December 7, 2020

Wilmot Fire Department

Fire Master Plan

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Executive Summary

This document has been prepared in response to the Wilmot Fire Department's (WFD) request for consulting services to develop a Fire Master Plan (FMP) that will provide a framework to guide future policy, organizational, capital and operational planning decisions.

Every fire department should be guided by a master/strategic plan. An FMP traditionally focuses 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. As such, to help mitigate these emergencies as much as possible, more emphasize is being placed on fire prevention and control systems as communities attempt to effectively reduce fire related losses.

Current challenges faced by the WFD are like those faced by many rural/urban interface fire departments in Ontario. Increased rigour from statutory and standards requirements related to firefighter health and safety, increased skills and competencies required, changing work patterns where fewer firefighters are available for workday response, and increased emphasis on prevention and public education are examples of common themes.

This document includes plans for future needs relating to equipment, facilities, human resources, fire prevention and training as well as the many external influences that impact on the fire service.

Objectives

The FMP will include an analysis of current and forecasted fire protection service delivery needs and develop clear and concise recommendations including a detailed 10-year implementation strategy for the Township.

To assist in prioritizing the recommendations, they have been presented in short-term (1-3 years), medium-term (4-6 years), and long-term (7-10 years) requirements based on growth, trends, regulatory requirements, and financial capabilities of the Township. This plan will set the foundation for strategic decision making for the provision of fire and rescue services within the Township of Wilmot.

Scope of Work

The review included but was not limited to the following key areas. A more detailed overview of the scope of work can be found in the overview section:

a. Staffing needs – review capabilities of existing staffing and identify future needs for each of the following divisions: Suppression, Training, Prevention and Administration.

b. Facilities – review capacity and condition of existing facilities and plan for future needs. Specific attention is required to the facility needs for the Training Division, Prevention Division and Administration.

c. Station location – review of existing locations relative to the current and future demands and consideration of potential needs for relocation or additional stations.

d. Apparatus – review existing vehicles and replacement plans relative to the existing and expected demands as well as the review of how apparatus maintenance is conducted and best practices thereof.

e. Service Level Standards – review established benchmarks to ensure they meet the communities' needs, reflect best practices, and establish comparable joint Key Performance Indicators that can/ will be used to identify performance of the various fire services.

f. Community Risk Assessment – review the community, anticipate growth, call volumes and related challenges that could pose a risk within the community presently and/ or in the future.

g. Emergency Management – review the present emergency management program along with any recommendations for future improvements.

h. The report is a review of the existing Fire Master Plan and an expansion of that document.

i. Plan outcomes must establish strategic priorities complete with action plans. These shall be expressed in terms of goals, objectives, action steps, resources (human and financial) and the timelines required to successfully complete the priorities.

Based on the previously noted nine summarized criteria (a – i), through meetings with the Fire Chief and other stakeholders, the consulting team was able to complete a thorough review of elements that are working well and those requiring improvement within the WFD.

Building from the Existing FMP of 2012

Listed below are the recommendations submitted in the 2012 Fire Master Plan.

The conclusions and recommendations contained within the past report are summarized below, by topic, along with the present status of each recommendation.

1. Implement the position of Public Education/Training Officer (21 hours per week) – **Completed**
2. Increase complement of Volunteer Firefighters by 15 – **Completed**
3. Additional training hours for increased complement of 15 firefighters – **Completed**
4. New Volunteer Firefighter bunker gear for increased complement of 15 firefighters – **Completed**

5. Complete detailed Facility Review of the fire stations. - **Completed**
6. Install flashing green light street signage at strategic locations within the Township. – **Project identified in the 2020 budget submission.**
7. Purchase new Tanker with 2500-gallon capacity to replace current Tanker (35). – **Completed**
8. Investigation and removal of fire hydrants in the New Dundee settlement area. Cost would be incurred by another department. – **Completed; public works placed appropriate signage to indicate hydrants are for testing purposes only.**
9. Application for Superior Tanker Shuttle Accreditation. – **Completed and recertified in 2019**
10. Purchase new Pumper to replace Pumper (31) – **Completed**
11. Increase the available hours for the Fire Prevention Officer to reflect full-time position. – **Completed; position went to full time in 2019 and moved Public Education Responsibilities to this position.**
12. Increase available hours of Training Officer to reflect full-time position. **– Completed – 2nd Part-time Training officer approved in 2020 budget, recruitment delayed by COVID-19, anticipate position to be filled October 2020.**
13. Purchase new Tanker with 2500-gallon capacity to replace current Tanker (25) – **Completed**
14. Expansion of the New Hamburg fire station – **Expansion not feasible, interior renovations completed April 2020.**
15. Purchase an additional Pumper to increase the depth of apparatus fleet – **Identified in Capital Plan for 2027.**

Wilmot Fire Department is truly dedicated to the community they serve. Council, CAO, and the Fire Chief are sincerely committed to ensuring the safety of the community and the firefighters. The Township should be commended for completing the 15 identified recommendations found in the 2012 FMP. The Fire Management Team consists of highly skilled members that care about the community they protect and the sincere commitment to their fire family. The Company Officers and firefighters, the backbone of the fire service, demonstrate consistent commitment to ensuring they deliver the best possible fire service to their community. Based on the present staffing, equipment, and fire stations locations, the Wilmot Fire Department is endeavoring to offer the most efficient and effective service possible.

As a brief overview, the general themes of the recommendations in this Fire Master Plan are as follows:

- Updating of the Establishing and Regulating Bylaw and Emergency Preparedness program
- Review of dispatching services and possible fine tuning of medical response protocol
- A more focused effort relating to fire prevention, public education, and community involvement
- Fire station requirements
- Increase in Department staffing related complement for a growing community

The following recommendations are listed in a summary chart for ease of reference. Please note that the recommendations are listed in chronological order according to their appearance in the report; they are not listed according to priority.

Rec #	Recommendation	Suggested Timeline
Section 2.4: Establishing & Regulating By-Law		
1	It is recommended that a full review of the 2011 Establishing and Regulating By-law document be completed to include the following items: • Incorporate, where appropriate, any references to the FPPA, NFPA standards and OFMEM Guidelines that the Fire Department deems relevant to services provided and is supported by the Township, such as: ○ Measurable service levels that can be reported to Council on an annual basis using the existing quarterly report structure to Council. ○ Composition of the Department to represent the level of service to be provided as outlined throughout the MFP. ○ Updating the document's language to reflect recent legislative changes and/or inclusion of supporting National Fire Protection Association (NFPA) standards ○ Fire Chief continues to have the flexibility to increase staffing as required to keep numbers up to plan for anticipated retirements and/or promotions of the firefighters.	Short-term (1-3 years)
Section 3.1.1: Municipal Responsibilities		
2	Fire Chief to continue monitoring response times along with how many times, if any, that a full response component was not amassed. This type of information can be utilized to identify any future needs and/or considerations for the incorporation of a partial full-time response component.	Continue and Ongoing
Section 3.2.2: Future Needs		
3	Continued emphasis on additional staff time spent in fire prevention related activities. In addition to public education, there should be an emphasis placed on assessing buildings stock within the community to identify types and number of hazards that may exist.	Short-term (1-3 years) and ongoing
Section 3.2: Community Risk Assessment		

4	It is recommended that the Community Risk Assessment (CRA) provided by EMT be updated every five years or as necessary in accordance with the new Provincial Legislation, in conjunction with the NFPA 1730 standard. There is merit in providing an updated assessment at the beginning of every term of Council so that the sitting Council understands the platform on which the services conducted by the Fire Department are built.	Ongoing and after each election
Section 3.3.1: Current Condition		
5	The Fire Prevention Division review its inspection program to identify levels of desired frequency as noted in the FUS Suggested Frequency Chart, annually tracking the number of hours spent on inspections.	Continue and Ongoing
Section 3.3.4: Wilmot Community Risk Statistics		
6	The Fire Department should continue to meet with local community groups to form a partnership for organizing fire safety and public education events.	Continue and Ongoing
Section 4.4: Administration Division		
7	Create a part-time Deputy Chief position to help distribute the workload, along with allowing for a more effective level of supervision amongst the divisions within the Department (Suppression, Training, Fire Prevention, Administration).	Mid-term (4-6 years)
Section 4.5.2: Commission on Fire Accreditation International		
8	Continue to evaluate training programs are meeting relevant legislation, standards, and best practice recommendations that meet Establishing & Regulating Bylaw service levels. The Training Officer should: • Continue the current practice of publishing an annual training calendar and post in each fire station. • Identify what training programs are required annually in relation to the approved service levels that WFD is providing • Identify the number of hours that are required to meet each of those training needs • Identify the resources required to accomplish this training • Investigate joint partnerships with bordering fire departments and private organizations that can achieve the training requirements	Continue and Ongoing

	• Provide an annual program outline at the start of each year to the Fire Chief and Fire Management Team, with noted goals and expectations and completion success rate	
Section 4.6: Fire Prevention and Public Education		
9	It is recommended that an additional part-time Fire Prevention/Public Safety Education Officer be hired. • Will evolve into a full-time position as the population and demand for inspections increases. • Will help to alleviate some of the present pressure on the FPO and better serve fire prevention and public education program development within the Township • Will provide the current FPO some additional time to increase frequency of inspections and public education events.	Short-term (1-3 years)
Section 4.6.1: Determination of Current Staffing Requirements		
10	Fire Prevention Officer continue to closely track time spent on each of the Fire Prevention activities. Reporting should include clearly identifying the number of public education events, demographic profile and the numbers of adults and children reached.	Continue and Ongoing
11	Fire department currently utilizes firefighter ranks to enhance annual fire prevention and public education events within the Township. EMT recommends the Department is to continue moving towards having more of the fire department staff cross trained and certified to at least: • NFPA 1031 – Fire Inspector I • NFPA 1035 – Fire and Life Safety Educator I And that the FPO continue to work with the VFFs and incorporate them into public education events and that VFFs be remunerated accordingly for their time.	Continue and Ongoing with new staff
12	The Department should continue its ongoing efforts towards certification for staff for each position (that requires or recommends certification) and ensure that certifications are maintained.	Continue and Ongoing
Section 4.7: Recruitment and Retention of Volunteer Firefighters		
13	The Fire Chief should continue to investigate opportunities to promote retention of the volunteer firefighters as noted in the OFMEM document. The Fire Chief should continually recruit for VFF in areas	Continue and ongoing

	that are presently understaffed or have issues with response numbers to calls. EMT is also recommending: The Fire Chief meet with CAO, Treasurer, HR, and other appropriate resources to provide a wholesome study of the volunteer firefighter remuneration system. This should include, at minimum, Training both internal and external, Work Party, On Call/Weekend Standby and any other applicable areas. The study should include feedback from department firefighters and utilize suitable comparators to support findings.	
Section 5.3: Dispatching Services		
14	EMT recommends that the Fire Chief discuss with EMS services to have their response level adjusted to more critical types of medical calls. This will still offer members of the community the service they need when dealing with an emergency situation in line with neighboring fire services.	Short-term (1-3 years)
Section 6.1.1: Fire Station Location and Other Considerations		
15	A new fire station be constructed in Baden and the planning stage considered as a long-term project. Site plan approval, architectural design, engineering, and land procurement would occur in the long-term cycle with construction occurring in the next FMP cycle.	Long-term (7-10 years) and next FMP Cycle
Section 6.1.1: Fire Station Location and Other Considerations		
16	Firefighters' turnout gear be removed from the apparatus floor areas of fire station 2 New Dundee to reduce the exposure of this gear to diesel contaminates. This will require a dedicated space to be constructed within the building to accommodate firefighter's turnout gear.	Short-term (1-3 years)
Section 6.2.1: New Hamburg Station Considerations		
17	A new fire station be constructed in New Hamburg and it is recommended this process be undertaken in two parts. Mid-term for the planning, site plan approval, architectural design, engineering, and land procurement. Second part is construction to be carried out in the long-term to allow suitable time to secure funding streams.	Planning Mid-Term (4-6 years) Final Construction (7-10 years)
18	Fire Chief follow through with preplanning and create a suitable plan for a backup fire station should Station 3 New Hamburg be compromised from a flooding event.	Short-term (1-3 years)

Section 7.1.2: NFPA – Vehicle Replacement Recommendations		
19	EMT recommends the Township continue to utilize their current planning practices using annual capital budgeting for vehicle replacement and should maintain a schedule that complies with the FUS recommendations on the replacement of vehicles from a first line to a second-line unit at 15 years. The Fire Chief should have Council's support to investigate all purchasing opportunities and should include joint procurement opportunities. It is recommended that NFPA Standard 1901 relating to vehicle design, replacement, and refurbishing, be utilized.	Continue and ongoing for fire vehicle replacement and future forecasting (see NFPA 1901)
Section 7.3.1: Maintenance – Small Equipment		
20	It is recommended that the Department continue its maintenance programs on all small equipment such as, but not limited to, ladders, breathing apparatus, small engines, ropes and hoses on an annual basis or otherwise based on manufacturers recommendations. Using the annual budget process, the Fire Chief continues to receive appropriate funding to advance maintenance programs for the fire service. • The NFPA 1932 Standard identifies the type and frequency of testing for ground ladders. • NFPA 1983 outlines the testing process for life safety rope. • NFPA 1914 outlines testing for aerial devices • The *Health and Safety Act* also makes note that all equipment used by workers must be in good condition. Wilmot Fire should adhere to these standards, the *OH&S Act*, and any related manufacturer's recommendations.	Continue and Ongoing
Section 8.1: Emergency Management Program		
21	Conduct full review and update of the Township's Emergency Plan to ensure that the program continues to meet the needs of the community and that continued support is provided such as staff resources and funding to advance this valuable program.	Short-term (1-3 years)
22	Consideration should be given to the concept of creating a Community Emergency Management Coordinator partnership jointly with the area townships and assigning program clerical duties to someone other than the Fire Chief/CEMC.	Short-term (1-3 years)

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DEFINITIONS

Immediate	Recommendations that should be addressed urgently due to the legislative or health and safety requirements
Short-term	Recommendations that should be addressed within 1 – 3 years
Mid-term	Recommendations that should be addressed within 4 – 6 years
Long-term	Recommendations that should be addressed within 7 – 10 years
AVL	Automatic Vehicle Locators
CEMC	Community Emergency Management Coordinator
CFAI	Commission on Fire Accreditation International
CISC	CRTC Interconnection Steering Committee
CPSE	Centre for Public Safety Excellence
CRA	Community Risk Assessment
CRTC	Canadian Radio-television & Telecommunications
DPG	Dwelling Protection Grade
EMCPA	Emergency Management & Civil Protection Act
EOC	Emergency Operation Centre
FESO	Fire and Emergency Services Organization
FMP	Fire Master Plan
FPO	Fire Prevention Officer
FPPA	Fire Prevention & Protection Act
FUS	Fire Underwriters Survey
GPS	Global Positioning System
HFSC	Home Fire Sprinkler Coalition
ILEC	Incumbent Local Exchange Carrier
IP	Internet Protocol
IRM	Integrated Risk Management Approach
LEED	Leadership in Energy and Environmental Design
NFPA	National Fire Protection Association
NG 9-1-1	Next Generation 9-1-1
NIOSH	National Institute for Occupational Safety & Health
NIST	National Institute of Standards and Technology
OFC	Ontario Fire College
OFMEM	Ontario Fire Marshal's Office and Emergency Management
PFPC	Public Fire Protection Classification
PSAPs	Public Safety Answering Points
RFP	Request for Proposal
RTT	Real-time Text
SRA	Simplified Risk Assessment
SWOT	Strengths, Weaknesses, Opportunities, Threats

TSP	Telecommunications Service Provider
VoIP	Voice Over Internet Protocol
WFD	Wilmot Fire Department

Overview

Project Initiation

In 2019, Township of Wilmot issued a Request for Proposal (RFP) on behalf of its Fire Department. As the successful bidder, Emergency Management and Training Inc. (EMT) has worked collaboratively with the Township of Wilmot and the Wilmot Fire Department (WFD) in the gathering of data and development of this Fire Master Plan (FMP). EMT would like to thank all staff and the community for their input into this plan. Due to the COVID-19 Pandemic this Master Plan experienced significant delay to completion.

Review Process and Scope

Emergency Management and Training Inc. (EMT) has based its review process on the Township's initial Request for Proposal (RFP) and the response document submitted by EMT.

The specified areas noted in the project's RFP were reviewed by utilizing best practices, current industry standards, and applicable legislation as the foundation for all work undertaken. EMT also used both quantitative and qualitative research methodologies to develop a strong understanding of current and future needs and circumstances of the community, as well as the customer service demands of the public.

The detailed list of items to be addressed within this FMP are as follows:

1. Assess all aspects of the fire service and fire protection service delivery including but not limited to administration, emergency management, training and professional development, communications, fleet/facilities, fire prevention, public education and fire suppression and emergency response for efficient utilization and optimization of municipal resources.
2. Assess all aspects of the fire service and fire protection service delivery for legislative compliance including: *Fire Protection and Prevention Act* (FPPA) including any recently filed regulations, *Emergency Management and Civil Protection Act*, Section 21 Guidance notes, *Occupational Health and Safety Act* and municipal by-laws.
3. Assess all aspects of the fire service and fire protection service delivery in consideration of current industry standards and best practices, National Fire Protection Association (NFPA) related standards, the Ontario Fire Marshal and Emergency Management's Public Fire Safety Guidelines and Comprehensive Fire Safety Effectiveness Model, latest Fire Underwriter Survey, and comparable municipal operating and response models, to determine optimal service levels and options for optimizing fire protection service delivery to meet the current and future needs and circumstances of the community.

4. Assess current and future computer and information technology needs and opportunities for improved efficiency including system redundancies and failsafe backups as they relate to: communications, administration, fire prevention, public education, emergency management, emergency response, firefighter safety, training and professional development, and fleet/ facilities. Specific attention shall be given to data and records information management systems, incident response and reporting, field applications including pre-incident planning, inspections, new technology and in-truck mobile data terminals.
5. Guided by the Township of Wilmot Strategic Plan and the Township Official Plan, assess all relevant aspects of the service delivery impacts of current growth and development conditions in the municipality, as well as anticipated areas of future growth and urbanization patterns, to project the anticipated community needs and circumstances as they relate to all areas of fire protection service delivery over a projected 10-year planning horizon.
6. Assess staffing needs – review the effectiveness of the current composite staffing model for both administrative and emergency response capabilities, recognizing the unique demands placed on Volunteer Firefighters and identify any current and anticipated future deficiencies or opportunities for improved efficiency in meeting or maintaining standards for best practice for each of the following divisions: Administration, Emergency Response, Training and Professional Development, Fire Prevention, Public Education, Emergency Management, and Information Technology.
7. Assess facility needs and station locations – review existing facilities and provide recommendations for future locations relative to current and future service delivery demands and applicable standards, as well as consideration of potential needs for relocation or additional stations and municipal Emergency Operations Centre requirements. Assess facility budgeting process and preventative maintenance and replacement programs.
8. Assess professional qualifications and standards to determine current and future training needs for all positions within the fire department in consideration of FPPA regulations, and NFPA professional qualifications and standards, documentation requirements, and succession planning.
9. Assess apparatus, vehicles and equipment – review existing vehicles and equipment condition, maintenance programs, capital replacement schedules and plans relative to existing and expected service demands and station locations, budget process, budget reserves, and preventative maintenance requirements using NFPA standards while recognizing the volunteer model and response demands of Wilmot Township;
10. Assess the mutual aid agreement with neighbouring municipalities in terms of the level of effective assistance available in frequent large-scale emergency events, and in terms of potential for additional collaborative agreements to improve emergency response efficiency and/or effectiveness.

11. Develop a comprehensive Community Risk Assessment in accordance with the recent FPPA legislative changes (Ontario Regulation 378/18) and to comply with the new legislation and to further inform critical decisions in determining the appropriate level of fire protection services and response capabilities to meet the municipalities' needs, circumstances and legislative responsibilities. Use of NFPA 1300 would be also recommended. This Community Risk Assessment will form an Appendix to the Fire Master Plan document.
12. Review and assess the latest Fire Underwriters Survey (FUS) rating for the Township of Wilmot and identify any feasible opportunities to improve the FUS grading and reduce insurance premiums in the municipality.
13. Assess development charges and identify future growth and non-growth-related needs of the Fire Service within the plan. The study will consult with the Township's Development Services and Finance departments to assess anticipated future growth and confirm the methodology to allocate the growth-related capital costs between the residential and non-residential users of the service.
14. Assess and identify bona fide fire service comparators for benchmarking purposes to provide a comparison context of similar composite municipal fire services with comparable staffing, service delivery models, population density, land area, apparatus, call volumes and operating budget.
15. The Plan recommendations must establish strategic priorities complete with action plans. These shall be expressed in terms of clear and concise goals, objectives, action steps, resources required (human and financial), and the timelines required to successfully complete the priorities in a detailed implementation plan.
16. The consultant will meet with the Township's core Project Team at the outset of the project to establish specific project requirements. The core Project Team will consist of the Fire Chief, 3 District Fire Chiefs, Fire Prevention Officer, Training Officer, the CAO, the Mayor, and 2 members of Council.
17. The project must include a minimum of one community information open house in each township ward. Further, a minimum of one meeting(s) with community stakeholder groups to seek input from the community regarding the project components, as well as a minimum of one consultation meeting with the members/ staff of the Township of Wilmot Fire Service. Surveys or other form of stakeholder engagement may be used in addition to in-person consultation sessions, but not substituted in place of personal consultation.
18. The Consultant shall present the Draft Fire Master Plan to the Fire Master Plan Steering Committee. Based on comments and recommendations received, a Final Draft Master Plan shall be prepared and then endorsed by the Fire Master Plan Steering Committee. Upon this endorsement, the fire master plan will be presented to council for final approval, once

approved a copy is to be provided to each fire station and accessible to all fire department staff.

Based on the review of the Fire Department's facilities, equipment, staffing, programs, and related data, EMT is submitting a total of 22 recommendations for consideration and implementation.

Performance Measures and Standards

This MFP update has been based upon (but not limited to) key performance indicators that have been identified in national standards and safety regulations such as:

- The Ontario Fire Marshal's Office and Emergency Management (OFMEM) Public Safety Guidelines
- The Ontario Fire Marshal's Office and Emergency Management (OFMEM) Comprehensive Fire Safety Effectiveness Model
- *The Fire Protection and Prevention Act*
    - *O.Reg 378/18 – Community risk assessments*
- The National Fire Protection Association (NFPA) standards
    - NFPA 1221 addresses recommended standards in relation to communications/dispatching services
    - NFPA 1720 addresses recommended standards for volunteer fire departments
    - NFPA 1730 addresses recommended standards for fire prevention and education activities
- The Commission on Fire Accreditation International, which is a program that evaluates a Fire Department based on related NFPA standards, local legislation, and industry best practices (the parent organization for CFAI is the Centre for Public Safety Excellence (CPSE))
- Office of the Fire Marshal and Emergency Management's (OFMEM) Integrated Risk Management program
- The *Ontario Health and Safety Act*, National Institute for Occupational Safety and Health (NIOSH)
- Ontario Fire Service – Section 21 Guidelines
    - The Section 21 Committee is based on Section 21 of the *Ontario Occupational Health and Safety Act*. This committee is charged with reviewing industry safety concerns and developing recommended guidelines to reduce injuries for the worker.

Project Consultants

Although several staff at Emergency Management and Training Inc. were involved in the collaboration and completion of this Plan, the overall review was conducted by:

- Darryl Culley, President Emergency Management and Training Inc.
- Brent Thomas, Fire & Emergency Services Consultant
- Rick Monkman, Fire & Emergency Services Consultant

Together, the team has amassed a considerable amount of experience in all areas of fire and emergency services program development, review, and training. The EMT team have worked on projects that range from fire service reviews, the creation of strategic and fire master plans, and development of emergency response programs for clients.

SECTION 1 – Community & Fire Department Overview

1.1 Community Overview

1.2 Fire Department Composition

1.3 Fire Department Comparable

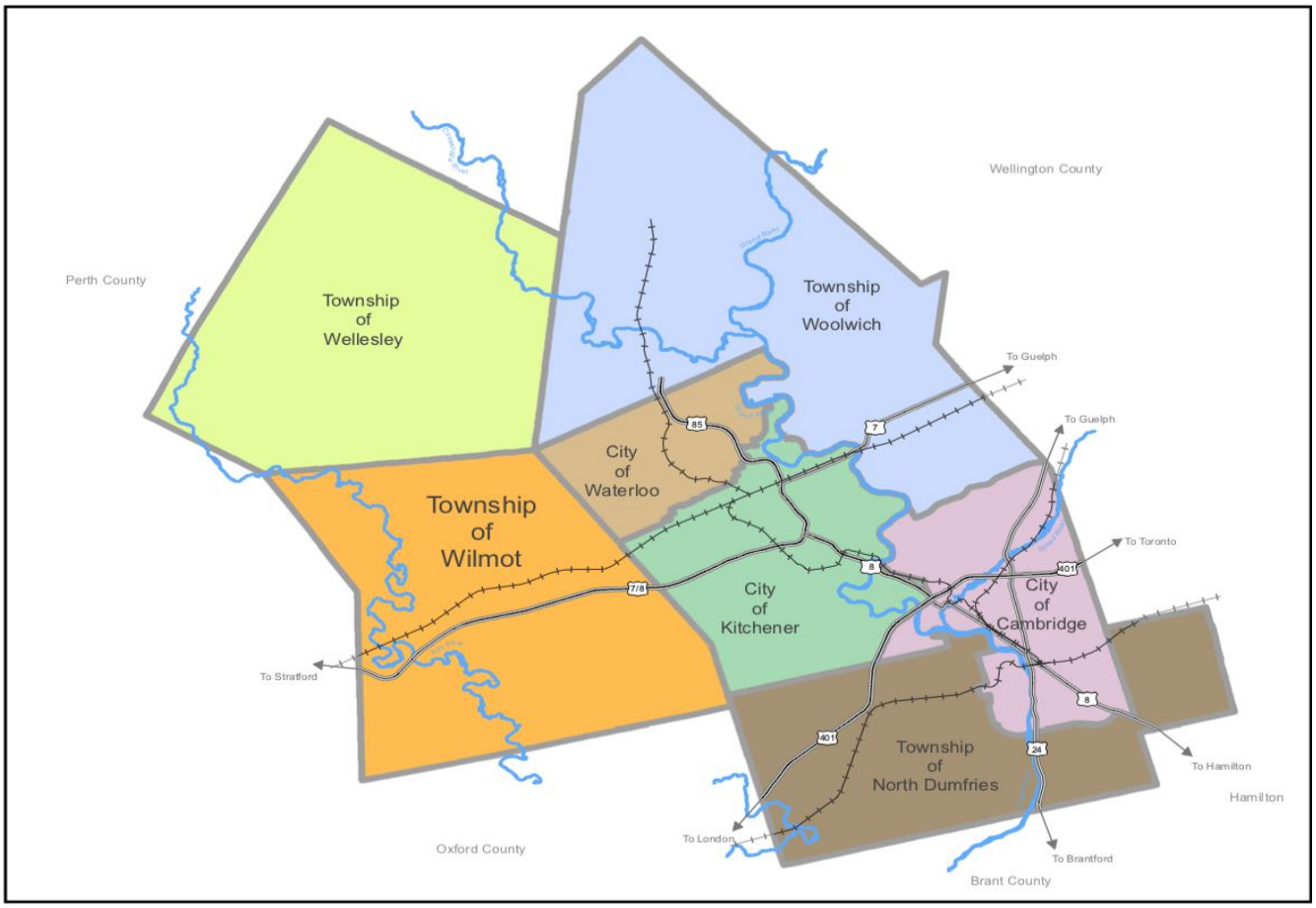
Section 1: Community and Fire Department

1.1 Community Overview

The Township of Wilmot was created in 1973 with the amalgamation of the municipalities of Wilmot and New Hamburg. Located in the heart of southwestern Ontario, the Township of Wilmot is one of the seven lower tier municipalities which comprise the Regional Municipality of Waterloo. The Township is home to a population of approximately 21,000 residents, largely located within the urban settlement areas of Baden and New Hamburg, with rural settlements in the communities of New Dundee, Mannheim, Petersburg, Philipsburg, St. Agatha, Shingletown, Sunfish Lake, Foxboro Green, Wilmot Centre, Luxemburg, Lisbon and Haysville.

The Township is forecasted to grow to a population of 28,500 by 2031. With a land area of approximately 264 square kilometres, the community contains an abundance of significant rural areas, agricultural lots, and natural areas, including the Nith River, provincially significant wetlands and environmentally sensitive areas.

FIGURE 1: Map of Wilmot



1.2 Fire Department Composition

The Township of Wilmot Fire Department (WFD) currently provides fire protection services from fire stations located in the communities of Baden, New Dundee, and New Hamburg. Evidence of the history and tradition within each of the volunteer fire departments located in these communities remains visible in each of these stations today. Pictures and plaques mounted on station walls reflect the years of dedicated service the volunteer firefighters have provided to their respective communities.

This sense of community continues in the commitment of today's volunteer firefighters as indicated by their individual and coordinated efforts to provide fire protection services to their local areas and the larger community. Each of the three fire stations continues to host individual volunteer firefighter associations that remain active in local fundraising efforts and support of their local communities. Despite this, the three fire stations operate as one cohesive fire department. The three fire stations are as follows:

- Station 1 - Baden Station – 99 Foundry Street
- Station 2 - New Dundee Station – 55 Front Street
- Station 3 - New Hamburg Station – 121 Huron Street

The Wilmot Fire Department responds to approximately 700 to 800 calls for service per year. These incidents include, but are not limited to, fire related incidents, medical assist, water rescue, and motor vehicle collisions. To ensure that they are meeting the needs of the community and its staff, the Fire Department recognizes that it is necessary to update and maintain a Fire Master Plan (FMP) for the purposes of providing high-quality fire services to the residents and businesses of the community along with its visitors. This MFP for the WFD reviews and identifies current and anticipated community fire risks and needs over the next 10 years. This will greatly assist the Fire Department with future planning relating to staffing and response, fire and life safety programming, and for asset management.

This review has examined and researched all aspects of the Fire Department operations including, planning, fire prevention, training and education, communications, apparatus and equipment, maintenance, human resources, station suitability (accommodations) and locations, budgets, and large-scale emergency preparedness.

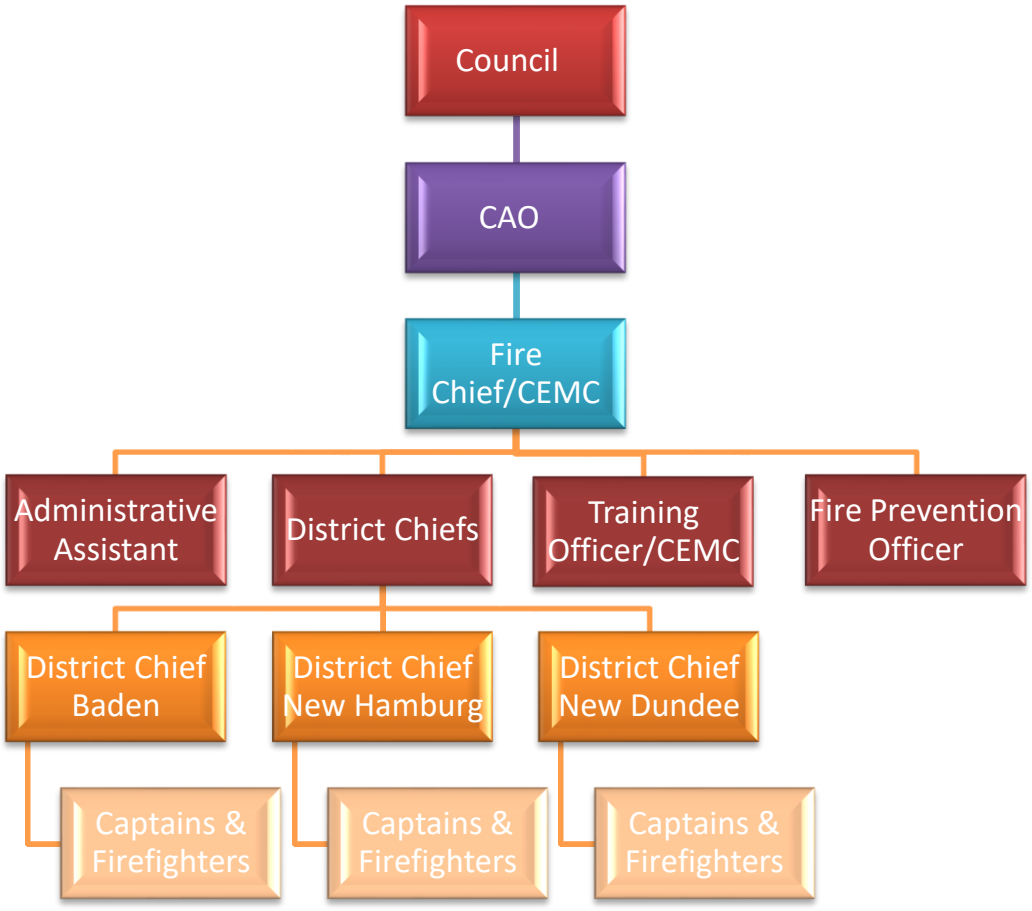
The Fire Department staff includes:

- Full-time Fire Chief
- Full-time Fire Prevention Officer
- Full-time Administrative Assistant
- Part-time Training Officer

Along with the previously noted full and part-time staff, the Department is served by three volunteer District Chiefs, one for each fire station. Each station has a complement of volunteer captains and firefighters who respond out of the three fire stations – Baden, New Dundee and New Hamburg. The total firefighting force for the Fire Suppression/ Operations Division currently sits at 80 volunteer firefighters.

The organizational chart noted in FIGURE 2 - Fire Department Organizational Chart reflects the general reporting structure within the Fire Department and that of the Fire Chief to the CAO and Council.

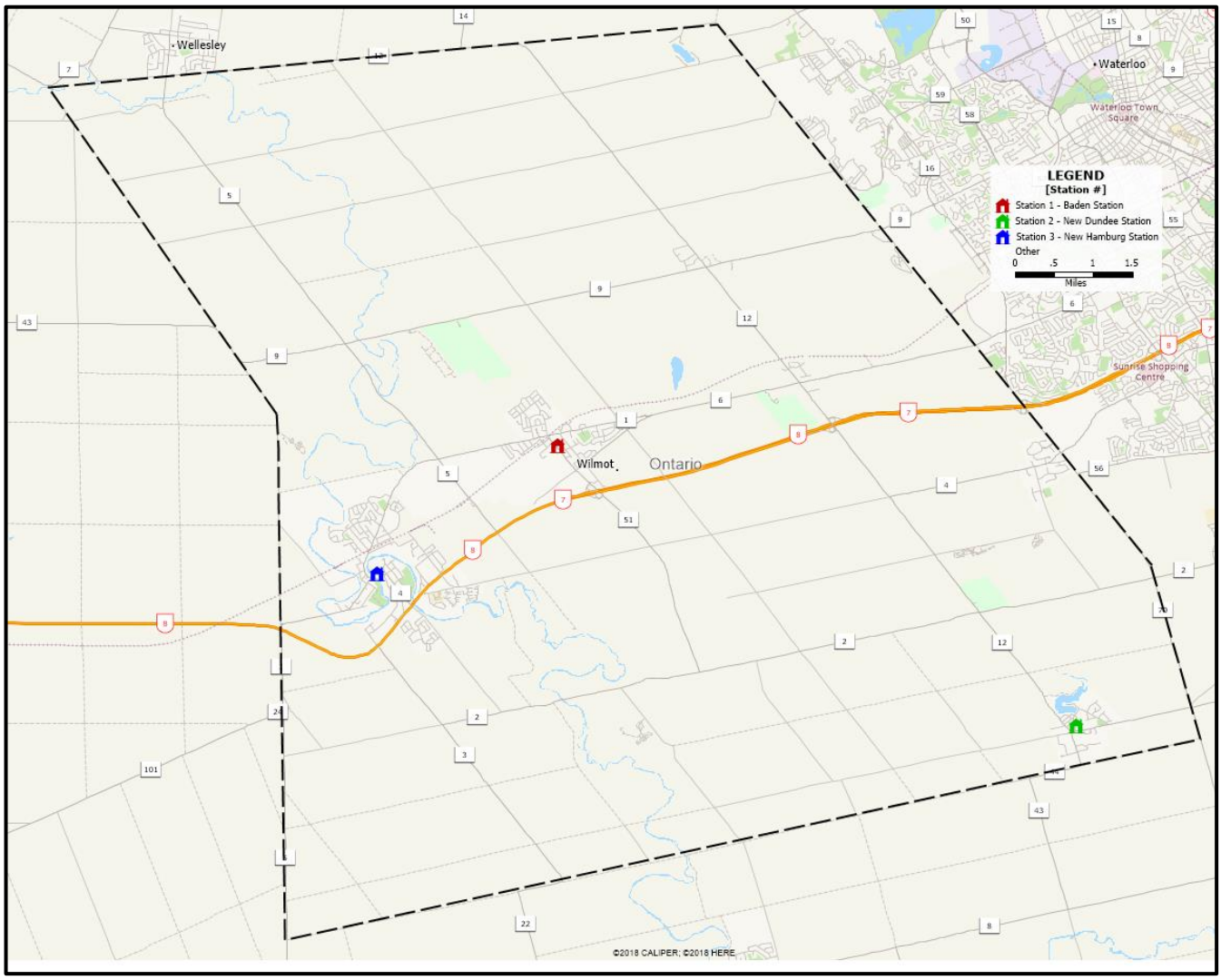
FIGURE 2: Fire Department Organizational Chart



This current reporting arrangement allows for a sufficient level of involvement by the Fire Chief within the senior management structure of the Township and also allows for a high-level of administrative oversight of the day-to-day operations of the Fire Department.

As noted in FIGURE 3, the three fire stations are situated in the three main populated areas of Baden, New Hamburg, and New Dundee.

FIGURE 3: Wilmot Municipal Boundaries and Fire Station Locations



1.2.1 Community Growth

Presently, the population of Wilmot is at approximately 21,000 people and is forecasted to grow to roughly 28,500 people by 2031. This growth is anticipated to occur primarily in the areas of Baden and New Hamburg. This represents an estimated population increase of 7,500 citizens or 36%. This population growth will translate into an increase in call volume for the Fire Department. How much the call volume will increase, however, is unknown because population growth percentages is not the only factor related to calls for service. At this time, we can simply examine how much responses have increased over the past four years. This increase can be seen in the following chart (Table 1 - Estimated Call Volumes for 2016 to 2019).

TABLE 1: Estimated Call Volumes for 2016 to 2019

2016	2017	2018	2019	Percentage increase in past three years	Estimated call volume for 2020	Estimated call volume for 2031
754	762	816	789	Range of 1% to 9%	800-850	1,100 – 1,300

These estimations noted in Table 1 - Estimated Call Volumes for 2016 to 2019 are based on data received for the past four years. If the estimates are accurate and population growth occurs this will then translate into an increase in demand on the volunteer firefighters. This type of increase will need to be monitored in conjunction with response times and volunteer firefighter turnout. To gain a more accurate understanding of anticipated call volumes, the Fire Chief should continue the tracking of percentage increases over the next decade and continue to report this to council utilizing the established quarterly report system to ensure that they are aware of the increases and what challenges are affecting the Department.

An area for the enhancement and consideration is medical related responses which account for approximately 44% of the Department's annual call volume. If no change was to occur over the next 10 years, then of the estimated 1,100 to 1,300 calls for WFD, approximately 450 to 600 of those calls would be medical related calls. Being that WFD is charged per call, any opportunity that exists to reduce dispatching costs, yet at the same time helping to refine and improve services to the community is always a good thing. It should also be noted that the Firefighters are not truly volunteer, they are paid for every hour they work and/or train. Any reduction and related savings in call volume times could be utilized towards other priorities. Overall, the improved services would be in the form of a more focused response criteria for WFD, along with a more streamlined level of training for the volunteer firefighters.

More will be discussed about this later in this document, but for now, the clear option for implementation is for the Fire Chief to work with the regional ambulance (EMS) service and Kitchener Fire dispatch to adjust the level of response to cover only serious types of medical calls. This would include responses to calls that relate to such things as breathing difficulties, serious injuries, and EMS delayed response, to name a few. This recommendation is in line with the other Waterloo Region Townships.

1.3 Comparable Fire Departments

A review was conducted of fire service comparators for benchmarking purposes, providing a comparison of similar municipal fire services. This type of review can offer a snapshot of what other similar sized communities and fire departments look like. Some of the communities reviewed do not have the same size population but will have similar sized fire departments and call volumes.

In completing this type of review, the Fire Chief and Council must be aware that no two communities are identical; each community has its own unique challenges due to demographics, topography, percentage of residential, commercial and industrial areas, along with transportation and road network challenges. The following chart provides a general overview of comparable communities and fire departments, their staffing levels and type, along with call volumes for each fire department.

TABLE 2: Fire Department Comparable and Population Ratio

Municipality	Population Served (approx.)	Community's Geographical Area	Number of Fire Stations	Staffing Volunteer and Full-time Firefighters	Fire Service Agreements in Place for Response by Other Fire Departments	Annual Incidents	Firefighter to Population Ratio
Township of Wilmot	**21,000**	**264 km²**	**3**	**3 FT, 1 PT 80 VFFs**	**3**	**800**	**269**
Perth East	12,261	715.1 km²	3	68 VFFs	2	253	180
Centre Wellington	28,191	407.54 km²	2	4 FT, 60 VFFs	1 mutual aid, 5 other agreements	550	440
Woolwich	25,006	326.15 km²	6	2 FT, 2 PT, 150 VFFs	2 agreements	550	167
Uxbridge	21,176	420.65 km²	1	2 FT,30 VFFs	6	400	622
Strathroy-Caradoc	20,867	270.77 km²	3	78 VFFs, 2 FT	No data	400	270
Scugog	21,617	474.65 km²	2	58 VFFs, 5 FT, 2 PT	4	452	332

As illustrated in Table 2 - Fire Department Comparable and Population Ratio, there is a range of population versus staffing ratios between the communities surveyed. No definitive conclusion or recommendation can be drawn from this comparison alone. This data does, however, offer a glimpse of information which can be used to identify whether Wilmot is functioning similarly in relation to call volumes, population versus staffing, and composition of the service. Based on the fire departments surveyed, the Wilmot Fire Department has a slightly lower staffing level to some of the other comparable municipalities in relation to population vs. staffing.

At this time, based on the data collected, Emergency Management & Training Inc., is not able to draw any quantifiable conclusions and/ or recommendations other than advising the Fire Chief to continue to use comparables based on population and call volumes to identify if Wilmot is experiencing above or below average response numbers and staffing levels (as those compared with).

In relation to cost of fire services for a community. It is a worth noting that based on the 2018 BMA Municipal Study, Wilmot is in the lower range of cost per capita of municipalities with a population range of 15,000 – 29,999 people. The top end is $294.00 per capita, whereas Wilmot is at $70.00 per capita costs. This is a very positive reflection on the WFD and the level of service it provides to the community of Wilmot in a cost-effective manner.

Municipality	Net Costs per Capita Excl Amort	Net Costs per Capita Incl Amort
Centre Wellington	$ 45	$ 53
Strathroy-Caradoc	$ 47	$ 57
West Lincoln	$ 49	$ 59
Woolwich	$ 47	$ 61
Bracebridge	$ 50	$ 62
Huntsville	$ 50	$ 63
Tillsonburg	$ 64	$ 67
Wilmot	$ 61	$ 70
Springwater	$ 66	$ 75
Pelham	$ 58	$ 77
Grimsby	$ 69	$ 79
Middlesex Centre	$ 67	$ 81
Lincoln	$ 71	$ 89
Niagara-on-the-Lake	$ 87	$ 111
King	$ 89	$ 111
Prince Edward County	$ 92	$ 112
Port Colborne	$ 142	$ 157
East Gwillimbury	$ 140	$ 168
Kenora	$ 146	$ 168
Thorold	$ 181	$ 194
Collingwood	$ 186	$ 208
Owen Sound	$ 207	$ 214
Brockville	$ 286	$ 294
Population 15,000 - 29,999		
Average	**$ 100**	**$ 114**
Median	**$ 69**	**$ 81**

SECTION 2 – Planning

2.1 Three Lines of Defence

2.2 Strengths, Weaknesses, Opportunities, and Threats

2.3 National Fire Protection Association Standards

2.4 Establishing and Regulating By-Law

2.5 Commission on Fire Accreditation International

2.6 Stakeholder Surveys

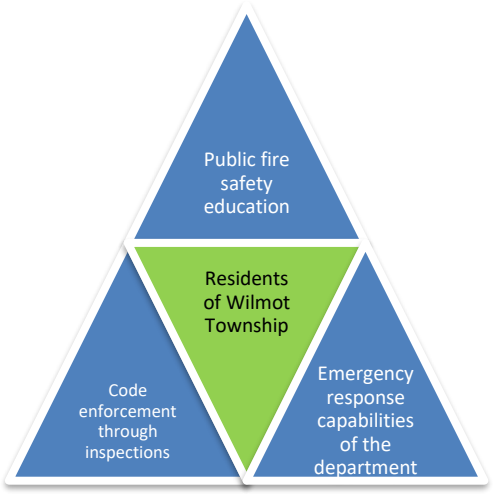
Section 2: Planning

Planning is a key function of any organization and should be done with a focus on the present needs of the community, coupled with its future growth and how this will affect the service demands on the Fire Department. Through the work completed on their previous MFP (refer to Section 12, for further information) and the implementation of this MFP process, WFD has clearly demonstrated a proactive approach towards its planning initiatives.

2.1 Three Lines of Defence

The Office of the Fire Marshal and Emergency Management (OFMEM) have identified "Three Lines of Defence" to be utilized by all fire departments in Ontario when planning to meet the needs of the community.

The identified three lines of defence, as noted by the OFMEM are:



1. **Education** – Fire safety education is the key to mitigating the fire and life hazards before they start. With the growth of the community, how will the municipality continue to meet the fire safety educational needs of the community?
2. **Inspections and Enforcement** – If the public education program does not prove effective, then the next step is for the fire department to enforce fire safety requirements through inspections leading to possible charges under the *Act*.
3. **Emergency Response** – If the first two lines of defence fail for whatever reason, the community, through its fire department, should be prepared to respond in an efficient and effective manner to put the fire out and/or mitigate the emergency itself. By evaluating the effectiveness of the fire stations, staff, and equipment, this report will be able to make recommendations for related efficiencies.

In conjunction with the three lines of defence, a key industry standard that outlines goals and expectations for a fire department is the National Fire Protection Association (NFPA). Adherence to these standards is not mandated but they form the foundation of the fire services recommended best practices. These NFPA standards are also utilized by organizations such as the Fire Underwriters Survey group to conduct their assessments of a fire department and the community. The provincial Fire Marshal Offices and provincial fire schools also use them to form the foundation of their evaluation and training related programs.

2.2 Strengths, Weaknesses, Opportunities, and Threats (SWOT)

This entire MFP document is the result of conducting a SWOT analysis on the community which has resulted in a list of recommendations for the Township's Council, CAO, and Fire Chief to consider and implement.

The strengths and weaknesses portion of this SWOT are based on an internal review of the Department to identify existing efficiencies, along with recognizing areas for improvement. The opportunities and threats portion are related to external influences and how these influences affect the operations and response capabilities of the Department.

2.2.1 Strengths

The Township of Wilmot benefits from having three fire stations that are staffed and well-equipped for response to emergencies. These stations are staffed by a team of dedicated volunteer firefighters who have expressed, during interviews and through the completion of the internal surveys, that they are quite proud of the level of service they provide to the community. The fire stations and equipment are adequate, and the firefighters believe that they are well-equipped to effectively carry out their responsibilities.

WFD has strong relationships with neighbouring fire departments and a long history of cooperative services. There is a mutual aid plan and other agreements in place to help meet the fire safety needs of the community of Wilmot.

The Fire Prevention Division is as proactive within the community in relation to education, fire safety inspections and enforcement as resources allow, however, more can be accomplished, and will be addressed later in this document.

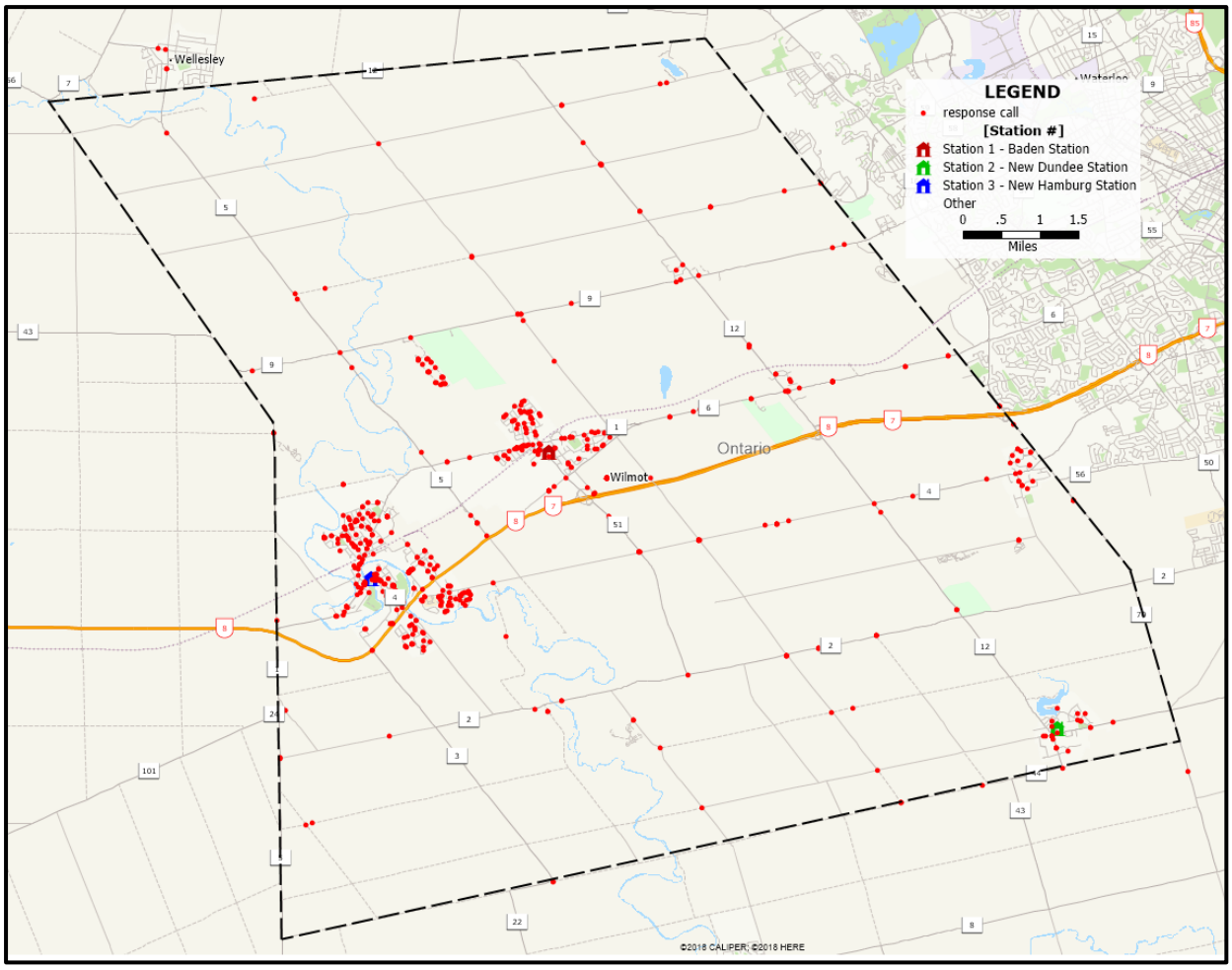
2.2.2 Weaknesses

The WFD has a complement of dedicated volunteer firefighters that respond to calls for service. Due to other commitments, such as their full-time jobs and family obligations, there is no guarantee these volunteer firefighters will be adequately available to respond to every situation. Presently, the response data confirms that WFD is doing a good job at either meeting or within acceptable parameters of recommended industry best practices, which can be seen in the NFPA response charts in Section 5 and the response data noted in the appendices.

Due to the future growth of the Township, along with increased traffic flow, the volunteer firefighters believe that a reorganization of the fire station response zones should be reviewed, and future consideration be given to the location and viability of the New Hamburg Station. More information on the New Hamburg Station is noted in Section 5.

The Call Cluster Map, noted below and in Section 5, offers an indication of where the bulk of the calls are occurring within the municipality and as such, can assist in evaluating possible changes to response zones for the fire stations.

FIGURE 4: 2018 Call Cluster Map



2.2.3 Opportunities

WFD has a mutual aid program in place in which it can call on neighbouring fire departments for assistance whenever local resources are exhausted and there is an inability to handle the incident with the Department's resources in an efficient and effective manner. This type of mutual aid resource is not meant to supplement WFD's response ability, however; it is to be used when no other options are available such as automatic aid and fire services agreements. These two types of agreements offer the community a more consistent level of response to areas not properly covered by the local fire department.

Continued planning and cooperation with neighbouring municipalities is a cost-effective option for such things as automatic aid and fire service agreements. This type of planning will ensure that

Wilmot Township has the resources needed during any large-scale incident that may exhaust local resources.

2.2.4 Threats/Challenges

The present level of volunteer firefighters and equipment must be considered as the community's population continues to grow in both the residential and commercial sectors. As noted earlier in this document, Wilmot can expect to see up to a 36% increase in population by 2031. The bulk of this growth will occur in the areas of Baden and New Hamburg. The best way to mitigate such a challenge is to plan ahead by using related industry standards and recommended best practices as a guideline. Researching comparable communities in terms of how they dealt with such community growth can give WFD an indication of future call volumes.

A final challenge being seen by all communities is the so-called "100-year storms". Due to changes in climate, inclement weather incidents such as freezing rain/ ice storms, and flooding are becoming more commonplace and need to be part of the response program for each community. This change in climate conditions along with the resulting frequency and severity of incidents has created the need for a larger response component to these emergencies. This is another reason for ensuring strong ties with other communities regarding mutual and automatic aid programs. These challenges support the necessity for exercising and updating the community's emergency preparedness program annually.

More information in relation to community risks and recommendations for mitigation will also be highlighted within the Office of the Fire Marshal & Emergency Management's, Community Risk Assessment (CRA) document. This CRA will be provided as a separate document.

Note: Due to the sensitive nature of information contained in the risk assessment, this CRA document, will be supplied as a separate document. However, a general overview of the risk information is contained within this FMP.

2.3 National Fire Protection Association (1201, 1221, and 1720)

To assist with EMT's review and resultant recommendations, reference has been made to National Fire Protection Association Standards, the North American benchmark for fire services.

2.3.1 NFPA 1201

NFPA Standard 1201 – Standard for Providing Fire and Emergency Services to the Public
Section 4.3.5 notes:

- *The Fire and Emergency Services Organization (FESO) shall provide customer service-oriented programs and procedures to accomplish the following:*
    1. *Prevent fire, injuries and deaths from emergencies and disasters*

2. *Mitigate fire, injuries, deaths, property damage, and environmental damage from emergencies and disasters*
3. *Recover from fires, emergencies and disasters*
4. *Protect critical infrastructure*
5. *Sustain economic viability*
6. *Protect cultural resources*

To accomplish this, an FESO must ensure open and timely communications with the CAO and governing body (Council); create a master plan for the organization; ensure there are mutual aid and automatic aid programs in place, along with an asset control system and maintenance program.

It is quite apparent that the Fire Chief is very active in reporting to both the CAO and Council on Fire Department matters. By initiating this FMP project, Wilmot is endeavoring to meet the expectations of this noted section of the NFPA Standard and should be commended for doing this.

2.3.2 NFPA 1720

To provide the Fire Department more defined focus on what the ultimate goals for emergency response criteria are, the NFPA suggests that response times should be used as a primary performance measure in fire departments.

- NFPA 1720 refers to goals and expectation for Volunteer Fire Departments
    - Based on NFPA 1720, WFD is categorized as a volunteer fire department because more than 85% of its staff are volunteer. As such, response time criteria should be focused on the recommendations as seen in the following chart.

Note: The Suburban and Rural sections of the following chart relate to the varied populations within the Township (Suburban and Rural) and have been used in relation to response goals and expectations. However, if the criteria are simply based on the overall population verses square kilometres ratio – Wilmot has a population ratio of 79 residents per square kilometre, which means that it falls well within the Rural category. However, there are pockets of population within the communities of Baden, New Hamburg and New Dundee that exceed this Rural category. WFD does consider the Suburban response criteria as a response guideline for those areas.

TABLE 3: NFPA Response Goal Expectations

Demand Zone	Demographics	Minimum FF to respond	Response time (minutes)	Meets objective (%)
Urban area	>1000 people/mi^2 >386 people per km^2	15	9	90
Suburban area	**500-1000 people/mi^2 193-386 people per km^2**	**10**	**10**	**80**
Rural Area	**<500 people/mi^2 <193 people per km^2**	**6**	**14**	**80**
Remote Area	Travel distance > 8 mi (12.87km)	4	Directly dependent upon travel distance	90
Special risks	Determined by Authority Having Jurisdiction	Determined by Authority Having Jurisdiction	Determined by Authority Having Jurisdiction	90

The third standard noted in this section is NFPA 1221, which addresses the goals and objectives for the taking of calls for service and dispatching of these calls. Wilmot Fire Department receives its dispatching services from Kitchener Fire Department.

WFD has adopted the use of response time measurements as a guide to evaluate their capabilities in relation to the previously noted NFPA standards. WFD's Establishing and Regulating By-law does not, however, specify what response time criteria is expected of its Fire Department. The Fire Chief does conduct continuous assessments of response types, number of responses and a thorough evaluation of response times to assess if the Fire Department can keep up to the demands of the community which is considered best practice.

2.4 Establishing & Regulating By-Law

The current Establishing & Regulating (E&R) By-Law was last updated in 2011, making this an eight-year-old document. Based on the date, many parts of the E&R document may still line up with the expectation of the *Fire Protection and Prevention Act*, however, a full review of the goals and expectations of the Fire Department needs to be conducted to allow for updating of the E&R By-law.

To assist the Fire Chief in meeting the needs and expectations of the township, the E&R By-law notes that the Fire Department shall respond to a variety of incidents (noted below) designed to protect the lives and property of the inhabitants of Wilmot. The following list has been extracted from the 2011 Establishing and Regulating By-law #2011-15.

APPENDIX "A" TO BY-LAW 2010-92

<u>CORE SERVICES</u>

1. FIRE PREVENTION (FIRE SAFETY INSPECTIONS, ENFORCEMENT, PUBLIC EDUCATION and FIRE CAUSE DETERMINATION)

1.1 The Fire Department shall provide fire safety inspections arising from complaint or request, or if it determines that such an inspection is necessary according to risk.

1.2 The Fire Department shall initiate FPPA, Fire Code or by-law enforcement activities where appropriate.

1.3 Distribution of fire and life safety information and public education programs shall be administered in accordance with the FPPA and polices and guidelines of the Fire Department.

1.4 In accordance with the provisions of the FPPA and Wilmot Fire Department policies and guidelines, Fire Department personnel shall investigate the cause and origin of all fires that occur within the Township.

2. EMERGENCY OPERATIONS

2.1 The Fire Department shall provide structural, vehicle, and wild land (i.e. grass or brush) fire suppression services, delivered in both an offensive and defensive mode and shall include search and rescue operations, forcible entry, ventilation, protecting exposures, salvage and overhaul as appropriate.

2.2 The Fire Department shall provide pre-hospital emergency patient care services such as first aid, Cardiopulmonary Resuscitation (CPR), and defibrillation in accordance with response agreements with other agencies such as may be in existence from time to time.

2.3 The Fire Department shall maintain a response capacity for hazardous material incidents at the awareness level with available resources such that the protection of life and the environment may be addressed and shall provide such services in accordance with any response agreements with other agencies such as may be in existence from time to time.

2.4 Special technical and/or rescue services provided by the Fire Department shall include

performing vehicle extrication using hand tools, air bags and heavy hydraulic tools as required, and water/ice rescue services shore based. Confined Space rescue, trench rescue, high angle rescue (where the load is predominately supported by a rope rescue system), HUSAR or other highly specialized technical and/or rescue services shall not be provided by the Fire Department beyond the basic firefighter awareness level.

3. TRAINING AND STAFF DEVELOPMENT

3.1 The Fire Department shall provide such training and staff development activities such as are necessary for the efficient operation of all Divisions. The Ontario Firefighters Curriculum, International Fire Service Training Association "Essentials of Fire Fighting," Ontario Fire Service Standards and other related industry training standards and reference materials may be used as reference guides for Wilmot Fire Department training as approved by the Fire Chief. Members may be required to attend the Ontario Fire College or any other recognized training venue as designated by the Fire Chief in order to acquire or maintain the necessary knowledge, skills and abilities to perform their job function. All training will comply with the Occupational Health and Safety Act, R.S.O. 1990, c. 0.1, as amended, and other applicable provincial legislation.

4. TECHNICAL MAINTENANCE

4.1 The Fire Department shall ensure that all apparatus and equipment is inspected regularly and maintained in good repair in accordance with industry best practices and the legislated requirements in effect from time to time.

5. ADMINISTRATION AND SUPPORT SERVICES

5.1 The Fire Department will maintain adequate administrative resources to effectively provide support to all departmental activities including but not limited to communications liaison, information services liaison, purchasing liaison, human resources liaison, and support for the Community Emergency Management Program.

Through meetings with WFD staff and a review of documentation supplied, it was evident that WFD is doing an admirable job in meeting the expectations of the 2011 E&R By-law. Although no actual response time expectations are noted in the Department's E&R By-law, a review of the past four years offers a good understanding and baseline for how the Department has been performing, along with identifying areas for improvement.

The Fire Chief is continuing to utilize the most recent set of three years of data as a baseline to evaluate the response capabilities of the Fire Department. This evaluation will be invaluable to measure population growth versus call volumes and response times, along with any challenges that

the Department might be encountering regarding such things as increasing response times and/or number of volunteer firefighters responding to the calls.

In going forward, it is recommended that the present E&R By-law be reviewed, updated to reflect such things as new legislation and training expectations. Once updated the document is to be presented to Council for approval. Consideration should also be given to including reference to such guidelines and standards as:

- Section 21 Guidelines for the Fire Services
- OFMEM Guidelines in relation to staffing and response recommendations, and
- Related NFPA that deal with:
    - Training
    - Fire prevention and public safety programs
    - Fire department response goals and objectives

By incorporating these notes guidelines and standards, WFD will be adhering to industry best practices, which in turn ensures that staffing, training programs, fire prevention initiatives and response to the community are meeting these guidelines and standards.

2.5 Commission on Fire Accreditation International (CFAI)

"When a Fire Department applies a model of risk assessment to help determine their level of emergency services commitment, they have moved from being reactive to being proactive."[1]

The NFPA standards represent the benchmark to strive for in the fire service. Many of these standards have, to a large degree, been adopted by the Office of the Fire Marshal and Emergency Management. The CFAI is recognized as the organization that has incorporated all national and local standards, which has become the model for best practices for all fire departments.

Benefits of Accreditation:

- A system for risk assessment, decision making, and continuous improvement
- A plan for sustainment and self-assessment
- Agency performance objectives and performance measures
- Verification by peers

The CFAI program revolves around 10 categories, which are:

1. **Governance and Administration** – includes such things as organizational reporting structure, establishing and regulating by-law requirements, etc.

[1] CFAI overview information – Self Assessment Manual

2. **Assessment and Planning** – evaluating the organization in relation to future planning.
3. **Goals and Objectives** – what are the goals of the fire service; do they have a strategic plan in place.
4. **Financial Resources** – does the organization have sufficient funding in place to effectively meet the needs of internal and external stakeholders.
5. **Programs** – this includes fire prevention, fire suppression, training, emergency management.
6. **Physical Resources** – what is the state of the fire stations and are they located in the best location to respond to the community in a timely manner.
7. **Human Resources** – staffing of the organization in all divisions and how the fire service works with the municipality's Human Resources Department.
8. **Training and Competency** – review of all training programs based on what the fire department is mandated to provide.
9. **Essential Resources** – this section covers such things as water supply, communications/ dispatch and administrative services.
10. **External Systems Relations** – includes such topics as mutual aid, automatic aid, third party agreements, etc.

These sections will be discussed within each related section of this MFP plan document.

2.6 Stakeholder Surveys

To get a clear understanding of how well WFD is meeting the needs of its staff and the community, surveys were conducted with both the internal staff of the WFD and external stakeholders of the Township.

To assist with the completion of the staff surveys, information meetings were held during the months of August and September 2019. The community survey was advertised through local media and was set up on the Department's website (in the form of an electronic survey). Within the community surveys, participants were also offered the opportunity to be part of a focus group meeting. This community stakeholder meeting was held on November 4th at the Township's offices in Baden.

Meetings were also held in August and September with members of Council and with the Township's Administrative Officer (CAO).

2.6.1 Internal Surveys

During the MFP process, feedback was gathered from internal staff, which included firefighters, Administration, Training, and Fire Prevention.

Much of the information received from the internal surveys identified the following:

- Much of the staff are proud of the service that they offer to the community and believe that the community feels that they are served by a professional and dedicated group of firefighters.
- Overall, the firefighters feel they have adequate facilities to work out of, along with a good variety of equipment to do their jobs. The New Hamburg Station was remarked as a concern due to the tight quarters that the vehicles and equipment are stored in, along with the station's location in a flood plain area.
- The top three major challenges for the Fire Department are the anticipated growth that is occurring in Wilmot; volunteer firefighter retention; and the assurance of properly trained and equipped staff in meeting response challenges.
- The top three services that they feel are priority to the community are:
    - Firefighting
    - Medical responses
    - Rescue (i.e. motor vehicle accidents)

Note: *Specific comments were received in relation to the fire stations and other general items. These comments have been noted in each station's and/or other related section.*

2.6.2 External Surveys and Stakeholder Meeting Results

Input from the community is vital, giving the Fire Department an accurate indication of how the public perceives the Department and suggesting areas for improvement from those with first-hand interaction with the Department.

The following input was received:

- Most respondents see the WFD as a dedicated and professional service
- The top three priorities noted by external respondents are:
    - That the Fire Department responds in a timely manner to calls for assistance
    - The presence of the Fire Department within the community in relation to public education and related safety training
    - The cost of the fire service
- The top three services noted by external respondents are:
    - Firefighting, emergency preparedness

- Rescue (i.e. motor vehicle accidents)
- Medical assist and response

- In relation to what is needed over the next 10 years, the top responses were:
  - Possibly more staff to meet the growing demands of the community
  - Would like to see more public safety education programs and attendance at community events. This could be supplemented by creating partnerships with local neighbourhood and non-profit groups to assist in promoting fire safety and education
  - Well-equipped and trained firefighters to meet the demands of a growing community

2.6.3 External Citizen Focus Group Meeting

A focus group meeting was held to delve deeper into some of the comments received from the community surveys. The following four key questions were asked and discussed at the focus group session:

1. Overall was your experience positive or negative. If negative, why. If positive, why?
2. Based on the related service supplied by WFD, what improvements, if any, can be implemented?
3. As a member of the community, what other services do you believe WFD should offer and why?
4. Are there any other points the group would like to add regarding services and/or efficiencies that we have not discussed?

The outcome of this focus group meeting supported the original findings:

- The overall experiences with dealing with the Fire Department were mostly positive and professional.
- Most of the comments relating to future improvements related to more public education and possible first aid training opportunities.
- For the most part, the focus group felt that the present services being offered seemed to cover what is required, based on the community size and needs.
- General comments revolved around continued efforts to meet a growing community, through additional staff, equipment or fire stations. It was also discussed that the Fire Chief is the best person to identify what other services may be required.

Overall, the internal and external surveys and stakeholder meetings were quite positive about the services being offered by WFD. The primary focus we heard (both internally and externally) was ensuring that the Fire Department continues to expand as the community grows so that WFD can continue to provide a quality service to the community.

Recommendation(s)

Rec #	Recommendation	Estimated Costs	Suggested Timeline
1	It is recommended that a full review of the 2011 Establishing and Regulating By-law document be completed to include the following items: • Incorporate, where appropriate, any references to NFPA standards and OFMEM Guidelines that the Fire Department deems relevant to services provided and is supported by Council, such as: o Measurable service levels that can be reported to Council on an annual basis o Composition of the Department to represent the level of service to be provided as outlined throughout the MFP o Updating the document's language to reflect recent legislative changes and/or inclusion of supporting National Fire Protection Association (NFPA) standards. o Fire chief continues to have the flexibility to increase staffing marginally as required to keep numbers up to plan for anticipated retirements and/or promotions of the firefighters.	No present cost associated with this recommendation. However, changes for future fire service agreements may incur new costs. (future costing contingent on possible inclusion of fire service agreements in the E&R Bylaw)	Short-term (1-3 years)

SECTION 3 – Risk Assessment

3.1 Current and Future Needs

3.2 Community Risk Assessment

3.3 Integrated Risk Management Web Tool

3.4 Fire Underwriters Survey

Section 3: Risk Assessment

3.1 Current and Future Needs

As noted on the Township's website, the population is forecasted to grow to 28,500 by 2031. With a land area of approximately 264 square kilometres, the community contains an abundance of significant rural areas, agricultural lots and natural areas, including the Nith River, provincially significant wetlands and environmentally sensitive areas. Most of the population is located in the communities of Baden and New Hamburg.

3.1.1 Municipal Responsibilities

It is Council that sets the level of service within the community. The *Fire Protection and Prevention Act*, 1997, S.O. 1997, c. 4, outlines the responsibilities of a municipality, providing a framework for protecting citizens from fire:

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.*[2]

Further, the *Act* provides a description for the methods of providing services.

Methods of Providing Services

(2) In discharging its responsibilities under subsection (1), a municipality shall:

> (a) Appoint a community fire safety officer or a community fire safety team; or
> (b) establish a Fire Department.

The Township of Wilmot has established a Fire Department as outlined in Section 2.2(b) of the *Fire Protection and Prevention Act*, 1997, S.O. 1997, c. 4. The level of service that must thereby be provided is further outlined in Section 2.1(b) of the *Act*. The level of service to be provided is determined by the needs and circumstances of the community and can be derived from conducting a FMP for Council. The 'needs' can be defined by the type of buildings, infrastructure, and demographics of the local area which in turn can be extrapolated into the types of services that would be offered and needed. The 'circumstances' are considered the ability to afford the level of service to be provided.

[2] https://www.ontario.ca/laws/statute/97f04

Together, the needs and circumstances assist in identifying a level of service for the community. This combination meets the expectations of the public for safety and the affordability of this level provided.

Wilmot is currently experiencing growth, mainly between the communities of Baden and New Hamburg, which is leading to an infill involving the two communities. While the majority of this growth is residential in design, it brings commercial and industrial prospects. This increase impacts the service delivery of the Fire Department, increasing the need for service along with the population.

To date, WFD has been able to effectively keep the up with the call volumes, however, there is concern that future challenges in meeting reasonable response times could occur as call volumes increase. This creates a possible risk to the community and, as such, the Fire Chief will continue to monitor response times including how often a full response component was not amassed. This type of information can be utilized to identify any future needs and/or considerations for the incorporation of a partial full-time response component.

3.2 Community Risk Assessment

During this FMP review, a new Ontario Regulation through the *Fire Protection and Prevention Act* came into force requiring all communities to conduct a Community Risk Assessment every five years. Many fire departments are currently transitioning from their past Simplified Risk Assessment (SRA) to a full Community Risk Assessment.

Ontario Regulation 378/18 states the following requirement in relation to conducting a community risk assessment:

*"**Mandatory use***

1. *Every municipality, and every fire department in a territory without municipal organization, must,*

(a) complete and review a community risk assessment as provided by this Regulation; and

(b) use its community risk assessment to inform decisions about the provision of fire protection services.

What it is

2. *(1) A community risk assessment is a process of identifying, analyzing, evaluating and prioritizing risks to public safety to inform decisions about the provision of fire protection services.*

(2) A community risk assessment must include consideration of the mandatory profiles listed in Schedule 1. (NOTE: see appendix "F" of this MFP for OFMEM related Guideline)

(3) A community risk assessment must be in the form, if any, that the Fire Marshal provides or approves. (NOTE: see appendix "F" of this MFP for OFMEM related Guideline)

When to complete (at least every five years)

***3.** (1) The municipality or fire department must complete a community risk assessment no later than five years after the day its previous community risk assessment was completed.*

(2) If a municipality, or a fire department in a territory without municipal organization, comes into existence, the municipality or fire department must complete a community risk assessment no later than two years after the day it comes into existence.

(3) A municipality that exists on July 1, 2019, or a fire department in a territory without municipal organization that exists on July 1, 2019, must complete a community risk assessment no later than July 1, 2024.

(4) Subsection (3) and this subsection are revoked on July 1, 2025.

When to review (at least every year)

***4.** (1) The municipality or fire department must complete a review of its community risk assessment no later than 12 months after,*

(a) the day its community risk assessment was completed; and

(b) the day its previous review was completed.

(2) The municipality or fire department must also review its community risk assessment whenever necessary.

(3) The municipality or fire department must revise its community risk assessment if it is necessary to reflect,

(a) any significant changes in the mandatory profiles;

(b) any other significant matters arising from the review.

(4) The municipality or fire department does not have to review its community risk assessment if it expects to complete a new community risk assessment on or before the day it would complete the review."

The previous Simplified Risk Assessment was an integral building block in the data gathering process to understand the community that is served by a fire department. As the community changes, so should the SRA document, ensuring accuracy of the information contained within. Much of the

information contained in a previous SRA can be transferred into the newly designed Community Risk Assessment.

Along with the newly published CRA document, 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*, also identifies that this type of review should be conducted at a minimum every five (5) years or after significant change. This standard also establishes a process to identify and analyze community fire risks.

There are seven (7) components of a Community Risk Assessment outlined in NFPA 1730. These components are:

1. Demographics
2. Geographic overview
3. Building stock
4. Fire experience
5. Responses
6. Hazards
7. Economic profile[3]

3.2.1 CRA Current Condition

The Fire Chief was unable to supply EMT with a recent risk assessment. The projected population growth expected for the community will impact the demographic profile and, consequently, the needs and circumstances for the delivery of services by the Fire Department. All risks within the community need to be identified and evaluated by a team that is also tasked with the upkeep of the Township's Emergency Management Plan.

Vulnerable occupancies such as the elderly and people with physical and cognitive challenges need to be identified, along with railway crossings, major highways and industries that could create a hazardous environmental response.

As per the 2013 FMP recommendation, the FPO position was moved to full-time in 2019.
The Fire Prevention Officer (FPO) is in the process of updating all this information. Based on resources available, the FPO is doing a good job in creating and updating this building stock profile, but more needs to be accomplished to meet the new legislation. One person conducting all of the legislated requirements for a community the size of Wilmot Township has created a situation in which the FPO has had to focus on the minimum inspection requirement set out by the *Fire Protection and Prevention Act*, which are inspections on complaint and request, along with inspecting vulnerable

[3] https://www.nfpa.org/codes-and-standards/all-codes-and-standards/list-of-codes-and-standards/detail?code=1730

occupancies. To increase and improve upon the numbers of inspections, the addition of even a part-time Fire Prevention Officer would help to alleviate some of the present pressure on the present FPO.

A copy of the Community Risk Assessment Guideline can be found, in its entirety, in Appendix F.

3.2.2 Future Needs

Understanding the community and its needs allows the Fire Chief and staff to be proactive with education and enforcement programs to the community. When fires occur within the community, the firefighters can be ready to battle the fires because they are trained, not only in the basics of firefighting, but in understanding any unique and/or special hazards that are found within the community. These hazards must be identified in a risk assessment so the Fire Chief can ensure preventative and mitigative programs are in place. As the community grows, the frequency of and the need for service will grow.

According to the new provincial legislation and continued growth within the Township, there will be a continuing need for additional staff time spent in fire prevention and public education related activities. These activities are not just related to public education; there should also be emphasis placed on assessing building stock within the community to identify types and number of hazards that may exist.

3.3 Integrated Risk Management Web Tool

To assist in completing a community risk assessment, the Ontario Fire Marshal's Communiqué 2014-12 introduced the Integrated Risk Management Tool to the Fire Service. The document notes:

> "The IRM Web Tool was developed as part of a commitment made by the OFMEM to the Ontario Association of Fire Chiefs (OAFC) and other stakeholders. The IRM Web Tool can be used by all Ontario's municipalities and fire departments to determine building fire risks in their respective communities by taking into account building characteristics (building factors) and the three lines of defence against fire (Three Lines of Defence):
>
> Line one: Public Fire safety education
> Line two: Fire safety standards and enforcement
> Line three: Emergency response."[4]

The Integrated Risk Management Web Tool is built around the Three Lines of Defence and is intended for municipal and fire service decision-makers. The tool was designed to assist municipalities in fulfilling the responsibilities prescribed in Section 2 of the *Fire Protection and Prevention Act*, 1997 (FPPA).

[4] https://www.mcscs.jus.gov.on.ca/english/FireMarshal/FireServiceResources/Communiques/OFM_Com_2014-12.html

The concept of the IRM is a "building-by-building" assessment. Its goal is to go beyond simply taking stock of buildings within the community; it was intended to be a holistic approach that is meant to combine all the fire department's efforts in relation to:

- Fire prevention and education initiatives, which includes updated community reviews through the use of the OFMEM Simplified Risk Assessment
- Fire station locations and ability to respond in an efficient and effective manner
- Identification of hazardous situations/locations within the community
- Training and equipping of the firefighters to execute their duties in a safe and efficient manner

The IRM approach is a combination of all facets of the fire service that is meant to combine a review of building stock, fire safety and prevention issues to be addressed, ability to effectively and efficiently respond to emergencies, and how well-equipped and trained the firefighters are to deal with emergencies within the community.

Conducting a review of every building within the Township of Wilmot may not be practical, however, utilizing NFPA 1730 definitions of risk categories may guide Township in deciding the focus and service level within the community. Township should decide what the acceptable risk is to manage within the community based on the needs and balanced with the circumstances to deliver the services.

NFPA 1730 defines the risks in three categories and provides examples for each. These risk categories are[5]:

High-Risk Occupancy – an occupancy that has a history of high-frequency of fires, high potential for loss of life or economic loss, or that has a low or moderate history of fire or loss of life, but the occupants have a high dependency in the built-in fire protection features or staff to assist in evacuation during a fire or other emergency.

Examples: apartment buildings, hotels, dormitories, lodging and rooming, assembly, childcare, detention, educational, and healthcare

Moderate-Risk Occupancy – an occupancy that has a history of moderate frequency of fires or a moderate potential for loss of life or economic loss

Examples: ambulatory health care, and industrial

Low-Risk – an occupancy that has a history of low frequency of fires and minimal potential for loss of life or economic loss

Examples: storage, mercantile, and business

[5] https://www.nfpa.org/codes-and-standards/all-codes-and-standards/list-of-codes-and-standards/detail?code=1730

3.3.1 Current Condition

Based on EMT's review of WFD's present building stock and population, the key fire safety related issues facing the community are within:

- Vulnerable occupancies
- Older buildings located in some of the downtown cores
- Schools
- Railway system that bisects the community in a couple of locations
- The highway that also bisects the communities of Baden and New Hamburg areas
- The large number of residential structures in the community

Continued use of the IRM tool, in conjunction with guidance from NFPA 1730, will provide a picture of the resources, time, and tools required to keep the fire risk in the community to a manageable level, as defined by Council. It is important to note the number of buildings within Wilmot and the continual growth that is expected; this current and future building stock puts pressure on the Fire Prevention Officers to accomplish an adequate amount of inspections to ensure fire code compliance within the community.

To assist in determining the current fire prevention staffing needs, NFPA 1730 outlines a five-step process within Appendix C of the standard. This sample staffing exercise is not part of the requirements of the standard but forms a guide for informational purposes. It is important to restate that it is Council that sets the level of service within the community, in consultation with the Fire Chief and CAO. This level of service must be based off the community's local needs and circumstances.

Fire Prevention Officers are duty-bound to conduct inspections upon request or complaint in accordance with the *Fire Protection and Prevention Act* (FPPA). The activities of the Fire Prevention Officer demonstrated due diligence regarding fire prevention and public fire safety education. These activities ranged from routine inspections, public education initiatives, complaints, and requests for inspections, to name a few. The Fire Prevention Officer has done a good job in ensuring ongoing inspections and education programs are being conducted with the resources available.

Routine inspections are monitored and the FPO does more than meet the basic FPPA expectations. To further improve, it is recommended that the FPO review the following Fire Underwriters suggested frequency inspection chart to identify levels of desired frequency for inspections. Inspections should be tracked on an annual basis along with the number of man hours spent.

TABLE 4: FUS Suggested Frequency Chart

Occupancy	FUS Benchmark
Assembly (A)	3 to 6 months
Institutional (B)	12 months
Single Family Dwellings (C)	12 months
Multi-Family Dwellings (C)	6 months
Hotel/Motel (C)	6 months
Mobile Homes & Trailers (C)	6 months
Seasonal/Rec. Dwellings (C)	6 months
Commercial (F)	12 months
Industrial (F)	3 to 6 months

3.3.2 Future Needs

The utilization of the IRM tool will provide an understanding of a building-by-building fire risk that can be extrapolated to identify the hazards in given areas. Along with the Community Risk Assessment, the IRM tool aids in the building and design of the fire prevention inspection and education programs. Upon updating the Risk Assessment, the IRM tool could be used to begin the process of measuring the community for fire risk. A thorough risk assessment can also avoid invalid comparisons between your fire department and others. A municipality with a similar population may have very different fire risks, and therefore very different fire protection needs. A thorough risk assessment will ensure that such comparisons are valid. By providing a valid basis for comparison, a sufficient risk assessment can also provide confidence that innovations introduced elsewhere can be successfully applied in your municipality.

3.3.3 Provincial Community Risk Statistics

The Fire Chief and his staff should continue you to work with Township staff to obtain an updated listing of building stock within the community, along with identifying other hazards such as railway crossings, major highways, and the introduction of any high-rise structures.

The first set of statistics noted are of the most recent Provincial data found on the Officer of the Fire Marshal and Emergency Management website, which can be compared with the most recent Wilmot statistics.

Provincial - Loss fires by Property class
From 2013 to 2017, there were 53,489 fires with loss reported to the OFMEM.

- *49% of these fires occurred in Residential occupancies.*
- *27% occurred in vehicles.*

- *11% of fires occurred on structures/properties not classified by the Ontario Building code – this includes many non-structure property types – land, outdoor storage, and some structures ranging from barns to weather stations.*
- *5% of loss fires occurred in Industrial occupancies.*
- *3% in Assembly occupancies.*
- *2% in Mercantile occupancies*
- *2% in Business and personal services occupancies.*
- *1% in Care and detention occupancies.*

The distribution of fire occurrence across property type has been relatively unchanged over the years.

Provincial - Loss Fires Property class: Structures only
From 2013 to 2017, there were 35,342 Structure fires with loss reported to the OFMEM.

- *Fires in residential occupancies account for 73% of structure loss fires.*
- *Properties not classified by the Ontario Building code – 8%*
- *Industrial occupancies – 8%*
- *Assembly occupancies – 4%*
- *Mercantile – 3%*
- *Business and Personal Services – 3%*
- *Care and Detention Occupancies – 1%*

This distribution of fire incidents across structure property types has been consistent over many years.

Provincial - Structure Loss Fires: Ignition source
8% of structure loss fires were suspected to be arson or vandalism.

Between 2013 and 2017 the ignition sources in other structure loss fires were:

- *18% cooking;*
- *9% electrical distribution equipment – wiring;*
- *8% heating/cooling;*
- *8% miscellaneous (which includes fires - natural causes and chemical reactions);*
- *7% cigarettes;*
- *5% appliances;*
- *5% other electrical, mechanical;*
- *3% other open flame tools (excluding matches, lighters), 4% Exposure fires;*
- *2% candles; 2% lighting excluding candles;*
- *1% matches or lighters (excluding arson fires); 1% processing equipment;*

- *20% reported as undetermined.*[6]

3.3.4 Wilmot Community Risk Statistics

The following information was obtained from the Township's website, as well as documents received and taken from the past reports supplied to EMT. The data offers an overview of the areas of concern within Wilmot. For ease of review, the data has been listed from the highest to lowest level of concern. This information will assist the Fire Chief and staff in with fire prevention and public safety awareness initiatives.

Fire Loss by Occupancy Classification

The analysis indicates that approximately 60 to 65% of the fires reporting a loss occurred in Group C - residential occupancies.

Township of Wilmot Fire Loss by Property Classification

Based on the information received, the following building classifications for property loss are noted in order of occurrence type:

- Group C – Residential occupancies
- Group F - Industrial occupancies
- Other occupancies not classified within the Ontario Building Code (i.e. farm buildings)
- Group A – Assembly occupancies
- Group D - Business and Personal Services Occupancies
- Group E - Mercantile occupancies
- Group B – Institutional Care or Detention occupancies

Township of Wilmot Reported Fire Cause

Assessing the possible cause of the fires reported is an important factor in identifying any potential trends or areas that may be considered for introducing additional public education of fire prevention initiatives as part of the community fire protection plan.

The leading causes of fire were:

- Electrical in nature
- maintenance deficiencies
- Arson
- Undetermined

[6] https://www.mcscs.jus.gov.on.ca/english/FireMarshal/MediaRelationsandResources/FireStatistics/OntarioFires/FireLossesCausesTrendsIssues/stats_causes.html

Township of Wilmot Ignition Source Class

The leading causes for ignition sources were:

- Heating equipment, chimney, etc.
- Appliances
- Cooking equipment
- Electrical distribution
- Lighting equipment
- Undetermined

A copy of the Community Risk Assessment is provided under separate cover.

It is recommended that the Fire Department staff continue to meet with relevant local community groups to form a partnership for organizing fire safety and public education events that can be tailored to the unique needs and challenges within the community. These events can be based on the previous fire cause information supplied. An example of community groups would be a local group that wish to promote fire safety in the community or any local Lions Clubs (or other clubs) that want to support fire safety initiatives. The key is to reach out and take advantage of these groups to assist the Fire Department with its efforts towards ensuring safer communities.

3.4 Fire Underwriters Survey

The Fire Underwriters Survey (FUS) is a national organization that provides data on public fire protection for fire insurance statistical work and underwriting purposes of subscribing insurance companies. Subscribers of FUS represent approximately 85% 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 defences maintained in built up communities (including incorporated and unincorporated communities of all types) across Canada. The results of these surveys are used to establish a Public Fire Protection Classification (PFPC) for each community. While the 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 amount of risk they are willing to assume in a given community or section of a community.

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

The Fire Underwriters Survey also uses PFPC information to develop the Dwelling Protection Grade (DPG), which is utilized by Personal Lines insurers in determining property insurance rates for detached dwellings (with not more than two dwelling units). The Dwelling Protection Grade is a measure of the ability of the protective facilities of a community to prevent and control the structure fires in detached dwellings by evaluating the adequacy, reliability, strength and efficiency of the protective facilities and comparing the level of protection against the level of fire risk associated with a typical dwelling.

The fire insurance grading system used does not consider past fire loss records but, rather, fire potential based on the physical structure and makeup of the built environment. When a community improves its PFPC or DPG, insurance rates may be reduced, and underwriting capacities may increase. Every insurance company has its own formula for calculating their underwriting capacities and insurance rates, however, the PFPC and DPG classifications are extremely useful to insurers in determining the level of insurable risk present within a community.

It should be noted that the Fire Underwriters group recommends that a community should have one Fire Prevention Officer for every 15,000-20,000 population. Based on Wilmot's present population of 21,000, which is anticipated to grow to 29,000 over the next 10 years, it is advisable that an additional part-time Fire Prevention/Public Safety Education Officer be hired as per recommendation 9. This position could evolve into a full-time position as the population and demand for inspections increases.

Recommendation(s)

Rec #	Recommendation	Estimated Costs	Suggested Timeline
2	Fire Chief to continue monitoring response times along with how many times, if any, that a full response component was not amassed. This type of information can be utilized to identify any future needs and/or considerations for the incorporation of a partial full-time response component.	Staff time	Continue and Ongoing
3	Continued emphasis on additional staff time spent in fire prevention related activities. In addition to public education, there should be an emphasis placed on assessing buildings stock within the community to identify types and number of hazards that may exist.	Staff time. Amount depends on actual time spent by staff over and above regularly scheduled hours.	Short-term (1-3 years) and ongoing
4	It is recommended that the Community Risk Assessment (CRA) provided by EMT be updated every five years or as necessary in accordance with the new Provincial Legislation, in conjunction with the NFPA 1730 standard. There is merit in providing an updated assessment at the beginning of every term of Council so that the sitting Council understands the platform on which the services conducted by the Fire Department are built.	Staff time	Ongoing and after each election
5	The Fire Prevention Division review its inspection program to identify levels of desired frequency as noted in the FUS Suggested Frequency Chart, annually tracking the number of hours spent on inspections.	Staff time	Continue and Ongoing
6	The Fire Department should continue to meet with local community groups to form a partnership for organizing fire safety and public education events.	Staff time	Continue and Ongoing

SECTION 4 – Department Staffing & Programs

4.1 Overview

4.2 Administration Division

4.3 Training & Education Division

4.4 Fire Prevention and Public Education

4.5 Recruitment and Retention of Volunteer Firefighters

Section 4: Department Staffing & Programs

4.1 Overview

Within the scope of work noted in the original Request for Proposal document, staffing needs was identified as a priority in which EMT was to review the capabilities of existing staffing and identify future needs for each of the divisions including Suppression, Training, Prevention, and Administration.

When considering the overall staffing needs for the Department, some of the key questions that should be considered are:

- Is there a proper level of senior staff to manage the Department and its divisions?
- Is there adequate administrative support staff to assist with such things as records management and addressing day-to-day operations of the Department?
- Is there a need for other support staff in relation to vehicle and facility maintenance?
- When does a fire department need to consider moving from a volunteer service to a composite or full-time fire service – or does it?

This section will discuss the following divisions:

- Administration
- Training
- Fire Prevention
- Fire Suppression

There is no identified standard dictating how many firefighters are required within a given population or whether the Fire Department needs to be composed of full-time, composite (blend of full-time and volunteer firefighters) or volunteer staff. With that in mind, it is evident that call volumes for the WFD will increase, simply based on the influx of people, traffic, industry, and housing over the next 10 years. As such, a careful monitoring of call volumes and response times is critical when it comes to determining if the Fire Department is keeping up with its response expectations.

EMT requested a full three years of response data to establish a reliable baseline for identifying how well the Fire Department is meeting industry response standards such as those noted in the NFPA.

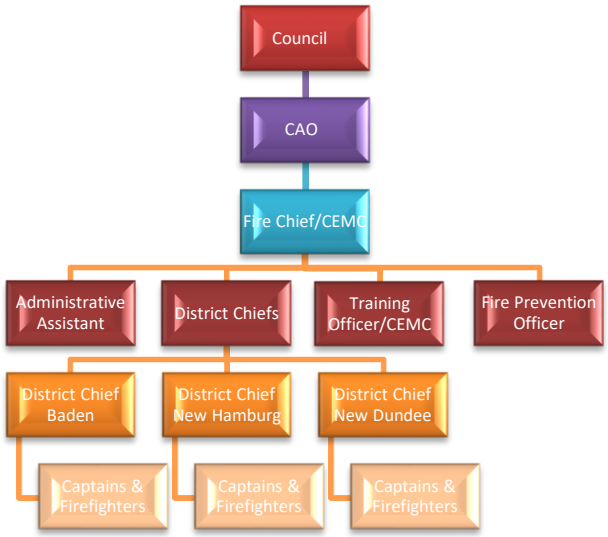
Some municipalities have referred to other similar sized municipalities as a guide for staffing numbers and types (i.e. career or volunteer). It must be kept in mind, however, that every community is unique in its geographical composition, population demographics, and size of residential, commercial, and industrial sectors. Community comparisons should therefore be utilized with all the aforementioned information in mind.

4.2 Fire Department Organizational Overview

Based on the *Fire Protection and Prevention Act*, 1997, section 6(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." However, as noted earlier in this document, the Fire Chief of the Wilmot Fire Department reports to the Township's Chief Administrative Officer (CAO) in a council-manager style of government. This reporting system does allow for the Fire Chief to present reports and updates to Council.

The Fire Chief serves as the head of the Fire Department and is supported by:

- One Administrative Assistant
- One Fire Prevention/Public Education Officer
- One part-time Training Officer



To make an informed decision on staffing requirements, consideration is dependent on the following points:

- Does the Fire Department have an approved response criterion as a baseline?
    - Has the Township given direction to the Fire Chief (based on his recommendations) on expected response times that are to be met by the Fire Department?
        - If so, is the Department meeting this response criterion on a consistent basis or is it struggling to meet the response times and, perhaps, falling behind?
- Does the Department have issues/concerns with getting enough volunteer firefighters to respond during daytime hours (or other times) on a consistent basis to ensure a viable level of response?
- What local and national standards and guidelines exist to help direct the Fire Department in its decisions relating to station location and staffing models?
    - Specifically, NFPA 1720 along with reference to the CFAI "industry best practices" recommendations
- What increase or decrease in population and industry is occurring that may precipitate more or less fire stations and staffing?

For fire departments in Ontario, reference can be made to the Public Safety Guidelines that are created and distributed by the Office of the Fire Marshal and Emergency Management. These

Guidelines advise fire services in relation to all aspects of delivering fire prevention, fire suppression and fire station location programs.

There are also industry best practices in the form of the National Fire Protection Association's 1201 and 1720 standards, which guide:

- 1201 – Standard for Providing Fire and Emergency Services to the Public
- 1720 – Standard for Volunteer Fire Departments

4.2.1 NFPA 1201 – Standard for Providing Fire and Emergency Services to the Public

The Fire and Emergency Services Organization (FESO) shall provide customer service-oriented programs and procedures to accomplish the following:

1. Prevent fire, injuries and deaths from emergencies and disasters
2. Mitigate fire, injuries, deaths, property damage, and environmental damage from emergencies and disasters
3. Recover from fires, emergencies, and disasters
4. Protect critical infrastructure
5. Sustain economic viability
6. Protect cultural resources

4.2.2 NFPA 1720 – Volunteer Fire Departments

Wilmot Fire & Emergency Services is a Volunteer Fire Department that is supported by full-time day staff that consist of the Fire Chief, Administrative Assistant, and a Fire Prevention Officer and Part-time Training Officer.

> ***Note:*** *Although the Firefighters for Wilmot are considered Volunteers under the Fire Protection and Prevention Act., they are actually paid on call staff, who are remunerated for the work and training they do.*

NFPA 1720 for volunteer fire departments, chapter 4.3.1, notes the following for the deployment of volunteer firefighters:

"The fire department shall identify minimum staffing requirements to ensure that the number of members that are available to operate are able to meet the needs of the department."

4.2.3 Staffing and Response Time

- *In Urban areas (population greater than 1000 per square mile), there should be a minimum response of **15 staff within 9 minutes**, 90 percent of the time*

- *In Suburban areas (population of 500 – 1000 per square mile), there should be a minimum response of **10 staff within 10 minutes,** 80 percent of the time*
- *In Rural areas (population of less than 500 per square mile), there should be a minimum response of **6 staff within 14 minutes,** 80 percent of the time.*[7]

The Fire Department should endeavour to meet the stated minimum response standards based on responding to a 2,000 ft^2 single-family dwelling. The dwelling (noted in the Standard) does not have a basement or other exposures (buildings close enough to each other to create a greater possibility for fire spread). Most homes in Wilmot, however, have basements and are built close enough to each other to create an exposure risk for potential fire spread, which must be considered by the Fire Department in its response efforts.

WFD is diligently working to meet the 1720 standard in relation to population versus staff/ response times. Based on response data review and discussions with the Fire Chief, WFD is meeting the response criteria in most cases. It should also be noted that with its complement of dedicated volunteer staff, they are also doing an admirable job at meeting the needs and expectations of the community, as noted by the input received through the community surveys and stakeholder meeting.

4.3 Considerations for Full-time Firefighters

Communities often ask when the Fire Department should consider moving to a career or composite (career and volunteer) model, thus reducing the reliance on its volunteer firefighters. There is no document that specifically identifies the tipping point for this move. It is based on the level of service set by the community's Council, coupled with regular reports by the Fire Chief on how the Department is meeting service level expectations.

There are many factors including the number of volunteer firefighters arriving when paged out, how quickly they respond to the page, what the turnout numbers are based on, the time of the day, and day of the week (e.g. availability, day shift vs. night shift), etc. Volunteer firefighters must be provided with the same minimum training certifications and equipment as career firefighters.

Recruitment and retention of volunteers is becoming more of a challenge within the fire service with the increase in training that must be committed to on an annual basis and with staff turnover. As with many volunteer fire departments, the daytime hours from Monday to Friday are the greatest challenge for volunteer response due to fact that many volunteer firefighters are either at work, school, vacation, away weekends, or even taking care of family related matters.

[7] https://www.nfpa.org/codes-and-standards/all-codes-and-standards/list-of-codes-and-standards/detail?code=1720

Another indicator for making this decision (to include a full-time component) is tracking the number of volunteer firefighters that arrive at the fire station to respond. If, for example, the standard set by a fire department is that three or more volunteer firefighters must arrive at the station before the fire truck can respond, this should be monitored along with how many times the department is unable to assemble the needed personnel to effectively respond based on time of day and day of the week. Continued monitoring of this data will assist with future fire service needs.

Going to a composite or full-time service is a large cost to the community (which could cost as much as $2-2.5 million for each 24/7 truck staffed by career firefighters) and therefore many communities have accomplished this in stages to meet the present needs of the community. Wilmot's model of a volunteer fire department is a very cost-effective form of fire protection for a community of its size. WFD is currently doing an admirable job meeting the needs of the community and keeping in line with the noted NFPA standard. In moving forward, all of the previously noted information needs to be considered and measured (as required) to either verify and support the continued effectiveness of the volunteer firefighter model or perhaps present a future need to move to a partial full-time component.

Having noted all this information, at this time EMT is not recommending moving towards a full-time component; only that consideration is given as call volumes and response times increase.

4.4 Administration Division

The administration division is comprised of senior staff and administrative staff. In Wilmot this includes the Fire Chief and Administrative Assistant.

4.4.1 Commission on Fire Accreditation International

The CFAI Accreditation program has a specific section that evaluates the administration component of a fire department. In this section the following points are noted:

Category 9C: Administrative Support and Office Systems

Administrative support services and general office systems are in place to conduct and manage the agency's administrative functions, such as organizational planning and assessment, resource coordination, data analysis/research, records keeping, reporting, business communications, public interaction, and purchasing.

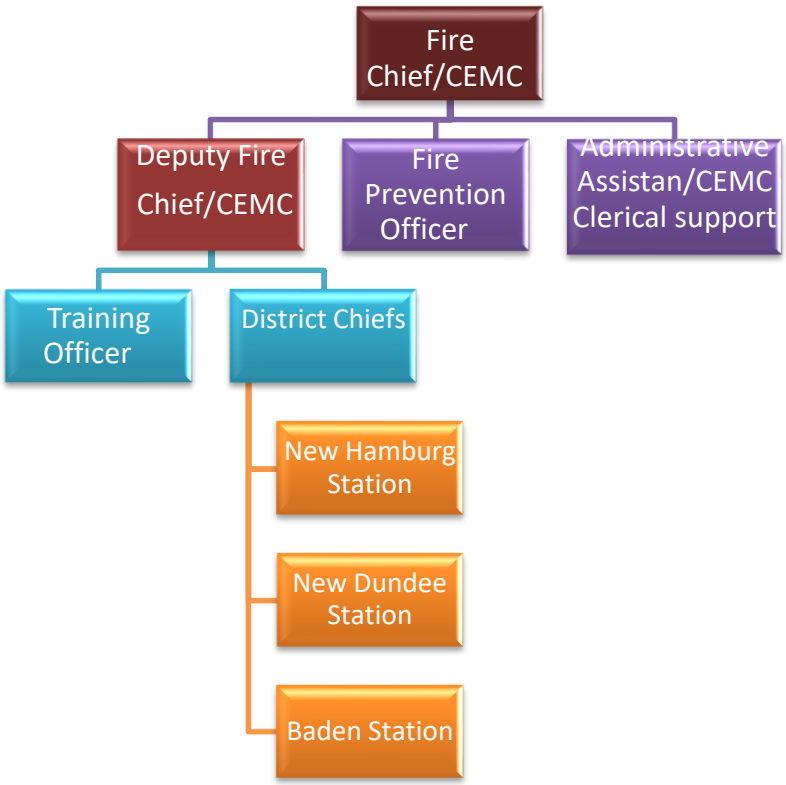
Due to the growing demands of the WFD, the administrative staff (Fire Chief and Administrative Assistant) are challenged to meet the daily demands of the Department, along with ensuring that all Departmental data and documents are kept up to date. Being that the Department has no Deputy Fire Chief, the Fire Chief is expected to be on call 24/7, along with attending evening Council and Community meetings and attends weekday and weekend training sessions.

As seen in TABLE 2: Fire Department Comparable and Population Ratio (on page 28), the Wilmot fire department has an administrative staffing level of communities' half the size and staffing levels smaller than similar sized communities.

Having either a full-time or even a part-time Deputy Fire Chief would greatly reduce and distribute the workload, along with allowing for a more effective level of supervision amongst the divisions within the Department (Suppression, Training, Fire Prevention, Emergency Management, and Administration). The Deputy Chief could oversee training and CEMC positions rolled into one, along with assisting in oversight of the Suppression Division.

If the Township decides to create a Deputy Chief position that would work approximately 21 hours a week the new reporting structure could be set up with the following option:

FIGURE 5: New Department Organizational Chart – with Part-Time Deputy Chief



Fire Department Staff Related Concerns/Comments Received from Internal Surveys:

In relation to the Department's organizational structure, responses from the internal surveys had noted that the creation of a Full-time Deputy Chief/Training Officer might be the route to follow to help distribute workload and create a more effective level of supervision amongst divisions with the department (Suppression, Training, Fire Prevention, Emergency Management and Administration). The proposed position could also be designated Alternate CEMC for the Township.

As for the Deputy Chief position, this has been put forward by EMT, but in a part-time capacity at this time and may be considered as a full-time position in the future based on Department needs.

4.5 Training and Education Division

A fire service is only capable of providing effective levels of protection to its community if it is properly trained (and equipped) to deliver these services. Firefighters must be prepared to apply a diverse and demanding set of skills to meet the needs of a modern fire service. Whether assigned to Communication, Administration, Fire Prevention, or Fire Suppression, firefighters must have the knowledge and skills necessary to provide reliable fire protection.

In relation to training and professional development, NFPA 1201 – *Providing Fire and Emergency Services to the Public* notes:

- **4.11.1 Purpose.** The Fire & Emergency Services Organization shall have training and education programs and policies to ensure that personnel are trained, and that competency is maintained to effectively, efficiently, and safely execute all responsibilities.[8]

In WFD, the responsibility for department training falls under the scope of the part-time Training Officer who is responsible for identifying, with the input from the Fire Chief, District Chiefs (DC's) and Assistant District Chiefs (ADC's), the training needs of the suppression staff based on industry requirements. The Training Officer is responsible for planning and tracking the training of all Fire Department staff in addition to numerous other duties.

The part-time Training Officer is very active in ensuring that all required training programs are being addressed to the best of the Department's ability.

During the completion of this FMP, EMT was advised that a second contract part-time Training Officer was hired.

Another option that was discussed for future consideration is the creation of a joint Training Officer's position through the joint township service delivery review project. That would work with all the

[8] https://www.nfpa.org/codes-and-standards/all-codes-and-standards/list-of-codes-and-standards/detail?code=1201

Volunteer Fire Departments to create a more focused and consistent level of training between the Volunteer Departments. Such a position has been created with the townships within Wellington County and has proven to be very effective in relation to creating a standardized level of training amongst the partner departments.

Training requirements for volunteer firefighters has changed a great deal over the years. OFMEM is currently looking at mandatory training requirement for all firefighters, volunteer, and career. These challenges require careful consideration to find a balance of flexibility for the department to remunerate firefighters for their actual training time while respecting their personal time. Firefighter training is a mandatory requirement, therefore EMT recommends WFD further investigate the overall training program commitment and remuneration. This review should be included with recommendation #13 and considered during the annual budget process.

This would assist the Training Division in meeting training and competency requirements for such topics as:

- Emergency medical training
- Motor vehicle fires and extrication
- Structure fires
- Hazardous materials awareness training
- Water rescue Technician, Operations and Awareness training
- Incident Command
- Driver and pump operations training, etc.

4.5.1 Training Facilities

WFD should be commended for utilizing the training facility at Waterloo Region Emergency Service Training and Research Centre (WRESTRC) to conduct hands-on programs such as live fire training and other specialized programs that require specialized training props outside of those available at the fire station. WFD is fortunate to have the WRESTRC within the Township's borders. This training facility is located close enough to use without having the volunteer firefighters outside of the region. This is a great benefit to the Department in relation to conducting complex training exercises that is outside the scope of what can be accomplished at the fire station.

EMT has noted and recommends that Station 2 New Dundee removes turnout gear from the open floor space of the apparatus bay. This open space will require some interior renovations to accommodate this requirement and to enclose the laundry room. As a result of this construction a mezzanine would become available and create a training space as an enhancement to firefighters attending WRESTRC. It should be noted that laundry equipment was installed in strategic locations within the space to allow for the addition of the room without the need to move any equipment. Several training opportunities could be accommodated in this space to allow for the addition of

training props such as a mock fire alarm system, standpipe and sprinkler system, wall breach, ventilation dynamics and more. EMT is recommending further investigation into incorporating this low-cost training prop opportunity and as such, no costing is provided. Costing would depend on the magnitude of the training module.

4.5.2 Commission on Fire Accreditation International

The CFAI Accreditation program has a specific section that evaluates the training component of a fire department. In this section the following points are noted:

- Category VIII: Training and Competency
    - *Training and educational resource programs express the philosophy of the organization they serve and are central to its mission. Learning resources should include a library; other collections of materials that support teaching and learning; instructional methodologies and technologies; support services; distribution and maintenance systems for equipment and materials; instructional information systems, such as computers and software, telecommunications, other audio visual media, and facilities to utilize such equipment and services. If the agency does not have these resources available internally, external resources are identified, and the agency has a plan in place to ensure compliance with training and education requirements.*

The Fire Chief and Training Officer are aware of the program needs and facility requirements and have indicated that the Training Officer is tracking much of this; however, to verify in a more formal manner that the Training Division is meeting the related NFPA program recommendations, the Training Officer should continue to identify and track the following:

- What training programs are required in relation to the services that WFD is providing
- The number of hours that are required to meet each of those training needs
- Resources required to accomplish this training
- Joint partnerships with bordering fire departments and private organizations that can be entered to achieve the training requirements identified by the Training Officer
- An annual program outline at the start of each year to the Fire Chief, with noted goals and expectations and completion success rate

To complete the evaluation or the Department's training programs and related successes in meeting the training needs of the firefighters, EMT is recommended the following:

- The Township should be commended for adding a 2nd part-time training officer to further assist with recommendations found in this report.

- The Fire Chief meet with bordering fire departments to discuss the option of sharing a full time Training Coordinator's position. This relationship has been utilized with the townships in Wellington County to assist with such things as:
    - Consistent training amongst neighbouring fire departments
    - Meeting NFPA certification requirements
    - Coordinating AS&E exams
    - Organizing specialized training programs such as Hazardous material, Pumper Operations and more
    - Assisting with training records management, and
    - Scheduling of training programs amongst neighbouring fire departments

4.6 Fire Prevention and Public Education

Fire prevention and public education are number one in relation to the three lines of defence as noted by the Office of the Fire Marshal and Emergency Management. NFPA 1730 is the standard relating to Fire Prevention and Public Education. Presently, there is one full-time Fire Prevention officer that is doing well in relation to meeting the legislated (mandatory) inspections, while at the same time trying to be a proactive as possible based on hours available after completing the mandatory inspections.

As previously noted, the Fire Underwriters group recommends that a community should have one Fire Prevention Officer for every 20,000 population. Based on Wilmot's present population of 21,000, which is anticipated to grow to 28,500 by 2031, it is advisable that within 1 to 3 years, a part-time Fire Prevention/Public Safety Education Officer be hired. This position could evolve into a full-time position as the population and demand for inspections increases.

Firefighter Related Concern/Comment:

Create an additional part-time Fire Prevention Officer/Public Educator to help distribute workload, along with growing and enhancing public education within the township. This position will assist with proactive inspections and enforcement that does not currently exist in the township. This position would focus on public education which requires a significant time commitment to build community-based relationships and develop local curriculum.

As already noted, EMT is not recommending an additional full-time position (1 to 3 years). It is our opinion that a part-time position will suffice for the present.

In relation to fire prevention programs, NFPA 1730 notes that this review should be conducted at a minimum of every five years or after significant change. This standard also establishes a process to identify and analyze fire risks through a Community Risk Assessment (which has been completed

during this Fire Master Plan process). There are seven components of a Community Risk Assessment outlined in NFPA 1730:

1. Demographics
2. Geographic overview
3. Building stock
4. Fire experience
5. Responses
6. Hazards
7. Economic profile

4.6.1 Determination of Current Staffing Requirements

To determine the current staffing needs, NFPA 1730 outlines a five-step process within Annex "C" of the standard. This sample staffing exercise is not part of the requirements of the standard but forms a guide for informational purposes. The Fire Chief provides recommendations and guidance to Council to approve the level of service within the community. This level of service must be based off the local needs and circumstances.

The five-step process involves a review of the following items:

Step 1 – Scope of service, duties, and desired outputs

Identify the services and duties that are performed within the scope of the organization. Outputs should be specific, measurable, reproducible, and time limited. Among the elements can be the following:

- *Administration*
- *Data collection, analysis*
- *Delivery*
- *Authority/responsibility*
- *Roles and responsibilities*
- *Local variables*
- *Budgetary considerations*
- *Impact of risk assessment*

Step 2: Time Demand

Using the worksheets in Table C.2.2(a) through Table C.2.2(d), quantify the time necessary to develop, deliver, and evaluate the various services and duties identified in Step 1, taking into account the following:

- *Local nuances*

- *Resources that affect personnel needs*

Plan Review **-** *Refer to Plan Review Services Table A.7.9.2 of the standard to determine Time Demand.*

Step 3: Required Personnel Hours

Based on Step 2 and historical performance data, convert the demand for services to annual personnel hours required for each program [see Table C.2.3(a) through Table C.2.3(e)]. Add any necessary and identifiable time not already included in the total performance data, including the following:

- *Development/preparation*
- *Service*
- *Evaluation*
- *Commute (travel time to training sessions)*
- *Prioritization*

Step 4: Personnel Availability and Adjustment Factor

Average personnel availability should be calculated, considering the following:

- *Holiday*
- *Jury duty*
- *Military leave*
- *Annual leave/vacation*
- *Training*
- *Sick leave*
- *Fatigue/delays/other*

Example: Average personnel availability is calculated for holiday, annual, and sick leave per personnel member (see Table C.2.4).

Step 5: Calculate Total Personnel Required

Division of the unassigned personnel hours by the adjustment factor will determine the amount of personnel (persons/year) required. Any fractional values can be rounded up or down to the next integer value. Rounding up provides potential reserve capacity; rounding down means potential overtime or assignment of additional services conducted by personnel (personnel can include personnel from other agencies within the entity, community, private companies, or volunteer organizations).

Correct calculations based on the following:

- *Budgetary validation*
- *Rounding up/down*
- *Determining reserve capacity*
- *Impact of non-personnel resources (materials, equipment, vehicles) on personnel*[9]

More information on this staffing equation can be found within the NFPA 1730 standard. The Fire Prevention Officer should assess these five steps and evaluate their present level of activity and the future goals of the divisions.

To assist in this process, the Fire Prevention Officer should continue to track the actual time spent on each of the Fire Prevention related activities (ranging from site plan reviews, routine inspections, licensing, complaints, and requests, to name a few). Staff are presently entering public education events along with how many people attend these events and are to be commended for this.

By identifying the time spent on each project and collating this into baseline (approximate) times, the Fire Prevention Officer can use those hours spent as a baseline figure in applying future initiatives.

To further guide the fire department, the CFAI outlines the following for fire prevention and public education:

- A public education program is in place and directed toward reducing specific risks in a manner consistent with the agency's mission and as identified within the community risk assessment and standards of cover. The agency should conduct a thorough risk-analysis as part of activities in Category 2 to determine the need for specific public education programs.

The utilization of existing resources is a cost-effective option for the promotion of fire prevention and public education programs. To accomplish this, some fire departments have trained most, if not all their fire suppression staff to be certified to conduct fire prevention/public education inspections and programs. This not only brings more resources to the table; it also enhances the level of fire safety awareness by those trained staff.

WFD should continue working with firefighters in moving towards having more of its fire staff (based on those interested in this type of certification) trained and certified in the areas of fire prevention and public education to at least:

- NFPA 1031 – Fire Inspector I
- NFPA 1035 – Fire and Life Safety Educator I

[9] https://www.nfpa.org/codes-and-standards/all-codes-and-standards/list-of-codes-and-standards/detail?code=1730

Note: The Township should be reminded that volunteer fire department firefighters face a number of competing priorities. Having additional firefighters trained in fire prevention is ideal but the departments priorities for the volunteer firefighters should remain with training and emergency response which in itself presents challenges.

Current Condition

The Fire Prevention Officer tracks time spent doing inspections and general duties. The Fire Prevention Officer should continue to leverage the compiled information to identify any service delivery needs or gaps and present to the Fire Chief on a quarterly basis to assist with meeting fire prevention goals and objectives. This assessment can help to identify how many more hours would be required to meet the present demands of the Fire Prevention Division. As such, it is recommended that more detailed accounting of the FPO's time be tracked.

4.7 Recruitment and Retention of Volunteer Firefighters

The WFD, as with many other fire departments, is always challenged when it comes to retention of volunteer firefighters. In many cases, this is not a reflection of the fire department; it is simply a reflection of the need for many of these firefighters to move to other communities for work, educational, or even family needs. This puts a strain on the department in the areas of recruitment, training, and staffing of the fire stations. One of the issues some firefighters have identified is the high cost of housing in Wilmot and surrounding areas.

The results of a nationwide survey on the leading reasons why people stop volunteering can be found. When people were asked what made them leave their organization, the top answers were:

- No time to volunteer: 92.3%
- Conflicts in Organization: 47.8%
- Organizational leadership created an adverse atmosphere: 46.7%
- Too much training: 45.6%
- Attitude of existing personnel to newcomers: 39.1%
- Criticism received from officers/older member: 38.0%
- Lack of camaraderie: 19.5%

You will notice that the percentages do not add up, and that is because members who were surveyed were allowed to indicate more than one reason for leaving the organization. Until someone creates a time machine, departments will never be able to add more time. With that said, the things departments can control are conflicts in the organization, leadership, training, attitudes, criticism, and camaraderie.

The Fire Chief and Fire Management Team should be commended for their efforts towards retention of the volunteer firefighters. These efforts are seen through the creation of a pay scale that reflects

seniority and proper compensation for training time and other non-fire related endeavours such as fire prevention, and community involvement. The Fire Department has a formal recruitment program that includes an open house that allows prospects an opportunity to learn what is expected of them should they be successful in the recruitment process.

The Office of the Fire Marshal and Emergency Management (OFMEM) has put out a document on recruitment and retention in an effort to offer some criteria and/or guidelines that departments can utilize. Refer to Appendix D for the document.

Some of these points relate to enhancing training and special projects for the staff to become more involved in, such as:

- Long service awards in the form of remuneration or a stipend
- Education assistance programs to support staff in their professional development
- Increased training opportunities

While these concepts have great intentions, there is limited effect if the community is not offering the desired employment, education, or housing needs of the firefighters.

After EMT's review of the recruitment and retention of staff was completed, we would also put forth the following options for retention that go above and beyond with is noted in the OFMEM document. Options for consideration are:

- The Fire Chief meet with the CAO, Treasurer, HR, and other appropriate resources to provide a wholesome study of all remuneration programs for volunteer firefighters.
- This should include, at minimum, Training both internal and external, Work Party, On Call/Weekend Standby and any other applicable areas.
- The study should include feedback from department firefighters and utilize suitable comparable to support findings.

A review was also conducted by EMT with the original set of comparable communities and fire departments in relation to pay scales. The following chart provides a snapshot of how these departments pay their volunteer firefighters in relation to training wages. This topic of training was reviewed because some fire departments pay their volunteer firefighters at a lower hourly rate compared to the rate for responses to calls.

TABLE 5: Training Wage Comparison

Municipality	Training Wages Payment
Wilmot Township	**Hourly rate, based on rank, for 2 hours**
Centre Wellington	Hourly rate, based on rank, with no maximum
Uxbridge	Hourly rate, based on rank, for 2 hours; also pays for course time at same rate
Lincoln	Hourly rate, based on rank, at a maximum of 2 hours per week.
Lakeshore	Paid per training session at $55 per night, regardless of rank. Training sessions happen 2x per month for 2-3 hrs.
Strathroy-Caradoc	No information received

4.8 Certification

WFD continues to offer certification to all firefighters and must be commended for their recruit training program. When recruits finish the internal program, they are fully certified firefighters meeting the NFPA 1001 standard.

WFD continues the process of certifying its staff; the Department and its staff should be commended for this pro-active endeavour. This will put WFD in a very good position with the possible reintroduction of mandatory firefighter certification by the Province of Ontario.

Recommendation(s)

Rec #	Recommendation	Estimated Costs	Suggested Timeline
7	Create a part-time Deputy Chief position to help distribute the workload, along with allowing for a more effective level of supervision amongst the divisions within the Department (Suppression, Training, Fire Prevention and Administration).	Approx. $40,000 to $65,000, depending on hours for this position	Mid-term (4-6 years)
8	Continue to evaluate training programs are meeting relevant legislation, standards, and best practice recommendations that meet E&R Bylaw service levels. The Training Officer should: • Continue the current practice of publishing an annual training calendar and post in each fire station. • Identify what training programs are required annually in relation to the approved service levels that WFD is providing. • Identify the number of hours that are required to meet each of those training needs. • Identify the resources required to accomplish this training. • Investigate joint partnerships with bordering fire departments and private organizations that can achieve the training requirements. • Provide an annual program outline at the start of each year to the Fire Chief and Fire Management Team, with noted goals and expectations and completion success rate.	Staff time	Continue and ongoing
9	It is recommended that an additional part-time Fire Prevention/Public Safety Education Officer be hired. • Will evolve into a full-time position as the population and demand for inspections increases. • Will help to alleviate some of the present pressure on the FPO and better serve fire	Approx. $40,000 to $50,000, depending on hours for this position	Short-term (1-3 years)

Rec #	Recommendation	Estimated Costs	Suggested Timeline
	prevention and public education program development within the Township • Will provide the current FPO some additional time to increase frequency of inspections and public education events.		
10	Fire Prevention Officer continue to closely track time spent on each of the Fire Prevention activities. Reporting should include clearly identifying the number of public education events, demographic profile and the numbers of adults and children reached.	Staff time	Continue and ongoing
11	Fire department currently utilizes firefighter ranks to enhance annual fire prevention and public education events within the Township. EMT recommends the Department is to continue moving towards having more of the fire department staff cross trained and certified to at least: • NFPA 1031 – Fire Inspector I • NFPA 1035 – Fire and Life Safety Educator I And that the FPO continue to work with the VFFs and incorporate them into public education events and that VFFs be remunerated accordingly for their time.	Dependent on training hours required based on availability of courses and/or attendance at the OFC and availability/ interest of volunteer firefighters	Short-term (1-3 years), and Ongoing with new staff
12	The Department should continue its ongoing efforts towards certification for staff for each position (that requires or recommends certification) and ensure that certifications are maintained.	Staff time	Continue and ongoing
13	The Fire Chief should continue to investigate opportunities to promote retention of the volunteer firefighters as noted in the OFMEM document. The Fire Chief should continually recruit for volunteer firefighters in areas that are presently understaffed or have issues with response numbers to calls. EMT is also recommending:	No immediate cost for the first part of this recommendation; implementation costs of the merit and performance pay system will	Continue and ongoing

Rec #	Recommendation	Estimated Costs	Suggested Timeline
	The Fire Chief meet with CAO, Treasurer, HR, and other appropriate resources to provide a wholesome study of the volunteer firefighter remuneration system. This should include, at minimum, Training both internal and external, Work Party, On Call/Weekend Standby and any other applicable areas. The study should include feedback from department firefighters and utilize suitable comparators to support findings.	need to be evaluated.	

SECTION 5 – Fire Suppression and Dispatching

5.1 Fire Suppression/Emergency Response

5.2 Dispatching Services

Section 5: Fire Suppression and Dispatching

5.1 Fire Suppression/Emergency Response

As noted in the Township's RFP, the consultant is to "*assess all aspects of the fire service and fire protection service delivery in consideration of current industry standards and best practices, National Fire Protection Association (NFPA) related standards, the Ontario Fire Marshal and Emergency Management's Public Fire Safety Guidelines and Comprehensive Fire Safety Effectiveness Model, to determine optimal service levels and options for optimizing fire protection service delivery to meet the current and future needs and circumstances of the community*."

The Wilmot Fire Department is a volunteer department, and as such the NFPA 1720 standard for volunteer fire departments is applicable for this review. Today, fire departments are now measured by the NFPA standard. As such, it is advisable to use these NFPA standards as goals and guidelines to aim for by a fire department.

5.1.1 National Fire Protection Association (1720)

To provide the fire department clearer focus on what the ultimate goals for emergency response criteria are, the National Fire Protection Association (NFPA) suggests that response times should be used as a primary performance measure.

When considering the response times and needs of a community, the fire response curve (FIGURE 6) presents the reader with a general understanding of how fire can grow within a furnished residential structure over a short period of time. Depending on many factors, the rate of growth can be affected in several different ways, which can increase the burn rate or suppress it through fire control measures within the structure.

When we look at the response time of a fire department, it is a function of various factors including, but not limited to:

- The distance between the fire department and response location
- The layout of the community
- Impediments such as weather, construction, traffic jams, lack of direct routes (rural roads)
- Notification time
- Assembly time of the firefighters, both at the fire station and at the scene of the incident
    - Assembly time includes dispatch time, turnout time to the fire station, and response to the scene. It should be noted that assembly time can vary greatly due to weather and road conditions, along with the time of day as many firefighters are at their full-time jobs and cannot respond to calls during work hours.

As illustrated in the following fire propagation diagram, the need for immediate initiation of fire suppression activities is critical. WFD responds to more than just fires; for example, motor vehicle collisions can create a medical or fire emergency that needs to be dealt as soon as possible. Hence the reason to be as efficient and effective as possible in responding to calls for assistance.

FIGURE 6: Fire Response/Propagation Curve

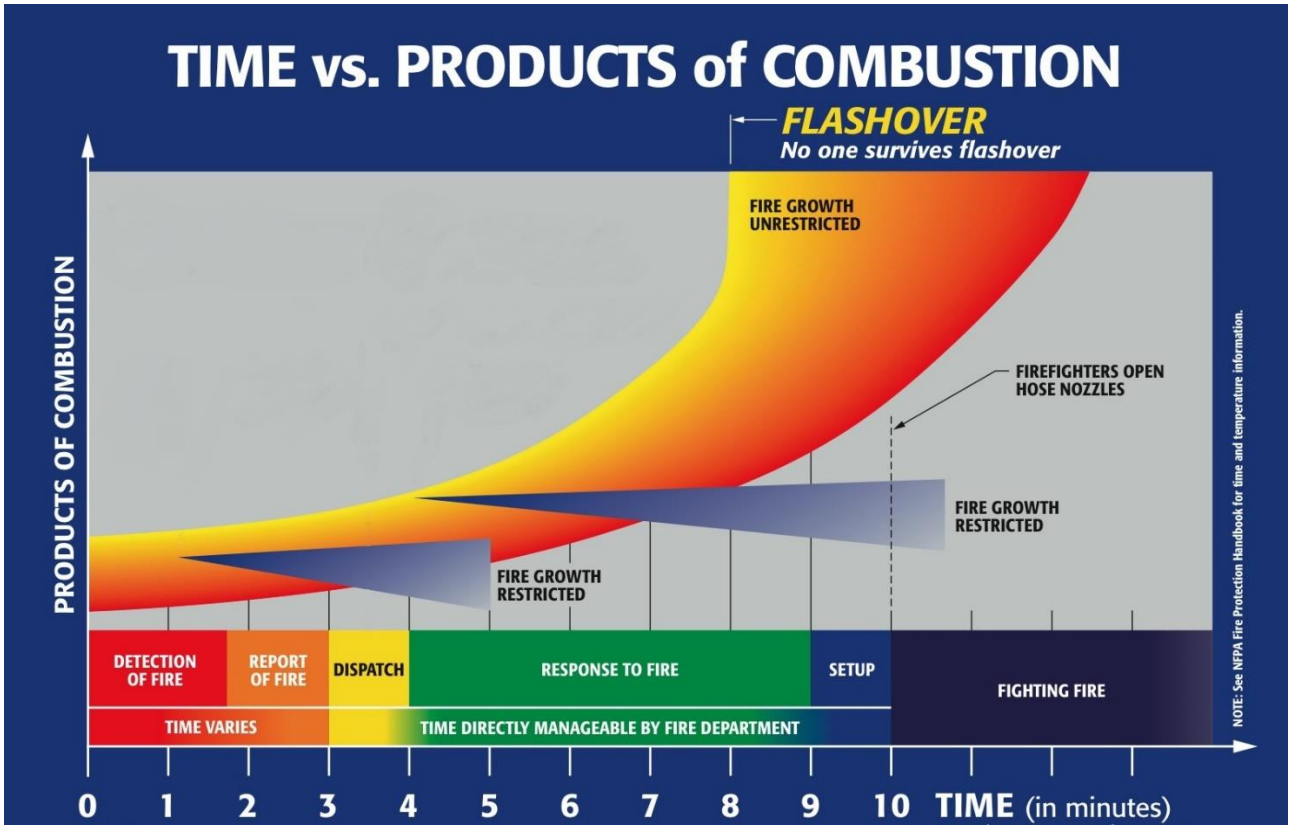


FIGURE 6 notes the following time variables:

- Detection of fire – this is when the occupant discovers that there is a fire. The fire may be in a very early stage or could have been burning for quite some time before being detected
- Report of fire – this is when someone has identified the fire and is calling 9-1-1 for help
- Dispatch – the time it takes the dispatcher to receive the information and dispatch the appropriate resources
- Response to the fire – response time is a combination of the following:
    - Turnout time – how long it takes the career firefighters to get to the fire truck and respond or how long it takes the volunteer firefighters to get to the fire station to respond on the fire truck
    - Drive time – the time from when the crew advises dispatch that they are responding, until the time that they report on scene
- Setup time – the time it takes for the fire crews to get ready to fight the fire, and
- Fighting the fire – actual time it takes to extinguish the fire on scene.

The overall goal of any fire department is to arrive at the scene of the fire and/or incident as quickly and as effectively as possible. If a fire truck arrives on scene in eight minutes or less, with a recommended crew of four or more firefighters, there is increased opportunity to contain the fire by reducing further spread of the fire to the rest of the structure. Alternatively, if the first fire attack team arrives with fewer than four firefighters on board, then it is limited to what operations it can successfully attempt.

Based on studies and evaluations conducted by the National Institute of Standards and Technology and the National Fire Protection Association, no interior attack is to be made by the firefighters until sufficient personnel arrive on scene. The expectation is that a minimum of three firefighters and one officer arrive on scene to make up the initial fire suppression team. This team of four can effectively do an assessment of the scene, secure a water source (fire hydrant), ensure the fire truck is ready to receive the water and get the fire pump in gear, as well as unload and advance the fire hose in preparation for entry into the structure. A team of four also allows for adherence to the recommended "two-in, two-out" rule, referring to the presence of two firefighters inside the structure with two outside ready to go in as back-up.

The Fire Chief must ensure that each station has a complement that allows for an initial full crew response to incidents. To accomplish this, a response protocol is in effect that ensures whenever a station and its firefighters are dispatched to any type of call where back-up may be required, another station is automatically dispatched to the same incident. WFD does currently dispatch multiple fire stations to high risk emergencies which demonstrates this departments commitment to firefighter safety and risk management.

5.1.2 Response Data

The following charts identify a comparison of response types and the response breakdown among the three fire stations for 2018. To view the 2016 and 2017 data, refer to Appendix G.

There needs to be a review of the future growth statistics and demographics of the community to understand where the potential future needs will be and where some efficiencies can be made. As such, WFD response times should continue to be monitored based on the OFMEM definition, which is from "dispatch time, to time of arrival at the incident"; in other words, from the time the call is received, to when the fire station or pager tones activate, to when the firefighters get on the fire trucks and arrive at the emergency scene location.

Performance measurements that the fire department could benefit from include monitoring:

- Response time: the total time from receipt of call (on 9-1-1) to the time the fire vehicle arrives at the incident location.
- Firefighter assembly time: time from page until the first vehicle is responding.

- Travel time: time tracked from when the fire vehicle has left the station until arrival at the incident location.
- Staffing time: time from the page until the appropriate number of firefighters are on scene (e.g. 10 firefighters).

Note: *In monitoring time measurements, the 80th percentile criterion is the recommended practice that is endorsed by the NFPA and CFAI. This data is more accurate since it is evaluating the times based on 80 percent of the calls, as opposed to averaging the times at the 50th percentile. For example:*

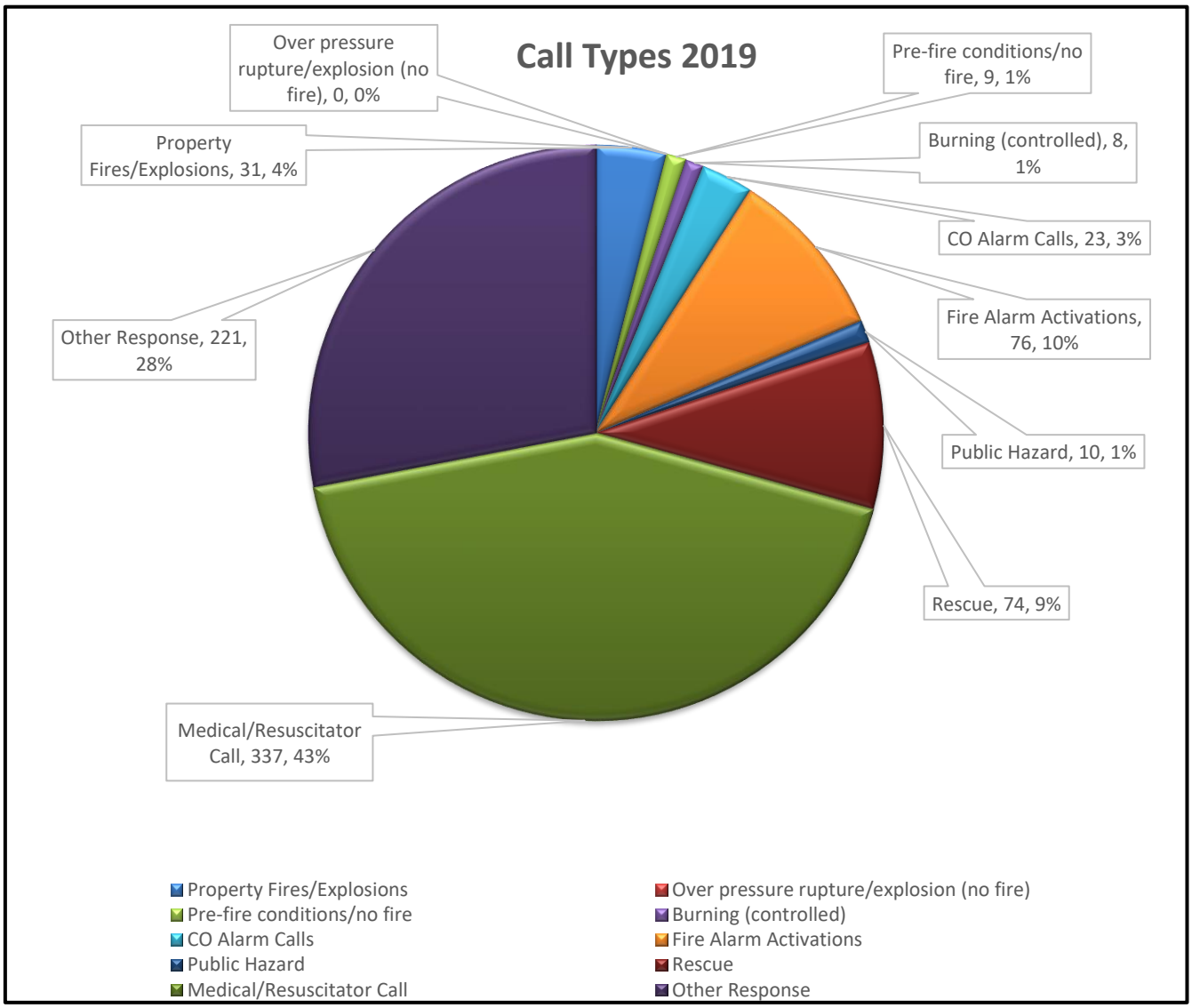
- *8 out of 10 times the fire department arrives on scene in 10 minutes or less, which means that only 20 percent of the time they are above that 10-minute mark,*
- *as opposed to 5 out of 10 times the fire department arrives on scene in 10 minutes or less, which means that 50 percent of the time they are above the 10-minute mark.*

The following set of charts (through the use of the supplied data) help to identify the types of calls that are creating the bulk of response demands and which station(s) are called upon the most for these responses.

FIGURE 7a: 2019 and 2018 Call Types

The following charts offer an overview of total calls and types per year by fire station. A more detailed overview by each year can be seen in Appendix G.

2019 Related Calls



As can be seen in the above chart, the top three types of calls that WFD responds to are:

1. Medical/resuscitator, which accounts for 43% of the Department's overall responses
2. Other Responses, which accounts for 28% of the Department's overall response. Other responses are those calls that do not fit into any of the above noted categories (i.e. a hazardous materials spill), and
3. Fire Alarm Activation calls for 10% of the Department's overall responses.

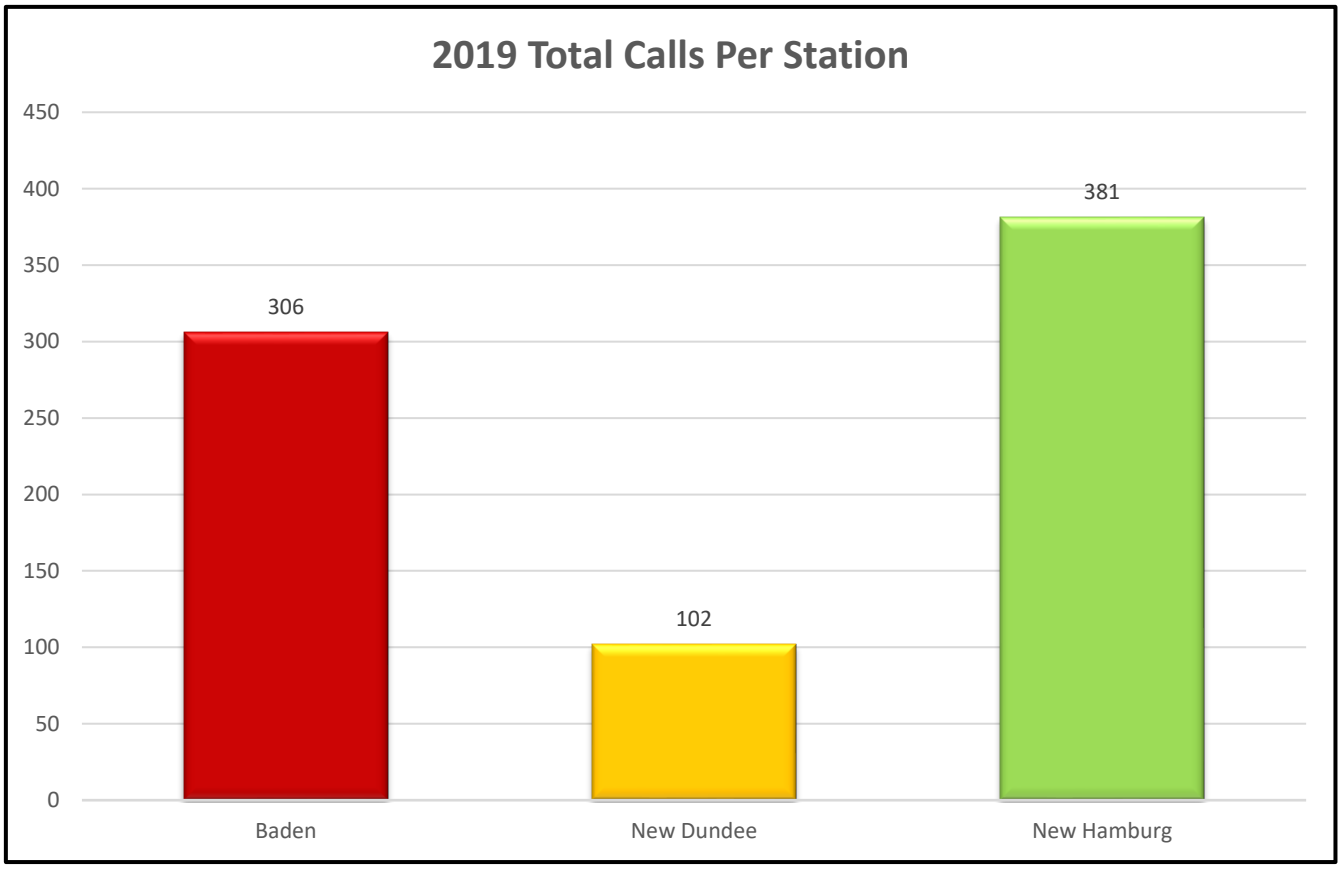
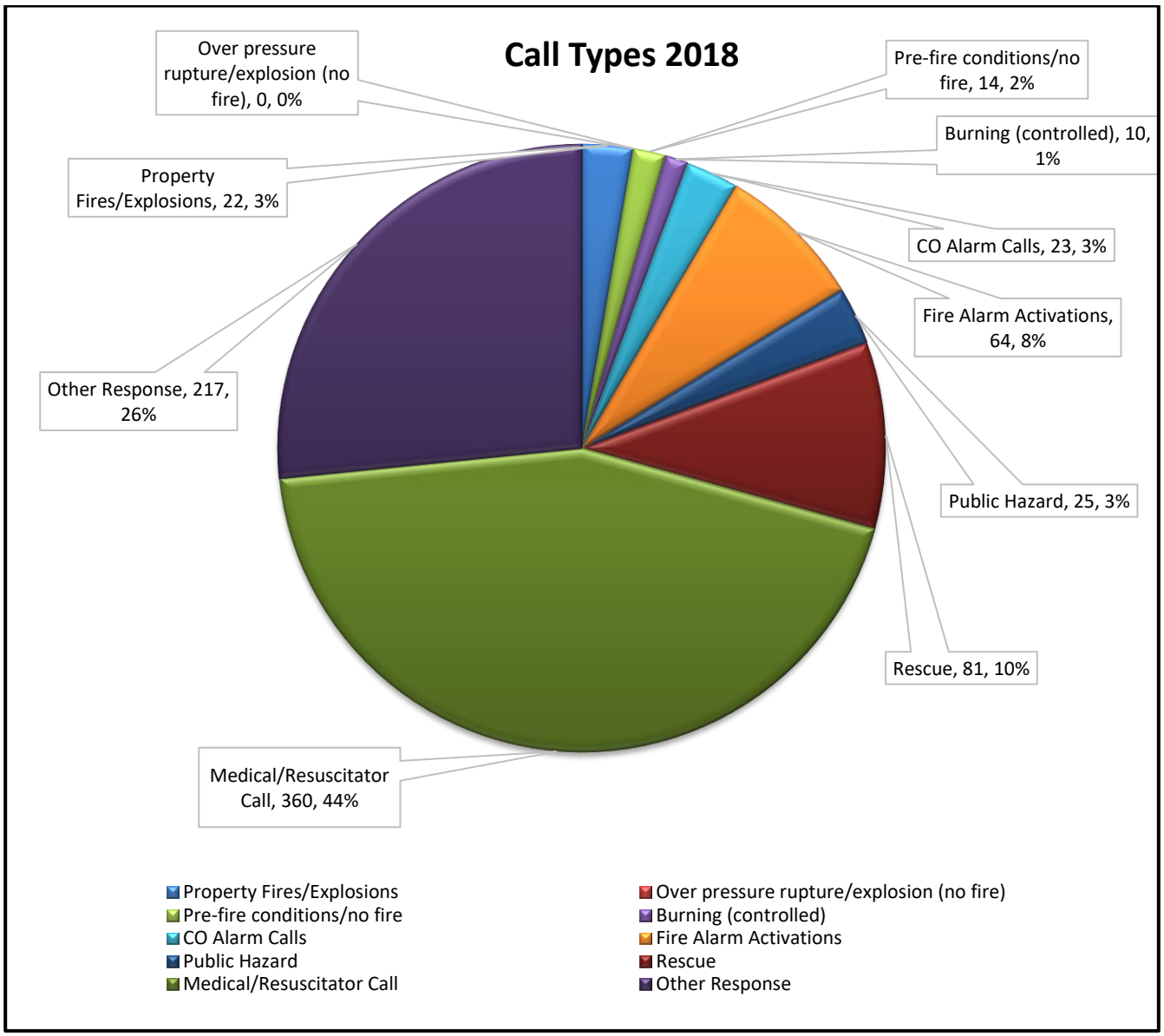

2019 Total Calls Per Station
450
400
350
300
250
200
150
100
50
0
306
102
381
Baden
New Dundee
New Hamburg

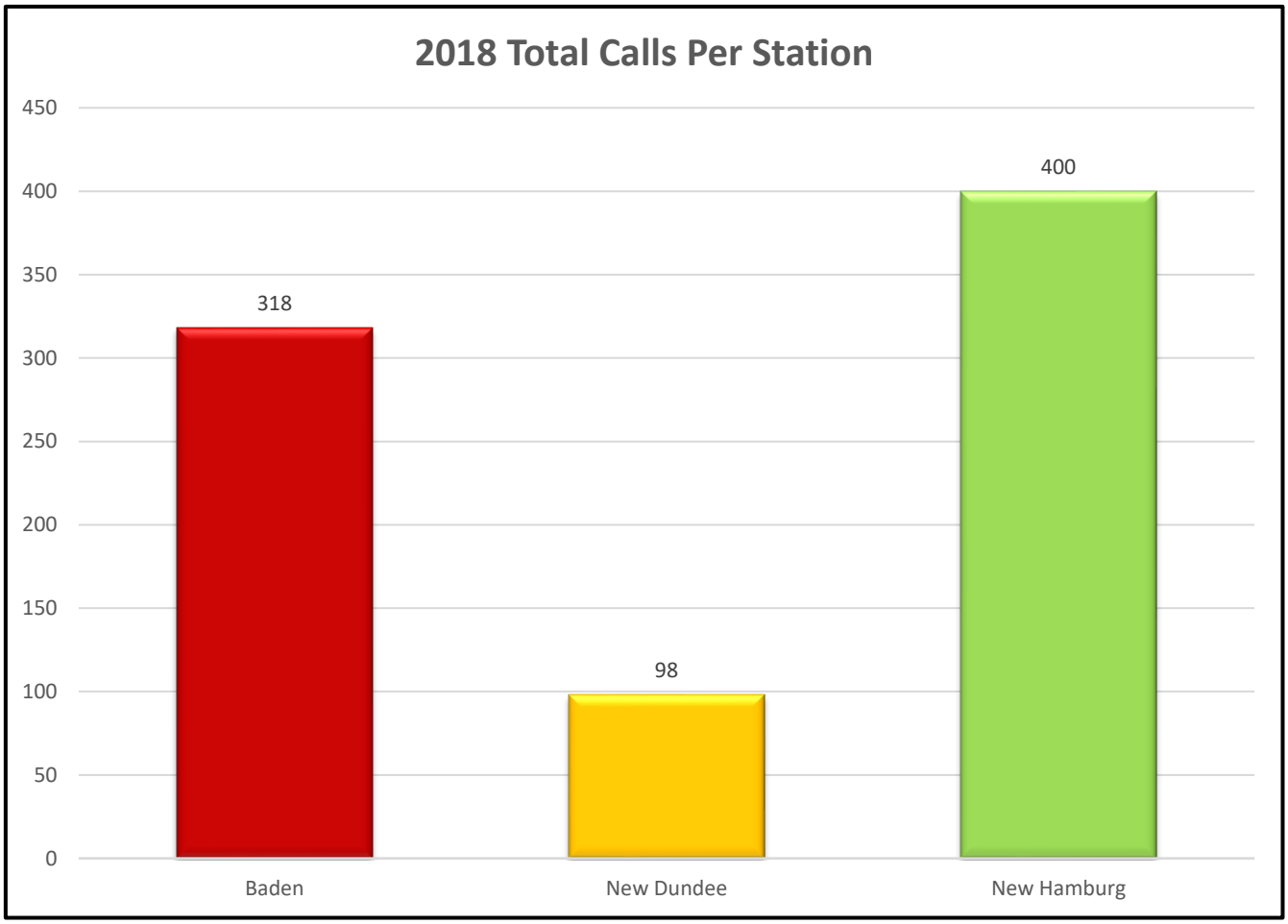
FIGURE 7b: 2018 Total Calls

Note: 2018 calls involved a major ice storm.



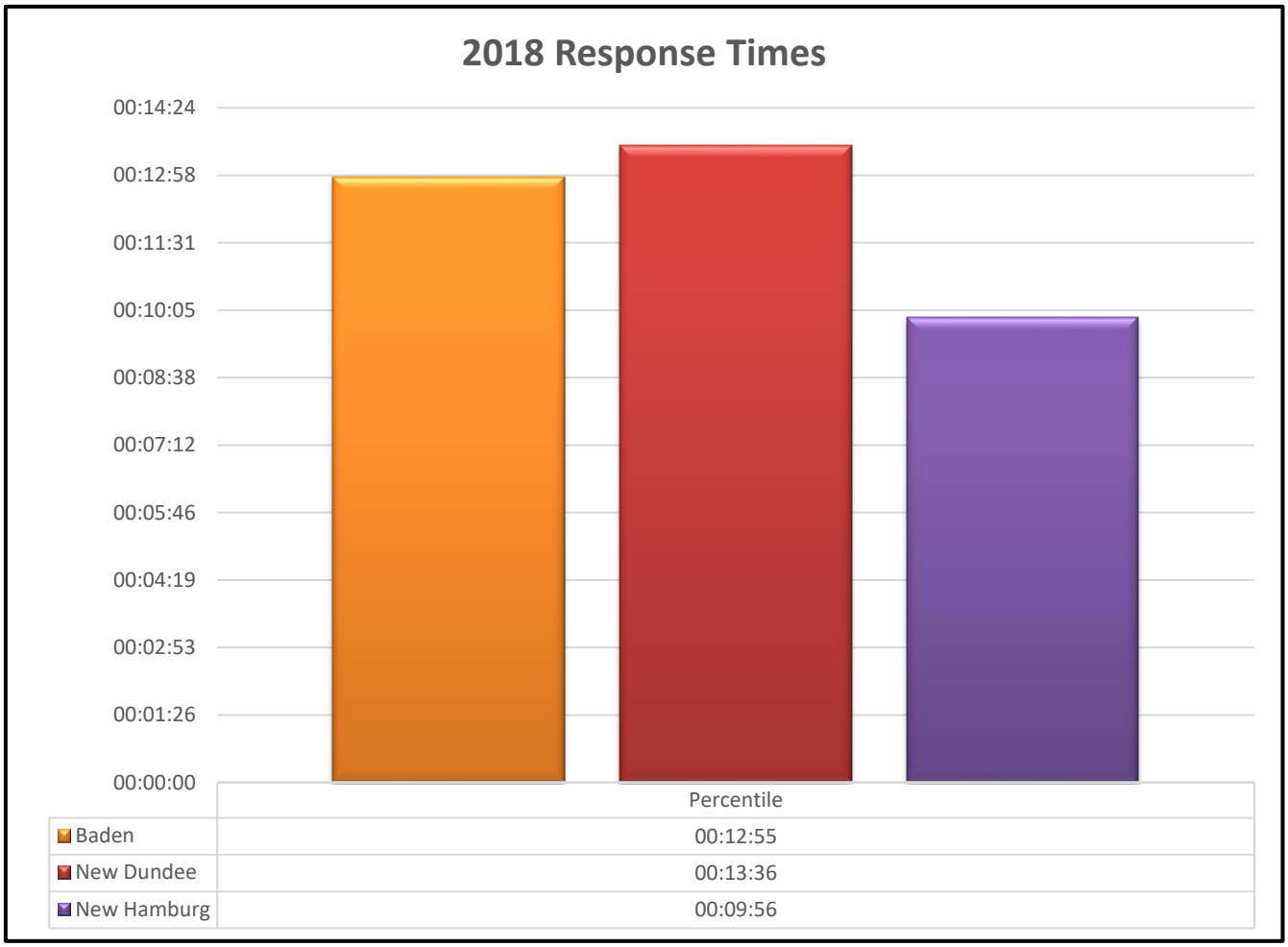
As can be seen in the above chart, the top three types of calls that WFD responds to are:

1. Medical/resuscitator, which accounts for 44% of the Department's overall responses
2. Other Responses, which accounts for 26% of the Department's overall response. Other responses are those calls that do not fit into any of the above noted categories (i.e. a hazardous materials spill), and
3. Rescue related calls, which also accounts for 10% of the Department's overall responses.



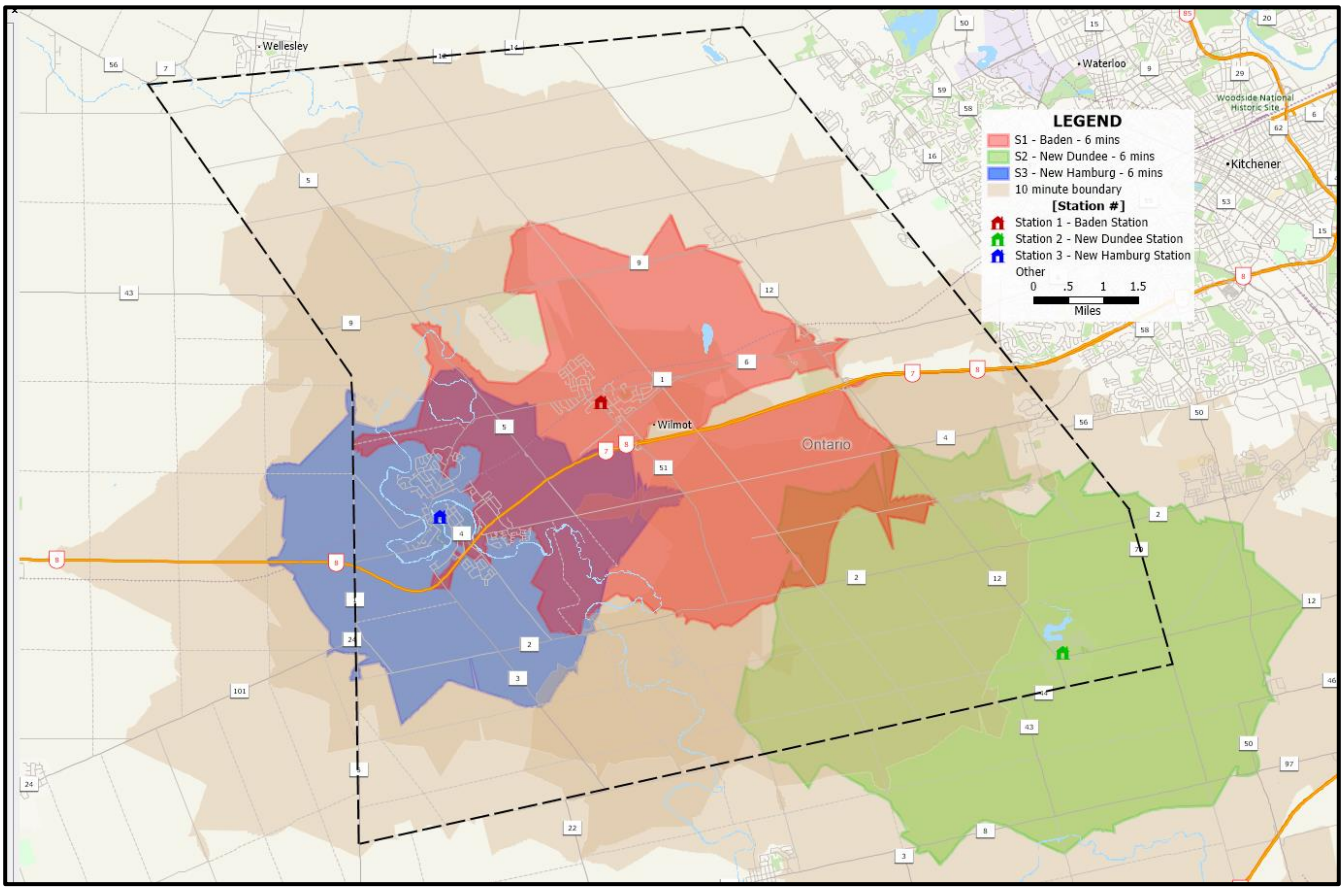
During the review of the call volumes it was noted that the New Hamburg station is responding to approximately 400 calls per year and that the Baden station attends 300+ calls per year. A key concern here is "burning out" of the volunteers. When a station reaches more than one call per day there is a real chance of not having sufficient staff to respond to those calls. This type of "burn-out" can also be a contributing factor to the retention of the firefighters. However, in conversation with the DCs and station personnel, there appears to be no sense of "burn out" happening within the department at this time.

Based on the previously noted information, the Fire Chief needs to continue the monitoring of call volumes, coupled with the times and level of staff who respond to those calls. If the volunteer firefighter numbers decline as call volumes increase, then the Township may consider the introduction of a semi-full-time complement. This semi-full-time complement could be in the form of daytime staffing only to cover the key times when volunteers are not available. The Township should keep in mind a number of factors contribute to this topic such as modifying medical calls to reduce call volumes which may reduce call volume burnout. Several communities throughout the Province have implemented this type of staffing as a cost-effective option to that of full-time coverage 24/7, which can cost up to $2.5 million per year.



Based on this information, the percentage comparison, calls per station and response times gives the Fire Chief and his staff the ability to monitor where the bulk of their resources are being utilized. This also offers greater focus for the Training Division to ensure that the firefighters are receiving training related to the types of responses that will demand a higher skill set.

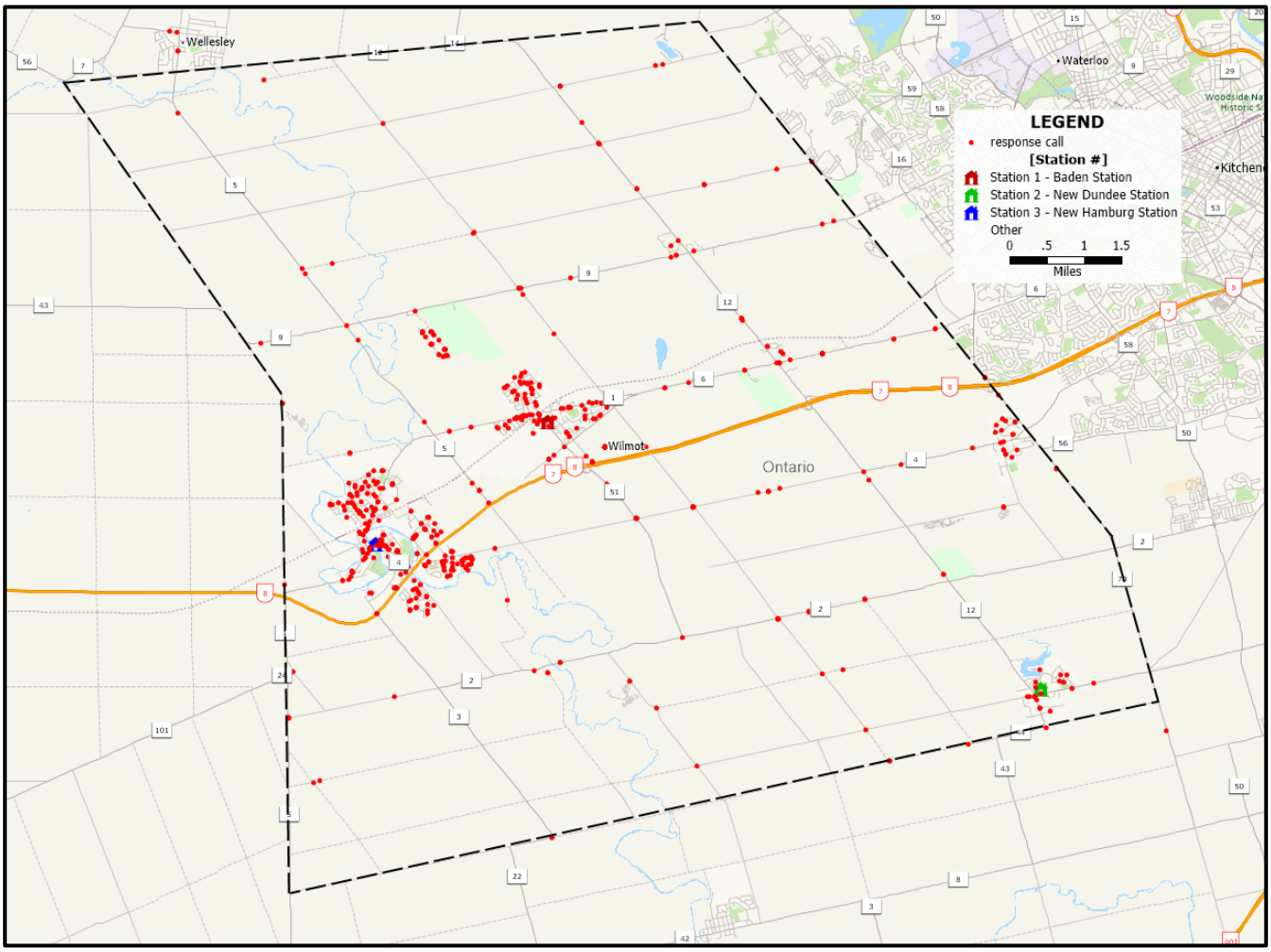
FIGURE 8: Response Zone Map



The response zone maps identify a solid level of coverage based on the NFPA recommended response times.

Another useful tool is to pinpoint where the bulk of the emergency responses are occurring. This 'clustering' of responses will help to identify where the majority of calls are occurring, which will indicate if the present fire station locations are properly positioned, or if there a shift in call locations that would suggest the possible need for the relocation of a fire station.

FIGURE 9: Call Cluster Map



At this time, all the fire stations are well situated to respond to the bulk of the calls responded to by the Department.

Although the NFPA response times are not mandated, it would be beneficial for the Fire Chief to be have a response time goal supported by the Township as a benchmark. As such, it is recommended that the Fire Chief present a response time goal for the approval of Council (which may reference NFPA 1720 – the expectation of 10 staff in 10 minutes (80th percentile)), and that performance measures are continuously monitored as part of the E&R Bylaw revision recommendation. This recommendation is only meant to provide the Fire Department a goal/guideline to aim for, not a mandated expectation.

5.2 Medical Responses

As noted in the previous breakdown of call types, medical responses account for 44% of all calls responded to by WFD. Changing the medical response agreement to targets life threatening

responses may provide a reduction in medical response calls. Since the Department is charged per call by Kitchener Fire dispatch, a reduction in medical responses would equate to a cost savings for the Department in relation to adjusting the level of responses.

This change in level of responses would not reduce the level of service to the community, it would in fact create a more focused/refined response criteria, by ensuring that WFD is being dispatched to calls that require immediate attention and demonstrates a clear ability for firefighters to administer lifesaving procedures based on training, tools and scope of practice. As such, it is recommended that WFD change their response protocol to have firefighters responding to the more critical type of calls. The Fire Chief could also implement the option of having the Department respond to medical incidents in which the EMS/Ambulance service is not available for 10 minutes or more.

This trend to focus medical responses by fire departments is being implemented by other fire departments such as North Dumfries, Woolwich, and Gravenhurst, to name a few. As already noted, the intent of these departments is not to lower the service to the public, but to refine it so that the fire department is more effective and responsible in the level of responses to the community.

5.3 Dispatching Services

Wilmot Fire Department receives its dispatching services from the Kitchener Fire Department. Based on information received, along with a review of the dispatching data, WFD is receiving adequate services from the Kitchener Fire Department.

EMT would like to acknowledge the significant investment in a joint partnership with Waterloo Regional Police, Fire Services within the Region and Kitchener Fire Dispatch with a modern digital radio system with interoperability and scalability that will serve Fire Services in the region for several years.

Kitchener is also responsible for activating the paging system to alert volunteer firefighters to respond. Volunteer departments operate on the regional P25 digital radio system. The present radio system provides the operational flexibility to operate through numerous talk groups at one time without impacting each other. This is particularly useful in large incidents or when mutual and/or automatic aid is required, and multiple departments are operating at the emergency scene.

Fire Department Staff Comments:

EMT has noted in this document that the new Next-Generation 911 radio system is planned for implementation within the next couple of years.

WFD has incorporated the “Who’s responding” program as a secondary avenue for dispatching of firefighters.

Many volunteer fire departments have implemented such a program because it helps to improve overall response, while at the same time, the program can track who is available, who is responding and even who is not available due to vacation or other commitments. WFD and the Township should be commended for adding this tool for volunteer firefighter use. The agreement with Kitchener details a fee for services provided along with related infrastructure and operations activities. The current agreement with Kitchener for call taking and fire dispatch reflects best practices and an effective strategy for the Wilmot Fire Department in providing these services.

As previously noted, the amount of calls that the WFD responds to is a concern in relation to the possibility of taxing firefighter resources. There are also the associated costs. Presently, the dispatching contract is on a "cost per call" agreement. So as call volumes increase, so does the cost, along with the possibility of having fewer volunteer firefighters responding to those calls.

Medical responses make up more than 44% of the calls that WFD responds to, it would make sense to find an option that could reduce the amount of medical calls that the Department responds to while ensuring critical medical calls are maintained. For example, by changing the response status for WFD to the more critical calls, Level "B", this may reduce the number of calls the Department responds to and at the same time, it would lower the dispatching fees. Therefore, EMT is recommending that the Fire Chief discuss with EMS services to have their response level set to the more critical type, Level "B", of medical calls. This will still offer members of the community the service they need when dealing with a medical emergency situation and aligns with the other Township fire services medical service level.

Vehicle Technology

As noted in the 2012 Master Plan, from a technological perspective, there are some additional technologies such as Automatic Vehicle Locators (AVL) that would further benefit the overall operations of the WFD. It is EMT's understanding that Global Positioning System (GPS) units were installed on all Township vehicles, including all fire apparatus, however, there are not linked to the dispatch system. EMT is supporting this recommendation; WFD should endeavor to have all fire department vehicles connected to the GPS system utilizing Mobile Data Terminals (MDT) which provide additional resources to responding crews such as pre-plans, fire safety plans, mapping resources, water supply locations and more.

5.2.1 Next Generation Communications (NG9-1-1)

In June of 2017 the Canadian Radio-television and Telecommunications Commission (CRTC) created regulations regarding the Next Generation Communications for 9-1-1 centres. The following is an excerpt from the CRTC website regarding the program and its benefits for enhancement to public safety communications.

Canadians depend on the provision of reliable and effective 9-1-1 services to seek help in an emergency. As technology and consumers' needs evolve, so do consumers' expectations related to 9-1-1 services. In the coming years, telecommunications networks across Canada, including the networks used to make 9-1-1 calls, will continue to transition to Internet Protocol (IP) technology. This will enable Canadians to access new, enhanced, and innovative 9-1-1 services with IP-based capabilities, referred to as next-generation 9-1-1 (NG9-1-1) services. For example, Canadians could stream video from an emergency incident, send photos of accident damage or a fleeing suspect, or send personal medical information, including accessibility needs, which could greatly aid emergency responders.

In this decision, the Commission is setting out its determinations on the implementation and provision of NG9-1-1 networks and services in Canada. This will require coordination and collaboration between numerous stakeholders, including the Commission; telecommunications service providers that provide 9-1-1 services (TSPs); 9-1-1 network providers; the CRTC Interconnection Steering Committee (CISC); federal, provincial, territorial, and municipal governments; emergency responders; and public safety answering points (PSAPs). As such, in this decision, the Commission is making a number of recommendations in which all stakeholders will have a role to play, including the establishment of a national PSAP and emergency responder coordinating body.

The Commission has determined that an incumbent local exchange carrier (ILEC) stewardship model under Commission oversight is the most appropriate with respect to the governance and funding of NG9-1-1, such that the ILECs will be responsible for the construction, operation, and maintenance of the NG9-1-1 networks, with Commission oversight, including through Commission approval of the ILECs' tariffs.

*The Commission **directs** all ILECs to establish their NG9-1-1 networks and to be ready to provide NG9-1-1 Voice service by **30 June 2020** wherever PSAPs have been established in a particular region.*

*The Commission also **directs** all TSPs to make the necessary changes to support NG9-1-1 Voice throughout their operating territories by **30 June 2020** wherever (i) their networks are capable of doing so, and (ii) PSAPs have launched NG9-1-1 Voice. The Commission determines that real-time text (RTT)-based NG9-1-1 Text Messaging is the second method of communication to be supported on the NG9-1-1 networks. The Commission **directs** mobile wireless service providers to provide RTT-based NG9-1-1 Text Messaging throughout their operating territories by **31 December 2020** wherever (i) their networks are capable of doing so, and (ii) PSAPs have launched NG9-1-1 Text Messaging. The Commission also requests that CISC submit to the Commission, for information, its recommended public education campaign for each new NG9-1-1 service.*

*During the transition to NG9-1-1, ILECs are **directed** to support existing 9-1-1 voice services over the existing 9-1-1 networks in parallel with the new NG9-1-1 networks. As well, ILECs are to decommission their current 9-1-1 network components that will not form part of their NG9-1-1 networks by **30 June 2023**. The existing 9-1-1 tariff rate regime for funding the current 9-1-1 networks will remain in place during the transition, along with new incremental tariffed rates that will be established for NG9-1-1. These rates will be in effect until current 9-1-1 networks are decommissioned, at which time final NG9-1-1 network access tariff rates will be established.*

Finally, the Commission is imposing obligations related to (i) ensuring the reliability, resiliency, and security of the NG9-1-1 networks; (ii) reporting on NG9-1-1 network outages; and (iii) ensuring privacy in an NG9-1-1 environment.

[Goals and Outcomes of Implementation]

1. *Effective and timely access to emergency services in Canada is critical to the health and safety of Canadians and is an important part of ensuring that Canadians have access to a world-class communication system.*
2. *Canadians currently have access to either Basic 9-1-1 or Enhanced 9-1-1 service through wireline, wireless, and voice over Internet Protocol (VoIP) telephone services wherever a 9-1-1 call centre, also known as a public safety answering point (PSAP), has been established. Canadians in areas where a PSAP has not yet been established are typically required to dial seven- or ten-digit telephone numbers to seek emergency services from responders such as police, fire, or ambulance.*
3. *In the coming years, telecommunications networks across Canada, including the networks used to make 9-1-1 calls will continue to transition to Internet Protocol (IP) technology. This transition will have a major impact on the networks, systems, and arrangements used to provide 9-1-1 services, and will be a complex and costly undertaking that will occur gradually over a number of years.*
4. *In paragraph 7 of Telecom Regulatory Policy 2014-342, the Commission indicated that Canadians should have access to new, enhanced, and innovative 9-1-1 services with IP-based capabilities, otherwise referred to as next-generation 9-1-1 (NG9-1-1) services. As such, the Commission announced its intention to conduct a comprehensive examination of NG9-1-1 in order to establish an NG9-1-1 regulatory framework.*
5. *With NG9-1-1, Canadians in need of emergency services could ultimately send a text message or transmit photos, videos, and other types of data to 9-1-1 operators, in addition to making traditional voice 9-1-1 calls using wireline, wireless, or VoIP telephone services. For example, they could stream video from an emergency incident, send photos of accident*

damage or a fleeing suspect, or send personal medical information, which could greatly aid emergency responders.[10]

Current Condition

Dispatching Services:

- The current dispatch agreement with the Kitchener Fire Department is working well and meeting the needs of the Wilmot Fire Department. Investigation of new and evolving technologies will be investigated as part of the regional review of emergency services dispatching and consideration of the renewal of the current agreement with Kitchener.
- However, WFD is charged for every call that is dispatched. As such, finding ways to reduce the number of medical type calls may result in a savings for the WFD.

Next-Generation 9-1-1:

- As noted in the CRTC excerpt, June 2023 is a key date to work with. The Fire Chief must ensure that Wilmot is a stakeholder at the steering committee table through direct involvement or as part of the regional committee for this implementation plan.
- At this time, no costs are estimated for this endeavour as much of the logistics are still being worked out by the upper level stakeholders (PSAPs, central dispatch centres and regional steering groups). Communication system upgrades will, however, have a financial impact on every community.

[10] https://crtc.gc.ca/eng/archive/2017/2017-182.htm

Recommendation(s)

Rec #	Recommendation	Estimated Costs	Suggested Timeline
14	EMT recommends that the Fire Chief discuss with EMS services to have their response level adjusted to more critical types of medical calls. This will still offer members of the community the service they need when dealing with an emergency situation in line with neighboring fire services.	No cost associated; however, some savings may be realized with a reduction of calls.	Short-term (1-3 years)

SECTION 6 – Facilities

6.1 Fire Station Review

6.2 Fire Station Locations and Suitability for Future Growth

Section 6: Facilities

6.1 Fire Stations Review

This section will assess facility needs and station locations - review existing facilities and provide recommendations for future locations relative to current and future service delivery demands and applicable standards, as well as consideration of potential needs for relocation or additional stations.

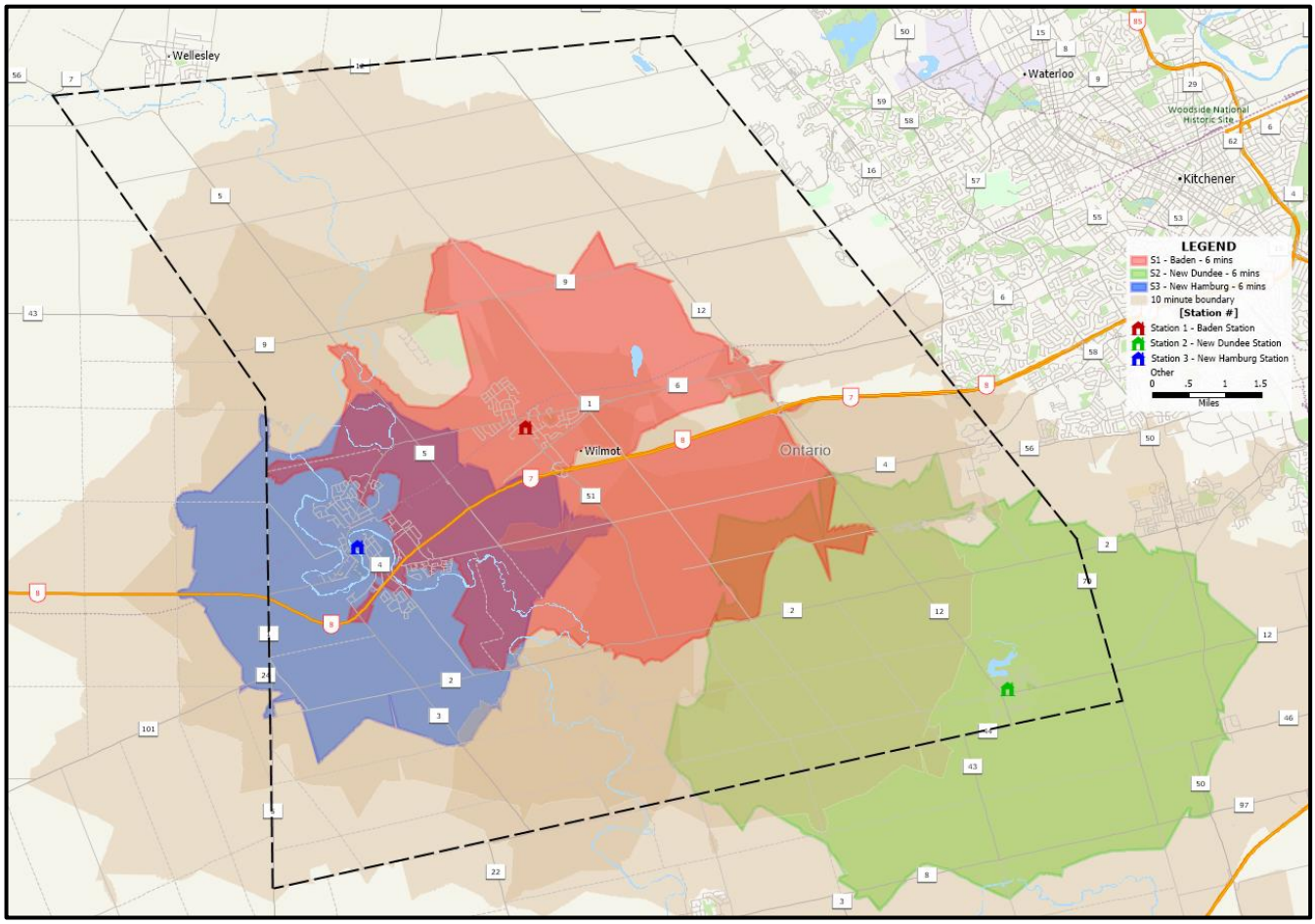
A previous review of the existing fire station facilities and their condition was conducted for the Fire Chief in accordance with the previous FMP recommendation. It should be noted that all 2014 Fire Service Facility Needs Assessment Report recommended upgrades have been completed or identified in the 10-year Capital budget for completion.

6.1.1 Fire Station Location and Other Considerations

Fire stations should be positioned to offer the most efficient and effective response to the community they serve. Centering them within a determined response zone that is simply based on "timed" responses is not always the best option to implement. Fire station location depends on many factors such as key risks within the response zone, future growth of the community, and station staffing (full-time or volunteer firefighters). Another consideration is the geographical layout of the community that can include natural barriers or divides, such as water, that makes it necessary to have some stations located within proximity of each other.

OFMEM Public Fire Safety Guideline – PFSG 04-87-13 on Fire Station Location notes fire stations should be situated to achieve the most effective and safe emergency responses. Distance and travel time may be a primary consideration: however, if a basic expectation of response time is set by the community's decision makers, then a more realistic level of service and fire station location criteria can be identified.

FIGURE 10: Present Station Locations with 10- and 14-Minute Response Zones



In the above noted map, the New Hamburg fire station, Station 3, is illustrated in **BLUE**; the Baden fire station, Station 1, is illustrated in **RED;** and the New Dundee fire station, Station 2, is illustrated in **GREEN**. The shaded areas around each fire station area denote a 10 and 14-minute response time zone. The 14-minute zones are depicted in light brown shading.

> *Note: These response times depict the coverage area by travel time as if the crews were actually in the station and immediately ready to respond. There are many times, however, when the volunteers are not in the fire station and may (or may not) be either engaged on another call or at a far end of their response zone. These factors can create a longer response time by the crews to the incident location.*

The response mapping and related response data supplied in this document should not be taken in isolation. A full in-depth study along with an annual report submitted to Council by the Fire Chief with an update on the key performance measures and expectations is required.

Baden Fire Station #1

Station #1 is in Baden at 99 Foundry Street. This station was built in 1974 and contains four bays for fire apparatus. This is a full drive-through station. The fire station is a one storey structure that houses the office/training areas and the garage for storage of the fire vehicles and equipment.

The station was found to be in relatively good condition structurally and in meeting the basic needs for the Department with limited storage space as it stands today. Some interior renovations occurred to fulfill the 2014 Fire Service Facility Needs Assessment recommendations. Upgrades, repairs, and routine maintenance continues to be employed with the station. As such, the Township should be commended for following through with the upgrades as recommended in the report and the continued stewardship with the fire station.

Despite the Township's efforts, fire station buildings of this age typically require major capital renovation or replacement. Station 1 is 46 years old; the added space of the former ambulance bay allowed for some needed additional space for fire apparatus, however, does not ideally suit fire apparatus size and therefore not the best situation. The decision to renovate or repair can be difficult with significant financial consequences. Fire stations built before the 1990s are cold and drafty in a number of places. Building envelopes were assumed to be nothing more than non-insulated places to store equipment and therefore designed for minimal energy performance. Ceiling heights, door widths, and repurposing a former ambulance bay for fire apparatus become problematic and may lead to the decision of replacement.

Engineering modern fire service requirements into an older building can be cost prohibitive especially when trying to incorporate best standard practices such as LEEDs and sustainability disciplines. Today's building code requirements, energy efficiency standards, and building lacks post-disaster status may be another cost prohibitive barrier and should be considered when planning the future of this fire station. It would be recommended that the fire station be built on the same property and therefore a discussion with the Heritage Fire Brigade Museum should occur and explore the possibility of a joint venture.

Identified Items:

- The female facilities (addition of showers) have been approved by Council to be upgraded as per the 2020 Capital budget.
- Recommend parking lots be repaved as identified in the Annual Capital Budget (identified in Capital Budget for 2021),
- Gear racks should be installed for the proper storage of the firefighter protective ensembles; however, it should be noted that there is insufficient room to properly house the allotted number of 30 firefighters (identified in Capital Budget for 2021).

- Office desks, office chairs, meeting room chairs and tables are outdated, uncomfortable and do not meet modern ergonomics; replacement of these items should be included within the annual 10-year capital budget (to be identified in the Capital budget short-term 1 to 3 years).
- The protective coating on the apparatus bay floors should be applied (to be added in the mid-term 4 to 6 years).

General concerns noted with this fire station are related to:

The lack of space in the tanker bay (former ambulance bay). As noted in the following photos, there is very little room for staff to move around the parked vehicles in this bay area. Fully dressed firefighters are bulky and have some movement restrictions, cleaning fire apparatus is challenging.

EMT was advised that this bay was added to the fire station by the Region to house the ambulance and crew. It was not built to house fire department vehicles.

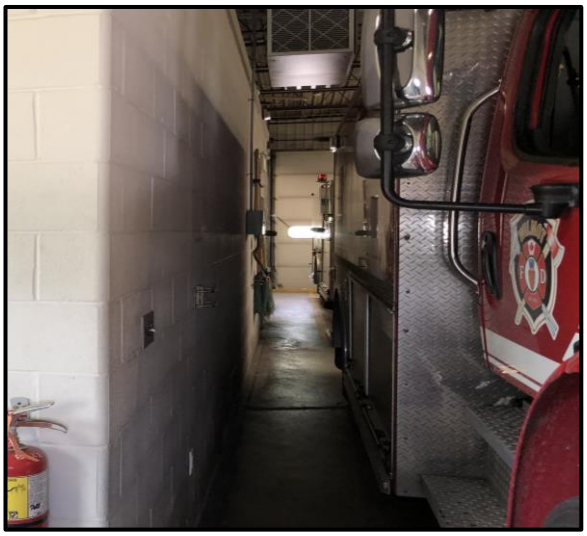
Fire Department Staff Related Concerns/Comments:

The following comments were received by the WFD staff in relation to their concerns about the Baden fire station. Many of these comments have already been noted by EMT.

The station itself is operating over capacity with numerous spatial constraints. Spatial challenges include:

- The fire hall is undersized by current standards.
- Ceiling heights and roll up door heights in apparatus bays are too low for apparatus needs.
- Staff flow patterns are interrupted by existing, inefficient building layout.
- The apparatus bays are undersized for current and future apparatus sizes.
- Due to the lack of space, storage for the hall is limited.
- Staffing needs are predicted to grow to meet future call volume demands and to preserve the volunteer fire service model, two small rooms house firefighter Personal Protective Equipment (PPE) with a total of 28 hooks, combined space is not adequate to meet current staff levels (30 firefighters at this time), with no suitable additional space available or suitable space to install proper gear racks for firefighters.
- Remove the vintage fire truck from the corner room may satisfy additional storage space needs or possibly a gear room for firefighter PPE (not ideal as it is away from the apparatus bay and would require planning and further discussion with all stake holders).
- Community has grown significantly over the last 46 years, needs and circumstances have changed and will continue to change with additional growth predicted.
- Wilmot Fire Brigade Museum should be considered for their needs and included in dialogue.


FIRE HALL



It should be noted that when consideration is given to build a new fire station to meet the ongoing needs of the community and the firefighters, new fire stations are required to meet building standards related to post-disaster buildings. The Baden Station was not built to these post-disaster requirements. A new fire station equivalent in size to Baden could cost as much as $2 to $3 million. As per recommendation #15 planning, at minimum, should begin in year 7 to 10 with construction to be determined in the next FMP cycle.

New Dundee Fire Station – #2

Station #2 is in New Dundee at 55 Front Street and was built in 1990 with three bays for fire apparatus. This is not a drive through station – there are no rear bay doors. This is a two-storey structure that houses the office and meeting area on the upper floor and the garage for storage of the fire vehicles on the lower floor.

Overall, this fire station was found to be in good condition with ample space for the firefighters, vehicles, and equipment. There is a diesel exhaust capture system which effectively reduces contaminates when properly used.

A concern noted is that the firefighters' gear is on the apparatus floor and is exposed to possible exhaust contamination. As such, some type of room should be built to allow for the firefighter's gear to be stored in a manner that the gear is not exposed to the exhaust fumes.

The Township has invested in laundry equipment, in all three fire stations, suitable for firefighting apparal and should be commended for the investment in the Health and Safety of the volunteer firefighters. To complete the laundry project at Station 2, a room should be included to designate a laundry room while accomodating the firefighters gear. Like all fire stations, storage is at a premium. Due to the open space of Station 2 they have become the central storage for all three stations for larger items. This demonstrates the lack of storage at Station 1 and Station 3 and the real need for a defined storage location at Station 2. A designated room should be included when construction for firefighter gear racks and laundry equipment occurs.

While construction plans are designed, a large open mezzanine will be available above these spaces. This would be a good opportunity to create an additional training space for use by WFD to incorporate a number of opportunities that WRESTRC is not equipped to provide and access to a climate controlled areas during the winter or inclement weather. The cost of building such a training space would not be anticipated to be significant and would depend on what the Fire Chief and staff identify as their needs. As such, no estimated costing is provided at this time but warrants further discussion, planning, and development.

New Hamburg Fire Station – #3

Station #3 is in New Hamburg at 121 Huron Street. This station was built in 1969, which makes this station over 50 years old. The station contains two drive-through bays for fire apparatus. This is a two-storey structure that houses the office/ training area and the garage for storage of the fire vehicles.

During interviews it was noted that the Township has allocated suitable funds to renovate Station 3 to correct some of the concerns noted in a previous facilities report of 2014 and some of the concerns noted by the Fire Department. As such, the Township should be commended for allocating these funds. Given the time requirement to plan and build a new fire station, investing in the fire station should be commended. The renovation investment has provided some modern changes that provide a safe, clean working environment until the new fire station can be completed.

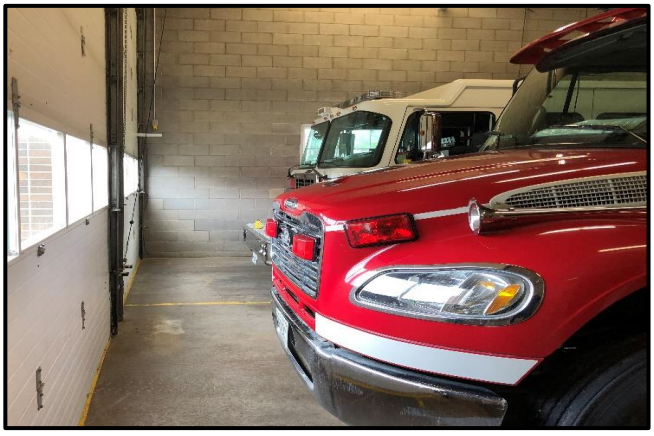
The station was found to be in relatively good condition structurally and in meeting the basic needs for the Department at this time and provided several additional amenities as a result of the recent renovation. Upgrades, repairs, and routine maintenance continues to be employed with the station.

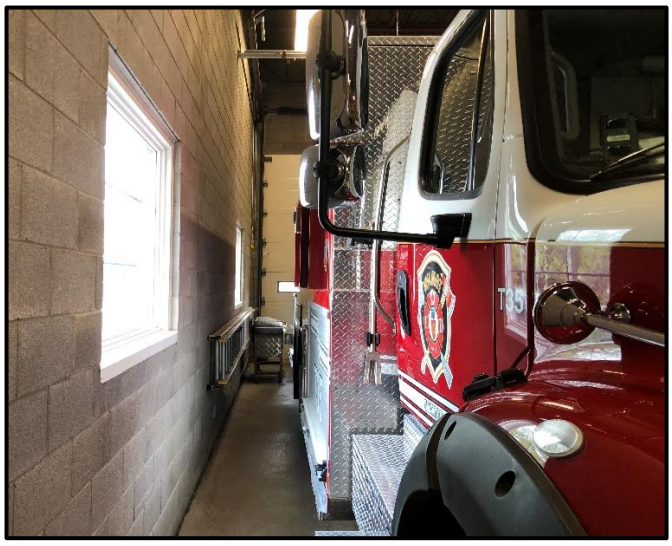
It is important that these accomplishments are recognized; however, despite the improvements, the fire station requires replacement as outlined. The Township needs to decide soon to replace this fire station. Fire station buildings of this age typically require a major capital renovation or replacement. Station 3 is 51 years old and does not ideally suit fire apparatus size and therefore not the best situation.

This fire station houses an aerial apparatus. This alone creates an issue with how the Township will purchase the proper replacement aerial given the size restrictions of the station. The decision to renovate or repair mirror some of the Station 1 issues. Station 3 has several more serious issues that necessitate the replacement of this station as soon as the Township can precure land, proceed through the planning processes, and secure suitable funding sources.

Fire stations built before the 1990s are cold and drafty in several places. Building envelopes were assumed to be nothing more than non-insulated places to store equipment and therefore designed for minimal energy performance. Ceiling height is suitable in this station; however, the door widths are not. Given the many apparatus bay restrictions, widening the doors would not be financially feasible. Engineering modern fire service requirements into an older building can be cost prohibitive especially when we try to incorporate best standard practices such as LEEDs and sustainability disciplines. Today's building code requirements, energy efficiency standards and building lacks post-disaster status may be another cost prohibitive barrier and should be considered when planning the future of this fire station and the new fire station.

The Township should consider other opportunities with the fire station such as a training/public education space that could be shared with Police and EMS; other options may be available and should be explored. EMT recommends this fire station to be replaced and that the Township begin the process, follow the recommended timelines, and, if possible and deemed appropriate by the Township, accelerate the construction project.





As noted in the previous photo, the New Hamburg station is challenged with having adequate vehicle storage. Firefighters are finding the space between the vehicles and the building's walls make it a challenge to work around the fire trucks. Another item of note is the apparatus bay doors were designed when fire trucks were narrower and shorter in height. With the larger fire truck sizes, the firefighters are finding it challenging to get the trucks into the fire stations.

General concerns noted with this fire station are related to:

- Parking for the Firefighters is at a premium and depending on the level of response or attendance at training sessions, there is not enough parking spaces for the firefighers personal vehicles.
- Due to the age of the fire station, the door widths make it a challenge to safely maneuver the fire trucks in and out of the station. It was noted that some minor incidents have occurred over the years while maneovering vehicles in and out of the station. As previously noted and identified in a photo, space for trucks in the apparatus bay is at a premium.

Even with implementing the past fire station study recommendations and recent renovations, Station 3 is located in an active floodplain, which puts this emergency service facility at risk for being ineffective if a flood were to compromise the ability of the firefighters to access and use the station during a flooding incident.

If a flood were to occur, the community and firefighters' safety could be at risk because they would have to drive into the affected area. Also, all electrical related operations at the fire station could be compromised. The space and floodplain comments must be kept in mind in relation the future utilization of this station or even the relocation of this facility.

Fire Department Staff Related Concerns/Comments:

The following comments were received by the WFD staff in relation to their concerns about the New Hamburg fire station. Many of these comments have already been noted by EMT.

In summary the on-site challenges include:

- The mixed flow of response vehicles with staff/visitor traffic is a safety concern due to the parking lot being on shared property.
- Fire Station creates a blind spot when firefighters respond to the station from the west. There is a potential risk involving civilian vehicles who do not obey “do not enter” signs and pedestrians walking along fire station.
- Insufficient space at rear of building to allow appropriate, safe turning radius for fire apparatus, (Codes requests 6 m wide access routes with 12 m for turning radius.).
- Insufficient parking area for visitors and firefighters. (30 firefighters and potential to add more when required). On the east side there is reserved parking for 9 firefighters, 2 additional spots beyond the reserved spaces, south end has provision for 7 but they are not reserved. This provides parking for a possible 18 firefighters, slightly over half of our roster and no provision for visitor parking. The south end parking spaces are typically full during day-time hours and unavailable. Additionally, firefighters are required to navigate large fire apparatus through the parking lot to the rear of the building for access, competing with traffic and extremely tight radius turns. Future, larger apparatus may not be able to navigate the existing tight turns.
- No suitable, safe area for firefighters to train. Both the Baden and New Dundee stations have some, but limited, outside space to conduct some training. The New Hamburg station does not have this space.
- Apparatus bay is at capacity and does not provide suitable space to layout hose or equipment after incidents and training. Trucks or hose must be pulled outside on the tarmac to be able to load hose onto the hose beds which is not adequate during winter months.
- Parking is shared with Library services, local downtown business.
- The tarmac area is undersized for fire hall standards.
- The tarmac does not allow for on-site apparatus turn around, necessitating backing into the front bays, this requires traffic to be stopped on Huron Street.
- Station is not a true “drive thru” design with no suitable, safe location to place apparatus when out of the station without competing with citizen pedestrian and vehicle traffic.
- No suitable alternative location during an extreme flooding event.

The station itself is operating over capacity with numerous spatial constraints. Spatial challenges include (in-spite of the recent interior renovations, issues remain such as):

- The fire hall is undersized by current standards.

- Fully dressed firefighters are bulky and have some movement restrictions, accessing and cleaning fire apparatus is challenging.
- Groundwater entering sewage pump tank, pump acts as a sump pump however not properly designed and does not meet code requirements.
- Staff flow patterns are interrupted by existing, inefficient building layout.
- The apparatus bays are undersized for current and future apparatus sizes.
- Community has grown significantly over the last 50 years, needs and circumstances have changed and will continue to change with additional growth predicted.

It was common in the past to place fire stations within the downtown cores, typically staffed by local business owners/staff and served well during that time. Downtown cores no longer supply firefighter numbers, downtown parking pressures exist as local entrepreneurs compete for market growth, economic growth and expansion displace fire stations into areas that are prone to less public activity.

Fire Stations should be free hold and not subject to public activities on a regular basis, safety concerns exist. Opportunities are available for the fire station to be repurposed to other uses that would complement the downtown business core. Engaging township development services and business community would be recommended to determine potential uses for the space.

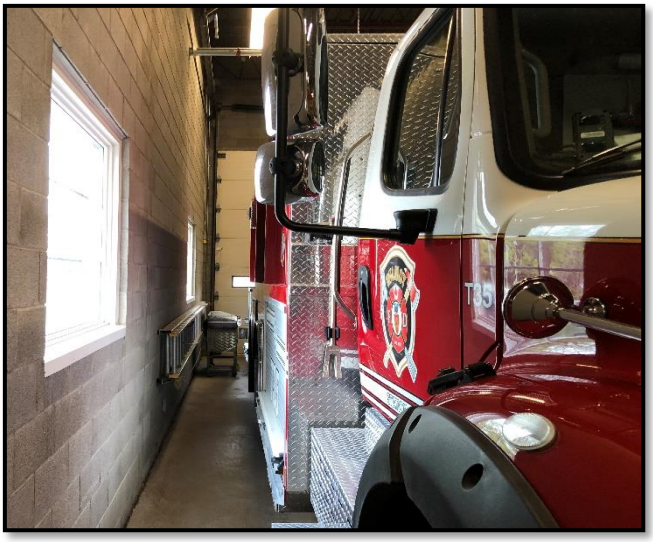
6.2 Location and Suitability for Future Growth

From a response perspective, as illustrated in FIGURE 12, the three fire stations are well located geographically to meet their response zones relating to the NFPA recommended times.

The present locations of the Baden, New Hamburg, and New Dundee fire stations appear to be serving the community and response areas quite well; relocation of the New Hamburg Station needs to be considered because of extenuating circumstances – being in a floodplain. EMT is not recommending the consolidation of any two fire stations due to the large areas that need to be covered. Having only two fire stations to service most of the community (and anticipated growth) is not seen as a wise decision.

6.2.1 New Hamburg Station Considerations

The New Hamburg Station was regarded as a concern for two main reasons. The first being the lack of apparatus floor space for the fire vehicles.



All fire, police, and ambulance stations are considered critical and essential structures for emergency response. The second concern is that the New Hamburg Fire Station is in a floodplain area and is susceptible to water overflowing from the Nith River putting the station at risk. The station is also located to the extreme western portion of Wilmot's borders. Based on these noted points, it is recommended that Township consider the FMP report recommendations and decommission the New Hamburg Fire Station.

The building is in a flood plain area right beside the Nith River. As noted in the Township's Official Plan in section 2.5.10.6,

- *"Protective services such as police, fire, utility and public works yards and major electrical substations shall not be in the Special Policy Area. Existing facilities will not be permitted to expand or extend without the approval from the Township and the Grand River Conservation Authority and any major renovation shall meet the provincial requirements for safe access/egress for emergency vehicles.* ***Council shall consider the relocation of the existing (New Hamburg) fire station.****"*[11]

  In section 2.5.10.10 of the Plan, *"Where practical new building services such as electrical, and heating systems shall be located above the regulatory flood elevation but where this is not feasible building services shall be floodproofed to the satisfaction of the Grand River Conservation Authority."*[12]

[11] https://www.wilmot.ca/en/doing-business/resources/Documents/Official_Plan/Township-of-Wilmot-Official-Plan---April-2019-Consolidation.pdf

[12] https://www.wilmot.ca/en/doing-business/resources/Documents/Official_Plan/Township-of-Wilmot-Official-Plan---April-2019-Consolidation.pdf

Along with the previously noted concerns, it also needs to be mentioned that if a flood were to occur and the firefighters needed to evacuate the New Hamburg station, where would the firefighters go? While a decision is being made about the future of the New Hamburg fire station, plans need to be put in place for a temporary back-up station within the New Hamburg area.

This back-up station could require the following, depending circumstances:

- Truck bays
- Washroom and shower facilities for male and female firefighters
- Office space
- Storage for firefighting gear and equipment
- Training needs, etc.
- IT resources

Note: The floodplain issue on its own is not a reason to replace the fire station however, because climate change and degree of flooding is completely unpredictable this must be taken as a serious consideration.

In relation to fire station design and needs, the NFPA notes the following:

- **NFPA Section 4.8.3 Design of Facilities**:
  Fire and emergency response facilities shall be designed to meet their respective service demands in terms of space for practical utilization by apparatus and personnel.

- **NFPA Section 4.8.3.1:**
  Construction specifications shall include details to be included in new emergency response facilities or installations that provide for efficient, safe, and convenient functioning of the Fire and Emergency Services Organization.

With anticipated growth to occur between the Baden and New Hamburg areas this may create even greater pressure for the present New Hamburg station location in relation to meeting a timely response as these noted areas become more populated.

The estimated costs of constructing a new fire station would range from $2 to $3 million. This does not include the purchase of land, if not owned by the Township. The present New Hamburg fire station can be repurposed for other non-emergency community/township needs.

Recommendation(s)

Rec #	Recommendation	Estimated Costs	Suggested Timeline
15	A new fire station be constructed in Baden and the planning stage considered as a long-term project. Site plan approval, architectural design, engineering, and land procurement would occur in the long-term cycle with construction occurring in the next Fire Master Plan cycle.	Depending on style and size of the fire station, range of $2 to $3 million plus cost of land.	Long-term (7-10 Years) and next FMP Cycle
16	Firefighters' turnout gear be removed from the apparatus floor areas of fire station 2 New Dundee to reduce the exposure of this gear to diesel contaminates. This will require a dedicated space to be constructed within the building to accommodate firefighter's turnout gear.	Cost for gear racks would range from $18,000 to $25,000. Room construction costs would need to determined based on scope of work proposed such as the addition of the training prop.	Short-term (1-3 years)
17	A new fire station be constructed in New Hamburg and it is recommended this process be undertaken in two parts. Mid-term for the planning, site plan approval, architectural design, engineering, and land procurement. Second part is construction to be carried out in the long term to allow suitable time to secure funding streams.	Depending on style and size of the fire station, range of $2 to $3 million plus cost of land	Planning Mid-term (4-6 Years) Final Construction (7-10 Years)
18	Fire Chief follow through with preplanning and create a suitable plan for a backup fire station should Station 3 New Hamburg be compromised from a flooding event.	Staff time	Short-term (1-3 years)

SECTION 7 – Vehicles and Equipment

7.1 Fire Apparatus - New and Replacement Schedules

7.2 Aerial Device

7.3 Maintenance

Section 7: Vehicles and Equipment

7.1 Fire Apparatus - New and Replacement Schedules

For this section EMT is assessing the general state of the Department's apparatus, vehicles, and equipment - review existing vehicles and equipment condition, maintenance programs, capital replacement schedules and plans relative to existing and expected service demands.

When assessing a fire department's ability to respond and meet the needs of the community, the FUS considers the age of a fire truck as one of its guidelines. It was noted that WFD endeavours to keep fire vehicles on a 15 to 20-year replacement cycle to and keep them within the FUS recommendations and, more importantly, creates a benchmark for forecasting fire truck replacements. However, some gaps in this replacement cycle were noted. Rescue trucks are noted to be a 20-year replacement cycle and should fall under a 15-year replacement cycle as first-line as per FUS recommendations. As such, the Fire Chief should continue efforts in meeting the FUS related recommendations.

Pickups, used by administration, are not covered under the FUS replacement chart. Instead, vehicle replacements are covered under Township policy which is on a 10-year cycle as identified in the Township Capital budget. WFD outfits the pickups to be used for day to day operational requirements and to be used operationally with Emergency Operations. The Department should be commended for designing vehicles that can serve multiple roles as a cost-effective strategy.

7.1.1 Fire Underwriters Survey – Vehicle Replacement Recommendations

The *Medium Sized Cities* section (outlined in blue) is the recommendation for vehicle replacement for a township the size of Wilmot. This allows for up to a 20-year replacement cycle, in which the fire vehicle can be utilized as second-line response status. It is recommended that all first-line units still be replaced by a new or younger unit when it reaches 15 years of age.

TABLE 6: FUS Vehicle Replacement Chart

Apparatus Age	Major Cities [3]	Medium Sized Cities [4] or Communities Where Risk is Significant	Small Communities [5] and Rural Centres
0 – 15 Years	First-line	First-line	First-line
16 – 20 Years	Reserve	Second-line	First-line
20 – 25 Years [1]	No Credit in Grading	No Credit in Grading Or *Reserve* [2]	No Credit in Grading Or *Reserve* [2]
26 – 29 Years [1]	No Credit in Grading	No Credit in Grading Or *Reserve* [2]	No Credit in Grading Or *Reserve* [2]
30 Years [1]	No Credit in Grading	No Credit in Grading	No Credit in Grading

1. *All listed fire apparatus 20 years of age and older are required to be service tested by a recognized testing agency on an annual basis to be eligible for grading recognition (NFPA 1071)*
2. *Exceptions to age status may be considered in small to medium sized communities and rural centre conditionally, when apparatus condition is acceptable, and apparatus successfully passes required testing*
3. *Major cities are defined as an incorporated or unincorporated community that has:*
    a. *a populated area (or multiple areas) with a density of at least 400 people per square kilometre; AND*
    b. *a total population of 100,000 or greater.*
4. *Medium Communities are defined as an incorporated or unincorporated community that has:*
    a. *a populated area (or multiple areas) with a density of at least 200 people per square kilometre; AND*
    b. *a total population of 1,000 or greater.*
5. *Small Communities are defined as an incorporated or unincorporated community that has:*
    a. *no populated areas with densities that exceed 200 people per square kilometre; AND*
    b. *does not have a total population in excess of 1,000.*

FUS definition of first-line, second-line and reserve is:

- ***First-line is the first fire truck utilized for response at the fire station***
- ***Second-line is the next truck to be used if the first-line unit is tied up at a call, and***
- ***Reserve is the vehicle kept in the fleet to be put into service if a first-line or second-line vehicle is out of service.***

The FUS is reviewed by insurance companies. Provided that the Fire Department adheres to the recommended replacement timelines through an approved capital replacement schedule, the Department will retain its fire rating for vehicle replacement.

By ensuring that the vehicles are being replaced on a regular schedule, the Township is also demonstrating due diligence towards ensuring a dependable response fleet for the Fire Department and the community it serves. This in turn will keep the community's fire rating in good stance, which can also reflect on commercial and residential insurance rates.

7.1.2 NFPA – Vehicle Replacement Recommendations

A standard that supports a regular replacement schedule of fire vehicles is the NFPA 1911, *Standard for the Inspection, Maintenance, Testing, and Retirement of In-Service Automotive Fire Apparatus*. This standard includes guidance on retirement criteria for fire apparatus. This standard recommends that all frontline vehicles are replaced on a 15 to 20-year cycle, depending on the community size. These replacement recommendations are for fire vehicles with pumps. For general purpose fire department vehicles, most communities refer to their town's vehicle replacement policies.

Although there is no national standard that legally mandates the replacement of emergency vehicles, it must be kept in mind that it is critical to replace these and other apparatus before they become unreliable. Over the long-term, delaying the replacement is inadvisable as it will add to the overall maintenance costs of the apparatus and can have an effect on insurance costs based on the fire department's FUS rating.

WFD is well-equipped with pumper trucks, aerial ladder, rescues, and tankers. There is sufficient level of support vehicles and equipment to meet the general needs of the Department. Replacement schedules are identified in the capital forecast for the fire trucks and large cost items. It is worth noting that some fire departments place their tanker trucks on a 20-year replacement cycle due to the lack of use and mileage put on these specific units. To help with replacement forecasting, this is a vehicle type that can be considered as a 2nd line vehicle and may not require replacement at the 15-year mark.

In relation to vehicle replacement and refurbish, the industry standard for the design and replacement of vehicles is the National Fire Protection Associations Standard 1901. It is recommended that this and other related NFPA standards relating to vehicle design, replacement, and refurbishing, be utilized.

During the station and equipment review, it was noted that the vehicles and small engines (pumps, generators, etc.) are on a replacement cycle and that maintenance and repair work is addressed as quickly as possible by the Township or other recommended facilities.

7.2 Aerial Device

The WFD is well-equipped with pumper trucks, tankers and support vehicles required for primary response to calls within the Township. All the vehicles have been identified in the Department's capital replacement plan. WFD has an aerial device located at the New Hamburg fire station. Based on the size of the Township along with the types of buildings with the Township, there is a definite need for this aerial device.

As noted by the FUS group, a community the size of Wilmot should have one aerial device. More information on this FUS recommendation can be found in Appendix H.

The Township currently has an aerial located at Station 3 New Hamburg. Further, the Township has identified a replacement aerial within its 10-year capital budget. An aerial device is also a very effective tool for applying water to roof tops and upper stories of a building.
In relation to what type of aerial device to utilize, there are options relating to the types of elevated devices that a fire department can purchase. The following is an overview of two key types of elevated devices that most fire departments utilize in their fleets.

7.2.1 Elevated Devices – Straight Ladder Verses a Platform

When deciding on whether a department wants an aerial that is a straight ladder or one that is a platform, an evaluation needs to be conducted in relation to what are the actual needs for such a device. For example, is reach and maneuverability more important or is a working surface and above ground rescue more the focus. For example, Nithview Retirement home would be better served by a platform aerial given the likely age of residences who would be unable to safely climb down a ladder.

The platform offers a much better surface to work from for operations such as venting a roof or rescuing persons from upper floors who are unable to walk down a ladder due to physical limitations.

The following two pictures help to display the difference between a straight ladder and a platform truck. The straight ladder aerial (in the left photo) is specifically designed to be used for access to upper floors of a structure. As such, it has a very large ladder structure that is generally 30 meters or more in length. Most of these ladders are equipped with a large capacity nozzle to assist with fire extinguishment on upper floors of a building or roof tops that are out of reach of regular ground ladders.

The platform truck (in the right photo) has the ability to offer a more stable surface for firefighters to work from and also making rescues from upper floors safer. The key differences between the two vehicles can be the size of the vehicle; platform trucks can be larger. Costs between the two types can vary, with the platform typically being the more expensive unit. Existing buildings such as Nithview and downtown core buildings with mixed residential is better suited to replace the aerial ladder to a more versatile aerial platform. The Township Fire Chief should explore all potential opportunities when making this purchase such as joint purchase opportunities with neighboring fire departments or investigate the used market, assuming a suitable aerial platform can be located.

7.3 Maintenance

WFD does not have its own in-house mechanical division to complete repairs and testing to its vehicles and equipment. This is handled in the following manner:

- Firefighting staff complete all weekly and monthly (general) inspections and testing of vehicles and equipment.
- If any mechanical repairs are required for a vehicle, it is contracted out to a third-party facility/mechanic that has appropriate skills to facilitate required repairs.

7.3.1 Maintenance - Small Equipment

During the review it was noted that there is a program in place for small equipment testing and evaluation. All the equipment such as ladders, breathing apparatus, small engines, ropes and hoses are tested either on an annual basis or otherwise based on manufacturers recommendations.

- The National Fire Protection Association (NFPA) 1932 Standard identifies the type and frequency of testing for ground ladders.
- NFPA 1983 outlines the testing process for life safety rope.

- NFPA 1914 outlines testing for aerial devices
- The Health and Safety Act also makes note that all equipment used by workers must be in good condition.

Wilmot Fire should be commended for ensuring that these types of testing and maintenance are being carried out.

Recommendation(s)

Rec #	Recommendation	Estimated Costs	Suggested Timeline
19	EMT recommends the Township continue to utilize their current planning practices using annual capital budgeting for vehicle replacement and should maintain a schedule that complies with the FUS recommendations on the replacement of vehicles from a first line to a second-line unit at 15 years. The Fire Chief should have Council's support to investigate all purchasing opportunities and should include joint procurement opportunities. It is recommended that NFPA Standard 1901 relating to vehicle design, replacement, and refurbishing, be utilized.	Continued financial forecasting of equipment replacement	Continue and ongoing for fire vehicle replacement and future forecasting (see NFPA 1901)
20	It is recommended that the Department continue its maintenance programs on all small equipment such as, but not limited to, ladders, breathing apparatus, small engines, ropes and hoses on an annual basis or otherwise based on manufacturers recommendations. Using the annual budget process, the Fire Chief continues to receive appropriate funding to advance maintenance programs for the fire service. • The NFPA 1932 Standard identifies the type and frequency of testing for ground ladders. • NFPA 1983 outlines the testing process for life safety rope. • NFPA 1914 outlines testing for aerial devices • The *Health and Safety Act* also makes note that all equipment used by workers must be in good condition. Wilmot Fire should adhere to these standards, the *OH&S Act*, and any related manufacturer's recommendations.	Continued financial forecasting of equipment testing and possible replacement	Continue and ongoing

SECTION 8 – Emergency Management

8.1 Emergency Management Program

Section 8: Emergency Management

8.1 Emergency Management Program

As mandated by the *Emergency Management and Civil Protection Act* (EMCPA), all municipalities in Ontario must have an emergency response plan and an emergency planning program. For every community in Ontario, there must also be an identified Community Emergency Management Coordinator (CEMC); currently this duty falls to the Fire Chief of the Township. It was noted that the Training officer, FPO and Administration Assistant are also certified as CEMCs.

The Township's Emergency Response Plan complies with all general requisite legislation. The primary and secondary Emergency Operations Centres (EOC) are functional spaces that can be set up, as needed, by the EOC group.

The plan along with on-going annual training exercises and education for the Control Group meets the provincial requirements. The most recent Emergency Plan document is dated 2016. Staff are meeting the annual review requirements, annual training exercise and educational requirements and will move towards an IMS based plan. Based on this recommendation an update of the program will occur.

In relation to having a CEMC for each community, the townships within Wellington County have created a CEMC that oversees and monitors each community's Emergency Management program. Each community still has an Alternate CEMC to ensure individual focus for their respective communities. The advantage of such a program is that it helps to reduce the workload of each local Fire Chiefs, while at the same time creating a very effective partnership. This is type of partnership is something that the Wilmot Fire Chief and counterparts should investigate further. It should be noted that there is a current collaborative assessment being conducted on this topic between the four townships using KPMG as the consulting firm.

Another opportunity to help reduce the Fire Chief's workload is to assign the clerical role to someone else within the Township. There is no Provincial legislation that identifies a community's fire chief as having to be the CEMC or to shoulder all administrative requirements; only that the person(s) needs to be properly trained to effectively carry out the duties of a CEMC. The Fire Chief has foreseen this requirement and has additional staff trained to the CEMC level. It would be prudent to formalize staff job descriptions into this support role. Providing administrative support would be of benefit to the overall program development and assist freeing up time commitments for the Fire Chief.

Recommendation(s)

Rec #	Recommendation	Estimated Costs	Suggested Timeline
21	Conduct full review and update of the Township's Emergency Plan to ensure that the program continues to meet the needs of the community and that continued support is provided such as staff resources and funding to advance this valuable program.	Staff time	Short-term (1-3 years)
22	Consideration should be given to the concept of creating a Community Emergency Management Coordinator partnership jointly with the area townships and assigning program clerical duties to someone other than the Fire Chief/CEMC.	No initial costing for this option. Costs would depend on partnership level and staffing level needs.	Short-term (1-3 years)

SECTION 9 – Mutual and Automatic Aid

9.1 Mutual Aid, Automatic Aid & Fire Protection Agreements

Section 9: Mutual and Automatic Aid

9.1 Mutual Aid, Automatic Aid, & Fire Protection Agreements

Mutual aid, automatic aid, and fire protection agreements are programs used to:

- Support a community's fire department at times when local resources are exhausted
- Offer quicker response coverage to areas that may be closer to a bordering fire department's response area than that of the host department
- Create an automatic response by bordering fire departments to properties that are closer to their fire stations than that of the host fire department

9.1.1 Mutual and Automatic Aid

The WFD is a member of the Waterloo Region Mutual Aid Agreement Program which includes the City of Waterloo, Wellesley Township, City of Kitchener, Township of Woolwich, and the Township of North Dumfries. A cross boarder agreement exists with Blandford Blenheim and a cooperative working relationship with Perth East and East Zorra-Tavistock. Discussions with Perth East would be suggested to see if Station 3 New Hamburg should cover the Wilmot East Hope Road and determine if any other areas would be better served by Station 3 as the initial response station.

These agreements appear to be serving the community well. Wilmot conducts a full review of cross boarder agreements every 5 years and should continue this best practice method.

Recommendations

No recommendations for this section on fire service agreements.

SECTION 10 – Finance, Budgeting, and Capital Investment Plan

10.1 Operating and Capital Budgets

10.2 Development Charges Program

Section 10: Finance, Budgeting, and Capital Investment Plan

10.1 Operating and Capital Budgets

The Wilmot Fire Department has an annual operating budget that appears to offer the Fire Chief the funds required to manage and support the Department's staff, facilities, and equipment in an effective manner.

WFD's capital forecast fluctuates on an annual basis based on the equipment that has been identified for replacement (each year).

During the review of the budget process for both operating and capital, it was evident that WFD is well configured in both areas. This would also indicate an adequate level of support by Council and the Township's senior management team for assisting the Fire Department in meeting its service goals.

When reviewing this section, one of the key areas that EMT looks for is whether actual operating expenditures are identified and tracked by the Department. During the review of the operating budget, it was noted that all key accounts and operating sections are identified, such as:

Operating Budget Line Items:

- Staffing related costs
- Training
- Fire Prevention and related Fire Safety Education
- Vehicle and equipment maintenance, and
- Station maintenance

Capital Budget Line Items:

- Vehicle replacement
- Equipment replacement (for large cost items that are not covered in the operating budget)

<u>Operating Budget</u>

A review of the operating budget for Wilmot Fire & Emergency Services shows that all general expenses and related revenues are accounted for.

Capital Forecasts

It would appear that there is a 15 to 20-year replacement cycle for the fire trucks that is based on the FUS recommendations for frontline vehicles. As such, the Township should be commended for supporting this endeavour. However, at times, based on budgetary considerations, there are fluctuations (increases) in replacement cycles. In view of that, the Fire Chief should continue working with the Finance Department to ensure that the vehicle replacement cycle be adhered to as closely to the FUS recommendations as possible.

Along with the replacement schedule, FUS recommends that there should be at least one spare fire truck for every eight units, for example:

- one pumper truck for every eight,
- one spare aerial truck for every eight,
- one spare tanker truck for every eight, etc.
- consider replacement of the rescue trucks at 15-year cycle due to the high level of use.

This applies even when there are less than eight units; there should be a replacement vehicle designated for up to eight vehicles for back up if one of those units goes out of service.

The Fire Chief and his staff are working hard to ensure that equipment is being replaced and/or upgraded on a regular cycle and on an as needed basis. Some of the Department's fleet is at or near the recommended replacement age, but the Fire Chief is well aware of this and is working with the Township to secure replacements.

10.2 Development Charges Program

The growth-related capital projects are reviewed and incorporated into the development charges study/bylaw.

Based on the information noted in the DC Background Study of 2019, Fire Services have been considered and allocated financial resources based on growth projections for the community. This includes additional vehicles and other unfunded projects.

Recommendation(s)

No recommendations for this section.

SECTION 11 – Summary

11.1 Conclusion

11.2 Recommendations and Estimated Costs

Section 11: Summary

11.1 Conclusion

Wilmot Fire Department staff are truly dedicated to the community they serve. Council, CAO, and the Fire Chief are sincerely committed to ensuring the safety of the community and the firefighters. Based on the present staffing, equipment, and fire stations locations, the Wilmot Fire Department is endeavoring to offer the most efficient and effective service possible.

All costs and associated timelines to the following recommendations are approximations that can be implemented through prioritization between the Fire Chief, CAO, and Council.

Most Fire Master Plans are 10-year documents with a review to be conducted at the five-year point. Due to some of the specific recommendations made in this document, it is advisable that the Fire Chief view this as a "living document", conducting more frequent reviews of the recommendations, and bringing forward updates to Council, as required.

11.2 Recommendations and Estimated Costs

The following chart provides further overview of the recommendations found throughout this report along with any estimated costs that may be incurred.

Rec #	Recommendation	Estimated Costs	Suggested Timeline
1	It is recommended that a full review of the 2011 Establishing and Regulating By-law document be completed to include the following items: • Incorporate, where appropriate, any references to the FPPA, NFPA standards and OFMEM Guidelines that the Fire Department deems relevant to services provided and is supported by Council, such as: ○ Measurable service levels that can be reported to the Township on an annual basis using the existing quarterly report structure to Council.	No present cost associated with this recommendation. However, changes for future fire service agreements may incur new costs. (future costing contingent on possible inclusion of fire service	Short-term (1-3 years)

Rec #	Recommendation	Estimated Costs	Suggested Timeline
	○ Composition of the Department to represent the level of service to be provided as outlined throughout the MFP. ○ Updating the document's language to reflect recent legislative changes and/or inclusion of supporting National Fire Protection Association (NFPA) standards. ○ Fire Chief should continue to have the flexibility to increase staffing marginally as required to keep numbers up to plan for anticipated retirements and/or promotions of the firefighters.	agreements in the E&R Bylaw)	
2	Fire Chief to continue monitoring response times along with how many times, if any, that a full response component was not amassed. This type of information can be utilized to identify any future needs and/or considerations for the incorporation of a partial full-time response component.	Staff time	Continue and ongoing
3	Continued emphasis on additional staff time spent in fire prevention related activities. In addition to public education, there should be an emphasis placed on assessing buildings stock within the community to identify types and number of hazards that may exist.	Staff time. Amount depends on actual time spent by staff over and above regularly scheduled hours.	Short-term (1-3 years) and ongoing
4	It is recommended that the Community Risk Assessment (CRA) provided by EMT be updated every five years or as necessary in accordance with the new Provincial	Staff time	Ongoing and after each election

Rec #	Recommendation	Estimated Costs	Suggested Timeline
	Legislation, in conjunction with the NFPA 1730 standard. There is merit in providing an updated assessment at the beginning of every term of Council so that the sitting Council understands the platform on which the services conducted by the Fire Department are built.		
5	The Fire Prevention Division review its inspection program to identify levels of desired frequency as noted in the FUS Suggested Frequency Chart, annually tracking the number of hours spent on inspections.	Staff time	Continue and ongoing
6	The Fire Department should continue to meet with local community groups to form a partnership for organizing fire safety and public education events.	Staff time	Continue and ongoing
7	Create a part-time Deputy Chief position to help distribute the workload, along with allowing for a more effective level of supervision amongst the divisions within the Department (Suppression, Training, Fire Prevention, Administration).	$40,000 to $65,000, depending on hours for this position	Mid-term (4-6 years)
8	Continue to evaluate training programs are meeting relevant legislation, standards, and best practice recommendations that meet E&R Bylaw service levels and the Training Officer should: • Continue the current practice of publishing an annual training calendar and post in each fire station. • Identify what training programs are required annually in relation to the services that WFD is providing. • The number of hours that are required to meet each of those training needs.	Staff time	Continue and ongoing

Rec #	Recommendation	Estimated Costs	Suggested Timeline
	• Resources required to accomplish this training. • Joint partnerships with bordering fire departments and private organizations that can be entered into to achieve the training requirements identified by the Training Officer. • Provide an annual program outline at the start of each year to the Fire Chief and Fire Management Team, with noted goals and expectations and completion success rate.		
9	It is recommended that an additional part-time Fire Prevention/Public Safety Education Officer be hired. • Will evolve into a full-time position as the population and demand for inspections increases. • Will help to alleviate some of the present pressure on the FPO and better serve fire prevention and public education program development within the Township • Will provide the current FPO some additional time to increase frequency of inspections and public education events.	$40,000 to $50,000, depending on hours for this position	Short-term (1-3 years)
10	Fire Prevention Officer continue to closely track time spent on each of the Fire Prevention activities. Reporting should include clearly identifying the number of public education events, demographic profile and the numbers of adults and children reached.	Staff time	Continue and ongoing

Rec #	Recommendation	Estimated Costs	Suggested Timeline
11	Fire department currently utilizes firefighter ranks to enhance annual fire prevention and public education events within the Township. EMT recommends the Department is to continue moving towards having more of the fire department staff cross trained and certified to at least: • NFPA 1031 – Fire Inspector I • NFPA 1035 – Fire and Life Safety Educator I And that the FPO continue to work with the VFFs and incorporate them into public education events and that VFFs be remunerated accordingly for their time.	Dependent on training hours required based on availability of courses and/or attendance at the OFC and availability/ interest of volunteer firefighters	Continue and Ongoing with new staff
12	The Department should continue its ongoing efforts towards certification for staff for each position (that requires or recommends certification) and ensure that certifications are maintained.	Staff time	Continue and ongoing
13	The Fire Chief should continue to investigate opportunities to promote retention of the volunteer firefighters as noted in the OFMEM document. The Fire Chief should continually recruit for volunteer firefighters in areas that are presently understaffed or have issues with response numbers to calls. EMT is also recommending: The Fire Chief meet with CAO, Treasurer, HR, and other appropriate resources to provide a wholesome study of the volunteer firefighter remuneration system. This should include, at minimum, Training both internal and external, Work Party, On Call/Weekend Standby and any other applicable areas. The study should include feedback from	No immediate cost for the first part of this recommendation; implementation costs of the merit and performance pay system will need to be evaluated.	Continue and ongoing

Rec #	Recommendation	Estimated Costs	Suggested Timeline
	department firefighters and utilize suitable comparators to support findings.		
14	EMT recommends that the Fire Chief discuss with EMS services to have their response level adjusted to more critical types of medical calls, Level "B". This will still offer members of the community the service they need when dealing with an emergency situation in line with neighboring fire services.	No cost associated; however, some savings may be realized with a reduction of calls.	Short-term (1-3 years)
15	A new fire station be constructed in Baden and the planning stage considered as a long-term project. Site plan approval, architectural design, engineering, and land procurement would occur in the long-term cycle with construction occurring in the next FMP cycle.	Depending on style and size of the fire station, range of $2 to $3 million plus cost of land.	Long-term (7-10 years) and next FMP Cycle
16	Firefighters' turnout gear be removed from the apparatus floor areas of fire station 2 New Dundee to reduce the exposure of this gear to diesel contaminates. This will require a dedicated space to be constructed within the building to accommodate firefighter's turnout gear.	Cost for gear racks would range from $18,000 to $25,000. Room construction costs would need to determined based on scope of work proposed such as the addition of the training prop.	Short-term (1-3 years)
17	A new fire station be constructed in New Hamburg and it is recommended this process be undertaken in two parts. Mid-term for the planning, site plan approval, architectural design, engineering, and land procurement. Second part is construction to be carried out in the long-term to allow suitable time to secure funding streams.	Depending on style and size of the fire station, range of $2 to $3 million plus cost of land	Planning Mid-Term (4-6 Years) Final Construction (7-10 Years)
18	Fire Chief follow through with preplanning and create a suitable plan for a backup fire	Staff time	Short-term (1-3 years)

Rec #	Recommendation	Estimated Costs	Suggested Timeline
	station should Station 3 New Hamburg be compromised from a flooding event.		
19	EMT recommends the Township continue to utilize their current planning practices using annual capital budgeting for vehicle replacement and should maintain a schedule that complies with the FUS recommendations on the replacement of vehicles from a first line to a second-line unit at 15 years. The Fire Chief should have Council's support to investigate all purchasing opportunities and should include joint procurement opportunities. It is recommended that NFPA Standard 1901 relating to vehicle design, replacement, and refurbishing, be utilized.	Continued financial forecasting of equipment replacement	Continue and ongoing for fire vehicle replacement and future forecasting (see NFPA 1901)
20	It is recommended that the Department continue its maintenance programs on all of the small equipment such as, but not limited to, ladders, breathing apparatus, small engines, ropes and hoses on an annual basis or otherwise based on manufacturers recommendations. Using the annual budget process, the Fire Chief continues to receive appropriate funding to advance maintenance programs for the fire service. • The NFPA 1932 Standard identifies the type and frequency of testing for ground ladders. • NFPA 1983 outlines the testing process for life safety rope. • NFPA 1914 outlines testing for aerial devices	Staff time	Continue and Ongoing

Rec #	Recommendation	Estimated Costs	Suggested Timeline
	• The *Health and Safety Act* also makes note that all equipment used by workers must be in good condition. Wilmot Fire should adhere to these standards, the *OH&S Act*, and any related manufacturer's recommendations.		
21	Conduct full review and update of the Township's Emergency Plan to ensure that the program continues to meet the needs of the community and that continued support is provided such as staff resources and funding to advance this valuable program.	No initial costing for this option. Costs would depend on partnership level and staffing level needs.	Short-term (1-3 years)
22	Consideration should be given to the concept of creating a Community Emergency Management Coordinator partnership jointly with the area townships and assigning clerical duties to someone other than the Fire Chief/CEMC.	No initial costing for this option. Costs would depend on partnership level and staffing level needs.	Short-term (1-3 years)

SECTION 16 – Appendices

Appendix A - Definitions and References

Appendix B - Staff Survey Example

Appendix C - Community Survey Example

Appendix D – Five Step Staffing Evaluation Process

Appendix E - Public Fire Safety Guideline - Recruitment and Retention of Volunteer Firefighters

Appendix F – Provincial Community Risk Assessment Guideline

Appendix G – Call and Response Data for 2019, 2018, 2017 and 2016

Appendix H – FUS Technical Document on Elevated Devices

Section 16: Appendices

Appendix A – Definitions and References

Automatic Aid Agreements – Fire Protection and Prevention Act, 1997 (FPPA 1997)

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, 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 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 emergencies occurring in the part of the other municipality. 1997, c. 4, s. 1 (4).

- *Automatic aid is generally considered in other jurisdictions as a program designed to provide and/or receive assistance from the closest available resource, irrespective of municipal boundaries, on a day-to-day basis.*

Commission of Fire Accreditation International Community Definitions:

- Suburban – an incorporated or unincorporated area with a total population of 10,000 to 29,999 and/or any area with a population density of 1,000 to 2,000 people per square mile
- Rural – an incorporated or unincorporated area with a total population of 10,000 people, or with a population density of less than 1,000 people per square mile.

National Fire Protection Association (NFPA) Documents:

- NFPA 1201 - Standard for Providing Fire and Emergency Services to the Public
- NFPA 1500 – Standard on Fire Department Occupational Safety and Health Program, 2013 editions
- NFPA 1720 – Standard for the Organization and Deployment of Fire Suppression Operations, Medical Operations, and Special Operations to the Public by Career Departments
- 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.

Municipal Responsibilities (FPPA 1997)

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.

Mutual Aid

a) Mutual aid plans allow a participating Fire Department to request assistance from a neighbouring Fire Department authorized to participate in a plan approved by the Fire Marshal.
b) Mutual aid is not immediately available for areas that receive fire protection under an agreement. The municipality purchasing fire protection is responsible for arranging an acceptable response for back-up fire protection services. In those cases where the emergency requirements exceed those available through the purchase agreement and the backup service provider, the mutual aid plan can be activated for the agreement area.

Public Fire Safety Guidelines:

- PFSG 04-40A-12, Fire Prevention and Public Safety Education; Simplified Risk Assessment March 2001
- PFSG 04-41-12, Fire Prevention and Public Safety Education; Community Fire Safety Officer/Team, January 1998
- PFSG 04-08-13 on Fire Station Location, September 2004

Shared Responsibilities (FPPA 1997)

FPPA notes that;

1. Two or more municipalities may appoint a community fire safety officer or a community fire safety team or establish a Fire Department for the purpose of providing fire protection services in those municipalities

Volunteer Firefighter (FPPA 1997)

- Means a Firefighter who provides fire protection services either voluntarily or for a nominal consideration, honorarium, training or activity allowance. (“pompier volontaire”) 1997, c. 4, s. 1 (1); 2001, c. 25, s. 475 (1).”

Appendix B – Staff Survey Example

The following survey was presented to internal stakeholders:

Wilmot Fire Department
Fire Master Plan – Internal Staff Survey

Emergency Management & Training Inc. (EMT) have been hired to prepare a Fire Master Plan for the Wilmot Fire Department. Your feedback is necessary in assisting EMT in developing this document for the fire department. The intent of this document is to provide a 10-year community-driven master plan to guide operational improvements and enhance how services are provided throughout the community.

Please take the time to complete this survey. Your confidential responses will help to ensure focused action that continues to meet the diverse needs of our staff and residents. As such, we ask that you complete the survey on Survey Monkey. The results will be collated into one document for our use in developing the master plan.

Please get online and complete the survey before 12th September 2019.

Questions:

1. What are the things that make you most proud of the Wilmot Fire Department – for example, the level of professionalism, community involvement or making a positive difference within the community?

2. How do you think most people living in Wilmot perceive the Fire Department, and why?

3. What would you say are the top three issues facing the Wilmot Fire Department today?

4. There are nine core services that the Wilmot Fire Department delivers. Which services do you believe are most valued by the community? Please rank in order of priority from 1 (most important) to 9 (least important). *Please use each number **only once** and use all nine numbers.*

___ Fire fighting
___ Rescue (motor vehicle)
___ Fire origin and cause investigations
___ Fire prevention and safety inspections
___ Community outreach / Public education
___ Hazardous materials and technical rescue response (water/ice rescue)
___ Public assist / Non-emergency responses
___ Emergency planning
____ Medical assist and response

5. Are there any other services that you believe the Wilmot Fire Department should provide and why?

6. What improvements does the Wilmot Fire Department need to make to its services to be more efficient and what do you believe would be the outcome by implementing these efficiencies?

7. If it were up to you, what would the Fire Department be like 10 years from today and why?

8. Are there any other comments/suggestions that you would like to add that would help to improve the services the Wilmot Fire Department delivers to the community and to the firefighters?

Thank you for completing this survey. Your feedback is greatly appreciated and will help to shape future service delivery efforts.

Appendix C – Community Survey Example

During the MFP process, feedback was gathered from both the community in the form or an online survey and a meeting with those from the community who have utilized the services of the WFD.

The following survey was presented to the external stakeholders:

Wilmot Fire Department
Fire Master Plan – External Survey

Wilmot Fire Department has a proud tradition of assisting residents and effectively responding to emergency situations.

The Wilmot Fire Department is comprised of a team of dedicated full-time and volunteer personnel. The Department responds to emergencies and calls for assistance from three fire stations.

In our ongoing efforts to ensure that we are meeting the needs of our community we are creating a 10-year community-driven fire master plan to guide operational improvements and enhance how the service is provided throughout the community.

To accomplish this, we have engaged Emergency Management & Training Inc. (EMT), to assist us with this initiative. EMT is a local consulting firm that has worked with many fire departments in developing their fire master plans, station assessments and fire service reviews. Therefore, most of all, we need your help. So please take the time to complete this survey. Your confidential responses will help to ensure focused action that continues to meet the diverse needs of all residents.

Please completed the surveys by **September 12th, 2019** on Survey Monkey.

Questions:

1. What is your general impression of the Wilmot Fire Department in relation to its level of professionalism, community safety, education and fire prevention awareness programs?

a) Have you been approached by Wilmot Fire Department staff in relation to their Smoke Alarm Program, and if so, how did you find this interaction?

2. How important are the following statements to you:

	Extremely important	Very important	Important	Not very important	Not important at all
How quickly the Fire Department gets to me if I have an emergency	☐	☐	☐	☐	☐
Whether the Fire Department will visit my home to give me safety advice and/or fire smoke alarms	☐	☐	☐	☐	☐
How much the fire services costs me as a taxpayer	☐	☐	☐	☐	☐
How well the Fire Department works with other agencies to provide wider community safety services	☐	☐	☐	☐	☐
How often the Fire Department consults me about their services	☐	☐	☐	☐	☐
How often the Fire Department provides community training opportunities (e.g. fire extinguisher training; school safety programs; older and wiser program; smoke alarms; fire escape planning)	☐	☐	☐	☐	☐
How visible the Fire Department is at local community events	☐	☐	☐	☐	☐
Contacting assistance services after an emergency, as required	☐	☐	☐	☐	☐
Timeliness to any request for services or assistance from the Fire Department	☐	☐	☐	☐	☐
Purchasing and maintaining new and applicable equipment	☐	☐	☐	☐	☐
Continued and relevant training	☐	☐	☐	☐	☐

3. Based on your knowledge/understanding of the Fire Department, what do you think are the top three issues facing our fire service today?

4. There are nine core services delivered by the Wilmot Fire Department. Which services are most important to you? Please rank in order of priority from Extremely Important to Not Important at All.

	Extremely important	Very important	Important	Not very important	Not important at all
Fire fighting	☐	☐	☐	☐	☐
Rescue (i.e. motor vehicle accidents)	☐	☐	☐	☐	☐
Fire/Arson investigations	☐	☐	☐	☐	☐
Fire prevention and safety inspections	☐	☐	☐	☐	☐
Community outreach / Public education	☐	☐	☐	☐	☐
Hazardous materials (i.e. gas or chemical spills) and technical rescue response (i.e. water rescues)	☐	☐	☐	☐	☐
Public assistance requests / Non-emergency responses	☐	☐	☐	☐	☐
Emergency management and planning	☐	☐	☐	☐	☐
Medical assist and response	☐	☐	☐	☐	☐

5. Are there any additional services that you believe should be provided? If so, please specify.

6. Over the next 10 years, if you could recommend/implement up to three things to improve how the current services are provided by the Wilmot Fire Department, what would those things be?

7. Have you directly received service from the Wilmot Fire Department?

- ☐ Yes
- ☐ No (If no, skip to question 9)

8. Could you share some details of your experience and any recommendations for service improvements?

9. Would you be willing to participate in a special focus group to discuss improvements to the fire service?

- ☐ Yes
- ☐ No

10. Please provide your name and contact information so we can get in touch with you about participating in a focus group.

_____

_____

Thank you for completing this survey. Your feedback is greatly appreciated and will help to shape future service delivery efforts.

If you have any questions about this survey, please e-mail Lyle Quan, Consultant for Emergency Management & Training Inc. at lquan@emergencymgt.com.

Appendix D – Five-Step Staffing Evaluation Process

Step 1: Scope of Service, Duties, and Desired Outputs

Identify the services and duties that are performed within the scope of the organization. Outputs should be specific, measurable, reproducible, and time limited. Among the elements can be the following:

- Administration
- Data collection, analysis
- Delivery
- Authority/responsibility
- Roles and responsibilities
- Local variables
- Budgetary considerations
- Impact of risk assessment

Step 2: Time Demand

Using the worksheets in Table C.2.2(a)-(d), quantify the time necessary to develop, deliver, and evaluate the various services and duties identified in Step 1, taking into account the following:

- Local nuances
- Resources that affect personnel needs

Plan Review - Refer to Plan Review Services Table A.7.9.2 of the standard to determine Time Demand.

Step 3: Required Personnel Hours

Based on Step 2 and historical performance data, convert the demand for services to annual personnel hours required for each program *[see Table C.2.3(a) through Table C.2.3(e)]*. Add any necessary and identifiable time not already included in the total performance data, including the following:

- Development/preparation
- Service
- Evaluation
- Commute
- Prioritization

Step 4: Personnel Availability and Adjustment Factor

Average personnel availability should be calculated, taking into account the following:

- Holiday
- Jury duty
- Military leave
- Annual leave/vacation
- Training
- Sick leave
- Fatigue/delays/other

Example: Average personnel availability is calculated for holiday, annual, and sick leave per personnel member (see Table C.2.4).

Step 5: Calculate Total Personnel Required

Branch of the unassigned personnel hours by the adjustment factor will determine the amount of personnel (persons/year) required. Any fractional values can be rounded up or down to the next integer value. Rounding up provides potential reserve capacity; rounding down means potential overtime or assignment of additional services conducted by personnel. (Personnel can include personnel from other agencies within the entity, community, private companies, or volunteer organizations).

Correct calculations based on the following:

(1) Budgetary validation
(2) Rounding up/down
(3) Determining reserve capacity
(4) Impact of non-personnel resources (materials, equipment, vehicles) on personnel

More information on this staffing equation can be found within the National Fire Protection Association 1730 standard. The Fire Prevention should assess the previous five steps and evaluate their present level of activity and the future goals of the Branches.

Appendix E – Public Fire Safety Guideline - Recruitment and Retention of Volunteer Firefighters

Volunteer Fire Service Personnel Recruitment and Retention

Public Fire Safety Guidelines	Subject Coding **PFSG 04-84-13**
Section **Fire Administration**	Date **October 2006**
Subject **Volunteer Fire Service Personnel Recruitment and Retention**	Page

Scope and Application:

This guideline provides municipal officials and Fire Chiefs of volunteers and composite fire services with a general overview of principles to consider in the recruitment and retention of volunteers.

There are many factors that contribute to the success of a volunteer recruitment and retention program. These include implementing organized marketing, recruitment, selection, hiring, training and retention plans.

Establishing and following a formal recruitment and retention program offers fire services the opportunity to increase the likelihood of finding, and keeping, the right people, doing the right tasks, at the right time.

Definition of Volunteer:

According to the *Fire Protection and Prevention Act* 1997, a Volunteer Firefighter is defined as "a Firefighter who provides fire protection services either voluntarily or for a nominal consideration, honorarium, training or activity allowance. ("pompier volontaire") 1997, c. 4, s. 1 (1); 2001, c. 25, s. 475 (1)."

The majority of fire departments in Ontario (450 out of 478) utilize the services of Volunteer fire service personnel. Recognized for their commitment and generosity, saving residents in Ontario more than an estimated one billion dollars annually, these professionals strive to provide skilled, competent and caring service.

Fire services that rely on volunteers to comprise, or enhance, their staffing capability continue

to face the challenge of recruiting and retaining a sufficient number of capable and experienced personnel. This impacts on the effective, efficient, safe and timely delivery of fire protection services.

Recruitment and Retention Program:

The Benefits

A coordinated, organized program demonstrates:

- how seriously the leadership takes the services provided and the individuals who provide that service,
- sound risk management principles,
- proactive vs. reactive leadership within the department, and
- leadership's commitment to recognize volunteers, families and employers who support volunteerism.

It identifies:

- shortfalls and availability of volunteers in the community and,
- the number, type and quality of volunteers required to meet current or future needs.

It allows planning for:

- recruitment and selection,
- retention and succession, and
- training and development of volunteers.

Responsibility for Recruitment

Recruiting and retaining volunteers does take effort. Creating a committee within the municipality and assigning specific tasks can create opportunities for others besides the leadership to contribute to the growth of the fire service and allows for a more concentrated effort.

Annual Recruitment and Retention Plan

An annual recruitment and retention plan is a cyclic, ongoing process that will assist the fire service in planning and focusing its efforts. It should be a logical consideration of the time of the year, changing commitments throughout the seasons, weather, and psychological impact of

seasons, milestones in the department, annual events and other trends. This will prevent the department from coming up short in membership by not having good candidates to replace those leaving.

Policies and Guidelines

Fire service leaders benefit from having the necessary policies and procedures to ensure a safe, lawful, organized, empowering, non-discriminatory environment for their volunteers. No matter how large or small a department, policies and operating guidelines are essential management tools that set the standard for conduct and provide guidance for action. It is suggested that existing municipal policies, if available, be referenced.

Evaluation

Evaluation of the recruitment and retention program is necessary to identify strengths and areas to improve. It is an ongoing process that is built into all the components of the program.

Components in the Recruitment and Retention Cycle:

Pre-Recruitment

Prior to recruiting, it would be beneficial to conduct a needs assessment to determine the role and number of volunteers required. Completing a Community Profile will determine community members who may best fit those roles. Answering these questions prior to recruiting enables the fire services to target specific individuals for specific roles and may increase the chance of success.

Recruitment

To promote diversity and involve volunteers with different skill sets, knowledge and perspectives, more than one recruitment method is necessary. Regardless of the method and knowing the department is seeking the best possible candidates, effective marketing and communication strategies are necessary to draw the interest of potential volunteers.

Selection and Hiring

Once received and acknowledged, all applicants require screening to determine those who will move on to the next step in the hiring process.

The Fire Service takes great pride in service to communities. A screening process is essential in order demonstrate that the volunteers serve in the community's best interest. The leadership should decide which screening methods and tools are appropriate for their department and should ensure that they reflect human rights and privacy legislation and existing municipal policies.

Upon selection, a written agreement between the volunteer and the fire department will ensure that expectations and responsibilities for each side are clearly identified and agreed to.

Orientation and Probation

Fire Departments and their volunteers will benefit from having an organized system to orient, train and advance recruits. One of the most successful and safe approaches for developing volunteers and establishing a commitment is to initially offer specific tasks that allow them to become involved in a limited way, followed by opportunities to grow into a role with more responsibilities.

Ongoing Recruitment Efforts

Successful recruitment efforts should be ongoing throughout the year to ensure that there is a waiting list of interested individuals to draw from.

Ongoing Retention Efforts

Recruiting and training new volunteers is just the beginning. The long-term challenge is to create an environment in which individuals continue to be motivated, interested, challenged,

supported and satisfied with the work they've accomplished. Factors that contribute to this environment include leadership practices, operating guidelines, recognition initiatives, support efforts, teamwork and fellowship.

Exit Processes

When an individual leaves the fire department, it is a good opportunity to solicit input to determine the department's strengths and opportunities for improvement. Exit processes should reflect understanding that, whether leaving on a positive or negative note, the volunteer and the fire department deserve fair and respectful treatment.

Resource Book:

The Application of Recruitment and Retention Principles:

The Volunteer Recruitment and Retention Resource Book that supports this guideline, was developed by the Ontario Fire Marshal's Office, in collaboration with representatives from the Ontario Fire Service.

This resource describes effective practices and strategies for recruitment and retention of Volunteer Fire Service personnel. It also provides a compilation of tools and templates that can be used to support the best practice or strategy. These may be photocopied or edited to meet the needs of the individual Fire Service.

A CD-ROM and printed copy of this resource has been made available to all Fire Services that maintain a volunteer complement. It can also be accessed and downloaded from the Ontario Fire Marshal's public access website http://www.mcscs.jus.gov.on.ca/.

Codes, Standards & Best Practices:

Codes, standards and best practices resources are available to assist in establishing local policy. All are available at http://www.mcscs.jus.gov.on.ca/.

Volunteer Resource Management

The following resources and links describe effective practices and strategies for Volunteer Resource Management. The principles and topics can be applied to the fire service.

The Canadian Code for Volunteer Involvement http://www.Volunteer.ca
HR Council for the Voluntary and Non-profit Sector http://www.hrvs-rhsbc.ca
Knowledge Development Centre, Canada Volunteerism Initiative http://www.kdc-cdc.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.

Additional References:

See also:

Office of the Fire Marshal's Public Fire Safety Guidelines

The following guidelines can be referenced when conducting a needs assessment to determine the role, quantity and characteristics of Volunteers required by the fire service.

04-08A-03 Optimizing Rural Emergency Response

04-12-13 Core Services (Response and Support) and Associated Guidelines

04-40A-03 Simplified Risk Assessment

OFMEM-TG-02-2019

Community Risk Assessment Guideline

Office of the Fire Marshal and Emergency Management

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July, 2019

OFMEM Section: Public Safety Education at 1-800-565-1842

Abstract

The Office of the Fire Marshal and Emergency Management (OFMEM) has developed this guideline to assist municipalities and fire departments in a territory without municipal organization, to conduct community risk assessments and use its community risk assessment to inform decisions about the provision of fire protection services, in accordance with *Ontario Regulation 378/18* (*O.Reg. 378/18*), and the *Fire Protection and Prevention Act 1997 (FPPA).*

For further information or assistance contact the Public Safety Education Manager at 1-800-565-1842.

This guideline provides:

- An outline of recommended best practices to conduct a community risk assessment in order to make informed decisions about the provision of fire protection services;
- Descriptions of the nine mandatory profiles outlined in *O. Reg. 378/18* that must be addressed in the community risk assessment, including examples of where this data and information can be obtained;
- Worksheets that can be used or modified to document and analyse data/information related to the nine mandatory profiles that must be addressed in the community risk assessment in accordance with *O. Reg. 378/18*, and,

Worksheets that can be used or modified to assist in assigning risk levels and identifying preferred treatment options.

1.0 SCOPE

This document has been prepared by the Office of the Fire Marshal and Emergency Management to assist municipalities and fire departments in territories without municipal organization to conduct community risk assessments to meet the requirements of Ontario Regulation 378/18.

2.0 INTRODUCTION

Community risk assessments allow fire departments to make informed decisions about the types and levels of fire protection services they will provide based on identified risks.

Risk is defined as a measure of the probability and consequence of an adverse effect to health, property, organization, environment, or community as a result of an event, activity or operation.

By identifying all fire and life safety risks in their community and prioritizing them based on the probability of them occurring and the impact they would have if they occurred, fire departments are able to determine which risks to address and how best to address them. Risk assessments allow fire departments to ensure their levels of service, programs and activities for public fire safety education, Fire Code inspections and enforcement, and emergency response directly address the identified risks and are most effective at preventing and mitigating them.

The *Fire Protection and Prevention Act, 1997 (FPPA)* mandates that every municipality in Ontario shall establish a program 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 the fire service, these elements are commonly referred to as the Three Lines of Defence:

1. Public Fire Safety Education
2. Fire Safety Standards and Enforcement
3. Emergency Response

In order to meet these obligations, municipalities need to make informed decisions with respect to the types and levels of fire protection services they provide. This requires an

understanding of the risks facing the community that can be identified through a community risk assessment. Once identified, the risks can be prioritized to assist in making informed decisions about risk treatment options and the provision of fire protection services.

Ontario Regulation 378/18: Community Risk Assessments (O. Reg. 378/18) requires that every municipality and every fire department in a territory without municipal organization complete a community risk assessment and use it to inform decisions on the provision of fire protection services. The Community Risk Assessment is an in-depth and comprehensive assessment to inform fire protection service levels and requires the identification, analysis, evaluation and prioritizing of risk, based on nine mandatory profiles.

The regulation outlines a standard set of information profiles that must be considered when conducting a community risk assessment. The information and data gathered to address each of the profiles will assist in determining and prioritizing the risks to public safety in the community, and determining the fire protection services to be provided by municipalities and fire departments in territories without municipal organization to address those risks.

The mandatory profiles identified in Schedule 1 of O. Reg. 378/18 were determined from examining various current industry models on risk assessment. Many of these models provide comprehensive coverage pertaining to identification of data and information relating to community risks. However, it should be noted that these risk assessment models may or may not include all of the nine mandatory profiles as identified in Schedule 1 of O. Reg. 378/18. Municipalities and fire departments in territories without municipal organization may use other tools, models or guidelines to conduct their community risk assessments provided that their final community risk assessment meets all the requirements outlined in O. Reg. 378/18., including consideration of each of the nine mandatory profiles identified in Schedule 1 of the regulation (see Appendix E).

The Guideline provides suggestions as to how to record and analyze the data/information using the sample worksheets that are provided in the Guideline. Municipalities and fire departments in territories without municipal organization have flexibility to include any additional information (e.g. maps, charts, diagrams) they deem appropriate to best assist them in analyzing their data and information in order to make informed decisions on fire protection services.

The Emergency Management and Civil Protection Act (EMCPA) requires every municipality to conduct an all-hazards risk assessment, which informs continuous improvement of emergency management programs and improves public safety. A completed Hazard Identification Risk Assessment (HIRA) may provide some of the information/data required to fulfil the needs of a Community Risk Assessment under O. Reg. 378/18, although there will

be specific fire related information that is not contained in the HIRA that will be gathered as part of this process. The HIRA and the Community Risk Assessment are separate processes but should be viewed as complementary to one another.

Note: For the purposes of this guideline, the terms "fire department" and "fire departments" will be considered to include every municipality and every fire department without municipal organization.

3.0 CONDUCTING A COMMUNITY RISK ASSESSMENT

3.1 Identifying Risks – Mandatory Profiles

The first step in conducting a community risk assessment is to identify the various fire and life safety risks in the community. This can be done by gathering data about the make-up of the community and the activities occurring there.

O. Reg. 378/18 requires fire departments to consider the following profiles when completing their community risk assessment to ensure the risk assessment best considers all potential risks in the community:

1. Geographic Profile
2. Building Stock Profile
3. Critical Infrastructure Profile
4. Demographic Profile
5. Hazard Profile
6. Public Safety Response Profile
7. Community Services Profile
8. Economic Profile
9. Past Loss and Event History Profile.

Fire departments need to gather and review data and information about each of these profiles to identify the fire and life safety risks that could impact the community.

Worksheets 1 to 9 in Appendix A of this guideline can be used to record and organize the data and information for each profile. The worksheets can be filled in electronically. Fire and emergency risks and issues/concerns can be noted in the appropriate columns of each worksheet as they are identified. These worksheets can be modified or adapted to suit local needs based on available data or information.

A description of each profile, including potential sources of data and information for each, is provided below.

3.1.1. Geographic Profile

Geographic profile refers to the physical features of the community, including the nature and placement of features such as highways, waterways, railways, canyons, bridges, landforms, and wildland-urban interfaces.

Physical features of the community may present inherent risks that need to be taken into account when determining the type and level of fire protection services that should be provided by the fire department. Physical features may also impact emergency response access and response times.

Identifying any geographic features that might have implications with respect to risk or response allows fire departments to consider these issues when determining appropriate types and levels of fire protection services.

For example, a lake may have implications with respect to water and/or ice rescue services and the equipment and training that would be required to provide those services. The lake may also impact emergency response access and response times to certain areas within the community. Additionally, a lake may be a seasonal tourist attraction and the associated activities may present unique risks that could influence decisions on specific public fire safety education and Fire Code inspection and enforcement programs and activities.

Where to find/collect this information

Information related to the Geographic profile may be obtained from:

- Local knowledge of the area and by using maps of the municipality's natural (i.e. lakes, rivers, etc.) and human-made (i.e. highways, bridges, railways, etc.) features, and
- Local municipal departments (i.e. highways/roads, conservation authorities, etc.) who should have information about the location and uses of geographic and physical features of the community.

3.1.2. Building Stock Profile

Building Stock profile refers to the types, numbers, uses, and ages of the various buildings within the community.

Fire departments should consider the potential fire risks associated with different types/classifications or uses of buildings given their prevalence in the community and the presence of fire safety systems and equipment at the time of construction. Older buildings typically do not contain the same fire safety and fire protection systems required in newer buildings. This may impact the fire risk in older buildings. Also, how buildings are used can influence the fire risks in each building. For example, industrial chemical storage facilities are likely to present higher fire risks than buildings containing commercial retail activities. The age and type of residential buildings (e.g. high-rise vs. single family dwelling vs. town/row houses) can influence the probability and consequence of fire in those buildings.

Past inspection practices and frequencies also can be a factor when considering risk associated with any particular building occupancy classification categories. For instance, a robust inspection program in higher risk occupancies can have a positive influence on mitigating some of the inherent risks associated with that particular type of building. Conversely, a lack of historical inspection data in relation to a particular occupancy classification category also should be considered when determining risk.

These building characteristics can have significant impact on the public fire safety education, Fire Code inspection and enforcement and emergency response activities the fire department may determine are necessary to address the risks.

Where to find/collect this information

O. Reg. 378/18 does not specify which source of this information has to be referenced to complete the risk assessment. Fire departments have the flexibility to choose which source they feel will provide the optimum level of detail they are most comfortable with as an accurate reflection of the building stock in their community. Consideration should be given to consistency in terms of data sources when conducting new risk assessments and annual reviews.

Information related to the Building Stock profile may be obtained from:

- Categorizing buildings in accordance with the Standard Incident Report (SIR) property classification system which corresponds with the Ontario Building Code (OBC) occupancy classification system. As the Ontario Fire Code (OFC) requires that buildings be classified in accordance with the OBC, this approach makes it easy to consider issues like the type of construction and fire safety equipment/features that should be present in the different classifications of buildings, based on their size, age, design, and use;

- Municipal building departments that have information regarding the age, number, types, uses, etc. of buildings in the municipality;
- *Municipal Property Assessment Corporation* (MPAC – www.mpac.ca) data that assesses and classifies all properties within Ontario, and
- Fire department pre-plans that identify uses and potential risks within specific buildings or areas of the community.

3.1.3. Critical Infrastructure Profile

Critical Infrastructure profile refers to the facilities or services that contribute to the interconnected networks, services, and systems that meet vital human needs, sustain the economy, and protect public safety and security (i.e. electricity distribution, water distribution, telecommunications, hospitals, and airports).

Consideration of the presence, availability, capacity, and stability of infrastructure elements can help identify potential impacts that may result if any of these systems are compromised. Understanding how infrastructure impacts things like emergency services dispatch, communications, fire department emergency operations, overall health care or transportation can assist in determining preferred treatment options to address specific risks.

Where to find/collect this information

Information related to the Critical Infrastructure profile may be obtained from:

- Local municipal departments (i.e. public works, water and sanitation departments, etc.) and other local utility companies that have information about the location, uses, capacity, etc. of the critical infrastructure in the community, and
- A completed Hazard Identification Risk Assessment.

3.1.4. Demographic Profile

Demographic profile refers to the composition of the community's population considering such factors as population size and dispersion, age, gender, cultural background, level of education, socio-economic make-up, and transient population.

Awareness of the characteristics of the population in the community assists the fire department to determine if specific segments of the population are at high-risk of fire. This awareness allows fire departments to best identify high-risk behaviours that need to be changed, as well as specific techniques to communicate with high-risk groups.

Fire protection services, including public fire safety education and Fire Code inspections and enforcement programs, should be tailored to high-risk groups so that fire safety programs are delivered in the most relevant and meaningful ways and can have the greatest impact. For example, delivering fire safety messages using communications techniques popular with specific high-risk segments of the population increases the likelihood the messages are received by those segments and therefore are most effective at reducing the fire risk.

Where to find/collect this information

Information related to the Demographic profile may be obtained from:

- Local municipal departments that keep information regarding the demographic make-up of their populations, including trends and projections regarding how the demographics may change in the coming years. The amount of this type of information that is available from municipal departments may vary between municipalities, and
- Statistics Canada (www.statscan.gc.ca) census profiles of every community in Ontario, including demographic information.

3.1.5. Hazard Profile

Hazard profile refers to the hazards in the community, including natural hazards, hazards caused by humans, and technological hazards. This may include but not be limited to hazardous materials spills, floods, freezing rain/ice storms, forest fires, hurricanes, tornadoes, transportation emergencies (i.e. air, rail or road), snow storms, windstorms, extreme temperature, cyber-attacks, human health emergencies, and energy supply (i.e. pipelines, storage and terminal facilities, electricity, natural gas and oil facilities, etc.).

Fire departments should consider all potential hazards that pose a significant risk to or may have a significant impact on the community, and to which fire departments may be expected to respond.

Where to find/collect this information

Information related to the Hazard profile may be obtained from:

- Local municipal or government departments (i.e. public safety, police, emergency management, etc.) with information about the natural and technological hazards within the community and the risk they pose;
- Local historical incident data related to emergency incidents, and
- A completed Hazard Identification Risk Assessment.

3.1.6. Public Safety Response Profile

Public Safety Response profile refers to the agencies and organizations in the community (i.e. police, EMS, rescue) that may respond to certain types of incidtnets.

The fire department should consider other public safety response agencies (i.e. police, EMS, rescue) that might be tasked with or able to assist in the response to emergencies or in mitigating the impact of emergencies. This will assist the fire department to prioritize community risks and to determine the level of fire protection services it provides. For example, the presence of a private fire and rescue service at a local industrial facility may influence decisions about the type and the level of fire protection services a municipal fire department may provide to that facility.

Where to find/collect this information

Information related to the Public Safety Response profile may be obtained from:

- Local municipal departments (i.e. police, EMS, emergency management, etc.), and
- Private companies or industrial facilities who may have information about the response capabilities of other entities within the community.

3.1.7. Community Services Profile

Community Services profile refers to community agencies, organizations or associations that can provide services that support the fire department in the delivery of public fire safety education, Fire Code inspections and enforcement, or emergency response.

Community service agencies may be able to provide services in-kind, financial support, provisions of venues for training, increased access to high-risk groups in the community, or temporary shelter for displaced residents following an incident.

Where to find/collect this information

Information related to the Community Services profile may be obtained from:

- General local knowledge;
- Local municipal departments (i.e. social services);
- Community service agencies (i.e. agencies providing English as a second language services, resettlement agencies, agencies working with older adults, the Canadian Red

Cross, etc.) who have information about the various services provided by community organizations and their clients within the community.

3.1.8. Economic Profile

Economic profile refers to the economic sectors affecting the community that are critical to its financial sustainability.

When prioritizing risk in the community, the fire department should consider the impact of fire and other emergencies on the industrial or commercial sectors that provide significant economic production and jobs to the local economy. This will assist in determining the type and level of fire protection services provided in these sectors in the community.

For example, if a town has a large industrial or commercial occupancy that has a significant impact on the local economy, the fire department may consider increasing its public fire safety education and Fire Code inspection and enforcement activities to reduce the probability of a significant incident requiring a large scale emergency response.

Where to find/collect this information

Information related to the Economic profile may be obtained from:

- Local municipal departments (i.e. economic development, employment, and social services) that have information about the economic sectors that are critical to the community's economic well-being. This will help determine the economic impact (e.g. loss of business or jobs) if a fire occurs in a specific occupancy or area of the community.

3.1.9. Past Loss and Event History Profile

Past Loss and Event History profile refers to the community's past emergency response experience, including analyzing the following:

a) The number and types of emergency responses, injuries, deaths, and dollar losses.

b) A comparison of the community's fire loss statistics with provincial fire loss statistics.

Fire departments should evaluate previous response data to identify trends regarding the circumstances, behaviours, locations, and occupancy types of previous fires. This assists in determining the leading causes or behaviours resulting in fires, and high-risk locations and occupancies. Public fire safety education and Fire Code inspection and enforcement programs

can then be designed to specifically target high-risk behaviours among various population groups and to focus prevention activities in high-risk neighbourhoods or locations. This targeted approach allows public fire safety education and Fire Code inspection and enforcement programs to directly address fire risks, thereby increasing their fire prevention effectiveness.

Where to find/collect this information

Information related to the Past Loss and Event History profile may be obtained from:

- Standard Incident Reports completed by the fire department. These can be obtained through fire department records or by emailing the Office of the Fire Marshal and Emergency Management (OFMEM) at OFMstatistics@ontario.ca.;
- Trends and statistics about fire causes and fire and life safety issues across the province located on the OFMEM's website, and
- Information, available on request from the OFMEM, relating to fire losses in neighbouring communities.

For those communities where trends are not easily identifiable due to a lack of fire incidents, it may be helpful to look at trends across the province or in neighbouring municipalities that are similar in size and make-up.

It is suggested that a minimum of three (3) years' worth of data is analyzed in order to identify any potential patterns or trends and to avoid random events from unduly skewing the data.

4.0 PRIORITIZING RISKS

The mandatory profiles allow fire departments to identify the features and characteristics of their community that may impact fire and life safety risks. Once risks have been identified they should be prioritized. This section discusses how risks can be prioritized based on the probability of the risk happening and the consequence if the risk occurs. **Table 1: Probability Levels** and **Table 2: Consequence Levels** can be used to help determine the probability and consequence of each risk identified on the worksheets. The probability and consequence of each risk can then be noted in the appropriate columns on the relevant worksheets in Appendix A.

As noted in the introduction, risk is defined as a measure of the probability and consequence of an adverse effect to health, property, organization, environment, or community as a result of an event, activity or operation.

4.1 Probability

The probability or likelihood of a fire or emergency within a community is often estimated based on the frequency of previous experiences. A review of past events involves considering relevant historical fire loss data, learning from the experiences of other communities, and consulting members of the community with extensive historical knowledge. Professional judgment based on experience should also be exercised in combination with historical information to estimate probability levels. The probability of an event can be categorized into five levels of likelihood:

Table 1: Probability Levels

Description	Specifics
Rare	• may occur in exceptional circumstances • no incidents in the past 15 years
Unlikely	• could occur at some time, especially if circumstances change • 5 to 15 years since the last incident
Possible	• might occur under current circumstances • 1 incident in the past 5 years
Likely	• will probably occur at some time under current circumstances • multiple or recurring incidents in the past 5 years
Almost Certain	• expected to occur in most circumstances unless circumstances change • multiple or recurring incidents in the past year

Assign a probability level to each identified risk or hazard on the relevant worksheets in Appendix A.

4.2 Consequence

The consequence of a fire or emergency is the potential losses or negative outcomes associated with the event. The application of professional judgment and reviews of past occurrences are important methods used for determining consequence levels. Estimating the consequence level of an incident or event should involve an evaluation of four components:

a. **Life Safety**: Injuries or loss of life due to occupant and firefighter exposure to life threatening fire or other situations.

b. **Property Loss**: Monetary losses relating to private and public buildings, property content, irreplaceable assets, significant historic/symbolic landmarks and critical infrastructure.

c. **Economic Impact**: Monetary losses associated with property income, business closures, a downturn in tourism and/or tax assessment value, and employment layoffs.

d. **Environmental Impact**: Harm to human and non-human (i.e. wildlife, fish and vegetation) species of life and a general decline in quality of life within the community due to air/water/soil contamination as a result of the incident and response activities.

The consequence of an event can be categorized into five levels based on severity: **Table 2: Consequence Levels**

Description	Specifics
Insignificant	• no life safety issue • limited valued or no property loss • no impact to local economy, and/or • no effect on general living conditions
Minor	• potential risk to life safety of occupants • minor property loss • minimal disruption to business activity, and/or • minimal impact on general living conditions
Moderate	• threat to life safety of occupants • moderate property loss • poses threat to small local businesses, and/or • could pose a threat to the quality of the environment
Major	• potential for a large loss of life • would result in significant property damage • significant threat to large businesses, local economy and tourism, and/or • impact to the environment would result in a short term, partial evacuation of local residents and businesses
Catastrophic	• significant loss of life • multiple property damage to a significant portion of the municipality • long-term disruption of businesses, local employment, and tourism, and/or • environmental damage that would result in long-term evacuation of local residents and businesses

Assign a consequence level to each identified risk or hazard on the relevant worksheets in Appendix A.

5.0 ASSIGNING RISK LEVEL

Assigning a risk level assists fire departments in prioritizing risks, which helps to determine how to address or treat each risk. The **Risk Level Matrix** in this section can assist fire departments to determine risk levels based on the probability and consequence levels of each identified risk. Risks can be assigned as low risk, moderate risk or high risk. The risk levels for each risk can be noted in the **Assigned Risk Level** column on the relevant worksheets in Appendix A.

The matrix below can be used to determine the assigned risk level.[1] Plot the assigned probability and consequence levels on the relevant worksheets in Appendix A to assign a risk level for each identified risk.

Risk Level Matrix

Probability	INSIGNIFICANT	MINOR	MODERATE	MAJOR	CATASTROPHIC
ALMOST CERTAIN	Moderate Risk	Moderate Risk	High Risk	High Risk	High Risk
LIKELY	Moderate Risk	Moderate Risk	Moderate Risk	High Risk	High Risk
POSSIBLE	Low Risk	Moderate Risk	Moderate Risk	Moderate Risk	High Risk
UNLIKELY	Low Risk	Low Risk	Moderate Risk	Moderate Risk	Moderate Risk
RARE	Low Risk	Low Risk	Low Risk	Moderate Risk	Moderate Risk

Consequence

6.0 RISK TREATMENT OPTIONS

Once risk levels have been assigned, fire departments can determine how best to treat each risk and the resources required to do so.

Options for treating risks include the following:

1. Avoid the Risk
2. Mitigate the Risk
3. Accept the Risk
4. Transfer the Risk

6.1 Avoid the Risk

Avoiding the risk means implementing programs and initiatives to prevent a fire or emergency from happening.

For example, public fire safety education initiatives aim to change people's behaviours so that fires may be prevented, and people react appropriately when fires do occur. Fire Code inspections and enforcement help to ensure that buildings are in compliance with the Ontario Fire Code.

6.2 Mitigate the Risk

Mitigating the risk means implementing programs and initiatives to reduce the probability and/or consequence of a fire or emergency.

For example, a routine Fire Code inspection and enforcement program to ensure Fire Code compliance helps to reduce the probability and consequence of a fire.

A pre-planning program involving fire suppression crews allows the fire department to gain knowledge about specific buildings in the community and their contents, fuel load, fire protection systems, etc. This information can be provided to the fire inspection staff who can ensure the building is compliant with the Fire Code. Also, it can assist suppression crews to plan fire suppression operations should a fire occur in a building. These activities can reduce the probability and consequence of a fire.

6.3 Accept the Risk

Accepting the risk means that after identifying and prioritizing a risk, the fire department determines that no specific programs or initiatives will be implemented to address this risk. In this treatment option, the fire department accepts that the potential risk might happen and will respond if it occurs.

For example, typically fire departments do not implement programs to prevent motor vehicle collisions. Yet it is generally accepted that collisions will happen and that the fire ~~department will respond whe~~n they do. Similarly, environmental hazards (e.g. ice storms)

and medical calls cannot be prevented by a fire department program or initiative, yet fire departments typically respond when these emergencies occur.

When accepting risks, fire departments should consider their capacity (i.e. equipment, personnel, training, etc.) to respond.

6.4 Transfer the Risk

Transferring the risk means the fire department transfers the impact and/or management of the risk to another organization or body. Contracting public fire safety education, Fire Code inspection and enforcement, or emergency response services to a neighbouring municipality or another organization are examples of transferring the management of risks to another body.

For example, a community may enter into a fire protection agreement with a neighbouring community with respect to any or all of the three lines of defence.

7.0 SETTING THE TYPE AND LEVEL OF FIRE PROTECTION SERVICES

When setting the type and level of fire protection services, all Three Lines of Defence should be considered in terms of the impact each will have on the probability or consequence of identified risks. Once fire departments have determined the preferred treatment option for each risk, they can plan and implement activities that address those risks. Things to consider include the fire department's current resources, staffing levels, training, equipment and authority versus those that may be required to implement the preferred treatment options.

After considering these issues, the preferred treatment option (e.g. avoid the risk, mitigate the risk, accept the risk, or transfer the risk) can be noted in the **Preferred Treatment Option** column of worksheet 10 in Appendix A.

Fire departments should also ensure that operational policies and standard operating guidelines address the levels of service and activities required to address each risk. This includes setting goals and objectives, and determining resources, training, equipment, activities, and programs required across each of the Three Lines of Defence.

The process of making informed decisions about the provision of fire protection services should include careful consideration of the following:

- Implementation of public fire safety education, Fire Code inspections and enforcement, and emergency response activities that are appropriate to address the causes, behaviours or issues associated with identified risks.
- Capabilities and capacity of the fire department (e.g. financial and staffing resources, training, equipment, authority, etc.) that may be required to implement preferred treatment options.
- Strategic partners with common interests, available resources, or skill sets that could assist in addressing risks using the applicable risk assessment profiles.
- Establishing and Regulating By-laws, operational policies and standard operating guidelines that reflect the fire protection services to be provided to address the identified risks.
- Establishment of goals and objectives, strategies, timelines, and evaluation for the proposed fire protection services to be provided.
- Communication with municipal council and the public to outline the types and levels of fire protection services that will be provided.

8.0 REVIEW

O. Reg. 378/18 requires fire departments to complete a new community risk assessment at least every five years. The regulation also requires that fire departments review their community risk assessment at least once every 12 months to ensure it continues to accurately reflect the community and its fire and emergency risks. The purpose of this review is to identify any changes in the mandatory profiles that may result in a change in risk level, or a change in the type or level of fire protection services the fire department determines necessary to address the risks. This review is intended to ensure that the fire protection services provided continue to be evidence-based and linked to the identified risks.

This review process may or may not involve a close examination of all of the nine community profiles, depending on whether any changes related to the profiles have occurred since the completion of the risk assessment or the last review. For example, changing demographic profiles (e.g. an aging population or an increase in the number of immigrants) or changing geographic profiles (e.g. the planned construction of a new highway) may impact the risks identified in the community risk assessment and the fire department activities and resources required to address them. A review may or may not result in any changes to the assigned risk levels or fire protection services.

However, a review can provide evidence-based justification for decisions that may impact the delivery of fire protection services.

Fire departments should maintain documentation that the reviews required by O. Reg. 378/18 have been conducted. This documentation should include:

- Any changes to any of the mandatory profiles;
- Any changes to assigned risk levels or fire protection services that occur as a result of the review, and
- Any other information the fire department deems appropriate to the review or any resultant changes to fire protection services.

If no significant changes occur in the community within a 12 month period, and no changes are required to the profiles or fire protection services, then a review could simply consist of documentation to that effect.

Appendix A: Profile Worksheets

Worksheet 1: Geographic Profile

List the physical features of the community that impact the risk of and response to fire and other emergencies, including large bodies of water, highways/road networks, waterways, railways, canyons, bridges, landforms, and wildland-urban interfaces.

Geographic Profile Risks List the geographic features in your community and how they may influence the delivery of fire protection services.	
Geographic Feature	**Potential Impact on the Delivery of Fire Protection Services**
Example: Large body of water	• Impacts training, equipment for response activities • Impacts response times/travel time to calls • Recreational/tourist activities impact public fire safety education and Fire Code inspections and enforcement activities
Example: Railway tracks	• Impacts station location • Impacts response protocols

Note: The information on this worksheet should be considered in conjunction with the information on all other worksheets, and not in isolation. Worksheet 10 allows fire departments to consider all of the information on all worksheets together in order to make decisions about the provision of fire protection services in their municipality/community.

Worksheet 2: Building Stock Profile

The building stock profile should consider the characteristics of the buildings in the community. This can include the use of the buildings, building density, building age and construction, and building height and area. This information will assist fire departments to identify the issues/concerns that will impact the delivery of fire protection services.

Building Stock Profile Risks

List the building stock/occupancy types in your community and the fire and other emergency issues/concerns for each.
Assign probability, consequence and risk levels to each.

Occupancy Classification		Issues/Concerns (i.e. age of buildings; use of buildings; building density, height and area; historic and culturally significant buildings; etc.)	Probability (refer to Table 1 for suggested probability levels)	Consequence (refer to Table 2 for suggested consequence levels)	Assigned Risk Level (refer to the Risk Level Matrix for suggested risk levels)
Group A	Assembly				
Group B	Detention Occupancies				
	Care and Treatment / Care				
Group C	Single family				
	Multi-unit residential				
	Hotel / Motel				
	Mobile Homes & Trailers				
	Other				

Occupancy Classification		**Issues/Concerns (i.e. age of buildings; use of buildings; building density, height and area; historic and culturally significant buildings; etc.)**	**Probability** (refer to Table 1 for suggested probability levels)	**Consequence** (refer to Table 2 for suggested consequence levels)	**Assigned Risk Level** (refer to the Risk Level Matrix for suggested risk
Groups D & E	Business & Personal Service / Mercantile				
Group F	Industrial				
Other	Occupancies not classified in OBC such as farm buildings.				

Note: The information on this worksheet should be considered in conjunction with the information on all other worksheets, and not in isolation. Worksheet 10 allows fire departments to consider all of the information on all worksheets together in order to make decisions about the provision of fire protection services in their municipality/community.

Worksheet 3: Critical Infrastructure Profile

Consider the community's critical infrastructure including electricity distribution, water distribution, telecommunications, hospitals, and airports and how they relate to fire and other emergency risks in the community.

Critical Infrastructure Profile Risks List the critical infrastructure in your community and the fire and other emergency issues/concerns relating to each.	
Identified Critical Infrastructure	**Issues/Concerns**
Example: Electricity distribution	• Hydro lines go down
Example: Hospital	• Large number of immobile people at risk if a fire occurs
Example: Telecommunications	• Telephone lines/cell towers go down

Note: The information on this worksheet should be considered in conjunction with the information on all other worksheets, and not in isolation. Worksheet 10 allows fire departments to consider all of the information on all worksheets together in order to make decisions about the provision of fire protection services in their municipality/community.

Worksheet 4a: Demographic Profile

Consider the characteristics of your community's demographic profile to identify potential fire safety issues/concerns. This will help the fire department prioritize its overall risk and decisions about the provision of fire protection services. For example, traditionally older adults, young children, recent immigrants, and people with disabilities are at the highest risk of fire. Knowing if your community has a high number of people in any of these demographic groups helps your fire department prioritize your public fire safety education and Fire Code inspection and enforcement programs.

Demographic profile characteristics to consider include: age, culture, education, socio-economics, transient populations or other unique population characteristics in your community.

The following population distribution chart can assist with identifying high-risk or vulnerable demographic groups in your community.

Ages of population	# of People	% of Total Population
0-4		
5-9		
10-14		
15-19		
20-24		
25-29		
30-34		
35-39		
40-44		
45-49		
50-54		
55-59		
60-64		
65-69		
70-74		
75-79		

80-84		
85 and over		
Total Population		

Consider the following questions to help identify the demographic groups within your community and the associated fire safety issues/concerns:

1. Are there specific age groups that make up a large portion of your community? If yes, who are they?
2. Are there groups whose language and/or cultural practices impact fire safety in your community? If yes, who are they?
3. Are there transient populations in your community (e.g. post-secondary school students, migrant workers, seasonal tourists, etc.)? If yes, who are they?
4. Are there specific socio-economic groups and/or circumstances that impact fire safety in your community? If yes, who/what are they?
5. Are there demographic groups within your community that have cognitive or physical disabilities served by community service agencies? If yes, who are they?
6. List any other unique demographic groups or characteristics in your community that impact fire safety.

Worksheet 4b: Demographic Profile

Use the answers to the questions above to list the identified demographic groups in the first column of the worksheet below.

Demographic Profile Risks List the demographic groups of concern in your community and the fire and other emergency issues/concerns relating to each group.	
Identified Demographic Group	**Issues/Concerns**
Example: Large immigrant population	• Language barriers • Cultural traditions that present fire safety concerns
Example: Large seniors population	• Large number of seniors residential buildings High • number of seniors receiving assistance/care from personal support worker organizations
Example: Large population of summer tourists	• How does the fire department reach this audience with fire safety messages if they don't live in the community

Note: The information on this worksheet should be considered in conjunction with the information on all other worksheets, and not in isolation. Worksheet 10 allows fire departments to consider all of the information on all worksheets together in order to make decisions about the provision of fire protection services in their municipality/community.

Worksheet 5: Hazard Profile

List potential hazards in the community including but not limited to hazardous materials spills, floods, freezing rain/ice storms, forest fires, hurricanes, tornadoes, transportation emergencies (i.e. air, rail or road), snow storms, windstorms, extreme temperature, cyber-attacks, human health emergencies, and energy supply (i.e. pipelines, storage and terminal facilities, electricity, natural gas and oil facilities).

Hazard Profile Risks List the hazards in your community and the fire or other emergency risk of each. Assign probability, consequence and risk levels to each risk identified.			
Identified Hazard	**Probability** (refer to Table 1 for suggested probability levels)	**Consequence** (refer to Table 2 for suggested consequence levels)	**Assigned Risk Level** (refer to the Risk Level Matrix for
Example: Ice storm (*power interruptions/ disruptions in communications/ delayed access*)	Possible	Minor	Moderate
Example: Flood (*obstructed access/increased calls for rescue/assistance*)	Possible	Minor	Moderate

Note: The information on this worksheet should be considered in conjunction with the information on all other worksheets, and not in isolation. Worksheet 10 allows fire departments to consider all of the information on all worksheets together in order to make decisions about the provision of fire protection services in their municipality/community.

Worksheet 6: Public Safety Response Profile

Consider other public safety response agencies (i.e. police, EMS, rescue) that might be tasked with or able to assist in the response to emergencies or in mitigating the impact of emergencies. Also consider the types of incidents each is able to respond to and any issues or concerns that may impact fire department response.

Public Safety Response Profile Risks List the other public safety response agencies in your community and the incidents they respond to.			
Identified Public Safety Response Agency	**Types of Incidents They Respond To**	**What is Their Role at the Incident**	**Issues/Concerns**
Example: Ontario Provincial Police	• MVC's • Fire Scenes	• Scene control, traffic control	None
Example: EMS	• Medical Calls	• Take control upon arrival	What level of service will the fire department provide before and after EMS' arrival
Example: Industrial fire brigade	• Internal incidents on private property	• suppression	Fire department may not need to provide full response/may provide more of a

Note: The information on this worksheet should be considered in conjunction with the information on all other worksheets, and not in isolation. Worksheet 10 allows fire departments to consider all of the information on all worksheets together in order to make decisions about the provision of fire protection services in their municipality/community.

Worksheet 7: Community Services Profile

Consider community service agencies, organizations or associations that provide services that support the fire department in the delivery of public fire safety education, Fire Code inspection and enforcement and emergency response. This may include services in-kind, financial support, provisions of venues for training, increased access to high-risk groups in the community, and temporary shelter for displaced residents following an incident.

Community Services Profile Risks List the community service agencies and the types of services they can provide.		
Community Service Agencies	**Types of Assistance they Can Provide**	**Issues/Concerns**
Example: Canadian Red Cross	Temporary shelter, clothing, food following an incident	None
Example: Lions Club	Services in-kind (e.g. funding / physical labour / facilities)	None
Example: Meals on Wheels / Home Support Workers	Access to homebound populations	None

Note: The information on this worksheet should be considered in conjunction with the information on all other worksheets, and not in isolation. Worksheet 10 allows fire departments to consider all of the information on all worksheets together in order to make decisions about the provision of fire protection services in their municipality/community.

Worksheet 8: Economic Profile

Consider the industrial or commercial sectors that provide significant economic production and jobs to the local economy and the impact to the community's economy if a fire or other emergency occurred in occupancies housing those sectors.

Economic Profile Risks List the industrial or commercial occupancies that provide significant economic production and jobs in the community. List the fire or other emergency risks in each occupancy. Assign probability, consequence, and risk levels for each risk identified.				
Identified Occupancy	**Key Risk**	**Probability** (refer to Table 1 for suggested probability levels)	**Consequence** (refer to Table 2 for suggested consequence levels)	**Assigned Risk Level** (refer to the Risk Level Matrix for suggested risk levels)
Example: Vulnerable Occupancies	Fire	Possible	Minor	Moderate
Example: Paper Mill	Fire	Possible	Major	Moderate

Note: The information on this worksheet should be considered in conjunction with the information on all other worksheets, and not in isolation. Worksheet 10 allows fire departments to consider all of the information on all worksheets together in order to make decisions about the provision of fire protection services in their municipality/community.

Worksheet 9a: Past Loss and Event History Profile

Consider previous response data to identify trends regarding the deaths, injuries, dollar loss, and causes of fire in various occupancy types. This assists in determining the leading causes of fires and high-risk locations and occupancies.

In the absence of fire loss data, local knowledge may be the most reliable predictor of fire risk in your community.

Also, provincial statistics can assist in determining the types of occupancies and locations where fire losses, injuries and deaths most commonly occur.

Municipal Fire Losses, Deaths, Injuries, and Causes																
Occupancy Classification		Year:					Year:					Year:				
		# of Fires	$ Loss	# of Injuries	# of Deaths	Causes	# of Fires	$ Loss	# of Injuries	# of Deaths	Causes	# of Fires	$ Loss	# of Injuries	# of Deaths	Causes
Group A	Assembly															
Group B	Detention															
	Care & Treatment / Care															
Group C	Residential															
	Mobile Homes & Trailers															

Groups D & E	**Business & Personal Service / Mercantile**															

Occupancy Classification		Year:					Year:					Year:				
		# of Fires	$ Loss	# of Injuries	# of Deaths	Causes	# of Fires	$ Loss	# of Injuries	# of Deaths	Causes	# of Fires	$ Loss	# of Injuries	# of Deaths	Causes
Group F	Industrial															
Other																
Totals																

Worksheet 9b: Past Loss and Event History Profile

Past Loss and Event History Profile Risks List the causes for each occupancy type identified on the previous worksheet. Assign probability, consequence and risk levels to each cause identified.

Occupancy Type/Location	**Causes**	**Probability** (refer to Table 1 for suggested probability levels)	**Consequence** (refer to Table 2 for suggested consequence levels)	**Assigned Risk Level** (refer to the Risk Level Matrix for suggested risk
Example: Group F - Industrial	Hazardous materials spill	Possible	Major	Moderate
Example: Group C – residential high density (high-rise)	Fire	Almost Certain	Moderate	High
Example: Group C – residential low density (single	Fire	Almost Certain	Minor	Moderate

Note: The information on Worksheet 9b should be considered in conjunction with the information on all other worksheets, and not in isolation. Worksheet 10 allows fire

departments to consider all of the information on all worksheets together in order to make decisions about the provision of fire protection services in their municipality/community.

Worksheet 10: Identifying Treatment Options for the Top Risks in the Community

The preferred treatment options identified for each risk in the last column of this worksheet can be used to assist the fire department to set its type and level of fire protection services. Refer to the **Setting the Type and Level of Fire Protection Services** section of this guideline.

Identifying Treatment Options for the Top Risks in the Community Using Worksheets 1 to 9 identify the top risks or issues/concerns for each of the nine profiles, and identify the preferred treatment option for each.		
Mandatory Profiles	**Top Risk or Issues/Concerns**	**Preferred Treatment Option** (refer to the Risk Treatment Options section for suggested treatment options and
Geographic Profile	Examples: Body of water impacts training, equipment for response	Accept Risk - Implement water/ice rescue training protocols, SOGs, and
	Body of water impacts response time	Accept Risk - Implement appropriate response protocols, SOGs, and activities
	Body of water – recreational/tourist activities	Avoid and Mitigate Risk – public education and hotel inspection programs required
	Railway impacts station location	Accept Risk - Implement appropriate response protocols, SOGs, and activities
	Railway impacts response protocols	Accept Risk - Implement appropriate response protocols, SOGs, and activities

Critical Infrastructure Profile		

Mandatory Profiles	**Top Risk or Issues/Concerns**	**Preferred Treatment Option** (refer to the Risk Treatment Options section for suggested treatment options and considerations)
Demographic Profile		
Hazard Profile		
Public Safety Response Profile		
Community Services Profile		
Economic Profile		
Past Loss and Event History Profile		

Appendix B:

How the Risk Levels in the Risk Level Matrix were Determined

The risk levels in the Risk Level Matrix on page 15 were determined using the following methodology. The probability and consequence levels outlined in Table 1: Probability Level (page 13) and Table 2: Consequence Level (pages 14-15) have different definitions, but are given the same weighted numerical values[2] (see the numerical values in red below) to reflect the fact that ***probability and consequence are equally important***. While it is human tendency to place more weight on consequence than probability, using the same weighted numerical values ensures that probability and consequence are given equal value. This approach is consistent with current risk management industry practices. The risk levels in the Risk Level Matrix were determined by multiplying the numeric values for probability and consequence.

Risk Level Matrix

Probability	INSIGNIFICANT 1	MINOR 10	MODERATE 100	MAJOR 1,000	CATASTROPHIC 10,000
ALMOST CERTAIN 10,000	Moderate Risk 10,000	Moderate Risk 100,000	High Risk 1,000,000	High Risk 10,000,000	High Risk 100,000,000
LIKELY 1,000	Moderate Risk 1,000	Moderate Risk 10,000	Moderate Risk 100,000	High Risk 1,000,000	High Risk 10,000,000
POSSIBLE 100	Low Risk 100	Moderate Risk 1,000	Moderate Risk 10,000	Moderate Risk 100,000	High Risk 1,000,000
UNLIKELY 10	Low Risk 10	Low Risk 100	Moderate Risk 1,000	Moderate Risk 10,000	Moderate Risk 100,000
RARE 1	Low Risk 1	Low Risk 10	Low Risk 100	Moderate Risk 1,000	Moderate Risk 10,000

Consequence

Low Risk:	probability x consequence = 1; 10; or 100
Moderate Risk:	probability x consequence = 1,000; 10,000; or 100,000
High Risk:	probability x consequence = 1,000,000; 10,000,000; or 100,000,000

[2] The numeric scale used here is taken from Dillon Consulting, *The Corporation of the City of Mississauga, Community Risk Identification: Introduction and Methodology,* July 2017.

Appendix C:

ONTARIO REGULATION 378/18

made under the

FIRE PROTECTION AND PREVENTION ACT, 1997

COMMUNITY RISK ASSESSMENTS

Mandatory use

1. Every municipality, and every fire department in a territory without municipal organization, must,

(a) complete and review a community risk assessment as provided by this Regulation; and

(b) use its community risk assessment to inform decisions about the provision of fire protection services.

What it is

2. (1) A community risk assessment is a process of identifying, analyzing, evaluating and prioritizing risks to public safety to inform decisions about the provision of fire protection services.

(2) A community risk assessment must include consideration of the mandatory profiles listed in Schedule 1.

(3) A community risk assessment must be in the form, if any, that the Fire Marshal provides or approves.

When to complete (at least every five years)

3. (1) The municipality or fire department must complete a community risk assessment no later than five years after the day its previous community risk assessment was completed.

(2) If a municipality, or a fire department in a territory without municipal organization, comes into existence, the municipality or fire department must complete a community risk assessment no later than two years after the day it comes into existence.

(3) A municipality that exists on July 1, 2019, or a fire department in a territory without municipal organization that exists on July 1, 2019, must complete a community risk assessment no later than July 1, 2024.

(4) Subsection (3) and this subsection are revoked on July 1, 2025.

When to review (at least every year)

4. (1) The municipality or fire department must complete a review of its community risk assessment no later than 12 months after,

(a) the day its community risk assessment was completed; and

(b) the day its previous review was completed.

(2) The municipality or fire department must also review its community risk assessment whenever necessary.

(3) The municipality or fire department must revise its community risk assessment if it is necessary to reflect,

(a) any significant changes in the mandatory profiles;

(b) any other significant matters arising from the review.

(4) The municipality or fire department does not have to review its community risk assessment if it expects to complete a new community risk assessment on or before the day it would complete the review.

Commencement

5. This Regulation comes into force on the later of July 1, 2019 and the day it is filed.

Schedule 1:
Mandatory Profiles

1. Geographic profile: The physical features of the community, including the nature and placement of features such as highways, waterways, railways, canyons, bridges, landforms and wildland-urban interfaces.

2. Building stock profile: The types of buildings in the community, the uses of the buildings in the community, the number of buildings of each type, the number of buildings of each use and any building-related risks known to the fire department.

3. Critical infrastructure profile: The capabilities and limitations of critical infrastructure, including electricity distribution, water distribution, telecommunications, hospitals and airports.

4. Demographic profile: The composition of the community's population, respecting matters relevant to the community, such as population size and dispersion, age, gender, cultural background, level of education, socioeconomic make-up, and transient population.

5. Hazard profile: The hazards in the community, including natural hazards, hazards caused by humans, and technological hazards.

6. Public safety response profile: The types of incidents responded to by other entities in the community, and those entities' response capabilities.

7. Community services profile: The types of services provided by other entities in the community, and those entities' service capabilities.

8. Economic profile: The economic sectors affecting the community that are critical to its financial sustainability.

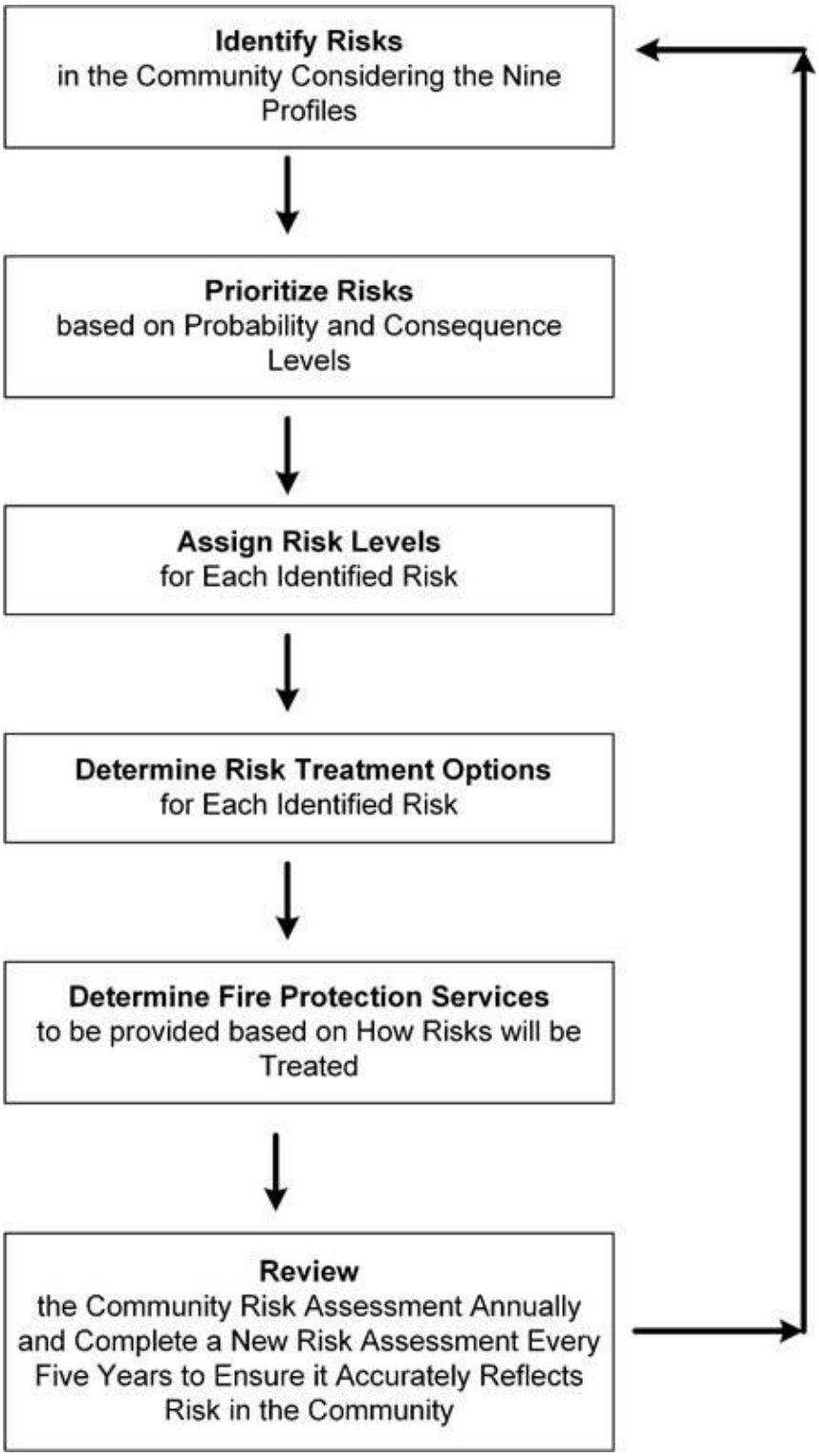
9. Past loss and event history profile: The community's past emergency response experience, including the following analysis:

1. The number and types of emergency responses, injuries, deaths and dollar losses.
2. Comparison of the community's fire loss statistics with provincial fire loss statistics.

Note: Each profile is to be interpreted as extending only to matters relevant to fire protection services.

Appendix D:

Community Risk Assessment: Flow Chart



Appendix E: References

DBP Management, *5 Ways to Manage Risk*, dbpmanagement.com

Dillon Consulting, *The Corporation of the City of Mississauga, Community Risk Identification: Introduction and Methodology*, July 2017

Government of Ontario, *Fire Protection and Prevention Act, 1997, S.O. 1997, c. 4*

Government of Ontario, *Ontario Regulation 378/18: Community Risk Assessments*, May 2018

National Fire Protection Association, *NFPA 1300, Standard on Community Risk Assessment and Community Risk Reduction Plan Development*, Proposed Second Draft, January 14, 2019

National Fire Protection Association Urban Fire and Life Safety Task Force, *Community Risk Reduction: Doing More With More*, June 2016

Office of the Fire Marshal and Emergency Management, *Comprehensive Fire Safety Effectiveness Model: Fire Prevention Effectiveness Model – Position Paper*, September 1997

Office of the Fire Marshal and Emergency Management, *Comprehensive Fire Safety Effectiveness Model: Fire Risk Sub-Model*, June 2009

Office of the Fire Marshal and Emergency Management, *Public Fire Safety Guideline 0440A-03: Simplified Risk Assessment*, January 2006

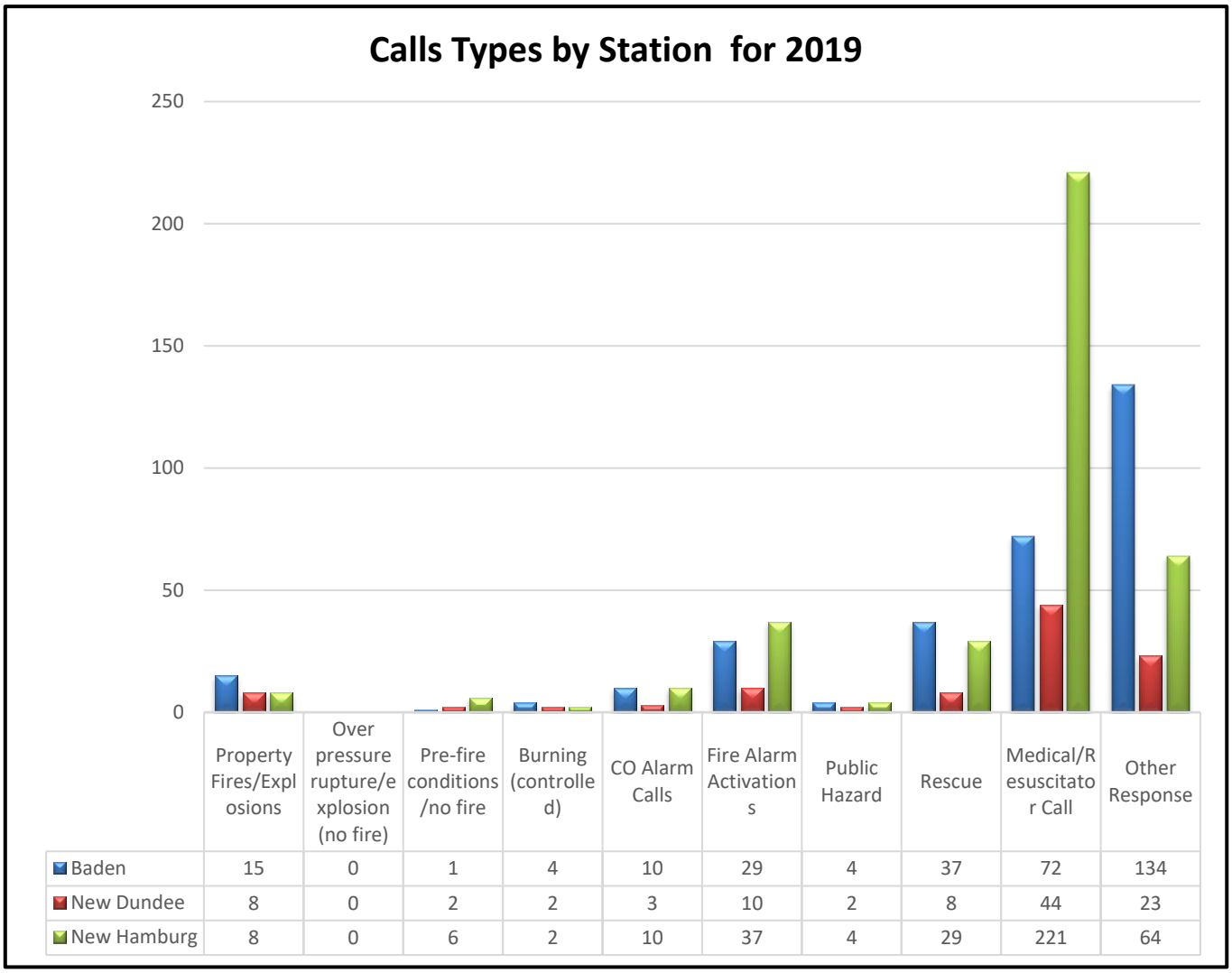
U.S. Fire Administration, *Risk Management Practices in the Fire Service*, January 2018

Vision 20/20, *Community Risk Assessment: A Guide for Conducting a Community Risk Assessment*, Version 1.5, February 2016

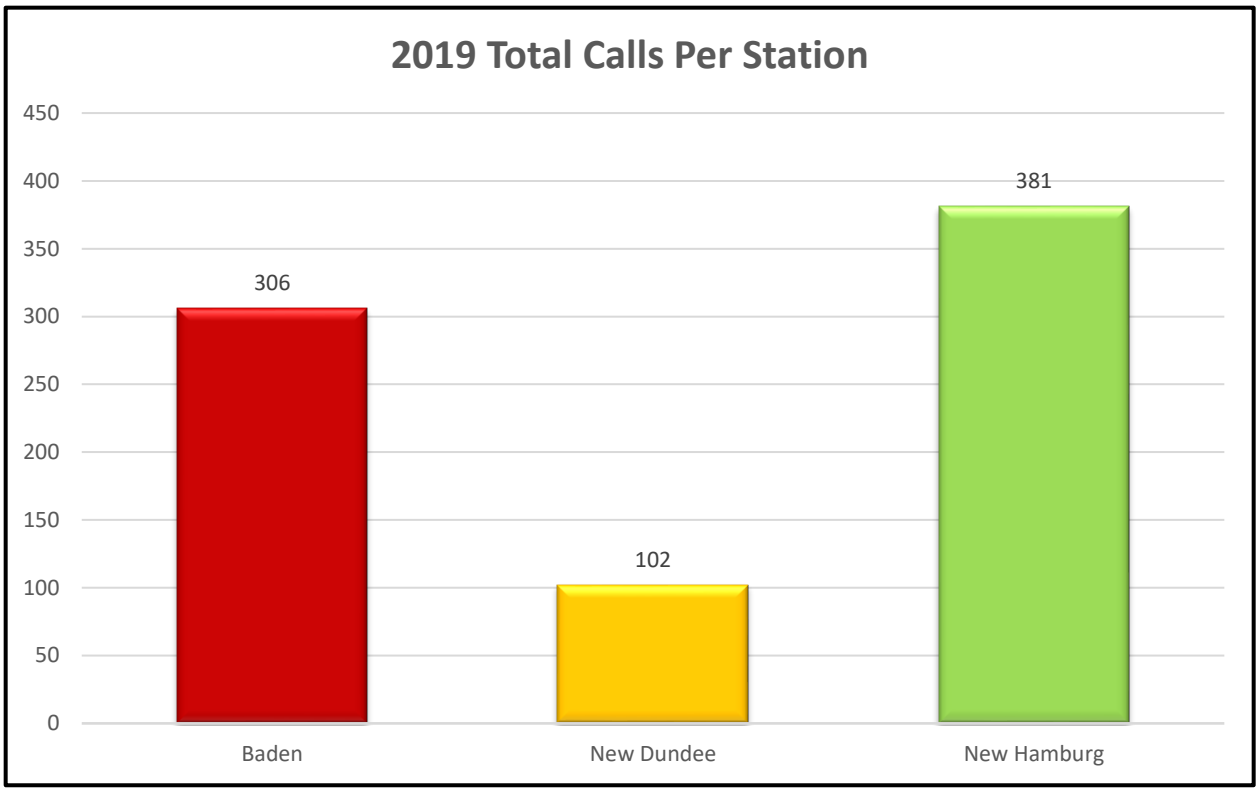
Vision 20/20, *Community Risk Reduction Planning: A Guide for Developing a Community Risk Reduction Plan*, Version 4, June 2016

Appendix G – Call and Response Data for 2019, 2018, 2017 and 2016

2019 Response Data



	Property Fires/Explosions	Over pressure rupture/explosion (no fire)	Pre-fire conditions/no fire	Burning (controlled)	CO Alarm Calls	Fire Alarm Activations	Public Hazard	Rescue	Medical/Resuscitator Call	Other Response
Baden	15	0	1	4	10	29	4	37	72	134
New Dundee	8	0	2	2	3	10	2	8	44	23
New Hamburg	8	0	6	2	10	37	4	29	221	64


2019 Total Calls Per Station
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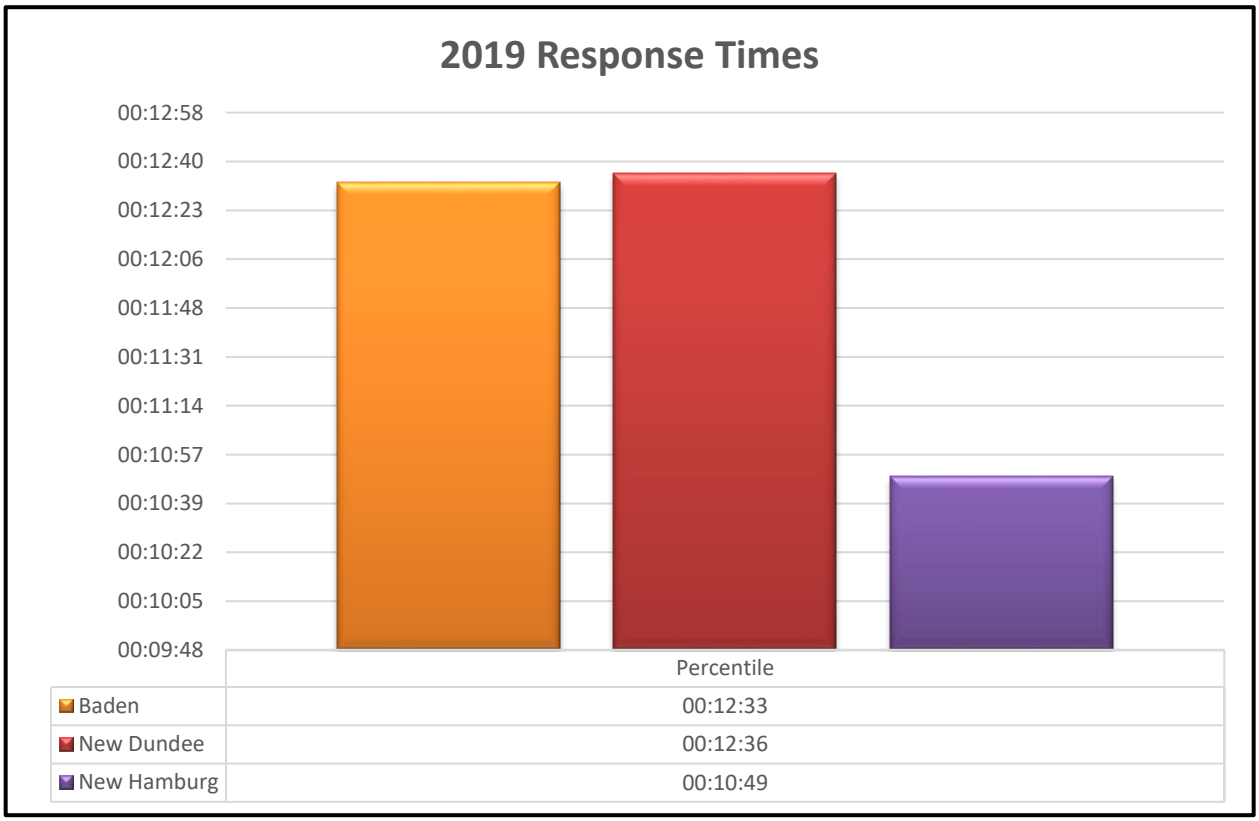
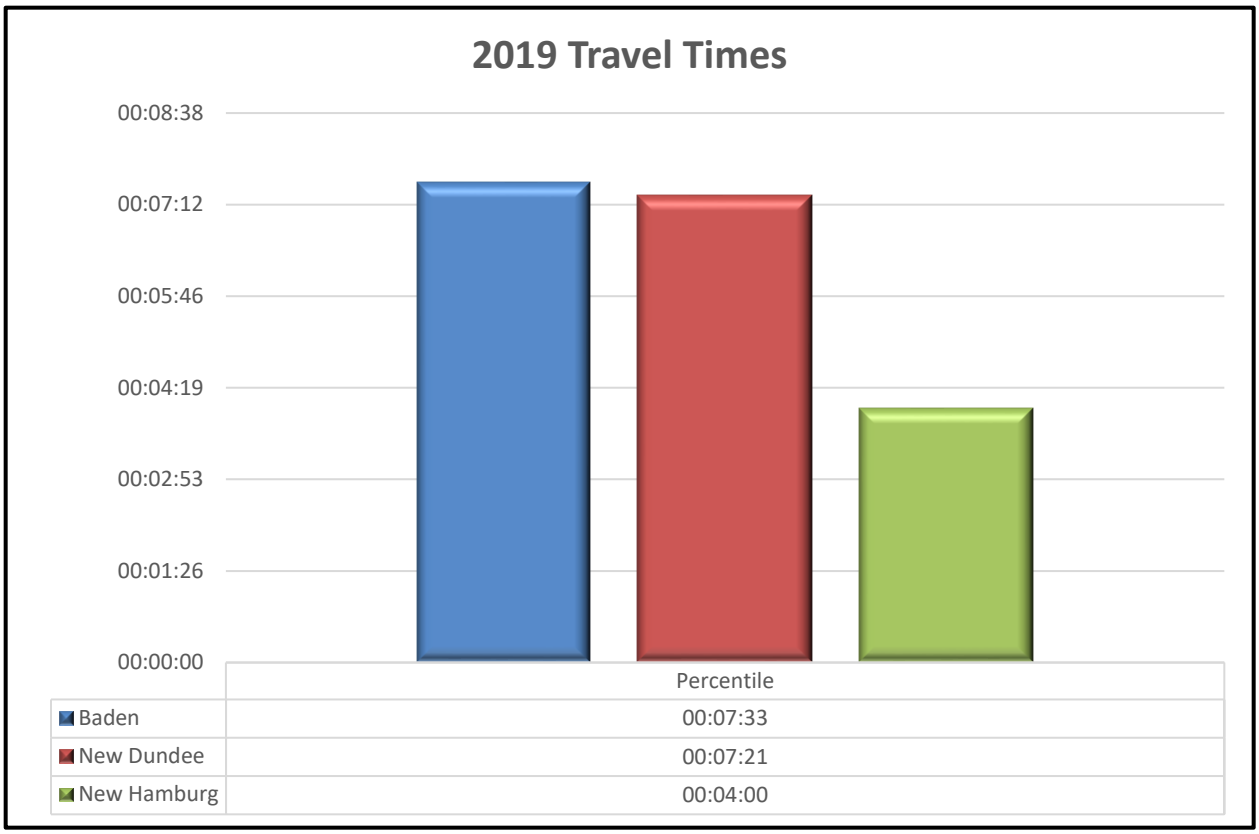
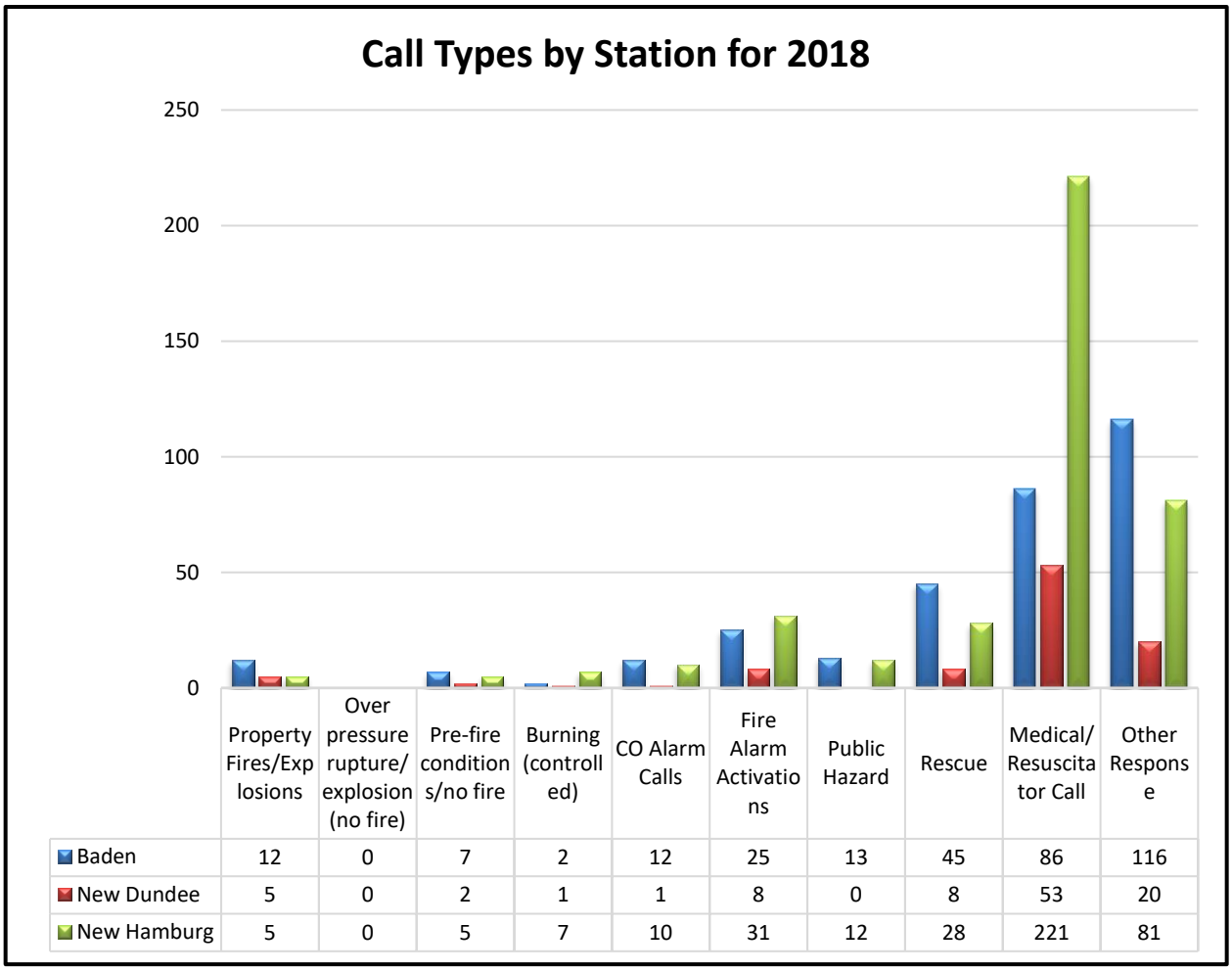
400
350
300
250
200
150
100
50
0
306
102
381
Baden
New Dundee
New Hamburg

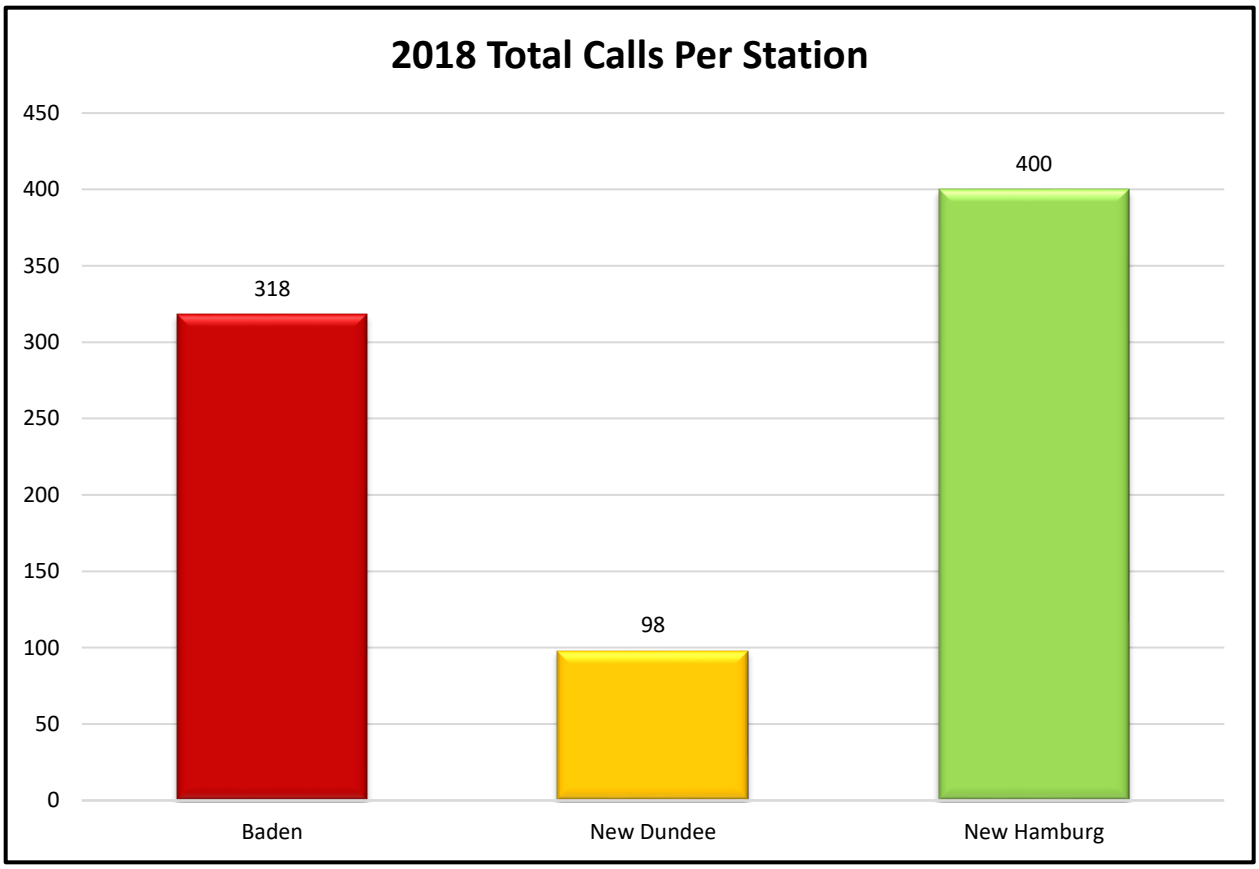

2019 Response Times
00:12:58
00:12:40
00:12:23
00:12:06
00:11:48
00:11:31
00:11:14
00:10:57
00:10:39
00:10:22
00:10:05
00:09:48
Percentile
Baden 00:12:33
New Dundee 00:12:36
New Hamburg 00:10:49

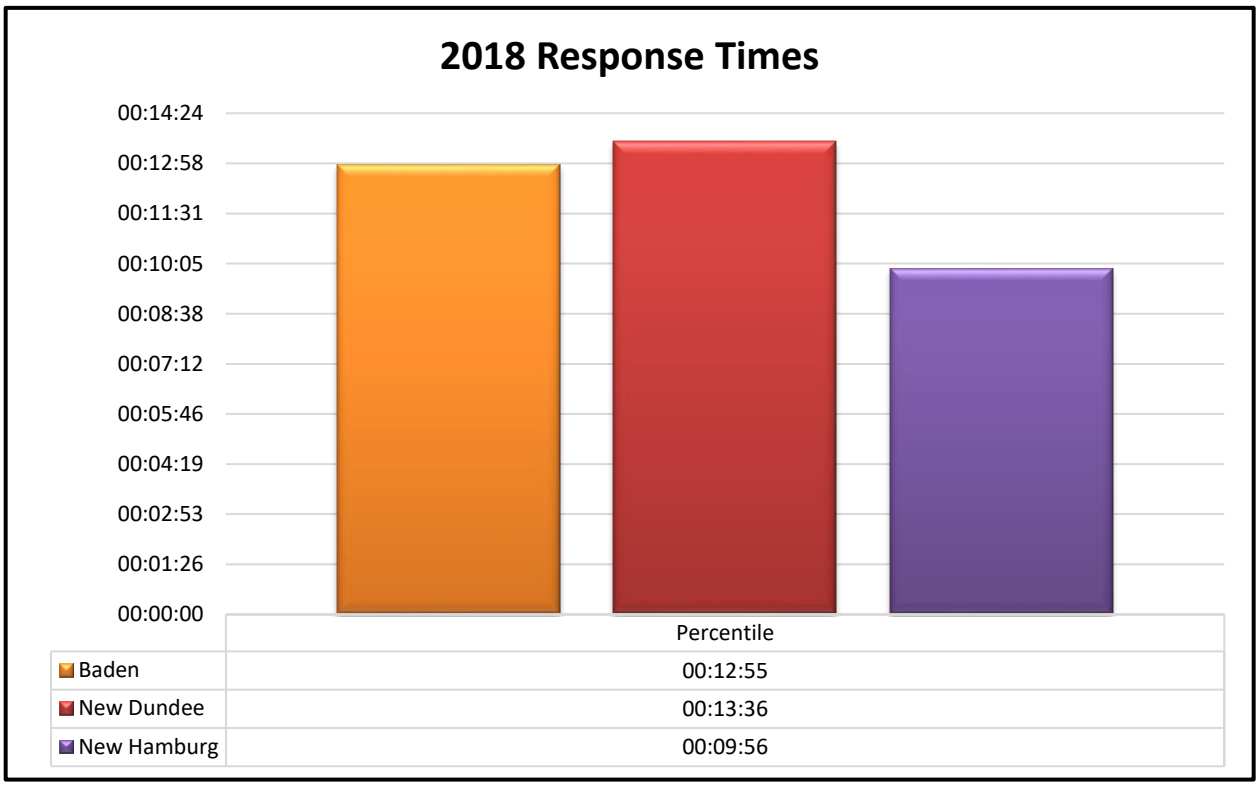

2019 Travel Times
00:08:38
00:07:12
00:05:46
00:04:19
00:02:53
00:01:26
00:00:00
Percentile
Baden
00:07:33
New Dundee
00:07:21
New Hamburg
00:04:00

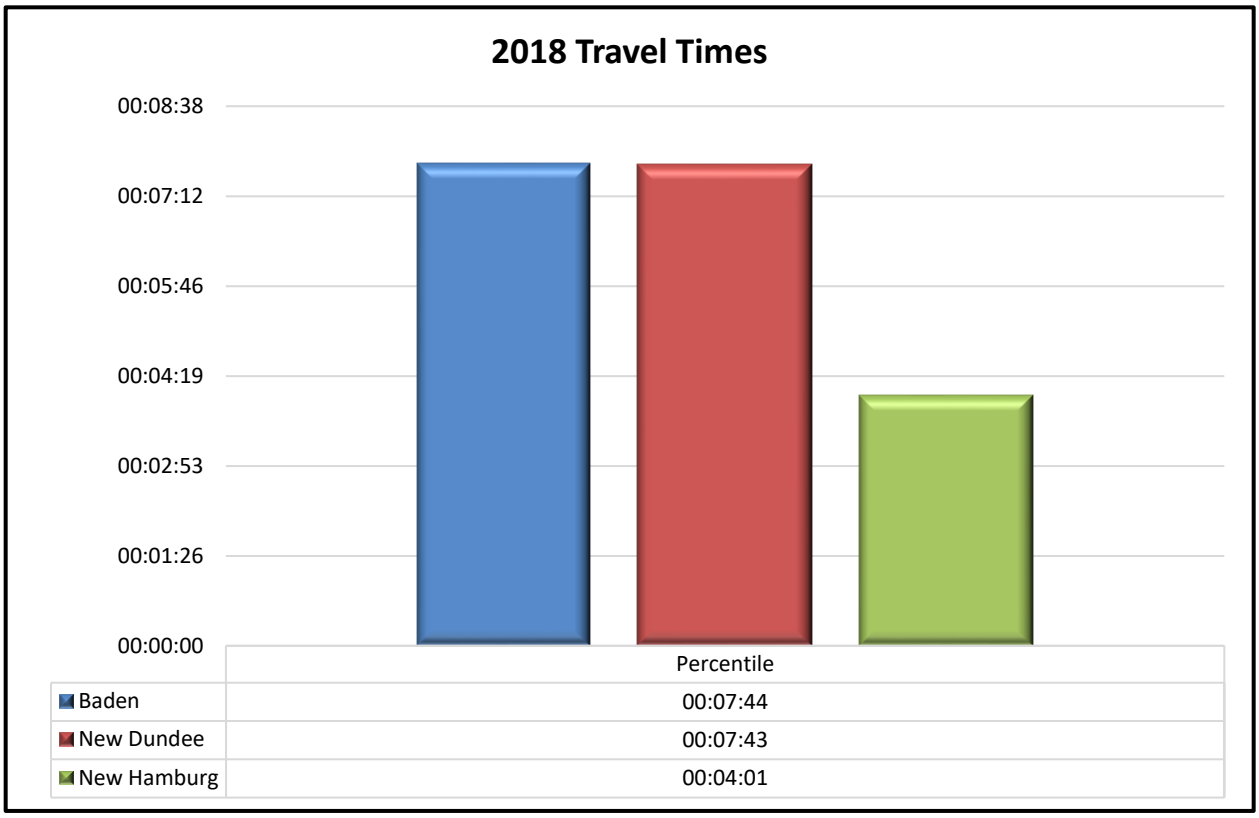
2018 Response Data



	Property Fires/Explosions	Over pressure rupture/ explosion (no fire)	Pre-fire conditions/no fire	Burning (controlled)	CO Alarm Calls	Fire Alarm Activations	Public Hazard	Rescue	Medical/ Resuscitator Call	Other Response
Baden	12	0	7	2	12	25	13	45	86	116
New Dundee	5	0	2	1	1	8	0	8	53	20
New Hamburg	5	0	5	7	10	31	12	28	221	81


2018 Total Calls Per Station
450
400
350
300
250
200
150
100
50
0
318
98
400
Baden
New Dundee
New Hamburg


2018 Response Times
00:14:24
00:12:58
00:11:31
00:10:05
00:08:38
00:07:12
00:05:46
00:04:19
00:02:53
00:01:26
00:00:00
Percentile
Baden 00:12:55
New Dundee 00:13:36
New Hamburg 00:09:56


2018 Travel Times
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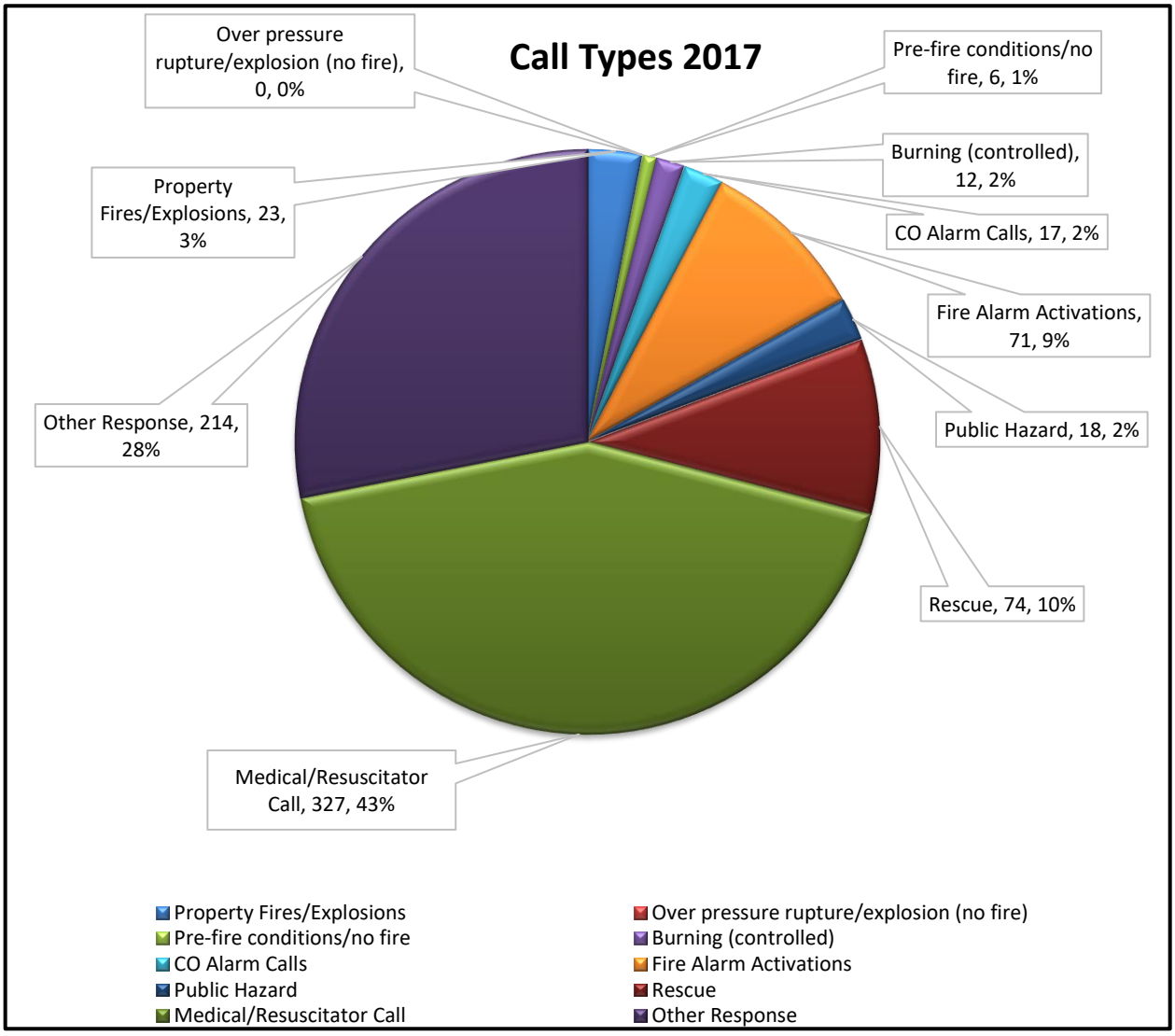
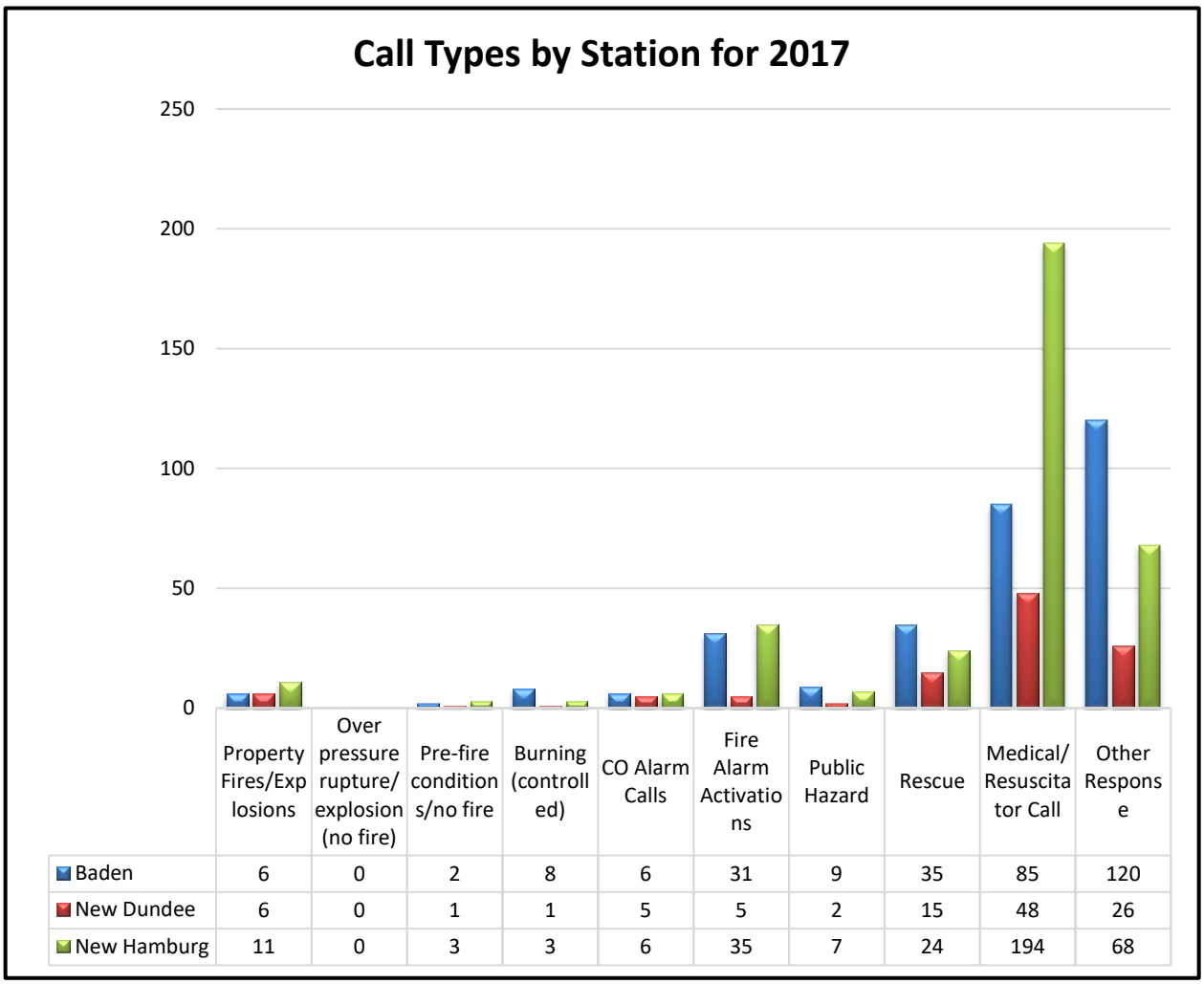
00:07:12
00:05:46
00:04:19
00:02:53
00:01:26
00:00:00
Percentile
Baden
00:07:44
New Dundee
00:07:43
New Hamburg
00:04:01

2017 Response Data

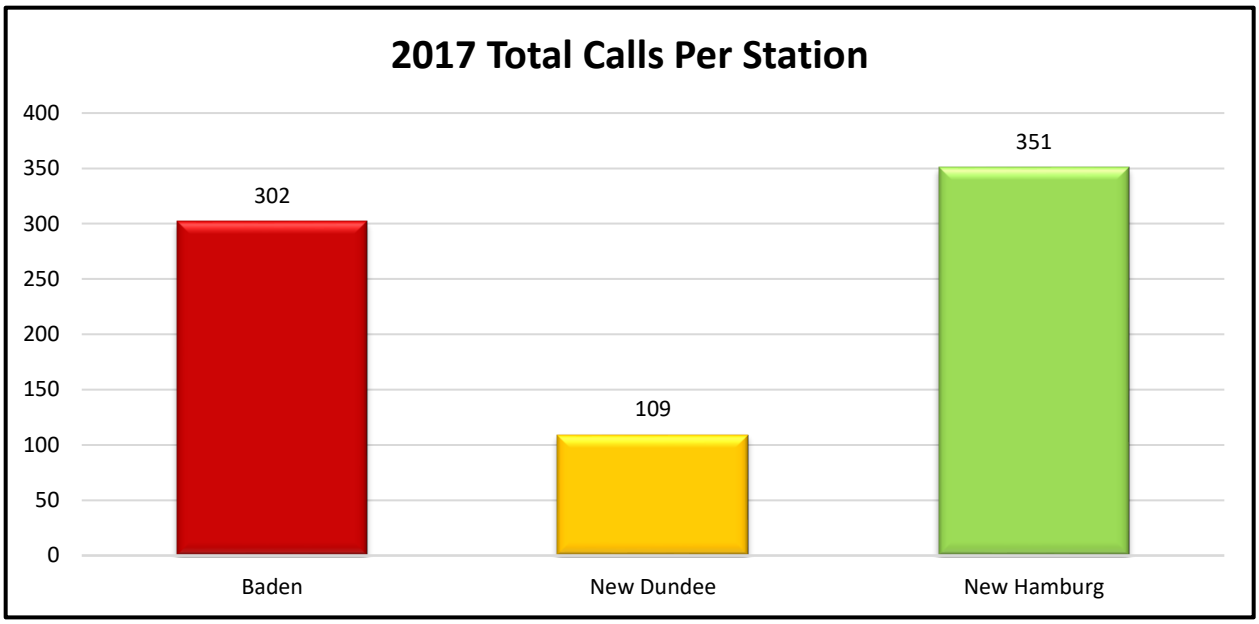


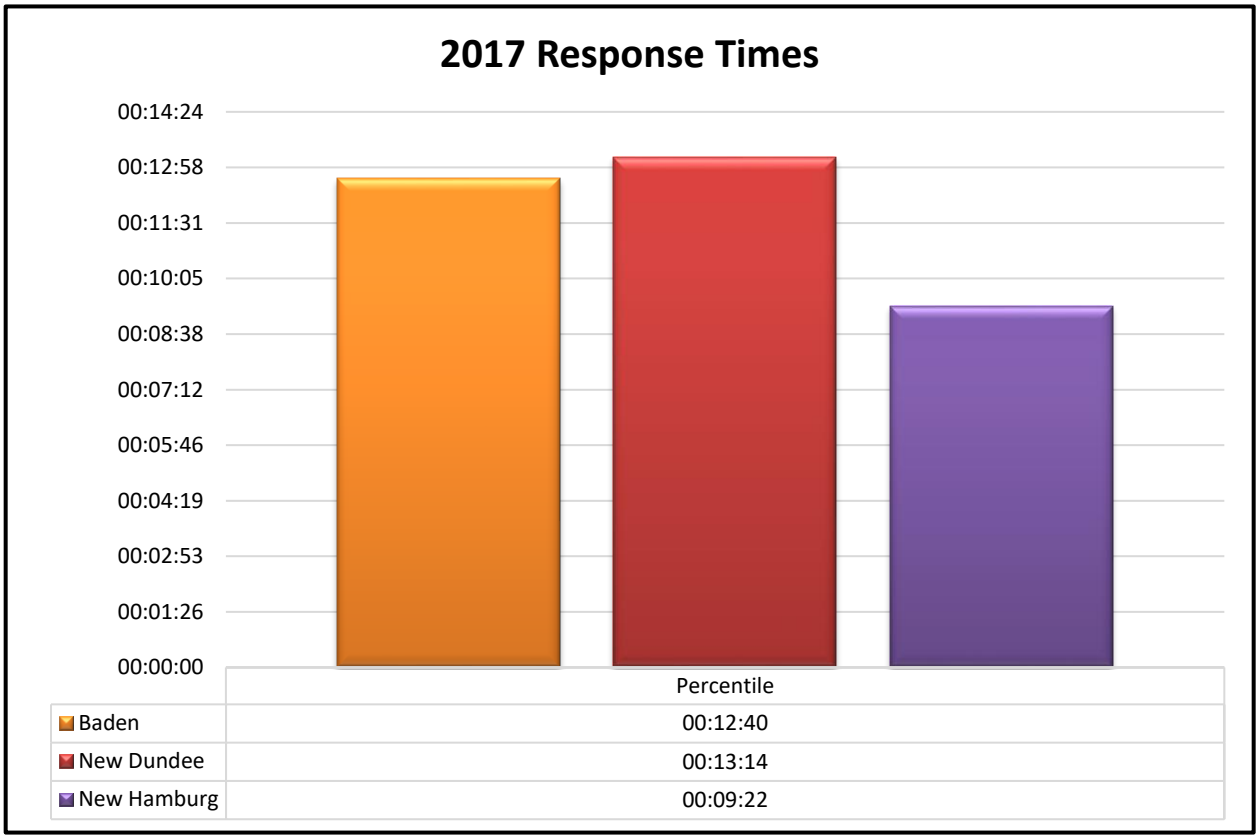
The top three types of calls for 2017 are:

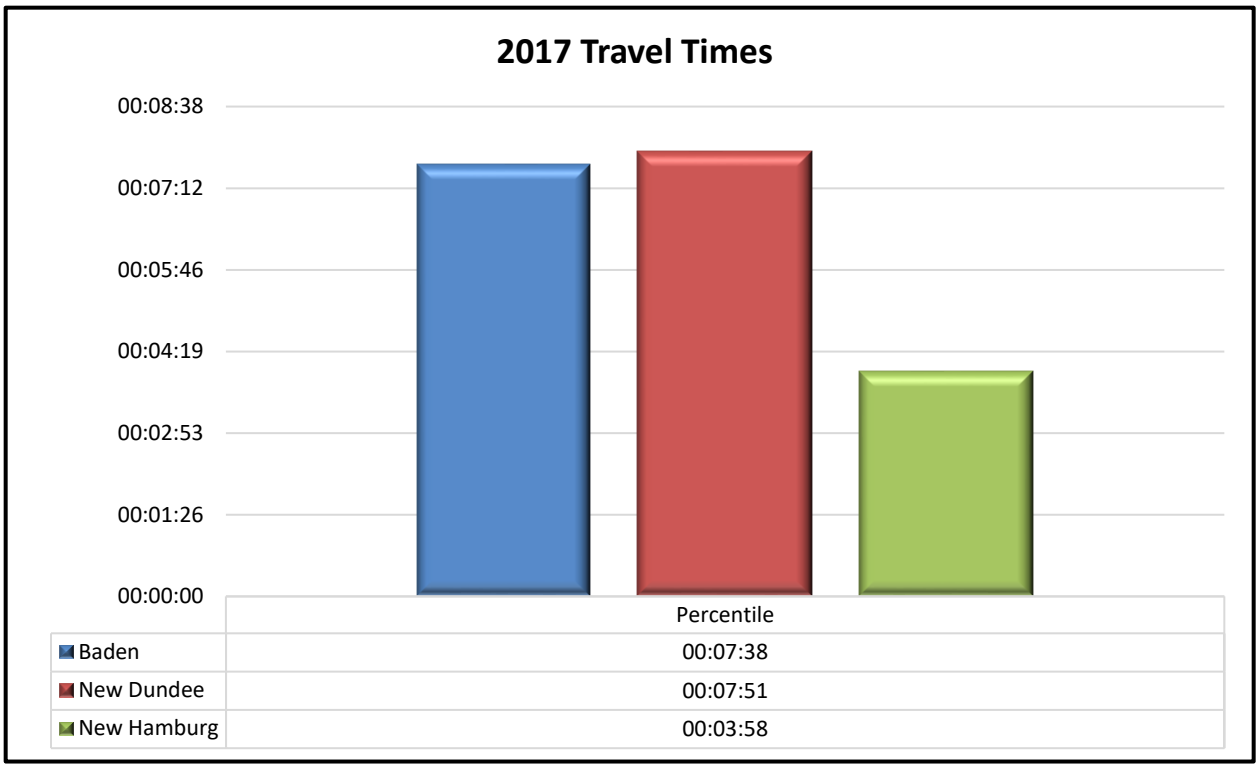
- Medical calls at 43%
- Other Responses at 28%, and
- Rescues at 10%



	Property Fires/Explosions	Over pressure rupture/ explosion (no fire)	Pre-fire conditions/no fire	Burning (controlled)	CO Alarm Calls	Fire Alarm Activations	Public Hazard	Rescue	Medical/ Resuscitator Call	Other Response
Baden	6	0	2	8	6	31	9	35	85	120
New Dundee	6	0	1	1	5	5	2	15	48	26
New Hamburg	11	0	3	3	6	35	7	24	194	68


2017 Total Calls Per Station
400
350
300
250
200
150
100
50
0
302
109
351
Baden
New Dundee
New Hamburg


2017 Response Times
00:14:24
00:12:58
00:11:31
00:10:05
00:08:38
00:07:12
00:05:46
00:04:19
00:02:53
00:01:26
00:00:00
Percentile
Baden 00:12:40
New Dundee 00:13:14
New Hamburg 00:09:22


2017 Travel Times
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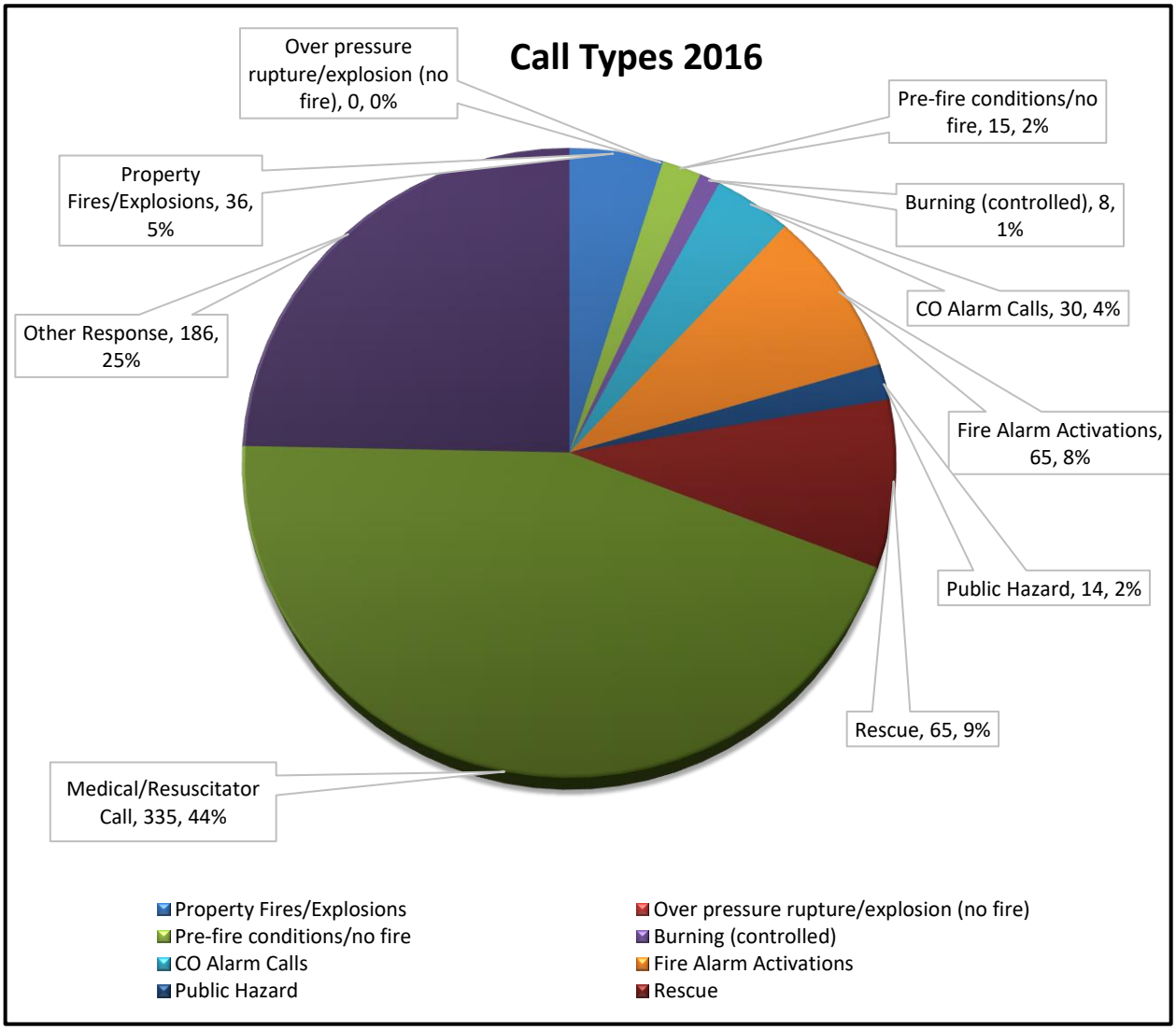
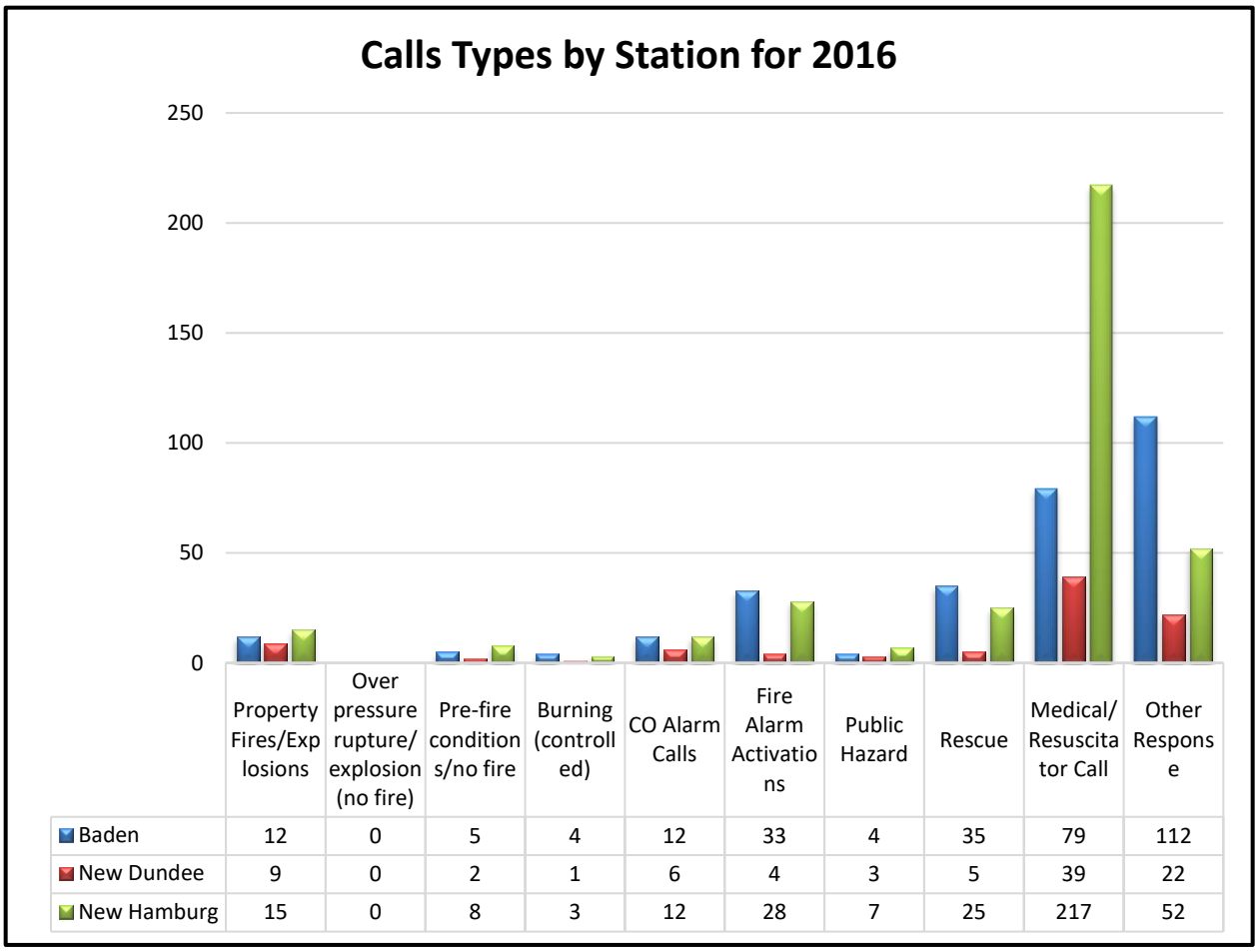
00:05:46
00:04:19
00:02:53
00:01:26
00:00:00
Percentile
Baden
00:07:38
New Dundee
00:07:51
New Hamburg
00:03:58

2016 Response Data

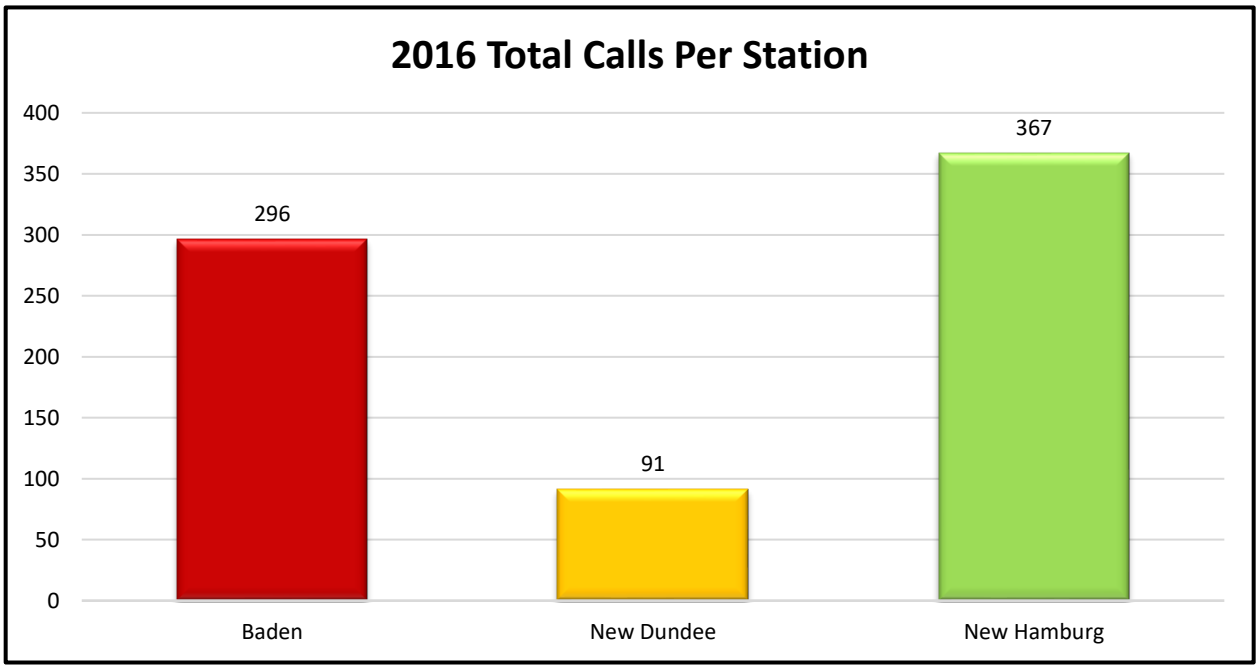


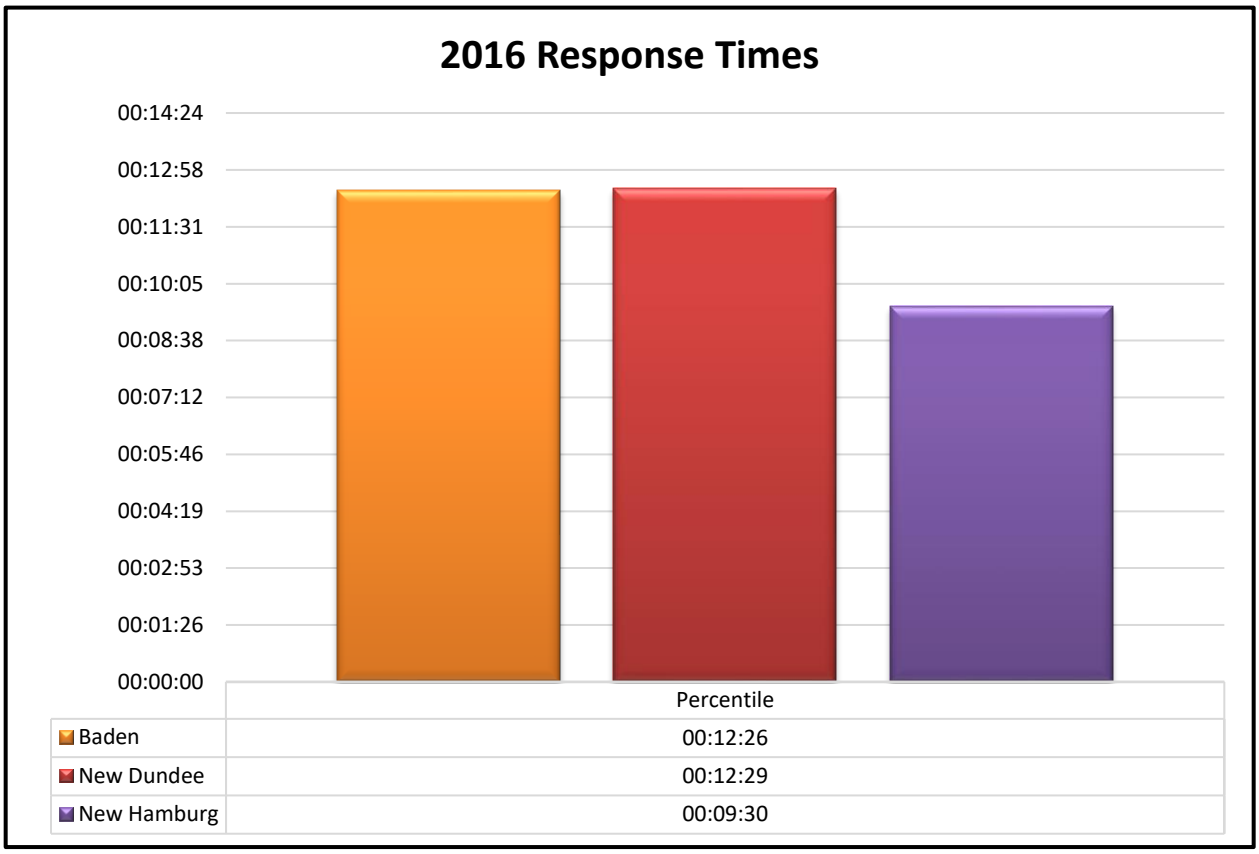
The top three calls for 2016 are:

- Medical calls at 44%
- Other Responses at 25%, and
- Rescues at 9%



	Property Fires/Explosions	Over pressure rupture/ explosion (no fire)	Pre-fire conditions/no fire	Burning (controlled)	CO Alarm Calls	Fire Alarm Activations	Public Hazard	Rescue	Medical/ Resuscitator Call	Other Response
Baden	12	0	5	4	12	33	4	35	79	112
New Dundee	9	0	2	1	6	4	3	5	39	22
New Hamburg	15	0	8	3	12	28	7	25	217	52

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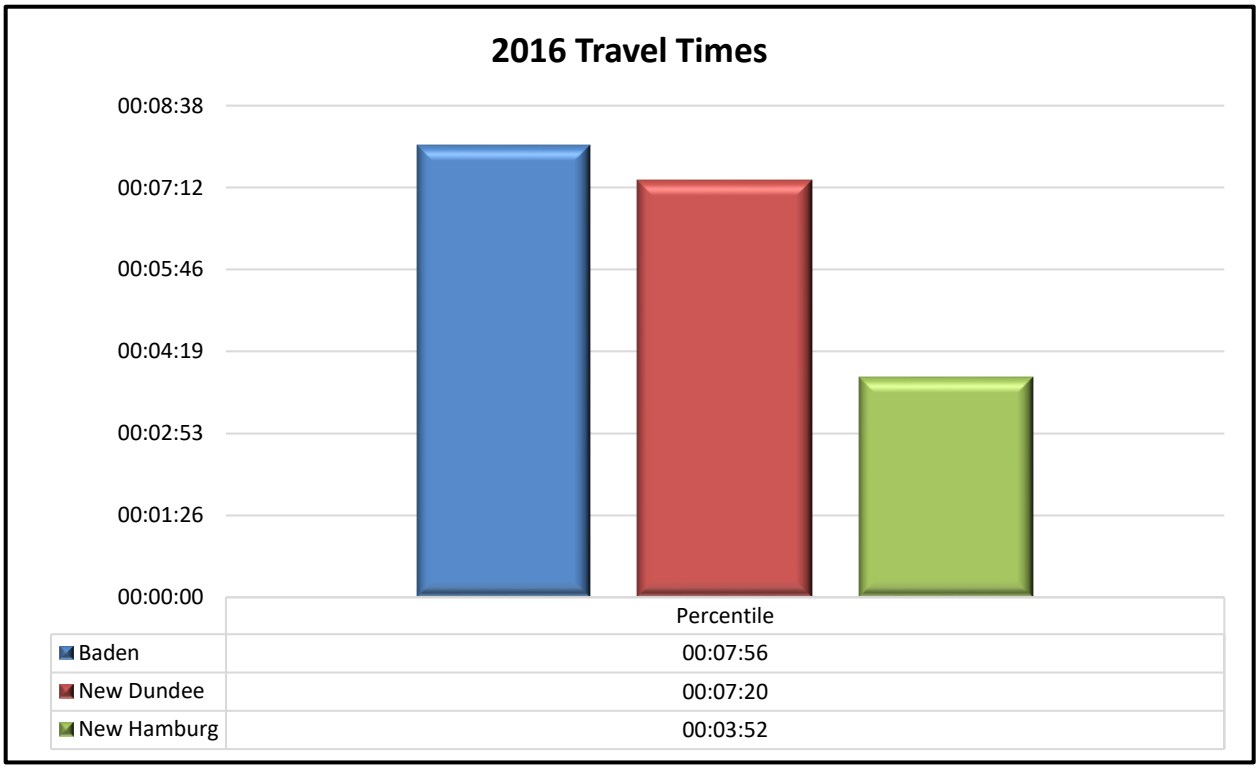
00:11:31
00:10:05
00:08:38
00:07:12
00:05:46
00:04:19
00:02:53
00:01:26
00:00:00
Percentile
Baden 00:12:26
New Dundee 00:12:29
New Hamburg 00:09:30


2016 Travel Times
00:08:38
00:07:12
00:05:46
00:04:19
00:02:53
00:01:26
00:00:00
Percentile
Baden 00:07:56
New Dundee 00:07:20
New Hamburg 00:03:52

Fire Underwriters Survey™

TECHNICAL BULLETIN

FIRE UNDERWRITERS SURVEY™

A Service to Insurers and Municipalities

LADDERS AND AERIALS: WHEN ARE THEY REQUIRED OR NEEDED?

Numerous standards are used to determine the need for aerial apparatus and ladder equipment within communities. This type of apparatus is typically needed to provide a reasonable level of response within a community when buildings of an increased risk profile (fire) are permitted to be constructed within the community.

Please find the following information regarding the requirements for aerial apparatus/ladder companies from the Fire Underwriters Survey Classification Standard for Public Fire Protection.

Fire Underwriters Survey

Ladder/Service company operations are normally intended to provide primary property protection operations of

1.) Forcible entry;
2.) Utility shut-off;
3.) Ladder placement;
4.) Ventilation;
5.) Salvage and Overhaul;
6.) Lighting.

Response areas with 5 buildings that are 3 stories or 10.7 metres (35 feet) or more in height, or districts that have a Basic Fire Flow greater than 15,000 LPM (3,300 IGPM), or any combination of these criteria, should have a ladder company. The height of all buildings in the community, including those protected by automatic sprinklers, is considered when determining the number of needed ladder companies.
When no individual response area/district alone needs a ladder company, at least one ladder company is needed if the sum of buildings in the fire protection area meets the above criteria."

The needed length of an aerial ladder, an elevating platform and an elevating stream device shall be determined by the height of the tallest building in the ladder/service district (fire protection area) used to determine the need for a ladder company. One storey normally equals at least 3 metres (10 feet). Building setback is not to be considered in the height determination. An allowance is built into the ladder design for normal access. The maximum height needed for grading purposes shall be 30.5 metres (100 feet).

POWERED BY opta
AN SCM COMPANY

Western region 1-877-255-5240 fus@optaintel.ca
Central region 1-800-268-8080 fireunderwriters.ca
Eastern region 1-800-263-5361 optaintel.ca

Exception: When the height of the tallest building is 15.2 metres (50 feet) or less no credit shall be given for an aerial ladder, elevating platform or elevating stream device that has a length less than 15.2 metres (50 feet). This provision is necessary to ensure that the water stream from an elevating stream device has additional "reach" for large area, low height buildings, and the aerial ladder or elevating platform may be extended to compensate for possible topographical conditions that may exist. See Fire Underwriters Survey - Table of Effective Response (attached).

Furthermore, please find the following information regarding communities' need for aerial apparatus/ladder companies within the National Fire Protection Association.

NFPA

Response Capabilities: The fire department should be prepared to provide the necessary response of apparatus, equipment and staffing to control the anticipated routine fire load for its community.

NFPA *Fire Protection Handbook, 20th Edition* cites the following apparatus response for each designated condition:

HIGH-HAZARD OCCUPANCIES (schools, hospitals, nursing homes, explosive plants, refineries, high-rise buildings, and other high-risk or large fire potential occupancies):

*At least four pumpers, **two ladder trucks** (or combination apparatus with equivalent capabilities), two chief officers, and other specialized apparatus as may be needed to cope with the combustible involved; not fewer than 24 firefighters and two chief officers.*

MEDIUM-HAZARD OCCUPANCIES (apartments, offices, mercantile and industrial occupancies not normally requiring extensive rescue or firefighting forces):

*At least three pumpers, **one ladder truck** (or combination apparatus with equivalent capabilities), one chief officer, and other specialized apparatus as may be needed or available; not fewer than 16 firefighters and one chief officer.*

LOW-HAZARD OCCUPANCIES (one-, two-, or three-family dwellings and scattered small businesses and industrial occupancies):

At least two pumpers, one ladder truck (or combination apparatus with equivalent capabilities), one chief officer, and other specialized apparatus as may be needed or available; not fewer than 12 firefighters and one chief officer.

In addition to the previous references, the following excerpt from the 2006 BC Building Code is also important to consider when selecting the appropriate level of fire department response capacity and building design requirements with regard to built-in protection levels (passive and active fire protection systems).

Excerpt: National Building Code 2012

A-3 Application of Part 3.

In applying the requirements of this Part, it is intended that they be applied with discretion to buildings of unusual configuration that do not clearly conform to the specific requirements, or to buildings in which processes are carried out which make compliance with particular requirements in this Part impracticable. The definition of "building" as it applies to this Code is general and encompasses most structures, including those which would not normally be considered as buildings in the layman's sense. This occurs more often in industrial uses, particularly those involving manufacturing facilities and equipment that require specialized design that may make it impracticable to follow the specific requirements of this Part. Steel mills, aluminum plants, refining, power generation and liquid storage facilities are examples. A water tank or an oil refinery, for example, has no floor area, so it is obvious that requirements for exits from floor areas would not apply. Requirements for structural fire protection in large steel mills and pulp and paper mills, particularly in certain portions, may not be practicable to achieve in terms of the construction normally used and the operations for which the space is to be used. In other portions of the same building, however, it may be quite reasonable to require that the provisions of this Part be applied (e.g., the office portions). Similarly, areas of industrial occupancy which may be occupied only periodically by service staff, such as equipment penthouses, normally would not need to have the same type of exit facility as floor areas occupied on a continuing basis. It is expected that judgment will be exercised in evaluating the application of a requirement in those cases when extenuating circumstances require special consideration, provided the occupants' safety is not endangered.

The provisions in this Part for fire protection features installed in buildings are intended to provide a minimum acceptable level of public safety. It is intended that all fire protection features of a building, whether required or not, will be designed in conformance with good fire protection engineering practice and will meet the appropriate installation requirements in relevant standards. Good design is necessary to ensure that the level of public safety established by the Code requirements will not be reduced by a voluntary installation.

Firefighting Assumptions

The requirements of this Part are based on the assumption that firefighting capabilities are available in the event of a fire emergency. These firefighting capabilities may take the form of a paid or volunteer public fire department or in some cases a private fire brigade. If these firefighting capabilities are not available, additional fire safety measures may be required.

Firefighting capability can vary from municipality to municipality. Generally, larger municipalities have greater firefighting capability than smaller ones. Similarly, older, well established municipalities may have better firefighting facilities than newly formed or rapidly growing ones. The level of municipal fire protection considered to be adequate will normally depend on both the size of the municipality (i.e., the number of buildings to be protected) and the size of buildings within that municipality. Since larger buildings tend to be located in larger municipalities, they are generally, but not always, favoured with a higher level of municipal protection.

Although it is reasonable to consider that some level of municipal firefighting capability was assumed in developing the fire safety provisions in Part 3, this was not done on a consistent or defined basis. The requirements in the Code, while developed in the light of commonly prevailing municipal fire protection levels, do not attempt to relate the size of building to the level of municipal protection. **The responsibility for controlling the maximum size of building to be permitted in a municipality in relation to local firefighting capability rests with the municipality. If a proposed building is too large, either in terms of floor area or building height, to receive reasonable protection from the municipal fire department, fire protection requirements in addition to those prescribed in this Code, may be necessary to compensate for this deficiency.** Automatic sprinkler protection may be one option to be considered.

Alternatively, the municipality may, in light of its firefighting capability, elect to introduce zoning restrictions to ensure that the maximum building size is related to available municipal fire protection facilities. This is, by necessity, a somewhat arbitrary decision and should be made in consultation with the local firefighting service, who should have an appreciation of their capability to fight fires.

The requirements of Subsection 3.2.3. are intended to prevent fire spread from thermal radiation assuming there is adequate firefighting available. It has been found that periods of from 10 to 30 minutes usually elapse between the outbreak of fire in a building that is not protected with an automatic sprinkler system and the attainment of high radiation levels. During this period, the specified spatial separations should prove adequate to inhibit ignition of an exposed building face or the interior of an adjacent building by radiation. Subsequently, however, reduction of the fire intensity by firefighting and the protective wetting of the exposed building face will often be necessary as supplementary measures to inhibit fire spread.

In the case of a building that is sprinklered throughout, the automatic sprinkler system should control the fire to an extent that radiation to neighbouring buildings should be minimal. Although there will be some radiation effect on a sprinklered building from a fire in a neighbouring building, the internal sprinkler system should control any fires that might be ignited in the building and thereby minimize the possibility of the fire spreading into the exposed building. NFPA 80A, "Protection of Buildings from Exterior Fire Exposures," provides additional information on the possibility of fire spread at building exteriors.

The water supply requirements for fire protection installations depend on the requirements of any automatic sprinkler installations and also on the number of fire streams that may be needed at any fire, having regard to the length of time the streams will have to be used. Both these factors are largely influenced by the conditions at the building to be equipped, and the quantity and pressure of water needed for the protection of both the interior and exterior of the building must be ascertained before the water supply is decided upon. Acceptable water supplies may be a public waterworks system that has adequate pressure and discharge capacity, automatic fire pumps, pressure tanks, manually controlled fire pumps in combination with pressure tanks, gravity tanks, and manually controlled fire pumps operated by remote control devices at each hose station.

For further information regarding the acceptability of emergency apparatus for fire insurance grading purposes, please contact:

Western Canada	Quebec	Ontario	Atlantic Canada
Fire Underwriters Survey	Fire Underwriters Survey	Fire Underwriters Survey	Fire Underwriters Survey
3999 Henning Drive	255, boul. Crémazie E	175 Commerce Valley Drive, West	238 Brownlow Avenue, Suite 300
Burnaby, BC V5C 6P9	Montreal, Quebec H2M 1M2	Markham, Ontario L3T 7P6	Dartmouth, Nova Scotia B3B 1Y2
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