #2 (COBDEN)
Pumper 4 Firefighters
Tanker 2 Firefighters

STATION #3 (FORESTER FALLS)
Pumper/Tanker 4 Firefighters

STATION #4 (BEACHBURG)
Pumper 4 Firefighters
Tanker 2 Firefighters

STATION #5 (WESTMEATH)
Pumper/Tanker 4 Firefighters

Station 5
Station 4
Station 3
Station 2
Station 1
17

WHITEWATER REGION

WHITEWATER REGION
FIRE MASTER PLAN

FUTURE IMPROVED CONDITIONS - FIVE STATION MODEL
Figure 22

- Existing Fire Station
- Historic Fire Call (2012-2016)
- Provincial Highway Road
- County Road
- Recreational Trail
- Township of Whitewater Region
- Renfrew County

Service Area

- Station 1 Pumper - 6min 30s Travel Time Availability
- Station 1 Tanker - 8min 30s Travel Time Availability
- Station 2 Pumper - 6min 30s Travel Time Availability
- Station 2 Tanker - 8min 30s Travel Time Availability
- Station 3 Pumper/Tanker - 6min 30s Travel Time Availability
- Station 4 Pumper - 6min 30s Travel Time Availability
- Station 4 Tanker - 8min 30s Travel Time Availability
- Station 5 Pumper/Tanker - 6min 30s Travel Time Availability

Staffing

- Less than 6 Firefighters
- 6 or More Firefighters

Note:
Future response capability of assembling 6 firefighters with a combined 14 minute turnout time and travel time to 52.2% of the township's existing road network.

0 0.5 1 2 km

1:120,000

MAP DRAWING INFORMATION:
DATA PROVIDED BY MNR AND WHITEWATER REGION

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

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PROJECT: 17-5880
STATUS: DRAFT
DATE: 2017-12-19

7.8.1.2 Option 2: Proposed Three Station Model

Throughout the stakeholder consultation process including those with the volunteer firefighters, the number of fire stations was a common topic of feedback. In part this may be attributed to previous reports including the previous Fire Master Plan. In our view the feedback represented a consistent message that sustaining the current five station model may not be a viable or affordable option.

As a result, this fire master planning process considered a number of alternatives that resulted in the proposed three station model. Although this option proposes sustaining only three fire stations it focuses on **sustaining all of the current volunteer firefighters** within a revised operating model. This operating model recognizes the challenges of recruiting and retaining volunteer firefighters and proposes a model that builds on the dedication and commitment of its current volunteer firefighters.

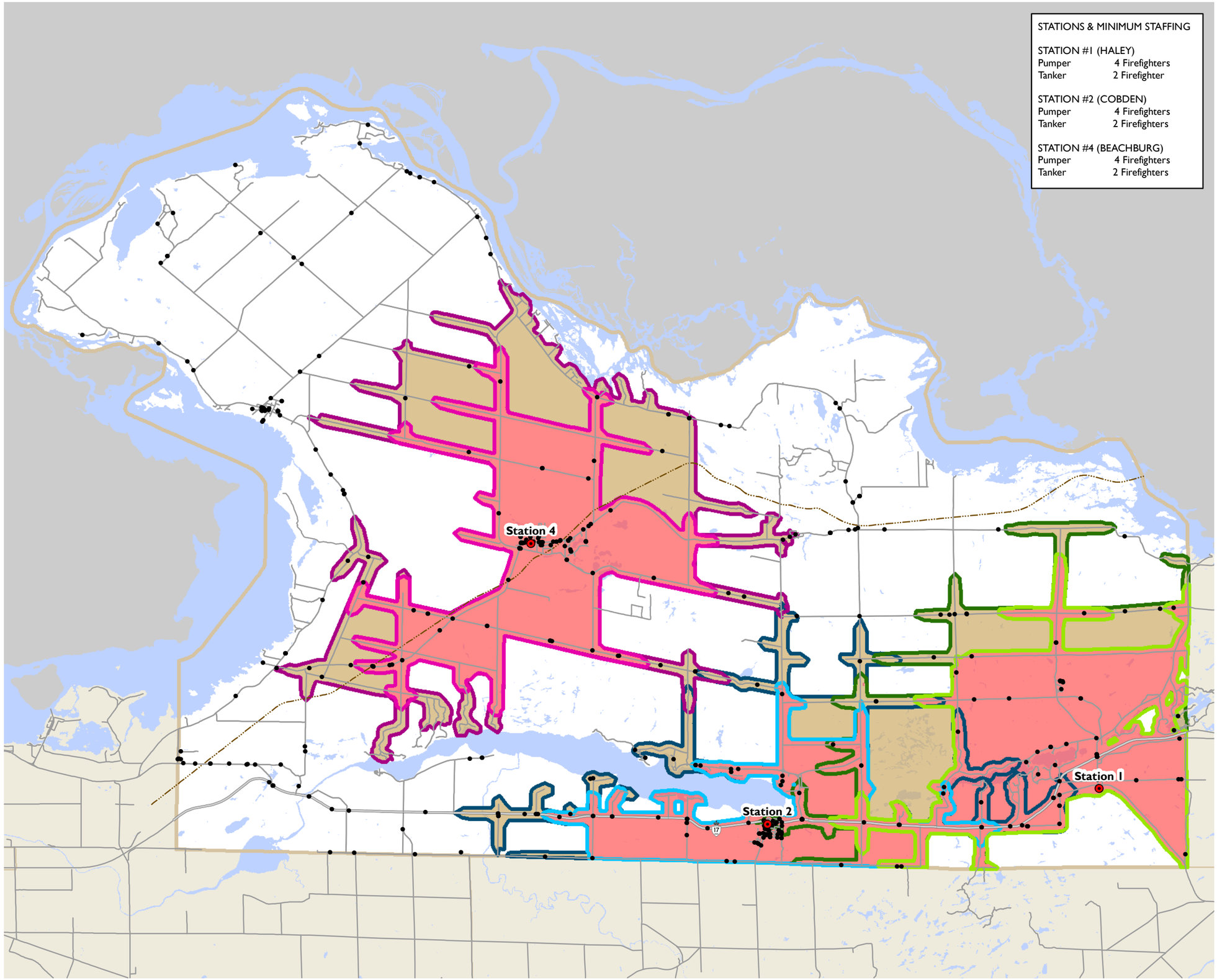
This option includes sustaining the fire stations. The stations should be located in the areas that experience the highest call volumes and have the greatest number of volunteers living and working in the area. We expect the Cobden and Beachburg areas to remain the highest call volume and volunteer presence areas, due to the population size of the Centres. The third station modelled in this scenario was located in Haley, based on existing and available information, however, the locations of the three future stations would need to be confirmed with a review of updated data prior to implementing the three station model. Our current analysis of the three station model indicates that the three fire stations (Station 1, Station 2 and Station 4) have historically proven to have the fastest historical turnout times, the most consistent existing apparatus staffing and are located in the areas where most calls are located. These locations also represent geographical areas with the greatest concentrations of volunteer firefighters living and working within close proximity to the fire stations. There are also significant business areas with Cobden and Beachburg and the Haley area hosts industrial land uses.

In our view the implementation of this option would continue to require the operational improvements identified Option 1. Although only three fire stations are proposed, the total complement of 100 volunteer firefighters is still recommended. Where this option differs slightly from Option 1 is that priority should be given to recruiting new volunteer firefighters who live and or work in close proximity to the proposed three fire stations locations.

Volunteer firefighters who are currently assigned to the other two station areas would be reassigned to one of the other three stations. For these firefighters, providing a policy, training and supporting actions to allow for them to report directly to the scene in a safe and managed fashion would allow for their response times to be unaffected by the locations of their reassigned stations. Our understanding from the stakeholder sessions is that many of the volunteer firefighters already report directly to the scene the majority of the time. It is important that the three station model seeks to retain the existing complement of volunteers, as well as to target recruitment to achieve the target complement size of 100 volunteer personnel.

The results from modelling the fire suppression capabilities of this option are shown in **Figure 23**. This option results in 42.8% of the Township's existing road network being covered by six firefighters responding within 14 minutes of travel time. This scenario doesn't achieve the 80% performance objective of NFPA 1720, and provides 9.4% less coverage than the improved five station model, but is still a significant improvement from the existing response coverage performance. There is also a benefit that the capital and operating costs associated with maintaining a three station model are significantly less than with a five station model.

With improved data collection measures, the WRFD will also be able to track the arrival of volunteer firefighters who do report directly to the scene. It is anticipated that this data will show an even better response coverage result, as the modelling shown within this FMP is based on available data that does not track or measure the arrival of volunteer firefighters as they report directly to the scene.



WHITEWATER REGION

WHITEWATER REGION
FIRE MASTER PLAN

FUTURE IMPROVED CONDITIONS - THREE STATION MODEL

Figure 23

- Existing Fire Station
- Historic Fire Call (2012-2016)
- Provincial Highway Road
- County Road
- Recreational Trail
- Township of Whitewater Region
- Renfrew County

Service Area

- Station 1 Pumper - 6min 30s Travel Time Availability
- Station 1 Tanker - 8min 30s Travel Time Availability
- Station 2 Pumper - 6min 30s Travel Time Availability
- Station 2 Tanker - 8min 30s Travel Time Availability
- Station 4 Pumper - 6min 30s Travel Time Availability
- Station 4 Tanker - 8min 30s Travel Time Availability

Staffing

- Less than 6 Firefighters
- 6 or More Firefighters

Note:
Future response capability of assembling 6 firefighters with a combined 14 minute turnout time and travel time to 42.8% of the township's existing road network.

0 0.5 1 2 km

1:120,000

MAP DRAWING INFORMATION:
DATA PROVIDED BY MNR AND WHITEWATER REGION

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

DILLON CONSULTING

PROJECT: 17-5880
STATUS: DRAFT
DATE: 2017-12-19

7.8.2 Proposed Organizational Models for Options 1 & 2

In our view the Township of Whitewater Region is committed to sustaining a fire department organizational and operating model that utilizes volunteer firefighters. The current complement of volunteer firefighters represents a highly dedicated and committed group who reflect the values of their community.

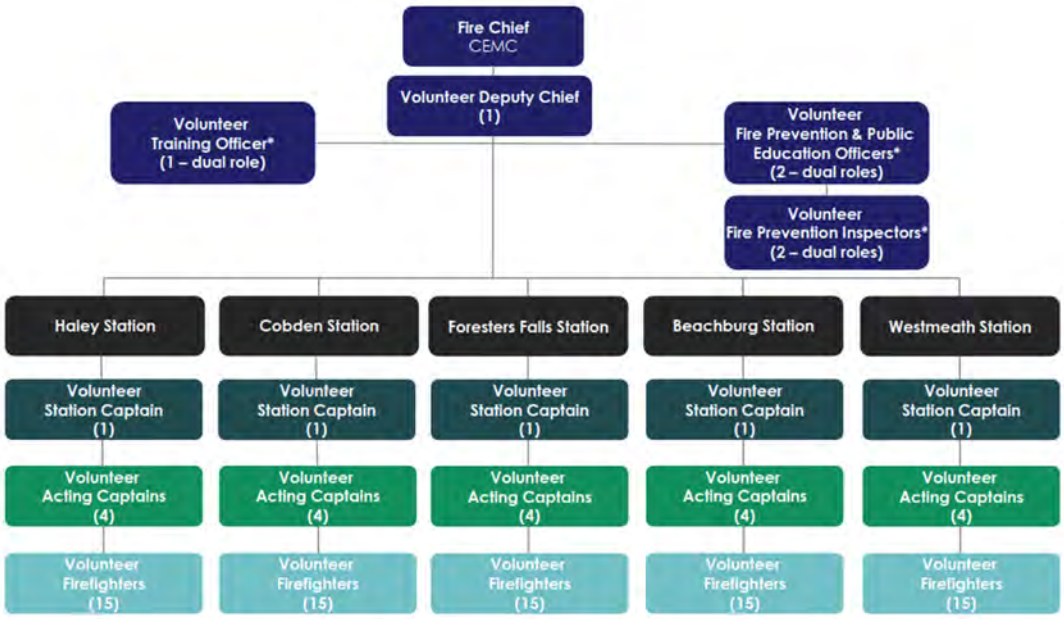
In our experience, and with our knowledge of industry best practices, there is a need to update the current organizational model of the WRFD in order to sustain the efficiency and effectiveness of the department into the future. In our view the existing model does not reflect current industry best practices and respond to the OHSA operational needs of the WRFD.

Both proposed organizational model options include a full-time Fire Chief and volunteer Deputy Fire Chief. In our view these positions are fundamental to the needs of operating the WRFD efficiently and effectively. Both options also include volunteer firefighters who provide a dual role of fire suppression (firefighter) and the following additional role; one Training Officer, two Fire Prevention Officers, and two volunteer firefighters that are mentoring towards becoming volunteer Fire Prevention Officers. As such the organizational model options represent the different fire suppression organizational models proposed for the Fire Station Location Options 1 and 2.

7.8.2.1 Option 1 - Proposed Fire Suppression Organizational Model

This option sustains the role of the current volunteer Captains at each fire station. It also includes developing a pool of volunteer Acting Captains at each station to maintain a ratio of volunteer firefighters to supervisors. The proposed organizational model for Option 1 is presented in **Figure 24**.

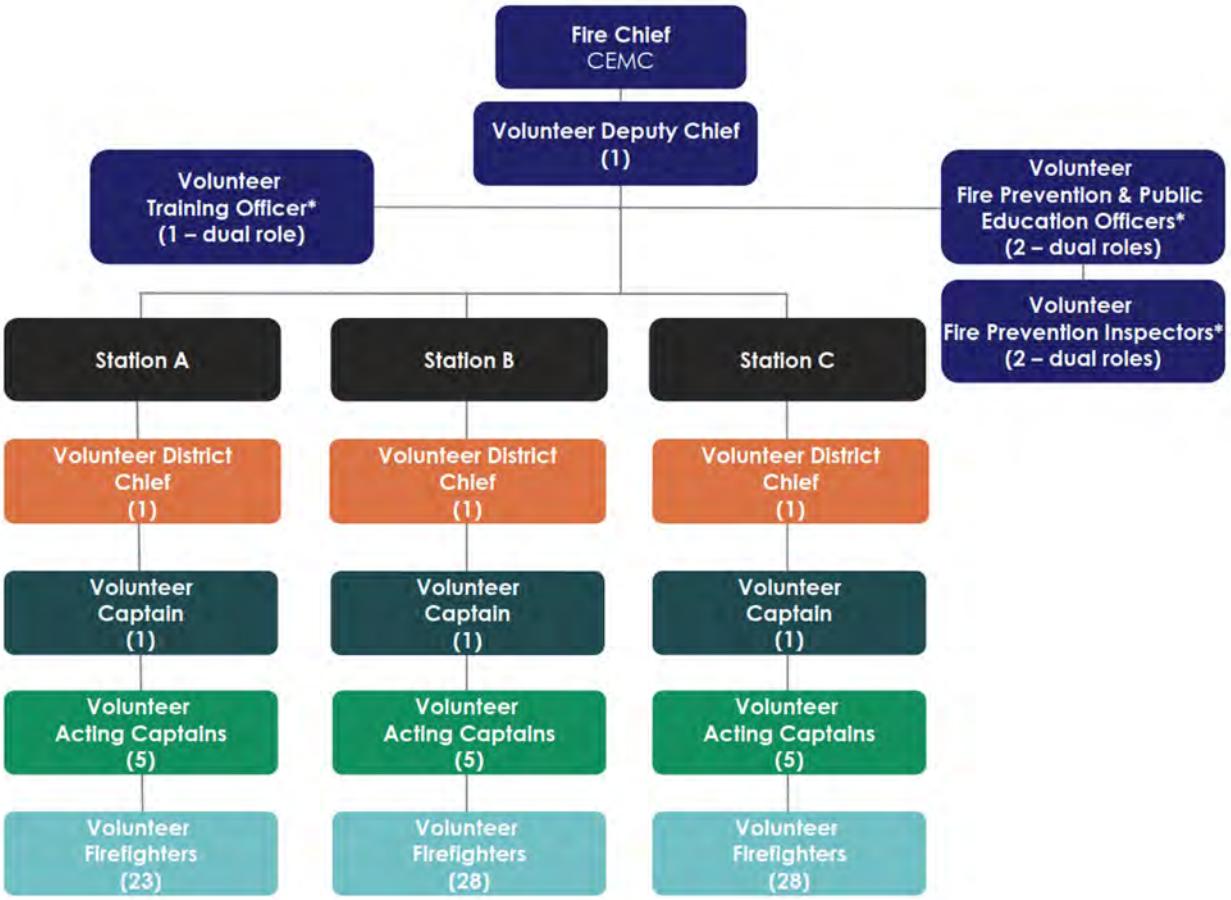
Figure 24: Proposed Whitewater Region Fire Department Organizational Model – Option 1



7.8.2.2 Option 2 – Proposed Fire Suppression Organizatinal Model

This option introduces a new position of volunteer District Chief assigned to each of the three proposed fire stations. This organizational model option recognizes the need for a senior position at each of the fire stations to oversee the delivery of fire protection services to a larger geographical area. This option also includes sustaining the current volunteer Captain position and developing a pool of volunteer Acting Captains to maintain a ratio of volunteer firefighters to supervisors. The proposed organizational model for Option 2 is presented in **Figure 25**.

Figure 25: Proposed Whitewater Region Fire Department Organizational Model – Option 2



<u>Recommendation #46:</u> That subject to Council's consideration and approval of a preferred Fire Station Location option that the proposed organizational model for that option as presented within the proposed 2017 Fire Master Plan be implemented.

7.8.2.3 Proposed Senior Officer On-Call Policy

Industry best practices reflect having a senior officer including the Fire Chief, Deputy Fire Chief or a District Chief available at all times. This ensures that an individual with the skills and competencies to oversee a large incident including participation as member of the Emergency Control Group is available at all times. In the absence of the Fire Chief due to illness, vacation or other reason the identified senior officer on-call would be available to the department and Council to oversee the delivery of fire protection services.

This FMP proposes that a corporate policy be developed to create a senior officer on-call requirement within the WRFD.

***Recommendation #47:* That the Township of Whitewater Region implement a senior officer on-call policy within the Whitewater Region Fire Department.**

7.8.2.4 Proposed Senior Management Team

Our observations of the WRFD indicate that it would benefit from having a senior management team (committee) reporting to the Fire Chief in overseeing the delivery of all fire protection services to the community. Subject to Council's consideration of the proposed Fire Station Location models and corresponding organizational models the membership of the proposed senior management team could be different.

Our recommendation is that Council considers the proposed senior management team concept and in consultation with the Fire Chief review the merits of implementing this proposal.

***Recommendation #48:* That in consultation with the Fire Chief, Council considers the merits of implementing the proposed senior management team referenced in the proposed Fire Master Plan.**

7.9 Fire Station Renewal Plan

As noted in the review of the existing fire stations, all five of the existing WRFD stations have reached life-cycle capacity or have reached a point where significant capital investment will be required to sustain their use. This translates into a significant capital investment for the Township. The proposed fire station location and operating model options propose either sustaining the current five station model or alternatively transitioning to a three fire station model.

Regardless of the fire station model chosen there is an immediate need to begin developing a financing strategy to address the short-term and long-term capital financing needs to either renew the existing fire stations or build new fire stations. In our view a fire station renewal plan should be developed that prioritizes the renewal/replacement of the fire stations in Cobden and Beachburg as the first phase of

the proposed renewal plan. Subject to the decision to select a three station model or to sustain the five station model the third or three additional stations could be added into the renewal plan in the future.

Our research indicates that a similar Township recently completed the design and construction of a 7,000 square foot fire station for use by volunteer firefighters with a total cost of approximately $1,700,000 including architectural and construction costs. In our view this reflects the magnitude of capital financing that would be required should the Township choose to replace any one of the current fire stations.

The existing five stations could be sustained over the short-term, while recruitment and retention efforts are enhanced to aim to achieve an increase in the volunteer firefighter complement. On a long-term basis there will be a need for the renewal, through either replacement or significant renovation, of the existing stations. Sustaining a five station model over the long-term, compared to sustaining a three station model over the long-term, has a higher capital and operating cost associated.

7.9.1 Station Design and Construction

To assist Council and the Fire Chief when considering renewal/replacement of a fire station, the following design elements are typical for a volunteer fire station, based on our experience with comparably-sized municipalities.

- **Main Entrance:** (approximately 350 square feet) readily visible from the street and designed to comply with all requirements of the Accessibility for Ontarians with Disabilities Standards. Include an exterior and interior door to provide a public "Safe Haven" including telephone access to the Fire Dispatch Centre.
- **Deputy Chief/District Chief /Station Captain Office:** (approximately 350 square feet) adjacent to the main entrance and with direct access to a hallway leading to the Apparatus Bays. Room for office desk and cabinets for one staff person and capable of computer and communications compatibility.
- **Prevention/Training Office:** (approximately 450 square feet) adjacent to the Deputy Chief or District Chief office with direct access to a hallway leading to the Apparatus Bays. Room for office desk and cabinets for two staff persons and capable of computer and communications compatibility.
- **Prevention/Training Storage Room:** (approximately 100 square feet) lockable storage area for training props, and public education props and public education materials for public distribution.
- **Public Accessibility Washroom:** (approximately 150 square feet) adjacent to the main entrance to the fire station and designed to accommodate the Accessibility for Ontarians with Disabilities Standards and available for public use.
- **Men's and Women's Washrooms:** (approximately 600 square feet) to include washrooms and shower facilities to accommodate a volunteer firefighter occupancy of 20 to 35 firefighters (depending on the organizational model in place).

- **Multi-Purpose Room:** (approximately 1,200 square feet) multi-purpose open space with maximum ceiling height, exterior windows, exterior access, computer and communication system compatibility, designed for ease of maintenance.
- **Multi-Purpose Room Storage:** (approximately 100 square feet) connected to the multi-purpose room for storage of tables and chairs.
- **Kitchenette:** (approximately 100 square feet) connected to the multi-purpose room with capabilities for a refrigerator, microwave oven and sink for the heating and preparation of food. Not designed for cooking.
- **Bunker Gear Storage:** (approximately 300 square feet) connected to the apparatus bays, including an independent mechanical system capable of room heating and exhausting directly to the exterior of the building (consistent with applicable Ministry of Labor Section 21 Guidance Note). Capable of storing 25 to 35 sets of firefighter bunker gear (depending on organizational model selected) in a manner consistent with the manufacturer's instructions, and designed to accommodate easy access for firefighter under emergency conditions.
- **Bunker Gear/Utility Cleaning Room:** (approximately 100 square feet) connected to the apparatus room and capable of accommodating a large commercial washing/extractor machine for firefighter bunker gear. Also accommodate floor sink and storage of station cleaning equipment and supplies.
- **Apparatus Room:** (approximately 4,000 square feet) designed to accommodate between two and four major apparatus with a maximum length of 35 feet each in a back to back configuration, and side by side configuration that allows for easy access between, and in front of each apparatus. Preferably drive through apparatus bays with minimum 14 feet by 14 feet overhead doors at the front and rear. Independent mechanical system to include for diesel emission exhaust to comply with the applicable Ministry of Labor Section 21 Guidance Note. Room designed for ease of cleaning and maintenance including power washing of walls and floors. Floor drains required to catch summer/winter road residue and high quantities of water from washing apparatus.
- **Building Design Options:** if this station utilizes wood frame design and construction consideration should be given to including residential sprinklers as part of the building safety system and public education program.

7.10 Summary of Station Location, Emergency Response and Suppression Services

The analysis within this FMP indicates that there are several gaps within the current records management process utilized by the WRFD. Research indicates that these gaps are in part the result of inconsistent reporting processes, the absence of a single integrated records management program, the absence of a regular review process and the resulting inconsistency of data that is collected. As a result of the identified gaps in data this FMP included extensive consultation with senior Township staff in order to present the most accurate information available.

To assist Council in determining the level of fire suppression services to be provided based on local needs and circumstances as defined by the FPPA this FMP includes a detailed analyses of the department's current fire suppression capabilities. Based on our analyses of current industry best practices and guidelines the applicable performance benchmark for assessing the minimum number of volunteer firefighters and response time (turnout time + travel time) for the Township of Whitewater Region is the NFPA 1720 Rural Area Demand Zone Standard of deploying an initial first alarm of six firefighters arriving on scene within 14 minutes (turnout time + travel time) for 80% of the fire related incidents.

In addition to the identified initial response performance benchmark, this FMP also identifies that the WRFD 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.

The WRFD is currently challenged to achieve the applicable performance benchmark for deploying sufficient volunteer firefighters within an identified response time (turnout time + travel time). In part this is due to the number of volunteer firefighters available, the turnout time they are able to achieve to the fire station and the current practice of the department to allow volunteer firefighters to respond directly to an emergency incident in their personal vehicle.

Research into preparing this FMP has identified that there have been instances when all of the volunteer firefighters responding went directly to the emergency incident. The result was no one responded with the fire apparatus and equipment.

In our view the upmost importance should be given to restricting the delivery of fire suppression services to **exterior attack only** at this time. Our review of the department's current firefighter training program, training records and occupational health and safety requirements has identified a number of significant gaps. Subject to the department initiating and sustaining the proposed comprehensive firefighter training program consideration may be given to implementing a level of fire suppression services that includes both exterior and interior attack.

As a result of the analyses, this FMP identifies two options for Council's consideration in determining the number of fire stations, and the corresponding operational/organizational model for delivering fire suppression services.

The following recommendations relate to the Station Location, Emergency Response and Suppression Services:

Recommendation #36: ***That consideration for diesel emissions exhaust systems, as recommended in the Section 21 Guidance Note #3-1, be incorporated into future station design, construction or renovations.***

Recommendation #37: ***That until the key fire department training concerns highlighted within this FMP are addressed, Council should adopt an exterior operations level of service for the Whitewater Region Fire Department.***

Recommendation # 38: ***It is recommended that subject to addressing the key fire department training concerns identified within the proposed Fire Master Plan and ensuring that the proposed comprehensive training program is in place the Fire Chief be directed to develop Operating Guidelines for the provision of full service operations as presented within the proposed Fire Master Plan.***

Recommendation #39: ***That the Fire Chief be directed to develop a Business Plan identifying the operational and financial requirements for the Whitewater Region Fire Department to seek the Superior Tanker Shuttle Accreditation, including consideration of the required Automatic Aid Agreements.***

Recommendation #40: ***That, following the fire department's achievement of the Superior Tanker Shuttle Accreditation, the Township request the Fire Underwriters Survey conduct an update to the fire insurance grade classifications for the Township of Whitewater Region.***

Recommendation #41: ***That the Township of Whitewater Region benchmark its fire suppression initial response capabilities utilizing the NFPA 1720 Rural Demand Zone deployment model of a minimum of six firefighters responding to all fire related calls within a 14 minute response time (turnout time + travel time) to 80% of all fire related incidents.***
Recommendation #42: ***That the Township of Whitewater Region benchmark its depth of response fire suppression emergency response capabilities in comparison to a deployment of 14 firefighters to moderate risk occupancies and 24 firefighters to high risk occupancies.***

Recommendation #43: ***That the Fire Chief be directed to develop a process for tracking the turnout time of all responding volunteer firefighters as referenced within the proposed Fire Master Plan.***

Recommendation #44: ***That as part of preparing the implementation plan for the proposed Fire Master Plan the Fire Chief be directed to identify strategies to improve the turnout time and initial apparatus staffing as presented within the proposed Fire Master Plan.***

Recommendation #45: ***That the minimum complement of Volunteer Firefighters within the Township of Whitewater Region be approved by Council as 100 volunteer firefighters.***

Recommendation #46: ***That subject to Council's consideration and approval of a preferred Fire Station Location option that the proposed organizational model for that option as presented within the proposed 2017 Fire Master Plan be implemented.***

Recommendation #47: ***That the Township of Whitewater Region implement a senior officer on-call policy within the Whitewater Region Fire Department.***

Recommendation #48: ***That in consultation with the Fire Chief, Council considers the merits of implementing the proposed senior management team referenced in the proposed Fire Master Plan.***

Recommendation #49: ***That the Township of Whitewater Region consider the implementation of the proposed major apparatus replacement plan contained within the 2017 Fire Master Plan, associated with the Station Location Option selected by Council.***

8.0 Apparatus, Equipment & Maintenance

Our research indicates that the Township of Whitewater Region does not currently follow standardization practices for major apparatus and equipment specifications. Our review of the fleet indicates that the majority of heavy apparatus are more than 10 years old, with five existing apparatus aged more than 25 years old. Two of the tanker apparatus are aged more than 30 years.

Our review identified some processes that are in place for conducting apparatus and equipment checks, including an Operational Guideline entitled "Department Rules" which states that *"all apparatus and equipment shall be tested and maintained in accordance with current standards."* The current condition of apparatus and equipment was a consistent concern raised by the volunteer firefighters and key stakeholders during the consultation phase of the Fire Master Plan process, suggesting the Operational Guideline is not currently being adhered to. Documentation gathered through the FMP spoke specifically to safety and maintenance issues with truck #9640, the 1990 pumper at the Foresters Falls Station. There remains a need to draft and implement a complete set of SOGs regarding apparatus, maintenance and equipment procedures.

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

8.1 Fleet Maintenance

The WRFD fleet is maintained by the Township's Mechanic. Specialty testing and repairs are outsourced as required (such as Battlefied conducting pump tests and Velley Spring conducting Safety Checks). Coordination of requests for maintenance have been managed by the Station Captains and the Volunteer Deputy Chief. This model of maintenance appears to be serving the department well. Implementing a reserve apparatus, as recommended within this FMP, would provide improved ability for the mechanic to take apparatus out of service to conduct maintenance. The old age of some of the apparatus increases the required maintenance needs. Improving the overall age and condition of the fleet through the implementation of the fleet replacement plan will reduce the maintenance needs for the department.

8.2 Current Major Apparatus Fleet

The current major apparatus fleet of the WRFD includes two main types of heavy units: pumpers and tankers (including the tanker/pumper at Station 5).

Our review and visual inspection of the current major apparatus indicates that only two of the current heavy apparatus in the existing fleet (the pumpers located at Station 2 and Station 1) can accommodate a minimum of four firefighters. In order to support the best practices deployment of four volunteer firefighters arriving on-scene simultaneously as the initial response (as recommended within this FMP), consideration needs to be given to the firefighter capacity of the WRFD's apparatus. Any future front-line apparatus purchases, such as pumpers, should meet the minimum specification of carrying a minimum of four volunteer firefighters.

Specifications of the apparatus should also consider the capacity requirements, such as pump capacity for pumpers and tank capacity for tankers, as outlined within the FUS Dwelling Protection Grade requirements. The following schedule is used as a guideline for apparatus replacement as part of the FUS survey process:

- Major cities 12 – 15 years, with an additional five years in reserve.
- Medium size cities 15 years, with additional five years as back up, and five years in reserve.
- Small municipalities 20 years, with an additional five years second line or reserve.

As a smaller municipality, the applicable replacement strategy for the Township of Whitewater Region would reflect a 20 year front-line (primary use) life cycle with an additional five year (reserve use) overall life cycle plan. This is consistent with the life-cycle recommendations contained within the Township's 2007 Fire Master Plan.

FUS also requires additional annual testing and inspection for fire apparatus that are maintained in service for longer than 20 years. The data collected indicates that WRFD conducts annual pump tests for the fleet.

Table 27 summarizes the existing WRFD major apparatus and lists the replacement year according to the 20 year life cycle.

Table 27: Current Major Apparatus

Station #	Type of Apparatus	Make/Description	# of Seats	Year	Projected 20 Year Life Cycle	Estimated Replacement Cost
Station1: Haley	Pumper 9625	Sterling	4	2006	2026	$350,000
	Tanker 9719	*GMC*	*2*	*1970*	*1990 (overdue for replacement – 2017)*	$300,000
Station 2: Cobden	Pumper 9633	International	4	2009	2029	$350,000
	Tanker 9723	*Ford/Superior*	*2*	*1987*	*2007 (overdue for replacement –*	$300,000

Station #	Type of Apparatus	Make/Description	# of Seats	Year	Projected 20 Year Life Cycle	Estimated Replacement Cost
					2017)	
Station 3: Foresters Falls	*Pumper 9640*	*International/poor condition*	*2*	*1990*	*2010 (overdue for replacement – 2017)* *(removed from service in September 2017)*	$350,000
Station 4: Beachburg	Pumper 9634	GMC	2	2002	2022	$350,000
	Tanker 9718	*Ford*	*2*	*1990*	*2010 (overdue for replacement – 2017)*	$300,000
Station 5: Westmeath	Tanker/Pumper 9639	International	2	2014	2034	$300,000

As shown above, the three tankers (located at Stations 1, 2 and 4) are all past due for replacement. As well, the pumper at Station 3, Pumper 9640, is overdue for replacement. This pumper has been noted by staff and stakeholders as an issue. It is our understanding that the pumper did not pass pump testing in the fall of 2017 and was subsequently removed from service.

The Tanker/Pumper located at Station 5 is being used as a front-line apparatus as it does have pump capabilities. This apparatus, however, does not have capacity to carry an initial response of four firefighters. It also lacks storage capacity for equipment that is typically included on a pump apparatus, such as a complement of ladders and light equipment stored in compartment space. It is recommended in the future that this apparatus be used instead as a tanker (second-run apparatus), instead of a front-line pump. This is discussed further in the future apparatus plans discussed below.

WRFD also operates a small fleet of light vehicles. These are listed below in **Table 28**.

Table 28: Current Light Vehicle Fleet

Description	Make	Year	Replacement Costs
Fire Chief Command Vehicle 9840	Ford SUV	2005	$40,000
Deputy Chief Command Vehicle 9851	Dodge Crossover	2008	$35,000
Utility Vehicle 9846	Chevrolet Pickup Truck	1995	$100,000

Typically a 10 year life cycle is applied to light vehicles. Currently, the light vehicles are at or over the 10 year expected life cycle. The light vehicles should be incorporated into the fleet replacement planning cycle. In the interim, maintenance costs should be monitored to determine the prioritization and exact timing of replacement.

8.3 Proposed Major Apparatus Plan

The recommendations of this FMP include two options for fire station configurations and deployment models. Option 1, based on operational improvements from the existing five station locations and Option 2, operational improvements from a three station model that maintains the station locations at Cobden, Beachburg and Haley.

The proposed major apparatus plan needs to align with the option selected by the Township of Whitewater. The proposed major apparatus plan also includes a strategy to develop a major apparatus reserve capability not currently in place within the WRFD, and considering light vehicles to support the deployment of additional firefighters and equipment transport staff to calls as well as to training sessions.

8.3.1 Proposed Major Apparatus Fleet Replacement Plan

Establishing a formal fleet and equipment replacement plan is recommended within this FMP. Establishing a vehicle replacement plan was also recommended within the Township's 2007 Fire Master Plan. The replacement plan is based on 20 year life-cycle (plus an additional five years in reserve capacity) for heavy apparatus and a 10 year life-cycle for light vehicles. The life cycle of equipment varies and should be based on the recommendations of the manufacturer.

To align the fleet of major apparatus with the station and operating models presented within this FMP (e.g. Option 1 and Option 2), there are two versions of the fleet replacement plan identified.

Under both Option 1 and 2, there is a need to move towards frontline pumper apparatus at each station that can carry a minimum of four firefighters. As an interim measure, existing two seat heavy apparatus could be paired with a light vehicle capable of carrying at least two firefighters. These two apparatus would respond to scenes simultaneously to target the best practice of achieving an initial arriving crew of four firefighters.

8.3.1.1 Proposed Major Apparatus Plan for Option 1

In order to operate the Option 1 model, there is a need to address the capacity of the vehicles at each of the five stations to carry a minimum initial response of four firefighters. The Option 1 (Five Station Model) apparatus plan is presented in **Table 29**. This requires the replacement of two pumpers. The model also incorporates three staffed tanker apparatus, which will require the replacement of two tankers from the existing fleet. The existing tanker/pumper (9639) performs the role of a tanker and is applied as such in the model below to fill the role of the third required tanker apparatus. Where there is

remaining life-cycle on existing apparatus, these vehicles have been incorporated into the plan, with a note on the proposed replacement year.

Table 29: Option 1 (Five Station Model) Apparatus Plan

Station #	Type of Apparatus	Minimum # of Seats Required	Potential Existing Resource
Station1: Haley	Pumper	4	Existing Pumper
	Tanker	2	Existing Tanker/Pumper
Station 2: Cobden	Pumper	4	Existing Pumper
	Tanker	2	*Replacement Tanker*
Station 3: Foresters Falls	Pumper	4	*Replacement Pumper*
	Light Passenger / Multi-use Vehicle	At least 2	Consideration for Additional Light Vehicles to Transport Staff to Calls and Training Sessions
Station 4: Beachburg	Pumper	4	*Replacement Pumper*
	Tanker	*2*	*Replacement Tanker*
Station 5: Westmeath	Pumper	4 (Total)	Existing Pumper (that seats 2)
	Light Passenger / Multi-use Vehicle	At least 2	Light Vehicle, such as Utility 9846 or Consideration for Additional Light Vehicles to Transport Staff to Calls and Training Sessions

This model requires a total of eight heavy apparatus, including five pumpers and three tankers. It also includes at least two light vehicles (e.g. passenger vans or multi-use trucks). Due to the age of the apparatus this model requires the replacement of two pumper apparatus and two tanker apparatus. Each of the existing stations can currently house a minimum of two vehicles, as required for this plan.

8.3.1.2 Proposed Major Apparatus Plan for Option 2

In order to operate the Option 2 model the need remains to ensure the capacity of the front-line vehicles can carry a minimum initial response of four firefighters. The Option 2 (Three Station Model) apparatus plan is presented in **Table 30**. The model presented can operate with existing pumper apparatus until the time of replacement of the three existing pumps presented are due. The model also incorporates three staffed pumpers and three staffed tanker apparatus. This option still requires the replacement of two tankers from the existing fleet. The existing tanker/pumper (9639) performs the role of a tanker and is applied as such in the model below to fill the role of the third required tanker

apparatus. Where there is remaining life-cycle on existing apparatus, these vehicles have been incorporated into the plan, with a note on the proposed replacement year. Consideration for light passenger vehicles to transport staff to and from calls and training sessions are included below. With an increased complement of volunteer firefighters it is anticipated that the number of staff responding to the fire halls would increase. This would require adding vehicle transport capacity to each station.

Table 30: Option 2 (Five Station Model) Apparatus Plan

Station #	Type of Apparatus	Minimum # of Seats Required	Resource
Station1: Haley	Pumper	4(Total)	Existing Pumper (that seats 2) Light Vehicle, such as Utility 9846 or replacement (seat at least 2)
	Tanker	2	*Replacement Tanker*
	Light Passenger / Multi-use Vehicle	5-6	*Consideration for Additional Light Vehicles to Transport Staff to Calls and Training Sessions*
Station 2: Cobden	Pumper	4	Existing Pumper
	Tanker	2	Existing Tanker/Pumper
	Light Passenger / Multi-use Vehicle	5-6	*Consideration for Additional Light Vehicles to Transport Staff to Calls and Training Sessions*
Station 4: Beachburg	Pumper	4	Existing Pumper
	Tanker	2	Replacement Tanker
	Light Passenger / Multi-use Vehicle	5-6	*Consideration for Additional Light Vehicles to Transport Staff to Calls and Training Sessions*

The three station model requires a total of six front-line heavy apparatus, including three front-line pumps and three tankers. The model also includes three light vehicles, such as a multi-use vehicle or passenger van. This would represent a cost savings of approximately $700,000 in capital replacement costs (estimated as two pumper apparatus at $350,000 each) for each replacement cycle of heavy apparatus. Due to the age of existing apparatus, this model will still require the replacement of two tanker apparatus in the immediate to short-term.

The existing stations can currently house two heavy apparatus. Station 2 in Cobden is a two-bay station and housing a light vehicle inside the station could not be accommodated. Station 4 in Beachburg is a

three bay station that can accommodate two heavy apparatus and one light vehicle indoors. Existing Stations 1, 3 and 5 are all two bay stations.

Although not ideal, passenger vehicles could be stored in parking outside the station in the short-term, until station revisions were planned and completed to accommodate the three vehicle model.

Recommendation #49: That the Township of Whitewater Region consider the implementation of the proposed major apparatus replacement plan contained within the 2017 Fire Master Plan, associated with the Station Location Option selected by Council.

8.3.2 Reserve Apparatus

The WRFD does not currently have any reserve apparatus in the event that a frontline apparatus (i.e. pumper) at any of the stations is out of service. Currently, in the event that one of the heavy apparatus is out of service, that station and the department as a whole loses 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 area of the Township until it is repaired and put back in service.

Under the current operating model these events are managed by alerting other stations so that they are aware of the situation. In the future, under both the Option 1 and Option 2 station and operating models managing these types of events through implementing a reserve apparatus strategy is recommended. A reserve apparatus can be identified and retained through the fleet replacement strategy. A reserve apparatus should be maintained in service-ready condition.

Recommendation #50: That consideration be given to creating major apparatus reserve capacity including a minimum of one pumper.

8.3.3 Light Passenger / Multi-use Vehicles

One of the challenges of operating a volunteer fire department is providing sufficient capacity to deploy additional firefighters and equipment to and from an emergency incident, and training exercises. The use of personal vehicles to respond to emergency incidents, in our experience, does not reflect an industry best practice. As a result of numerous liabilities, insurance and operational challenges this past practice is much less common within the fire service.

Within the proposed major apparatus plan for Option 2 (three fire station model) it is recommended that consideration be given to implementing a light passenger vehicle at each of the proposed fire stations. This could be 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.

Due to the primary rural geography of the Township a multi-use vehicle could also enhance the operational efficiency and effectiveness of the department incorporating wild-land firefighting (i.e. grass and brush) capabilities to the vehicle. 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.

***Recommendation #51:* That consideration be given to implementing light passenger / multi-use vehicles presented within the proposed major apparatus plan within the proposed 2017 Fire Master Plan.**

8.4 Equipment

During stakeholder consultations there were also concerns raised regarding equipment. Breathing apparatus was one area of focus. Currently WRFD does not have breathing apparatus for all existing volunteer firefighters. The breathing apparatus are also not standardized across the department. Having standardized equipment across a fire department reflects best practices.

Air filling is currently completed through a voucher system with Pembroke Fire Department. This appears to be meeting the existing needs of the WRFD.

Maintenance of bunker gear was raised through stakeholder consultation as well. With the current practices of many volunteer firefighters responding directly to emergency scenes, bunker gear is often transported in personal vehicles. This practice requires additional diligence to ensure that gear is properly cleaned on a regular basis, particularly following use at any active fire scene. Currently the department does not own gear cleaning equipment and instead ship the bunker gear to North Bay for cleaning. This is done on a voluntary basis, as firefighters must bring their gear to Township staff to have it shipped and cleaned. As most WRFD firefighters do not have spare bunker gear, there is often hesitation to send it for cleaning. As a solution, it is recommended that the Township of Whitewater Region consider purchasing a bunker gear washing and drying machine in order to clean gear in-house.

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.

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.

***Recommendation #52:* That the Township of Whitewater Region consider the purchase of equipment to wash and dry firefighter bunker gear in-house.**

***Recommendation #53:* That the Township of Whitewater Region consider the implementation of a life cycle replacement plan, targeting department-wide standardization, for all equipment including firefighters' bunker gear and self-contained breathing apparatus based on industry best practices and manufacturers' directions.**

8.5 Vehicle and Equipment Capital Replacement Plan

The Township currently has a capital reserve fund. It is our understanding that this reserve fund should be reviewed to ensure that it incorporates annual contributions sufficient to fund future purchases. Implementing the proposed major apparatus replacement plan and the proposed equipment life cycle replacement plan will require a comprehensive capital financing plan. The capital reserve plan should be revised and updated to support the replacement of apparatus and equipment as proposed within this FMP.

In our experience it will be challenging for the Township to implement the proposed apparatus and equipment plans as proposed within this FMP. These financing needs will require consideration of the broader future Township capital funding requirements as part of developing future capital and operating needs of the Township.

Recommendation #54: That the Township of Whitewater Region review and update the capital reserve fund and annual contributions in consideration of the financial strategy required to implement the capital recommendations of the 2017 Fire Master Plan.

8.6 Major Apparatus and Equipment Summary and Recommendations

This FMP provides for the option of maintaining the current five station model as well as an option of transitioning to a three fire station model. Both options will require consideration restructuring the deployment of the current major apparatus as well as revisions to the capital replacement priorities. This FMP includes recommendations to implement a reserve apparatus and consideration for light passenger / multi-use vehicles to support department operations.

The WRFD 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.

The following recommendations relate to the department's Apparatus, Equipment and Maintenance:

Recommendation #50: That consideration be given to creating major apparatus reserve capacity including a minimum of one pumper.

Recommendation #51: That consideration be given to implementing light passenger / multi-use vehicles presented within the proposed major apparatus plan within the proposed 2017 Fire Master Plan.

Recommendation #52: That the Township of Whitewater Region consider the purchase of equipment to wash and dry firefighter bunker gear in-house.

Recommendation #53: ***That the Township of Whitewater Region consider the implementation of a life cycle replacement plan, targeting department-wide standardization, for all equipment including firefighters' bunker gear and self-contained breathing apparatus based on industry best practices and manufacturers' directions.***

Recommendation #54: ***That the Township of Whitewater Region review and update the capital reserve fund and annual contributions in consideration of the financial strategy required to implement the capital recommendations of the 2017 Fire Master Plan.***

9.0 Communications

Our analyses expanded upon the term “communications” to include in addition to the radio system the internal communications within the Whitewater Region Fire Department 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.

9.1 Fire Communications (Dispatching)

The Township of Whitewater Region currently has a Dispatch Agreement with the County of Renfrew for the provision of emergency call taking and dispatching of the WRFD. The current agreement will expire on December 31, 2019. The framework of the current agreement is consistent with the content of other similar agreements utilized across the province. One area that is not included in the current agreement is performance objectives related to the services being provided. Industry best practices reflect the use of the *NFPA 1221 Standard for the Installation, Maintenance, and Use of Emergency Services Communications Systems* (2016 Edition) performance objectives for emergency call taking and dispatching as recognized performance benchmark objectives.

In our experience purchasing fire dispatching services is an effective and efficient strategy for a municipality to attain these services. However; it must still be recognized that there is an ongoing role to manage and review the performance of the agreement. In our view these roles should include consideration of requiring a performance benchmark for the delivery of emergency call taking and fire dispatching services.

***Recommendation #55:* That the Township of Whitewater Region seek to negotiate with the County of Renfrew the inclusion of the performance objectives of the NFPA 1221 Standard for the Installation, Maintenance, and Use of Emergency Services Communications Systems (2016 Edition) within an updated Fire Dispatch Agreement.**

9.2 Fire Communications System

Of importance to this fire master planning process is that there are two components to the fire communications system. The first component is the emergency call taking and dispatching elements that are provided by the County of Renfrew. The second component is the radio system that is owned and operated by the Township of Whitewater Region. Our research indicates a high degree of awareness on the part of all parties responsible for these components that there are current challenges relating to the sustainability of the current communication system. In our view the need to ensure that these systems are fully integrated to achieve the desired level of operability and efficiency is well documented in research that has been completed.

9.2.1 County of Renfrew

The County of Renfrew retained the Dawnex Corp IT Management & Consulting in 2016 to review the current fire dispatch communications system. The 2016 Dawnex Report made a number of recommendations that included considering adding a fire specific CAD module, upgrades to the paging and alerting systems as well as system enhancements to incorporate fire department Records Management Systems (RSM). The 2016 Dawnex Report also identifed alternatives to the existing agreement with CACC, including status quo arrangements with suggested system upgrades; a county run fire dispatch scenario and an option for contracting with another dispatching agency.

As a result of the 2016 Dawnex Report the County has identified that "improvements to the existing fire paging and dispatching communications operated by the County is a priority project[8]. A Request for Information (RFI) issued by the County is intended to review the components of the communications system operated by the County. In our view the findings and recommendations of this review will be instrumental to informing the next steps to be taken by the Township of Whitewater Region.

9.2.2 Whitewater Region Radio System

The second component of the communications system is the radio system owned and operated by the Whitewater Region. The 2016 Dawnex Report provides information describing the current radio/paging/alerting system used by the WRFD. This reports identifies many of the current challenges that identify a communication system that has reached its life expectancy. The technology is difficult to support as many parts are not available. Overall, it represents a system that is not current with industry best practices.

During the consultation process with members of the department 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, due to the equipment, were either intermittently lost, or alternatively, not sufficiently clear and consistent to ensure the safety of the firefighters working on the scene.

Our review of the department's Operating Guidelines indicates that there are no guidelines or procedures in place to identify in advance (pre-planning) areas within the Township where radio signal strength may be weak, or not available. There is also no evidence of the training requirements to operate the current radio system being delivered to staff or recorded in training files.

In our view an Operating Guideline is necessary to require pre-planning of the current radio system strength capabilities, and alternative guidelines put in place to ensure firefighter safety is maintained at

[8] 2017 County of Renfrew Public Works & Engineering Department Request for Information – Fire Communications System.

all times. This may include the acquisition and use of cellular telephones, the strategy of assigning "runners" to deliver messages on emergency scenes, and other interim strategies to sustain communications at all times.

Recommendation #56: ***That the Fire Chief be directed to draft and implement and Operating Guideline respecting radio procedures to include training requirements, pre-planning and other interim strategies such as the use of cellular telephones to maintain firefighter safety while operating at emergency incidents.***

9.2.3 Fire Communications System Summary

Our research indicates that the current fire dispatch agreement and communications system used by the Township of Whitewater needs to be reviewed and updated. This includes all equipment used for the purposes of emergency call taking and dispatching including, paging of volunteer firefighters and radio communications with responding staff and apparatus. In addition to being a core element of the emergency response process to a fire or other emergency call to assist the general public the overall communications process/system is an integral element of sustaining the occupational health safety requirements of the department's volunteer firefighters.

Recommendation #57: ***That the Fire Chief be directed to review the status of the County of Renfrew's efforts to update the fire communications system and further update Council with respect to next steps in upgrading the overall fire communications system.***

9.3 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. Our consultation sessions with the volunteer firefighters revealed the symptoms of not having the optimal level of internal communications.

This FMP presents a three station operating model that revises the organizational structure and leadership of the WRFD 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.

Recommendation #58: ***That the Fire Chief be directed to develop an ongoing communication strategy with the volunteer firefighters to enhance the "two way" communications within the WRFD.***

9.4 Digital Response Communication System

There are opportunities to leverage available technologies that could assist the department with improving turnout times and reducing the possibilities of no one responding to the fire stations directly. One such application of technology is a web-based / smartphone-based application called 'IamResponding.' The program tracks the response of the volunteer firefighters as they are responding (or not responding) to emergency calls.

Since the volunteer firefighters are paged by dispatch through a one-way form of communication, the IamResponding technology provides a method for them to respond to the station to indicate if they are available and responding, enroute or not able to attend. It provides valuable information to the station to assist with the decision making, such as whether to send a truck to scene or hold the truck for the arrival of more staff. Many departments across the province have implemented the use of this technology. The feedback from is generally positive, supporting that the technology works well and is a valuable tool for operations. The main challenge noted is some staff members have concerns that the mobile smartphones used to support this system are owned by the individual firefighters and not provided by the municipality.

Recommendation #59: That the Township and WRFD consider options for utilizing web-based / smartphone applications that provide volunteer firefighters with the ability to communicate their response status to the stations and other department staff members.

9.5 Communications Summary and Recommendations

A significant amount of research has been conducted into the operational capabilities and efficiency of the current fire communications system. The results indicate that the current system has reached its life expectancy and is in need of replacement. This will require the collaboration of the County of Renfrew and the Township of Whitewater Region in order to manage the financial investments required to attain the desired operational efficiencies and effectiveness.

The consultation process that was conducted with the volunteer firefighters in developing this FMP identified some key challenges with internal communications. Developing an effective strategy to facilitate effective "two way" communications within the department will be a key role of the Fire Chief and senior officers of the department as it moves forward. In our view an effective communications strategy is an important element of creating a healthy and effective organization.

The following recommendations relate to the department's communications:

Recommendation #55: That the Township of Whitewater Region seek to negotiate with the County of Renfrew the inclusion of the performance objectives of the NFPA 1221 Standard for the Installation,

Maintenance, and Use of Emergency Services Communications Systems (2016 Edition) within an updated Fire Dispatch Agreement.

<u>Recommendation #56:</u> That the Fire Chief be directed to draft and implement and Operating Guideline respecting radio procedures to include training requirements, pre-planning and other interim strategies such as the use of cellular telephones to maintain firefighter safety while operating at emergency incidents.

<u>Recommendation #57:</u> That the Fire Chief be directed to review the status of the County of Renfrew's efforts to update the fire communications system and further update Council with respect to next steps in upgrading the overall fire communications system.

<u>Recommendation #58:</u> That the Fire Chief be directed to develop an ongoing communication strategy with the volunteer firefighters to enhance the "two way" communications within the WRFD.

<u>Recommendation #59:</u> That the Township and WRFD consider options for utilizing web-based / smartphone applications that provide volunteer firefighters with the ability to communicate their response status to the stations and other department staff members.

10.0 Implementation Plan

The recommendations of this FMP have been developed in consideration of the strategic priorities identified within this review. This FMP includes an implementation strategy that identifies an implementation horizon of immediate (2018), short (2019 to 2020), medium (2021 to 2022) or long-term (2023 to 2027) and provides estimated capital and operating impacts, where applicable. The implementation plan is summarized in **Table 31.**

Table 31: Recommendations and Implementation Plan

Recommendation	Horizon	Estimated Capital Impacts	Estimated Operating Impacts
Fire Master Plan Process Recommendations			
Recommendation #1: ***That a specific Whitewater Region Fire Department Joint Health and Safety Committee be formed, with employee representatives from all of the stations, as well as a management representative.***	2018	-	*Staff time*
Recommendation #2: ***That the Township prioritize the completion and documentation of delivering of health and safety training for all members of the Whitewater Region Fire Department as referenced within the proposed Fire Master Plan.***	2017-2018	-	*Staff time*
Recommendation #3: ***That subject to consideration and approval of the 2017 Fire Master Plan, the Fire Chief be directed to update the current Establishing and Regulating By-law.***	2018	-	*Staff time*
Recommendation #4: ***That the current automatic aid agreement with the Township of Admaston/Bromley be reviewed and revised to further define the scope of services to be provided by the Township of Whitewater Region.***	2019	-	*Staff time*
Recommendation#5: ***That the Fire Chief be directed to prepare and submit to Council a fire department Annual Report that includes an updated Simplified Risk Assessment, and additional multi-year analyses of services and programs provided by the department.***	2018	-	*Staff time*
Recommendation #6: ***That consideration be given to approving the strategic priorities identified within the 2017 Fire Master Plan to guide the development and delivery of fire protection and emergency services within the Township of Whitewater Region.***	2018	-	*Staff time*

Recommendation	Horizon	Estimated Capital Impacts	Estimated Operating Impacts
Recommendation #7: ***That all department operating guidelines be reviewed and updated to provide clear direction to all department staff and ensure compliance with applicable OHSA Section 21 Guidance Notes.***	2018-2019	-	*Staff time*
Administration and Organizational Structure Recommendations			
Recommendation #8: ***That subject to consideration and approval of the proposed organizational structure new job descriptions be developed for all positions within the WRFD.***	2018-2019	-	*Staff time*
Recommendation #9: ***That the proposed Organizational Committee Structure identified within the 2017 Fire Master Plan be implemented as presented.***	2018	-	*Staff time*
Recommendation #10: ***That consideration be given to developing a formal hiring and promotional policy and performance evaluation process for all WRFD personnel in keeping with any Township human resources policies, the Ontario Human Rights Code, Accessibility for Ontarians with Disabilities Act and the Municipal Freedom of Information and Protection of Privacy Act.***	2018	-	*Staff time*
Recommendation #11: ***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 Whitewater Region.***	2018-2019	*Dependent upon strategies selected*	*Staff time*
Recommendation #12: ***That the fire department implement a records management system in keeping with the requirements of the Municipal Freedom of Information and Protection of Privacy Act and any municipal records retention policy***.	2019	*Software costs vary depending upon program selected*	*Staff time*
Emergency Management Recommendations			
Recommendation #13: ***That Township's Emergency Response Plan and By-law #10-12-457 be updated to reflect the revised roles and positions assigned in 2017.***	2018-2019	-	*Staff time*
Recommendation #14: ***That the Township's current Emergency Plan be updated to include the proposed***	2018-2019	-	*Staff time*

Recommendation	Horizon	Estimated Capital Impacts	Estimated Operating Impacts
Community Emergency Management Coordinator (CEMC) and Alternate CEMC presented within the proposed Fire Master Plan.			
Fire Prevention and Public Education Recommendations			
Recommendation #15: *That subject to Council's consideration and approval of the 2017 Fire Master Plan, the Fire Chief be directed to update the current Fire Prevention and Public Fire Safety Education Policy and Fire Prevention-Public Education Operating Guideline.*	2018-2019	-	*Staff time*
Recommendation #16: *That subject to consideration and approval of the proposed public fire safety education activities and program cycle objectives by Council, that they be included within the updated Fire Prevention and Public Fire Safety Education Policy.*	2019	-	*Staff time*
Recommendation #17: *That the Fire Chief be directed to develop an Operating Guideline describing the goals, objectives and requirements of the department's Smoke Alarm/Carbon Monoxide Program, and that this program be included in the updated Fire Prevention and Public Fire Safety Education Policy.*	2018-2019	-	*Staff time*
Recommendation #18: *That the existing operating guideline be developed to clearly present the requirements for conducting a fire inspection in a vulnerable occupancy as referenced within the proposed Fire Master Plan.*	2018	-	*Staff time*
Recommendation #19: *That Public Fire Safety Guideline OFM-TG-01-2012 regarding inspections and enforcement be considered when updating the Fire Prevention and Public Fire Safety Education Policy and Fire Prevention-Public Education operating guideline for consideration and approval by Council.*	2018-2019	-	*Staff time*
Recommendation #20: *That the Fire Prevention and Public Fire Safety Education Policy be updated to include requirements for conducting Fire Safety Plan review and approval.*	2018-2019	-	*Staff time*
Recommendation #21: *That subject to the consideration and approval of the proposed fire inspection goals and objectives by Council that they be included within the updated Fire Prevention and Public Fire Safety Education*	2018-2019	-	*Staff time*

Recommendation	Horizon	Estimated Capital Impacts	Estimated Operating Impacts
Policy.			
Recommendation #22: *That following the proposed update of the current Fire Prevention Policy the Fire Chief develop a department Operating Guideline for fire investigations, including origin and cause determination and the training and accreditation required to conduct investigations.*	2019	-	*Staff time*
Recommendation #23: *That consideration be given to implementing the staff resource plan identified within the proposed 2017 Fire Master Plan to achieve the fire inspection and public education performance levels recommended.*	2019	-	*Staff time Volunteer Firefighter Time.*
Recommendation #24: *That the Township ensure all individuals performing fire safety inspections be designated as Assistants to the Fire Marshal and that those responsible for approving certain elements of the Ontario Fire Code be formally delegated the authority of Chief Fire Official for those purposes.*	2018	-	*Staff time*
Fire Department Training Recommendations			
Recommendation # 25: *That the Whitewater Region Fire Department 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 2017 Fire Master Plan.*	2018	*Dependent upon plan selected*	*Staff time. Volunteer Firefighter Time.*
Recommendation #26: *That the Township of Whitewater Region investigate both public and private sector opportunities to use existing training facilities in the area.*	2019	*Dependent upon opportunities available*	*Staff time. Volunteer Firefighter Time.*
Recommendation #27: *That the Whitewater Region Fire Department consider further use of an online firefighter training program as a component of delivering the proposed comprehensive annual training program.*	2019	*Dependent upon program selected*	*Staff time. Volunteer Firefighter Time.*
Recommendation #28: *That the Township of Whitewater Region further considers the areas of specialized services to be provided by the Whitewater Region Fire Department for consideration and approval by Council and inclusion within an updated Establishing and Regulating By-law.*	2019	-	*Staff time*
Recommendation #29: *That the Township of Whitewater*	2018-2019	-	*Staff time*

Recommendation	Horizon	Estimated Capital Impacts	Estimated Operating Impacts
Region reviews other options, such as implementing agreements with neighbouring communities or the private sector to include any specialized services required above the "awareness" level of those identified within the 2017 Fire Master Plan.			*Costs of agreements to be negotiated.*
Recommendation #30: That the Whitewater Region Fire Department enhance the training opportunities for Company Officers to achieve the competencies identified within the new NFPA 1021 Standard – Level II for Company Officers.	2018	-	*Staff time Volunteer Firefighter Time.*
Recommendation #31: Whitewater Region Fire Department draft and implement an operational guideline specific to Incident Command as presented within the 2017 Fire Master Plan.	2018	-	*Staff time*
Recommendation #32: That the Whitewater Region Fire Department consider adoption of an Incident Command Training Program (such as the Blue Card Fire Command Training Program) as a component of the Company Officer Training, and proposed Comprehensive Annual Training Program.	2019	*Initial program costs – dependent upon program selected.*	*Staff time*
Recommendation #33: That Township policies referring to Volunteer Firefighter minimum training/attendance be revised to ensure that within any calendar year a Volunteer Firefighter is required to complete 100% of the department's minimum training standard.	2018	-	*Staff time*
Recommendation #34: That the Fire Chief be directed to develop a department Operating Guideline defining the goals, objectives and procedures for completing and collecting firefighter training records as required by the Occupational Health and Safety Act.	2018	-	*Staff time*
Recommendation #35: That the proposed training staff resource plan contained within the 2017 Fire Master Plan be considered for implementation.	2019	-	*Staff time Volunteer Firefighter Time.*
Station Location, Emergency Response and Suppression Services Recommendations			
Recommendation #36: That consideration for diesel emissions exhaust systems, as recommended in the Section 21 Guidance Note #3-1, be incorporated into future station design, construction or renovations.	2021-2027	*Dependent upon station design*	-

Recommendation	Horizon	Estimated Capital Impacts	Estimated Operating Impacts
Recommendation #37: ***That until the key fire department training concerns highlighted within this FMP are addressed, Council should adopt an exterior operations level of service for the Whitewater Region Fire Department.***	2018	-	-
Recommendation # 38: ***It is recommended that subject to addressing the key fire department training concerns identified within the proposed Fire Master Plan and ensuring that the proposed comprehensive training program is in place the Fire Chief be directed to develop Operating Guidelines for the provision of full service operations as presented within the proposed Fire Master Plan.***	2019	-	*Staff time*
Recommendation #39: ***That the Fire Chief be directed to develop a Business Plan identifying the operational and financial requirements for the Whitewater Region Fire Department to seek the Superior Tanker Shuttle Accreditation, including consideration of the required Automatic Aid Agreements.***	2019	*Initial application cost – to be provided by accrediting agency.*	*Staff time Maintenance cost– to be provided by accrediting agency.*
Recommendation #40: ***That, following the fire department's achievement of the Superior Tanker Shuttle Accreditation, the Township request the Fire Underwriters Survey conduct an update to the fire insurance grade classifications for the Township of Whitewater Region.***	2020	*Cost of agreements to be negotiated.*	*Staff time*
Recommendation #41: ***That the Township of Whitewater Region benchmark its fire suppression initial response capabilities utilizing the NFPA 1720 Rural Demand Zone deployment model of a minimum of six firefighters responding to all fire related calls within a 14 minute response time (turnout time + travel time) to 80% of all fire related incidents.***	2018	-	-
Recommendation #42: ***That the Township of Whitewater Region benchmark its depth of response fire suppression emergency response capabilities in comparison to a deployment of 14 firefighters to moderate risk occupancies and 24 firefighters to high risk occupancies.***	2018	-	-
Recommendation #43: ***That the Fire Chief be directed to develop a process for tracking the turnout time of all responding volunteer firefighters as referenced within the***	2018	-	*Staff time*

Recommendation	Horizon	Estimated Capital Impacts	Estimated Operating Impacts
proposed Fire Master Plan.			
***Recommendation #44:** That as part of preparing the implementation plan for the proposed Fire Master Plan the Fire Chief be directed to identify strategies to improve the turnout time and initial apparatus staffing as presented within the proposed Fire Master Plan.*	2019	***Dependent upon strategies selected***	*Staff time*
***Recommendation #45:** That the minimum complement of Volunteer Firefighters within the Township of Whitewater Region be approved by Council as 100 volunteer firefighters.*	2018	*Uniform and equipment costs estimated at $5,500 per volunteer.*	*Hourly volunteer firefighter wages in range of $23 - $27*
***Recommendation #46:** That subject to Council's consideration and approval of a preferred Fire Station Location option that the proposed organizational model for that option as presented within the proposed 2017 Fire Master Plan be implemented.*	2019-2022	*Costs dependent upon model selected. Estimate $1.7 for design and construction of new station.*	*Staff time to manage station renewal project.*
***Recommendation #47:** That the Township of Whitewater Region implement a senior officer on-call policy within the Whitewater Region Fire Department.*	2018	-	*Staff time / volunteer hours*
***Recommendation #48:** That in consultation with the Fire Chief, Council considers the merits of implementing the proposed senior management team referenced in the proposed Fire Master Plan.*	2019-2022	-	*Based on hourly rates of management roles*
***Recommendation #49:** That the Township of Whitewater Region consider the implementation of the proposed major apparatus replacement plan contained within the 2017 Fire Master Plan, associated with the Station Location Option selected by Council.*	2019-2022	*See replacement costs in Tables 27 and 28, Section 8.0*	-
Apparatus, Equipment and Maintenance Recommendations			
***Recommendation #50:** That consideration be given to creating major apparatus reserve capacity including a minimum of one pumper.*	2018	-	*Staff time / volunteer hours*
***Recommendation #51:** That consideration be given to implementing light passenger / multi-use vehicles presented within the proposed major apparatus plan within the proposed 2017 Fire Master Plan.*	2019-2022	*Passenger Vehicles approximately $50,000. Multi-use Vehicle approximately $150,000*	-

Recommendation	Horizon	Estimated Capital Impacts	Estimated Operating Impacts
***Recommendation #52:* That the Township of Whitewater Region consider the purchase of equipment to wash and dry firefighter bunker gear in-house.**	2018	*$30,000*	-
***Recommendation #53:* That the Township of Whitewater Region consider the implementation of a life cycle replacement plan, targeting department-wide standardization, for all equipment including firefighters' bunker gear and self-contained breathing apparatus based on industry best practices and manufacturers' directions.**	2018	*Costs as per manufacturer. Consider joint purchasing opportunities.*	-
***Recommendation #54:* That the Township of Whitewater Region review and update the capital reserve fund and annual contributions in consideration of the financial strategy required to implement the capital recommendations of the 2017 Fire Master Plan.**	2018	-	*Staff time*
Communications Recommendations			
***Recommendation #55:* That the Township of Whitewater Region seek to negotiate with the County of Renfrew the inclusion of the performance objectives of the NFPA 1221 Standard for the Installation, Maintenance, and Use of Emergency Services Communications Systems (2016 Edition) within an updated Fire Dispatch Agreement.**	2018	-	*Staff time / volunteer hours*
***Recommendation #56:* That the Fire Chief be directed to draft and implement and Operating Guideline respecting radio procedures to include training requirements, pre-planning and other interim strategies such as the use of cellular telephones to maintain firefighter safety while operating at emergency incidents.**	2018	-	*Staff time / volunteer hours*
***Recommendation #57:* That the Fire Chief be directed to review the status of the County of Renfrew's efforts to update the fire communications system and further update Council with respect to next steps in upgrading the overall fire communications system.**	2019-2020	-	*Staff time*
***Recommendation #58:* That the Fire Chief be directed to develop an ongoing communication strategy with the volunteer firefighters to enhance the "two way" communications within the WRFD.**	2018	-	*Staff time*
***Recommendation #59:* That the Township and WRFD consider options for utilizing web-based / smartphone**	2019-2020	*Dependent upon the program*	-

Recommendation	Horizon	Estimated Capital Impacts	Estimated Operating Impacts
applications that provide volunteer firefighters with the ability to communicate their response status to the stations and other department staff members.		*selected*	

Appendix A

Simplified Risk Assessment

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1.0 Introduction

The process of assessing community risk is receiving increased attention within the fire protection industry in North America. A Simplified Risk Assessment (SRA) is fundamental to the development of a strategic Fire Service Master Plan and is the first step towards compliance under the *Fire Protection and Prevention Act* (FFPA). Assessing community risk informs the understanding of local needs and circumstances which can then be applied to align the service levels provided by the municipality. The results of this SRA directly inform the recommendations of the Fire Services Master Plan (FSMP) and are used to identify existing service gaps across divisions, with particular connections to fire prevention, training, and emergency response (e.g. suppression).

This appendix to the FSMP outlines the methodology and sources of information used to assess community risk in the Township of Whitewater Region (Whitewater Region or Township). The analysis and results of the assessment are described based on the profile assessments.

2.0 Methodology

The SRA is based on a methodology founded in part on the Ontario Office of the Fire Marshal and Emergency Management Public Fire Safety Guidelines on Simplified Risk Assessments (PFSG 04-40A-03), OFMEM's the Fire Risk Sub-model, and the National Fire Protection Association (NFPA) 1730 *"Standard on Organization and Deployment of Fire Prevention Inspection and Code Enforcement, Plan Review, Investigation, and Public Education Operations* (2016 Edition). According to the standard, the purpose of a risk assessment is to "*assist in the development and implementation of a community risk reduction plan and programs to reduce, mitigate, or eliminate the community's risks*" (p.6). The Fire Risk Sub-model lays out minimum factors of a Simplified Risk assessment which includes:

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

These factors are analyzed within this SRA through the development of the following four profile **assessments**:

- Demographics
- Geography
- Building Stock
- Past Fire Loss

These profiles are analyzed based on several sources of information, including data provided by Whitewater Region Fire Department (WRFD), Statistics Canada, OFMEM, and desktop research. To link the SRA to the risks unique to specific occupancy types, this study utilizes the major occupancy classifications of the Ontario Building Code (OBC) and the Ontario Fire Code (OFC) to define fire risk scenarios within Whitewater Region.

3.0 Profile Assessments

The profile assessments include a high level analysis of demographics, geography, building stock, and past fire loss considerations for the Township.

3.1 Demographic Profile

As included in NFPA 1730, the demographic profile assessment includes analysis of age, gender, educational attainment and socioeconomic make-up, vulnerable individuals/occupancies, ethnic and cultural considerations, and population shifts. The following sections consider these demographic characteristics within the Township of Whitewater Region.

3.1.1 Age

Canada's aging population has been recognized as one of the most significant demographic trends in the nation. According to Statistics Canada, from 2011 to 2016 Canada experienced "the largest increase in the proportion of seniors since Confederation" due to the baby boomer generation reaching the age of 65. There are now more Canadians over the age of 65 (16.9% of the population) than there were children aged 14 years and younger (16.6%).[1]

Seniors (those 65 years and over) are considered to represent one of the highest fire risk groups across the province based on residential fire death rate (fire deaths per million of population). **Figure 1** illustrates the results of an analysis completed by the OFMEM's Fire Statistics in December 2016. The figure illustrates the fire death rate which is the number of fire fatalities per million of population. Through this analysis, it is identified that seniors at an increased risk than other age groups. However, the fire death rate for seniors has been decreasing from 33 per million populations in 1997.[2]

[1] Source: Statistics Canada, The Daily: *Age and sex, and type of dwelling data: key results from the 2016 Census* http://www.statcan.gc.ca/daily-quotidien/170503/dq170503a-eng.htm?HPA=1, (date modified May 3, 2017; accessed May 23, 2017).

[2] Source: Ministry of Community Safety and Correctional Services. *Ontario Residential Fatal Fires.* 2016 December. https://www.mcscs.jus.gov.on.ca/english/FireMarshal/MediaRelationsandResources/FireStatistics/OntarioFatalities/HomeFireFatalitiesChildrenAdultsSeniors/stats_fatal_res.html (date modified February 22, 2017; accessed May 23, 2017).

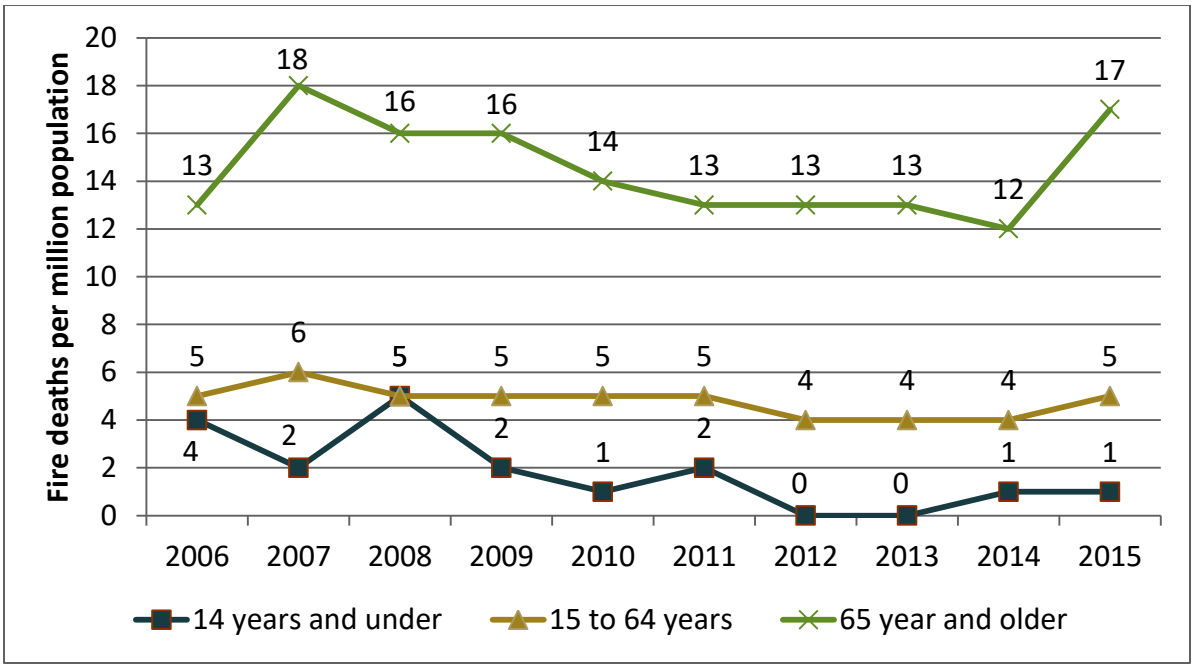


Figure 1: Residential Fire Death Rate by Age of Victim in Ontario, 2006 to 2015

Identifying a community's population by age is a core component of developing the Simplified Risk Assessment and identifying specific measures to mitigate risks associated with a specific age group, such as seniors. **Table 1** provides a comparison of the Township's population by age group based on the 2016 census completed by Statistics Canada to that of the Province.

Table 1: Population by Age Group (2016 Census)

	Township of Whitewater Region		Province of Ontario	
Age Group	**Population**	**% Total**	**Population**	**% Total**
0 to 14	1,190	17%	2,207,970	16%
15 to 64	4,330	62%	8,988,865	67%
65+	1,490	21%	2,251,655	17%
Total	**7,010**	**100%**	**12,851,830**	**100%**
Median Age of the Population	46.5	-	41.3	-
Source: Statistics Canada, 2016 Census				

As shown in **Table 1**, the 2016 census identifies a total population of 7,010 for the Township. The age distribution of this population should be considered when developing targeted public education programs. The table illustrates that the age distribution of the Township and the province follow a similar overall distribution. However, there are three notable differences. One key observation is that the proportion of youth aged 14 and under is slightly greater within the Township than in the Province (17% versus 16%). The second key observation is that there are simultaneously a slightly higher

proportion of seniors in the Township than in the Province (21% vs. 17%). This is offset by the fact that in the Township there is a lower proportion of people 15 to 64 years old than in the Province (62% versus 67%) being the third observation.

3.1.2 Vulnerable Individuals or Occupancies

A group within a community that faces higher fire risk is known as vulnerable individuals or vulnerable occupancies. A vulnerable individual can be someone with mobility limitations, cognitive limitations, persons with developmental disabilities, or those generally who are unable to move on their own due to their own physical limitations or due to restraint.

Vulnerable occupancies include those buildings that provide care, care and treatment or are registered under the *Retirement Homes Act*. Certain other buildings that are classified as residential occupancies may also be subject to legislation specific to vulnerable occupancies. Chief Building Officials and Chief Fire Officials have the authority to classify buildings.

For the purposes of determining if a building is a care occupancy, certain elements must be considered. All of the following criteria must be met to be deemed a care occupancy:

a) special care is provided by a facility, either directly or indirectly;
b) the people who receive special care are residents of the facility;
c) residents require special care because of cognitive or physical limitations;
d) as a result of these limitations, are either unable to self-evacuate or require assistance to evacuate.

Some group homes may be vulnerable occupancies, while others are determined to be residential. To determine if a group home is vulnerable occupancy, certain elements including the number of individuals residing in the home, the maximum number of people sleeping accommodation is provided for and how many residents require evacuation assistance are considered.

Retirement homes regulated by the Retirement Homes Act, whether residential or care occupancies, are subject to vulnerable occupancy legislation. Fire departments are encouraged to reach out to the Retirement Homes Regulatory Authority (RHRA) if uncertain if a facility is regulated under the Act.

Once a building has been determined to be a Vulnerable Occupancy, the fire department is responsible for ensuring an annual fire safety inspection (using the checklist which forms part of Fire Marshal's Directive 2014-001 as a minimum level of inspection) is performed; an approved fire drill scenario using the lowest staffing complement is witnessed; and certain information is filed with the Office of the Fire Marshal and Emergency Management, through its Vulnerable Occupancy Registry. Further, each individual responsible for approving fire safety plans must successfully complete a course approved by

the Fire Marshal. At this time, the only approved course is offered through the Public Services Health and Safety Association (PHSHA).

3.1.3 Ethnic and Cultural Considerations (Considerations for Public Education)

Cultural diversity and ethnic background can be factors for fire departments to consider in developing and delivering programs related to fire prevention and public education. Communication barriers in terms of language and the ability to read written material can have an impact of the success of these programs.

According to the 2016 Census, English is the primary official language spoken in the Township. The Census reports that 88.25% (6,045) of people in the Township speak English only, 11.31% (775) speak English and French and 0.07% (5) of the population speaks only French. Merely 0.36% (35) speaks neither English nor French in Whitewater Region which indicates that the proportion of the population that cannot speak an official language is very small and does not pose a major risk to communication. Of the unofficial languages spoken, German (205) and Dutch (80) were most frequently counted as mother tongue languages in the 2016 census. Thus, language barriers experienced by residents are expected to be relatively infrequent. Consideration could be given to considering language barriers at a census tract or neighbourhood level. Further, the potential for communication barriers should be considered and monitored, especially when working with specific groups, such as tourists and as the community continues to grow.

3.1.4 Population Shifts

The population within a community can shift at various times during the day or week and throughout the year. Population shift can be a result of a number of factors including employment, tourism, and education. In some municipalities, residents occasionally leave the community for employment. Other communities may be major tourist and vacation destinations resulting in large population shifts related to seasonal availability of tourism activities. This can result in an increased risk due to overnight tourism accommodation (sleeping) which can impact the demand for fire protection services. Another impact of population shift could be an increase in vehicular traffic which could impact the number of motor vehicle calls and emergency response times.

The Township of Whitewater Region primarily experiences a population shift relating to tourism. The Township of Whitewater Region has a number of unique features that draw tourists to the area primarily during the summer months. The features that contribute to its draw as a tourist destination include:

- Outdoor recreational activities such as:
  - Whitewater rafting facilities
    - Owl Rafting in Forester Falls
    - RiverRun Rafting in Forester Falls

- Ottawa River Adventures in Cobden
- Snowmobiling and cross-country skiing
- Camping
  - Westmeath Provincial Park
  - Yonder Hill Campground
  - Pinewood Park
  - Horse Country Campground
  - Lakeside Cottages and Trailer Park
- Boating, golfing, and fishing
  - Muskrat Lake
  - Ottawa River
  - Wilderness Tour in Forester Falls
    - Culinary and art attractions;
    - Built Heritage in Township Hamlets; and
    - Special events such as:
      - The Cobden Fair

The Township experiences some population shift due to the tourism draw for recreational opportunities. However, the extent of this tourism including quantitative estimates and the proportion that stay overnight (which would impact fire risk) has not been studied recently. While each event draws tourists at various times throughout the year, it is important to consider population shifts from a fire protection, education and prevention standpoint. Specific fire protection strategies to address population shifts should be accommodated as part of broader services, such as pro-active fire inspections of the facilities occupied by these demographics (e.g., hotels and motels). In particular, the WRFD identified facilities or areas, listed in **Table 2**: Areas Subject to Population Shifts**,** which experience seasonal population shifts and are located in more 'remote' areas of the Township which may result in extended response times.

Table 2: Areas Subject to Population Shifts

Name of Facility/Area	Address	Concern
Wilderness Tours, Foresters Falls	503 Rafting Road, Foresters Falls	Somewhat remote building subject to tourism
Whitewater Village, Foresters Falls	503 Rafting Road, Foresters Falls	Numerous buildings on waterfront in a remote with private road access
Nanger Resort, Westmeath	277 Nangor Trail, Westmeath, ON	Cottage resort in remote area - waterfront
Greenway Drive Area & Lacroix Bay Area	North east area abutting the Ottawa River	Cottages in a vast area subject to seasonal population shifts
Source: Whitewater Region Fire Department		

3.1.5 Demographic Profile Observations

The following is a summary of key Demographic Profile observations:

- The proportion of youth aged 14 and under is slightly greater within the Township than in the Province (17% versus 16%);
- Slightly higher proportion of seniors in the Township than in the Province (21% vs. 17%) which represents a segment of the population which is one of the highest fire risk groups across the province;
- Lower proportion of people 15 to 64 years old than in the Province (62% versus 67%);
- Language is not a significant barrier to communication as 99.56% of the population has knowledge of English or English and French; and
- There are some population shifts throughout the year due to tourism.

3.2 Geographic Profile

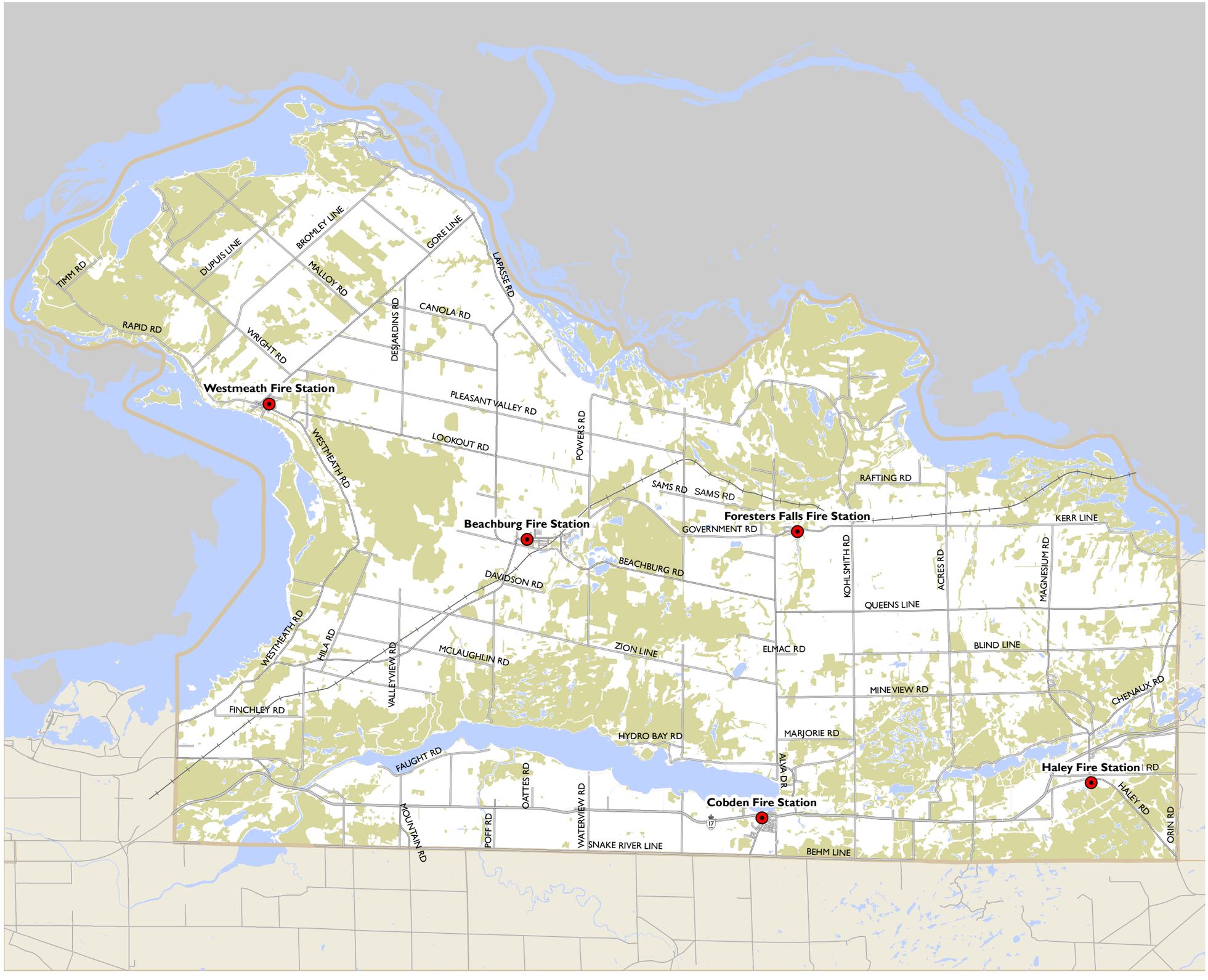
Located in the County of Renfrew, the Township of Whitewater Region covers approximately 540 km^2 and had a 2016 population of 7,010 (2016 Statistics Canada census). A geographic profile reviews key natural and human-made features within a jurisdiction. According to NFPA 1730, a geographic profile should consider highways, bridges, railroads, water features, geographic landforms, and the wildland-urban interface. The Township of Whitewater Region is a conglomeration of rural hamlets, such as Haley Station, Westmeath, Foresters Falls, Beachburg and Cobden, rural agricultural acreage and woodlots.

Highways, Bridges, and Railroads

As shown in **Figure 2**the Township is primarily serviced by local roads, collector roads, arterial roads, and County roads. The TransCanada Highway (Provincial Highway 17) runs through the Township, south of Muskrat Lake, which connects the City of Ottawa to the north east and North Bay to the south west. On a local level, the highway connects the community of Pembroke to the west to Hayley Station in the east. Regional roads, which are typically one lane in each direction, serve as the connection between the TransCanada Highway and other important communities such as Beachburg and Westmeath. Other local roads can be found in aforementioned hamlets and in areas with cottages close to waterbodies. In rural hamlets, much of the road network is a grid pattern – which correlates to the age of buildings and the period of which Whitewater Region was built. While the road network is serving the community well, it could potentially pose risks to residents and individuals driving through the rural hamlets (e.g. motor vehicle collisions) and residing adjacent to highways and arterial roads (e.g. truck roll-overs). Weather may be a factor as well as congestion during commuter peak times.

Rail in Whitewater Region is used primarily to transport goods. CN Rail runs an alignment extending from Foresters Falls through Beachburg from the east and west which crosses multiple major regional roads. Moreover, Ottawa Valley Railway runs through Hayley Station and Cobden. Due to the number of railway crossings in the Township, there may be an increase in travel times if trains pre-empt a crossing while fire and rescue are responding to an emergency.

The vast geography of Whitewater Region is also a major threat to timely response; the Region is 540 square kilometres of which most of its inhabitants are spread out amongst rural hamlets and agricultural areas. Consideration should be given to targeting areas with extended response times for public education activities and fire prevention activities as appropriate.



WHITEWATER REGION

WHITEWATER REGION
FIRE MASTER PLAN

Basemap

Figure 2: Township of Whitewater Region - Transportation Network and Natural Features

- Existing Fire Station
- Provincial Highway Road
- County Road
- Municipal Maintained Road
- Municipal Seasonal Road
- Private Road
- Railway
- Ohn Waterbody
- Wooded Area
- Township of Whitewater Region
- Renfrew County

0 0.5 1 2 km

1:120,000

MAP DRAWING INFORMATION:
DATA PROVIDED BY MNR AND WHITEWATER REGION

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

DILLON CONSULTING

PROJECT: 17-5880
STATUS: DRAFT
DATE: 2017-11-22

Water Features and Geographic Land Forms

While Whitewater Region is primarily agricultural, there are notable water and geographic features within the community. Whitewater Region is adjacent to the Ottawa River to the north and comprises a major waterbody, Muskrat Lake – these major water features presents considerable risk with the potential for flooding, recreational accidents, or other emergency incidents (see **Figure 3**). Bridges are not a major feature of Whitewater Region because most roads do not intersect a major body of water.

Located west of Beachburg, Westmeath Provincial Park is a campground and prominent habitat for waterfowl, shorebirds, turtles and other important migrating birds. This area may also pose unique risks including forest fires and other hazards involving recreational activities.

Wildland-Urban Interface

NFPA 1730 identifies wildland-urban interface as geography-based risk for consideration. This interface refers to the area of transition between unoccupied land and human development. This transition area could be comprised of woodlots, bush, or grass. As a community that has a significant amount of agricultural lands and natural features, the Township of Whitewater Region is at risk of brushfires (grass fires). There are forested areas on Crown land in the Township that WRFD identified as an area where forest fires are of concern; this area includes multiple parcels of Crown land located to the northeast along the Ottawa River as shown in **Figure 3**. The community also has an abundance of other forested areas, which may put the Township at risk of wildfires. Fire prevention policies including enforcement and public education can be used to manage and mitigate this risk through open air burn permit systems and through land use planning policy (including Official Plans and through site plan approval). WRFD could also consider appropriate training of personnel and the potential challenges faced by emergency vehicles, equipment, and personnel being able to access this type of fire.

Geographic Profile Observations

In summary, the following are key demographic profile observations:

- The TransCanada Highway or Provincial Highway 17 and other regional roads run through the Township posing a risk to residents and individuals driving through rural hamlets and occupancies adjacent to them;
- There are multiple at-grade rail crossings which may increase travel times for emergency services;
- The vast geography of Whitewater Region increases response times;
- Waterbodies such as the Ottawa River and Muskrat Lake are risks for potential flooding, recreational accidents and other emergency incidents; and
- Due to the large agricultural and forested areas, the Township is at risk of wildfires and brushfires.

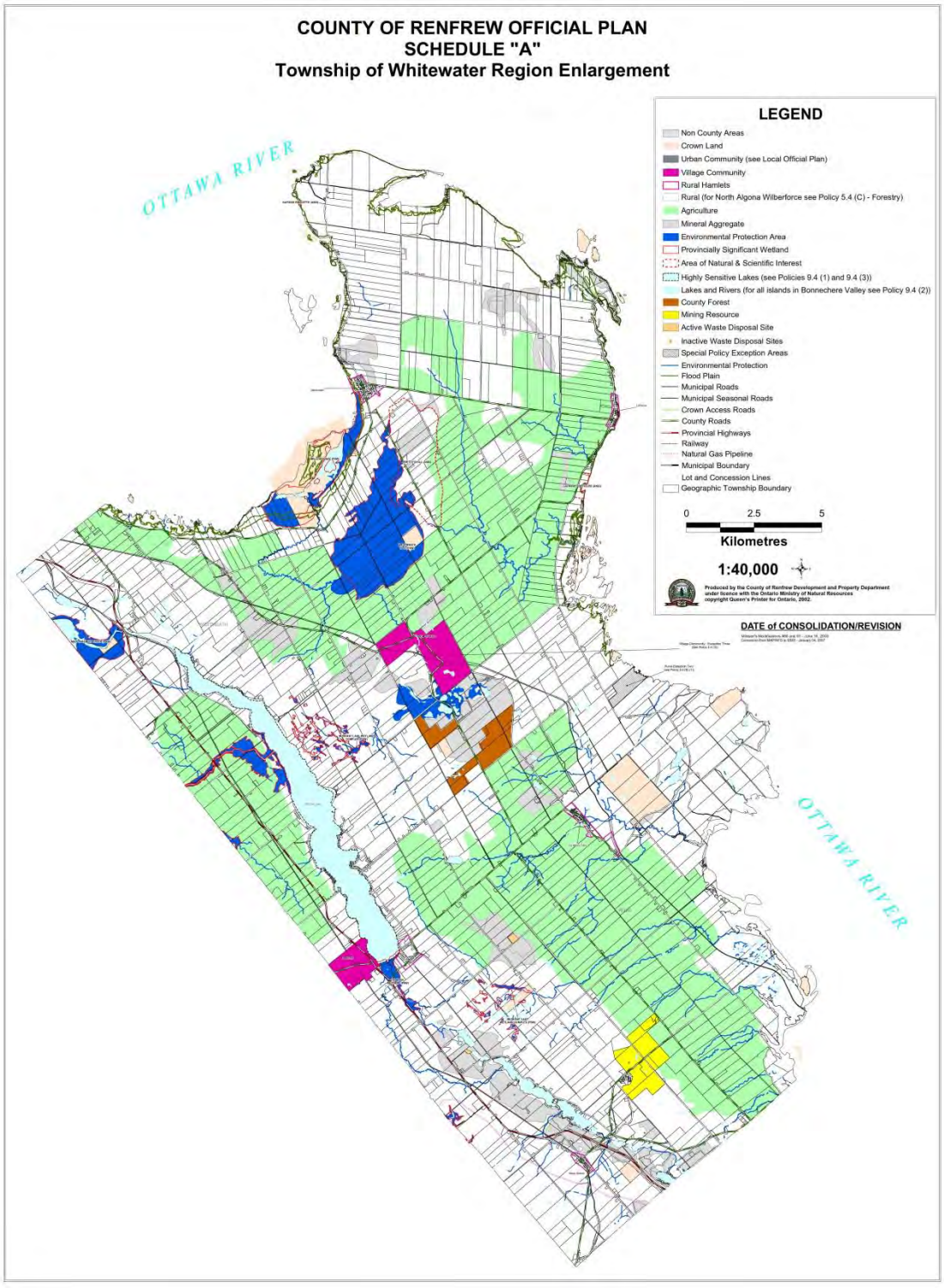


Figure 3: Renfrew County Official Plan - Major Geographic Features

3.3 Building Stock Profile

NFPA 1730 and OFMEM Public Fire Safety Guideline 04-40A-12 highlight highlights a number of characteristics of building stock that should be considered pertaining to fire risk which are described in this section. This includes: building stock, building density, building age and construction, potential high-fire risk occupancies, vulnerable occupancies, and historic or culturally significant buildings.

3.3.1 Building Code Occupancy Classifications

The Ontario Building Code (OBC) categorizes buildings by their major occupancy classifications. Each classification has inherent definitions that distinguish it from other occupancy classifications. Utilizing the OBC as the source for defining the occupancy classifications provides a recognized definition and baseline for developing a Simplified Risk Assessment.

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 3.**

Table 3: OBC Major Occupancy Classification

Group	Division	Description of Major Occupancies
Group A	1	*Assembly occupancies intended for the production and viewing of the performing arts*
	2	*Assembly occupancies not elsewhere classified in Group A*
	3	*Assembly occupancies of the arena type*
	4	*Assembly occupancies in which occupants are gathered in the open air*
Group B	1	*Detention occupancies*
	2	*Care and treatment occupancies*
	3	*Care occupancies*
Group C	---	*Residential occupancies*
Group D	---	*Business and personal services occupancies*
Group E	---	*Mercantile occupancies*
Group F	1	*High-hazard industrial occupancies*
	2	*Medium-hazard industrial occupancies*
	3	*Low-hazard industrial occupancies*

Source: Ontario Building Code, 2012

The Fire Risk Sub-model developed by the Office of the Fire Marshal and Emergency Management only utilizes the major group classifications (i.e. Group A, B, C, D, E, F). The Fire Risk Sub-model does not use the detailed division classifications provided for the respective occupancy groups. This strategy provides the ability to assess property stock within a community comparatively by major occupancy groups, thus providing a consistent and recognized definition for each major occupancy type. Where necessary, this strategy provides the opportunity for further analysis of a specific occupancy group. Subject to any site specific hazards or concerns, occupancies within this group can be assessed individually and then included where required within the scope of the broader Simplified Risk Assessment.

Table 4 and the discussion that follows describe the major occupancy groups used within this Simplified Risk Assessment. Definitions of the major occupancies from the Ontario Building Code are provided. The typical type of risk related to these occupancies and the potential proactive measures to reduce risk are also introduced.

All occupancies have unique risks based on their occupancy classification group. Within the groups, the buildings themselves can also be very different. For Group C - Residential occupancies, there are many types of buildings that can meet this description that would present their own unique risks - for example, mobile homes/travel trailers versus a single-detached dwelling. Consideration also needs to be given to high-rise residential occupancies which represent unique risk and operational challenges. Group D – Business and Personal Services occupancies can also be located in different types of buildings, such as remodelled single-family dwellings, low-rise, or high-rise buildings. Each of these building types can present different risks including egress for firefighting operations and evacuation by occupants. Group E – Mercantile occupancies can also present varied risks depending on the type of building which houses them. They range in size and potential risk from smaller neighbourhood corner stores to the large big box-style buildings. Large volumes of combustibles may be present in all forms of mercantile and business and personal services occupancies. Within the fire service, these two occupancy types are often considered together as “commercial uses.”

While building variation applies within Group B – Care or Detention occupancies, the important consideration in this case is the nature of the occupancy. This occupancy classification includes individuals who require special care or treatment due to cognitive or physical limitations. These occupancies could also be for individuals who are incapable of self-preservation because of security measures. Regardless of the type of building Group B – Care or Detention occupancies inhabit, this critical aspect of risk remains the same.

As shown in **Table 4,** the Group F – Industrial occupancy group is divided into low-hazard (Division 3), medium-hazard (Division 2) and high-hazard (Division 1) based on the combustible content and potential for rapid fire growth. The potential for major fires within this occupancy type is related to the high levels of combustibles utilized in the manufacturing process and present in storage. This can include highly flammable and corrosive products.

Table 4: Definitions, Risks and Proactive Measures for Risk Reduction by Major Occupancy Group

Major Occupancy Classification	Definition (Defined by Ontario Building Code)	Occupancy Risks	Proactive Measures for Reducing Risk
Group A – Assembly	The occupancy or the use of a building or part of a building by a gathering of persons for civic, political, travel, religious, social, educational, recreational or similar purposes or for the consumption of food or drink	• Overcrowding by patrons • Lack of patron familiarity with emergency exit locations and procedures • Staff training in emergency procedures • Large quantities of combustible furnishings and decorations	✓ Regular fire prevention inspection cycles ✓ Automatic fire detection and monitoring systems ✓ Approved fire safety plan and staff training ✓ Pre-planning by fire suppression staff ✓ Fire drills
Group B – Care or Detention	The occupancy or use of a building or part thereof by persons who; are dependent on others to release security devices to permit exit; receive special care and treatment; or receive supervisory care.	• Inability to evacuate or relocate patients • Presence of flammable/combustible gases • Vulnerable occupants using overnight accommodations (sleeping) • Combustible furnishings	✓ Regular fire prevention inspection cycles ✓ Annual fire drill scenarios to be approved and witnessed by FD for occupancies determined to be Vulnerable Occupancies ✓ OFMEM Vulnerable Occupancy Registry to be kept current ✓ 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.	• Overnight accommodation (sleeping) • Combustible furnishings • Secondary units (basement apartments) • High population density • Human behaviour (cooking, use of candles, etc.)	✓ 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 ✓ Regular fire prevention inspection cycles and fire drill scenarios to be approved and witnessed by FD for occupancies determined to be Vulnerable Occupancies ✓ OFMEM Vulnerable Occupancy Registry to be kept current
Group D – Business and Personal Services	An occupancy that is used for the transaction of business or the provision of professional or personal services.	• High volume of occupants • High combustible loading • Specialized equipment utilizing high risk substances such as radiation • Consumers unfamiliar with emergency exits and procedures	✓ 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.	• 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	✓ 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	• 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	✓ Regular fire prevention inspection cycles ✓ Public education ✓ Pre-planning by fire suppression staff ✓ Approved Fire Safety Plan and staff training ✓ Installation of early detection systems Automatic fire detection and monitoring systems ✓ Installation of automatic sprinkler systems

In addition to the six major occupancy classifications, there are other occupancies and features that should be considered as part of developing the Simplified Risk Assessment. These include occupancies that may be regulated under other legislation, or other federally or provincially owned features/ facilities. Examples of these other considerations include: major railway lines; major highways and transportation corridors; outdoor tire storage facilities; and farm / agricultural buildings.

3.3.1.1 Building Stock Analysis

The majority of the building stock profiles of most Canadian municipalities are Group C – Residential occupancy classifications. **Table 5** provides a summary of the property stock within the Township of Whitewater Region.

Table 5: Building Stock Analysis

Occupancy Classification (OBC)	Occupancy Definition Fire Risk Sub-model (OFMEM)	Number of Occupancies	Percentage of Occupancies	Source
Group A – Assembly	Assembly occupancies	34	1.18%	*WRFD*
Group B – Care or Detention	Care or Detention occupancies	2	0.07%	*Retirement Home Registry*
Group C – Residential	Single-Detached	2,560	88.92%	*Statistics Canada*
	Multi-unit residential	165	5.73%	*Statistics Canada*
	Hotel / Motel	2	0.07%	*WRFD*
	Mobile Homes & Trailers	40	1.39%	*Statistics Canada*
	Other (Rafter Housing)	3	0.10%	*WRFD*
Group D & E – Business & Mercantile	Business and Personal Services and Mercantile Occupancies	26	0.90%	*WRFD*
Group F – Industrial	Industrial occupancies	47	1.63%	*WRFD*
	Total	2,879	100.00%	

(Source: Whitewater Region Fire Department, Census 2016 – Statistics Canada & Retirement Home Registry)

The vast majority (96.21%) of the Township of Whitewater Region property stock is Group C – Residential. Of this occupancy classification, approximately 88.92% of the occupancies identified by the Statistics Canada are single-detached residential dwelling and 5.73% are multi-unit dwellings. The second largest percentage buildings are of Group F – Industrial with approximately 1.63% (Provided by WRFD). Group A – Assembly occupancies make the third highest percentage of Whitewater Region's building stock at 1.18%. There is also a relatively small number of Group D & E – Business and Mercantile property stock accounting for 0.90%, Group C – Residential occupancies are a notable risk due to the probability of fire occurring and the potential life-loss consequences. This is demonstrated by the proportion of fire loss and injuries or death within this occupancy classification within Whitewater

Region (**Section 3.4.3**). A key element in mitigating Group C – Residential occupancy risks is maximizing the first two lines of defense.

3.3.2 Building Age and Construction

The Ontario Building Code (OBC) was adopted in 1975, and the Ontario Fire Code (OFC) was adopted in 1981. Together these two documents have provided the foundation for eliminating many of the inconsistencies in building construction and maintenance that were present before their adoption. The OBC and the OFC were developed to ensure that uniform building construction and maintenance standards are applied for all new building construction. The codes also provide for specific fire safety measures depending on the use of the building. Examples of the fire safety issues that are addressed include:

- Occupancy;
- Exits/means of egress including signs and lighting;
- Fire alarm and detection equipment;
- Fire department access; and
- Inspection, testing, and maintenance.

In 1983, the OFC was further expanded to include retrofit requirements for many of the buildings constructed prior to adoption of the code. Retrofit requirements were established to ensure a minimum acceptable level of life safety is present. A number of occupancy types are included within the retrofit requirements including assembly, boarding, lodging and rooming houses, health care facilities, multi-unit residential, two-unit residential, and hotels.

3.3.2.1 Residential Buildings

The priority of addressing the residential fire risk is supported by the historic data provided by the OFMEM that reports for the period from 2006 to 2015[3] residential fires accounted for 85% of all fire fatalities.[4] Historic data also reports that from 2011 to 2015, 73% of 36,508 structure loss fires occurred in Group C – Residential occupancies.[5]

[3] At the time of writing and analysis, only up to 2015 fire loss data was available from the OFMEM. For the purposes of this Simplified Risk Assessment, the time horizon of 2011 to 2015 was used.

[4] Source: "Ontario Fatal Fires: 10 Years, 2006 - 2015." Ministry of Community Safety and Correctional Services. 22 Feb. 2017. Web. 26 Jul. 2017: http://www.mcscs.jus.gov.on.ca/english/FireMarshal/MediaRelationsandResources/FireStatistics/OntarioFatalities/FatalFiresSummary/stats_fatal_summary.html.

[5] Source: “Fire Loss in Ontario 2011 – 2015”. Ministry of Community Safety and Correctional Services. 22 Feb. 2017. Web. 26 Jul. 2017: https://www.mcscs.jus.gov.on.ca/english/FireMarshal/MediaRelationsandResources/FireStatistics/OntarioFires/FireLossesCausesTrendsIssues/stats_causes.html

These facts make understanding the age and construction of a community's residential building stock an important component of developing a Simplified Risk Assessment. The Township's residential building structural dwelling types are summarized in **Table 6.**

Table 6: Residential Structural Dwelling Type- Township of Whitewater Region vs. Ontario (2016)

Structural Dwelling Type	Whitewater Region	% of Units	Ontario	% of Units
Single-Detached House	2,530	91.2%	2,807,380.00	54.3%
Semi-Detached House	10	0.4%	289,975.00	5.6%
Row House	50	1.8%	460,425.00	8.9%
Apartment-Duplex	40	1.4%	176,080.00	3.4%
Apartment-more than 5 Storeys	0	0.0%	886,705.00	17.2%
Apartment-less than 5 Storeys	75	2.7%	522,810.00	10.1%
Other single-attached House	30	1.1%	10,910.00	0.2%
Movable Dwelling	40	1.4%	14,890.00	0.3%
Total	**2,775**	**100%**	**5,169,175**	**100%**

Source: Statistics Canada - 2016 Census Data

In comparison with the province, the Township of Whitewater Region has a higher proportion of single-detached dwellings (91.2% vs. 54.3%), but a much lower proportion of apartment buildings greater than five storeys (0.0% vs. 17.2%).

Statistics Canada reports on the age of construction for residential dwellings. Whitewater Region's residential buildings age are summarized in **Table 7** and shown in Error! Not a valid bookmark self-reference.. 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 7** indicates that 60% of the Township's residential buildings were built prior to 1981. In comparison, 53% of all dwellings in Ontario were built prior to 1981, identifying that the Township of Whitewater Region has an older building stock compared to that of the province with more buildings built after the adoption of the OBC. Overall, the Township still has nearly two thirds of its residential dwellings built prior to 1981, meaning that overall the Township has a higher risk than most communities in Ontario. More information on the age of the building stock can be found in **Section 3.3.7** of this SRA. Further information on building exposures can be found in **Section 3.3.3** of this SRA.

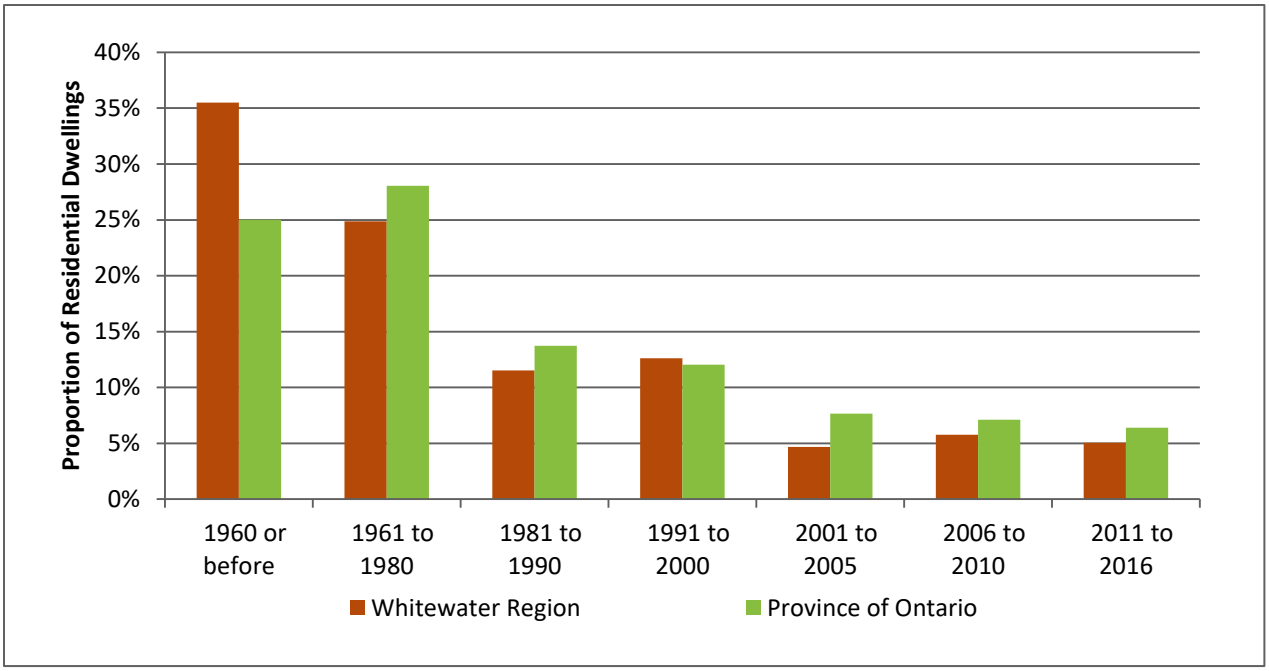


Figure 4: Period of Construction for Residential Buildings (Census 2016)

Table 7: Age of Construction of Residential Dwellings (Census 2016)

Period of Construction	Whitewater Region	% of Units	Ontario	% of Units
1960 or before	985	35%	1,293,135	25%
1961 to 1980	690	25%	1,449,585	28%
1981 to 1990	320	12%	709,135	14%
1991 to 2000	350	13%	622,565	12%
2001 to 2005	130	5%	396,130	8%
2006 to 2010	160	6%	368,235	7%
2011 to 2016	140	5%	330,390	6%
Total	**2,775**	**100%**	**5,169,175**	**100%**

3.3.2.2 Non-Residential Buildings

During the late nineteenth century and early twentieth century, balloon frame construction was a common framing technique used in both residential and small commercial construction. This technique permitted the spread of fire and smoke to move rapidly from the lower floors to upper floors and the roof level. Understanding the age of construction of dwellings can assist in determining if balloon framing may have been utilized.

Modern construction techniques have introduced the use of platform construction whereby each level is built as a component of the overall structure. This technique, in addition to the use of fire stops, has reduced the extension of fire and smoke by creating horizontal barriers.

Specific information such as census data is not available for non-residential buildings; however, based on experience in planning and development, it is assumed that the age of the non-residential property stock is similar to that of the residential property stock.

3.3.3 Building Density (Exposures)

NFPA 1730 lists building density as a key factor for understanding potential fire risk with particular consideration given to core areas, such as Hamlets. Closely spaced buildings, typical of historic downtown core areas and newer infill construction, have a higher risk of a fire spreading to an adjacent exposed building. A fire originating in one building could easily be transferred to neighbouring structures due to the close proximity. The close proximity of buildings can also impede firefighting operations due to the limited access for firefighters and equipment.

Adoption of the OBC and the OFC has required spatial separations and the use of fire retardant materials and constructions methods to reduce the fire risks. In addition to the construction and planning requirements within the respective codes, basic firefighting practices consider the protection of exposures as a primary function and consideration in the event of a response by the fire and emergency services.

Exposure risk can be experienced through new development as well. One consideration is infill development. In some centres, this means higher density development in existing building up areas. Whitewater Region is not experiencing a considerable amount of growth and the residential occupancies are mostly single-detached houses. Depending on the type and number of residential units being constructed in the future, there could be exposure risks in these future developments.

3.3.4 Building Height and Area

Buildings that are taller in height, or contain a large amount of square footage (footprint) can have a greater fire loss risk and life safety concern. One of the unique characteristics and risks of tall / multi-storey buildings is known as the “stack effect”. This is characterized as vertical air movement occurring throughout the building, caused by air flowing into and out of the building, typically through open doors and windows. The resulting buoyancy caused by the differences between the indoor/outdoor temperature and elevation differences causes smoke and heat to rise within the building. This can have a dramatic effect on smoke permeation throughout the common areas and individual units within the building. This can be directly related to the high percentage of deaths that occur in high-rise buildings as a result of smoke inhalation.

The nature of taller buildings also brings the presence of higher occupant loads and higher fuel loads due to the quantity of furnishings and building materials. Efficient evacuation can also be a challenging process due to a lack of direction, signage, knowledge, or familiarity of the occupants which may result in overcrowding of stairways and exit routes.

Ensuring all required life safety systems are in place and functioning is a priority for these occupancies. Taller buildings can experience extended rescue / suppression response times for firefighters to ascend to the upper levels. Options such as "shelter-in-place" whereby occupants are directed by the fire department to stay within their units can be an effective strategy. However, ensuring internal building communications systems are in place and functioning is critical to the success of this strategy. Building area can cause comparable challenges as those present in taller buildings. Horizontal travel distances rather than vertical can mean extended response times by firefighters attempting rescue or fire suppression activities.

The Ontario Building Code has detailed considerations to define a high-rise building based on the occupancy classification, floor area, occupant load, and what exactly is being measured. Within all occupancy classifications, when a building is 18 metres in height, additional OBC requirements are in effect.[6] The WRFD does not currently identify any high rise buildings in the community.

There are, however, a number of buildings that have large floor areas. As part of this review, WRFD identified a building of note that present an increased fire risk due to building area (**Table 8**).This building in particular is industrial which may result in a higher fuel load as well. Industrial occupancies have strict requirements to assist in managing and mitigating risk and these various factors. Consideration should be given by WRFD to proactive inspection, pre-planning, and fire safety planning activities to mitigate risk in these occupancies.

Table 8: Buildings with Large Area Considerations

Building Name	Address	Description
Haley Industries Ltd.	634 Magnesium Road, Haley Station	Industrial Facility

(Source: Whitewater Region Fire Department)

3.3.5 Potential High-Fire Risk Occupancies (Fuel Load)

Potential high-fire risk occupancy consideration is another factor within building stock profile per NFPA 1730. This section of the Simplified Risk Assessment will focus primarily on fuel load for industrial occupancies. Fuel load typically refers to the amount and nature of combustible content and materials within a building. This can include combustible contents, interior finishes as well as structural materials.

[6] Ontario Association of Architects. (n.d.). Ontario Association of Architects. Retrieved January 20, 2016, from Presentation for Course on the Ontario Building Code: http://www.oaa.on.ca/oaamedia/documents/Ontario%20Building%20Code%20-%20Concepts%20and%20Code%20Analysis.pdf

Combustible content tends to create the greatest potential fire loss risk which can include industrial materials, commercial materials or typical office furnishings. Higher fuel loads results in increased fire loss risk due to increased opportunity for ignition, propagation, and increased fire severity.

In many communities, large amounts of fuel load can be contained within a single occupancy such as a building supply business, within a large multi-unit residential building, or within an historic downtown core. As presented previously within this SRA, age and construction of a building can also have an impact on fuel load given that older buildings likely have a larger volume of combustible construction such as wood framing rather than newer construction utilizing concrete and steel products.

As illustrated in **Table 9**, the WRFD has identified four occupancies with fuel load concerns which are to be expected due to the size and role of the Township as a primarily residential and agricultural community. In addition to ensuring compliance to the requirements of the OBC and the OFC, there are operational strategies that a fire service can implement to address fuel load concerns. These include regular fire inspection cycles and pre- incident planning of buildings of this nature to provide an operational advantage in the event of fire.

Table 9: Buildings with Site Specific Fuel Load Concerns in the Township of Whitewater Region

Building Name	Address	Facility Type	Fuel Load Concern
Haley Industries Ltd, Hayley Station	634 Magnesium Road, Haley Station	Industrial	Magnesium and chemicals
Calver D & S Lumber Ltd, Pembroke	79 Industrial Park Road, Pembroke	Saw Mill	Saw dust piles and wood piles; water source unreliable
Lad's Auto Recyclers, Pembroke	111 Industrial Park Rd, Pembroke	Recycling Facility	Storage of tires and old vehicles
Barron Disposal Systems Inc.	301 Mine View Road, Haley Station	Waste Management	Storage of tires and old vehicles
(Source: Whitewater Region Fire Department)			

3.3.6 Vulnerable Occupancies (Potential High-life Safety Risk Occupancies)

In addition to the consideration of vulnerable individuals and demographics discussed in **Section 3.1,** identifying the location and number of occupancies within the community provides insight into the magnitude of this particular demographic within a community.

Occupancies that should be considered when assessing this demographic typically include those in Group A- non-residential schools and child care facilities as well as Group B – Care or Detention occupancies. Example of such occupancies are hospitals, seniors' apartments, group homes, rooming houses, residential care facilities, daycare centres, elementary schools and long-term care facilities. **Table 10** lists the occupancies identified by the WRFD as long-term care facilities that are vulnerable. While schools and day care centres are not considered Vulnerable Occupancies under provincial

legislation, as the occupants are predominantly children, these facilities should be given special consideration due to the high concentration of young lives present and the potential challenges that presents in the event of fire or other emergency. These facilities and locations are presented in **Table 11**. It is important that the fire department complete proactive inspections, witness fire drills, review and approve fire safety plans as well as collaborate with building owners to prepare pre-incident plans in these buildings to prevent an incident and mitigate risk should an incident occur.

Table 10: Vulnerable Occupancies in Whitewater Region - Long term Care

Facility	Address
Country Haven Retirement Home, Beachburg	1387 Beachburg Road, Beachburg, ON
Caressant Care Cobden Nursing Home	12 Wren Drive, Cobden, ON K0J 1K0
Caressant Care Cobden Retirement Home	12 Wren Drive, Cobden, ON K0J 1K0

(Source: Whitewater Region Fire Department)

Table 11: Schools

Facility	Address
Beachburg Public School, Cameron Street, Beachburg	20 Cameron Street, Beachburg
Cobden District Public School, Cobden	16 Cowley Street, Cobden
Our Lady of Grace Separate School, Westmeath	52 Grace Street, Westmeath
Parochial School (Mennonite)	98 Snake River Line, Cobden
Parochial School (Mennonite)	401 Pappin Road, Beachburg

(Source: Whitewater Region Fire Department)

3.3.7 Historic or Culturally Important Building or Facilities

In addition to the consideration of building age and construction, understanding the location of historic or culturally important buildings or facilities is important. Such building or facilities may be keystone features to the community. They may provide a sense of heritage, place, and pride and act as tourism destinations which could result in an economic impact in the case of their loss.

Heritage conservation is a priority for Whitewater Region with the Planning Department, as well as the Heritage Whitewater Region Committee, responsible for protecting, promoting, documenting and improving the heritage properties in Whitewater Region.

There are no heritage districts identified by Whitewater Region; however, there is one historically significant landmark designed to be of cultural heritage value or interest – pursuant of the Ontario Heritage Act. The McDonald Burial Ground located on 1501 Sutherland Road, Westmeath Con 1 West of Muskrat Lake North Pt Lot 18 was designated in 2014. This area was the resting place of veterans of the War of 1812 who were some of the earliest settlers in the Westmeath area.

3.3.8 Building Stock Profile Observations

The following is a summary of key Building Stock Profile observations:

- The vast majority (96.21%) of the Township of Whitewater Region property stock is Group C – Residential. Of this occupancy classification, approximately 88.92% of the occupancies identified by the Statistics Canada are single-family residential dwelling and 5.73% are multi-unit dwellings;
- The second largest percentage buildings are of Group F – Industrial with approximately 1.63% (Provided by WRFD);
- 60% of the Township's residential buildings were built prior to 1981 prior to the adoption of the Ontario Fire Code;
- There is one building with large area concerns and no buildings with height concerns in Whitewater Region;
- There are four buildings with site specific fuel load concerns; and
- There are eight vulnerable occupancies in the Region including three long term care facilities and five schools.

3.4 Past Fire Loss Profile

Past fire loss statistics can be assessed to understand trends within a community and design a community risk reduction plan accordingly. This section reviews overall fire loss, fires loss by occupancy type, death or injury by occupancy type, fire deaths or injuries by age and gender, reported fire cause, smoke alarm status, and fire suppression system status.

3.4.1 Overall Fire Loss

Analysis of historical data provides valuable insight into understanding the specific trends within a community. Assessing the key factors of life safety risk and fire risk in relation to provincial statistics provides a foundation for evaluating where specific programs or services may be necessary.

When looking specifically at structure fires, **Table 12** shows the proportion of structure fires and the property loss related to structure fires for the period of 2011 to 2015 based on total number of fires and total property loss for all fires (structures, outdoor, and vehicle). This shows that the proportion of structure fires is much higher in the years of 2012 and 2013 in Whitewater Region and lower in the years 2011, 2014 and 2015. Moreover, the proportion of structure fire property loss is consistent with the provincial average proportions, whereby structure fires account for a lower proportion of the number of loss fires (68% of all fires in the Township) but a high proportion of the property loss (97% of property loss in the Township).

Table 12: Township of Whitewater Region and Province of Ontario Structure Fires and Property Loss (2011 - 2015)

	Township of Whitewater Region				Province of Ontario			
Year	Structure Fires	Structure Property Loss ($)	% Fires	% Property Loss	Structure Fires	Structure Property Loss ($)	% Fires	% Property Loss
2011	8	$1,087,500	11%	15%	7,522	$571,503,039	14%	16%
2012	11	$2,081,100	15%	28%	7,496	$543,140,732	14%	16%
2013	14	$2,671,500	19%	36%	7,189	$575,879,175	13%	17%
2014	9	$757,500	12%	10%	7,061	$785,361,080	13%	23%
2015	8	$632,000	11%	9%	7,240	$666,877,595	13%	19%
Total for ALL Loss Fires (Structure, Vehicle, Outdoor)	**73**	**$7,426,650**	**68%**	**97%**	**55,108**	**$3,471,343,387**	**66%**	**91%**
(Source: OFMEM Standard Incident Reporting)								

3.4.2 Fires by Occupancy Type

Historical fires by occupancy type highlight occupancies which may be more vulnerable to fires. Using this data, combined with the percentage of housing stock in the Township, a targeted public education and inspection program can be initiated.

Of the 50 structure fires which occurred in Whitewater Region between 2011 and 2015, 37 fires (74.0%) occurred in Group C – Residential occupancies accounting for 54.7% of the property loss ($) as shown in **Table 13**. Group F – Industrial occupancies account for the second most significant source of property loss at 8.0% but accounts for 22.4% of the total structure fires over the same period.

Table 13: Township of Whitewater Region Fires and Fire Loss by Occupancy Classification (2011-2015)

Occupancy Classification	Property Classification	Fires	% Fires	Property Loss	% Loss
Group A	Assembly occupancies	-	-	-	-
Group B	Care or Detention occupancies	-	-	-	-
Group C	Residential occupancies	37	74.0%	$3,958,100	54.7%
Group D	Business and Personal Services Occupancies	-	-	-	-
Group E	Mercantile occupancies	1	2.0%	$20,000	0.3%
Group F	Industrial occupancies	4	8.0%	$1,620,000	22.4%
Other occupancies	Not classified within the Ontario Building Code	4	8.0%	$46,500	0.6%
	Classified under National Farm Building Code	4	8.0%	$1,585,000	21.9%
Total		**50**	**100%**	***$7,229,600***	**100.0%**
(Source: OFMEM Standard Incident Reporting)					

Table 14 indicates the fire loss by property classification for the period 2011 to 2015 for Ontario and Whitewater Region. The distribution of structure fires by occupancies across the Township and the Province is generally consistent. For this period, 73% of the fires with a loss in Ontario occurred within Group C - Residential occupancies which is consistent with the proportion occurring in the Township (74%). Similarly, the proportion of fires in Group F – Industrial in the Township is in line with the Provincial proportion (8% and 7% respectively). The greatest discrepancies occur within 'other occupancies' not classified within the building code, with 16% of fires occurring in this category in the Township compared to 8% in the Province. This accounts for a lower proportion of fires in the Township within Group A – Assembly occupancies, Group B – Care or Detention occupancies, Group D – Business or Personal Services occupancies, and Group E – Mercantile occupancies. Some of these differences between the Province as a whole and Whitewater Region may be attributed to the building stock within the Township.

Table 14: Township of Whitewater Region and Province of Ontario Proportion of Structure Fires by Major Occupancy Classification (2011-2015)

Occupancy Classification (OBC)	Occupancy Definition Fire Risk Sub-model (OFMEM)	Whitewater Region Proportion of Structure Fires	Ontario Proportion of Structure Fires
Group A	Assembly occupancies	0%	4%
Group B	Care or Detention occupancies	0%	1%
Group C	Residential occupancies	74%	73%
Group D	Business and Personal Services Occupancies	0%	2%
Group E	Mercantile occupancies	2%	3%
Group F	Industrial occupancies	8%	7%
Other occupancies	Not classified within the Ontario Building Code	8%	5%
	Classified under National Farm Building Code	8%	3%
	Reported Structure fires	50	36,508
(Source: OFMEM Standard Incident Reporting)			

3.4.3 Fire Deaths or Injuries by Age and Gender of Victims

As mentioned in **Section 3.1.1**, seniors represent the highest proportion of fire fatalities in the Province of Ontario. Reviewing historic fire deaths or injuries by age and gender of victims can help to provide insight for the purposes of targeted community risk reduction programs. These trends can be used to inform programming for the Township of Whitewater Region.

As shown in **Table 15** were two reported civilian injuries and one civilian fatality in the Township. Both occurred in Group C – Residential occupancies. This finding is consistent with the fire loss statistics by occupancy, whereby the majority of fire losses in in the Province occurred in Group C – Residential occupancies. The OFMEM does not specify the gender or age of the injured or deceased. To provide targeted public education it would be beneficial for the Whitewater Region Fire Department to track age and gender of injured or deceased individuals.

Table 15: Township of Whitewater Region Reported Civilian Injuries and Fire Deaths (2011 – 2015)

Occupancy Classification (OBC)	Occupancy Definition Fire Risk Sub-model (OFMEM)	Injuries	Fatalities
Group A – Assembly	Assembly occupancies	0	0
Group B – Care or Detention	Care or Detention occupancies	0	0
Group C - Residential	Residential occupancies	2	1
Group D - Business	Business and Personal Services Occupancies	0	0
Group E - Mercantile	Mercantile occupancies	0	0
Group F - Industrial	Industrial occupancies	0	0
Other occupancies	Not classified within the Ontario Building Code (i.e. farm buildings)	0	0
Total		**2**	**1**
(Source: OFMEM Standard Incident Reporting)			

3.4.4 Reported Fire Cause

Assessing the possible cause of the fires reported is an important factor in identifying potential trends, or areas that may be considered for introducing additional public education or fire prevention initiatives as part of the community fire protection plan.

Within OFMEM fire loss reporting, there are four categories of cause utilized to classify the cause of a fire. These include intentional, unintentional, other, and undetermined. **Table 16** provides a summary of the reported possible cause of the fires reported during the period of 2011 to 2015 in Whitewater Region.

Table 16: Township of Whitewater Region Fire Loss by Major Acts or Omissions (2011-2015)

Nature	Fire Cause	Whitewater Region		Province of Ontario	
		# of Fires	% of Fires	# of Fires	% of Fires
Intentional	Arson	0	0.0%	2,236	6.1%
	Vandalism	0	0.0%	953	2.6%
	Other Intentional	0	0.0%	10	0.0%
Unintentional	Children Playing	0	0.0%	164	0.4%
	Design/Construction/Maintenance deficiency	5	10.0%	2,988	8.2%
	Mechanical /Electrical failure	13	26.0%	5,392	14.8%
	Misuse of ignition source	11	22.0%	10,967	30.0%
	Other unintentional	2	4.0%	2,578	7.1%
	Undetermined	7	14.0%	2,588	7.1%

Nature	Fire Cause	Whitewater Region		Province of Ontario	
		# of Fires	% of Fires	# of Fires	% of Fires
	Vehicle Collision	0	0.0%	30	0.1%
Other	Other	3	6.0%	1,673	4.6%
Undetermined	Undetermined	9	18.0%	6,876	18.8%
Unknown, not reported	Unknown, not reported	0	0.0%	53	0.1%
	Total number of fires and percentage	**50**	**100%**	**36,508**	**100%**

(Source: OFMEM Standard Incident Reporting)

The "intentional" category recognizes the cause of a fire to be started for a specific reason. These are typically classified as arson fires, and for example can be related to acts of vandalism, or to achieve personal gain through insurance payment. As indicated in the table, 0% of the fires reported in Whitewater Region for this period were intentionally caused. This is lower than the reported cause of fires in Ontario where 9.1% of fires were intentional.

The "unintentional" category recognizes a number of the common causes of a fire that represent both human behavioural causes, such as playing with matches, and equipment failures, such as a mechanical failure. Unintentional causes represented 76.0% of the cause for the 50 fires during this period, with the leading unintentional cause being misuse of a mechanical or electrical failure source (13 fires). Within the province as a whole, 67.3% of fires were caused unintentionally with a leading cause of misuse of ignition source. This suggests a need for targeted education programs about fire causes and prevention. The percentage of undetermined fires represents a total of 18.0% of all fire causes compared to 18.8% for the province. While this number is lower than the province, it may suggest a need for better investigation training.

3.4.4.1 Ignition Source

Table 17 illustrates the fire loss by source of ignition based on an analysis of the data provided from 2011 to 2015 from the Office of the Fire Marshal for the Township of Whitewater Region and the Province. Most commonly, the ignition source is undetermined within both the province (24.0% of fires) and the Township (28.0%). The three most common known causes of fires in the home within the Township are electrical distribution (28.0%), heating equipment (10.0%) and miscellaneous (10.0%). This differs from the province as a whole where the leading known cause are cooking equipment (17.6%), open flame tools/smokers articles (13.9%) and appliances (4.6%).

Table 17: Township of Whitewater Region and the Province of Ontario Fire Loss by Major Source of Ignition (2011 - 2015)

Reported Ignition Source	Township of Whitewater Region		Province of Ontario	
	# of Fires	% of Fires	# of Fires	% of Fires
Appliances	0	0.0%	1,692	4.6%
Cooking equipment	3	6.0%	6,443	17.6%
Electrical distribution	14	28.0%	3,259	8.9%
Heating equipment, chimney etc.	5	10.0%	3,041	8.3%
Lighting equipment	1	2.0%	1,248	3.4%
Open flame tools/smokers articles	3	6.0%	5,086	13.9%
Other electrical/mechanical	1	2.0%	1,488	4.1%
Processing equipment	1	2.0%	477	1.3%
Miscellaneous	5	10.0%	3,655	10.0%
Exposure	3	6.0%	1,294	3.5%
Undetermined	14	28.0%	8,770	24.0%
Unknown, not reported	0	0.0%	55	0.2%
Total	**50**	**100%**	**36,508**	**100%**

(Source: OFMEM Standard Incident Reporting)

3.4.5 Smoke Alarm Status

Smoke alarms are required on every storey of a dwelling and outside all sleeping areas in the Province of Ontario. Data is publicly available at the Provincial level for the smoke alarm status in the event of a fire but not at the municipal level. The OFMEM reported on the fires in Group C – Residential occupancies that resulted in a fire loss (financial or casualty) for the period 2011 to 2015 across the province. The results are shown in **Figure 5** (from OFMEM) and highlights that in 31% of the instances, there was no smoke alarm or one was present but did not operate. In 15% of instances, a smoke alarm was present but did not operate. This includes 4% of all loss fires where the smoke alarm did not have a battery or

power. More than half (56%) of the homes with a casualty or property loss was not determined to have a smoke alarm in place that operated as anticipated.[7]

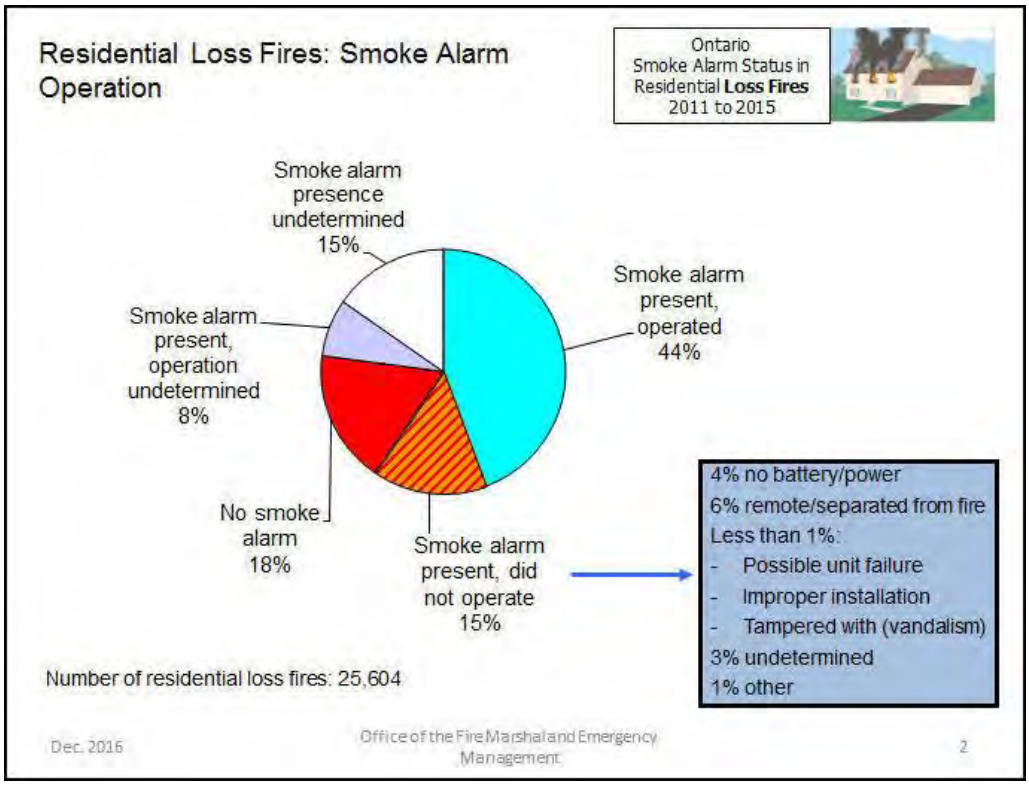


Figure 5: Smoke Alarm Status in the Province of Ontario, Group C - Residential Occupancies, 2011 to 2015
(Source: OFMEM https://www.mcscs.jus.gov.on.ca/english/FireMarshal/MediaRelationsandResources/FireStatistics/OntarioFires/SmokeAlarmStatusinHomeFires/stats_sa_status.html)

These provincial statistics support having a targeted and proactive smoke alarm program in place. The statistics also suggest that there is value in formally compiling and analyzing this data at a local level. This information could be used to enhance the existing smoke alarm program, and, over time, measure trends.

[7] Source: "Ontario Smoke Alarm Status in Residential Fires 2011 to 2015." Ontario Ministry of Community Safety and Correctional Services. Updated 22 Feb. 2017. Web. 26 Jul. 2017: https://www.mcscs.jus.gov.on.ca/english/FireMarshal/MediaRelationsandResources/FireStatistics/OntarioFires/SmokeAlarmStatusinHomeFires/stats_sa_status.html.

3.4.6 Past Fire Loss Profile Observations

The following is a summary of key past fire loss profile observations:

- The proportion of structure fires out of all fire types (e.g. outdoor and vehicle fires) in comparison with the province was lower in the years 2011, 2014 and 2015 and higher in the years 2012 and 2013;
- 74% of all structure fires occurred in Group C - Residential occupancies which is consistent with the provincial average;
    - There is a higher proportion of fires occurring within occupancies not classified within the Building Code within the Township compared to the Province (16% versus 8%).
- All injuries and fatality occurred in Group C - Residential occupancy classification between 2011 and 2015 (2 injuries and 1 fatality);
- No fires that were recorded between 2011 and 2015 were intentional and 13 were unintentional mechanical / electrical failure fire causes; and
- Electrical distribution was the most frequently counted reported ignition source (14 Fires or 28% of all structure fires reported).

4.0 Simplified Risk Assessment Overview

Through this Simplified Risk Assessment exercise, key risks have been identified following the NFPA 1730 risk profiles:

- Demographic
    - The proportion of youth aged 14 and under is slightly greater within the Township than in the Province (17% versus 16%); and
    - Slightly higher proportion of seniors in the Township than in the Province (21% vs. 17%) which represents a segment of the population which is one of the highest fire risk groups across the province.

- Geographic
    - The TransCanada Highway or Provincial Highway 17 and other regional roads run through the Township, which pose a risk to residents and individuals driving through rural hamlets and occupancies adjacent to them; and
    - There are multiple at-grade rail crossings which may increase travel times for emergency services.
- Building Stock
    - The vast majority (96.21%) of the Township of Whitewater Region property stock is Group C – Residential. Of this occupancy classification, approximately 88.92% of the occupancies identified by the Statistics Canada are single-detached residential dwelling and 5.73% are multi-unit dwellings; and
    - The second largest percentage buildings are of Group F – Industrial with approximately 1.63% (Provided by WRFD);
- Past Fire Loss
    - 74% of all structure fires occurred in Group C - Residential occupancies which is consistent with the provincial average;
    - Loss fires in the Group F - Industrial occupancies accounts for 8% of fires but 22.4% of structural loss in dollars; and
    - There is a higher proportion of fires occurring within occupancies not classified within the Building Code within the Township compared to the Province (16% versus 8%).

Growth considerations including historic and future growth are also considered and a Fire Risk Model was developed based in part of NFPA 1730 and the Ontario Office of the Fire Marshal's Fire Risk Sub-model. The results of this Simplified Risk Assessment directly inform the Fire Services Master Plan and should be used to inform the development and implementation of public education programs, suppression, training, and prevention activities. The SRA should be reviewed annually and updated every

five years in alignment with best practices (e.g., NFPA 1730) or if something significant changes. This can be completed in alignment with the review and update of the Fire Services Master Plan.

Appendix B

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

Comprehensive Fire Safety Effectiveness Model Considerations

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

Under Review

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

Fire Protection & Prevention In Your Community

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

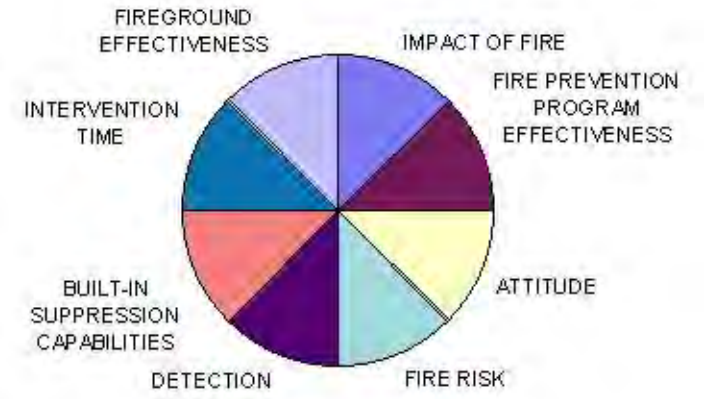
The provision of fire protection in Ontario is a municipal responsibility. The level and amount of fire protection provided is determined by the residents of the community through decisions made by and support provided by the local municipal council. Due to a wide variety of factors, the Ontario fire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

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

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

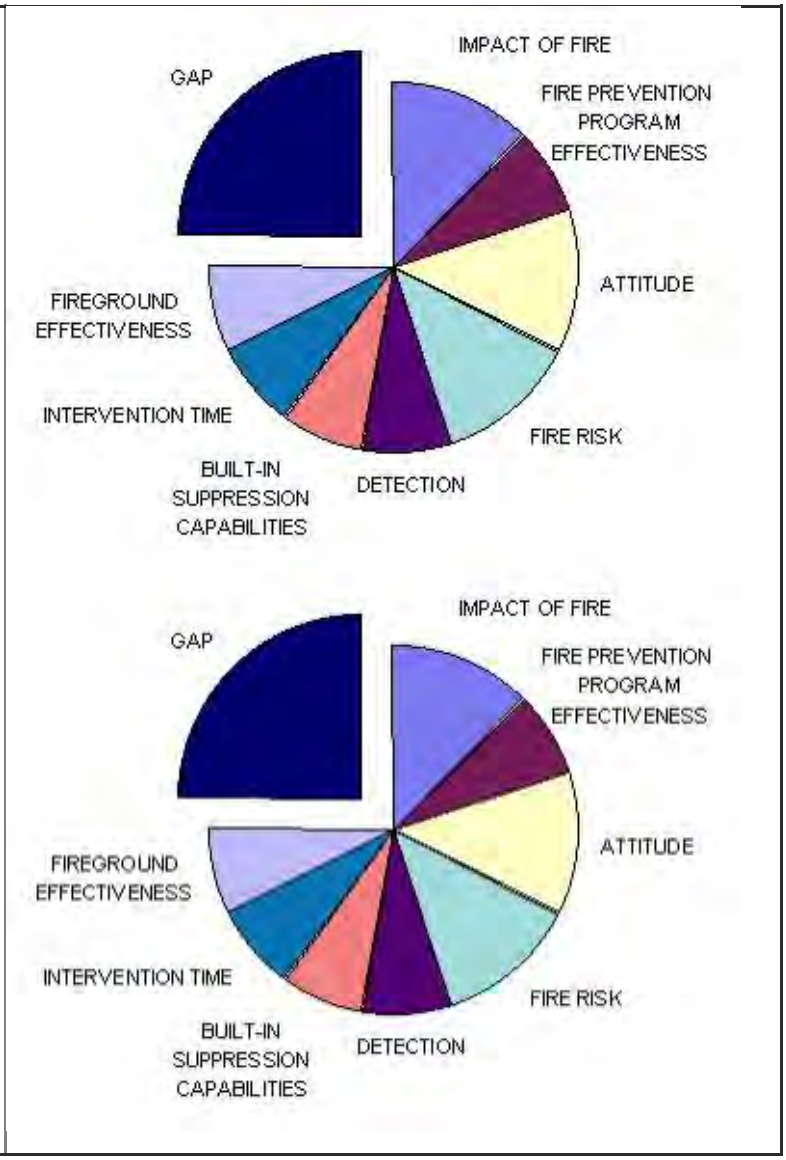
Community Master Fire Protection Plan

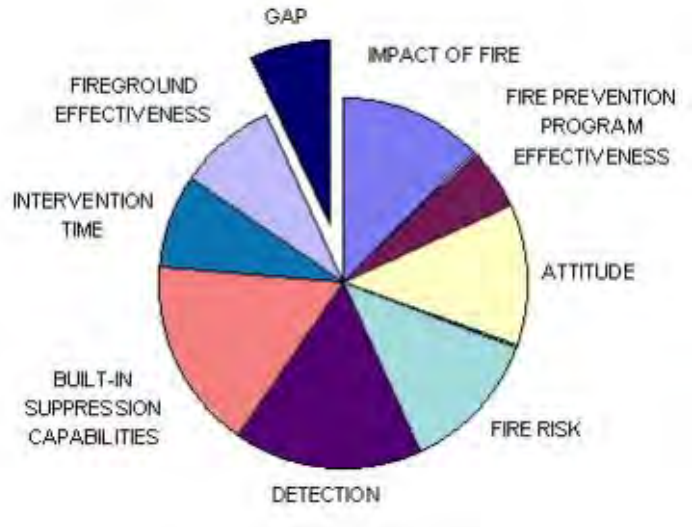
Every fire department should be guided by a master or strategic plan. This *Community Master Fire Protection Plan* traditionally focused on the identification of fire hazards and planning an appropriate suppression force response. Today, hazard or risk assessment has expanded well beyond the fire problem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



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

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





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

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

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

1. **Impact Of Fire:**

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

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

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

2. **Fire Prevention Program Effectiveness:**

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

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

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

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

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

3. **Public Attitude:**

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

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

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

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

4. **Fire Risk:**

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

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

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

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

5. **Detection Capabilities:**

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

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

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

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

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

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

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

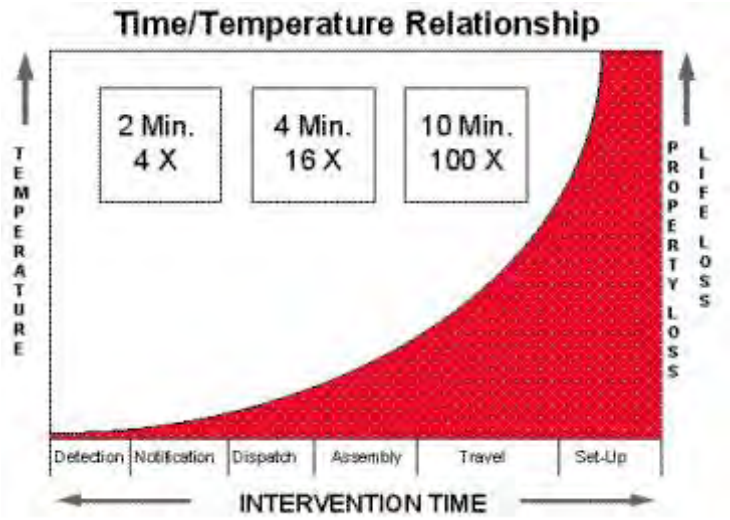
- Does your community promote the use of built-in suppression devices in all types of occupancies
    - residential?
    - commercial?
    - industrial?
    - assembly?
    - institutional?
- Does your community consider built-in suppression devices and early warning detection as an alternative to traditional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

7. **Intervention Time:**

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

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

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



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

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

8. Fireground Effectiveness:

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

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

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

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

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

Further assistance is available from your local OFM representative

Appendix C

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

Framework For Setting Guidelines Within A Provincial-Municipal Relationship

Public Fire Safety Guidelines	**Subject Coding** **PFSG 00-00-01**
Section **General**	Date **January 1998**
Framework For Setting Guidelines Within A Provincial-Municipal Relationship	Page

Under Review

Purpose

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

Background

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

Principles

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

- Municipal councils are directly accountable to their constituents and municipalities are also accountable to the province.
- There will be opportunities for appropriate stakeholder involvement and consultation during the development stages.

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

Content and Implementation

The guidelines will provide:

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

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

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

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

Basis of Development

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

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

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

For example, if the general public is complacent about the risk of fire, there will be a greater risk of a fire occurring in the community. A municipality may choose to address the risk by enhancing its fire suppression capability, by deploying more automatic detection and suppression systems, or a combination of any or all of the other factors affecting fire protection. It may also choose to address the issue head on - by raising awareness of public fire safety through effective public education. In short, there are many valid ways of addressing a problem of poor public attitude

toward fire. The guidelines will not make value judgments on which course of action is the best, but they will help municipalities evaluate the efficiency and effectiveness of each option, and choose a course of action that suits its needs.

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

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

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

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

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

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

Overall Strategy

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

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

- Facilitating more active involvement of the private sector and other community groups in fire prevention and public education through the Fire Marshals Public Safety Council.

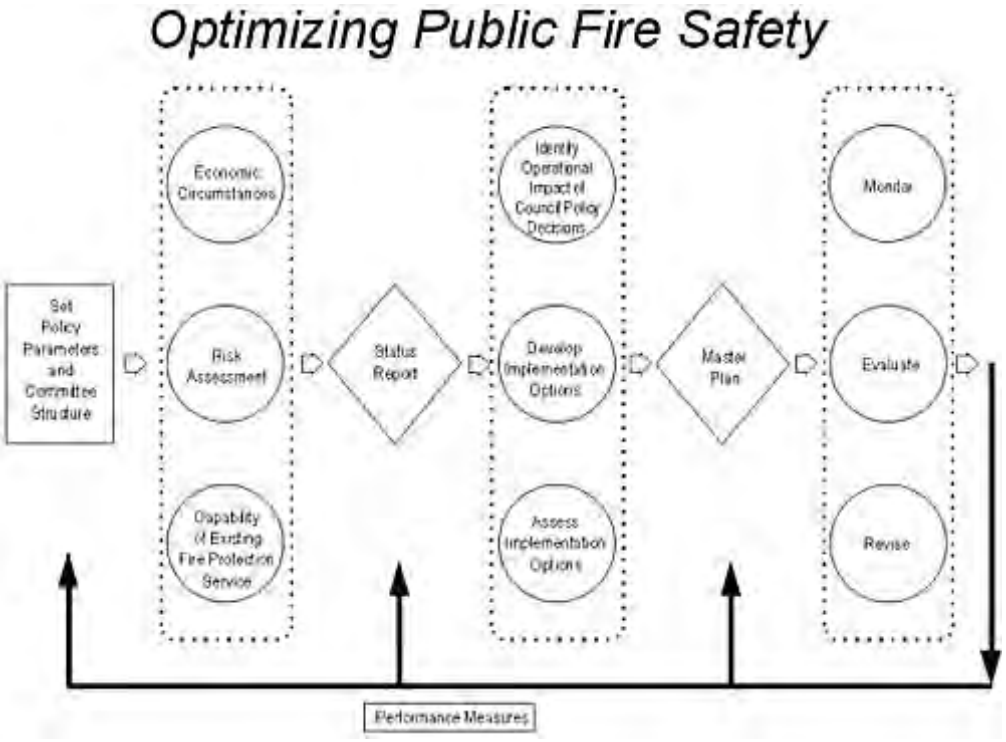
This strategy recognizes that municipalities, with the aid of appropriate tools and support, are fully capable of ensuring adequate fire protection for their communities.

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

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

Application Options

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



Appendix D

Sample Establishing and Regulating By-law (PFSG 01-03-12)

Sample Establishing and Regulating By-law

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

Under Review

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

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

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

Related Functions:

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

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

Codes, Standards and Best Practices:

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

fire department

SAMPLE ESTABLISHING AND REGULATING BY-LAW

corporation of the Town of Anywhere
By-Law No.

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

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

   a. **approved**
   means approved by the council
   b. **chief administrative officer**
   means the person appointed by council to act

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

as chief administrative officer for the corporation

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

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

e. **deputy chief**
means the person appointed by council to act on behalf of the fire chief of the fire department in the case of an absence or a vacancy in the office of fire chief

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

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

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

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

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

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

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

Approved Organizational Chart

4. In addition to the fire chief, the council shall appoint a deputy chief and such number of other officers and members as may be deemed necessary by the council	***Identifies appointment of other officers and members without listing all specifically***
5. The *fire chief* may recommend to the *council* the appointment of any qualified person as a *member* of the *fire department*, subject to the *approved* hiring policies of the Town of Anywhere	***Appointment via approved Hiring Policy***
6. Persons appointed as *members* of the *fire department* to provide *fire protection services* shall be on probation for a period of 12 months, during which period they shall take such special training and examination as may be required by the *fire chief*.	***Probationary Members***
7. If a probationary member appointed to provide *fire protection services* fails any such examinations, the *fire chief* may recommend to the *council* that he/she be dismissed.	
8. The remuneration of the volunteer members shall be as determined by the *council*.	***Remuneration and working conditions***
9. Working conditions and remuneration for all firefighters defined in Part IX of the Fire Protection and Prevention Act shall be determined by *council* in accordance with the provisions of Part IX of the Fire Protection and Prevention Act.	
10. If a medical examiner finds a member is physically unfit to perform assigned duties and such condition is attributed to, and a result of employment in the *fire department*, *council* may assign the member to another position in the *fire department* or may retire him/her. *council* may provide retirement allowances to members, subject to the Municipal Act.	***Other employment, retirement options and/or allowances***
11. The *fire chief* is ultimately responsible to *council*, through the (insert appropriate position for the municipality) for proper administration and operation of the *fire department* including the delivery of *fire protection services*.	***Chief ultimately responsible to council through FPPA (via chief administrative officer, clerk, fire committee or specify appropriate position)***

12. The *fire chief* shall implement all *approved* policies and shall develop such standard operating procedures and guidelines, general orders and departmental rules as necessary to implement the *approved* policies and to ensure the appropriate care and protection of all *fire department* personnel and *fire department* equipment. ***Developing SOP's, guidelines, rules and regulations***

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

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

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

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

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

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

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

20. A volunteer firefighter shall not be dismissed without the opportunity for a review of termination, if he/she makes a written request for such a review within seven working days after receiving notification of the proposed dismissal. A person appointed by the municipality, who is not employed in the *fire department*, shall conduct the review. ***Provides volunteers with the same opportunity for review as full-time members***

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

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

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

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

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

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

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

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

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

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

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

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

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

Appendix E

Co-ordination, Development, Approval and Distribution of Standard Operating Guidelines for Various Disciplines (PFSG 04-69-13)

Co-ordination, Development, Approval and Distribution of Standard Operating Guidelines for Various Disciplines

Public Fire Safety Guidelines	**Subject Coding** **PFSG 04-69-13**
Section **Fire Administration**	Date **March 2000**
Subject **Co-ordination, Development, Approval and Distribution of Standard Operating Guidelines for Various Disciplines**	Page

Under Review

Purpose:

The purpose of this guideline is to assist fire departments to develop written operational guidelines.

Guideline:

A statement written to guide the performance or behaviour of departmental staff, whether functioning alone or in groups.
These guidelines;

- enhance safety
- increase individual and team effectiveness
- allow for easier training and better entry level orientation
- improve risk management practices
- help to avoid litigation
- form the basis of objective post incident evaluations
- permit flexibility in decision making

Co-ordination:

- Fire department managers may consider creating and empowering a committee to research, develop, and draft operational guidelines.
- Committees should involve the members directly affected by various guidelines; examples include;
    - training personnel for live fire training guidelines,
    - fire Prevention personnel for inspection procedures, active firefighters for laying hose or taking hydrants.
    - two or three firefighters, two or three company officers and possibly a senior officer.
- The committee should select its own chair and establish a regular meeting schedule.

- The committee could become permanent, with membership assigned, as required, to assist the fire chief with the continuous improvement process demanded of modern fire departments.
- The permanent committee could also be comprised of all company or senior officers with the SOG's as part of the monthly officers meeting agendas.

Development:

- The order of developing procedures will be driven by local needs.
- Activities that impact on firefighter safety, the department's most common emergency operations, or high risk operation should be top priority.
- Each operational guideline should deal with a single objective and must describe what is to be accomplished, but not necessarily how to do the task.
- When the subject matter has been decided upon, the committee will begin to gather the resources needed to prepare the guideline.
- Each guideline can be broken into five basic components: purpose, scope, responsibility, performance and references.

Approval:

- Specific items should be assigned to each committee member by the chairperson for review.
- Each committee member will present a synopsis of the item at a future meeting for review, revision and refinement of the guideline.
- A written draft of the operational guideline should be prepared next.
- The draft should be posted for input from other department members. .

Distribution:

- A copy should be provided to each member of the department.
- Each of the guidelines should be printed on a standard form. An introductory statement should be developed for the operational guideline manual. Key information offered:
    - why the guidelines have been developed
    - why they are called guidelines
    - definition of the term "guidelines"

Responsibility:

- Guidelines, that have been finalized and approved by the fire chief, should be implemented by the staff members who are responsible for training.

DRAFT SOG #101: STATEMENT of INTENT

ISSUE DATE:

REVISION DATE:

PURPOSE:

Standard operating guidelines **(SOG)** have been developed to provide information to all members of the fire department in a prompt and consistent manner.

SCOPE:

These guidelines are to be followed by all members of the department.

Every member has a responsibility to learn and understand what is required in performance of their duties and to stay current with information provided in standard operating guidelines. Direction will be provided from officers and senior staff, as required.

POLICY:

Standard operating guidelines allow administrators to accurately predict how their resources will be mobilized when called upon under emergency circumstances.
Standard operating guidelines also act as a guide for officers to follow when assigning routine activities as well as emergency responses.
Standard operating guidelines will be reviewed annually by the fire chief and all officers, updated or amended as required to improve fire protection and will be circulated for all members to reference.
Please reference SOG #102: DISTRIBUTION and SOG #103: DEVELOPING STANDARD OPERATING GUIDELINES.

NOTE:

These guidelines have been developed to be consistent with those recommended by various evaluating agencies of fire protection in the province and for the safety of firefighters and residents while endeavouring to protect life and property from fire.

DRAFT SOG #102: DISTRIBUTION O STANDARD OPERATING GUIDELINES

ISSUE DATE:

REVISION DATE:

PURPOSE:

To implement a standard procedure for consistent transfer of information to all members of the fire department.

SCOPE:

These guidelines are to be followed by all members of the department.
Every member has a responsibility to learn and understand what is required in performance of their duties and to stay current with information provided in standard operating guidelines with direction from officers and senior staff, as required.

POLICY:

New and revised standard operating guidelines will be circulated to all members through the shift and station officers in charge.
At the **beginning** of their tour of duty, shift officers will read or summarize the content of a new or revised SOG, which has been issued for all on-duty personnel. Where necessary, the SOG will be discussed with on-duty persons to ensure understanding and methods of implementation.
At the **beginning** of the first scheduled training or meeting night, volunteer station officers will read or summarize the content of a new or revised SOG which has been issued for all on-duty personnel. Where necessary, the SOG will be discussed with on-duty persons to ensure understanding and methods of implementation.

The SOG will then be circulated and each member will read and sign the acknowledgement log book maintained by the shift or station officer.
Shift and station officers will review the acknowledgement log book monthly and every three months will provide the training officer with a list of persons and the SOG numbers they have not acknowledged.
Shift and station officers will also post a notice of receipt for a new or revised SOG on the station bulletin board for persons not present when the SOG is initially circulated.

DRAFT SOG #103: DEVELOPING & REVISING STANDARD OPERATING GUIDELINES

ISSUE DATE:

REVISION DATE:

PURPOSE:

To implement a consistent method of developing new standard operating guidelines and revising existing guidelines to improve fire protection services.

SCOPE:

These guidelines are to be followed by all members of the department.

POLICY:

All standard operating guidelines will be reviewed annually by the fire chief and all officers for necessary updates or amendments.
Where any officer or member of the department identifies a procedure or operation which may require new or revised standard instructions for end users, the person will notify the shift or station officer in charge as soon as possible following this recognition.
The shift or station officer will first review existing SOGs for content that may apply to the reported need and discuss their findings with other on-duty officers and members.
The officer in charge will notify the chief or deputy by written memo on the same or next business day of any immediate action taken and if a new or revised procedure is recommended.
Where safety of firefighters or potential damage to department equipment is imminent, the fire chief or deputy will issue interim written guidelines until the normal process for developing or revising SOGs is initiated.
Where interim written guidelines are temporary or not necessary for safety or damage to fire department equipment, the following process will be followed:

1. The fire chief or deputy will circulate draft SOGs to each shift and station officer to discuss with all available members for their suggestions as end users,

2. shift or station officers will add appropriate comments and return the draft to the training officer within the specified time,

3. all draft SOGs will be discussed at the next scheduled officers meeting for final approval of the fire chief and/or deputy, and,

4. approved standard operating guidelines, replacing interim guidelines, will be circulated as described in SOG #102: DISTRIBUTION.

Codes, Standards and Best Practices:

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

See also;
Health and Safety Guidelines for Ontario's Fire Services
Additional Reference:
Standard Operating Procedures and Guidelines, Cook, John Lee Jr., Saddle Brook NJ: PenWell Pub. Co. 1998

Appendix F

Selection of Appropriate Fire Prevention Programs (PFSG 04-40-03)

Selection of Appropriate Fire Prevention Programs

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

Under Review

Purpose:

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

Introduction:

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

Minimum Required Services:

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

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

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

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

Simplified Risk Assessment:

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

Smoke Alarm Program:

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

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

Fire Safety Material:

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

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

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

Public Fire Safety Education:

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

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

Inspections:

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

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

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

Inspection Program Considerations:

For inspections, the following factors should be considered:

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

Program Selection:

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

Service Delivery Options:

The Fire Prevention Effectiveness Model may also assist with informed decision making about fire prevention and public education programs. Once the needs analysis component of the model has been completed, fire department managers can decide what programs are appropriate to address their identified local risks.
There are a number of options for delivery of selected fire prevention programs. They can be provided by fire department staff - personnel dedicated to fire prevention and/or fire suppression staff. Other persons in the community may be used. Agreements with other communities may be made for provision of services. The OFM provides assistance in delivery of fire prevention programs through the Assist Program.

Policy Requirements and Other Relevant Issues:

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

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

Codes, Standards, and Best Practices:

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

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

Appendix G

Selection of Appropriate Fire Prevention Programs (PFSG 04-40-12)

Selection of Appropriate Fire Prevention Programs

Public Fire Safety Guidelines	**Subject Coding** **PFSG 04-40-12**
Section **Fire Prevention and Public Fire Safety Education**	Date **March 2001**
Subject **Selection of Appropriate Fire Prevention Programs**	Page

Under Review

Purpose:

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

Introduction:

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

Minimum Required Services:

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

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

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

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

Simplified Risk Assessment:

A simplified risk assessment must be done for the comm

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

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

Smoke Alarm Program:

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

- community surveys
- distribution of pamphlets or other education material
- 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.

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.

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 Fire Safety Education Materials
04-40D-12 Inspections Upon Request or Complaint

Appendix H

Fire Prevetion Policy (PFSG 04-45-12)

Fire Prevention Policy

Public Fire Safety Guidelines	**Subject Coding** **PFSG 04-45-12**
Section **Fire Prevention and Public Education**	Date **August 1998**
Subject **Fire Prevention Policy**	Page

Under Review

Purpose:

To identify essential considerations for the development of a municipal fire prevention policy.

Service Delivery Implications:

- Fire prevention includes public fire safety education.
  Fire prevention is an integral part of overall fire protection.
  2(1) Fire Protection and Prevention Act
  Every municipality shall,
  (a) establish a program in the municipality which must include public education with respect to fire safety and certain components of fire prevention
- the fire department establishing and regulating by-law provides direction from council and sets out the principal fire prevention responsibilities
- specific policy should be developed to establish:
- level of service
- types of activities and programs
- responsibilities of personnel

Policy Requirements:

Policy statement should reflect the following fire prevention activities:

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

Quality and Performance Measures:

The policy should:

- encourage the participation of all fire department personnel in prevention and fire and life safety education.
- provide clear direction from council to the chief, members of the department and the public.

Related Functions/ Considerations:

The fire prevention policy should describe:

- public fire and life safety education programs such as: *Learn Not To Burn; Older & Wiser; Alarmed For Life; The Arson Prevention Program For Children; and Risk Watch.*
- inspections, code enforcement programs such as: routine inspections; home safety checks; complaint inspections; request inspections; open air burning regulation; new construction inspection; and plans examination
- fire investigation / fire origin and cause determination - liaison with appropriate agencies

Codes, Standards, and Best Practices:

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

See also PFSG
01-02-01 Comprehensive Fire Safety Effectiveness Model
02-02-12 & **03** Fire Risk Assessment
02-03-01 Economic Circumstances
02-04-01 & **02-04-23** Capabilities of Existing Fire Protection Services
04-12-13 Core Services
04-39-12 Fire Prevention Effectiveness Model
04-40-12 & **04-40-03** Selection of Appropriate Fire Prevention Programs
04-41-12 Community Fire Safety Officer/Team

Appendix I

Operational Planning: An Official Guide to Matching Resource Deployment (PFSG 04-08-10)

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

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

Under Review

1.0 Purpose

1.1 Municipalities are responsible for the funding and delivery of fire protection services in accordance with Section 2 of the *Fire Protection and Prevention Act, 1997* (FPPA).
In order to meet the intent of Section 2 of the FPPA, municipalities are expected to implement a risk management program.
The evaluation tool ***Operational Planning: An Official Guide to Matching Resource Deployment and Risk***, found in the Appendix, is to be used as part of a risk management program. The purpose of this guideline is to encourage municipalities and fire departments to use this tool so that they can make informed decisions regarding the delivery of fire suppression services.

2.0 Scope

2.1 This 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