City of Woodstock

FIRE MASTER PLAN

Final Report

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Preface

This document serves as the Fire Master Plan for the City of Woodstock. The primary motivation for developing this document is to assist/guide/provide direction to the community in establishing a long-term strategy to protect life and property based on community risk, safety, corporate priorities, and council-approved budget allocations. This document will be used as a tool to evaluate and forecast the immediate and future emergency service needs of the community.

Acknowledgements

Behr would like to specifically acknowledge the leadership, diligence and continuous improvement focus of Fire Chief Jeff Slager. Despite some challenges for the City of Woodstock, Fire Chief Slager remains positive in his efforts to enhance the department and public safety for the community and its citizens. The fire services' leadership and firefighters are dedicated and engaged in all facets of their community. Their pride in the department and their service is clear.

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ACRONYMS

AHJ	Authority Having Jurisdiction
ASP	Area Structure Plan
CAD	Computer Aided Dispatch
CRA	Community Risk Assessment
ERF	Effective Response Force
FMP	Fire Master Plan
FUS	Fire Underwriters Survey
MAP	Mutual Aid Plan
MVC	Motor Vehicle Collision
NFPA	National Fire Protection Association
OBC	Ontario Building Code
OFM	Office of the Ontario Fire Marshal
POC	Paid-On-Call (Volunteer Firefighter)
PSAP	Public Safety Answering Point
RMS	Record Management System
SOC	Standard of Cover
SOG	Standard Operating Guideline
WFD	Woodstock Fire Department

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EXECUTIVE SUMMARY

Introduction

Fire and emergency services are in a state of constant change and adaptation. Fire and emergency services are continually challenged by budget constraints, unprecedented growth, rising call volumes, and increasing and unusual risks against expectations to do more with less. The demand for emergency response and emergency management services has expanded, causing the role to shift and for services to diversify. Effective management of an emergency services department requires a clear understanding of risk and the ability to provide appropriate responses to mitigate the risks. Failing to realize and address these challenges could leave the community and its responders vulnerable.

Modern fire, rescue and emergency services have evolved into a critical component of a community's social safety net. Whereas early fire departments were established specifically to combat structure fires that, at the time, were often devastating, today's fire departments are also called upon to respond to medical emergencies, rescues of varying types, motor vehicle incidents, dangerous goods releases, wildland fires, natural disasters, etc. As a result, fire departments must be adequately resourced and equipped to provide these services safely, efficiently, effectively and with a great deal of competency.

The goal of developing this Fire Master Plan (FMP) is to provide strategic direction for the fire service. This plan will provide a systematic and comprehensive approach to evaluate current response capabilities by identifying and mitigating risks through a community risk assessment. The Fire Master Plan will also assist in formulating and communicating strategic directions for the fire service while highlighting opportunities for improved service delivery. This plan can also be used to convey information to the public, staff, and municipal council about what to expect in the municipality's approach to fire and emergency service planning, service delivery model, policy, and development.

Ultimately, this project determines options for an optimum service delivery model and serves as a blueprint for the municipality to develop more effective and efficient fire and emergency services in the face of current and future challenges.

Strategic Goals

The City of Woodstock Fire Department (WFD) will utilize the 2025 Community Risk Assessment (CRA) to identify the fire safety risks within the city to inform the development of goals and objectives for the delivery of fire protection and emergency response provided. Optimizing the methodology of the three lines of defense - Public Education, Fire Prevention and Code Enforcement, and Emergency Response- will allow WFD to provide a comprehensive fire protection program.

The following strategic objectives inform the recommendations within the FMP:

Administration: Strategic Objective #1: *Enhance administrative efficiency and support systems to ensure the seamless operation and sustainability of programming initiatives.*

Public Fire Safety Education: Strategic Objective #2: *Develop and implement a community-wide fire safety education campaign that targets risk areas in the community to raise awareness about fire prevention, the importance of fire safety practices, and what to do in an emergency.*

Code Inspection and Enforcement: Strategic Objective #3 *Implement a program for proactive fire safety inspections for all occupancies, prioritized by risk, to ensure compliance with fire prevention codes, identify fire hazards, and encourage timely fixes to non-compliant issues.*

Emergency Response: Strategic Objective #4 *Ensure rapid and coordinated response to fire incidents to limit damage and save lives. Strengthen the capacity and resilience of firefighting teams and resources to tackle fires of all scales.*

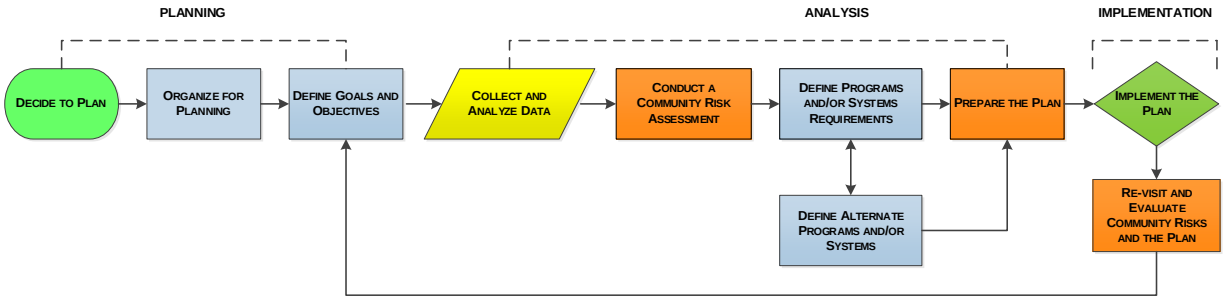
Training and Professional Development: Strategic Objective #5 *Develop and implement an ongoing training program that incorporates the latest firefighting techniques, safety protocols, and technological advancements to ensure that all fire personnel are equipped with the skills necessary to respond effectively to evolving fire*

Fire Services Master Plan Process

The following diagram illustrates the process used to complete this plan. A Fire Service Master Plan is sometimes referred to as a 'road map' for the future and used as a guiding document for current and future department leaders and decision-makers.

As described in the implementation phase, it is highly recommended that this plan be reviewed and evaluated, at minimum, on an annual basis or when there are unusual changes, such as in population growth and residential and/or industrial development activity, that could affect changes in risk. When reasonably possible, we also recommend a third-party update of the plan at the five-year mark to apply an unbiased review into the operation and provide further credibility to the master plan process.

Figure 1: Fire Services Master Plan Process



Project Approach and Consultative Process

While risks are the basis for triggering response decisions, our analysis also investigated the needs of the community and will provide a point of reference upon which future decisions and priorities can be evaluated and implemented. This includes identifying priorities, challenges, and opportunities for improvement in the delivery of emergency services to the community and overall public safety.

Along with risks, this plan also considers applicable includes legislation, industry-leading best practices, and standards to provide unbiased analysis and evidence-based recommendations. Targeted interviews and an online survey were also used to collect data and information. This process was used to promote an open discussion about the community, risks, general concerns related to the community and municipal operations.

Three key aspects in the development of this Fire Master Plan included a community and station tour, targeted interviews, and an online firefighter survey. The community tour focused on the overall footprint, topography, transportation infrastructure of the municipality and the various response zones for the current fire service stations. Visiting the stations provided an opportunity to assess the general condition and operational functionality.

To obtain balanced input, we also utilized an online firefighter survey. Our survey methodology offers several unique benefits. First, it offers an opportunity to gather opinions from an entire group as opposed to a limited sample of opinions from a select few. The online survey also offers an extremely flexible approach to the collection of data as respondents can complete the survey questions when it is convenient for them. Additionally, the anonymity of participants is relatively easy to control and, therefore, may yield more candid and valid responses. Finally, surveys are also extremely time and cost-efficient methods to engage large groups while capturing extensive data.

An industry peer comparative analysis[1] of WFD was conducted as a method of benchmarking the performance of departments to similar municipalities. These benchmarks include budgets, performance, effectiveness, and efficiencies. Although fire and emergency services ultimately have the same goal of protecting life, property and the environment, each community has its unique features in how to accomplish their goals. Our main criteria for the comparative analysis are indicators of effectiveness and efficiencies for risk and mitigation amongst the communities.

The communities included in the comparative analysis include:

- City of Stratford
- City of St. Thomas
- City of Orillia
- City of North Bay
- City of Welland

For the budget year of 2024, the six services surveyed have operating budgets within the range of $8.3M to $14.6M annually. WFD ranks among the lower range within the municipalities surveyed for operating budget (5th), and cost per capita (6th), and is ranked 2nd for the percentage of municipal budget. Combined this is considered to be a lower ranking for a city the size of Woodstock vs the comparators.

There is no standard for categorizing incidents so it must be understood that these statistics are broadly based and are only general reference when comparing fire departments. The community comparative analysis can only be interpreted from an indirect basic level due the disparity from each of the surveyed communities' organizational structure, core services and levels, emergency response categorization, and financial systems. Direct comparison is strongly discouraged.

Community Overview

Nestled along the 401 Highway corridor in Ontario, the City of Woodstock is a municipal district located within Oxford County in southwestern Ontario. Woodstock has direct access to major highways such as the 401 and 403.

It has a population of approximately 50,450 residents spread across 55.7 km^2, resulting in a population density of 905.74/km^2. The city strategically accesses major markets through an extensive transportation network, featuring high-capacity roads and rail systems.

[1] *Please see Section 1.8, Municipal Comparative Analysis, Page 9*

Surrounded by the four townships of East Zorra-Tavistock, Blandford-Blenheim, South-West Oxford, and Norwich, Woodstock is an urban hub providing essential amenities to the neighbouring townships. Woodstock has experienced steady growth, providing a solid blend of amenities, attractive housing, a state-of-the-art regional health facility, and is ideally centrally located.

Community Risk Assessment

Every municipality has unique challenges and characteristics contributing to the overall risk profile of the community. In accordance with Ontario Regulation 378/18: Community Risk Assessments (O. Reg. 378/18), under the authority of the Fire Protection and Prevention Act, 1997 (FPPA), O. Reg. 378/18 "requires that each 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."

A Community Risk Assessment (CRA) is a comprehensive evaluation of potential risks and vulnerabilities within a specific community. It is a vital process designed to identify, assess, and prioritize various risks, such as natural disasters, industrial accidents, public health emergencies, and other hazards that impact the safety and well-being of the community.

The introduction of O. Reg. 378/18 is also now a core component to satisfy FPPA requirements in the development of an in-depth analysis of a community's fire-related risks through a comprehensive analysis of nine mandatory profiles, which include:

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

A CRA was developed for the City of Woodstock using technical guidelines provided by the Office of the Fire Marshal (OFM). Series of data was collected and analyzed to identify risks to the community from the perspective of each of the nine profiles. Key data sources were obtained from Woodstock Fire Department, Office of the Fire Marshal (OFM) Standard Incident Reporting Data, Statistics Canada Population Census, Municipal Property Assessment Corporation (MPAC) and desktop research. The lens of the risk assessment was focused on risk outcomes and how they relate to the fire service. The results of the CRA were then used to inform the development of this fire service master plan to mitigate the identified risks and improve fire safety and emergency response capabilities for the community.

The evaluation of fire and rescue-related risks considers both the probability and consequence of various types of emergency events. The probability of an event is quantified by analyzing historical, current, and projected data. The consequence of the event type or 'risk' is based on an informed assessment of the potential impact on a community should the event occur. As a result of this analysis, the top fire and rescue-related risks in the city include the following:

- Fire and explosion
- Roadway/ highway emergency
- Winter weather events
- Oil or natural gas release
- Extreme temperatures/ seasonal storms
- Infectious disease
- Rail, light rail incidents

Department Overview

The Woodstock Fire Department (WFD) was first formed in 1881 with 15 firefighters to serve their community. The original fire station was located at the rear of the town hall and utilized horses and wheeled carts to respond to incidents. A bell tower system was utilized by citizens to notify the fire department of a fire. Since that time, as the community grew and emergency services became increasingly in demand, the service evolved into the full-time career fire service that it is today.

Today, WFD is led by a full-time Fire Chief and is currently comprised of two exempt full-time staff and 60 career full-time unionized firefighters (including training and prevention division staff) responding from two fire stations. WFD provides public education, safety and code enforcement, and fire response, including suppression, rescue, and medical first response to the City of Woodstock. The WFD is established and guided by Municipal Code Chapter 0792, "Fire Department – Regulation" *(August 2019)*.

Summary of Observations and Recommendations

A Fire Services Master Plan intends to provide a series of recommendations which are generally implemented over a ten-year timeframe. The following recommendations are drawn from findings presented throughout the report. They are grouped into three categories according to priority: critical, short-term, and long-term.

Progress on the implementation of recommendations should be monitored and adjusted to reflect available funding and administrative capacity that may go beyond the five years identified. Most of the recommendations presented in this report are achievable using existing staff or members' time and will therefore not pose significant additional costs to the community. However, there are some recommendations that are substantial and will require review of potential funding or financial strategies. Costs are estimates only and will require further investigation.

'Cost neutral' refers to the use of internal staff through a normal work schedule. This would include support from other internal departments that may or may not require additional resources (costs) to complete. Undertaking of these cost neutral recommendations are also contingent upon staff availability.

A timeframe within 1 – 84 months (1 – 7 years) has been assigned to each recommendation, recognizing that the start and completion of any recommendation is based on annual corporate priorities and council approved budget allocations.

Critical	Short Term	Long-Term
1 -12 months	12 - 48 months	48 - 84 months

Note: *Recommendations are numbered based on how they appear in the report.*

Recommendation		Months							
		1	12	24	36	48	60	72	84
1a	Update the existing Establishing and Regulating Bylaw to ensure the by-law reflects current legislation, structure of organization, outline powers and authority of the fire chief, and set level of service for all areas required based on legislation, risk, and circumstances.								
1b	Establish Standard of Cover policy identifying the performance expectations (benchmark) for each level of service identified in an updated E&R by-law.								
1c	Set a Council approved benchmark level for response performance utilizing the industry practices.								
2	Create a third management position (2nd Deputy Chief or Assistant Deputy Fire Chief) to share the current and future workload demands, allowing for operational duties to be shared and a more time to focus on the strategical objectives for the organization.								
3	WFD operate with a minimum staffing of 12 firefighters representing 3 crews of 4 firefighters per shift.								
4	Once station 3 is operational, WFD to conduct an organizational command structure review considering operational leadership and management of day-to-day activities on each shift.								
5	The City of Woodstock relocate the primary EOC to a modernized designated space.								
6	Under the Emergency Management program, the municipality to develop a formal business continuity program with individual section business continuity plans developed, prioritized, and practiced.								
7	Ensure vehicles, equipment, and facilities are included in the corporate asset management program and long-term financial planning.								
8	Utilizing the Community Risk Assessment findings and new identified trends, WFD to formalize public education programming. This includes annual reviews to ensure recent trends or incidents are addressed to mitigate risks and ensure adequate resources available to deliver programming.								

Recommendation		Months							
		1	12	24	36	48	60	72	84
9	Formalize a proactive inspection program and ensure the municipality is conducting code enforcement inspections and meeting all legislative requirements through a formalized proactive fire safety inspection program.								
10a	Add 2 additional Fire Inspectors/ Public Educators to meet current programming, phased in over 24 months								
10b	Add an additional 2 Fire Inspectors /Public Educators to deliver an enhanced targeted public education and proactive inspection program, phased in over 48 months to meet future programming.								
11	WFD and the Building Department conduct a review of the OBC plan review and occupancy inspections program.								
12	Review the effective response force (ERF) considering the critical tasks necessary to manage all risks and structure fire types safely and effectively, including residential, industrial, commercial, and high-rise fires.								
13a	Review with the designated medical director to determine and develop the appropriate level of emergency medical training for staff.								
13b	Conduct regular review of medical assistance incidents and work with WFD's medical director and Oxford County Paramedic Services to ensure the tiered response agreement has WFD responding to the appropriate incidents.								
14	Provide operational level Hazardous Material response to incidents.								
15	Develop specialized rescue operation programs, or alternatively enter into contract with another provider to respond to specific rescues. 1. Machine rescue – operations level (first 12 months) 2. Confined space rescue – operations level (12-24 months) 3. Trench rescue – operations level (24-36 months								

Recommendation		Months							
		1	12	24	36	48	60	72	84
16	Formalize pre-planning programming. This to include annual reviews to ensure plans are current and accessible to all staff attending fire incident scenes.								
17	Collaborate with WPD to formalize service level objectives including identifying performance standards with the intention to lower alarm handling time.								
18	Provide an annual training syllabus to ensure that firefighter skills maintenance and required annual training is delivered with a consistency across all stations and all shifts.								
19a	Conduct a staffing analysis and staff the training section with additional personnel, phased in over the next 3 years, to provide for increased legislative and compliance requirements and future growth of the department.								
19b	Formalize a shift training instructor program to assist in the delivery of on-shift training and to provide additional support to the training division during recruit training and technical operations program training.								
20	Conduct a training and certification gap analysis and develop forecast to meet the level of service identified by Council and within the timelines identified through the FPPA.								
21	Identify and implement opportunities to improve assembly time or investigate opportunities (such as new station designs, countdown clocks, etc.) to improve assembly time and implement regular monitoring and reporting of assembly time performance by station, shift, and incident category.								
22	Automate apparatus response notification, utilizing response rules, automatic station and apparatus selection based on incident type.								
23	Develop SOG's to provide direction to staff for completion of critical tasks, and the need to update existing mutual aid agreements for additional support when necessary to meet ERF requirements.								

	Recommendation	Months							
		1	12	24	36	48	60	72	84
24	Barring any near future boundary adjustments the City of Woodstock locate a new fire station situated in the area of Oxford Road 4 and Devonshire Ave to service new growth areas and provide improvement to effective response force to Stations 1 and 2.								
25	Continue to monitor potential growth and consider appropriate station re-locations to meet the risks identified and the needs of the community.								

Conclusion

The goal of developing this Fire Services Master Plan is to conduct a comprehensive review of the City of Woodstock Fire Department and produce a strategic plan for the next 7 years. This will provide a systematic and comprehensive approach to evaluate current response capabilities by identifying and mitigating risks and assist in formulating and communicating strategic directions for the fire service, while highlighting opportunities for improved service delivery. The FMP will also assist in conveying information to the public, staff, and municipal council about what to expect in the municipality's approach to fire and emergency service planning, service delivery model, policy, and development.

The WFD is functioning well providing the community with a professional level of fire protection services. They are meeting their minimum requirements required under the appropriate legislation. There are opportunities for improvements related to response performance and improvements to effective response force. Further the growth that the city is experiencing and is forecasted will continue to challenge the fire service, putting further stresses on the ability to continue to delivery the service that meet the community's expectations and meet the necessary requirements under legislation. This plan looks to balance the need to provided effective service levels with the fiscal responsibility of the city to their taxpayers.

There are several observations and recommendations provided in this master plan to improve operational effectiveness and efficiencies and enhance administrative and operational processes. Key among the 30 recommendations is:

- Establish service levels for emergency response that includes the analysis and risk factors identified in the community risk assessment.
- Formalize targeted fire and life safety education programs and a proactive inspection and enforcement program with the appropriate resources towards a focus on risk reduction through lines 1 and 2.
- Optimize alarm processing and assembly time performances through process change and use of technology.
- Ensuring all fire fighters and fire service staff are trained and certified to appropriate levels as identified by the Council approved service levels.
- Optimising emergency response with adding a new station 3 in the northeast response area of the city.
- Introduce additional specialized rescue operation programs phased in over 36 months.

Although each recommendation has a corresponding timeframe, it is important to note this FMP needs to be revisited on a regular basis to confirm that the observations and recommendations remain relevant. The recommendations outlined in this FMP will better position WFD to mitigate and manage community risks, monitor response capabilities and performance, and maintain excellent community relationships and 'value for money'. Notwithstanding operational observations around emergency response performance, achievement of an effective response force and the WFD is serving the community well.

Finally, our interactions with the City of Woodstock staff revealed a highly professional and dedicated organization that is committed to providing the best possible service to the citizens of the city.

SECTION 1
INTRODUCTION

1.1 Background and Significance

Community leaders across Canada continue to search for innovative approaches to improve the efficiency and effectiveness of service delivery. Effectiveness refers to the ability to achieve the desired results or outcomes, while efficiency refers to optimizing the use of available resources – whether it is time, money, or effort. The notion of efficiency in service delivery can also be described as 'doing more for less' or 'value for money'.

Elected officials, CAOs, directors and managers are faced with the ongoing challenge of achieving efficient and effective service delivery models. Public safety is often one of the top priorities within most communities, but achieving this goal comes at a relatively high cost. The services charged with achieving this outcome, including police, fire, EMS, and emergency management, are essential components of any community's social safety net. Service effectiveness is not an option. However, the need for fiscal discretion and to review operational efficiency and effectiveness cannot be ignored. Senior community officials must continue to be vigilant in their search for innovative and sustainable practices and finding the balance between service levels and expenditures to ensure their citizens are getting 'value for money'.

1.2 Goals and Objectives

The goal of developing this Fire Master Plan (FMP) is to create a strategic plan by conducting a comprehensive community risk assessment and review the current capacity of the fire service. The goal of the FMP is to provide a systematic and comprehensive approach to evaluate current response capabilities by identifying and mitigating risks and assist in formulating and communicating strategic directions for the fire service, while highlighting opportunities for improved service delivery. The FMP will also assist in conveying information to the public, staff, and municipal council about what to expect in the municipality's approach to fire and emergency service planning, service delivery model, policy, and development.

While risks are the basis for triggering response decisions, our analysis also investigated the needs of the community, providing a point of reference upon which future decisions and priorities can be evaluated and implemented. This includes identifying priorities, challenges, and opportunities for the improvement of the delivery of emergency services to the community, businesses, and overall public safety. This plan also considers applicable legislation, industry-leading practices, and standards along with current and anticipated risks to provide unbiased analysis and evidence-based recommendations.

Ultimately, this FMP determines options towards an optimum service delivery model and serves as a 'blueprint' for the municipality to be more effective and efficient in the delivery of emergency services through current and future challenges. The detailed project scope is available in Section 0 of this document.

1.3 Project Scope

The FMP will consider and achieve the following benefits:

- Enhanced firefighter safety
- Improved cost control and containment
- Increased efficiency and effectiveness
- Identification of the right-sized service to meet the current and future needs of the community.

The following items were completed to complete this project:

1. Community Risk Assessment (CRA) addressing the nine (9) mandatory profiles outlined in Ontario Reg 378/18 to make informed decisions regarding the current service capabilities.
2. A review of all current fire services and programs based upon the above risk assessment. Our analysis included an examination of the department's core functions, including, but not limited to:
    - Fire administration, fire prevention, fire inspection, public education, training, fire suppression, apparatus, facilities, and emergency management.
    - How are services currently being provided, and identify areas in need of improvement?
    - Fire station locations and apparatus deployment

1.4 Standards and References

This plan considers the following references and standards:

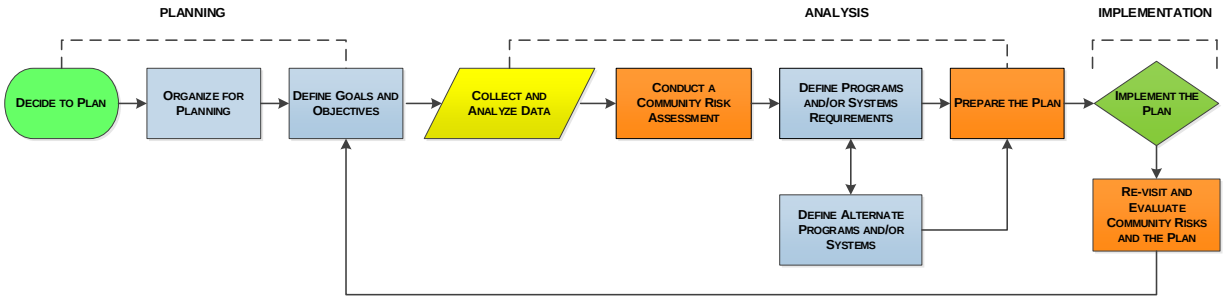
- Commission on Fire Accreditation International
- Canadian Standards Association (CSA)
- Fire Underwriters Survey (FUS)
- Ontario Emergency Management and Civil Protection
- Ontario Fire Protection and Prevention Act
  - O. Reg. 213/07: Ontario Fire Code
  - O. Reg. 378/18: Community Risk Assessments
  - O. Reg. 364/13: Mandatory Inspection – Fire Drill in Vulnerable Occupancy
  - O. Reg. 365/13: Mandatory Assessment of Complaints and Requests for Approval
  - O. Reg. 343/22: Firefighter Certification
- Fire Marshal Directives
- National Fire Protection Association (NFPA)
- Ontario Occupational Health and Safety Act
- Ontario Building Code
- Underwriters Laboratories (UL/ULC)

1.5 Fire Master Plan Process

The following diagram illustrates the process used to complete this plan. A Fire Master Plan (FMP) is sometimes referred to as a 'road map' for the future and used as a guiding document for current and future department leaders and decision makers.

As described in the 'implementation' phase, it is highly recommended that this plan be reviewed and evaluated, at minimum, on an annual basis or when there are unusual changes in risk, response demands, population and residential or industrial development activity. When reasonably possible, we also recommend a third-party update of the plan FMP at the five-year mark to apply an unbiased review into the operation and provide further credibility to the master plan process.

Figure 2: Fire Master Plan Process



1.6 Consultative Process

1.6.1 Community and Fire Station Tour

The community and station tours focused on the overall footprint, topography, transportation infrastructure of the municipality and the various response zones. Touring the stations provided an opportunity to conduct a general condition and operational functionality assessment on each station.

1.6.2 Targeted Interviews

Targeted interviews were part of the data and information collection process. Participants were asked questions related to their areas of purview and expertise. An interview guide was used to conduct the interviews. The interview itself was used to promote an open discussion about the community, risks, general concerns related to the community and municipal operations.

Table 1: Targeted Interview List

No.	Name	Job Title
1	David Creery	Chief Administrative Officer
2	Chris Gratton	Director of Information Technology
3	Harold de Haan	City Engineer
4	Len Magyar	Development Commissioner
5	Brad Hammond	Development Officer
6	Jeff Slager	Fire Chief
7	Trevor Shea	Deputy Fire Chief
8	Beth Robson	Director of Human Resources
9	Chris Ferrell	A/Fire Captain
10	Carl Bloomfield	Fire Captain
11	Lukasz Kasprzyk	Fire Prevention Officer
12	Grant Halsey	Fire Training Officer
13	Diane Campbell	Director Administrative Services
14	Marc Sturris	Fire Captain
15	Pete Keith	Acting Fire Captain
16	Jason Barnes	Union President

1.6.3 Online Firefighter Survey

To obtain balanced input, we also employed an online firefighter survey. Our survey methodology offers several unique benefits. First, it offers an opportunity to gather opinions from an entire group as opposed to a limited sample of opinions from a select few. The online survey also offers an extremely flexible approach to the collection of data as respondents can complete the survey questions when it is convenient for them. Additionally, the anonymity of participants is relatively easy to control and, therefore, may yield more candid and valid responses. Finally, surveys are also extremely time and cost-efficient methods to engage large groups while capturing extensive data.

Invitations to participate in the survey were emailed to 59 staff members, and 35 participated in the survey, which represents 59.3% of staff. Less than half of the survey respondents (42.85%) agreed that the community received adequate fire protection, while 20% were neutral, and 37.14% disagreed. Nearly all (97.14%) agreed that the demand for fire and emergency services would increase in the future, however, only 24.24% agreed that currently the response model is adequately staffed, while 9.9% were neutral and 66.66% disagreed.

Almost 63.63% were neutral or agreed that the current level of live fire training was adequate, while only 15.15% agreed that specialty team training was adequate. Furthermore, 60.6% felt the amount of leadership training was inadequate, 15.15% neutral, and 24.24% agreed that it was adequate.

The large majority of staff (84.84%) disagree that the stations are currently located to provide adequate coverage, while only 3.03% agreed. The staff were neutral on the functionality of the stations to meet operational needs. A high majority of staff (84.85%) agree that small equipment is adequate, and 69.69% agree that the equipment and apparatus are well maintained. Staff ranked the community risks as follows:

1. Public health emergencies (homeless, drug crisis, pandemic)
2. Urbanization and infrastructure development
3. Industrial hazards
4. Dangerous goods and hazmat incidents
5. Natural disasters (wildfires, flooding, climate change)

1.6.3.1 Summary of Interview and Survey Results

The Fire Services Master planning process was initiated by conducting interviews with WFD administration, senior officers, and select City of Woodstock senior administration with an opportunity to comment on numerous aspects of WFD operations. 16 persons were interviewed.

A survey was sent out to all members of WFD to provide an opportunity to participate. 59.3% of the survey respondents provided their responses to survey questions and provided constructive feedback. The following key themes emerged from both the interviews and surveys:

1. Almost 80% of the respondents indicated strong public support for their fire service; however, over 50% felt there was a lack of understanding, and a further 20% were neutral regarding the full scope of services being provided by the WFD.
2. The personnel of WFD are seen as the strongest asset.
3. There was a strong sense of concern over the ability for WFD to respond to large incidents safely and adequately with appropriate resources and concurrent emergency incidents would be near impossible to manage in a timely matter. 67 % of survey responses feel the WFD response model is not adequately staffed for fire response.
4. WFD will see a significant increase in service demands in the future

5. The fire prevention division is providing good service to the community, however, additional resources in this area would be necessary to meet the future demands.
6. There is a concern that the current fire stations are not well-positioned to provide services across the entire municipality. Most participants felt a new fire station is needed to add coverage in the northeast.
7. Participants indicated that the current level of training is insufficient to meet current competencies and necessary certifications. Practical training and live-fire training were limited and should be increased. The turnover of the training officer position hampers programming and consistency in training.
8. WFD has adequate SOP/SOGs to operate safely
9. Medical responses by WFD are seen as a valuable service being provided to the citizens and visitors to the municipality, however, there was concern expressed with the notification time from Ambulance.
10. Speciality operations, officer leadership training and in-person instructions are limited. Attributed to the training officer turnover rate and lack of formal programming.
11. Equipment is sufficient and proper; however, spare apparatus should be fully equipped for immediate deployment when required.
12. Maintenance on all WFD apparatuses is good.
13. WFD lacks technology around communications systems, records management, GPS systems, mobile CAD systems and traffic pre-emption.

(See Appendix D, Firefighter Online Survey)

1.7 Study Considerations

The following factors that affected both the assessment and effective mitigation of risk were considered and assessed:

Community-Specific Considerations

- Total area of review
- Population and future growth
- Community risk factors
- Community demographic information
- Development and area structure plans
- Multi-jurisdictional requirements and cooperation
- Current and future development impact on risks and response
- Financial resources and constraints
- Impacts of government legislation
- Bylaws
- Economic factors
- Tourism
- Construction
- Industrial activity
- Utilities
- Retail businesses and other services
- Agriculture
- Buildings and structures concentrating on high-risk demands, including business, assembly occupancies, etc.
- Municipal emergency management plans

Department-Specific Considerations

- Geographic and physical boundaries for response
- Fire service annual reports
- Fire service focused reports previously conducted
- Standards of cover
- Budgets
- Current staff rosters with qualifications
- Fire station locations and other infrastructure
- Department structure
- Service delivery models
- Apparatus and equipment inventory, and future needs
- Building space requirements
- Operation staffing and administrative needs
- Bylaw, policies, and procedures
- Fire prevention & public education
- Emergency core service response
- Health and wellness
- Training and recruitment records and standards
- Succession planning
- Prevention programs such as inspections, education, and enforcement
- Records and data management
- Emergency services standard operating guidelines and procedures

1.8 Municipal Comparative Analysis

An industry comparative analysis was conducted as a method of benchmarking the performance of departments to similar municipalities. These benchmarks include budgets, performance, effectiveness, and efficiencies. Although fire and emergency services ultimately have the same goal of protecting life and property, each community has its unique features in how to accomplish their goals. Our main criteria for the comparative analysis are indicators of effectiveness and efficiencies amongst the communities for risk and mitigation.

The following municipalities were identified as comparators:

- City of Stratford
- City of St. Thomas
- City of Orillia
- City of North Bay
- City of Welland

Comparing the WFD to that of similar municipalities is a good way to identify relative service levels, costs, and trends. It must be noted that all communities have different attributes, such as risk factors, historical decisions, and community profiles. For this reason, the comparative community analysis should be used as a base reference, not a suggestion or intention of something to be replicated in Woodstock. These benchmarks include budgets, service areas, service levels, and staffing levels.

For the purposes of this municipal comparator review, we used 2019-2023 information to obtain common information from each community. Although fire and emergency services have the same goal of protecting life and property, each community has its unique features in how to accomplish those goals. Therefore, there are no ideal or identical comparators for Woodstock. Our main criteria for collecting information were:

- Population – Utilizing 2021 Census data for consistency
- Budgets – 2024 reported budgets from each municipality's website
- Department size- as reported by the fire department
- Type (full-time, part-time or combination)-as reported by the fire department
- Department staffing – as reported by the fire department

Additional information for evaluation was:

- Number of fire stations- as reported by the fire department
- Call volume- as reported by the fire department
- Call types – as reported by the fire department

Table 2: Participating Community Comparatives (2021 Census Data)

Community	Population	Land Area (km^2)	Area of Response (km^2)
City of Woodstock	46,705	55.7	55.7
City of Stratford	33,232	21.92	21.92
City of St Thomas	42,918	39.1	39.1
City of Orillia	33,411	28.53	28.53
City of North Bay	51,533	319.11	319.11
City of Welland	55,750	81.0	81.0

1.8.1 Budgets

Department budgets are of specific concern to most communities. In some instances, budgeting for fire and emergency services make up a considerable portion of a community's operating budget. We evaluated the budgets for each community, and it is important to note that each municipality is unique in how it allocates its budgets. This information was obtained using reported 2024 budgets.

Table 3: Community Comparative Budget Ranking

Community	Municipal Budget 2024	Fire Dept. Operating Budget	% of Municipal Budget	Cost Per Capita
City of Woodstock	$75,695,160	$10,393,000	13.73%	$222.52
City of Stratford	$82,524,787	$9,877,547	11.97%	$297.23
City of St Thomas	$60,581,364	$10,251,695	16.92%	$238.87
City of Orillia	$72,514,953	$8,269,926	11.40%	$247.52
City of North Bay	$109,961,836	$14,637,357	13.31%	$284.04
City of Welland	$113,016,188	$13,051,372	11.55%	$234.11

1.8.2 Industry Standards

Table 4: Community Comparative Standard of Cover

Community	Standard of Cover	Council Approved? (Yes / No)	Standard based on a leading practice , i.e., NFPA, OFM, etc.
City of Woodstock	No	No	NA
City of Stratford	Yes	Yes	No
City of St Thomas	Yes	Yes	Yes
City of Orillia	No	NA	NA
City of North Bay	No	No	NA
City of Welland	Yes	Yes	Yes

1.8.3 Department Profile

Department profile, staffing models and levels of service are based on community risk, risk tolerance and the ability for a community to pay for and sustain desired service levels.

Table 5: Community Comparative Departments' Profile

Community	Department Type	No. of Stations	Total Staff	Fire Chief (FT)	Deputy (DC) Assistant Chief (AC	Support Staff (FT)	Suppression Staff	Fire Prevention Staff (FT)	Training Staff (FT)	Dispatch	Mechanical (FT)	Other
City of Woodstock	FT Career	2	63	1-FT	1 (DC)-FT	1	56	3	1	0	0	0
City of Stratford	FT Career	2	50	1-FT	1(DC)-FT	2	40	2	1	0	0	3
City of St Thomas	FT Career	2	64	1 FT	1(DC)-FT	1	58Ft	3	1	4	0	0
City of Orillia	Composite	2	85	1	1(DC)-FT, 1 (AC)-FT	0	70	2	1	9	0	2
City of North Bay	FT Career	4	79.5	1	1(DC)FT	1.5	72	3	1	0	1	
City of Welland	Composite	3	125	1	2(DC)FT	3	111	5	3	0	0	

FT: Full-time PT: Part-time POC: Paid-On-Call

1.8.4 Response Data

For this municipal comparator analysis, we used 2019–2023 information to get common information from each community. Breakdowns are divided into the following two categories:

Table 6: Examples of Incident Types for Statistical Analysis

INCIDENTS BY TYPE		
EMS Related Calls		
Call Types	Pre-Hospital Care: Alpha, Bravo Charlie Delta Echo	
	Lift Assist	
	False Alarms	
Fire-Related Calls		
Fire Emergency	Alarm Burning Complaint Structure Fire Minor Fire Smoke	Car Fire Re-check Wildfire – Grass, Brush, Outdoor Oven/Pot on Stove Explosion
MVI (Motor Vehicle Incident), aka MVC (Motor Vehicle Collision)	Extrication	No Extrication
Rescue	Stand Elevator Lake/Marine Rescue High Angle	Swift Water Building Collapse Ice
Hazmat/Dangerous Good	Highway Incident Rail Incident	Industrial Incident Resident Incident
Non-Emergency	Carbon Monoxide Gas/Oil Smell/Spill Power/Telephone/Cable Line Down Natural Gas Leak	Aircraft Standby Incident Bomb Threat Hazardous Materials Propane Leak/Smell
Other	Inspection Burning Pile Inspection Assist Other Agency Public Service	Needle Pick-up Flood Assessment Water Problem (in structure)

Note: *Description and category names may not be common terminology in all jurisdictions.*

Table 7: Municipal Comparative Response Call Volume

Community		Woodstock	Stratford	St Thomas	Orillia	North Bay	Welland
Total Call Volume	2019	1484	2383	2764	2858	1707	2708
	2020	1207	1135	2318	2662	1803	1579
	2021	1280	1548	2536	2807	1960	2258
	2022	1490	2446	2976	3386	2035	2330
	2023	2049	2705	3019	3629	2341	2612
Fire Related Calls	2019	992	768	2272	860	1255	912
	2020	915	634	1288	881	1333	902
	2021	886	680	1044	905	1352	1065
	2022	1037	760	1092	903	1353	867
	2023	1047	807	1854	1039	1675	NA
EMS Related Calls	2019	492	1615	492	1998	452	1796
	2020	292	501	1030	1781	470	677
	2021	394	868	1492	1902	608	1193
	2022	453	1686	1884	2483	682	1463
	2023	1002	1898	1134	2590	666	NA

1.8.5 Community Comparative Analysis Summary

For the budget year of 2024, the six services surveyed have operating budgets within the range of $8.3M to $14.6M annually. WFD ranks among the lower range within the municipalities surveyed for operating budget (5th), and cost per capita (6th), and is ranked 2nd for the percentage of municipal budget. Combined this is considered to be a lower ranking for a city the size of Woodstock vs the comparators.

There is no standard for categorizing incidents so it must be understood that these statistics are broadly based and are only general reference when comparing fire departments. The community comparative analysis can only be interpreted from an indirect basic level due the disparity from each of the surveyed communities' organizational structure, core services and levels, emergency response categorization, and financial systems. Direct comparison is strongly discouraged.

SECTION 2
THE ENVIRONMENT

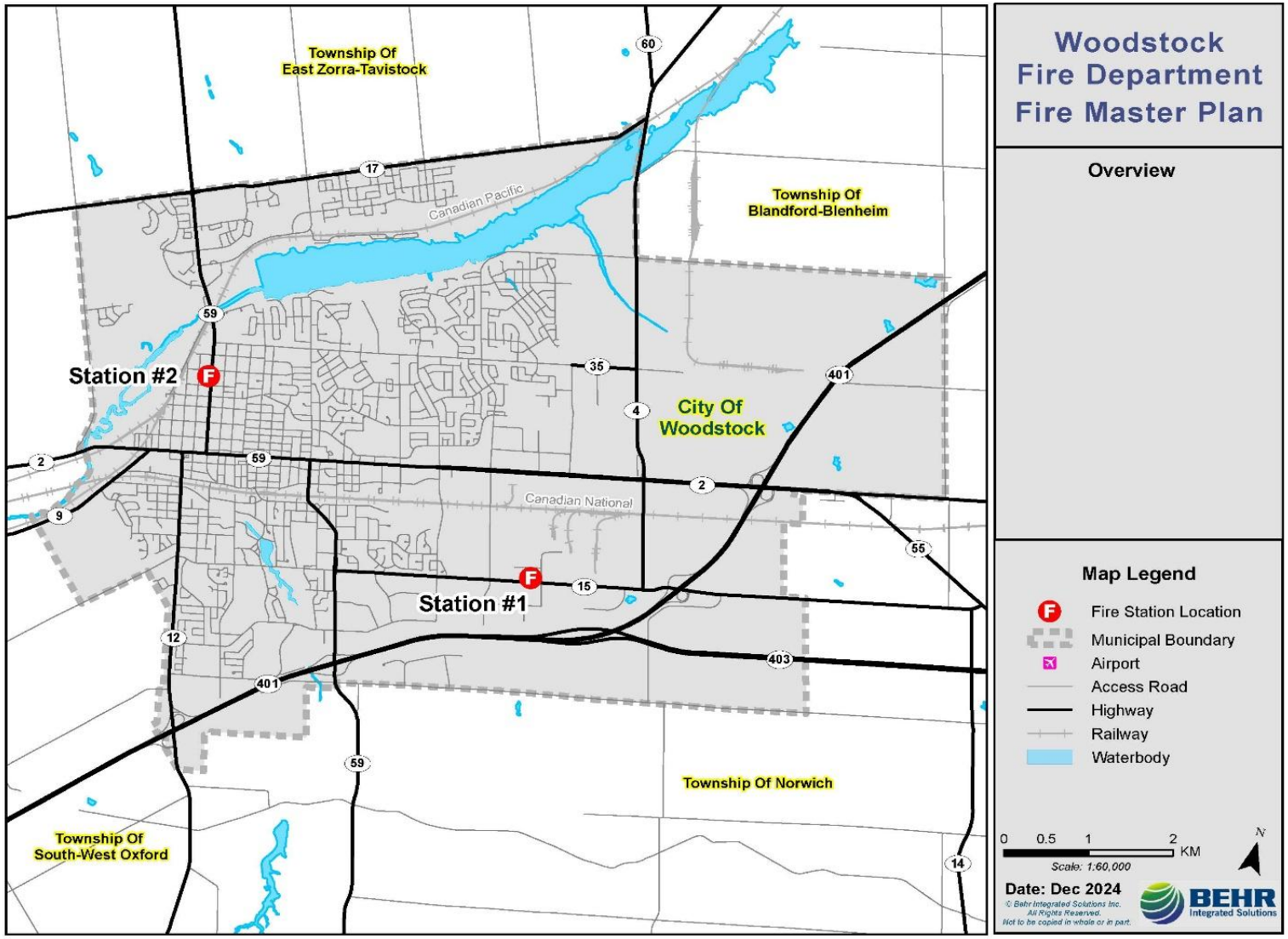
2.1 Community Overview

Nestled along the 401 Highway corridor in Ontario, the City of Woodstock is a municipal district located within Oxford County in southwestern Ontario. Woodstock has direct access to major highways such as the 401 and 403.

It has a population of approximately 50,450 residents spread across 55.7 km^2, resulting in a population density of 905.74/km^2. The city strategically accesses major markets through an extensive transportation network, featuring high-capacity roads and rail systems.

Surrounded by the four townships of East Zorra-Tavistock, Blandford-Blenheim, South-West Oxford, and Norwich, Woodstock is an urban hub providing essential amenities to the neighbouring townships. Woodstock has experienced steady growth, providing a solid blend of amenities, attractive housing, a state-of-the-art regional health facility and is ideally centrally located.

Map 1: City of Woodstock Overview



2.2 Economic Indicators

The automotive-related industries employ almost 50% of the labour force. This includes Toyota Automotive Manufacturing, making it the largest employment industry in the city. An incident impacting the automotive industry could have a large economic impact for many individuals and other businesses both in Woodstock and nationwide.

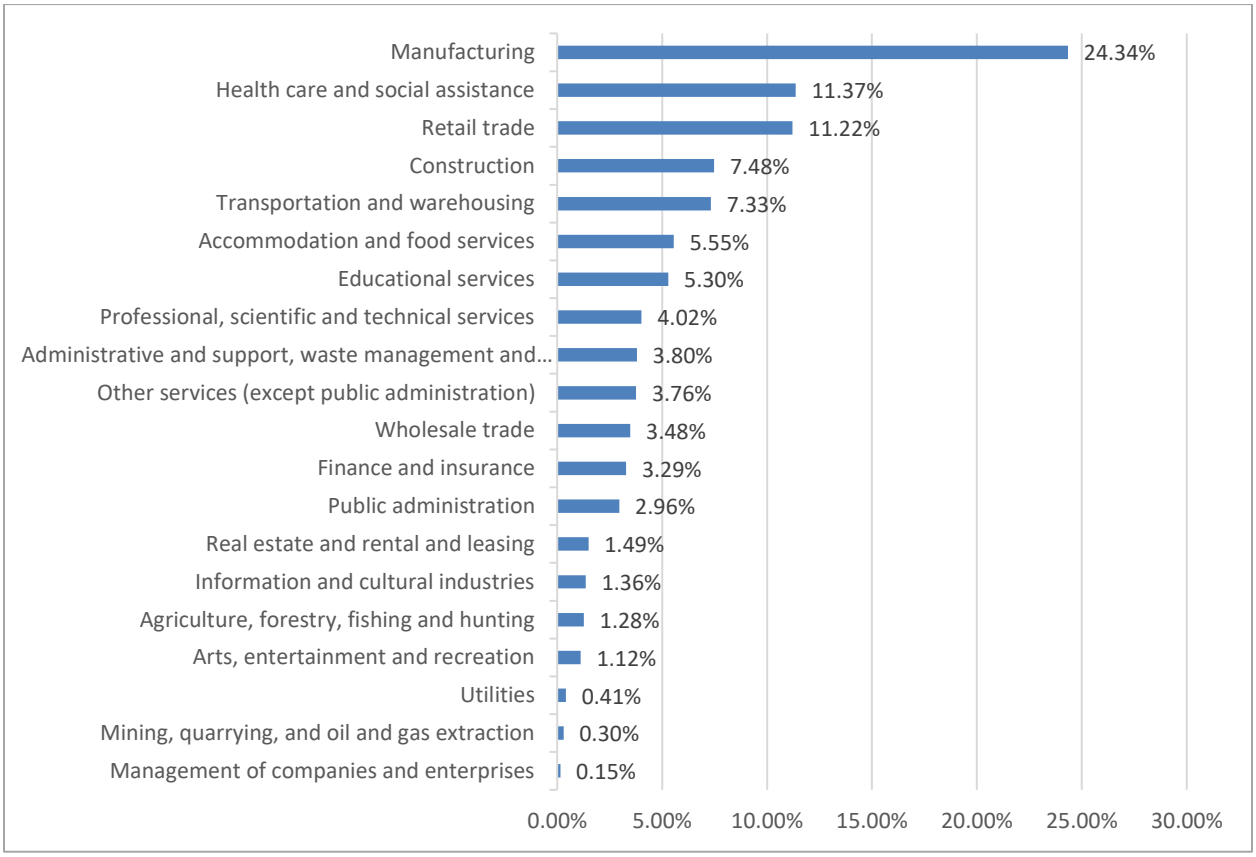
Woodstock has large employers in both the private and public sectors, several of them being in the manufacturing industry. Certain industrial operations may have increased fuel loads and conduct higher risk activities. Proactive inspections should target these facilities to ensure compliance with codes, maintenance, and emergency planning requirements. The city's top employers are summarized in Table 8.

Table 8: Woodstock Major Employers

Company	Service/Product	Address
Toyota Motor Manufacturing	Automobiles	1717 Dundas St
Contrans Group Inc	Modular Components, package, and trays	646 Athlone Ave
Toyota Boshoku Canada	Automotive seats, door panels	230 Universal Rd
Transfreight Integrated Logistics	Logistics for Toyota motor manufacturing	715032 Oxford Rd 4
Sysco Southwestern Ontario	Food Product Distribution	1515 Commercial Way
Great Northern Insulation	Insulation Contractor	935 Keyes Dr
Agropur, Bright Cheese	Cheese, condiments	478 Industrial Ave
Tigercat Industries	Heavy Steel Fabrication	1403 Dundas St
Thames Valley District School Board	Education	Various Schools
Woodstock Hospital	Health Services	310 Juliana Dr
County of Oxford	Regional Government	21 Reeve St
City of Woodstock	Municipal Government	500 Dundas St
Woodingford Lodge	Long Term Care	300 Juliana Dr
Fanshawe College	Education	369 Finkle St

The top industries that contribute to the economic base of the city are summarized in Figure 3. According to the Statistics Canada 2021 Census, Health Care, Retail, Professional Scientific services and Finance and Insurance are the top contributing industries to Woodstock's economic base.

Figure 3: Economic Sectors (2021)



2.3 Growth Projections

The City of Woodstock has experienced increased growth since 2001, averaging a rate of growth of 2% compounded annually. Table 9 highlights the significant growth experienced by the City of Woodstock over a twenty-year period from 2001 to 2021 in both population and total private dwellings. The most substantial increases occurred between 2016 and 2021, with an increase of 14.19% in population and 11.40% in total private dwellings. These rates of increase have continued steadily since then.

Table 9: Population and Private Dwellings Change (2001 to 2021)[2]

Year	Population	% Change	Total Private Dwellings	% Change
2001	33,269	---	13,743	---
2006	35,822	7.67	14,960	8.86
2011	37,754	5.39	16,448	9.95
2016	40,902	8.34	17,530	6.58
2021	46,705	14.19	19,528	11.40

2.4 Key Community Demographics

2.4.1 Population Growth

Table 10: Population growth (2016-2021)

2021	2016	% Change
46,705	40,902	14.19%

2.4.2 Average & Median Age

Table 11: Average and Median Age 2021

	Total	Male	Female
Average Age	41.6	40.3	42.9
Median Age	40.8	39.2	42.4

2.4.3 Population Distribution

Table 12: Population Distribution 2021

Age Range	Total	Male	Female
0 to 14 Years	8,145	4.155	3,990
15 to 64 Years	29,055	14,490	14.565
65+ Years	9,090	3,965	5,130

[2] *City of Woodstock Census Profile 2021*

2.4.4 Age Distribution in Percentages

Table 13: Age distribution 2021

Age Range	Total	Male	Female
0 to 14 Years	17.60%	18.38%	16.85%
15 to 64 Years	62.77%	64.09%	61.51%
65+ Years	19.64%	17.54%	21.66%

2.5 Community Planning and Development

The Oxford County Official Plan[3] is utilized to guide growth and development for the city. The plan was adopted by Oxford County Council in 1995, and the latest amendments have occurred as of March 31, 2023, and identified several key strategic initiatives for the City of Woodstock land use policies. These are summarized below:

- promotes the concept of a compact urban form as a means of maximizing the use of existing services, promoting energy efficiency, and protecting agricultural lands and natural areas.
- promotes appropriate infill development and intensification of land and buildings.
- provide opportunities to develop the full range of housing required to meet the needs of Woodstock residents.
- designed to minimize land use compatibility issues by requiring appropriate setbacks and buffering between such uses through site design standards and by requiring area studies to develop appropriate land use standards
- committed to the conservation, stewardship and enhancement of the natural environment and resources through appropriate land use planning.
- provide for the protection, maintenance and rehabilitation of heritage resources and are designed to promote new development which is sensitive to and complements heritage resources.
- establishes policies designed to improve the livability, efficiency, and form of urban development.
- promote residential development and employment uses in the Central Area, to promote high quality aesthetic and functional improvements through urban design and to preserve and enhance the historical Central Area retail and shopping function.

[3] *Oxford County Official Plan*

- establishes a distinct commercial hierarchy of shopping areas and service commercial areas and establishes policies to minimize the effect of new commercial facilities on existing commercial areas,
- designed to facilitate the development of both large-scale and smaller institutional uses while ensuring such uses are compatible with adjacent neighbourhoods.
- identify major transportation network standards and improvements, including urban and site design standards promoting pedestrian and bicycle facilities and transit use and encourage better integration of City, senior governmental and private transportation networks.
- establish a commitment to both early and multi-stage public involvement in the land use planning process.

The City of Woodstock's 25-year population forecast is shown in Table 14. The 2021 census population has already exceeded the 2022 projected growth. The anticipated growth rate over 25 years (2022-2046) is 28.7%. with an average 5-year growth rate of 6.7%. The number of private dwellings is also anticipated to increase at similar rates of population growth (27.8%) over the 25 years.

Table 14: City of Woodstock 25-year population forecast[4]

Year	Population	% Change	Total Private Dwellings	% Change
2021	47,965	N/A	19,140	Not available
2026	51,825	8.05%	20,750	8.41%
2031	55,815	7.70%	22,330	7.61%
2036	59,825	7.18%	23,870	6.90%
2041	63,595	6.30%	25,220	5.66%
2046	67,295	5.82%	26,510	5.11%

2.6 Community Risk Assessment

Risk can be managed by either accepting the risk, insuring against damages, or investing in risk prevention and mitigation strategies. Local governments typically employ a combination of these approaches. In general, the risks and management strategies of a community are relative to a municipality's financial capacity, geography, population demographics, fixed assets, critical infrastructure, and overall service delivery.

[4] *https://www.oxfordcounty.ca/en/services-for-you/resources/Community-Planning/Final-Phase-1-Comprehensive-Review-Report.pdf*

Conducting a risk assessment is the first step towards establishing a strategic plan to manage community risks based upon local fire department response capabilities. The results are used to assist the municipality in making informed decisions regarding the allocation of limited fire prevention and fire response resources.

Community Risk Assessments are required pursuant to Ontario Regulation 378/18 and allow fire departments to make informed decisions about the types and levels of fire protection services provided based on identified risks. Specifically, the following nine (9) profiles will be reviewed:

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

The information and data gathered to address each of the profiles will assist in determining and prioritizing risks to public safety in the community and determining the fire protection services to be provided by municipalities to address those risks.

Risks were identified using historical response data, hazard risk vulnerability assessments and information from our interviews to develop a risk profile for the community. The evaluation of fire and rescue risks considers both the probability and consequence of emergency event types. The probability of an event is quantified by analyzing historical, current, and projected data. The consequence of the event type or risk is based on an informed assessment of the potential impact on a community should the event occur.

The Community Risk Assessment (CRA) must consider the following:

- The format is approved by the Ontario Fire Marshal by reviewing the nine mandatory profiles.
- The Technical Guideline TG-02-2019: Community Risk Assessment Guideline will be used as guidance in formatting the risk assessment.
- Utilization of the charts as provided in the technical guideline or as a minimum, all the points outlined in the guideline.
- The CRA document will be made readily available if the Ontario Fire Marshal conducts a review of the municipality under the FPPA(Part III, 9.(1)(a)).

2.6.1 Factors Contributing to Risk

As mentioned, every municipality has unique challenges and characteristics contributing to the overall risk profile of the community. Examples of community risks include:

- Fire/rescue service model and response capacity
- Population and demographics
- Population growth rate
- Industry types
- Economy
- Rate of development
- Transportation corridor types
- Typography
- Weather
- Historical response data

2.7 Risk Management

Image 1: Risk Management Cycle Process

All communities require a process to identify and actively manage high-priority risks. The focus of this report is to identify and discuss specific risks and unique community characteristics that contribute to risk, typically managed through fire prevention or fire department response. Image 1 describes the risk management cycle. The first step in the risk management process includes the assessment of the probability and consequence of specific risks. The next step is the assessment to identify key risks, which are then evaluated against the current prevention or response strategy to identify potential service gaps. The third step in this cycle includes adjusting fire prevention and response service levels to manage the resources necessary to pre-emptively mitigate or respond as determined by approved service levels. The last step in the cycle is to measure and report results to key policymakers. This cycle should be repeated periodically to address changes in the risk profile and make thoughtful and informed decisions regarding strategies to manage any changes.

In Canada, local governments are charged with delivering fire and rescue response services for their citizens. Elected officials are the 'Authority Having Jurisdiction' (AHJ), who determine the level of service required to manage fire and rescue risks to an acceptable level. The challenge for elected officials lies in determining the best balance between investing in adequate emergency services and accepting a certain level of risk.

2.8 Risk Evaluation vs. Service Levels

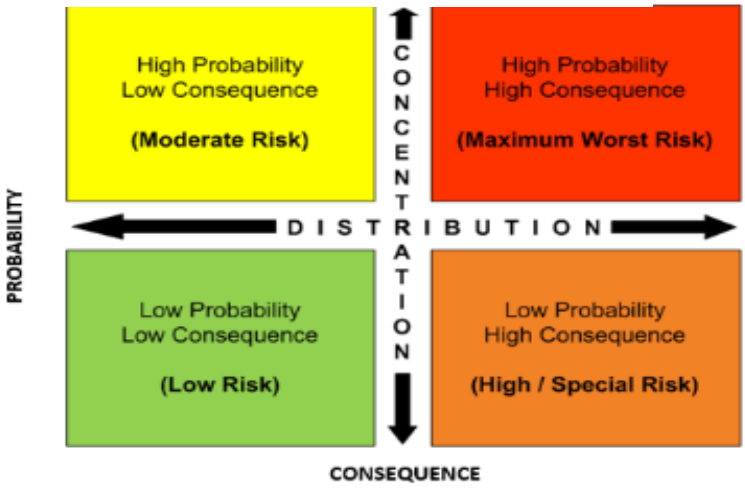
The evaluation of fire or rescue risks considers both the probability and consequence of emergency event types. The probability of an event is quantified by analyzing historical, current, and projected data. The consequence of the event type or risk is based on an informed assessment of the potential impact on a community should the event occur.

Probability – The probability of a risk, or event type, is the determined likelihood that an event will occur within a given time. The probability is quantified by considering the frequency of event type data. An event that occurs daily is highly probable and, therefore, higher risk. An event that occurs only once in a century is assessed as a lower risk as it may never occur.

Consequence – There are three types of consequences when considering fire/rescue response requirements:

- Life safety impact: Life safety risk for victims and responding emergency personnel are the highest order of consequence when considering the risk associated with specific event types. Events with a high likelihood of injury/death occurring and even a moderate probability of occurring require close examination to ensure adequate resources required to safely rescue or protect the lives of occupants from life-threatening are accessible to respond. Incidents that risk life safety include motor vehicle accidents, extreme weather, flooding, fire, release of hazardous materials, medical emergencies, and all types of rescue situations.
- Economic impact: Events with high negative impacts on the local economy are devastating to a municipality. For example, recovering from the fire loss of a large employer's property or key public infrastructure in smaller municipalities can be difficult. Therefore, providing adequate response capacity necessary to manage these types of events must be considered.
- Environmental impact: Negative environmental consequences resulting in irreversible or long-term damage to the environment must also be considered in the analysis. Events with risk of negatively impacting water, soil and air quality are also likely to impact life safety as well as the economy and therefore must be considered.

Figure 4: Risk Evaluation Matrix



Social and cultural impacts, as experienced with the loss of historic buildings, recreation facilities or non-critical community infrastructure, are considered but do not typically affect how fire department resources are deployed.

As discussed, the risk evaluation process is used to identify high-priority risks and the appropriate risk management strategy. Where a fire department response is determined to be the most appropriate management strategy, the appropriate services and service levels should be established to manage the risks safely. Elected officials are responsible for determining which services are delivered and setting service level goals. The service level goals determine the necessary concentration and distribution of either fire prevention or emergency response resources to manage the identified risks.

Distribution *refers to the number of fixed resources, such as fire stations, and where they are placed throughout the community. Distribution varies depending on factors related to the number of incidents and types of calls for service in the defined area.*

Concentration *refers to the assembling of resources, such as a specialized workforce and equipment, needed to effectively respond to an incident in each area within the community. It must also identify the availability of additional response resources, including the reliability and time of arrival of a secondary responding unit.*

The risk evaluation matrix can be divided into four levels of risk based on the probability and consequence, each with specific implications for the concentration and distribution of resources. It is provided as a reference and context to quantify fire response risks in any municipality. Different quadrants of the risk matrix need different response requirements, which offers examples of categories of types of structural fires and general hazards commonly found in communities. As described above, these risks are categorized by considering the probability and consequence of the fire or hazard. This qualitative analysis is based on experience and expertise and should be completed with input from fire, building and emergency management officials. Every community will have a unique risk inventory contributing to its risk profile.

2.8.1 Assigning Risk Level

Once probability and consequence are determined, the level of risk is calculated by multiplying the numerical values for probability and consequence. The relationship between probability and consequence as it pertains to risk levels can be illustrated in a risk matrix (below). In a risk matrix, probability and consequence are defined on separate scales with varying descriptors providing direction on how to assign the probability and consequence of an event. Figure 5 shows the risk matrix utilized in the updated CRA. The purpose of assigning a risk level is to assist in the prioritization of the range of risks that are identified in the CRA.

Figure 5: Risk Matrix Template

Probability/ Consequence	Insignificant 1	Minor 10	Moderate 100	Major 1,000	Catastrophic 10,000
Almost Certain 10,000	Moderate	Moderate	High	High	High
Likely 1,000	Moderate	Moderate	Moderate	High	High
Possible 100	Low	Moderate	Moderate	Moderate	High
Unlikely 10	Low	Low	Moderate	Moderate	Moderate
Rare 1	Low	Low	Low	Moderate	Moderate

Where possible, quantitative data was used to inform the risk assignment as described in the rationale in the table. It is important to recognize that with the availability of new or updated data, the probability levels could change or be refined. It should also be recognized that, as identified in. OFM T.G.-02-2019, "professional judgment based on experience should also be exercised in combination with historical information to estimate probability levels. Similarly, OFM T.G.-02-2019 acknowledges the role of professional judgment and reviews of past occurrences in determining consequence levels. The rationale provided for both probability and consequence consider information from the CRA's nine profiles, as OFM T.G.-02-2019 supports consideration of the profiles together to inform decision-making about the provision of fire protection services in the specific municipality/community.

2.9 Structural Fire Risk Analysis

It is critical to use careful planning and consider alternative solutions when managing risk because the ability to increase the distribution of resources and add capacity is always limited. Spending substantial amounts of time and resources to manage a risk with low frequency/low consequences will have limited impact and make a minimal improvement to community safety. When planning for fire department response, the planning process includes a detailed review of the frequency of events and their potential consequence(s) to ensure prevention and response efforts maximize life safety and minimize negative consequences for high-priority events.

The Office of the Fire Marshal (OFM) have developed guidelines to assist municipalities with conducting community risk assessments to inform decisions about the provision of fire protection services, in accordance with Ontario Regulation 378/18 and the Fire Protection Act 1997 (FPPA).

As referenced in O. Reg. 378/18, the building stock profile assessment includes an analysis of the types and uses of building stock in a municipality. Important considerations include the number of buildings of each type, the number of buildings of each use and any building related risks known to the fire department. There are potential fire risks associated with different types and uses of buildings given the presence or absence of fire safety systems and equipment at the time of construction and maintenance thereafter.

2.10 Ontario Building Code Occupancy Classifications: Building Stock Profile

The Ontario Building Code (OBC) categorizes buildings by their major occupancy classifications. Each classification has definitions that distinguish it from other occupancy classifications. Using the OBC as the source for defining the occupancy classifications provides a recognized definition and baseline for developing the community risk profile. The OBC major classification groups and divisions are presented in the following table.

Table 15: OBC Major Occupancy Classification

Group	Division	Description
A	1	Assembly occupancies intended for the production and viewing of the performing arts
A	2	Assembly occupancies not elsewhere classified in Group A
A	3	Assembly occupancies of the arena type
A	4	Assembly occupancies in which occupants gather in the open air
B	1	Detention occupancies
B	2	Care and treatment occupancies
B	3	Care occupancies
C	--	Residential occupancies
D	--	Business and personal services occupancies
E	--	Mercantile occupancies
F	1	High hazard industrial occupancies
F	2	Medium hazard industrial occupancies
F	3	Low hazard industrial occupancies

2.11 OFM Fire Risk Sub-Model Occupancy Classifications

The Fire Risk Sub-Model developed by the OFM utilizes the major building occupancy classifications (i.e., Group A, B, C, D, E and F), but does not use the detailed division classifications as included in the OBC. This strategy provides the opportunity for further analysis of a specific occupancy group. Subject to any site-specific hazards or concerns, occupancies within a group can be assessed individually and included where required within the scope of the broader community risk assessment.

Analyzing structural fire risk begins by developing an exhaustive inventory of existing building stock and monitoring changes to the inventory. This process should include staff from the planning and development departments, as well as building and fire prevention officers. This provides the fire service with an opportunity to evaluate the Ontario Fire Code requirements in the design, construction, and operation phases of the building.

The building inventory database becomes the foundation of assessing fire risk in the community. This inventory provides a count of all property types, including single and multi-family residential, assembly (including schools, churches, hospitals, personal care homes, etc.), mercantile, commercial, and industrial properties.

Once the inventory is assembled, the fire department response capability is measured against the identified property risks. This simple identification of the high numbers of specific high-risk property types may identify gaps in the current response model, resulting in the reorganization or addition of fire department resources. As building stocks increase, fire departments should continue to monitor response capability and capacity to ensure service levels are maintained.

2.12 City of Woodstock's Existing Major Building Classification Summary

An analysis of the city's major building occupancy types was conducted using data provided by the Municipal Property Assessment Corporation (MPAC). Table 16 summarizes the city's existing major building occupancy classifications.

The majority of the city's existing property stock is comprised of Group C - Residential Occupancies (94.77%), representing 15,574 residential units. The second largest occupancy type within the city is Group F– Industrial Occupancies, accounting for 2.26% of the city's property stock.

Table 16: City of Woodstock Total Existing Property Stock[5]

OBC Occupancy Classification	OFM Fire Risk Sub-Model Major Building Classifications	Occupancy #	Occupancy %
Group A	Assembly Occupancies	107	0.65%
Group B	Care or Detention Occupancies	21	0.13%
Group C	Residential Occupancies - Total	15574	94.77%
	Single-detached	*11155*	*67.88%*
	Semi-detached	*1512*	*9.20%*
	Row	*2434*	*14.81%*
	Apartment > 5 Storeys	*13*	*0.08%*
	Apartment < 5 Storeys	*460*	*2.80%*
Group D	Business & Personal Services	*67*	*0.41%*
Group E	Mercantile	*235*	*1.43%*
Group F (all divisions) *	Industrial Occupancies	372	2.26%
Division F1	High Hazard	*8*	*0.05%*
Division F2	Medium Hazard	*349*	*2.12%*
Division F3	Low Hazard	*15*	*0.09%*
Other	Not classified in OBC- Farm	57	0.35%
	Not classified in OBC - Government	0	0.00%
	Total	16433	100.00%

Consistent with most other municipalities in Canada, Group C - Residential Occupancies represent the most prominent type of building occupancy type. Standard incident reporting from the OFM[6] indicates that 67.26% of structure fires loss over the five-year period from January 1, 2018, to December 31, 2022, occurred within Group C - Residential Occupancies.

[5] *Difference between MPAC and Census occupancy totals is related to MPAC classifications vs Census Groupings*

[6] *Woodstock SIR- Municipal Fires: Overview Property Class, Injuries, Cause, Ignition Source (2018-2022)*

2.13 Potential High-Fire Risk Occupancies

Potential high fire risk occupancy is another factor for consideration within a city's building stock. High fire risk can be linked to a combination of factors such as building density (exposures), building age, and construction. Fuel load typically refers to the amount and nature of combustible content and materials within a building. This can include combustible contents, interior finishes as well as structural materials. Combustible content tends to create the greatest potential fire loss risk. Higher fuel loads result in increased fire loss risk due to increased opportunity for ignition and increased fire severity. In many communities, large amounts of fuel load can be contained within a single occupancy, such as a building supply business, within a large multi-unit residential building, or within a historic downtown core.

2.13.1 Fuel Load Concerns

The review has identified 19 buildings with potential fuel load concerns. These include buildings involved in auto and auto parts, cannabis processing, food storage, general warehousing, and manufacturing. The buildings may utilize materials such as oxidizers and flammable and combustible liquids and chemicals.

In addition to ensuring compliance with the requirements of the OBC and the OFC, there are operational strategies that a fire service can implement to address fuel load concerns. These include regular fire inspection cycles and pre-planning of buildings of this nature to provide an operational advantage in the event of fire. It should be noted that some of these companies routinely update emergency response plans and share them with the fire services.

2.14 Occupancies with Potential High Fire Life-Safety Risk

Fire risk does not affect all people equally. Those who are at an increased risk of fire injury or fatality are known as vulnerable individuals. In the event of a fire, these individuals may be unable to self-evacuate and/or require assistance in their evacuation efforts. Identifying the location and number of vulnerable individuals or occupancies within the community provides insight into the magnitude of this demographic within a community.

2.14.1 Registered Vulnerable Occupancies

From an occupancy perspective, vulnerable occupancies contain vulnerable individuals who may require assistance to evacuate in the event of an emergency due to cognitive or physical limitations, representing a potential high-life safety risk. As part of its registry of vulnerable occupancies, the OFM defines vulnerable occupancy as any care occupancy, care and treatment occupancy, or retirement home regulated under the Retirement Homes Act.

These occupancies house individuals such as seniors or people requiring specialized care. It is important to note, however, that not all vulnerable individuals live in vulnerable occupancies; for example, some seniors who are vulnerable due to physical limitations can live on their own or in subsidized housing, making them a key demographic to reach.

Ontario Regulation 150/13: Fire Code, which amends Ontario Regulation 213/07: Fire Code, identifies vulnerable occupancies as care, care and treatment and retirement homes. This includes hospitals, certain group homes, seniors' residences, and long-term care facilities. The regulation requires fire service to perform annual inspections, approve and witness fire drill scenarios and file certain information regarding the occupancy with the Fire Marshal's office. A list of the 19 vulnerable occupancies in Woodstock is presented in Table 17. These include care occupancies, care and treatment occupancies and retirement homes.

Table 17: Vulnerable Occupancies

Property Name	Occupancy Type	Location
Woodstock General Hospital	Care and Treatment Occupancy	310 Juliana Drive
Sakura House	Hospice Care Occupancy	715180 Oxford Road 4
Caressant Care Nursing Home	Care Occupancy	161 Fyfe Avenue
Caressant Care Retirement Home	Retirement Home	161 Fyfe Avenue
Alternative Level of Care (ALC) at Caressant Care Home	Care Occupancy	161 Fyfe Avenue
Woodingford Lodge	Retirement Home	300 Juliana Drive
Park Place	Retirement Home	126 Graham Street
Chartwell Oxford Gardens	Retirement Home	423 Devonshire Avenue
Langdon Retirement Home	Retirement Home	196 Ferguson Drive
Victoria Manor	Retirement Home	265 Victoria Street North
Christian Horizons #1	Care Group Home	873 Dufferin Street
Christian Horizons #2	Care Group Home	289 Graham Street
Christian Horizons #3	Care Group Home	13-113 Bay Street
WDDS	Care Group Home	136 Anderson Street
WDDS	Care Group Home	104 East Park Drive
WDDS	Care Group Home	106 East Park Drive
WDDS	Care Group Home	373 Huron Street
WDDS	Care Group Home	334 Lansdowne Avenue
WDDS	Care Group Home	74 Pebble Beach Crt

2.15 Community Risk Analysis Overview

The city's HIRA was reviewed and updated in 2023, indicating that Woodstock has complied with its legislative requirements. As a component of the risk assessment and risk analysis process, the top risks in Woodstock were identified. The HIRA assigned likelihood and consequence levels to a list of hazards based on the potential for impacts to people, property, and the environment. As a result of this analysis, the top hazards in the city include the following:

- Fire/explosion
- Cyber attack
- Roadway/highway emergency
- Winter weather/
- Extreme temperatures/seasonal storms
- Oil or natural gas release
- Infectious disease
- Active threat
- Rail, light rail

In addition to the overall highest risks to the community, certain events pose an increased risk specific to firefighting. The risk to firefighting responders to the most hazardous events are identified below, as well as the most hazardous events they may encounter that pose a specific risk to them and their ability to respond.

2.16 Impacts of Hazards on Fire Protection Services

To better understand the risks of hazards as they pertain to fire protection services, the hazards have been assessed to identify possible impacts on fire protection services (excluding fire/explosion). Many of the potential impacts are not unique to a jurisdiction. The results of this review, as they pertain to the hazards in the city, are presented in Table 18.

Table 18: Impacts of Hazards on Fire Protection Services

Hazard	Possible Impact
Fire / Explosion	**Overall Impact** Threat of exposure fire to homes and businesses. Large-scale evacuations may be possible, with many people displaced. Evacuations with little notice may occur. Potential for damages and loss. Damage to the environment. Many industrial properties in the city. **Fire Services** May require mutual aid support. May not be equipped (with enough people or apparatus) to extinguish fire as it expands. May require specialized resources.
Cyber Attack	**Overall Impact** Privacy/data breach of public and/or municipality. Inability to perform administrative functions. **Fire Services** Breaches to major infrastructure could result in injury or fatalities. Breaches to databases could impede dispatch, record keeping and investigations. Breaches could result in financial loss.
Roadway / Highway Emergency	**Overall Impact** Threat to life safety. Impact to road network, downed power lines and vehicular fires. **Fire Services** Pose secondary threat to responders of fire or explosion. Delayed response in accessing scene. May require support for high number of injuries/fatalities and/or rescues.
Tornado	**Overall Impact** Above ground power lines could be impacted along with road treatments, debris clearing, damage to critical infrastructure and buildings. Increase in call volume due to damage incidents, and rescues. **Fire Services** Depending on the severity of the debris on roads and downed power lines, access to various sections of the road network could be limited to fire service response delaying emergency response times. Interruptions to communication towers could impact fire service communications.

Hazard	Possible Impact
Chemical	**Overall Impact** Serious injury or fatality. Possible secondary emergencies such as fire or explosion when chemicals mixed with air, water, or other agents. Could require small- or large-scale evacuation of homes, businesses, school etc. **Fire Services** Depending on the severity and type of release, could pose secondary risk to firefighters on-scene. Must have proper knowledge of chemical release. May not be able to access the scene until proper back-up arrives or have proper information.
Extreme Heat	**Overall Impact** Extreme temperatures could put the vulnerable population at risk, including those without access to cooling systems, the homeless, and those requiring work outside. Extreme heat can also put additional pressures on critical electrical systems **Fire Services** Depending on the severity of the extreme heat, could pose increase medical incidents due to heat emergencies, alarm calls, elevator rescues in the event of power outages. Also, extreme heat puts additional stresses on firefighters operating at large complexed incidents.
Oil / Natural Gas	**Overall Impact** Serious injury or fatality. Possible secondary emergencies such as fire or explosion when chemicals mixed with air, water, or other agents. Could require small- or large-scale evacuation of homes, businesses, school etc. **Fire Services** Depending on the severity and type of release, could pose secondary risk to firefighters on-scene. Must have proper knowledge of chemical release. May not be able to access the scene until proper back-up arrives or have proper information.

Hazard	Possible Impact
Infectious Disease	**Overall Impact** Medically vulnerable persons are at risk. Increased use of non-recyclable PPE for staff. Critical infrastructure must be maintained with planning for staffing and acquisition of critical supplies. **Fire Services** Epidemic or pandemic breakout can present significant challenges to first responders causing potential fire service workplace absenteeism, and an increased demand for medical response and supplies as was illustrated during COVID 19. Fire services currently take on a large number of medical calls. PPE was severely limited and supply chain issues for all equipment impacted operations. In many cases planned programming related to inspections and public education had to be delayed or modified.
Sabotage	**Overall Impact** Threat to life safety, may require evacuation/shelter in place of large population. **Fire Services** Requires coordination with police services. Threat to life safety of responders.
Electrical Energy	**Overall Impact** Could result disruption to critical services, including lighting, heating, communications in isolated areas or municipal wide depending on the extent of disruption. **Fire Services** Disruption to electrical grids and systems could increase responses to alarm system failures, elevator rescues, increased uses of candles for heating and lighting is an increased fire risk. Downed power lines, access to various sections of the road network could be limited to fire service response delaying emergency response times. Interruptions to communication towers could impact fire service communications.

2.16.1 Fire Station Response Demand Zone

The City of Woodstock is identified as an Urban Centre with a small rural component to the northeast of the city core. It is staffed with full-time fire fighters and the NFPA 1710: Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations and Special Operation to the Public by Career Fire Departments Standard provides the framework and principles to review and address emergency response performance. This standard will be detailed further in this section.

Under the Fire Protection and Prevention Act the municipality through their Council has the responsibility to set the level of service to be provided by the Fire Department. This is typically identified through an up to date Establishing and Regulating (E&R) By-law. This by-law will establish the fire department, provide an overview of structure, outline duties and responsibilities, identify the various department divisions, provide for any powers, responsibilities, and authority of the Fire Chief, and will describe the levels of service and performance expectations to be provided by the fire department.

The current E&R by-law was approved by Council in 2019 and is outlined in Chapter 792, Fire Department – Regulations, with in the City's Municipal Code. It is up to date outlining the fire department structure, Fire Chief's responsibilities and provides levels of service outlined in schedule A.

The establishment of response performance expectations approved by Council provides clear objectives for the fire service to meet. It also allows for the fire service to identify the necessary resources required to meet the service levels. The establishment of benchmark performance expectations will support WFD in demonstrating a continuous improvement environment with incremental improvements towards achieving the designated benchmark. The recommended industry practices WFD should consider for performance benchmarks are as follows:

- Alarm Processing time: 64 seconds (time the phone is answered until the tones are activated)- 90th percentile
- Assembly Time:80 seconds (time tones are set to the time truck radios on the air) - 90th percentile
- Travel time: 300 seconds (time truck radios on air to the time initial truck arrives on scene) - 90th percentile
- Total Response time (initial): 444 seconds (time the phone is answered until the time the initial truck arrives on scene) - 90th percentile
- Effective Response Force: 624 seconds (time phone is answered until the time 3 apparatus are on scene) - 90th percentile

Observation # 1: Although the E&R By-law was approved in 2019 and is up-to-date with the Fire Chiefs responsibilities, it does not include specific emergency response time performance service levels. Furthermore, response performance such as the number of firefighters responding, or the time increment to achieve a safe ERF and complete the critical tasks is not being tracked or monitored. All these components would be included in a standard of cover or service level policy to support the E &R by-law.

Recommendation #1a: Update the existing Establishing and Regulating Bylaw to ensure the by-law reflects current legislation, structure of organization, outline powers and authority of the fire chief, and set level of service for all areas required based on legislation, risk, and circumstances.

Suggested completion: 6-12 months

Recommendation #1b: Establish Standard of Cover policy identifying the performance expectations (benchmark) for each level of service identified in an updated E&R by-law.

Recommendation #1c: Set a Council approved benchmark level for response performance utilizing the industry practices.

Suggested completion: 6-12 months

Cost: Neutral

Strategic Objective - #1 Administration

Rationale: *Developing formalized policy statements regarding fire department service levels is considered a leading practice. In the absence of established service levels, it is difficult for a fire chief to determine whether fire department response or service performance meets community and council expectations. Furthermore, the anticipated growth planned for the city will increase demand for services. Increases in service demands are correlated with increases in population and related risks such as increased traffic flow, building stock and community profile. A comprehensive emergency response and service level policy will confirm the essential core services for WFD based upon statistical demands.*

Note: *Technical/specialized rescue is based on the likelihood that fire will respond to these types of calls and must be trained to a minimum standard of awareness level so best to understand the situation, size up and request the appropriate additional resources required. Those identified as operations level are indications that there is experience in delay with emergency requiring these skills and fire fighters must be trained to the appropriate level. The Fire Chief should review these annually to determine if the current level is appropriate to deal with the needs and circumstances identified.*

2.17 Water Infrastructure

Water supply is a critical infrastructure that is essential for firefighting. Having access to the city's water delivery systems is critical to service delivery. The County of Oxford is responsible for treating water. Water distribution is owned by the County of Oxford; however, the city is responsible for the maintenance of the water distribution system and the maintenance of storm and sanitary sewer collections systems. Water supply is an essential component of firefighting and is accessible to the fire department through hydrant systems. A water supply shortage or damage to the distribution system could impede the fire department's ability to use these systems. There are fire department considerations for areas without adequate water flow and supply (hydrants).

The city has over 210 kilometers of water mains and over 980 fire hydrants. The majority of the regional water is obtained through 10 ground water wells. Seven of the wells are located in the Sweaburg Road area and 3 wells within the city.

Alternate water supply sources and those in the rural areas can include fire services access to ponds, streams and alternative water supplies, and the use of fire suppression apparatus that have portable tanks that can support a tanker shuttle and a continuous supply of water to support fire suppression activities. In areas without reliable municipal water supply, a fire service should consider a water servicing strategy or formal plan for those areas requiring water flow for firefighting. Woodstock currently participates in the Oxford County mutual aid plan and has running card assignments for tanker operations with East Zorra-Tavistock, Norwich, Blandford-Blenheim, South-West Oxford, and Ingersoll.

SECTION 3
DEPARTMENT PROFILE

3.1 Department Overview

Modern fire departments have evolved into a critical component of a community's social safety net. Whereas early fire departments were historically established specifically to combat structure fires that, at the time, were often devastating, today, fire departments are also called upon to respond to medical emergencies, technical rescues, and dangerous goods releases, often working together with other response agencies. Fire services also provide fire safety education programs and ensure fire codes are complied with to reduce risks. As a result, fire departments must be properly structured, adequately resourced and equipped to deliver these services safely and competently.

The Woodstock Fire Department (WFD) was first formed in 1881[7] with 15 firefighters to serve their community. The original fire station was located at the rear of the town hall and utilized horses and wheeled carts to respond to incidents. A bell tower system was utilized by citizens to notify the fire department of a fire. As the community grew and emergency services became increasingly in demand, the service evolved into the full-time career fire service it is today.

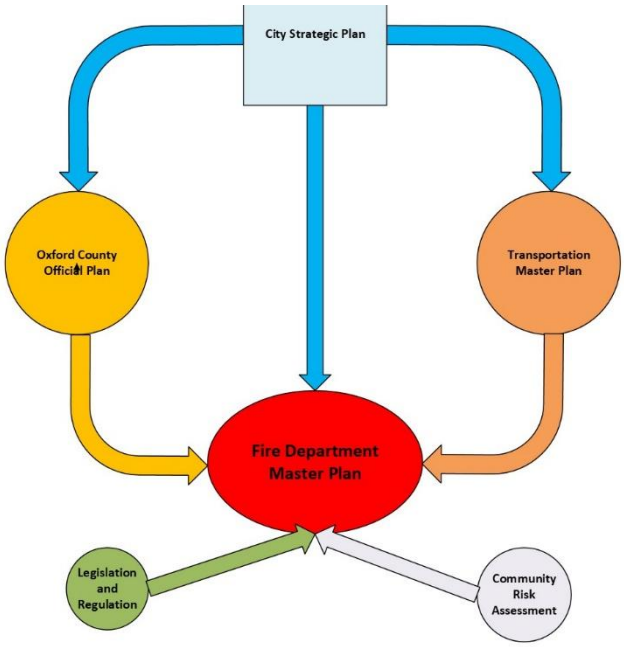
Today, WFD is led by a full-time Fire Chief and is currently staffed by two exempt full-time staff and 60 career full-time unionized firefighters (including training and prevention division staff) responding from two fire stations to provide education, safety and code enforcement, and fire response including, suppression, rescue, and medical first response to the City of Woodstock. The WFD is established and guided by Municipal Code Chapter 0792, "Fire Department – Regulation" *(August 2019)*.

WFD can request or be requested for additional fire/rescue resources through automatic or mutual aid agreements with the townships of Norwich, South-Oxford, East Zorra-Tavistock, Blanford-Blenheim, and the Town of Ingersoll. Requests can also be made through the Office of the Ontario Fire Marshal (OFM) Oxford County mutual aid plan.

[7] *https://www.cityofwoodstock.ca/en/residential-services/wfd-our-history.aspx#*

The City of Woodstock has developed an official Community Strategic Plan[8] and Integrated Community Sustainability Plan, which was updated in 2023. The plan identifies 4-goals outlining 18- key objectives and supporting priority actions to address new and emerging issues for the city.

Image 2: Link to City Strategic Plan



As detailed in Section 2, the projected growth in development and population within the municipality will further challenge WFD and the level of services going forward. It is desirable to ensure current services and infrastructure are in step with future development. In the case of a fire service, the lead-time to have fire stations, staffing and equipment in place at the appropriate time is validating the need to develop a master plan that is aligned with the Woodstock corporate strategic plan and council priorities.

This Master plan identifies five (5) strategic objectives linked to the major service delivery activities for WFD to align with the priorities within the following Community Strategic Plan:

Community Goal: Enhance the quality of life

- *Priority #1:Provide a safe community for all*
- *Priority #2:Effectively deliver amenities and services*

Fiscal Sustainability Goal: Ensure the long-term financial sustainability for the city

- *Priority #16: Develop a long-term financial sustainability plan*
- *Priority #17: Enhance emergency management planning*
- *Priority #18: Provide the necessary resources to support community and economic growth.*

[8] *https://www.cityofwoodstock.ca/en/city-governance/municipal-studies-and-plans.aspx#City-of-Woodstock-Strategic-Plan*

The strategic objectives within this Master Plan are:

Administration: Strategic Objective #1: *Enhance administrative efficiency and support systems to ensure the seamless operation and sustainability of programming initiatives.*

Public Fire Safety Education: Strategic Objective #2: *Develop and implement a community-wide fire safety education campaign that targets risk areas in the community to raise awareness about fire prevention, the importance of fire safety practices, and what to do in an emergency.*

Code Inspection and Enforcement: Strategic Objective #3 *Implement a program for proactive fire safety inspections for all occupancies, prioritized by risk, to ensure compliance with fire prevention codes, identify fire hazards, and encourage timely fixes to non-compliant issues.*

Emergency Response: Strategic Objective #4 *Ensure rapid and coordinated response to fire incidents to limit damage and save lives. Strengthen the capacity and resilience of firefighting teams and resources to tackle fires of all scales.*

Training and Professional Development: Strategic Objective #5 *Develop and implement an ongoing training program that incorporates the latest firefighting techniques, safety protocols, and technological advancements to ensure that all fire personnel are equipped with the skills necessary to respond effectively to evolving fire risks.*

3.2 Administration

Strategic Objective #1: Enhance administrative efficiency and support systems to ensure the seamless operation and sustainability of programming initiatives.

A fire department's employees are its most valuable asset. Emergency services are often delivered under difficult and stressful circumstances, with little room for error. Fire departments must be adequately resourced with staff, equipment, and training to be effective in delivering highly technical services to achieve service excellence. As a result, considerable effort is warranted to ensure that only highly committed, team-oriented, and physically able employees are recruited, trained, retained, and supported.

An effective organizational structure must promote and support strong, effective leadership, sound business management and continuity, and effective communication with opportunities for staff development.

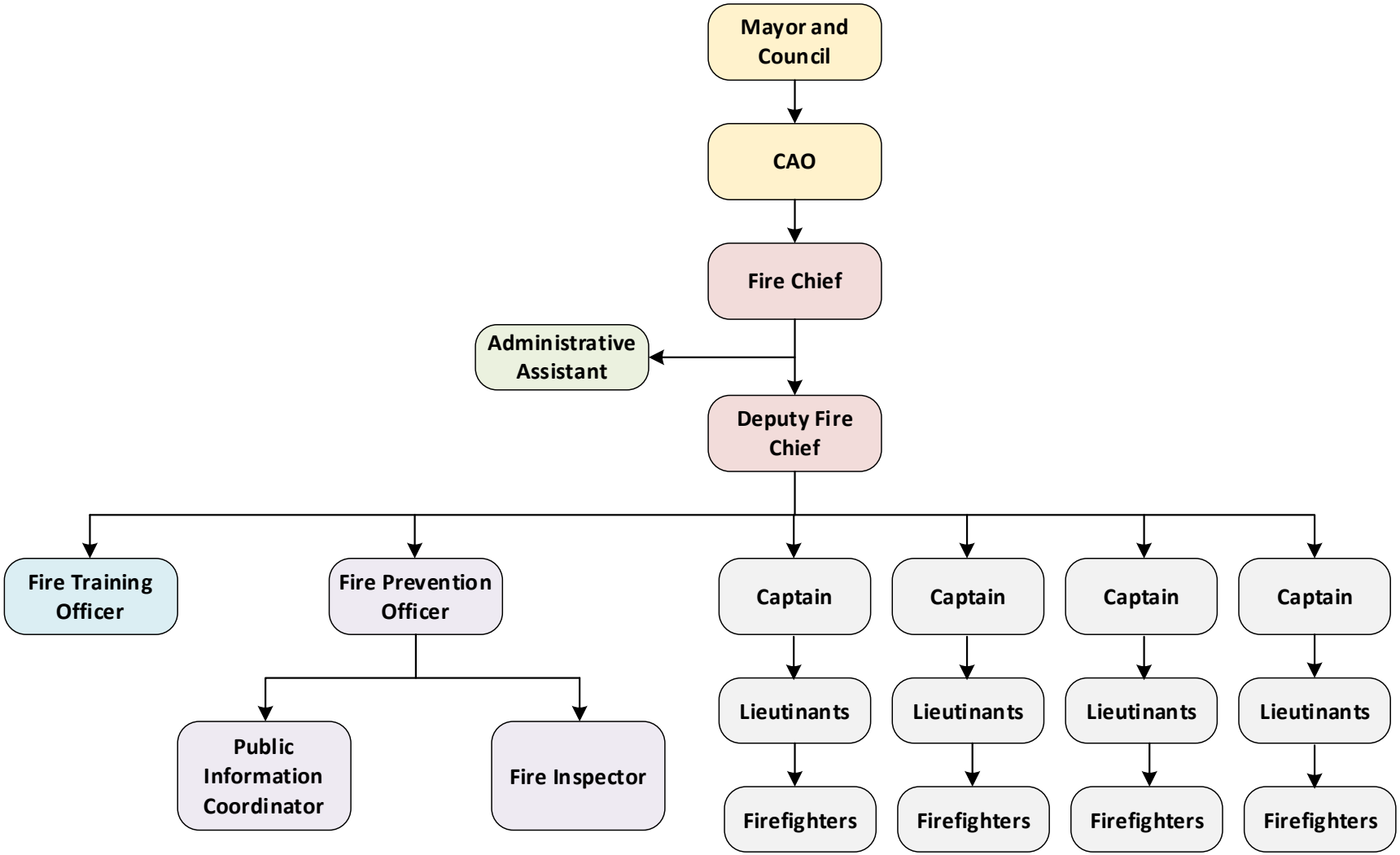
The City of Woodstock Human Resources Department (HR) partners with each of the municipality's departments, programs, and services to assist with achieving their human resources goals and objectives. Functions provided include:

- Health and Safety and Wellness
- Training & Development
- Employee & Family Assistance Program
- Compensation & Benefits
- Recruitment, Selection and On-boarding
- Employee & Labour relations
- Disability Management
- Return to Work Program

The HR staff is responsible for the legality of all departments in the corporation and works together with the WFD administration to assist with providing consistent delivery of fire services, including:

- Benefits administration
- Collective Agreement oversite and compliance
- Workplace WIBC requirements
- Respectful workplace compliance
- Other corporate responsibilities relating to corporate employees

Figure 6: Woodstock Fire Department Organization Chart



3.2.1 Department Leadership, Management and Operations

WFD administrative responsibilities, management and leadership are provided by the Fire Chief and Deputy Fire Chief through to the Captains, Lieutenants, and Officers. A clear understanding and acceptance of each position's role in leadership, along with effective management, is key to a safe and effective fire service. Leadership, done in a consistent and professional manner, transcends the entire organization. This creates a cohesive, resilient, value-based organization that embraces change as part of day-to-day work.

Effective leadership and management start at the top of an organization to guide it towards success. With increasing pressure to find value for money, elected officials are relentlessly looking for ways to increase the value for money proposition for their citizens. Department managers are challenged to maintain or increase services while avoiding service cost increases. This environment generates the need for communities to adopt more business-like approaches for delivering public safety services. Managers of fire and emergency services are required to develop private sector-like business practices such as:

- Conducting regular market (external) cost analysis
- Developing performance measures and objectives for core services including emergency response, fire prevention, public education and health and safety
- Regularly monitoring and reviewing performance
- Ensuring value for service

In some cases, this requires a shift from the historical approach of a focus on day-to-day service delivery to scanning the future and moving towards a department that is responsive to change, sustainable and efficient.

Fire department leaders must also adopt a business-like approach to leading and managing their departments. Along with their municipality's senior administration, they need to be proactive and examine all aspects of their service delivery systems to look for innovation in efficiency and effectiveness.

The following theoretical figure suggests how to allocate leadership time to effectively operate a fire department, scan for improvement opportunities and implement system improvements.

Figure 7: Fire Service Time Management Examples

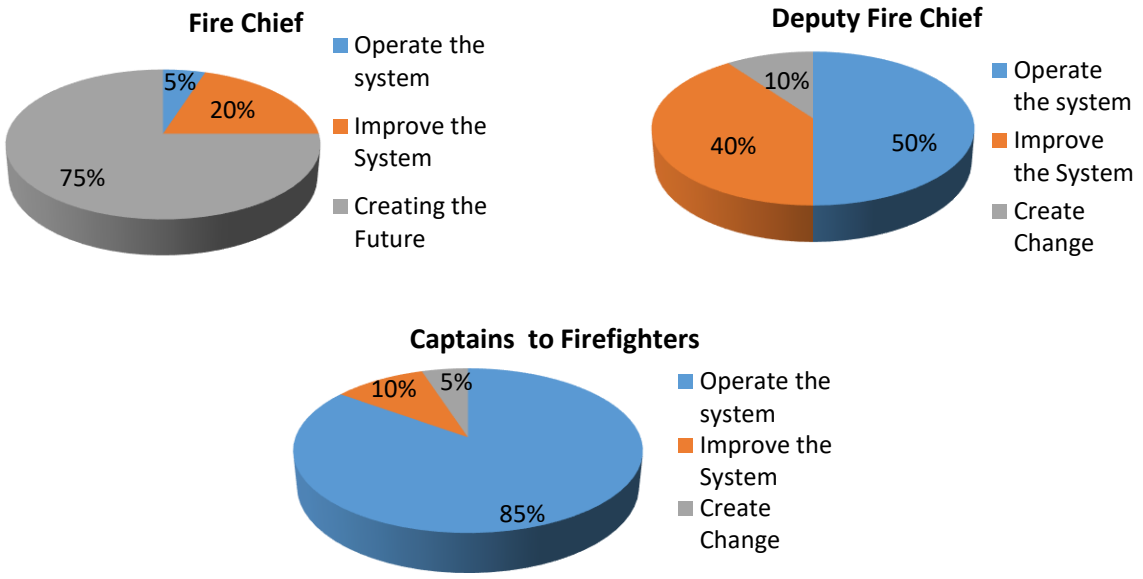


Figure 7 illustrates two important points:

1. The amount of time allocated to operating, improving, and identifying strategy varies at different levels in the organization.
2. Senior leadership positions in WFD must retain the capacity to identify and implement change.

The WFD Fire Chief is responsible for the overall management of the WFD consistent with the Fire Department Establishing Bylaw.

Typical duties captured in the Chapter 0792 Fire Department Regulations include:

- Legislative duties as mandated by the Province of Ontario Fire Protection and Prevention Act 1997 (FPPA).
- Reporting through the Chief Administrative Officer (CAO) to Council for proper administration and operation of the fire department.
- The preparation and delivery of an annual budget for approval.
- Preparation and delivery of an annual report to the CAO and Council.
- Appoint any qualified person as a member of the department.
- Develop and implement policies, procedures, rules, and regulations for the proper administration necessary for the effective and efficient operation of the department.
- Administer and enforce the Fire Bylaw and other corporate bylaws respective fire protection services.

- Administer and enforce of all general orders, policies, procedures, rules, and regulations of the department.
- Provide all the powers, rights and duties assigned to a fire chief under the FPPA.
- Liaise with the Office of the Fire Marshal of Ontario or other office, organization as required by Council.
- Develop and maintain mutual aid, automatic aid and fire protection agreements or response plans with other emergency agencies.
- Responsible for activities of all divisions of the department.
- Respond in support to WFD personnel to an emergency call within municipal boundaries or outside the limits of the municipality deemed appropriate within approved guidelines.

The WFD Deputy Fire Chief is appointed by Council to act on behalf of the Fire Chief of the department in the case of an absence or a vacancy in the office of the Fire Chief. The WFD Fire Chief may delegate some of the Fire Chief's responsibilities to the Deputy Chief for the effective and efficient management of the fire department.

The leadership team appears sufficient in competency, however deficient in structure to deliver the high level of leadership required for a fire service. The administrative positions (Fire Chief and Deputy Fire Chief) have core responsibilities detailed within their respective job descriptions, but with increases in legislative requirements, managing a growing 24/7 operations, increase growth in the community and organization and the heavy emergency response support necessary have provided for increased demands on the leadership team.

Based upon our review of the WFD organizational structure, there is a well-established chain of command structure throughout the organization that appears to work well and is respected. However, there is insufficient capacity at the Deputy Chief level. The WFD Deputy Chief is the direct report for the suppression, fire prevention and training divisions. With the increased demands mentioned above, the Fire Chief and Deputy Fire Chief have a majority of time spent on managing day-to-day operational tasks and are limited to the time available to focus strategically on each of the divisions and the department as a whole.

Many departments managing full-time services are moving to three or more managers to allow for a balance of workload and ensure a strategic focus is maintained for the growth and advancement of the organization. By maintaining a 3-manager model, on-call duties are shared, which strengthens succession planning options and ensures that the changing legislative landscape can be achieved.

It is extremely important that the leadership within WFD continue to work closely as a team. A highly functioning team is one that understands each person's roles and responsibilities and brings their skills together in a collaborative manner to lead the organization in achieving their vision, mission, and goals. Therefore, it is important to ensure that accurate and updated job descriptions are made available and respected for each team member to promote role clarity.

Traits of a high-performing team include:

- Trust
- Strong communication
- Transparency
- Collaboration
- Support
- Clarity
- Adaptive
- Reflective

Leadership is a function of all members of WFD. Chief officers to firefighters contribute to the leadership required to achieve service excellence in a fire department. Day-to-day WFD leadership is the responsibility shared with each chief officer, station, training, and fire prevention officer. These positions play a critical role in leading, managing, and mentoring WFD staff. These roles are crucial in ensuring all services are aligned with department policy, as well as being the critical link in the chain of command between staff and administration. Within the current WFD organizational structure, it is imperative that the administration continues to work closely to provide direction and support while allowing for engagement, including constructive feedback.

WFD officers, fire prevention staff and firefighters are responsible for the delivery of most front-line operational services. They are the primary point of interaction between a fire department and someone in crisis or the public. Their leadership is exhibited by their professionalism and commitment to service excellence. Although their influence may be limited to their immediate coworkers, their role in forming public perceptions regarding the value and support of their services is critical.

Finally, the importance of maintaining a team atmosphere across the department and commitment to common goals cannot be overstated. Despite the varying roles and responsibilities assigned to administration, officer ranks, and the most junior staff, the characteristics of a successful team should be promoted at every level in the organization. As strategic direction and vision are identified, they should be openly shared across the department.

Fire officers, fire prevention and training staff, including firefighters, often work in isolation from the administration. This heightens the need for leadership positions, including all chiefs and officers, to communicate frequently and bridge perceived gaps regarding commitment to mission and service excellence. It also highlights the need to recruit only the best candidates to join the WFD team.

Observation #2: WFD current management structure includes the Fire Chief and one Deputy Chief. This presents workload issues having all existing divisions reporting directly to the Deputy Chief. This workload erodes the amount of time the management team can commit to strategic objectives and tasks.

Recommendation #2: Create a third management position (2nd Deputy Chief or Assistant Deputy Fire Chief) to share the current and future workload demands, allowing for operational duties to be shared and a more time to focus on the strategical objectives for the organization.

Suggested completion: 12-24 month**s**

Cost: Wages $118,000 to $139,000 (2023 rates)

Strategic Objective: #1 Administration

Rationale: *With the increased demands placed on the two senior officers, the Fire Chief and Deputy Fire Chief spend the majority of their time managing day to day operational tasks, limiting the time available for strategic planning for each of the divisions and the department as a whole.*

Many departments managing full-time services are moving to three or more managers to allow for a balance of workload and ensure a strategic focus is maintained for the growth and advancement of the organization. By maintaining a three-manager model; on-call duties are shared, succession planning options are strengthened, and the changing legislative landscape can be achieved.

3.2.2 Staffing Complement

The organizational structure for WFD is outlined in the WFD *Safe Operating Practice Standard Operating Guideline #1.1.3.* WFD is led by the Fire Chief reporting to the CAO and Council. The WFD administration is comprised of the Fire Chief, and a Deputy Fire Chief supported by a dedicated Administrative Assistant.

WFD has a normal staffing complement of 65 employees organized into four Divisions (Administration, Fire Prevention, Training and Suppression). The established hierarchy from Fire Chief through each Division enables the achievement of the department's goals as described in the department's Mission, Goals and Values statement.

Administration staff are located at WFD fire station 1 (Headquarters) and work a five-day work week (Monday to Friday). Fire Prevention Officers (Captain, Fire Prevention Officer, and Public Safety Educator) and the single Training Officer operate out of fire station 1 (Headquarters) and work a 40-hour work week with adjusted hours as operationally required. The career fire suppression staff work out of two fire stations on a platoon system consisting of 24 hour on-duty shifts followed by varied days off, balancing to 42 hours per week (averaged over a 4-week schedule).

The established suppression staffing per platoon between the two fire stations is 14, including a Captain, two Lieutenants and eleven Firefighters. Interview results have indicated, however, that each platoon regularly operates at the established minimum suppression staffing of 10 on each platoon. To ensure minimum staffing levels, this often requires call-in of firefighters at an overtime rate of pay.

Minimum staffing levels result in a minimum of front-line apparatus being staffed. Emergency incidents that require a full response of apparatus and personnel may quickly consume all on-duty resources. Coincidental or subsequent requests for emergency response would be delayed or otherwise unavailable.

3.2.2.1 Operations Staffing Ratio

Typical staffing ratios for 1 full-time equivalent (FTE) 24/7 position range from 4.9 to 5.5 FTE positions but are dependent upon the respective labour contract entitlements for scheduled absences, vacation, lieu time, sick leave, etc. In addition, deployments, off-shift training, regional requirements, or secondments need to be applied to the calculation.

As shown in Table 19, utilizing the above-mentioned staffing calculation should provide the basis for calculating the WFD staffing ratio. The staffing ratio determines the number of firefighters required to sustain a Minimum Duty Strength (MDS) per FTE on a 24/7 basis. Operational response requirements for critical tasks and the ERF are not considered in the staffing ratio.

Table 19: Woodstock Fire Department Staffing Ratio Calculation

	Description	Hours
1	Availability required per firefighter, in hours	**2184**
2	Total yearly coverage required per 4 ff, in hours (one apparatus)	**8736**
3	Sick time certified, in hours per FF	*67*
4	Sick time uncertified, in hours per FF	*93*
5	Annual vacation time in hours per FF	*224*
6	Lieu time in hours per FF	*54*
7	Education time in hours per FF	*53*
8	Other approved leave in hours per FF	*44*
9	Unavailable for duty in hours **(sum line 3 to line 8)**	**535**
10	Avg availability per FF in hours **(Line 1-Line 9)**	**1649**
11	Staffing ratio required per 4 firefighters **(Line 1/ Line 10)**	**5.30**
12	# FF minimum staff required on duty to staff apparatus **(WFD current/ proposed)**	**10 / 12**
13	Min. ff assigned per platoon to ensure minimum staffing maintained **((Line 12/ 4) X Line 11)**	13.25 / 15.9
14	Rounded to the next full FTE count	**14 / 16**

Observation # 3: WFD currently maintains a complement of 11 firefighters and 3 officers per shift and operates with a minimum duty strength (MDS) of 10 suppression staff including officers and firefighters between the two fire stations. There is a reliance on overtime to meet the MDS. The recommended staffing model should be a result of an updated staffing ratio calculation.

Recommendation #3: WFD operate with a minimum staffing of 12 firefighters representing 3 crews of 4 firefighters per shift.

Suggested completion: 12-24 month**s**

Cost: Wages at $66,927-$111,546 per firefighter (2024 rates)- Total increase for 8 additional firefighters $535,416 to $891,328

Strategic Objective: #1 Administration

Rationale: *Utilizing an accurate staffing ratio model will ensure sufficient staff are available on duty while decreasing the reliance on overtime. The ability to maintain an effective initial response crew and an appropriate effective response force, identified in Section 4, requires operating three apparatus staffed with minimum of four firefighters each, including the company officer. To maintain 12 firefighters on duty 24/7, the full complement of firefighters per platoon is 16. This would require WFD to hire 8 additional firefighters (2 per shift). This can be done as a one-time hire or could split the cost and fund the hire over a two-year period.*

3.2.3 Mission, Vision, and Values

A mission statement declares concisely the purpose of an organization, why it exists and how it provides service. A vision statement offers insight into where the department strives to be in the future. Values are the beliefs and principals that drive the organization forward. In some cases, a fire service may align with their municipality's mission, vision, and guiding principles, or build upon those with fire service specific statements.

City of Woodstock Mission**,** Vision and Guiding Principles statements were captured from the City of Woodstock Strategic Plan.

City of Woodstock Mission Statement

Our mission is to enhance the quality of life in the City of Woodstock by providing excellent, fiscally responsible, and environmentally sustainable municipal services that the citizens value.

City of Woodstock Vision Statement

During the community engagement activities, participants provided ideas for their vision of the city and identified three key characteristics that make the City special: 'inclusive', 'vibrant' and 'sustainable'.

Building on these three characteristics, four key concepts were developed for the Vision for the City of Woodstock:

- *Woodstock is a safe, inclusive, and caring community*
- *Woodstock has a vibrant and diverse economy*
- *Woodstock is a green and sustainable community*
- *Woodstock is fiscally responsible and accountable*

City of Woodstock Guiding Principles

1. *Commitment to the Strategic Plan/ISCP for the long term (i.e. through successive Councils)*
2. *Leadership in corporate management: a customer service focus*
3. *Broad community outreach to and engagement with partners, businesses, newcomers, and community groups – ensuring an engaged community and inclusiveness*
4. *Recognition and encouragement of volunteerism*
5. *Leveraging partnerships to work towards a common, and sustainable future*
6. *Open, transparent, proactive, accountable, ethical, and accessible governance*
7. *Encourage appropriate and sustainable use of resources and technologies to minimize environmental impacts*

Woodstock Fire Department Vision

"The City of Woodstock Fire Department contributes positive support to the goals set forth by the City of Woodstock. Our members are committed to providing optimum service and to creating a safer environment though public education, code enforcement, suppression, and rescue duties, including fulfilling all legislative requirements under the authority given by the protection and prevention act and municipal by-laws. The Woodstock Fire Department will provide a proactive approach to the needs of the community by developing a service model that is relevant to community requirements in a cost-effective manner. The Woodstock Fire Department is accountable to city council and the residents of the City of Woodstock."

Woodstock Fire Department Mission

"The mission of the Woodstock Fire Department is to serve the community by protecting life, property and the environment through prevention, education, and immediate professional response to emergencies."

Woodstock Fire Department Principals

Public Service. Teamwork. Challenge. Technology

3.2.4 Command Structure

Effective emergency services follow an established command structure on an emergency scene for effective operations and scene safety. Utilizing a recognized command system allows for:

- Identifying lead agency (fire, police, other)
- Span-of-control of all resources
- Interoperability with responding agencies
- Defined objectives and benchmarks
- Consistent communication protocols
- Enhancing overall scene safety

WFD utilizes an industry recognized NFPA 1561 'Standard on Emergency Services Incident Management System and Command Safety' ICS. All personnel are trained on this command system, and it is utilized in all emergencies. This command structure can be expanded or retracted based on the needs of the emergency and can integrate easily into other command processes as necessary.

Observation #4: WFD current initial command structure consists of a captain and two lieutenants. Although the Captain is the highest-ranking operational command officer, they are responding as a company officer on either the Engine or the Aerial.

Recommendation #4: Once station 3 is operational, WFD to conduct an organizational command structure review considering operational leadership and management of day-to-day activities on each shift.

Suggested completion: On completion of station #3, 24-48 months

Cost: Cost Neutral

Strategic Objective: #1 Administration

Rationale: *Although the current structure works and is manageable within the existing setup and response modelling, the opening of an additional station and the redeploying apparatus to one response unit per station, may require a command officer / administrator for each platoon, which is not part of the assigned response crews. This will allow a command officer to respond 24/7 in a timely response to an incident and establish an appropriate command structure. This position will also be assigned to manage the day-to-day operations of the shift, including attendance, staffing, vehicle and station maintenance issues, and other administrative functions.*

3.2.5 Remuneration, Recruitment, Selection, Retention, Promotion

3.2.5.1 Remuneration

The City of Woodstock is committed to recruiting the best candidates possible. Competitive salaries and benefits are offered to all their full-time positions. The municipality maintains a Collective Agreement with the unionized work force that details working conditions and compensation for its employees. This Collective Agreement is between the Corporation of the City of Woodstock and the Woodstock Professional Firefighters Association.

Most employer-employee issues are handled through discussion up to and including the grievance procedures stipulated in the Collective Agreement. Competitive salaries, benefits and working conditions for each position is negotiated and form part of the Collective Agreement. The WFD Fire Chief and Deputy Chiefs' working conditions, remuneration and other terms of conditions of employment are determined by the CAO and approved by Council.

3.2.5.2 Recruitment

Recruitment is a key function of all emergency service agencies. The community places a tremendous amount of faith in their fire department personnel, trusting them to provide the highest level of service when the public is most vulnerable. As such, the process used to select personnel should be very comprehensive.

Experience within the emergency services industry has shown that relaxing the requirements for entry-level positions is not the answer for recruiting an employee. Instead, most departments have had the greatest success when qualified applicants are encouraged to apply. This process often involves targeted advertising and promotional campaigns aimed at demonstrating the benefits, as well as the personal satisfaction of becoming part of the fire service. The expected requirements for residency, required training, and attendance must be clearly explained early in the process. Existing staff should be encouraged to participate in any such campaign.

WFD, like other fire services in North America, trains, maintains, and equips its firefighters and fire prevention/inspection staff to the recognised NFPA standards for the services being delivered. As this requires substantial investment in both financial and resource commitments, recruit selection should be carefully managed.

The process for recruiting applicants for vacant positions is established. Job postings, including minimum requirements and process, are listed on the municipal website. Most interview and survey participants suggested that WFD recruiting efforts were successful in attracting quality applicants.

Our review of the recruitment process, along with interviews and survey results, indicates that the recruiting processes for career firefighters and fire prevention/inspectors have generally been successful in identifying excellent candidates.

Vacancies are uncommon in the WFD. Opportunities typically occur as firefighters, inspectors, and training officers are promoted into the officer or chief ranks as positions become vacant or are newly created. Available positions are posted internally and on the City of Woodstock website with a defined opening and closing application submission period. The fact that limited opportunities occur for this position allows the city to select very high-quality candidates.

3.2.6 Selection and Training of New Staff

3.2.6.1 Firefighters

WFD has comprehensive selection processes for recruit firefighter positions. After submitting their application and meeting the minimum qualifications, candidates are required to move through a multi-stage process. Applications are only accepted when there is an open competition, and candidates who meet all the initial requirements begin the following process:

- Completed applications and supporting documentation must meet all the minimum qualifications, including Ontario Fire Administration Inc (OFAI) requirements.
- Once the complete application package is received by HR and reviewed by HR, the Fire Chief and Deputy Fire Chief, the candidate may be selected to continue the process.
- Candidates participate in two interviews and one practical testing.
- Performance will be reviewed after each stage and a decision will be made regarding suitability to move on to a recruit position.

All new employees serve a one-year probationary period. An evaluation of each recruit firefighter is conducted and provided to the fire chief prior to the completion of the 12-month probationary period. The minimum qualifications for all WFD firefighters include:

- 18 years of age or older and legally entitled to work in Canada.
- Possess a valid DZ Driver's Licence.
- Possess an Ontario High School Graduation Diploma or equivalent.
- Be certified as a National Fire Protection Association (NFPA) 1001 Fire Fighter I and II from an accredited program at a recognized institution and accredited by the International Fire Services Accreditation Congress (IFSAC) or Pro Board (must be complete with seals).
- Possess a valid and current (within 3 years) Standard First Aid certificate and a valid 'Basic Rescuer' Cardiopulmonary Resuscitation (CPR) certificate (Level C) or better. Automated External Defibrillator (AED) certification would be an asset.
- Possess valid and current Ontario Fire Administration Inc. (OAFI) Candidate Testing Service (CTS) certificates for Stage One & Stage Two as part of their recruitment. Stage Three and Swim test are not required.
- Must be able to meet screening requirements including, but not limited to, a Criminal Record Check/Vulnerable Sector Check.

- Must be physically capable of performing all essential duties of a firefighter.
- Proof of immunization of Red Measles, Mumps, Rubella (German Measles), Tetanus/Diphtheria (within the last 10-12 years), Hepatitis B, and COVID-19 (current vaccination with booster preferred).
- Visual Acuity Minimum Requirement: 20/30 corrected OR 20/40 uncorrected, both eyes tested together (OU), and no significant abnormalities in colour vision.
- Possess superior interpersonal skills and the ability to work cooperatively as a member of an effective and professional team.
- Have a strong desire to serve the community, a strong work ethic, a strong sense of loyalty and duty, and the ability and willingness to follow instructions promptly and efficiently.

3.2.6.2 Fire Inspector, Public Education Coordinator and Training Officer

The Collective Agreement provides language for the posting and selection process for Fire Inspector, Public Education Coordinator and Training Officer positions. Vacancies are internally posted to WFD personnel for a minimum of 20 working days. In the case of a vacancy for the Public Information Coordinator, such posting will be simultaneously posted internally and externally. Appointments will consider the skill, competency, merit, training, physical fitness, initiative, and leadership qualities of the candidates. Where the qualifications are relatively equal, seniority will govern.

Career full-time employee retention is not generally an issue for WFD. Retirement, promotions, and attrition are the most common reasons for vacancies. Unanticipated retirements or resignations can result in significant challenges to maintaining a sufficient pool of staff in each position that impacts service delivery and budgets.

3.2.7 Promotions and Advancement

The selection and/or promotional process for administrative positions is filled through a competitive process and appointment. Promotion eligibility for positions from probationary firefighter to Captain rank is contained in the Collective Agreement between the City of Woodstock and the Woodstock Professional Firefighters' Association.

The Corporation and Woodstock Professional Firefighters' Association have developed a policy that identifies the eligibility requirements and promotional process to promote the best qualified applicants based on their knowledge, skills, and technical abilities, as well as their leadership and interpersonal skills and departmental seniority. A promotional panel will be created consisting of:

- The Deputy Chief
- Training Officer
- Member of the City of Woodstock Human Resources Department

The following positions are subject to the approved selection and/or promotional process:

1. Captain
2. Lieutenant
3. Training Officer
4. Fire Prevention Officer
5. Fire Inspector
6. Public Education Coordinator

3.2.8 Health and Wellness

The active pursuit of employee health and wellness is extremely important to an organization. The benefits may include but not limited to:

- Early recognition and treatment of illness
- Reduction in absenteeism due to short/long-term illness
- Decreased injuries during normal duties
- Decreased workers' compensation board (WCB) premiums
- Increased employee career longevity
- Improved work/life balance

The Collective Agreement contains language for the provision of benefits for:

- Accident or occupational illness incurred in the performance of employee duties through Workplace Safety and Insurance Act of Ontario.
- Sick leave allowance
- Hospital-Medical Insurance
- Group Life Insurance
- Accidental Death and Dismemberment/Line of Duty Death
- Health Care Spending Account
- Bereavement Leave
- Pregnancy, Parental and Adoption Leave

The WFD has an established Occupational Health and Safety committee with representation from administration and the Association. Terms of Reference have been developed to guide this important committee. Health and wellness initiatives are in place and/ or being developed. Standard operating policies and guidelines are established to ensure safe practices and procedures are followed.

WFD has updated the existing fire stations where possible with the health and safety of their staff a priority, including exhaust extrication systems, PPE gear extractors and dryers, fitness areas and equipment, and other measures to mitigate potential health and safety risks to staff.

The mental health of first responders is an issue that has garnered considerable attention over the past 10 years. As identified in the International Association of Firefighters Wellness-Fitness Initiative Manual[9], "a firefighter's work is characterized by long hours, shift work, disruptions in sleep patterns, sporadic high intensity situations, strong emotional involvement, life and death decisions and exposure to extreme human suffering." Over time, this type of work can impose considerable stress on some individuals.

As previously indicated, the City of Woodstock provides health and wellness programs for its employees. Group benefits are included in the collective agreement for full-time career firefighters. Workers' compensation benefits are in place through the provincial Workplace Safety Insurance Bureau (WSIB)

An effective health and wellness program tailored around the demands of a firefighter takes a holistic approach, including physical and emotional fitness. These programs should promote regular fitness assessments and support, injury protection and early detection of occupational illness such as cardio and cancer screening. An excellent resource for the key concepts of an effective firefighter health and wellness program is in the IAFF Joint Labor Management Wellness-Fitness Initiative, 4th Edition. Properly outfitted fitness rooms allow opportunities for staff to maintain the strength and cardiovascular necessary to meet the demands of their positions.

Recognizing the unique challenges and programs available for the mental and physical wellbeing of firefighters, an industry-specific health and wellness program implemented and available to all firefighters is an important component within the core services of the department. There are many new opportunities provided at a provincial level, including programs like Warrior Health[10] that allow for low cost/ no cost services to be accessed by a fire service.

[9] *Joint Labor Management Wellness-Fitness Initiative, 4th Edition, p.48*

[10] *http://warriorhealth.ca/*

3.2.9 Policies, Procedures, and Guidelines

Emergency response is dynamic, where split-second decisions are made to protect the lives of the public and their fellow responders. Therefore, the safe and effective operation of the fire service must have an industry-specific set of policies, procedures, and guidelines. Policies will outline expectations, while procedures are the accepted ways of adhering to these policies.

SOGs are a set of documented expectations for staff to follow to achieve a desired goal during an emergency event. SOGs are considered at emergency scenes where there is some flexibility on how activities are conducted, considering the safety of the public and emergency responders. SOPs, however, are formal policies that specify a course of action, thereby ensuring efficiency, predictability, consistency, and safety for all staff, including firefighters operating on the fireground. The Ontario OHSA is the foundational document by which a strong internal responsibility system is established in the workforce. The employer has the ultimate responsibility for the health and safety of all workers in the workplace; however, every employee has the responsibility to adhere to policies, procedures and guidelines that are meant to keep them, their coworkers, and the worksite safe.

A critical tool in the employer's scope of responsibility is the establishment of approved policies, procedures, and guidelines. All these documents must be appropriate for the situation, vetted, approved, and documented. It is the employer's responsibility to develop, institute and establish compliance. The employees have a right to know about potential hazards in the workplace, a right to participate, and in certain circumstances, a right of refusal.

WFD has a comprehensive list of standard operating policies and guidelines for emergency and non-emergency operations.

3.2.10 Emergency Management Program

Ontario's Emergency Management and Civil Protection Act lays out obligations and standards for emergency management programs required of all levels of government. In Ontario, each municipality must develop and implement an emergency management program to protect the lives and property of its citizens.

The City of Woodstock Emergency Management Response Plan and Emergency Operations Centre has been developed under the authority of the Corporation of the Municipality's By-Law 9362-20 and maintained by the Fire Chief as the Community Emergency Management Coordinator (CEMC) under the direction of the Community Emergency Management Program Committee (CEMPC). This plan enables a centralized controlled and coordinated response to emergencies in the municipality. There is demonstrated coordination with Oxford County's Emergency Management team and the city's plan aligns with the County's emergency management plan.

In the event of an emergency, the City of Woodstock Emergency Management Plan guides the municipality's response, mitigation, and recovery. The exceptions to this are a health emergency in which Oxford County will maintain control through the County's public health unit and provide direction to the city. This Bylaw assigns designated corporate positions to the Emergency Management Program Committee (EMPC), including the position of Emergency Management Program Coordinator (CEMC) as well as ad Hoc members from other agencies based on the nature of the emergency.

The City's designated EOC is located at Fire Headquarters, in the upstairs dorm room. This is an active full-time fire station, and the room is not dedicated to the EOC and must be set up as required. There are limited breakout areas as required. The backup EOC is located at the Woodstock Police Headquarters.

The MEGC utilizes the provincial Incident Management System (IMS) and has identified the appropriate EOC positions to the appropriate corporate personnel depending on the type of emergency. It does not appear that the IMS training goes beyond directors or managers (Chief or Deputies) and could lead to concerns during lengthy or prolonged emergencies and the need for positions to be rotated out. If an Emergency Site Management Team (ESMT) is required, the plan identifies the guiding principles and the establishment of the Team. It appears that the Deputy Chief is identified as the Fire Commander on the ESMT and is also identified to be alternative Fire representatives at the EOC. This will spread the fire management team very thin during a prolonged or complex event.

Observation # 5: The current primary EOC site is located at Fire Headquarters and utilizes a space not specifically designed to meet the requirements of a modern Emergency Operations Centre. This includes access to corporate systems, breakout rooms, washrooms, quiet rooms.

Recommendation #5: The city of Woodstock relocate the primary EOC to a modernized designated space

Suggested completion: 24-36 months

Cost: Dependant on space allocated and upgrades required

Strategic Objective: #1 Administration

Rationale: *The current primary EOC is located in an active fire station and requires set up in the dormitory area. The space is not appropriate this use, there is no accessibility other than stairwells, and any activation will displace the fire crews from that area of the station. By designating an existing space to be set up as required this will allow for a multifunctional space suitable for use on an Emergency Operations Centre when required. NOTE: The recommendation is not for a dedicated EOC only space.*

Business Continuity is not identified in the emergency plan, and formal business continuity plans, or program are not maintained for the corporation. Business Continuity allows the city to identify critical functions and to maintain these functions during an emergency, disruption or during the recovery period after the incident is mitigated.

Observation # 6: Formal business plans or programs are not evident as part of the Woodstock Emergency Management program.

Recommendation #6: Under the Emergency Management program, the municipality to develop a formal business continuity program with individual section business continuity plans developed, prioritized, and practiced.

Suggested completion: 24-36 months

Cost: Can be done in-house with existing staff salary. Should the municipality hire an outside agency to develop, there will be consultant costs between approximately $250-$350k**.**

Strategic Objective: #1 Administration

Rationale: *The lack of specific plans puts the corporation at risk in the event of an emergency impacting service. Business continuity will allow the community to ensure continued critical operations can be maintained in the event of an emergency. Leading municipalities have plans in place. These can be conducted internally but may require additional outside assistance with the appropriate expertise to guide the organization.*

3.2.11 Capital Assets

Fire station/s have a long history going back to the late 17th century when organized fire services were first organized. Typically, early fire stations housed simple fire pumps, facilities for the horses that pulled the fire pumps and living quarters for firefighters. Today's fire stations are typically used to store modern firefighting apparatus and equipment as well as living quarters for firefighters in many cases for 24 hours a day, 7 days a week. Modern fire halls are ideally located in strategic locations with modern technology that allow for a quick response, all to accommodate larger and heavier fire apparatus. Health and safety and environmental considerations are now necessary criteria for the design and function of a fire station, with necessary renovations being made if feasible.

WFD provides fire and emergency response, as well as fire prevention and public education services to the City of Woodstock out of two fire stations that are located within the municipality. An overview of the two WFD fire stations and an assessment of what are considered necessary amenities for a fully functional fire station are detailed.

3.2.11.1 Firehall Overview and Assessment

Station 1 – Fire Headquarters			
Address:	1203 Parkinson Road		
Use:	Divisions – Administration, Fire Prevention, Training, Fire & Rescue		
Bays:	4 (1-drive through)	Unit Capacity:	5
Comments:	Primary Station- administration, training and prevention located on site. Suppression Captain and 2/3 of suppression staff stationed here. Training grounds located in rear of station property.		

Table 20: Station 1 Assessment

Item	Description	Yes	No	Comments
1	Site security	✓		
2	Adequate parking for staff and visitors	✓		
3	Internet and intranet connectivity	✓		Shared service through Woodstock Engineering. Not a dedicated line to Fire
4	Adequate space for training – training props, hydrant	✓		
5	Back-up power supply	✓		
6	Fire Chiefs' office	✓		
7	Deputy's Chief's offices	✓		
8	Emergency management office	✓		Designated Primary EOC
9	Administrative support office/space	✓		
10	Training room / meeting room	✓		
11	Office security	✓		Under review
12	Dorm rooms	✓		
13	Day use area	✓		
14	Kitchen	✓		
15	Fitness / wellness area	✓		
16	Firefighter Men's and ladies' bathrooms and showers	✓		No gender specific- shared
17	Space to safely garage and do minor maintenance on vehicles	✓		
18	Hose drying area	✓		
19	Small equipment storage and maintenance room	✓		
20	Air filling station room complete with proper ventilation	✓		
21	Industrial washer and dryer room	✓		Stn. 1 2 extractors and 1 dryer
22	Bunker gear storage room complete with proper drying and ventilation	✓		
23	Consumables storage room	✓		
24	Sufficient workstations	✓		
25	Sufficient supervisor space	✓		
26	Breakout or quiet room	✓		
27	Public and Staff Washrooms	✓		No designated public
28	Locker room	✓		
29	Proper interior Lighting	✓		

Station 2			
Address:	251 Vansittart Avenue		
Use:	Fire & Rescue		
Bays:	Two Bays - drive through	Unit Capacity:	2
Comments:	Single station for apparatus and response personnel. 1/3 of suppression staff stationed here		

Table 21: Station 2 Assessment

Item	Description	Yes	No	Comments
1	Site security	✓		Doors have keypads
2	Adequate parking for staff and visitors	✓		Parking at the rear
3	Internet and intranet connectivity	✓		
4	Adequate space for training – training props, hydrant	✓		Limited on bay floor
5	Back-up power supply		✓	
6	Officer office	✓		
7	Emergency management office		✓	N/A
8	Administrative support office/space		✓	
9	Training room / meeting room	✓		Combined with day use area
10	Office security	✓		
11	Dorm rooms	✓		Appropriate for 1 unit
12	Day use area	✓		
13	Kitchen	✓		
14	Fitness / wellness area	✓		
15	Firefighter Men's and ladies' bathrooms and showers		✓	No gender specific, shared with locking door
16	Space to safely garage and do minor maintenance on vehicles	✓		Limited on bay floor
17	Hose drying area		✓	
18	Small equipment storage and maintenance room		✓	Bay floor
19	Air filling station room complete with proper ventilation		✓	
20	Industrial washer and dryer room		✓	
21	Bunker gear storage room complete with proper ventilation		✓	Bunker Gear on bay floor
22	Consumables storage room	✓		
23	Sufficient workstations	✓		
24	Sufficient supervisor space	✓		
25	Public and Staff Washrooms	✓		Staff only
26	Kitchen/ lunchroom	✓		
27	Locker room	✓		
28	Proper Interior Lighting	✓		

Observation #7: The fire stations, apparatus and equipment are critical components to ensure effective response to emergency incidents across the municipality. Routine maintenance, upgrades, and replacement of these high value assets are not currently included in the City of Woodstock's asset management plan. The Fire Chief to develop a replacement schedule and submits it yearly for capital budget consideration.

Recommendation #7: Ensure vehicles, equipment, and facilities are included in the corporate asset management program and long-term financial planning.

Suggested completion: 6-18 months

Cost: Operating and Capital funding dependent on project scope

Strategic Objective: #1 Administration

Rationale: *Modern fire halls are heavily utilized and as a result require regular maintenance and upkeep to ensure safety and effectiveness for all staff. A process of ensuring required maintenance and improvements is identified, budgeted for, and conducted will prolong the usefulness of each facility. Inclusion into the municipality's Asset Management plan will provide the city with the best insight into the current condition of the fire departments key assets and allow for an understanding of the overall financial requirements to manage critical infrastructure.*

3.2.11.2 Apparatus and Emergency Vehicles

Fire apparatus and emergency vehicles are typically the largest asset expenditures for any fire department. Purchasing and managing these assets requires strong fiscal responsibility to endure public and local government scrutiny. Currently, WFD has considerable monies invested in vehicles and equipment. The lifespan of apparatus varies depending on its type and use, along with regular maintenance and testing standards. Fire services typically designate a lifecycle to each piece of apparatus and other emergency vehicles and contribute to a capital reserve fund to ensure enough funds are available when the replacement is needed.

3.2.11.2.1 NFPA Standards for Fire Apparatus

NFPA has developed standards to assist a fire service with the design, maintenance, inspection, testing, life cycling, and dispersal for their fire apparatus. Fire departments may choose to adopt these standards or utilize them as a reference in their own standards and practices.

NFPA 1901: Standard for Automotive Fire Apparatus

The NFPA 1901 standard defines the requirements for new automotive fire apparatus and trailers designed to be used under emergency conditions to transport personnel and equipment and to support the suppression of fires and mitigation of hazardous conditions. This standard recommends that fire apparatus should respond to first alarms for the first 15 years of service, with the expectation that they perform as designed 95% of the time. For the next five years, it should be held in reserve for use at large fires or used as a temporary replacement for-of-service first line apparatus.

NFPA 1911: Standard for the Inspection, Maintenance, Testing and Retirement of In-Service Emergency Vehicles

The NFPA 1911 standard defines the minimum requirements for establishing an inspection, maintenance, and testing program. Also included are guidelines for emergency vehicle refurbishment and retirement.

The Underwriters Laboratory of Canada utilizes many of the provisions within these NFPA standards which are referenced by Fire Underwriters Survey (FUS) for determining fire insurance ratings for a community. For example, it follows the life cycle program with the exception that it may award full credit for a fire apparatus older than 15 years, but not more than 20 years, in remote locations only if the piece of equipment is deemed in excellent condition and all necessary upgrades are done. The value of the additional credit in this case, which is only a portion of the total grading for a final FUS rating, may well be overshadowed by the cost of maintaining an older unit. In addition, the NFPA 1901: Standard for Automotive Fire Apparatus recommends the following:

D.1 General

To maximize firefighter capabilities and minimize the risk of injuries, it is important that fire apparatuses be equipped with the latest safety features and operating capabilities.

In the last 10 to 15 years, much progress has been made in upgrading functional capabilities and improving the safety features of fire apparatus. Apparatuses more than 15 years old might include only a few of the safety upgrades required by the recent editions of the NFPA fire department apparatus standards or the equivalent Underwriters Laboratories of Canada (ULC) standards. Because the changes, upgrades, and fine-tuning to NFPA 1901 have been truly significant, especially in safety, fire departments should seriously consider the value (or risk) to firefighters of keeping fire apparatus more than 15 years old in first line service. It is recommended that apparatus more than 15 years old that have been properly

maintained and that are still in serviceable condition be placed in reserve status; be upgraded in accordance with NFPA 1912; and incorporate as many features as possible of the current fire apparatus standard (See Section D3 of Standard). This will ensure that, while the apparatus might not totally comply with the current editions of the automotive fire apparatus standards, many of the improvements and upgrades required by the current editions of the standards are available to the firefighters who use the apparatus. Apparatuses that were not manufactured to the applicable NFPA fire apparatus standards or that are over 25 years old should be replaced.

3.2.11.2.2 Underwriters Laboratories of Canada

Current Underwriters Laboratories of Canada (ULC[11]) and NFPA 1901: Standard for Automobile Firefighting Apparatus Standards recommend using apparatus on the front line for up to 15 years, then as a backup for another four to five years. Of course, this timeline is dependent on the frequency of use, scheduled maintenance, and budgets. As indicated in Table 22, some emergency vehicles' life cycles can be extended due to low usage or serviceable condition. A leading practice is to have a complete condition survey conducted to determine if there is usable life cycle remaining. This condition survey must consider the NPFA and FUS standards along with the maintenance and cost records of the respective vehicle.

[11] *Underwriters Laboratories of Canada (ULC) is an independent product safety testing, certification, and inspection organization. www.canada.ul.com*

Table 22: Fire Apparatus Service Schedule (Fire Insurance Grading)

Apparatus Age (Yrs.)	Major Cities [3]	Medium Sized Cities [4]	Small Communities[5] and Rural Centres
0 – 15	First Line Duty	First Line Duty	First Line Duty
16-20	Reserve	2nd Line Duty	First Line Duty
20-25[1]	No Credit in Grading	No Credit in Grading or Reserve[2]	No Credit in Grading or 2nd Line Duty[2]
26-29[1]	No Credit in Grading	No Credit in Grading or Reserve[2]	No Credit in Grading or Reserve[2]
30+	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 recognized testing agency on an annual basis to be eligible for grading recognition (NFPA 1071).			
[2]Exceptions to age status may be considered in a small to medium sized communities and rural centers 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 populated area (or multiple areas) with a density of at least 400 people per square kilometer; AND a total population of 100,000 or greater.			
[4]Medium Communities are defined as an incorporated or unincorporated community that has: a populated area (or multiple areas) with a density of at least 200 people per square kilometer; and/or a total population of 1,000 or greater.			
[5]Small Communities are defined as an incorporated or unincorporated community that has: no populated areas with densities that exceed 200 people per square kilometer; AND does not have a total population of more than 1,000.			

3.2.11.2.3 Fire Apparatus Design and Procurement

Fire apparatus is designed and tendered based on the unique requirements of the fire service and the community needs that it serves. With the design, tender and procurement processes typically taking two to three years or longer as well as with the expected life cycles of these apparatus of 20 years or more, it is important that decisions accurately reflect the immediate needs and those in the future.

3.2.11.2.4 Fire Apparatus Maintenance and Repair

In Ontario, all fire apparatus with a gross weight, registered gross weight, or manufacturers gross vehicle weight rating exceeding 4500 kilograms must be inspected on an annual basis in accordance with regulations made under the Highway Traffic Act. These vehicles are required to display an inspection sticker as evidence of compliance with this requirement.

Daily driver inspections for commercial vehicles are a requirement under the Act. Fire vehicles are not included in this requirement, however, most fire departments in Ontario mandate, at minimum, daily inspections either at the beginning of a shift or post-trip.

A sound and reliable preventative maintenance program is a vital component of the overall fleet management process, ensuring each piece operates reliably, safely, and effectively while assisting in making it to the anticipated life cycle. Poor maintenance scheduling or neglect of required checks and repairs can lead to accidents, breakdowns, and life safety issues. A fire apparatus pre-maintenance program should consist of the following components:

- Trip inspections (daily, pre-trip, post-trip)
- Regular preventative maintenance scheduling
- Annual preventative maintenance comprehensive check

The maintenance, repair, testing and certification of all WFD heavy emergency vehicles is handled through third-party providers that utilize certified emergency vehicle technicians (EVT).

Daily inspection and post-trip inspections are logged into the Vector solutions application and reported verbally to the Deputy Fire Chief for action to ensure any necessary repairs are made as soon as possible. Heavy apparatus is taken to Commercial Emergency Equipment located in Woodstock. EVTs are employed by the company, and to date, the service has met the needs of the organization.

Recommended service schedules, testing and certifications are coordinated by the Deputy Fire Chief to ensure compliance with as little disruption to service as possible.

3.2.11.2.5 Fire Apparatus Replacement and Dispersal

The City of Woodstock has a policy for the replacement of capital equipment and vehicles. A list of all WFD apparatus and light vehicles with their anticipated replacement dates has been developed and maintained. WFD apparatus have a target of 15 years for frontline apparatus and 5 years in reserve with replacement after 20 years. Light emergency vehicles are replaced as required and typically have an anticipated replacement time frame of 7-10 years. The City of Woodstock has a 10-year capital forecast that includes anticipated vehicle, apparatus, and equipment requests for WFD.

Several assumptions should form the criteria for fire apparatus replacement. The process for determining the appropriate dollar value required to be placed in a reserve fund to ensure sufficient monies are available at the time of replacement is based on the identified life cycle, forecasted inflation, depreciation, and salvage value of current assets. Calculating the yearly contributions is based on the number of years of expected life in the fleet inventory. Although both NFPA and FUS have criteria for re-classifying or retiring apparatus, modifications or upgrades may be required based on age or heavy usage.

For example:

- Engines: 16-20 years frontline (FUS & NFPA), but can be reduced due to high usage
- Rescue Truck: 15 years frontline (NFPA) but can be reduced due to high usage.

When reviewing current apparatus, a study of the original purchase price minus market depreciation is compared to the anticipated replacement cost, taking into consideration the trend in inflationary increases. The salvage or trade-in value of the original apparatus can be estimated based on industry trends. This value is subject to several considerations including:

- Age of the vehicle
- Kilometers
- General condition
- Certifications
- Annual test results

Through careful analysis the optimal replacement year can be determined. The table below shows an example of an apparatus purchased in 2014 with a 20–21-year replacement timeline. Assumptions need to be determined for a particular piece of apparatus to consider the type of factors above, as well as requirements for the replacement apparatus to meet the needs for the next 20 plus years. Annual reserve contributions should be made to ensure sufficient funds are available at the time of anticipated replacement.

Table 23: Fire Apparatus Life Cycle Cost Projection Example

Period	Year	Replacement cost	Based on %	Difference between original vs replacement	Depreciated value
0	2014	$375,415.05		$0.00	$375,415.05
1	2015	$386,677.50	3.0%	$11,262.45	$300,332.04
2	2016	$398,277.83	3.0%	$22,862.78	$240,265.63
3	2017	$410,226.16	3.0%	$34,811.11	$192,212.51
4	2018	$422,532.95	3.0%	$47,117.90	$153,770.00
5	2019	$485,912.89	15.0%	$110,497.84	$123,016.00
6	2020	$558,799.82	15.0%	$183,384.77	$98,412.80
7	2021	$642,619.79	15.0%	$267,204.74	$78,730.24
8	2022	$684,390.08	6.5%	$308,975.03	$62,984.19
9	2023	$728,875.44	6.5%	$353,460.39	$50,387.36
10	2024	$776,252.34	6.5%	$400,837.29	$40,309.88
11	2025	$826,708.74	6.5%	$451,293.69	$32,247.91
12	2026	$880,444.81	6.5%	$505,029.76	$25,798.33
13	2027	$937,673.72	6.5%	$562,258.67	$20,638.66
14	2028	$998,622.51	6.5%	$623,207.46	$16,510.93
15	2029	$1,063,532.98	6.5%	$688,117.93	$13,208.74
16	2030	$1,132,662.62	6.5%	$757,247.57	$10,566.99
17	2031	$1,206,285.69	6.5%	$830,870.64	$10,000.00
18	2032	$1,284,694.26	6.5%	$909,279.21	$10,000.00
19	2033	$1,368,199.39	6.5%	$992,784.34	$10,000.00
20	2034	$1,457,132.35	6.5%	$1,081,717.30	$10,000.00

Figure 8: Fire Apparatus Life Cycle Cost Projection Example

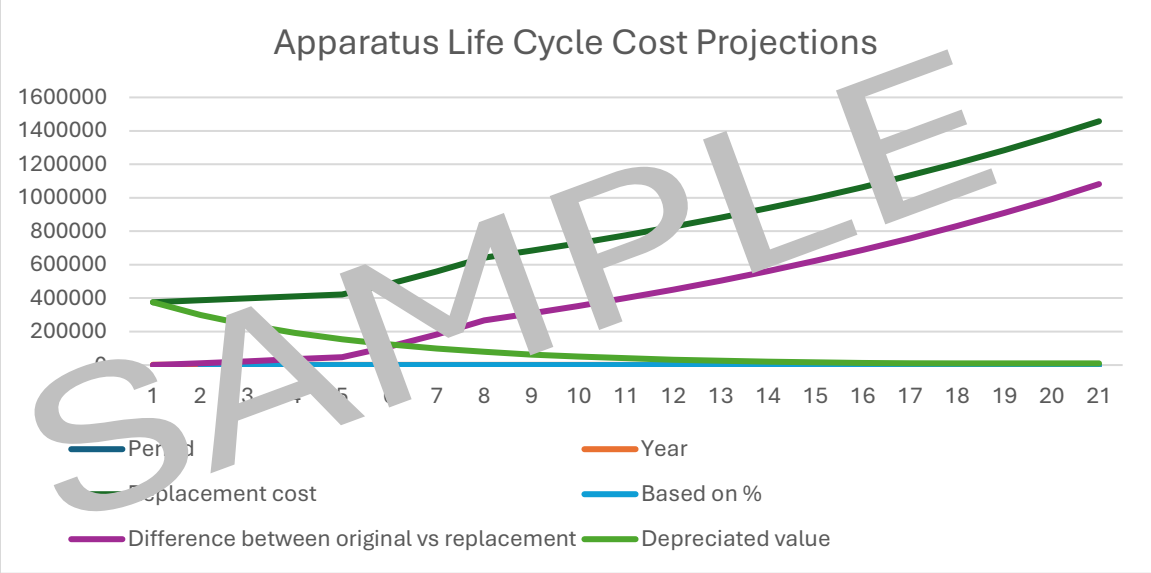


Table 23 and Figure 8 show that the monies put into the replacement reserve fund are close to the projected replacement cost in year 15 and require additional contributions to extend past. Note the following key points:

- Five-year increase to replacement cost from 15-20 years = $393,599.37
- Five-year decrease in depreciation value from 15-20 years = $3,208.74
- Total increased costs to retain apparatus for additional 5 years (15-20) = $396,808.11
- Additional contributions to reserve fund $79,361.62
- Difference between 20 and 15 years is $1,447,132. 35 - $1,050,324.24 = -$396,808.11 or an additional $2,335.00of contribution per year

A fire service that utilizes a similar process as above, taking into consideration local conditions to determine the optimal replacement time for each major piece of apparatus, will be able to accurately ensure sufficient funds are available when required.

3.2.11.2.6 Apparatus and Emergency Vehicle Fleet Inventory

WFD, through the City of Woodstock, owns and maintains 6 heavy apparatus (3 engines, 1 rescue, 1 Ladder, and 1 aerial) and a number of light emergency vehicles which are housed at the 2 fire stations. Each piece of apparatus is assigned to a fire station has specific roles in anticipation of the risks in their response zone. The light vehicles are utilized by administration, fire inspectors/investigators, and training staff.

WFD inventory of apparatus and equipment is modern and well maintained. A detailed table of the current heavy apparatus fleet is in Table 24 below.

Table 24: WFD Apparatus and Planned Life Cycle

No.	Unit Location	Unit number	Year built	In-service Year	Est. life expectancy	Est. replacement year
1	Station 1	Engine 1	2023	2024	20	2043
2	Station 1	Aerial 1	2021	2021	20	2041
3	Station 1	Rescue/ Command	2009	2018	20	2029
4	Station 1	Ladder 1	2005	2005	20	2027
5	Station 1	Marine 1	2012	2012	20	2032
6	Station 2	Engine 3	2019	2019	20	2039
7	Station 2	Engine 2	2014	2014	20	2034

3.2.11.3 Ancillary Equipment

Equipment needed for field response operations, such as vehicle extrication tools, hand tools and blowers, etc. are current and appropriate for the needs of WFD. The ancillary equipment is designed and maintained to meet the department's current core service, goals, and objectives. WFD Equipment has various replacement cycles depending on equipment type. As the response needs change or grow, additional equipment to match the service must be considered.

3.2.11.4 Personal Protective Equipment

WFD personnel are supplied with NFPA, NIOSH and CSA approved personal protective equipment (PPE), including turnout (bunker gear), gloves, helmets, boots and any specialized gear for specific rescue and EMS operations. WFD utilizes a third-party vendor for cleaning and maintenance programs in compliance with NFPA 1971: Standard on Selection, Care, and Maintenance of Protective Ensembles for Structural Fire Fighting and Proximity Fire Fighting for the health and safety of their firefighters.

The PPE provided is current, appropriate, and designed to meet the department's safety goals and objectives.

3.2.11.5 Specialized Operations Equipment

Effective and efficient response to an incident requires equipment designed for a specific purpose. WFD responds with specialized equipment to incidents involving motor vehicles and ice and water rescue. This equipment is typically kept on the apparatus or in-hall in anticipation of the known risks in each response zone.

WFD equipment currently meets the goals and objectives of the department. There were concerns expressed through the surveys that there was a shortage of equipment to completely outfit the spare/backup apparatus. There were many occurrences in which reserve apparatus was required to be put into service and required the transferring of equipment from one truck to the other. This shortage of equipment on reserve apparatus and an ineffective inventory tracking program have led to the misplacement of equipment.

3.2.11.6 Asset Management

As is the case with many municipalities, the City of Woodstock corporation has a significant asset management program that includes fire and emergency services facilities only to take advantage of synergies with other city facilities management programs. The current fire fleet or equipment is not included in the current plan.

3.3 Fire Public Education Services

Strategic Objective #2: Develop and implement a community-wide fire safety education campaign that targets risk areas in the community to raise awareness about fire prevention, the importance of fire safety practices, and what to do in an emergency.

Public education programs and active involvement in the community are important efforts that inform and engage citizens to think about fire safety and risk reduction. The WFD has identified a number of activities to support fire safety education in the community.

1. Organized and hosted an emergency preparedness event, “Are You Prepared?”.
2. Utilized digital billboard advertising displaying CO awareness, careless smoking, stovetop fire safety and Christmas fire safety messaging.
3. Used messaging on the Weather Network desktop and mobile app to display smoking safety, cooking fire prevention messaging and smoke alarm graphics.
4. Distributed reusable shopping bags with “Watch Your Butt, put it out right” messages to various stores and during public education events.
5. Wrapped an ice resurfacer to look like a WFD fire truck with fire safety messaging related to testing and maintaining Smoke/CO alarms and home escape planning.
6. Conduct school visits, 11-38 annually between 2021-2023

The current CRA has identified 14 risks of moderate or high levels and 14 key findings. From the CRA, WFD can structure and prioritize public education programs on the risks identified.

There are opportunities to target smoke alarm safety in all residential homes, but with an enhanced focus on older neighbourhoods based on the findings in the CRA:

- Residential occupancies represent 94.79% of the existing property stock
- over the period from January 1, 2018- December 31, 2022, and were associated with 68.6% of the structure fire loss.
- 40.5% of the city’s residential building stock was built prior to the introduction of the 1975 OBC
- Over the five-year period from January 1st, 2018, to December 31st, 2022, in 36.85% of incidents, there was a smoke alarm present on the floor of origin, but it did not operate.

WFD should target seniors aged 65+ with the focus beginning in the older neighbourhoods

- The population aged 65 years and older in Woodstock represents 19.57% of the total population
- 14.99% of the city's population falls between the age group of 55 and 64, who are aging towards the senior demographic of 65 years of age and older

The city has 18 elementary and secondary schools, and 7 registered daycares. There is opportunity to partner with these organizations to promote fire safety with respect to smoke alarms, escape planning and the most reported ignition sources within the city.

- Individuals aged 14 and under account for 17.6% of the city's total population
- Ignition sources related to open flame tools/ smoker articles (30%) which is higher than the provincial rate (14.16%)
- Over the five-year period from January 1st, 2018, to December 31st, 2022, in 36.85% of incidents, there was a smoke alarm present on the floor of origin, but it did not operate.

Observation #8: WFD utilizes standard fire safety education programs. As per the Community Risk Assessment, there are a number of high risks related to seniors over 65 years, Group C residential occupancies, cooking fires, and a higher proportion of newcomers to the municipality.

Recommendation #8: Utilizing the Community Risk Assessment findings and new identified trends, WFD to formalize public education programming. This includes annual reviews to ensure recent trends or incidents are addressed to mitigate risks and ensure adequate resources available to deliver programming.

Suggested completion: 12 months

Cost: Cost neutral

Strategic Objective: #2 Public Education

Rationale: *Utilizing current risks and trends within the community will allow the WFD to build targeted public education programming with the end-goal to reduce the risk and educate people so to prevent a fire from occurring or know what to do in the event a fire does occur. This to include annual reviews to ensure recent trends or incidents are addressed to mitigate risks.*

3.4 Fire Prevention and Code Enforcement

Strategic Objective #3: Implement a program for proactive fire safety inspections for all occupancies, prioritized by risk, to ensure compliance with fire prevention codes, identify fire hazards, and encourage timely fixes to non-compliant issues.

3.4.1 Fire Prevention Services Overview

As departments increase their emphasis on fire prevention activities, communities see a reduction in fire-related losses. In Ontario alone, deaths caused by fire have been reduced over the last 70-75 years from 354 deaths reported in 1956 to 133 deaths reported in 2022. Although difficult to directly measure, effective fire prevention programs generally reduce fire-related deaths and property loss proportionately to the resources committed. Data collection and analysis will determine the effectiveness of these programs and their impact on the overall reduction of losses.

WFD relies on the Fire Chief, Deputy Fire Chief, Fire Prevention Officer, Fire Inspector, and Public Information Coordinator as assistants to the Fire Marshal to carry out all directives required within the Fire Protection and Prevention Act, 1997, to the municipality. As previously identified, the FPPA regulations for public education and fire prevention and the projected growth for the city emphasize the need to ensure appropriate capacity for fire prevention services.

The ability to meet legislative requirements, service expectations, and public safety requirements relies on the fire service having adequate resources to meet the needs, circumstances, and requirements. The WFD has established a service level as it relates to fire prevention and public education programs. WFD is currently under-resourced to meet the demands. Appendix F (Woodstock Fire Prevention Staffing Analysis) identifies the need for 5 staff to complete the current program delivery. With anticipated growth and a recommended approach to targeted public education and proactive inspection and code enforcement programs, additional staff will be required to be phased in (Appendix G).

Additionally, all Fire Prevention staff must be trained and certified to the appropriate NFPA standards, including NFPA 1031 Fire Inspector Level 2 (level 2 due to the scope of inspection work required), NFPA 1033 Fire Investigators and NFPA 1035 Fire and Life Safety Educator. The current plan is to have all staff trained and certified to the required levels, and staff are working through the various levels required.

Fire services should establish service level standards that allow the department to set clear expectations to the public, Council, and staff. For fire prevention and life safety activities and programs, the industry best practices are outlined in NFPA 1730 and Fire Underwriters Services. Municipalities should examine these levels based on needs and circumstances and the identified risks within the community.

3.4.2 Fire Code Inspection Services

Modern building codes, including life safety design and operating requirements, are key components of risk management. Cyclical fire inspection programs for high-risk buildings ensure these systems continue to function throughout the life of the building. This is especially important for high occupancy and special purpose buildings such as apartment buildings, hospitals, seniors housing and schools.

While the benefits of an effective fire prevention program are sometimes difficult to fully quantify, the reduction of fire deaths and injuries in Ontario following the implementation and enforcement of modern building and fire codes illustrates the value. These services are fundamental elements of a broader community fire reduction and life safety strategy. Fire inspections are critical services in identifying fire hazards and maintaining life safety systems. WFD provides inspection as required under Ontario Regulation 365/13 – Mandatory Assessment of Complaints and Requests for Approval for complaints and requests and Ontario Regulation 364/13 – Mandatory Inspection- Fire Drill in Vulnerable Occupancy.

Fire prevention and life safety activities and programs industry best practices are outlined in NFPA 1730 and through the Fire Underwriters Survey (FUS). Municipalities should examine these levels based on needs and circumstances and examine the identified risks within the community. WFD's current inspection frequency rate is outlined in Table 25.

Table 25: Fire Prevention Inspections Frequency Levels

OBC Building Class	WFD Current	NFPA 1730	FUS	WFD Recommendation
A	Request/ complaint	12-months	6-months	24-months
B	12-months	12- months	6-months	12-months
C	12-month (high-rise/ low-rise)	12-months	6-months	12-months
D	Request/ complaint	36-months	12-months	36-months
E	Request/ complaint	36-months	12-months	36-months
F	Request/ complaint	24-months	6-months	24-months
F - Division 1	Request/ complaint	12-months	3-months	12-months

Observation #9: WFD conducts inspections proactively as required by current regulations, however, are limited to those that are required. The balance of inspections is conducted on request or complaint.

Recommendation #9: Formalize a proactive inspection program and ensure the municipality is conducting code enforcement inspections and meeting all legislative requirements through a formalized proactive fire safety inspection program.

Suggested completion: 12-48 months

Cost: To be determined based on the phase in and staffing requirements to ensure a successful program.

Strategic Objective: #3 Fire Prevention and Code Enforcement

Rationale: *As part of a solid fire prevention code enforcement program, proactive inspections on a regularly defined inspection cycle will increase code compliance within a municipality.*

Observation #10: WFD is not adequately staffed to meet the current program delivery within the municipality with only 3 FTEs in the Fire Prevention division. WFD is further recommended to conduct proactive inspections and to maintain a targeted public education program, based on the identified risks, and to do so, must be resourced appropriately in order to complete all required tasks.

Recommendation #10a: Add 2 additional Fire Inspectors/ Public Educators to meet current programming, phased in over 24 months

Recommendation #10b: Add an additional 2 Fire Inspectors /Public Educators to deliver an enhanced targeted public education and proactive inspection program, phased in over 48 months to meet future programming.

Suggested completion: 48 months

Cost: Cost per fire inspector $66,927-$119,354. Over a 4 -year period the additional cost at the end of the phase in would be approximately $960,000 to the operating budget.

Strategic Objective: #3 Fire Prevention and Code Enforcement

Rationale: *The current staffing model is insufficient to meet the current requirements for required, requested, and complaint inspections, to meet the minimum legislative inspection requirements. To increase to a proactive inspection program and meet the needs within a risk based targeted public education program, additional resources are required.*

3.4.3 New Developments Plan Reviews

The building division circulates new development and construction plans to the fire service for review and basic comments. At the current time, the fire prevention division is not conducting reviews due to workload.

It appears the relationship between WFD, and the building division is strong and very positive. WFD has confidence that the building staff have a strong working knowledge of fire safety provisions of the OBC.

Having WFD review new developments and construction plans will provide WFD staff with the knowledge of new developments that are planned and details on unique and potential risks with new buildings. Providing comments will further align WFD with their building division counterparts and ensure continuity with OBC and OFC once the building becomes occupied.

Observation #11: WFD is not actively involved in OBC plan reviews. Although there is evidence of a strong working relationship between WFD and the building department, having awareness and input on new buildings and developments will allow for increased situational awareness, ensure safety issues are considered, and allow WFD to anticipate any increase in risk or service demands.

Recommendation #11: WFD and the Building Department conduct a review of the OBC plan review and occupancy inspections program.

Suggested completion: 18 -24 months

Cost: N/A

Strategic Objective: #3 Fire Prevention and Code Enforcement

Rationale: *Having WFD review new developments and construction plans will provide WFD staff with the knowledge of new developments that are planned and details on unique and potential risks with new buildings. Providing comments will further align WFD with their building division counterparts and ensure continuity with OBC and OFC once the building becomes occupied.*

3.4.4 Fire Cause and Origin Services

All fires in Ontario causing injury, death and property loss are to be investigated for origin, cause and circumstances under the Fire Protection and Prevention Act, 1997. The FPO has direct oversight of the fire investigations program and oversees scheduling, equipment needs and reporting of investigations. The fire investigations in Woodstock are conducted by the FPO and FPI.

Any fire determined by the on-scene fire suppression officer to meet an investigation notification under SOP# 4.3.4 (Requesting a fire investigator), are to be reported to the Fire Chiefs, Deputy Fire Chief and/ or the on-call Fire Investigator. If the fire does not meet the above-mentioned criteria the on-scene fire suppression officer shall conduct the investigation.

There are appropriate SOP's that provide direction to the investigators for conducting investigations, documentation, notification of appropriate agencies and the use of protective equipment.

3.5 Emergency Response Services

Strategic Objective #4: Ensure rapid and coordinated response to fire incidents to limit damage and save lives. Strengthen the capacity and resilience of firefighting teams and resources to tackle fires of all scales.

3.5.1 Structural Firefighting

Fire department resources should be adequate to manage the most probable risks. Structural fire suppression encompasses a wide range of tactics for the control and extinguishment of fires originating from several sources. Single-family dwellings are the most prevalent building type in most communities. As a result, these types of structure fires are typically the most probable but only rated as a low to moderate risk as the consequences are limited to one or two properties. Residential fires are a leading cause of fire-related death, injuries, and property loss in Canada.

While in many communities, structure fires are not the most frequent emergency response request, they require a significant investment in resources (equipment and staffing), training and coordination to manage safely and effectively. WFD trains and maintains its firefighters to the NFPA 1001 Level I and II standard.

Structure fires are a low frequency type of incident encountered by WFD (1.76%) over the 2019-2023 reviewed timeframe, however, has a large degree of life safety and property risk to both the public and the firefighters, where time and resources are paramount considerations for safe and effective resolution of the emergency. Available staffing and equipment should be adequate for firefighters to be able to safely perform the task expected of them. For WFD, the industry practice for response and operations are outlined in the NFPA 1710 standard for fire suppression operations. These standards are further covered in Section 4.

Structure fires that require entry into the building for fire suppression and rescue require many critical tasks to occur simultaneously for the safety of both the victims and the firefighters. Each of these tasks may require one or more companies of firefighters to accomplish them safely and effectively. Without enough companies of firefighters on scene, entry may be delayed until some of these tasks are completed.

Structural fire suppression encompasses a wide range of tactics for the control and extinguishment of fires originating from several sources. Sufficient firefighters arriving on-scene in a timely manner are paramount to facilitate safe and effective rescue and suppression tactics for the control and extinguishment of fires. WFD maintains a modern fleet of emergency response apparatus and equipment along with a well-trained team of career firefighters available for emergency structural fire response.

The current practice for emergency response is a combination of firefighters responding from the closest fire station on the appropriate apparatus, with additional firefighters responding from one or more additional fire stations to assemble an effective response force.

Most interview and survey participants agreed that WFD was adequately trained; however, concerns were raised about having the minimal required staff to safely manage most structural fire incidents. Significant concern was expressed regarding the ability to establish a timely effective response force (ERF) for larger incidents, multi-family structures, high-rise fires, and concurrent emergency responses. With a minimum of 10 staff on duty, call back provisions are required to establish the industry standard of 15 firefighters on-scene to meet ERF recommendations.

Minimum staffing level constraints in WFD are the most significant limiting factor in determining the actual effectiveness of any given emergency response.

Observation #12: WFD is challenged to meet NFPA standards for both first arriving fire company and an effective response force for structure fires and increased size of the incidents, including high-rise and large buildings. There is an anticipated increase in vertical growth with a large number of high rises planned in the downtown core. NFPA standards recommends a certain number of firefighters on-scene within a certain time criteria depending on the occupancy risk type so to ensure for public and fire fighter safety. To meet certain criteria with this standard at times all on-duty firefighters may be dispatched to the scene, as well as a call-in of off duty WFD staff and/or mutual aid response.

Recommendation #12: Review the effective response force (ERF) considering the critical tasks necessary to manage all risks and structure fire types safely and effectively, including residential, industrial, commercial, and high-rise fires.

Suggested completion: 12-18 months

Cost: Staff time only

Strategic Objective: #4 Emergency Response

Rationale: *Policy must be developed to detail critical tasks necessary for each type of structure fire, and other complexed incident responses such as technical rescues to define what staff expectations are the number of staff required on scene to complete expectations.*

3.5.2 Medical Assist

Medical assist is a valuable core service provided by WFD. The number of medical responses requested amounts to 35% of the total call volume for the 2019-2023 period. The distribution of fire department resources often exceeds that of ambulance resources, and as a result, firefighters are often able to arrive to medical emergencies faster, due to the response deployment model, and in support of ambulance services.

WFD has established a tiered medical agreement with Oxford County Paramedic Services that outlines the medical criteria and the medical incidents that fire will respond to. WFD has engaged with a designated medical director to assist in the delegation of protocols such as defib and naloxone administration. Recently, the Central Ambulance Communications Centres (CACC) across the province of Ontario are transitioning to a new computer triage program known as Medical Priority Dispatch System (MPDS), which could adjust the types of medical assist calls that fire gets tiered out to. Maintaining dialogue and utilizing expert medical opinion through a designated medical director (a doctor utilized by the fire service) will continue to ensure WFD is meeting the level of service expected and directed by Council.

Observation #13: Medical assistance delivered by WFD is a valuable service, however these types of calls make up the largest percentage of total call volume (49% in 2023). The implementation of MPDS in Central Ambulance Communication Centres (CACC) may potentially adjust the types of calls the fire service will respond to. WFD must ensure that they are responding to the appropriate medical calls to ensure a level of service directed by Council is maintained.

Recommendation #13a: Review with the designated medical director to determine and develop the appropriate level of emergency medical training for staff.

Recommendation #13b: Conduct regular review of medical assistance incidents and work with WFD's medical director and Oxford County Paramedic Services to ensure the tiered response agreement has WFD responding to the appropriate incidents.

Suggested completion: 12-24 months

Cost: Cost associated to any additional training identified.

Strategic Objective: #4 Emergency Response

Rationale: *Regular review allows to ensure that WFD is responding to the to the most appropriate medical incidents where they can make a difference to patient outcome. Ensuring these reviews are conducted with the designated medical director, provides the appropriate medical evidence to support future decisions. WFD will want to ensure that they are responding to the appropriate medical calls to ensure a level of service directed by Council is maintained.*

3.5.3 Motor Vehicle Collisions, Vehicle Extrication

Motor vehicle collisions (MVCs) with or without trapped persons can pose unique hazards to both the victims and responders. Vehicle extrication requires specialized training and equipment. Close coordination with police and ambulance services is necessary for the safety of both victims and responders. Weather conditions also contribute significantly to both the severity of the incident and the effectiveness of the response.

Many of modern vehicles have added risks to firefighters, such as airbag deployment and hybrid vehicles containing fuel cells or batteries. Vehicle collisions or events involving transport vehicles often pose the additional challenge of involving dangerous goods or requiring heavy equipment to manage.

WFD is trained and equipped to manage vehicle collision and extrication incidents (services provided to the NFPA 1001 and NFPA 1006 Standard). Depending on the nature of the incident, fire engines, tankers, and/or rescues are typically deployed to these events. MVCs are captured in the rescue response type which had 1267 responses (16.9% of total call volume) over the 2019-2023 period within the municipality. Higher speed roadways and provincial highways are common throughout and around the municipality. Responses on these roadways may present hazardous conditions for all responders. WFD resources must work closely together with partner agencies at the scene of an MVC. These types of incidences may require the resources and expertise of WFD staff including:

- Scene safety
- Fire suppression
- Extrication
- Stabilization
- Medical first aid
- Dangerous goods control
- Special rescue

3.5.4 Hazardous Materials/Dangerous Goods Response

Response capabilities should align with service levels defined in the NFPA 1072: Standard for Competence of Responders to Hazardous Materials Weapons of Mass Destruction Incidents service level matrix. It requires departments without advanced hazmat (dangerous goods) training to take only a limited role in hazardous materials (dangerous goods) response. There are three dangerous goods response service levels.

The first level of service is the awareness level. This level is the most basic and is for persons who could be the first on the scene of an emergency involving dangerous goods. Responders at the awareness level are expected to recognize the presence of hazardous materials, protect themselves, call for trained personnel and secure the area to the best of their abilities. It does not involve donning protective suits to enter the contaminated zone to stop the flow of hazardous materials or conducting decontamination.

The second level of response is the operations service level. Responders are trained to be part of the initial response and control the impact of the release in a defensive fashion. Crews are expected to take a more hands-on approach than considered at the awareness level. They will use absorption, damming and diking to stop or redirect the flow of the hazardous material. Firefighters are trained to don protective suits, enter the hot zone to conduct rescue activities and control the product release. They must also establish a decontamination zone for responders and equipment. Crews also lead the evacuation in the hot zone.

The third level of response is the technician level. Technical-level responders must be certified hazmat technicians trained in the use of specialized chemical protective clothing and control equipment. Responders at this level take offensive action in responding to releases or potential releases of dangerous goods. Given the required training, cost of equipment and limited community need, this level of service is normally provided by larger communities or private companies through contract.

WFD is currently trained to the NFPA 1072 awareness level and does not have a designated hazardous materials response unit. While incidents involving hazardous or dangerous goods are infrequent, these types of events can result in significant environmental and life-threatening consequences. In addition, a chemical incident was identified as a community risk factor. The City of Woodstock hazard identification and risk analysis classifies chemical as having a low probability with a moderate risk to the public and the environment. These risks are attributed to a significant release or spill on waterways, highways, and/or bridges. A significant DG release or spill would warrant a response by a third-party provider and/or OFM provincial response team.

Table 26 shows a review of the 2019-2023 Standard Information Report data provided through the OFM shows WFD provided responses to 227 incidents over 5 years involving various levels of minor to major dangerous goods including:

Table 26: Hazard Material Incidents 2019-2023

Call Type	2019	2020	2021	2022	2023	Total
Bomb, Explosive removal Standby	0	0	3	1	0	4
CO incident, CO present	5	11	7	16	5	44
Gas Leak - Miscellaneous	2	1	2	2	2	9
Gas Leak - Natural Gas	22	16	21	15	20	94
Gas Leak - Propane	5	2	1	5	1	14
Gas Leak - Refrigeration	1	0	2	0	0	3
Other Public Hazard	3	8	1	11	4	27
Spill - Gasoline or Fuel	4	7	2	5	4	22
Spill - Miscellaneous	1	2	2	3	0	8
Spill - Toxic Chemical	1	0	0	0	0	1
Suspicious Substance	0	0	0	1	0	1

Observation #14: Most of these incidents involving dangerous goods were handled by WFD firefighters with their present awareness level of training. A larger incident requires the response of a third-party provider and/ or response from the OFM provincial response team (from Toronto or Windsor). These third-party responses can result in long response delays which may further impact public safety or the environment.

Recommendation #14: Provide operational level Hazardous Material response to incidents.

Suggested completion: 24-36 months

Cost: Internal staff time, $300,000 for required operation equipment

Strategic Objective: #4 Emergency Response

Rationale: *Operations level of service for hazardous materials involves a higher level of training and addition of specialized equipment. Operations and Technician level of response is currently being provided through a third-party vendor. The addition of this service by WFD will allow for increase mitigation to public and fire fighter safety, and environmental risks. The third-party vendor may still be required for the Technician level response as needed/ required by each incident.*

3.5.5 Technical Rescue Services

Rescue operations are often unique situations that require specialized equipment and training to ensure the responders maintain the competencies to execute the rescue safely. The challenge in maintaining these skills is the low frequency of the events. As a result, fire departments offering technical rescue services must provide adequate and consistent training to maintain competencies and equipment.

WFD, like many fire services, are relied upon to provide a wide range of rescues within their community. The low frequency combined with the complexity and training required to safely and effectively manage these incidents provides unique challenges to a fire service. There is recognized training, certification and equipment required for many of these types of incidents, while unique rescues may rely on one or more skills and equipment to perform safely.

There may be other agencies within the municipality or region that provide specialty rescues. Close coordination and understanding of the roles and responsibilities of each agency will alleviate conflict and provide clarity of responsibilities on the scene of an emergency.

WFD utilizes teams of specialty trained firefighters on each platoon that are equipped, trained, and certified to provide and maintain competencies for:

- Motor vehicle extrication- under NFPA 1001 Level I and II
- Ice rescue – land-based technician
- Water rescue – land-based technician

Table 27 is a review of the 2019-2023 Standard Information Report data provided through the Ontario Office of the Fire Marshal, showing WFD provided rescue services 1,378 times, including:

Table 27: Rescue Calls 2019-2023

Call Type	2019	2020	2021	2022	2023	Total
Animal Rescue	0	1	0	0	1	2
Building Collapse	0	0	0	0	0	0
Commercial Industrial Accident	1	1	1	0	0	3
Confine Space Rescue (non-fire)	1	0	0	0	0	1
High Angle Rescue	0	0	1	0	0	1
Home/Residential Accident	0	2	1	3	2	8
Low Angle Rescue	0	0	0	0	0	0
Other Rescue	5	6	3	5	9	28
Persons Trapped in Elevator	9	5	5	9	13	41
Rescue False Alarm	1	0	1	2	1	5
Rescue No Action Required	3	6	2	3	3	17
Trench Rescue (non fire)	0	0	0	1	0	1
Vehicle Collision	306	212	200	259	249	1226
Vehicle Extrication	5	8	10	13	5	41
Water Ice Rescue	1	1	0	0	0	2
Water Rescue	1	0	0	1	0	2

As reported above, the majority of rescue incidents were managed by WFD within the training and certification of their staff. There is an increase in growth in the industrial sector and a greater risk for entrapment or injury within machinery or confined spaces. These types of rescues require specialized training and certification by responding firefighters.

The training required to meet the certification requirements is labour intensive and requires planning, equipment, qualified instructors, and the need to maintain skills on an annual basis. Each program is a minimum of 40 hrs of practical training followed by certification examinations.

WFD must consider the risk within the community, the vulnerability of the department to respond and management of the workload of the firefighters and costs to the municipality. A phased-in approach is the best practice to ensure that effectiveness and efficiencies are observed.

WFD currently provides motor vehicle extrication and water/ ice rescue technical operations. This aligns well with the risk identified in the Community Risk Assessment and within historical incidents. Further risk ***identifies*** potential rescue from machinery due to the large industrial base and the historical incident volume with elevator rescues which WFD is not certified to conduct.

Observation #15: WFD does not have capabilities to provide rescues for confined spaces or trench collapses. These specialized rescues are not identified as part of the mutual aid plan, nor is there a formal agreement with another provider to respond to these incidents.

Recommendation #15: Develop specialized rescue operation programs, or alternatively enter into contract with another provider to respond to specific rescues such as:

1. Machine rescue – operations level (first 12 months)
2. Confined space rescue – operations level (12-24 months)
3. Trench rescue – operations level (24-36 months

Suggested completion: 12-36months

Cost: Equipment costs – TBD, training of staff

Strategic Objective: #4 Emergency Response

Rationale: *Fire departments across the province are typically notified to respond to rescue incidents. Under Health and Safety regulations and FPPA regulations, fire fighters must be appropriately trained and certified to conduct specific rescue functions at an incident. WFD is no exception and must create appropriate programs and ensure alternative providers are pre-arranged to respond to various types of specialized rescues.*

These rescue programs will require specialized equipment and appropriate training. Conducting all this at one time will be cost and resource prohibitive and a phased in approach based on risk will allow WFD to manage the additional costs. During the phase in stage, WFD must ensure that appropriate agreements/ plans are in place to address gaps in specialized rescues.

3.5.6 Pre-Emergency Planning

Pre-emergency or incident plans are intended to provide emergency responders with advanced knowledge and processes for a safe and effective response. These pre-plans include information regarding the construction type, occupancy, building status, emergency contacts, utility shutoffs, fire suppression and detection systems installations and locations exposure information, water supply availability, access problems and any other hazards.

Pre-planning programs are not necessarily tied directly to the fire inspection program but rather include operationally relevant information that was gained on a site visit. Pre-planning should also include potential responses to areas of concern that are not captured in the formal fire inspection program.

WFD utilizes an older paper pre-planning program. Pre-plans were conducted by fire crews or fire prevention staff and provided in pre-planning files at the stations and on the front-line apparatus.

Observation #16: Pre-incident planning is not a formalized program. Currently preplans are available on paper, with some available in a digital format. These are not readily available to responding crews. WFD has transitioned to a new RMS system, "First Due" which has a pre-incident planning module and would allow for crew to build them online and be available in vehicles through mobile computer systems.

Recommendation #16: Formalize pre-planning programming. This to include annual reviews to ensure plans are current and accessible to all staff attending fire incident scenes.

Suggested completion: 24-60 months

Cost: First Due module, in-vehicle computer, staff time

Strategic Objective: #4 Emergency Response

Rationale: *Preplanning allows for response crews to understand critical aspect of the buildings, or property that they are responding too. The ability to have updated information will allow for company officers, and incident commanders to identify these various aspects when developing mitigation strategies and assigning crews.*

3.5.7 911 and Fire Dispatch

The Public Safety Answering Point (PSAP) is provided by Woodstock Police Services. Fire rescue related calls are dispatched by police and the service provides emergency fire dispatching services (including information and communications technology). The current agreement with Woodstock Police is not formalized and there are no identified performance levels. The call processing time analyzed in Section 4.4.1 indicates that WPS is at 152 seconds over a 5-year period (2019-2023) at the 90th percentile.

The dedication of dispatch and incident communications during an emergency is a critical piece of the overall command structure to ensure operational effectiveness and firefighter safety. There are options for municipalities to explore to provide for fire dispatch and emergency communications, including:

- Other fire departments
- Internal division within the fire department
- Other public safety agencies
- Third-party private vendors.

Regardless of the option, WFD must consider the cost to provide the service, the service levels/ performance levels that the agency can meet, and a signed formalized agreement outlining all expectations and responsibilities.

Indications show that the services can be obtained on a per capita basis at $3-$5 per person, indicating that WFD could expect to pay between $150,000 and $250,000 for the dedicated service. Contracting out of dispatch is more cost-effective than operating the service in-house.

Observation #17: Fire rescue related calls are dispatched by police and the service provides emergency fire dispatching services (including information and communications technology). The current agreement with Woodstock Police is not formalized and there are no identified performance levels. The call processing time analyzed in indicates that WPS is at 152 seconds over a 5-year period (2019-2023) at the 90th percentile.

Recommendation #17: Collaborate with WPD to formalize service level objectives including identifying performance standards with the intention to lower alarm handling time.

Suggested completion: 1-12 months

Cost: Cost neutral

Strategic Objective: #4 Emergency Response

Rationale: *Dispatching of fire services plays an important role is the overall response performance of the fire service. Establishing expectations and regular reporting on performance should be included in agreements. This allows the receiving department to ensure they are getting the service that has been agreed to. The NFPA standards outline specific performance objectives that should be met. The quicker the alarm is processed, and crews are dispatched, the quicker crews can arrive on scene.*

3.5.8 Mutual Aid and Other Service Agreements

Large emergency events quickly overwhelm the response capacity of most municipal fire departments. This is especially true for smaller fire departments with limited resources. As a result, mutual aid and automatic aid agreements are necessary components in adding response capacity for these low frequencies but potentially high or extreme consequence events.

Mutual aid agreements between fire departments allow them to assist each other across jurisdictional boundaries. Typically, this happens when local emergencies exceed local resources. They may include fire response and/or specialty response services, including rescue and dangerous goods. Any response would be made by the requesting agency and is not predetermined in the case of automatic aid. The requested agency may or may not be able to fulfill the request.

Automatic aid agreements ensure a provision of initial or supplemental response to fires, rescues, and emergencies where a fire department situated in a neighbouring municipality can provide a response quicker than any fire department situated in the requesting municipality.

The Province of Ontario, through the Office of the Fire Marshal, has developed a provincial wide mutual aid plan (MAP) to formalize and maintain mutual aid and automatic aid agreements for identified areas coordinated through an Ontario Fire Marshal appointed fire coordinator. Each area will develop and maintain its respective MAP consistent with the Ontario plan.

The principle of operation of MAPs is to promote and ensure adequate and coordinated efforts to minimize loss of human life and property, as well as damage to the environment through the efficient utilization of fire department and provincial resources in the event of a mutual aid activation during times of natural or human-made emergencies.

In the event an emergency overtaxes the resources of the municipality and requires additional assistance, the EOC Commander may request assistance from neighbouring municipalities or the Office of the Fire Marshal and/or Emergency Management through the Provincial Emergency Operations Centre (PEOC). The City of Woodstock participates in mutual aid with Oxford County. Automatic aid for tanker operations is received from the townships of Norwich, East Zorra-Tavistock, and has a fire protection agreement with South Oxford for tanker operations.

3.6 Training & Professional Development

Strategic Objective #5: Develop and implement an ongoing training program that incorporates the latest firefighting techniques, safety protocols, and technological advancements to ensure that all fire personnel are equipped with the skills necessary to respond effectively to evolving fire risks.

3.6.1 Training Overview

Training and competency development are essential and ongoing activities for all contemporary fire departments. A prepared and competent workforce reduces risk and safely optimizes service delivery. An effective workforce training program aligns the growth and development of personnel to the organization's mission and goals.

The WFD Training Section consists of one Training Officer and is responsible for the following:

- develop and coordinate the delivery of all training programs to WFD staff
- manage the overall training environment
- assist in assessing the performance of personnel by setting, administering, and marking examinations, attending emergency incidents, evaluating practical skills, and providing feedback
- monitor and evaluate ongoing training programs
- research and evaluate policies, procedures, techniques, and equipment
- maintain training records and prepare comprehensive reports
- maintain training manuals and reference materials
- assist in the promotional processes
- maintain equipment as assigned and assist with the research, design and acquisition of new apparatus and equipment

The closing of the brick-and-mortar Ontario Fire College has put a greater focus on regional training, resulting in formal and informal regional partnerships being developed throughout Ontario under the purview of the Office of the Fire Marshal. WFD training utilizes in-house training and regional training as necessary.

The Ontario Firefighter Certification regulation filed April 14, 2022, and enacted on July 1, 2022, introduces mandatory minimum certification standards for firefighters that align with fire protection services being provided. This regulation will help ensure firefighters have consistent training according to the level of service set by a municipality supporting firefighter and public safety.

Training and education program activities are identified by assessing the Knowledge, Skills, and Abilities (KSAs) needed for the firefighters to perform their duties as outlined in the department's SOGs and procedures. When firefighters are competently trained and possess the KSAs for the services they are expected to provide, they reduce risk and increase their safety and the safety of the public they serve. All training programs should be measured against and tailored to the core services and identified risk assessments for the community.

Meeting the training needs of a fire service is a very important and demanding portfolio. The scheduling of instructors, facilities and participants is a daunting task to ensure safe and consistent training while not negatively impacting the operational capacity.

The WFD training section consists of one Training Officer who has oversight to develop, schedule, train and certify standardized training based on the WFD's core services. There is the ability to utilize adjunct instructors within the suppression staff to assist with the delivery of training.

WFD conducts ad hoc training sessions for the delivery of core competency and related training consistent with the requirements established by the OFM certification and curriculum. There is no existing training syllabus or schedule developed to provide company officers with direction for training. WFD training is provided through various methods, including:

- Theoretical classroom and/or online modules
- Practical training while on-duty and/or off-duty
- A combination of both for proficiency and/or certification

WFD has a dedicated area to conduct training. There are shared meeting rooms at fire headquarters and a large area at Fire HQ to conduct practical evolutions, including live fire, suppression skills training, technical rescue evolutions, and auto extrication. This allows the opportunity to ensure that WFD staff are conducting annual live fire training and maintenance training on other disciplines.

It was identified through the interviews, staff survey, and observations that the staff turnover in the training officer position has been constant, and as a result, there is a lack of consistency in training programs. A new training officer has recently been hired from outside the organization and is in the process of conducting a review of existing programs and determining gaps to be addressed.

Given the recent legislative changes and requirements for training and certification for a prescriptive number of disciplines, the recommendations to add additional technical rescue disciplines, and projected new recruit training programs, the current training officer position will become overwhelmed with expectations and workload. Additional capacity will be required to complete all the requirements and ensure the completion of identified programs.

Observation #18: WFD does not currently have a formalized training program, including either monthly or yearly training syllabus to ensure training is directed to meet occupational health and safety compliance, and certification requirements under the FPPA. The frequent turn-over in the training officer position has compounded issues of consistency in the training program.

Recommendation #18: Provide an annual training syllabus to ensure that firefighter skills maintenance and required annual training is delivered with a consistency across all stations and all shifts.

Suggested completion: 6-48 months

Cost: Operational cost based on chosen training process

Strategic Objective: #5 Training and Professional Development

Rationale: *Core competency and specialty training should be prioritized to address the risks identified within the City of Woodstock. The proper mix of theoretical and supporting practical training is necessary to develop and maintain the necessary skillsets to manage these risks safely and effectively.*

Observation #19: Initial and recurring training is an ongoing commitment to WFD staff based on the core services delivered, OHS, FPPA and City of Woodstock requirements. The current delivery of training is the responsibility of one training officer, utilizing informal shift trainers in specific disciplines.

Recommendation #19a: Conduct a staffing analysis and staff the training section with additional personnel, phased in over the next 3 years, to provide for increased legislative and compliance requirements and future growth of the department.

Recommendation #19b: Formalize a shift training instructor program to assist in the delivery of on-shift training and to provide additional support to the training division during recruit training and tech operations program training.

Suggested completion: 24-48 months

Cost: The Wage range per Training Officer is $122,700 - $129,393 (2024 rates)

Strategic Objective: #5 Training and Professional Development

Rationale: *Core competency and specialty training should be prioritized to address the risks identified within the City of Woodstock. The proper mix of theoretical and supporting practical training is necessary to develop and maintain the necessary skillsets to manage these risks safely and effectively. The increase in hiring new staff over the next several years will add to the workload of the training officer, requiring dedication to recruit training programs*

3.6.2 Industry Recommended Qualifications

NFPA certification standards represent industry best practices. Position profiles and associated KSAs should prepare staff to competently provide the services necessary to address the risks in their community.

Many of the NFPA standards have been incorporated as mandatory in O. Reg 343/22 Firefighter Certification, enforced under the Fire Protection and Prevention Act, 1997. The regulation requires every municipality and every fire department to ensure that its firefighters, including all staff, perform the duties defined in the regulation.

Further, organizational size and structure will often change the breadth of tasks and competencies required by specific positions. For example, large career fire departments tend to have a higher degree of specialization for senior positions and less need for senior officers to be directly involved in fire suppression or rescue operations. In contrast, smaller volunteer POC or paid-per-call volunteer department senior officers will lead or be directly involved in fire suppression and rescue operations.

The following Table 28 lists NFPA standards offered as a general guideline for NFPA training standards aligned with most fire department positions:

Table 28: NFPA Professional qualification standards by position

Fire Chief Deputy Chiefs NFPA 472 Dangerous Goods Operations - NFPA 1001 Firefighter (Level 2) - NFPA 1002 Pump Operator - NPFA 1021 Fire Officer (Level 2) - NFPA 1041 Instructor (Level 1) - NFPA 1403 Standard on Live Fire Training Evolutions - NFPA 1521 Incident Safety Officer Captains and Lieutenants - NFPA 472 Dangerous Goods Operations* - NFPA 1001 Firefighter (Level 2)* - NFPA 1002 Pump Operator* - NPFA 1021 Fire Officer (Level 1)* - NFPA 1041 Instructor (Level 1) - NFPA 1403 Standard on Live Fire Training Evolutions - NFPA 1521 Incident Safety Officer* Safety Officer NFPA 1521 Incident Safety Officer* Firefighter - NFPA 472 Dangerous Goods Operations* - NFPA 1001 Firefighter (Level 1)* - NFPA 1002 Driver/Pump Operator* - NFPA 1006 Vehicle extrication Level 1*	Pump Operator - NFPA 472 Dangerous Goods Operations - NFPA 1001 Firefighter (Level 1) - NFPA 1002 Driver/Pump Operator* - NFPA 1002 Aerial Operator - NFPA 1006 Vehicle extrication Level 1 Training Officer - NFPA 1041 Instructor (Level 1)* - All Qualifications required to instruct firefighters and recruits* - NFPA 1403 Standard on Live Fire Training Evolutions Fire Inspector/Fire Investigator - NFPA 1031 Standard for Professional Qualifications for Fire Inspector and Plans Examiner* - NFPA 1033 Standard for Professional Qualifications for Fire Investigator* - NFPA 1035 Standard for Professional Qualifications for Public Fire and Life Safety Educator* * *Indicates mandatory qualifications under O. Reg 343/22*

The role of the Office of Fire Marshal (OFM) is to provide leadership and expertise on fire safety and promote changes to minimize the impact of fire and other public safety hazards on people, property, and the environment in Ontario. The OFM provides guidance and leadership to municipal fire departments in required training, including the certification regulation to ensure mandatory minimum certification standards for firefighters that align with fire protection services being performed. The summary of the regulation required qualifications are found in 4.9.3.1Appendix E:, which describes the minimum certification standards for the various fire protection services and the compliance timeline.

Observation #20: The new regulations requiring WFD staff to be certified to specific disciplines must be completed by July 1, 2026, for all areas, with the exception of specialized technical rescue, which is required by July 1, 2028. This is less than 2 years to ensure all staff have the necessary training and the corresponding certification.

Recommendation #20: Formalize a shift training instructor program to assist in the delivery of on-shift training and to provide additional support to the training division during recruit training and technical operations program training.

Suggested completion: 6-12 months

Cost: Cost neutral

Strategic Objective: #5 Training and Professional Development

Rationale: *As a mandatory requirement under the FPPA, this regulation has been in effect since April of 2022, allowing for an appropriate 4 years to ensure compliance with the legislation. WFD has less than 2 years to complete this training and must prioritize this recommendation meet the required expectations.*

SECTION 4
RESPONSE PERFORMANCE AND CAPABILITIES

This section provides an overview of relevant industry standards and provincial legislation related to fire department response performance in Ontario. It also includes a detailed analysis of trends in incident types occurring within Woodstock (WFD) and the evaluation of WFD's response performance.

4.1 Industry Leading Practices and Standards

The following section provides an overview of relevant industry standards and provincial legislation concerning fire department response performance in Ontario. This section also includes a detailed analysis of the trends in incident types occurring within Woodstock Fire Department (WFD) response performance.

4.1.1 National Fire Protection Association (NFPA) Standards

The most widely accepted standards for the fire service are developed by the National Fire Protection Association (NFPA). Established in 1986, "the NFPA is a self-funded non-profit organization devoted to eliminating death, injury, property, and economic loss due to fire, electrical, and related hazards" (NFPA, 2021)." The NFPA has developed over 300 consensus-based codes and standards designed to improve fire department effectiveness and firefighter safety. NFPA research is applied in establishing industry benchmarks for fire department operations, training, and equipment. Many of these standards form the basis of and are referenced throughout the Ontario Fire Protection and Prevention Act, 1997, and related firefighting regulations and guidelines under the Ontario Occupational Health and Safety Act, R.S.O. 1990.

The NFPA has conducted considerable research in developing standards that reflect the primary value of life-safety in emergency response for responders and victims. The standard addressing fire department operational performance and service levels is NFPA 1710: Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Career Fire Departments. This standard provides the framework for fire department emergency response performance analysis, which will be discussed further in this section. Additionally, NFPA 1201: Standard for Providing Emergency Services to the Public outlines several practices for establishing and managing an effective and efficient fire service, including governance, organizational structure, planning, and resource deployment.

4.1.2 Ontario Regulatory Framework Regarding Community Fire Safety

Ontario municipalities are required to provide a public education and fire safety program, but they may or may not elect to do so by establishing a fire department. The *Fire Protection and Prevention Act, 1997, S.O. 1997, c. 4* states the following:

> *"Municipal responsibilities*
>
> *2(1) Every municipality shall,*
>
> *(a) establish a program in the municipality which must include public education with respect to fire safety and certain components of fire prevention; and*
>
> *(b) provide such other fire protection services as it determines may be necessary in accordance with its needs and circumstances.*
>
> *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."*

If a fire department is established, municipalities are required to meet the numerous requirements regarding fire department equipment, training and certification standards identified in the regulations of this act and the *Occupational Health and Safety Act, R.S.O. 1990*. Many of these requirements are based on NFPA standards. However, municipalities are not required to provide specific services or meet the service level standards identified in NFPA 1710. The response time goals and the number of required firefighters to respond, as identified in NFPA 1710, are considered industry-leading practices but are not mandated.

Establishing service types and associated service levels is the responsibility of the authority having jurisdiction (AHJ). For most municipalities, the AHJ is the municipal council. Formalizing service types and service levels in policy is also considered a best practice. Fire department service types and service levels are typically established to mitigate identified community risks. However, service levels should also be achievable and affordable.

The Centre for Public Safety Excellence and the International Association of Fire Chiefs developed a "standard of cover" framework to support the process of establishing fire department service types and service levels. It is a comprehensive process for identifying community risks, assessing fire department capability, and establishing appropriate emergency response service levels to mitigate community risks. The outcome of this process results in a standard of cover policy, including service level recommendations for approval by the AHJ.

4.2 Incident Types and Frequency Analysis

Fire and rescue services typically have access to large amounts of incident and response data. Incident data can be used and reported for several purposes. Incident type and frequency data are used to analyze department activity levels and identify trends in demand for fire services. The breadth of services provided by modern fire services is often surprising. Fire departments have evolved from responding primarily to fires to responding to a broad range of public service and emergency incidents, becoming a critical component of a community's social safety net.

Incidents are commonly evaluated at two different times during an emergency. First, the 911 call taker evaluates the information provided by the caller to categorize the incident to be dispatched. This category can determine the initial number of resources assigned to the incident, including firefighters, apparatus, and automatic aid from neighboring fire stations. A second categorization occurs after the incident is resolved, based on what was occurring on the scene or the actions taken. In Ontario, Incident Response Types must be reported through the provincial Standard Incident Reporting (SIR) system using predetermined codes and reporting procedures. These SIR Response Types are further grouped into common descriptors and subtotaled to provide aggregated fire data provincially. These types and categories are particularly useful when examining compliance with NFPA standards, the total number of resources on scene, and community risks.

Five years of SIR response data provided by the WFD was analyzed. The data includes all incidents from January 2019 to December 2023. Incident data is aggregated into broader categories and more specific incident categories. For example, all types of fire incidents, including structural, vehicle, and non-structural/garbage fires, are combined into a single category. This differentiation is made to provide varying levels of information, as stakeholder reporting, and information needs vary depending on their level of interest in WFD activities.

4.2.1 Unique Incidents

Table 29 identifies all unique incidents that occurred within the municipal boundary, categorized by their SIR Response Type. This analysis provides an overview of the types of emergencies that the fire department responded to, along with the reported incident types and their respective frequencies. It excludes mutual aid responses which fall outside the Woodstock municipal boundary.

Table 29: Unique Response Types within Woodstock (2019 to 2023)

Incident Subcategory	2019	2020	2021	2022	2023	Total	Total %
Property fires/explosions	61	47	57	78	74	317	4.22%
Burning (controlled)	52	116	86	96	137	487	6.48%
Overpressure rupture/explosion (no fire)	1	2	2	0	0	5	0.07%
Pre-fire conditions/no fire	57	53	54	50	69	283	3.77%
False fire calls	256	242	254	286	292	1330	17.71%
CO false calls	108	83	83	75	69	418	5.57%
Public Hazard	67	78	73	77	57	352	4.69%
Rescue	333	242	224	296	283	1378	18.35%
Medical/Resuscitator	492	292	394	453	1002	2633	35.06%
Other response	57	52	53	79	66	307	4.09%
Total	1,484	1,207	1,280	1,490	2,049	7,510	100.00%

Table 30: Incidents by sub-categories (2019-2023)

Call Type	2019	2020	2021	2022	2023	Total	Total %
A. Structure Fire	29	26	17	23	29	132	1.65%
B. Other Fire	4	1	0	3	3	8	0.15%
C. Vehicle Fire	5	6	5	8	5	24	0.32%
D. No Loss Fire	1	0	3	1	2	7	0.09%
E. No Loss Fire (Excluded)	22	14	32	43	35	146	1.94%
F. Non-Fire Call	1,423	1,160	1,223	1,412	1,975	7,193	95.78%
Total	1,484	1,207	1,280	1,490	2,049	7,510	100.00%
F. Non-Fire Call Breakdown							
Burning Controlled	52	116	38	101	137	444	5.91%
Authorized controlled burning complaint	8	25	19	96	15	163	36.71%
Open Air Burning/unauthorized controlled burning	44	91	19	5	122	281	63.29%
CO False Fire Calls	108	83	83	75	69	418	5.57%
CO false alarm - equipment malfunction	58	44	51	43	44	240	57.42%
CO false alarm - perceived emergency	50	39	32	32	25	178	42.58%
False Fire Calls	256	242	254	286	292	1330	17.71%
Alarm System Equipment Accidental Activation	53	52	74	62	58	299	22.48%
Alarm System Equipment Malfunction	108	87	83	124	117	519	39.02%
Human - Accidental	29	22	31	33	37	152	11.43%
Human - Malicious	12	13	7	15	17	64	4.81%
Human - Perceived Emergency	33	46	34	31	43	187	14.06%
Other False Fire Call	21	22	25	21	20	109	8.20%

Call Type	2019	2020	2021	2022	2023	Total	Total %
Medical/Resuscitator Call	492	292	385	453	1,002	2624	34.94%
Accident or illness	50	26	27	38	59	200	7.62%
Alcohol or Drug Related	60	51	102	100	252	565	21.53%
Asphyxia, respiratory Condition	4	9	9	6	13	41	1.56%
Burns	3	1	0	0	1	5	0.19%
Chest Pains or Suspected Heart Attack	6	1	2	6	11	26	0.99%
CPR administered	10	14	12	10	20	66	2.52%
Defibrillator Used	1	3	4	2	4	14	0.53%
Electric Shock	0	0	0	0	0	0	0.00%
Medical aid not required on arrival	37	29	35	32	92	225	8.57%
Medical Resuscitator call false alarm	36	15	10	25	45	131	4.99%
Medical Resuscitator call no action required	118	55	77	94	229	573	21.84%
Other Medical Resuscitator Call	60	20	40	62	75	257	9.79%
Oxygen Administered	5	3	*9	5	6	19	0.72%
Seizure	55	12	7	24	132	230	8.77%
Traumatic Shock	2	0	0	1	0	3	0.11%
Vital Signs Absent, DOA	45	53	60	48	63	269	10.25%

Call Type	2019	2020	2021	2022	2023	Total	Total %
Other Response	57	52	53	79	66	307	4.09%
Assistance not required by other agencies	4	1	4	9	3	21	6.84%
Assistance to other agencies	7	9	6	13	11	46	14.98%
Assistance to Police	13	10	15	16	17	71	23.13%
Assisting other Fire Department (Automatic Aid)	0	0	0	0	0	0	0.00%
Assisting other Fire Department (Fire Protection Agreement)	0	0	0	0	0	0	0.00%
Assisting other Fire Department (Mutual Aid)	0	1	1	0	0	2	0.65%
Assisting other Fire Department (Other)	1	0	0	0	1	2	0.65%
Cancelled on Route	8	2	6	19	16	51	16.61%
Illegal Grow Operation (no fire)	0	0	0	2	0	2	0.65%
Incident Not Found	6	5	3	5	4	23	7.49%
Other Public Service	10	13	8	10	9	50	16.29%
Other Response	8	11	10	5	5	39	12.70%
Overpressure Rupture/explosion (no fire)	1	2	2	0	0	5	0.07%
Overpressure Rupture- Gas pipe (no fire)	0	1	0	0	0	1	20.00%
Overpressure Rupture (no fire- steam boilers, hot water)	1	1	2	0	0	4	80.00%

Call Type	2019	2020	2021	2022	2023	Total	Total %
Pre-Fire Conditions (no fire)	57	53	54	50	69	283	3.77%
Fireworks (no fire)	0	4	0	1	10	15	5.30%
Lightning (no fire)	0	0	0	1	0	1	0.35%
Other (cooking, toasting, smoke, steam)	16	10	11	20	18	75	26.50%
Other pre fire conditions (no fire)	18	21	17	12	15	83	29.33%
Overheat (no fire-mechanical devices)	14	8	13	11	16	62	21.91%
Pot on Stove	9	10	13	5	10	47	16.61%
Public Hazard	67	78	73	77	57	352	4.69%
Bomb, Explosive removal Standby	0	0	3	1	0	4	1.14%
CO incident, CO present	5	11	7	16	5	44	12.50%
Gas Leak - Miscellaneous	2	1	2	2	2	9	2.56%
Gas Leak - Natural Gas	22	16	21	15	20	94	26.70%
Gas Leak - Propane	5	2	1	5	1	14	3.98%
Gas Leak - Refrigeration	1	0	2	0	0	3	0.85%
Other Public Hazard	3	8	1	11	4	27	7.67%
Power Lines Down, Arcing	12	13	12	8	7	52	14.77%
Public Hazard call false alarm	6	14	10	5	9	44	12.50%
Public Hazard no action required	4	3	8	1	5	21	5.97%
Ruptured Water, Steam Pipe	1	1	2	4	0	8	2.27%
Spill- Gasoline or Fuel	4	7	2	5	4	22	6.25%
Spill - Miscellaneous	1	2	2	3	0	8	2.27%
Spill - Toxic Chemical	1	0	0	0	0	1	0.28%
Suspicious Substance	0	0	0	1	0	1	0.28%

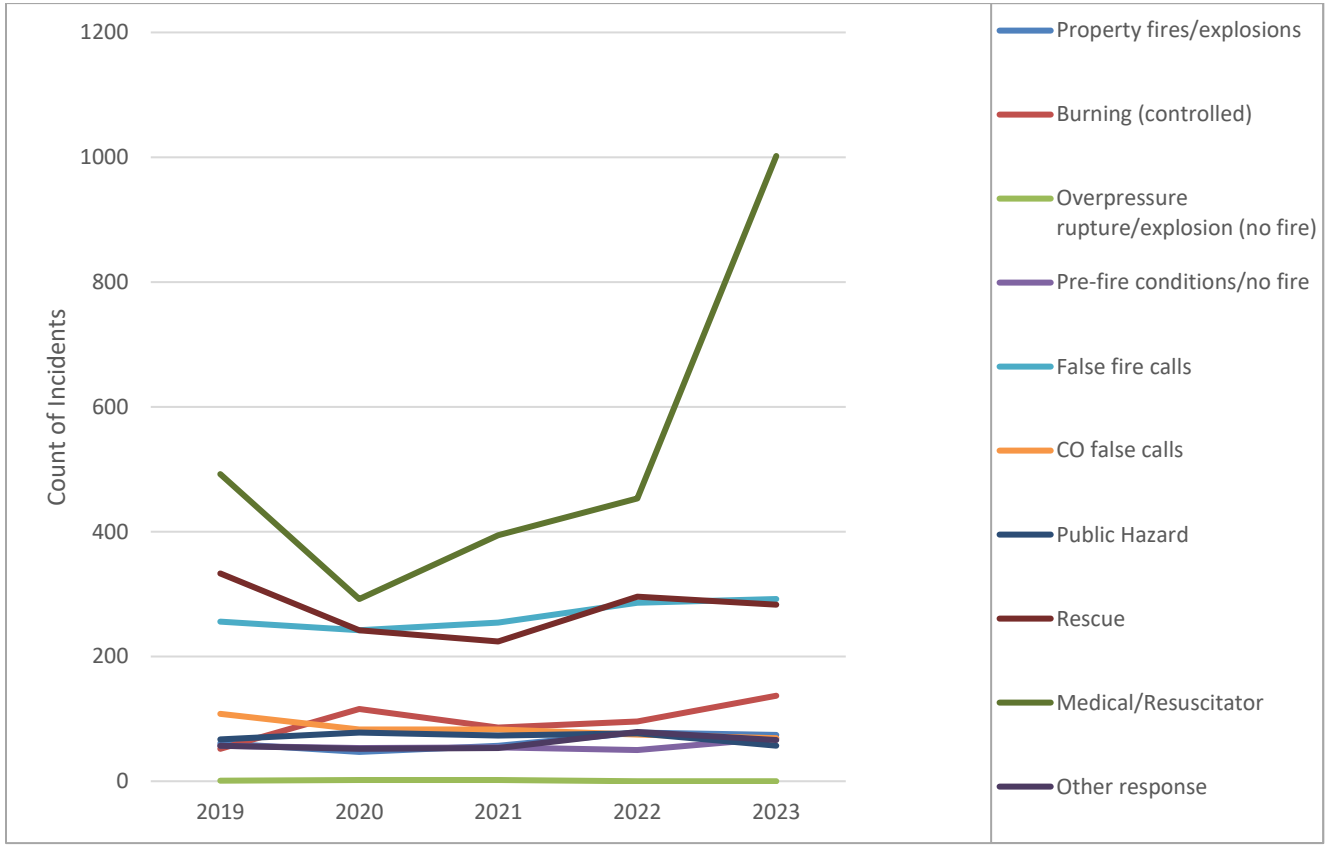
Call Type	2019	2020	2021	2022	2023	Total	Total %
Rescue	332	244	224	295	283	1378	18.35%
Animal Rescue	0	1	0	0	1	2	0.15%
Building Collapse	0	0	0	0	0	0	0.00%
Commercial Industrial Accident	1	1	1	0	0	3	0.22%
Confined Space Rescue (non-fire)	0	2	0	0	0	2	0.15%
High Angle Rescue	0	0	1	0	0	1	0.07%
Home/Residential Accident	0	2	1	3	2	8	0.58%
Low Angle Rescue	0	0	0	0	0	0	0.00%
Other Rescue	5	6	3	5	9	28	2.03%
Persons Trapped in Elevator	9	5	5	9	13	41	2.98%
Rescue False Alarm	1	0	1	2	1	5	0.36%
Rescue No Action Required	3	6	2	3	3	17	1.23%
Vehicle Collision	306	212	200	259	249	1226	88.97%
Vehicle Extrication	5	8	10	13	5	41	2.98%
Water Ice Rescue	1	1	0	0	0	2	0.15%
Water Rescue	1	0	0	1	0	2	0.15%

The following observations regarding unique incident types within Woodstock were noted:

- Medical incidents accounted for 35.06% of all incidents overall. These have been steadily increasing since the COVID pandemic low and more than doubled in 2023 (1,002) over 2022 (453). This represents 49% of all 2023 incidents.
- The next two highest incident groupings are Rescue incidents (18.35%) and False Fire Calls incidents (17.71%). Motor vehicle collisions represent 89% (1226) of all rescue incidents.
- Fire incidents account for only 4.22% (312) and include structure, vehicle, and no-loss fires.

Figure 9 illustrates the general trends seen in the broad categories of unique incidents occurring in Woodstock during this period. This analysis is intended to draw attention to the incident categories that are changing rapidly. A positive trend (increasing) may forecast a future need for additional resources to respond to these incidents or new mitigation strategies to address this type of community risk. A negative trend (decreasing) may indicate successful mitigation efforts or a decreasing risk resulting from other changes in the community risk profile.

Figure 9: Unique Incidents by Incident Type (2019 to 2023)



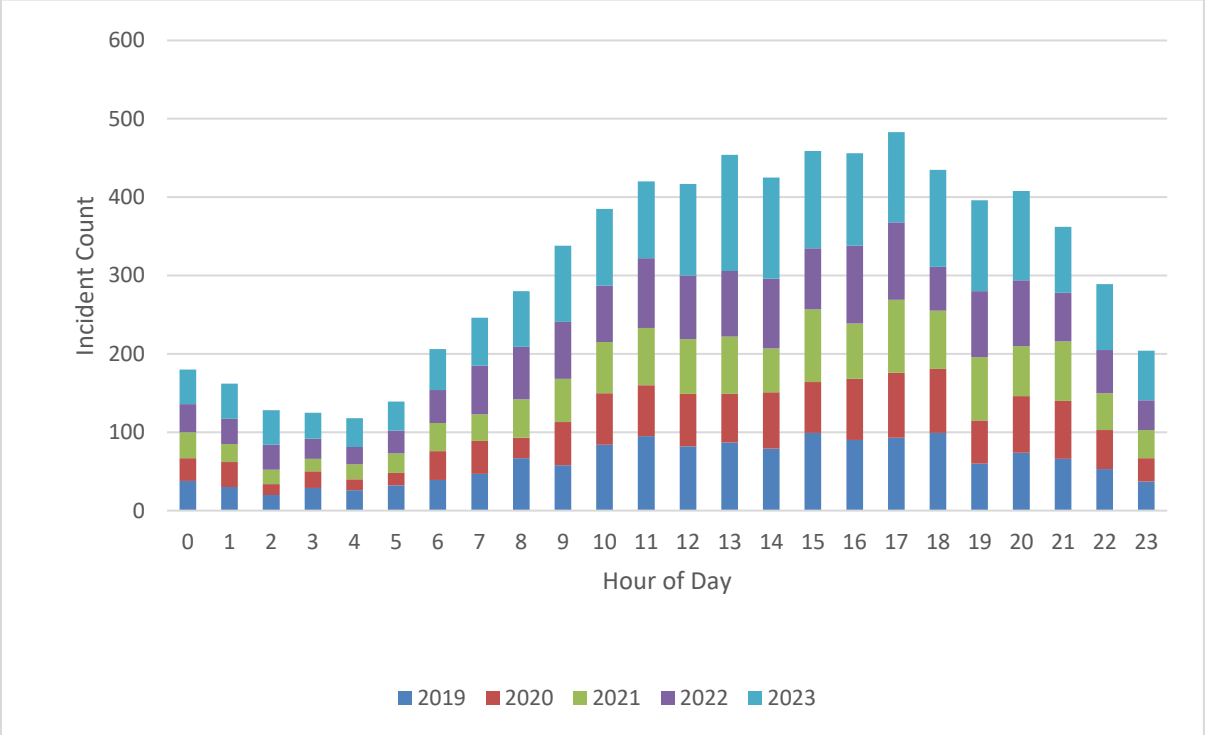
The following general trends regarding dispatched event types within Woodstock were noted:

- Most incident types experienced a low positive trend year over year.
- Controlled burning is indicating a rise in 2023.
- Medical incidents saw a significant decrease in 2020-2021 but rebounded to similar pre-pandemic levels in 2022 and had a significant increase in 2023.

4.2.2 Incidents by Time of Day

The time incidents occur is useful in identifying periods of peak and lower demand for services. Typically, demand for emergency services is lowest in the early hours of the morning. The horizontal axis in Figure 10 begins with 0 hours (12 a.m. – 1 a.m.) and ends at 23 hours (11 p.m. to 12 p.m.).

Figure 10: 2019-2023 Incidents by Time of Day



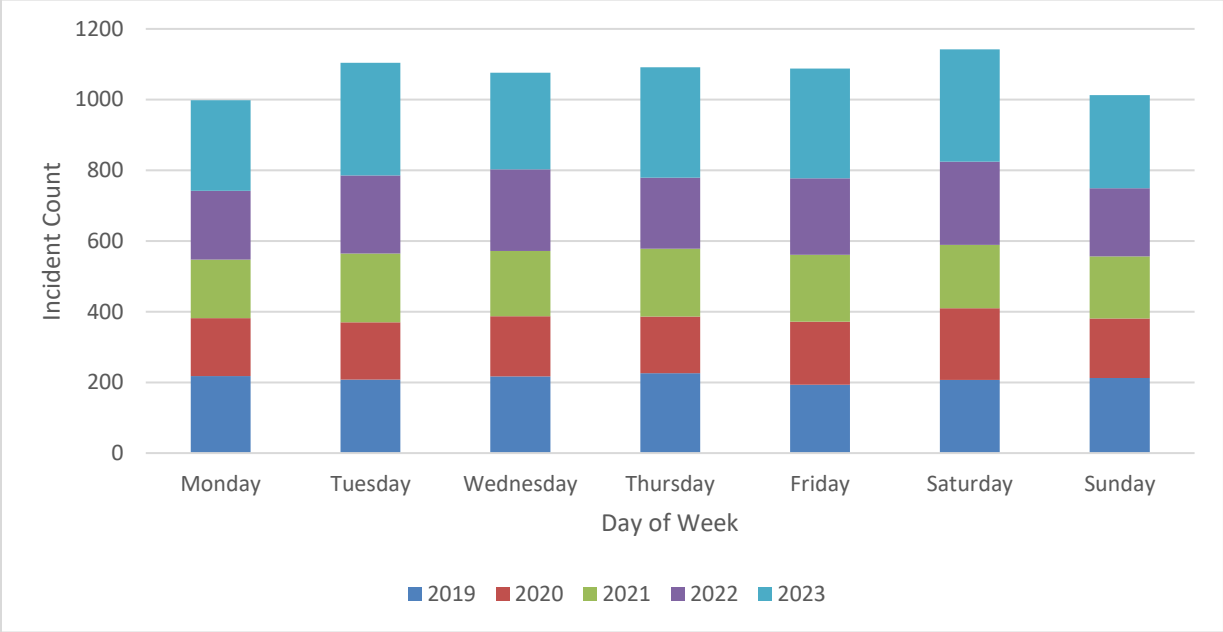
The following observations regarding the time incidents occurred were noted:

- Most incidents occur during the daytime hours when people are most active and when traffic flow is highest.
- Incidents began to increase around 5 a.m. and peaked around 5 p.m. and begins to decline through the evening and early morning hours.
- The number of incidents plateaued between 1 p.m. and 5 p.m.

4.2.3 Incidents by Day of the Week

Analyzing the frequency of incidents on different days can reveal patterns that may indicate periods of increased demand or potential strain on the Woodstock Fire Department (WFD). Figure 11 presents the incident data from 2019 to 2023.

Figure 11: 2019-2023 Incidents by Day of the Week



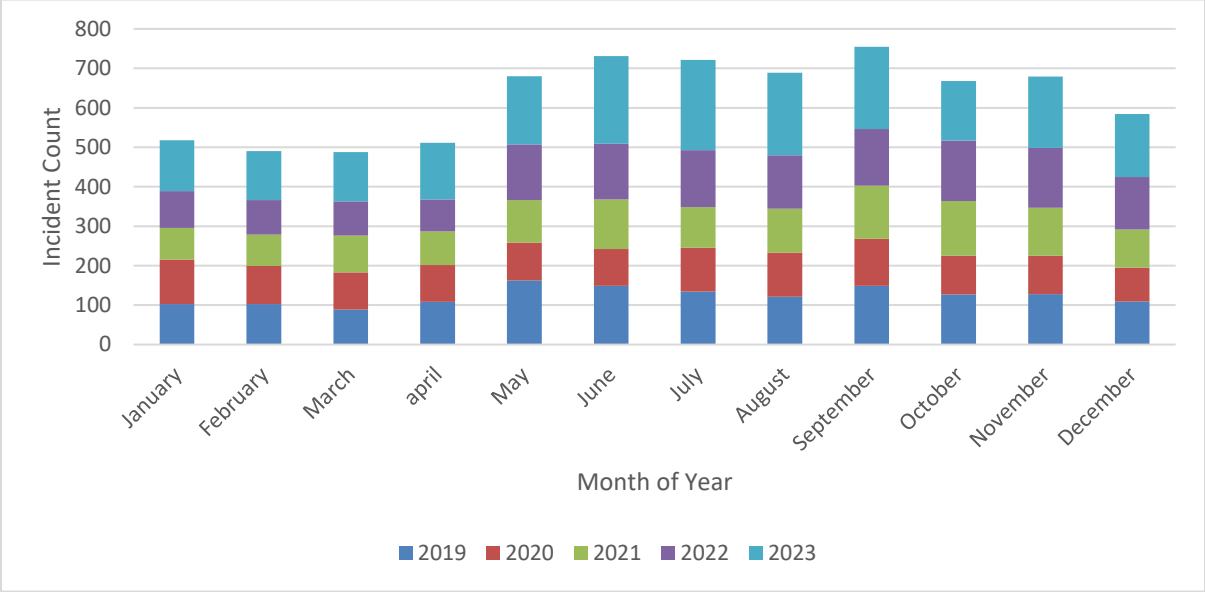
The following observations were noted in service demands for different days of the week:

- Incidents are relatively equal from Tuesday through Saturday
- The fewest incidents occurred on Mondays, and the most occurred on Saturdays.

4.2.4 Incidents by Month of the Year

Understanding which months see higher or lower incident volumes can help the WFD optimize resource allocation and preparedness. Figure 12 presents the incident data from 2019 to 2023.

Figure 12: 2019-2023 Incidents by Month of the Year



The following observations were noted in service demands for different months of the year:

- Incidents increase through the late spring and summer months (May through September)
- February and March have the least number of calls, while the highest numbers occur in September, followed closely by June and July. This trend is consistent with seasonal/vacation travel in the summer months.

4.3 Response Performance

The following sections provide an analysis of the response performance of WFD. The response performance goals applied in the analysis are identified in the NFPA 1710 standard. Five years of consistent response data provided by WFD were analyzed, covering all incidents from January 2019 to December 2023. Incident data is aggregated into broader categories and more specific incident categories. For example, all types of fire incidents, including structural, vehicle, and non-structural/garbage fires, are combined into a single category. This differentiation is made to provide varying levels of information, as stakeholder reporting, and information needs vary depending on their level of interest in WFD activities.

4.3.1 Intervention Time

Total intervention time is the elapsed time between the incident occurring and when incident management begins. This includes the discovery of the incident and the initiation of the emergency response system, typically by calling 911. From a community perspective, this time segment can be partially managed by implementing cyclical life-safety system inspections and promoting residential fire alarms and sprinkler systems.

Once the 911 call is made, the emergency response system is engaged to manage the incident and minimize its impact. Simplified, the system is composed of an emergency dispatching center and the first responding agency. Although many of the requests for service may not require urgent intervention, when it does, the main purpose of this system is to respond and manage the incident as quickly and safely as possible. As a result, the time taken to gather relevant caller and incident information (alarm processing time), notify first responders, prepare them for response (assembly time), and drive to the incident (travel time) are all critical elements of an effective response. These time segments are the focus of this section and are key indicators of total response time performance.

Total response time is the best indicator of how the entire system is functioning. It also reflects the experience of the person making the 911 call. System performance can be managed and improved by implementing best practices and supporting technologies. As a result, total response time performance should be monitored and reported to the authority having jurisdiction (AHJ) regularly. The causes of significant changes in response time performance should be identified and discussed with the AHJ.

Incident management time is variable and depends on the type of incident and the resources required to manage it safely. Fire department resource availability is determined by the concentration (how many and what types of resources there are in one station) and distribution (where those resources are located relative to the incident) of fire department equipment and firefighters. Resource requirements are based on community risks. An adequately resourced response system should provide an effective response force (ERF) to safely manage commonly known risks as effectively and efficiently as possible.

Figure 13 provides an overview of the incident intervention timeline from NFPA 1710. The definitions and descriptions of the actions taken in each time segment are provided below.

Figure 13: Incident Intervention Continuum

Notification	**Intervention Time**				
Incident Discovery and 911 Call	Alarm Answering	Alarm Processing	Assembly / Chute Time	Travel Time	Set-up
Time unknown (Time varies with every incident)	15 seconds	64 Seconds	80 Seconds Fire 60 seconds medical	240 Seconds	May vary by event
Time indirectly manageable	*Time directly manageable*				
← ***Time Values*** →					

Discovery: The time between the start of the emergency incident and when a person or an engineered system detects the incident.

Emergency 911 Call: The time taken to dial 911 and notify the 911 call center of the need for emergency services.

Alarm Answering: This time segment begins when the 911 call is dialed and ends when the call is answered by the 911 call center.

Alarm Processing: This time segment begins when the 911 call is answered and ends with the notification of firefighters. It is the time taken to extract the necessary information from the 911 caller to allow the proper response to be initiated.

Assembly Time: This time segment begins when dispatch notifies the firefighters and ends when the vehicle leaves the station for response. Time is required for firefighters to dress in proper personal protective equipment (PPE) and safely egress the station.

Travel Time: This time segment begins when an apparatus leaves the station or otherwise begins the response to the scene of the emergency and ends when the assigned vehicle arrives on scene and is a function of distance and the speed traveled.

Total Response Time (Common Definition): This time segment begins when the 911 call is answered and ends when the first apparatus capable of commencing incident management arrives.

Total Response Time (NFPA 1710 Definition): This time segment begins when the 911 call is answered and ends when the first apparatus capable of commencing incident management arrives and initiates action to control the incident. Identified as Intervention Time in Figure 13.

Setup Time: The time it takes (on-site) to evaluate the necessary actions, position the required resources, and commence the intervention. In the case of a fire, completing size-up, assigning the necessary tasks, and deploying resources can provide delays on the scene. A well-trained crew can minimize these delays while providing a safe, successful response.

4.3.2 NFPA 1710 Performance Standards

NFPA 1710 standards apply to career-staffed fire stations. Table 31 identifies the response goals in this standard. Time standards are identified for alarm answering, alarm processing times, assembly (or chute) time, and travel time. NFPA 1710 also includes several additional standards for fire, rescue, and EMS operations, indicating the number of firefighters required to safely manage different types of fire and rescue incidents. This standard also provides a platform for developing response plans for higher hazard fires.

It is noteworthy to mention that the first arriving and full alarm total response times are inferred. NFPA 1710 does not specifically identify a response standard for the first arriving fire apparatus and the full alarm assignment. However, it is common practice to add the percentile performance times for alarm handling, assembly, and travel times to infer the first arriving response goal of 6 minutes and 39 seconds, 90% of the time. Similarly, 10 minutes and 39 seconds, 90% of the time, is the inferred time standard for the assembly of the full alarm assignment.

Table 31: NFPA 1710 Performance Standards

Time Segment	NFPA 1710 Standards
Alarm processing	64 sec/90th Percentile
Assembly	80 sec/90th Percentile
Travel (first arriving)	240 sec/90th Percentile
Travel (full alarm)	480 sec/90th Percentile
First arriving engine with 4 firefighters	384 sec/90th Percentile*
Full alarm assignment with 16 firefighters	624 sec/90th Percentile*

**Inferred standard.*

These aggressive timelines intend to minimize intervention time. Intervention time is defined as the time between the fire department receiving notification of an emergency and commencing assistance at the scene of the emergency. It is the best reflection of the elapsed time from identifying an emergency to having the fire department arrive and engage in managing the incident. Increased intervention time can have the following important impacts on a property owner:

- Decreased survivability for trapped victims
- Increased loss in the event of an emergency
- Building design restrictions
- Higher property insurance premiums
- Economic impacts

There are two elements of total intervention time for career models that should be assessed. The first is the initial response time taken for the initial arrival of an apparatus capable of initiating an intervention. The second is the time taken to assemble the full alarm assignment. The time taken to assemble a full alarm assignment reflects a fire department's total capacity and responsiveness. A full alarm assignment is comprised of the appropriate fire apparatus and number of firefighters, or an ERF, to safely manage the incident. Response performance and the ability to assemble an ERF are assessed in the following section.

4.4 Emergency Response Performance Analysis

The time segments identified in Section 4.3.1 are recorded by the dispatching service, capturing individual response timestamps throughout an incident. The timestamps are recorded by the dispatching agency and used to compile a complete history for all responding emergency vehicles to every incident.

Examples of typical incident timestamps include:

- Incident begins
- Station or firefighter notification
- Apparatus responding
- Apparatus arrived
- Loss stopped
- Leaving scene
- Returned to station

The response performance analysis for WFD focuses on emergency responses from 2019 to 2023. The timestamps are used to calculate alarm processing time, assembly time, travel time, and total response time. Emergency response performance information can be used by the fire chief and senior administration for several purposes, including but not limited to:

- Monitoring response efficiency and effectiveness
- Reporting response performance to the community and elected officials
- Evaluating effectiveness and compliance with national and provincial codes
- Evaluating effectiveness and compliance with council policies and local bylaws
- Identifying possible improvement strategies
- Developing or modifying service level standards
- Planning for future resource needs (operational and capital)

Historically, fire departments typically reported their average performance. Average performance can be misleading as it is only achieved approximately 50% of the time but can be skewed in small data sets with large outliers. Contemporary fire and emergency services report 80th or 90th percentile performance times to provide a more precise representation of response reliability depending on whether they are a volunteer or career fire department.

Emergency response time analyses typically begin with the timestamp identifying the point at which the 911 call is answered by the primary service answering point (PSAP). Woodstock Police Department is the PSAP and functions as the WFD dispatch provider. All requests for service provided by WFD are dispatched by the communications team within the Woodstock Police Department (WFD) dispatch center. The 911 call time captured by the PSAP was not included in the available data. As a result, all the emergency response time segments in this analysis begin with the timestamp identifying when the alarm processing was started by the WPD dispatch center.

4.4.1 Alarm Handling

Alarm handling time is typically the cumulative time taken for alarm answering and alarm processing in the dispatching process. The initial timestamp available for identifying the alarm answering time in the PSAP was not available. Therefore, only alarm processing was analyzed. Alarm processing time begins when the alarm is answered, and call evaluation begins, ending when the fire department is dispatched.

NFPA 1710 states that alarm answering shall be completed within 15 seconds and alarm processing within 64 seconds, both 90% of the time for the highest priority events where significant property loss or imminent threat to life exists. Alarm handling performance is somewhat manageable by implementing best practice processes, supporting technologies, and continuous improvement programs. This benchmark should be monitored to ensure alarm handling is as efficient as possible to achieve optimal total response time performance. However, non-emergency requests for service, identifying rural addressing and remote locations, and callers requiring language translation, TTY, or Text-To-911 services may delay the interrogation time required to gather the appropriate information for first responders. NFPA allows for additional time and sets a 90-second target for these situations. No data was available to identify these scenarios as part of the analysis.

The following Table 32: Alarm Processing Times (90th percentile), provides a summary of alarm processing times including analysis at the 90th percentiles and compliance percentage to NFPA for both Fires/explosions and All Incidents.

Table 32: Alarm Processing Times (90th percentile)

Alarm Processing*	2019	2020		2021	2022	2023	5-Year
False Incidents	138	161		136	141	165	150
Fire / Explosion	139	170		165	178	189	158
Other Responses	174	202		189	182	177	186
Hazardous Materials Responses	160	190		202	202	189	187
Medical	131	150		145	124	115	131
Rescue	155	147		163	127	129	146
All Incidents (90th percentile)	146	174		159	144	143	152
NFPA 64 sec 90th compliance for fire /explosion calls	44%	43%		31%	29%	39%	37%
NFPA 64 sec 90th compliance for all incidents	51%	44%		45%	54%	55%	50%

The following observations regarding alarm processing performance were noted:

- The 90th percentile alarm processing time for Fires / Explosions was 158 seconds (2 mins, 38 seconds) over the five-year period, with the highest year being 2023 (189 seconds).
- The overall incident 90th percentile alarm processing time was 152 seconds (2 mins, 32 seconds) over the five-year period.

- 2023 saw the best performance at 143 seconds (2 mins, 23 seconds) for all incidents.
- Medical incidents were the fastest processed at 131 seconds (2 minutes, 11 seconds)
- The NFPA 1710 target of 64 seconds for Fires was met only 37% of the time.
- Across all incidents, alarm processing met the NFPA target time of 64 seconds only 50% of the time.

4.4.2 Assembly Time

Assembly time is measured from the point of fire department notification until the first responding fire/rescue apparatus has responded. For career staff, assembly time is typically much shorter as it is limited to moving toward the fire engine, putting on their bunker gear, and getting into the vehicle.

Assembly time performance should be monitored and reported to firefighting crews regularly. NFPA 1710 identifies a 90th percentile chute time standard of 80 seconds for career firefighters, which can be difficult to achieve. Attention to station design, activities within a station, and firefighter awareness can all help to improve performance and optimize response times.

Table 33 identifies 90th percentile assembly times for incident types. This analysis is for the first unit enroute to the incident only.

*Table 33: Assembly Performance by Incident Type (in seconds) **

Incident Type	2019	2020	2021	2022	2023	5-Year
False Incidents	185	168	187	208	186	180
Fire / Explosion	161	152	160	199	179	176
Other Responses	163	172	187	183	185	180
Hazardous Materials Responses	165	151	163	182	208	179
Medical	141	155	162	161	156	156
Rescue	162	159	166	177	162	167
All Incidents (90th percentile)	162	165	173	187	171	172
NFPA 1710 - 80 sec 90th compliance (excluding medical)	42%	34%	34%	23%	22%	31%
NFPA 1710 -60 sec 90th compliance for medicals	36%	27%	23%	21%	17%	23%

** Medical call turnout is measured at 60 seconds*

Due to the limitations of the data, the ability to calculate assembly time by station or by platoons is not available. The opportunity to understand individual platoon and station assembly time would allow the management team to monitor performance and understand where success is being achieved and areas where improvements could be made.

The following key observations regarding assembly time were noted:

- The 90th percentile assembly times are much higher than the recommended NFPA target of 80 seconds at 172 seconds (2 minutes, 52 seconds).
- The 90th percentile assembly times for medical calls are above the recommended NFPA target of 60 seconds at 156 seconds (2 minutes, 36 seconds).

Observation #21: The current assembly time at the 90th percentile achieved by WFD all platoons and stations combined is 172 seconds. The NFPA industry standard is 80 seconds for fire related incidents and 60 seconds for medical related incidents. This puts WFD at 1 minute, 32 seconds over the standard for fire related incidents, and 1 minute, 36 seconds l over for medical incidents.

Recommendation #21: Identify and implement opportunities to improve assembly time or investigate opportunities (such as new station designs, countdown clocks, etc.) to improve assembly time and implement regular monitoring and reporting of assembly time performance by station, shift, and incident category.

Suggested completion: 12-24 months

Cost: Cost are neutral to minimal and dependant on the opportunities considered

Strategic Objective: #4 Emergency Response

Rationale: *The principle of total response time is to arrive as quickly as possible from the time the phone is picked up to the time the first in unit is on scene. Opportunities to make improvements at each category, in this case, assembly times, will improve overall response performance and increase public safety. The City of Woodstock must make improvements to lower assembly times closer to the industry standard of 80 seconds. This includes the opportunities to implement call specific/ station specific response rules, indicating that when the station tones are activated the station will be responding and the crew immediate makes their way to the truck for response (versus waiting to understand what station will be assigned to the incident). This will save precious seconds and allow for greater improvements.*

Further, collecting data by each station and each platoon will allow management to monitor performance and further understand where the pressure points are.

4.4.3 Travel Time Performance

Travel time is measured from the point a fire/rescue apparatus leaves the fire station until it arrives at the incident address/location. Travel time is a function of the incident's distance from the fire station and the speed traveled to the incident. It can be managed to a certain extent in larger municipalities with multiple demand zones and stations. These larger departments can distribute fire resources in the most optimal response locations in the demand zones.

Travel time should be monitored over time to assess whether additional resources are required in different locations to maintain desired service levels. NFPA 1710 identifies a first-arriving travel time performance goal of 240 seconds, 90% of the time, for career fire stations. This standard is most frequently applied to urban and suburban developments. In low-density urban and suburban developments, primarily large lot single residential properties, this travel time performance can be challenging to achieve. WFD's travel time performance mirrors NFPA 1710. To conduct a travel time analysis, travel time was collected for the first arriving unit that was not a command vehicle and compared across incidents.

Table 34: Travel Performance by incident type (in seconds)

Incident Type	2019	2020	2021	2022	2023	**5-Year**
False Incidents	382	367	357	347	337	359
Fire / Explosion	374	310	316	350	325	348
Medical	334	338	299	304	312	317
Other Responses	408	407	407	371	406	399
Hazardous Materials	325	340	483	371	380	384
Rescue	385	355	318	394	321	357
All Incident Types	373	367	353	349	335	356
Percentage met NFPA 1710 - 240 seconds	64%	66%	67%	70%	69%	68%

WFD met the 4-minute travel time over the 5 years 68% of the time. Trending shows that the overall travel time is decreasing year over year. This should continue to be monitored for increases which may be a result of increased demands. These increased demands may occur as growth occurs further out from the responding station, concurrent call load is increasing, requiring apparatus outside of the station zone to respond as the primary unit, or due to growth and corresponding traffic congestion, resulting in longer times to get to the incident.

The following observations regarding travel times were noted:

- Travel times have decreased each year over the past 5-years. 2023 has the lowest 90th percentile travel time for all incidents at 335 seconds (5 minutes 35 seconds).
- 68% of incidents have an apparatus arriving by the recommended 4-minute (240-second) mark.
- We are unable to track travel time by station due to the limitations in the data provided

4.4.4 Total Response Time

Total response time is measured from the point at which the 911 call is answered to the point at which the first arriving firefighting apparatus arrives. The NFPA 1710 standard implies a response time performance goal of 384 seconds (excluding alarm answering time) for the first arriving fire apparatus in urban areas (see Section 4.3.2).

Table 35 identifies the total response time for the incident categories. Total response time includes alarm processing, assembly, and travel time segments. Additionally, compliance with the implied NFPA 1710 (384 sec) standard was measured.

Table 35: 90th Percentile Response Performance (in seconds)

Incident Type	2019	2020	2021	2022	2023	5-Year	%
False Incidents	554	582	563	575	581	574	43%
Fire / Explosion	558	505	543	605	584	574	44%
Medical	489	554	503	490	496	501	56%
Other Responses	614	639	644	617	670	638	35%
Hazardous Materials	527	526	678	625	683	609	31%
Rescue	559	593	520	582	508	552	58%
All Incidents (90th percentile)	553	593	568	573	556	569	49%
NFPA 1710- 384 second compliance	53%	48%	47%	45%	50%	49%	

The following observations regarding WFD emergency response performance were noted:

- The total response time at the 90th percentile for the 5-years was 569 seconds (9 minutes, 29 seconds) and only achieved the NFPA target 49% of the time.
- Total response time performance remained relatively consistent through the 5-year period.
- Medical incidents make up the highest percentage (35%) of emergency incidents, with WFD meeting the 364-second target 56% of the time.

As a breakdown of total response time, a department should be exploring all categories that contribute to the total response numbers. Examining the breakdown, alarm handling and assembly time is currently not broken down by station and is measured department wide.

Examining crew movements and station layout may reveal slightly higher numbers. When examining the travel time, this is the largest discrepancy and could be related to the distance of calls from the station, traffic congestion experienced, and perhaps concurrent call loads requiring units outside the station area to respond to the incident.

Observation #22: Currently the WPD dispatch centre provides a pre-alert tone to each station, identifying an emergency response incident. Both stations will then await the actual message and for the on-duty Captain to determine which vehicle will respond to incident. This creates delays in firefighter assembly time and apparatus response to the incident. The 5-year (2019-2023) assembly time at the 90th percentile is 172 seconds (2 minutes 52 seconds)

Recommendation #22: Automate apparatus response notification, utilizing response rules, automatic station and apparatus selection based on incident type.

Suggested completion: 12-24 months

Cost: TBD, dependent on the costs of WPD to integrate into current dispatching system.

Strategic Objective: #4 Emergency Response

Rationale: *Establishing response rules, response areas and an automated station and apparatus section will allow for quicker notification to crews and automatically identify the station and apparatus required for the specific incident type. This will eliminate the need for the on-duty captain to wait for the end of the notification and then determine and notify the crews that are to respond.*

4.5 Response Coverage Mapping

This section provides mapping of the response coverage for the Woodstock Fire Department. The methodology used to calculate the theoretical travel time and area coverage was based on the following formula:

Response Time Goal – (90th Percentile Alarm Processing Time + 90th Percentile Assembly Time) = Theoretical Travel Time

For example:

384 seconds (6-minutes, 24 seconds) or 480 seconds (8-minute) - (90th percentile alarm processing time of 83 seconds + 90th percentile assembly time of 82 seconds) = theoretical travel time (in seconds)

The theoretical travel time and road network travel speed data were applied to generate the response area of each station in the geographic information system (GIS) mapping program. Table 36 shows the calculated travel time for the 90th percentile from all stations.

The calculated theoretical travel time using this approach is a conservative calculation. Use of the 90th percentile assembly times to calculate theoretical travel time and corresponding area coverage for the NFPA 384-second standard, as well as an alternative 8-minute response time goal, is highly reliable. Sometimes the 50th percentile times are used; however, the associated assembly times would only be achieved 50% of the time. In other words, the theoretical travel time and area coverage would only be achieved about 50% of the time. Whereas by using the 90th percentile times, the mapped area coverage is somewhat smaller but should be achieved 90% of the time and is, therefore, a more reliable representation of response area coverage within a given time. The limiting factor in this analysis is the occurrence of concurrent incidents where a fire apparatus has to travel from a neighboring station to respond.

Table 36: Theoretical Travel Time Calculation (in seconds)

Total Response time Goal (secs)	Theoretical Initial Response time goal (secs)	ERF Total Response time goal (secs)	Theoretical ERF Response Goal Travel Time
384	60	624	304
444	120	684	364
504	180	744	424
564	240	804	484

The following maps indicate incident density (heat map), current response performance, and options for consideration when developing response time performance. An incident heat map provides valuable insight into the historical occurrence of incidents, offering a visual representation of zones with higher demand for services. When combined with response coverage mapping, these maps help ensure that areas of highest demand are, whenever possible, situated closest to a fire station.

The following maps offer a comprehensive overview:

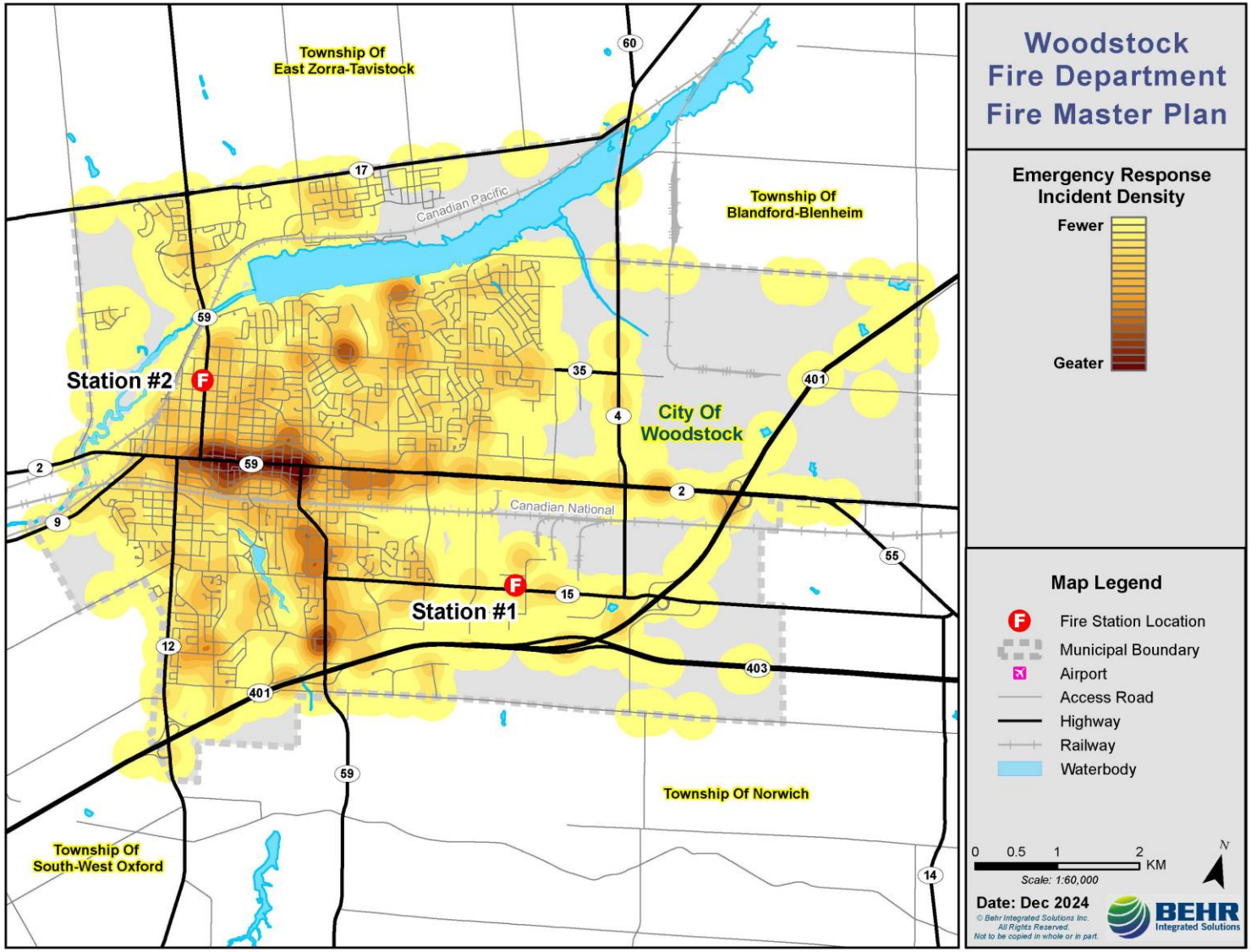
Map 2: Emergency Call Density Map – Visualizes the density of historical incidents.

Map 3: NFPA Response Coverage (60 seconds and 120 seconds travel time) – Shows coverage based on the NFPA's recommended total response time and the actual travel time to meet 384 second initial total response time. We have further added 444 second initial total response time.

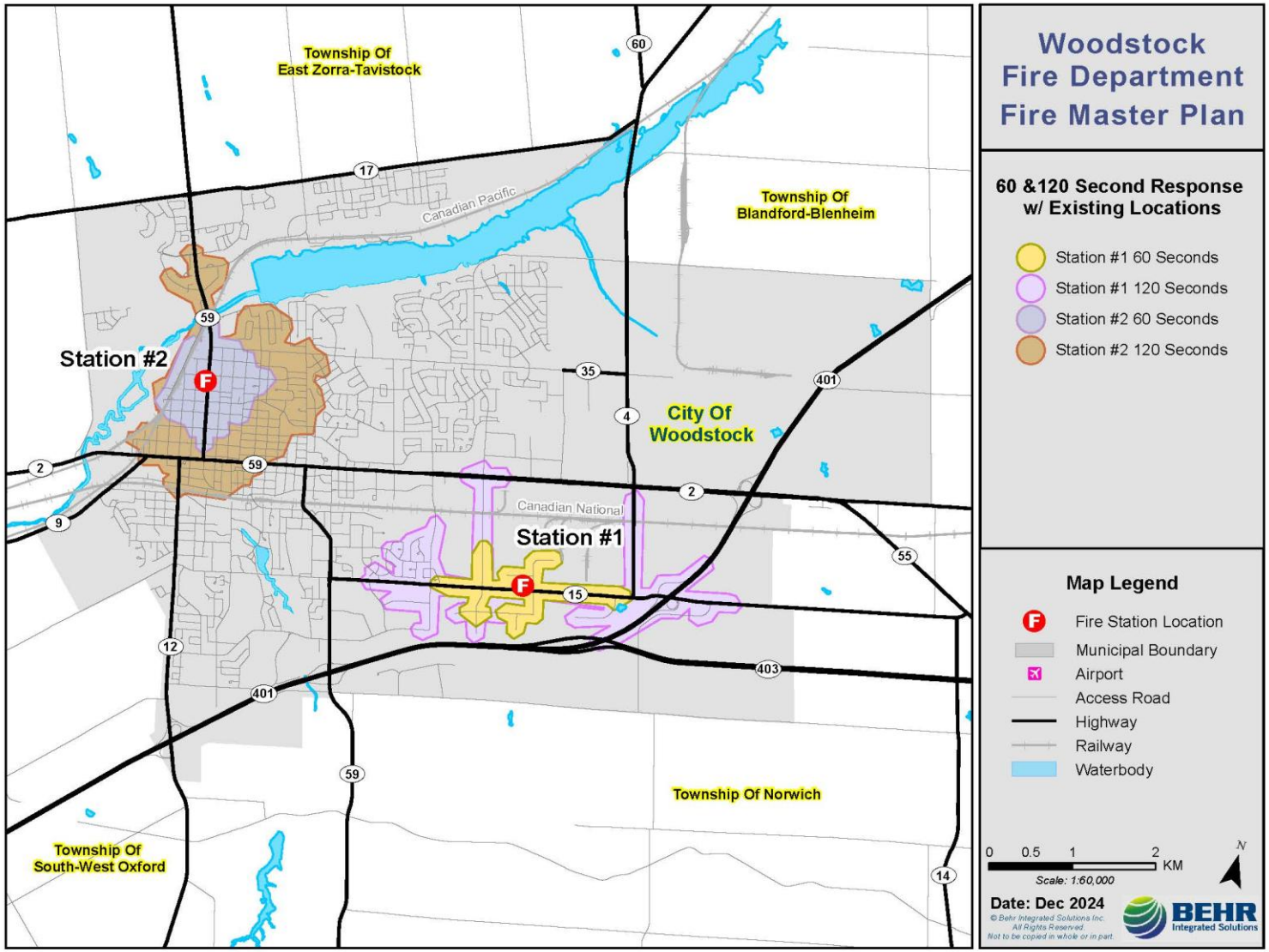
Map 4: 8-Minute Response Coverage (304 seconds second travel time) – Illustrates the actual ERF travel time coverage of (5 minute 4 seconds).

Map 5: 8-minute Response Coverage (364 seconds second travel time) – Illustrates the actual ERF travel time coverage of (6 minute 4 seconds).

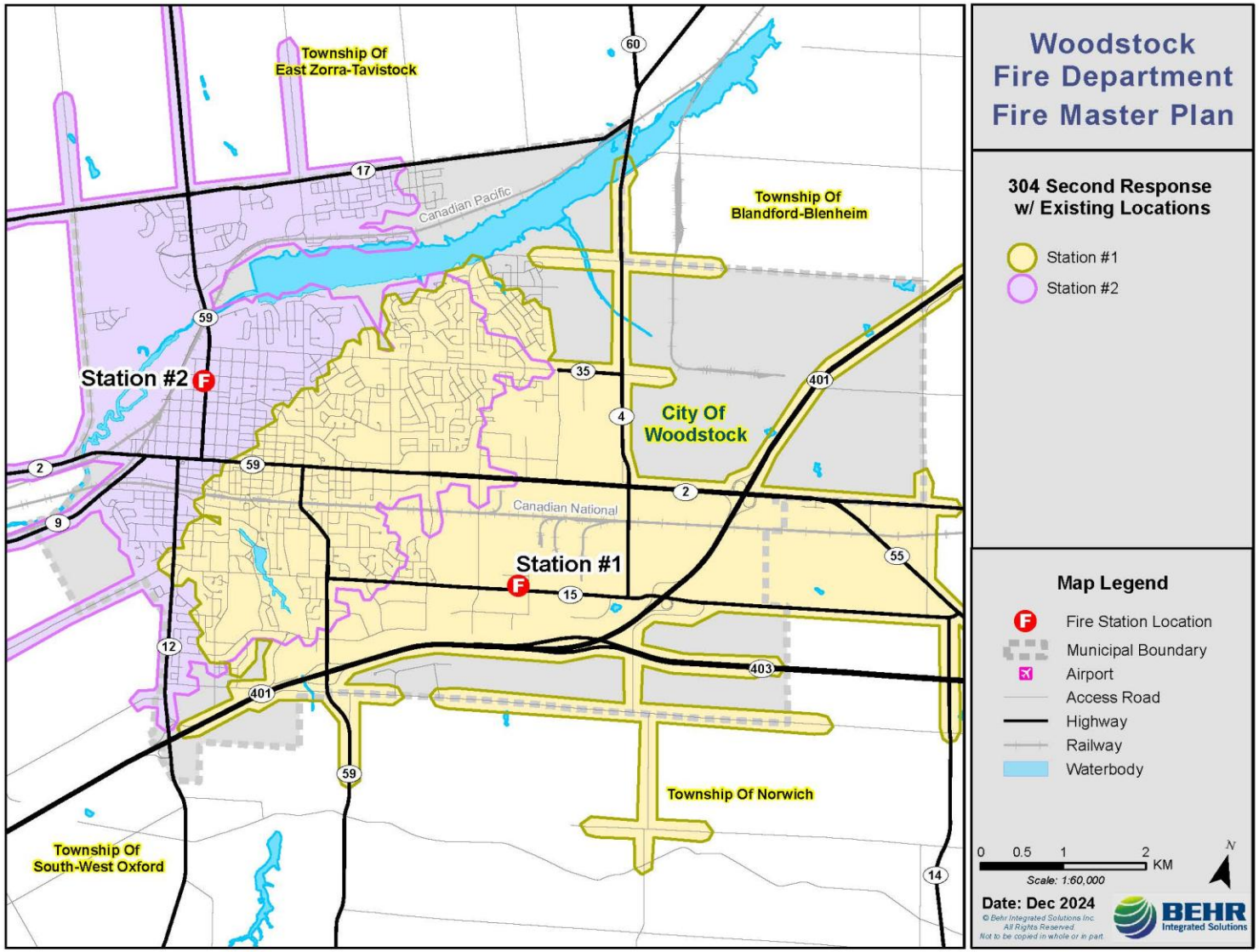
Map 2: Emergency Call Density Map



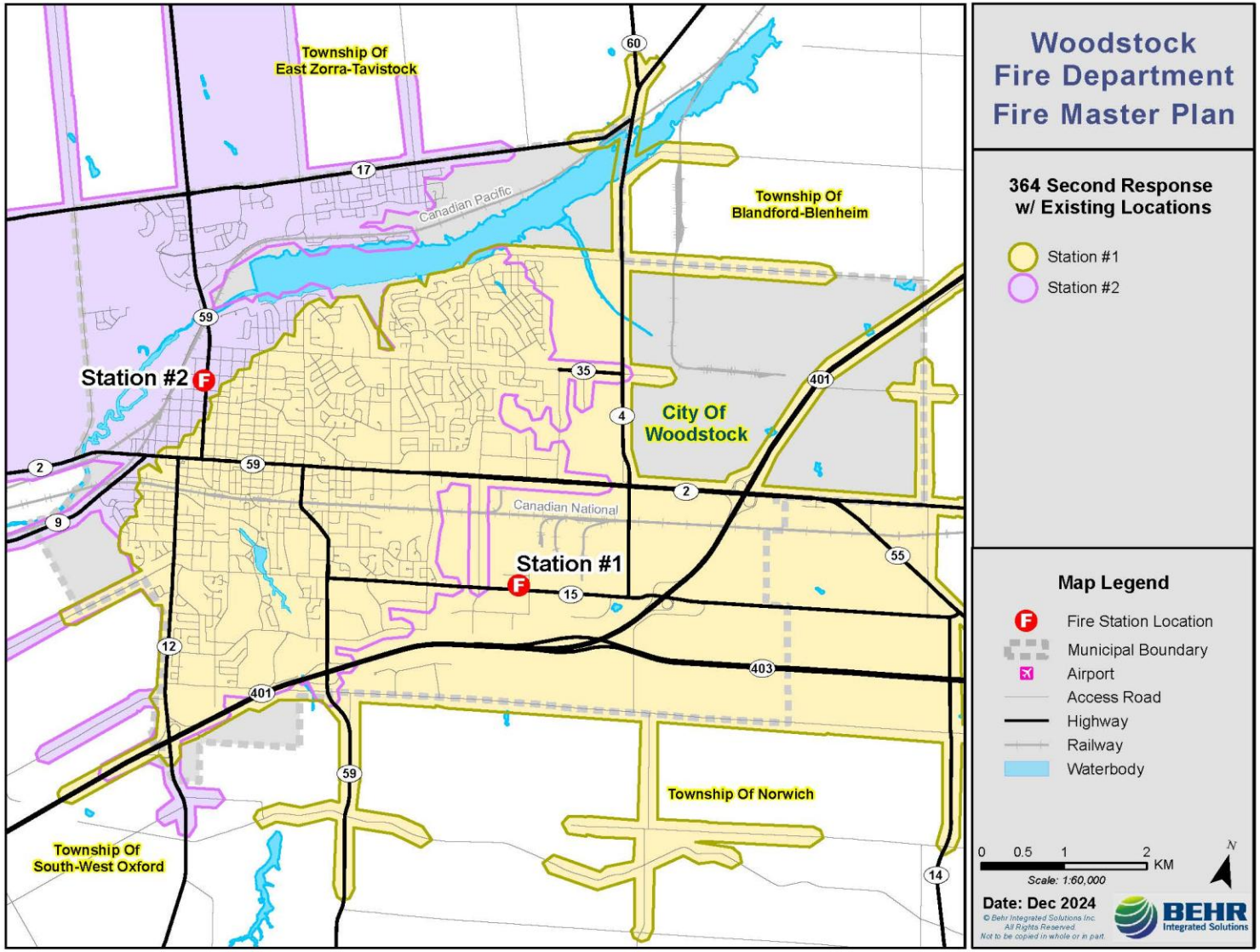
Map 3: NFPA Response Coverage Based Upon 60 Seconds and 120 Seconds Travel Time



Map 4: Response Coverage Based Upon 304 Seconds Travel Time



Map 5: Response Time Based On 364 Second Travel Time



The following maps illustrate the principles of NFPA 1710 recommend travel times at the 90th percentile. Improvements in call processing and assembly times, within the recommended NFPA standards, could enhance the overall response times and extend the response time achievements within each response zone.

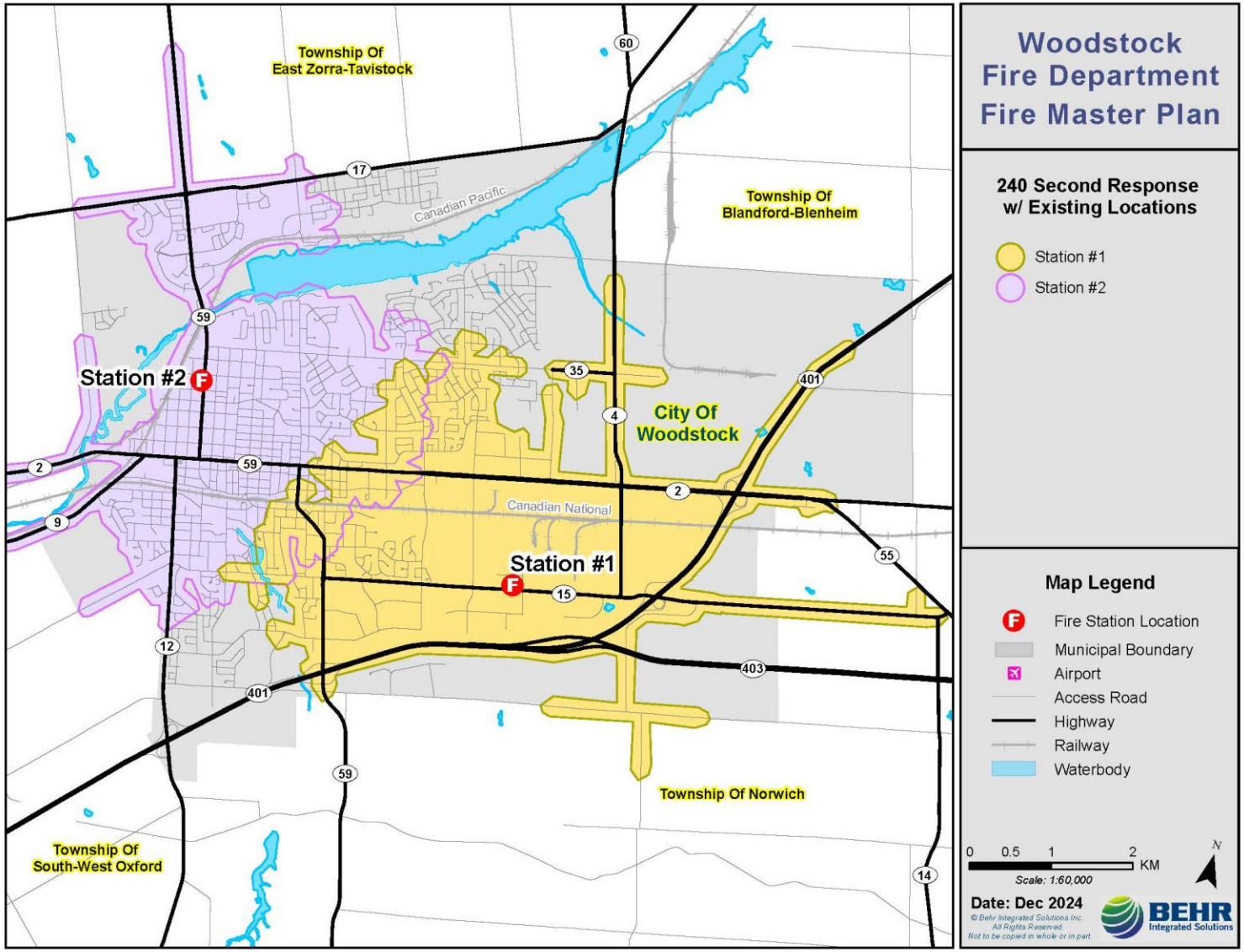
Map 6: 240-Second (4-Minute) Travel Time

Map 7: 300 -Second (5-Minute) Travel Time

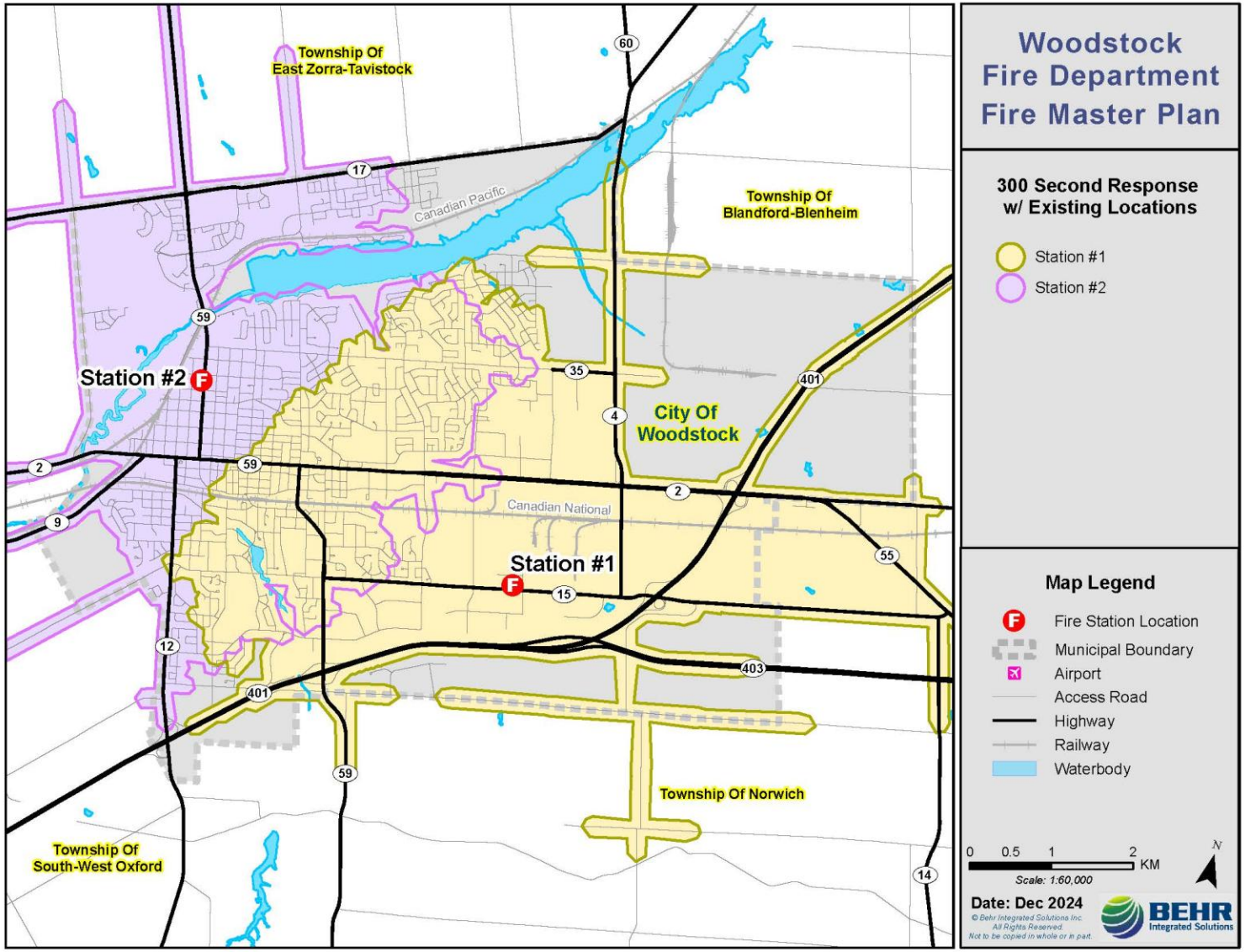
Map 8: 360-Second (6-Minute) Travel Time

Map 9: 480- Second (8-Minute) Travel Time

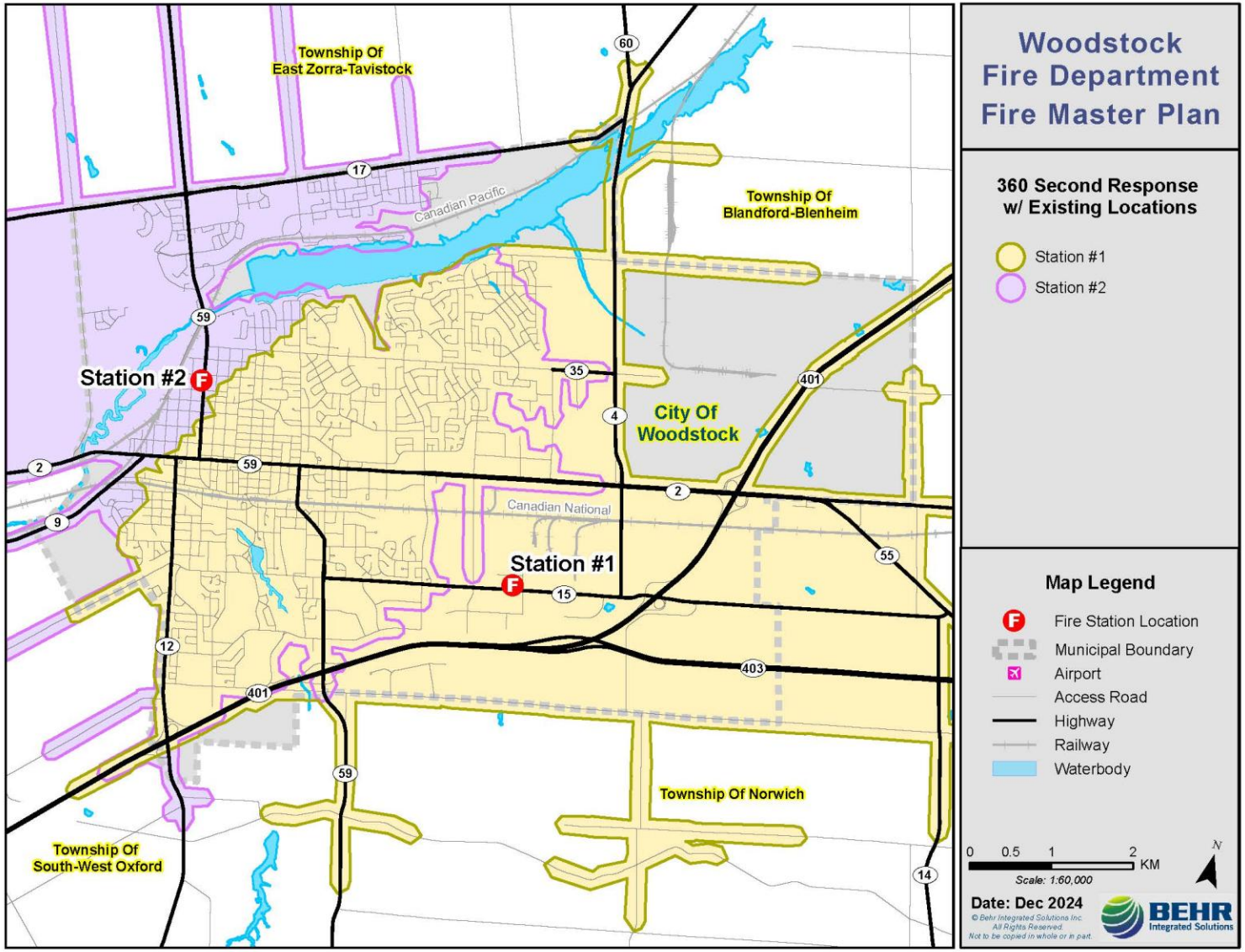
Map 6: 240-Second (4-Minute) Travel Time



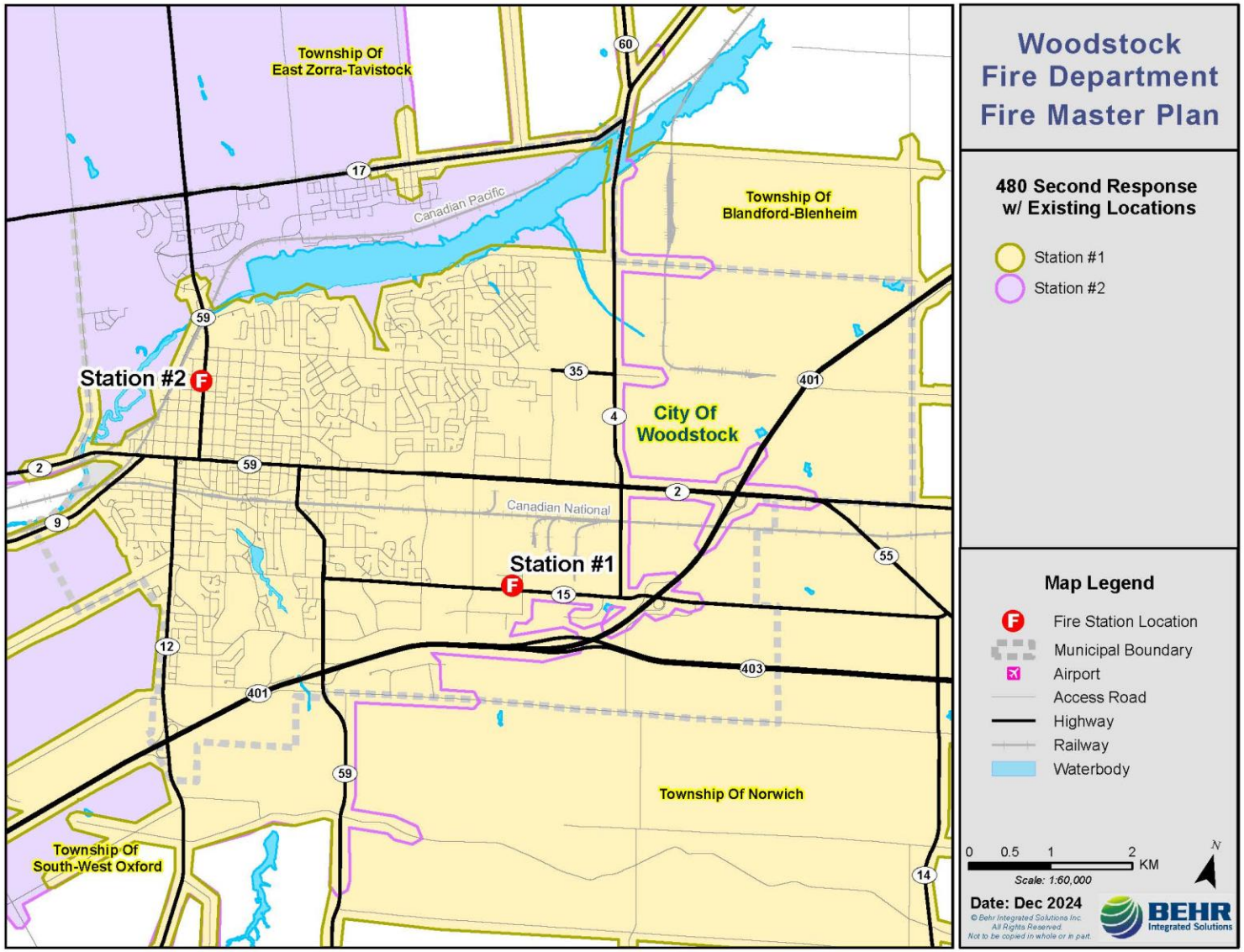
Map 7: 300 -Second (5-Minute) Travel Time



Map 8: 360-Second (6-Minute) Travel Time



Map 9: 480- Second (8-Minute) Travel Time



Observations on response coverage based on NFPA 1710 384 seconds (6-minutes, 24 seconds):

- Alarm processing and turnout time limit the WFD's ability to meet the 384 second total response time at the 90th percentile
- Improvements in the AP and TOT will provide greater coverage faster; however, in the 240 second and 300 second travel time mapping there are still pockets outside the response zone, including the northeast area and a small portion in the southwest.
- Current station positions can provide 360 second travel-time coverage to the majority of the city.
- Both stations are positioned to provide a 480-second (8 minutes) travel time related to response to ERF to all areas of the city, except the northwest area on the north side of the Thames River and in the east/southeast area of the city.

4.6 Effective Response Force

This section provides further explanation on the importance of assembling an effective response force (ERF) comprising adequate firefighters and equipment to manage emergency incidents safely and effectively.

ERF standards are based on fire response research completed by organizations such as NFPA and the National Institute of Standards and Technology (NIST). These standards are established to ensure adequate resources are available to complete critical tasks in a safe and timely manner. NIST research identified over 22 essential fire ground tasks at a typical single-family house fire. Ideally, NFPA 1710 suggests a minimum of 16 firefighters, or four companies of four firefighters, are required for a full alarm assignment (17 if an aerial device is used) for a standard residential house fire. These incidents represent the higher probability of all structure fires in the city.

The response time goal is to have an effective response force assembled on-scene within 624 seconds (10 minutes, 24 seconds – total response time). This represents a 480-second (8-minute) travel time. Map 9 above demonstrates the response coverage for each station within a 480-second travel time.

The following table summarizes the median number of firefighters that responded to different incident types.

Table 37: Median Number of Personnel on Scene by Incident Type

Incident Type	2019	2020	2021	2022	2023	5-Year
Burning Controlled	4	4	4	4	4	4
CO False Calls	4	4	4	4	4	4
False Fire Calls	9	10	10	10	10	10
Fire	9	10	8	7	6	8
Medical	4	4	4	4	4	4
Other Responses	4	4	4	4	4	4
Overpressure rupture/explosion (no fire)		9.5	4			6.5
Pre fire conditions/no fire	10	9	8	6	6	8
Public Hazard	4	6	6	4	4	4
Rescue	4	5	6	6	4	5

Observation of effective response force related to a 480 second (8-minute) travel time ERF response goal:

- The majority of the city is covered to be able to achieve two trucks on scene within the defined 8-minute travel time goal.
- There are pockets of areas in Station 1's eastern area and Station 2's north/western area that have difficulty achieving three trucks (10 staff) on scene within the 8-minute travel time.

4.7 Critical Task Analysis

A critical task analysis for common incident types illustrates the resources required to achieve tactical objectives based on resource availability. The rationale for completing a critical task analysis is to identify whether response policies and guidelines align with available resources. In other words, are enough firefighters typically responding to complete the critical tasks on emergency scenes in a safe and timely manner?

However, the optimal number of firefighters is not always available. Response policies and guidelines should identify critical task assignments and tactical objectives based on available resources. The optimal number of firefighters to manage larger and more complex incidents may not be dispatched initially due to the availability of firefighters. As a result, tactical objectives should be scaled to reflect these limitations. For example, an interior fire attack or rescue may not be possible with a single engine company and a limited water supply. Response policies or guidelines should also identify a contingency plan to call in off-duty firefighters or initiate mutual aid/automatic aid for larger or more complex incidents.

The following tables provide examples of critical task analyses that should be embedded in fire department standard operating guidelines or policies. The purpose of completing a critical task analysis is to establish the ERF response requirements and embed task assignments in standard operating guidelines. The examples provided are intended to illustrate leading practices with respect to the ERF required to safely manage commonly occurring emergency incidents. They are provided as a guide and are not intended to specifically represent WFD response capacity or apparatus.

Table 38: Low Risk: Small Fire (No Exposures): Garbage, Vehicle – Private, Grass, Investigate (External), Monitoring Alarm (W/O Confirmation), Medical

Low Risk Incident	
Command and Safety	1
Driver/ Pump Operator	1
Incident responders	2
Total Personnel	4

Table 39: Moderate Risk: Attached Garage, Single Family Residential (Detached/Duplex)

Moderate Risk Incident	
Command	1
Safety	1
Pump Operator	1
attack line/ search and rescue	6
Water supply	1
Rapid Intervention Crew	3
Ventilation/ Utilities	2
EMS	2
Total Personnel	17

Table 40: Moderate Risk: Motor Vehicle Crash (1-3 Private Vehicles)

MVC	
Command and Safety	1
Driver/ Pump Operator	1
Incident responders	5
Blocker vehicle driver	1
Total Personnel	8

Table 41: Moderate Risk: Technical Rescue

Technical Rescue	
Command	1
Safety	1
Rescue Sector Officer	1
Rescue specialists	7
support	3
EMS	2
Total Personnel	15

Table 42: High Risk: Commercial, Seniors' Home, Industrial, Strip Mall, Mid-Rise Residential

High Risk Incident	
Command	1
Safety	1
Pump Operator	1
Initial Attack Line	2
Back up line	2
Search and rescue	4
Water supply	1
Rapid Intervention Crew	4
Suppression Support	6
EMS	2
Ventilation/ Utilities	4
Total Personnel	28

Table 43: High Rise: High Rise Residential Greater Than 23m

High Rise Risk	
Command	1
Safety	1
Sector Officers	2
Driver/Pump Operator	1
Initial Attack Line	3
Back up line	3
Search and rescue	4
Lobby Control	1
Floor Control	1
Elevator Control	1
Staging Officer	1
Water supply	2
Secondary water supply	2
Evacuation	4
Logistics	1
Rapid Intervention Crew	4
Suppression Support	5
Ventilation/ Utilities	4
EMS	2
Total Personnel	43

Observation #23: WFD standard operating guidelines do not identify the number of firefighters and resources required to complete tactical or critical tasks. Critical task analyses will clarify incident resource requirements and identify the critical tasks to clarify firefighter tasks and manage an incident efficiently and safely.

Recommendation #23: Develop SOG's to provide direction to staff for completion of critical tasks, and the need to update existing mutual aid agreements for additional support when necessary to meet ERF requirements.

Suggested completion: 12-60 months

Cost: Cost neutral

Strategic Objective: #4 Emergency Response

Rationale: *Critical task analyses should be used to identify operational limitations in policy to clarify incident command objectives and maintain safe operations. As described above, low to medium incidents will often require more than 10 firefighters to complete concurrent critical tasks safely and minimize intervention time. The most common number of initial responders for WFD fire incidents is 8 (See* ***Error! Reference source not found.****). As a result, critical task analysis will i dentify incident types where tactical firefighting objectives may require modification and immediate call back or mutual aid requests can be automated.*

4.8 Optimizing Station location and Apparatus placement

4.8.1 Station Location

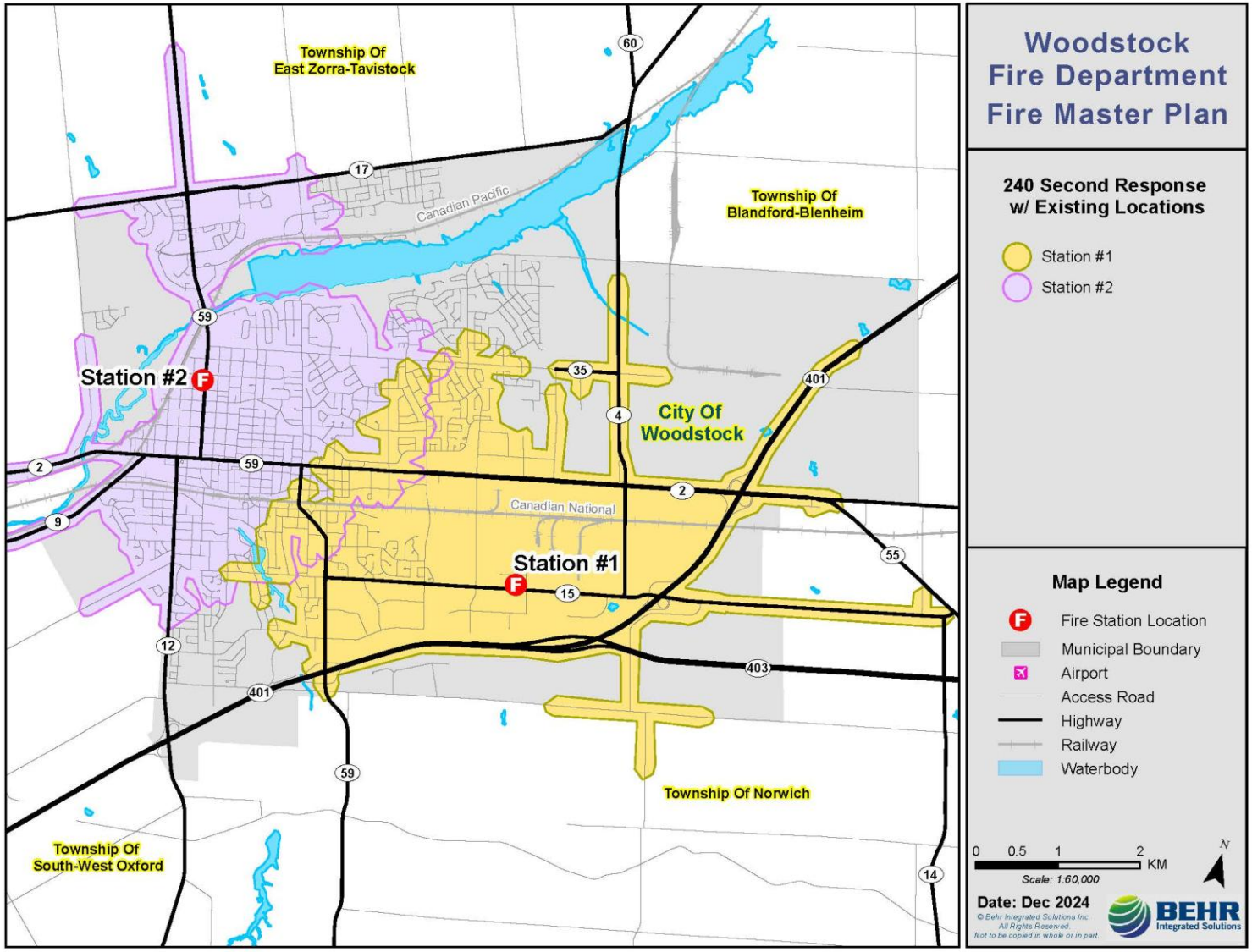
As the City of Woodstock continues to grow and expand, the WFD must explore opportunities to optimize station locations and response performance. The placement of fire stations to provide a quick response time of the first-in unit allows the city to provide a level of service that meets the principles of response standards. To provide ample coverage, the service must consider many factors, including:

- Future growth nodes – both horizontal and vertical
- Community risks and the areas where the risks are located
- Road networks and increased traffic congestion

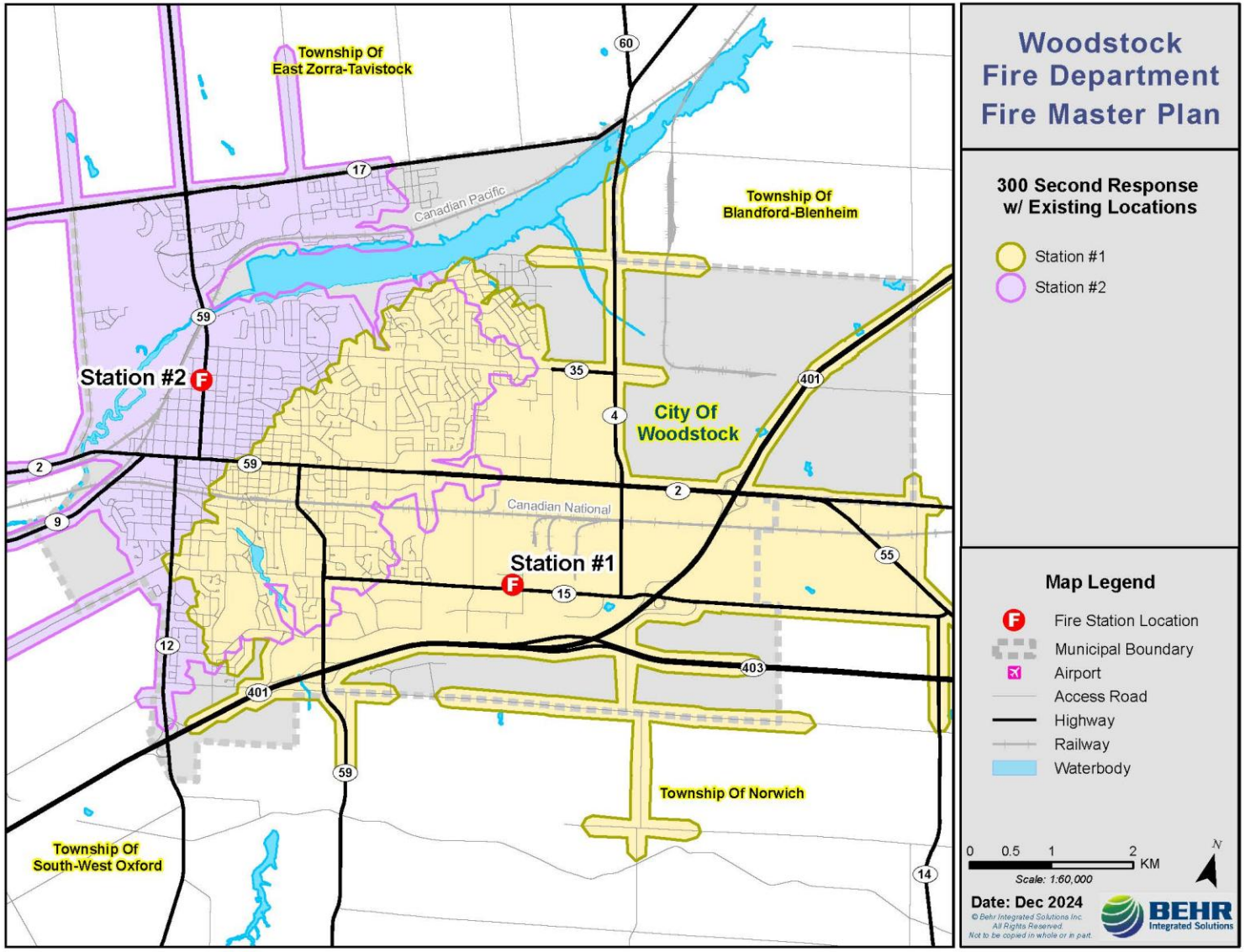
The consideration and location for future growth and risk allow the municipality to prepare for the future, ensuring that the infrastructure required is secured, such as lands and necessary funding.

Map 10 illustrates the current coverage provided by the existing stations utilizing the 240-second travel time principle. We have also considered a 300 second (5-minute) travel time in Map 11.

Map 10: Current Coverage 240 Second Travel Time



Map 11: Current Coverage 300 Second Travel Time



4.8.2 Apparatus Placement

The current placement of apparatus with the minimum number of staff regularly assigned to each unit is outlined in Table 44 below.

Table 44: Apparatus List, Minimum Staffing, and Location

Location	Apparatus	Minimum Staffing	Type of Apparatus
Station 1	Engine 1	4	Pumper
Station 1	Ladder 1	2	Aerial
Station 1	Aerial 1	0	Aerial
Station 1	Rescue/ Command	0	Rescue
Station 2	Engine 3	4	Pumper
Station 2	Engine 2	0	Pumper
Total	7	10	

The ability to provide a quick initial response is further compounded by the incident load in a specific station response area. Multiple calls occurring at the same time, or concurrent calls, place further pressures on response performance as another vehicle will be required to respond from another response area, thereby lengthening the response time to an incident. Examining the concurrent call load for each response area can assist in determining apparatus placement and the requirement to have multiple staffed apparatus in a specific station.

As growth (both vertical and horizontal) occurs, increased demands will result in an increase in the chances of concurrent calls occurring. The WFD should continue to monitor trends and patterns to determine the need to add resources.

Table 45 demonstrates the five-year concurrent call load involvement by unit type.

Table 45: 5-year concurrent call load unit involvement

		Engine 1	Aerial 1	Engine 3	Engine 2
2019	Calls	125	72*	66	141
	%	44.9%	25.9%	23.7%	50.7%
2020	Calls	13	60*	120	130
	%	5.8%	26.9%	53.8%	58.2%
2021	Calls	11	41	108	124
	%	5.4%	20.3%	53.5%	61.3%
2022	Calls	25	88	156	162
	%	8.1%	28.6%	50.6%	52.6%
2023	Calls	16	108	228	281
	%	3.5%	23.6%	49.9%	61.5%
5-year	Calls	190	369	678	838
	%	12.9%	25.1%	46.2%	57.1%

Station 2 (Engine 2 and Engine 3 typically responding from station 2) has the highest number of concurrent calls occurring in the city. The number of concurrent calls is increasing yearly and reached a high of 17.4% (457 incidents) in 2023. Overall, approximately 45.5% (207) of these 2023 incidents were medical calls requiring a single apparatus response. Fires accounted for only 2.8% (13) of the concurrent call incidents that would require multiple vehicle responses and may have required outside apparatus to respond, creating increases in response times. Rescue calls, which are a majority of MVC's account for 16.6% (76) of the 2023 concurrent calls.

4.9 Fire Station Location Analysis

When considering the location of a new fire station, the following aspects need to be considered:

- **Proximity to response concentrations:** Ensuring the station is near areas with high emergency response demands.
- **Considerations for actual response times:** Factoring in the actual travel time from the station to potential incident locations.
- **Proximity to road networks:** Ensuring easy access to major roads to facilitate timely responses.

- **Land availability and costs:** Considering the availability and affordability of land for the new station.
- **Potential future growth:** Estimating future growth in the area and how it might impact emergency response needs.

Determining the location of a fire station is an important decision for a growing community. Fire stations must be strategically located to optimize response time, maximize coverage, and minimize overall costs. Geographic Information Systems (GIS) mapping is an essential tool for analyzing optimum coverage areas while evaluating proximity to main roads and high-risk areas.

WFD is fully staffed by full-time firefighters responding from the stations. Therefore, identifying the best location to reduce response time and maximize coverage in a cost-effective manner is crucial. Despite the various risks throughout the community, a fire station must be situated in the most optimal location to ensure safe, swift, and effective arrival at the scene of an incident.

It is imperative that planning for a new fire station is embedded in the community's long-range plan to meet response objectives throughout its lifecycle.

4.9.1 Theoretical Response Time

Response travel time is directly related to the distance between the fire station and the incident location. The more strategically located a fire station is within a municipality, the more direct and efficient the travel routes become.

4.9.2 Site Analysis and Options

The fire station location aspects listed in Section 4.9.3 were extrapolated into the following criteria to assess the feasibility of the various sites considered:

- **Direct access to major transportation networks:** Ensuring quick and efficient response routes.
- **City-owned property:** Considering existing municipal land to reduce costs.
- **Suitable parcel size:** Ensuring the land is adequate for a two-bay fire station.
- **Strategic location:** Ensuring the site is well-positioned to meet response targets.

Further, as part of the review and the overall findings, this report considered the new Station 1 and the potential relocation of Station 1 as a combined consideration to determine the best optimization for overall response and ERF.

4.9.3 New Station 3 Option

As growth and response demands increase in the city, the WFD has requested an examination of the optimal location for a new fire station to serve the city. Currently, there is an initial response gap in the northeastern area and southwestern of the city. Various sites were examined to determine the best location that optimizes response time and service to the area and the rest of the city.

Adding a new Station 3 will allow the WFD to provide coverage to an existing neighborhood with a substantial incident count that is currently outside the 4-minute travel time of either Station 1 or Station 2. Additionally, it is important to review the impact that a new Station 3 will have on the Effective Response Force (ERF) in other response areas, as well as its potential to reduce the current incident load experienced by Station 2.

A number of realistic scenarios were examined to provide for the highest optimal response model that addresses current risks, future growth, and improve ERF.

The following options were reviewed:

a. Oxford Road 4 and Devonshire Ave area
b. Oxford Road 4 and Township Road 3 area
c. Mill Street and Clarke Road area

Each of the options provided different opportunities and considerations that may impact the location of other fire stations.

Option A: Oxford Road 4 and Devonshire Ave area (*Map 12*)

The location of Station 3 in the Oxford Road 4 and Devonshire Avenue area will provide added response coverage for initial response. This new station would provide coverage to the northeast side of the Pittock reservoir, which is currently underserved from a response timing capacity. New Station 3 will also allow for improved primary response to the centre of the city and reduce the concurrent call load on the units responding from Station 2. However, there is a substantial overlap of response area with the existing Station 1 location. Gaps still exist in the SW corner of the municipality, and there is limited coverage to the NE area should the city consider any boundary changes in that area.

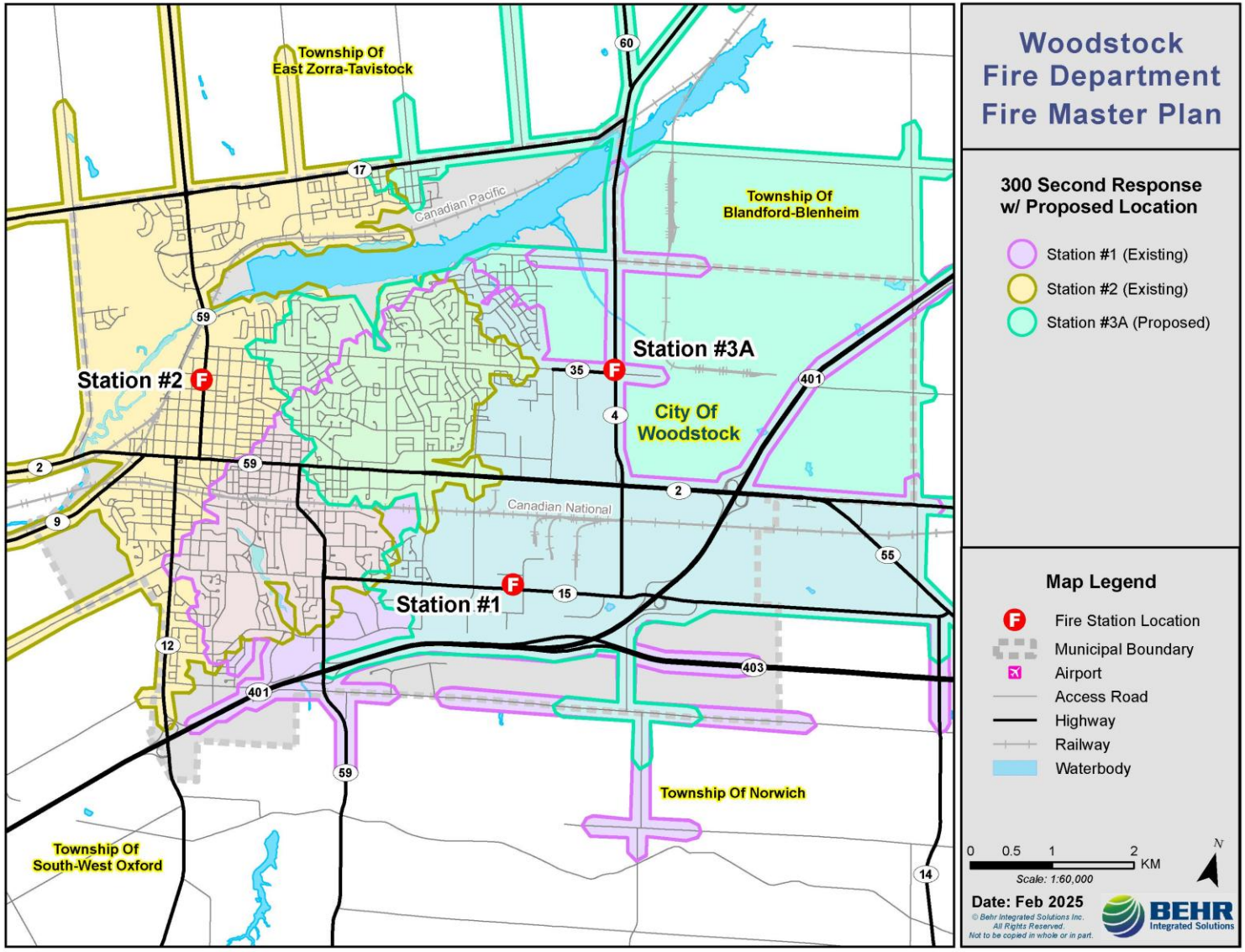
Option B: Oxford Road 4 and Township Road 3 area (*Map 13*)

The location of new Station 3 further north on Oxford Rd 4 in the Township Road 3 area will continue to provide added response coverage to the north side of Pittock reservoir. It will allow for a greater ERF response in the NW area of the city. It will also provide coverage to the NE area should the boundaries expand in that area. The area is currently not developed, and the call volume is currently low. Furthermore, moving the station further north impacts the timely response into the downtown core, and will reduce the assistance able to be provided to reduce concurrent call load in the Station 2 area.

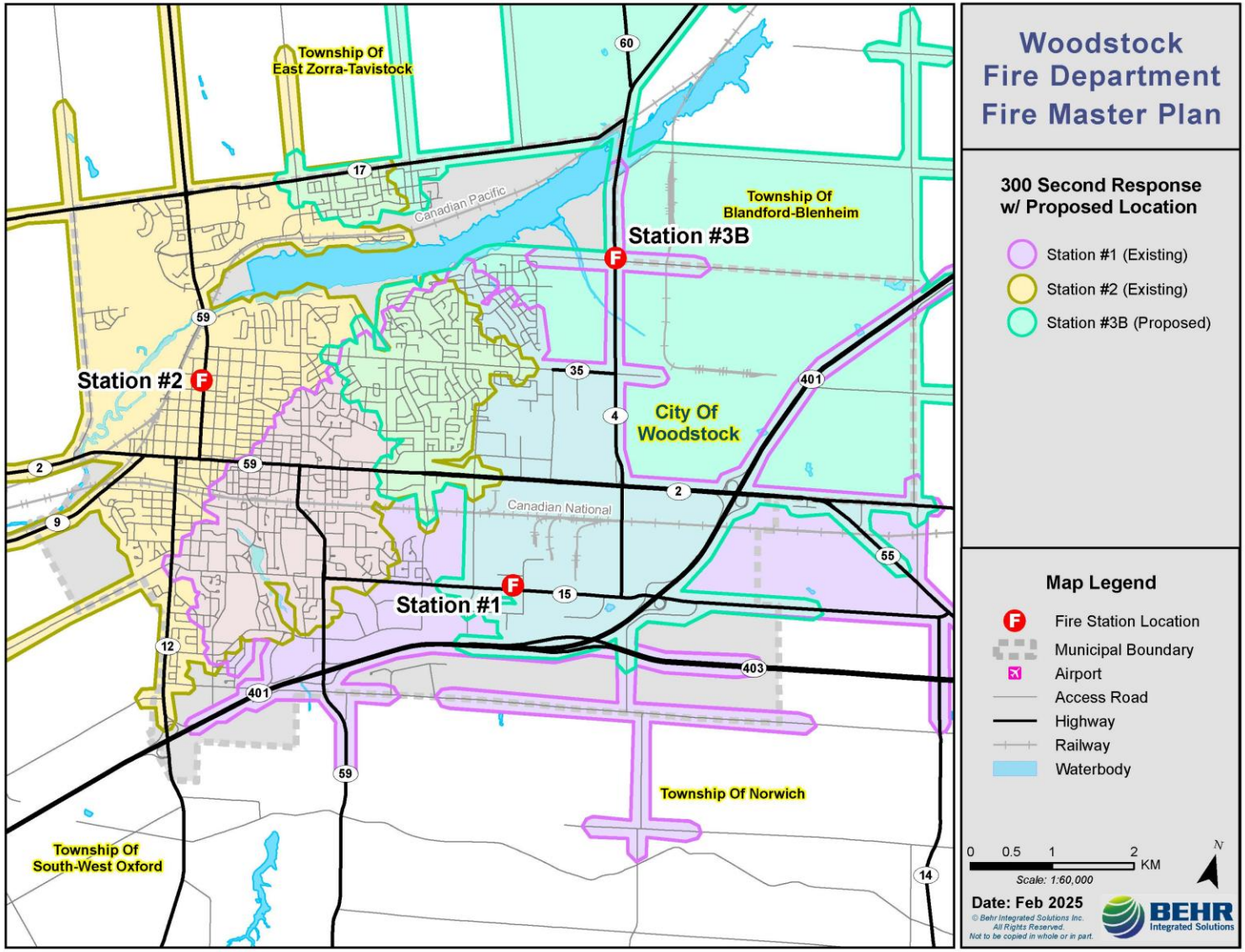
Option C: Mill Street and Clarke Road area (*Map 14*)

Examination of a new Station 3 in the Mill Street and Clarke Road area provides for improved initial response coverage in the SW corner of the city, allows for improved response times into the downtown core and addresses considerations to reduce concurrent call load in the Station 2 area. This location will also provide optimum coverage should the municipal border expand to the SW. This location, however, does not address the initial response coverage in the NE area of the city. There are current gaps of both initial and ERF in this area and there will remain a gap.

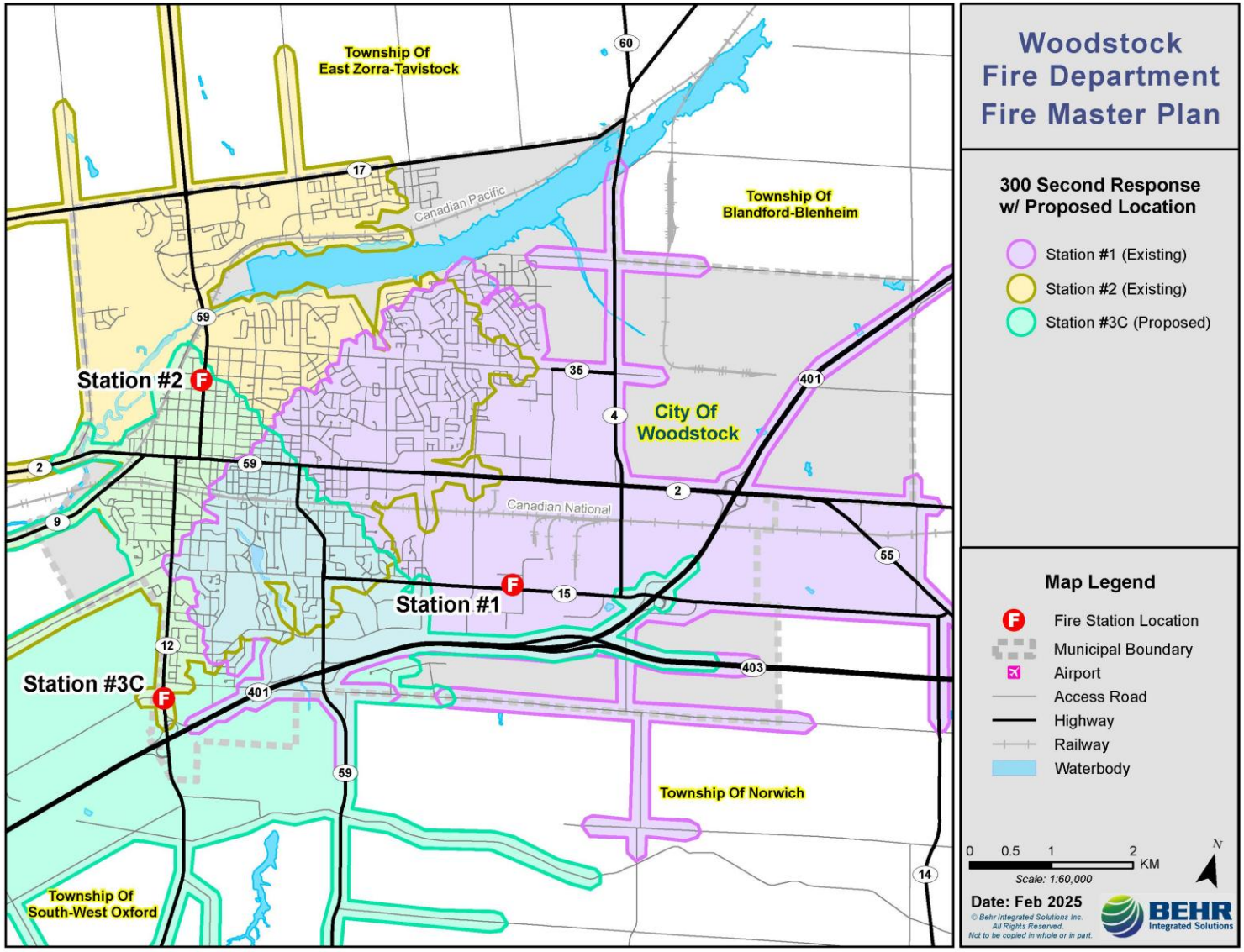
Map 12: Option A New Station 3



Map 13: Option B New Station 3



Map 14: Option C New Station 3



The ability to respond to emergency incidents in a timely manner could be critical to a more positive outcome. Utilizing the principles of NFPA 1710 and examining travel time of both 4-minutes and 5-minutes from each exiting station, there are a number of gap areas that fall outside of these time parameters. Considering the current and future residential growth in the northern area of the city, there appear to be clear performance gaps, both on the north and south sides of the Pittock reservoir. There are further gaps that are identified in the southwest corner of the city.

As identified in recommendation 1b, the city should establish a Standard of Cover with clear expectations for response performance. To provide a greater uniform coverage for the city, the municipality has two options:

1. Expand the coverage area by increasing the travel time expectations. Adjusting this to 6-minute travel time would allow for a more uniformed coverage, with a smaller pocket in the northeast (north of the Pittock reservoir) that would be outside this limit
2. Relocate fire stations to allow for uniform coverage. This would include adding a new Station 3 and relocating Station 1.

It is not recommended to increase the expected travel time to 6 minutes as identified in option 1. This would drastically increase the total response time for the first in unit above industry practices and may increase the risk to public and firefighter safety. It however is reasonable to consider increasing the travel time performance expectation to 5-minute travel time (only if the alarm handling and turnout time are improved closer to the industry standards). With this travel time expectation set, a new Station 3 located in the area of Oxford Road 4 & Devonshire Avenue or Oxford Road 4 and Township Road 3 will provide for the coverage in the northeast area.

The addition of a new fire Station 3 will allow for a faster response into the downtown section of the city and reduce some of the response workload experienced by Station 2. This location provides for coverage to the north portion of the city utilizing Oxford Road 4.

With the addition of a new station and the dispersal of staff across the three stations, improvements to the timing of a second unit on scene will also improve. This will improve firefighter safety and allow for the set-up of mitigation operations quicker.

The addition of a new Station 3 is needed to provide services to areas that are not currently covered under the 300-second total response time in the northeast area of the city. The distribution of a response vehicle will cover this area but will also allow for the consideration of bettering the overall effective response force response to other areas of the city. Subsequently, a new Station 3 would also alleviate some of the incident load pressures placed on Station 2 and address some of the concurrent call load concerns identified in Table 45.

The location of Station 3 was considered based on the overall response coverage strategy and considers a potential relocation of Station 1 to an area further southwest of its existing site. Based on discussions with senior staff within the city, indications are that boundary expansions are not likely to take place in the near future and maybe many years before expansion is possible. The immediate needs and risks have been identified and with these considerations, option A provides the most optimum response model for the city to consider.

Observation #24: The current location of the two-station model results in response gaps in various sections of the city. New and future growth has added to the gaps in the north area of the city. Utilizing a review of 5-minute travel time shows further gaps as well in the southwest corner of the city.

The WFD's ability to assemble an effective response force in a timely manner is challenged with the current station placements, requiring lengthy times for a second apparatus to arrive on scene in the north section of the city. This area is primarily residential and a higher risk for the community. Indications through interviews with senior city staff are that boundary adjustments in the very near future are not being considered

Recommendation #24: Barring any near future boundary adjustments the City of Woodstock locate a new fire station situated in the area of Oxford Road 4 and Devonshire Ave to service new growth areas and provide improvement to effective response force to Stations 1 and 2.

Suggested completion: 24-48 months

Cost: Cost for new construction can range between $500-$1000 /sq. ft.

Strategic Objective: #4 Emergency Response

Rationale: *The principle of total response time is to arrive as quickly as possible from the time the phone is picked up to the time the first in unit is on scene. Through the strategic location of fire stations, opportunities to make improvements to the travel time will improve overall response performance and increase public safety.*

T*he addition of a new fire Station 3 will allow for a faster response into the downtown section of the city and reduce some of the response workload experienced by Station 2. This location provides for coverage to the north portion of the city utilizing the Oxford Road 4.*

With the addition of a new station and the dispersal of staff across the three stations, improvements to the timing of a second unit on scene will also improve. This will improve firefighter safety and allow for the set-up of mitigation operations quicker.

4.9.3.1 Future Relocation of Other Existing Stations

As identified, there are a number of response gaps, including response to the southwest corner of the city and should the borders expand, there are potential gaps outside the current borders. The addition of a new fire station will improve some of the response gaps and improve overall ERF times, however, this can be further increased by looking at the future relocation of existing stations. The current Station 2 was found to be located in a good strategic location that allows for access to the northwest and north central portion of the city as well as continued response to the downtown area of the city. Future expansion would require consideration of the relocation of Station 2 further north to Vansittart Ave and Ridgewood Drive area as shown in Map 15. This relocation would provide improved initial response coverage to the newly developed areas in the north area of the city, allow for coverage should boundary expansions occur and continue to meet response times to the downtown core. This move, however, would provide gaps to the SW area.

The model was explored to address these gaps with the future relocation of Station 1 further west of the current location, as indicated in Map 15. This will provide improved response coverage in the SW area, allow for coverage in the downtown core and optimize the overall response performance for the municipality. With the addition of a new station 3, it is reasonable to explore the relocation of current Stations 1 & 2 further west and north respectively.

Observation #25: The current location of the two-station model results in response gaps in various sections of the city. New and future growth has added to the gaps in the north area of the city. Utilizing a review of 5-minute travel time also shows further gaps in the southwest corner of the city.

The WFD's ability to assemble an effective response force in a timely manner is challenged with the current station placements, requiring lengthy times for a second apparatus to arrive on scene in the north section of the city. This area is primarily residential and a higher risk for the community

Recommendation #25: Continue to monitor potential growth and consider appropriate station re-locations to meet the risks identified and the needs of the community.

Suggested completion: 60-84 month**s**

Cost: Cost for new construction can range between $500-$1000 /sq. ft.

Strategic Objective: #4 Emergency Response

Rationale: *The principle of total response time is to arrive as quickly as possible from the time the phone is picked up to the time the first in unit is on scene. Through the strategic location of fire stations, opportunities to make improvements to the travel time will improve overall response performance and increase public safety.*

The relocation of a fire Stations 1 & 2 will potentially allow for coverage of identified gaps and address coverage if boundary adjustments are made. These relocations combined with the addition of a new Station 3 will provide for effective response and stations strategically placed for future growth as currently identified in the County's official plan.

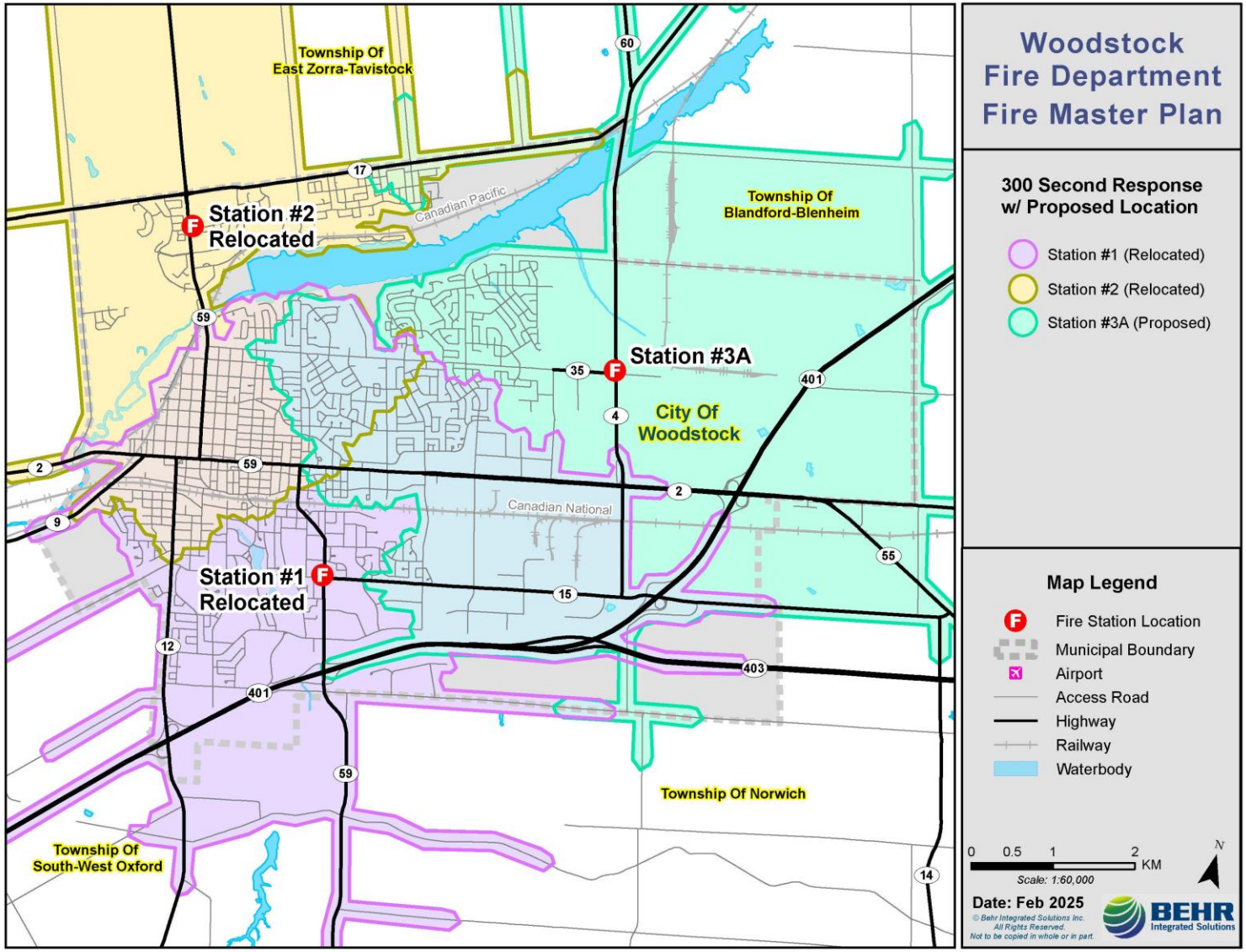
The future relocations of Stations 1 and 2 provide for a more effective distribution of resources and will increase the establishment of an ERF to higher incident volume areas in the centre of the city. The ability to assemble more resources in a shorter time will allow for faster set up of fire operations and a quicker engagement of mitigation strategies. This will improve the safety of those impacted by the incident and improve firefighter safety. These future relocations could further provide required coverage should any boundary expansion occur in both the northwest and southwest sections of the city.

The current Station 1 property can potentially be repurposed for a regional training centre. The current fire training grounds provide options for both WFD and surrounding departments to create training grounds that many different organizations in the county could utilize. Options with other emergency service agencies, such as police and paramedic services should be explored. Non-emergency agencies such as hydro, works departments and industry could be explored for target specific training, such as confined space rescue or working from heights.

The existing Station 1 could be renovated to improve training and meeting rooms, potential for an alternate EOC, or the main floor could be renovated for a larger administration and fire prevention space, with the upper floor for the training centre. All this is only possible if Station 1 is relocated, as the options presented are limited if response crews remain at this current location. The existing Station 2 could be repurposed or sold to offset the cost of a new station.

Map 15 shows a possible future three station model with a new Station 3 and the relocation of both Stations 1 and 2. This future model should provide an optimum response coverage for the planned future growth of the city and address any potential boundary expansions that have been identified.

Map 15: New Station 3 and Relocation Stations 1 & 2 – 300 Second response coverage



APPENDICES

Appendix A: Glossary of Terms

Apparatus	Any vehicle provided with machinery, devices, equipment, or materials of the Fire department for firefighting as well as equipment used to transport firefighters or supplies.
Assembly Time	The time the notification sounds in the fire station until the first vehicle leaves the station. In a full-time department this is expected to be within 80 seconds but for volunteer departments the time to collect a response crew can vary widely depending on location and time of emergency as well as all the factors that impact travel time.
Chute Time	See Assembly Time
Dangerous Goods	This term is synonymous with the terms hazardous materials and restricted articles. The term is used internationally in the transportation industry and includes explosives, and any other article defined as a combustible liquid, corrosive material, infectious substances, flammable compressed gases, oxidizing materials, poisonous articles, radioactive materials, and other restrictive articles.
Discovery	Time between the start of the emergency and when someone or an engineered system has detected the incident.
Dispatch Time	Time required to extract the necessary information from the caller to allow the proper response to be initiated. The dispatcher identifies the correct fire location and initiates the dispatch by paging the appropriate fire station.
Emergency Call	The period between discovery and the actual notification of emergency services.
Emergency Communications Centre (ECC)	A facility dedicated to emergency services to receives calls, processes them, and then dispatches emergency units to the correct location in the appropriate time period.
Emergency Operations Centre (EOC)	The protected sites from which civil officials coordinate, monitor, and direct emergency response activities during an emergency or disaster.
Emergency	Any occasion or instance that warrants action to save lives and to protect property, public health, and safety. A situation is larger in scope and more severe in terms of actual or potential effects.
Fire Suppression	The application of an extinguishing agent to a fire at a level such that an open flame is arrested; however, a deep-seated fire will require additional steps to assure total extinguishment.

Hazard Analysis	A document, which identifies the local hazards that have caused, or possess the potential to adversely affect public health and safety, public and private property, or the environment.
Impact	The effect that each hazard will have on people such as injury and loss, adverse effects on health, property, the environment, and the economy.
Incident	A situation that is limited in scope and potential effects.
Intervention Time	The time from fire reporting to the point where the first arriving pumper, or other apparatus providing comparable functions, arrives at the fire scene and directs an extinguishing agent on the fire.
Mutual Aid Agreement	An agreement between jurisdictions to assist each other during emergencies by responding with available manpower and apparatus.
National Fire Protection Association	The National Fire Protection Association (NFPA) is an internationally recognized trade association established in 1896 that creates and maintains standards and codes for usage and adoption by local governments to reduce the worldwide burden of fire and other hazards. This includes standards and guidelines to which many fire departments utilize to carry on day-today operations.
Response	Those measures undertaken immediately after an emergency has occurred, primarily to save human life, treat the injured, and prevent further injury and losses. They include response plan activation, opening and staffing the EOC, mobilization of resources, issuance of warnings and direction, provision of aid, and may include the declaration of a State of Local Emergency.
Risk	The chance or likelihood of an occurrence based on the vulnerability and known circumstances of a community.
Setup Time	This is the time necessary on site to evaluate the necessary actions, position the required resources and commence the intervention. In the case of a fire, completing size-up, assigning the necessary tasks, and deploying resources can provide delays on scene. A well-trained crew can minimize these delays while providing a safe, successful response.
Standard Operating Guidelines (SOG)	A written organizational directive that establishes or prescribes specific operational or administrative methods to be followed routinely, which can be varied due to operational need in the performance of designated operations or actions.

Standard Operating Procedures (SOP)	A written organizational directive that establishes or prescribes specific operational or administrative methods to be followed routinely for the performance of designated operations or actions.
Travel Time	Time period from when the apparatus leaves the station to when it arrives on scene. Factors to consider for travel time are driver skill, weather, traffic, topography, road conditions and vehicle capabilities.

Appendix B: List of Figures, Maps, Images, and Tables

Figures

Maps

Images

Tables

Appendix C: Response Mapping Methodology

Response travel times are directly influenced by station location and can be varied based upon a cost/risk analysis and the development of performance targets.

Base Data Layers Requested

- Hydrology
- Single Line Road/Transportation Network
- Railways
- Municipal Boundaries
- Parks
- Projection File
- Orthophoto (GeoTIFF, Mr.SID), if available
- Emergency Services Locations

Data Formats

- Preference of ESRI Shapefiles

Purpose of Files

A. Hydrology
   i. Identify needs for response to water locations (if dependent on a water response unit)
   ii. Can be identified and analyzed with the rail network to locate spill contaminations, as well as containment for overland flow & flooding to water spills
   iii. Locations of bridge crossings which can convert to varying incidents, as MVC/MVA, spill contaminants, etc.
   iv. Assists in the definition of the map for locational awareness by others
   v. Completes the map

B. Single Line Road/Transportation Network
   i. Used to determine response times from emergency locations to determine a network based on road speeds
   ii. Roads are created into a network for response

C. Railways

i. Identified risk areas for impeding response time when crossing a roadway or proximity to municipal areas will also determine the response and apparatus used for a derailment response or other rail emergency or risks, such as chemical spill evacuations.

D. Municipal Boundaries

i. Identifies the limits to response for mutual aid and responsibilities when overlaps occur within a response area. Also identifies sub areas for specific mapping and identification of municipal and regional response zones. Provides information for gap analysis for future state locations or refinement of locations.

E. Parks

i. Identifies the potential risk areas due to accessibility issues for tracts of land, as well as constraints and opportunities for new locational analysis for or against new stations within a municipality. Ability to determine development of new locations due to proximity. Parks are identified as local, regional, provincial, and national.

F. Projection File

i. To ensure that we have the same data set up as being used by the Municipality or Client, measurements (both distance and time) and spatial location are correct when determining analysis.

G. Orthophoto (GeoTIFF, Mr.SID), if available

i. We typically do not use the ortho on the output maps, but the analysis sometimes needs clarification of what is on the ground, and we use it to quickly ground truth locations and information needed prior to asking clients for clarification or to substantiate clarification of an area.

ii. Is a nice to have, yet hard to use, as it takes up a lot of memory/space and is difficult to ship/transfer.

H. Emergency Services Locations

i. Identify the actual location rather than a theoretical location based on an address match to ensure that the data location is as correct as possible, and no mis-locations are identified on the initial running of the theoretical response times.

ii. Locations may be moved from within a parcel to the front of the parcel, whereby it touches the road network. Ensures the response from the station is captured. There are no corrections made to the movement of the station to time, as it is typically within 50 metres.

Response Zone

A. Assumptions

i. Weather is average – no storms, rain, snow etc.
ii. Roadway segments contain a node/junction at intersections
- If not available, road network needs to be cleaned and fixed

iii. Roadways need to sometimes extend beyond some municipalities
iv. Emergency responders are trained on response vehicles
v. Response vehicles are in good condition
vi. Roads are dry and in good condition
vii. Left turns are not reduced by a time %
viii. Road speeds are provided by client, if not
- Road class table used to populate speeds based on road classification
- Road speeds are reduced from the posted sign, typically no more than 5%

ix. Traffic volume is average, there is no congestion or there is a free-flowing lane to be used
x. Rail crossings are free to cross and do not impede response
xi. Time of day is based on an average time from 9 am – 9 pm
xii. Opticoms (or similar product for traffic light manipulation) are present to allow for free moving response
xiii. Intersections of roads are not reduced (the roads are reduced from other project limits and averaged over time for generality of best fit)
xiv. School zones are not adjusted unless identified, then changes to road net are made

B. Response Time
i. Customized response based on Emergency Services Input
ii. Response time includes 80% of all calls for service
iii. Total drive time along roads (determined above by road speeds)
iv. Variances are identified and are tweaked based on known data or other trends

C. Response Polygons
i. Identify general area of response from the outer most limits driven
ii. Also identify response zones for mutual aid
iii. Identify gaps in response
iv. Aid in the development of Fire Zones for response
v. Assist in the identification of new stations
vi. Also identifies needs to move stations to another location, as required

Additional Analysis

A. Out of Scope Analysis (needs further discussion with client)
   i. Transition from project to operationally based:
      - Specific distance and travel
      - Based on time of day
      - Based on time of year
      - Call volume
      - Call types
      - Modeling
      - Scripting for batch work

B. Data Availability
   i. When data available from clients is detailed enough, it is used
   ii. Not all data is detailed enough, and assumptions are made

C. Analysis
   i. Additional analysis can be performed (as reduction of road speeds to an intersection)
      - For the above example, identification of intersections can be complex, and data is not always available:
         - Stop Sign
         - 3-Way Stop
         - Yield
         - Lights
         - Flashing Light
   ii. Tends to be time consuming
         - Clients not willing to engage in the cost of this project
         - Levels of data may not be accessible
         - Missing detail
         - Usually, it is a one-off project, and new data is typically not leveraged

Appendix D: Firefighter Online Survey

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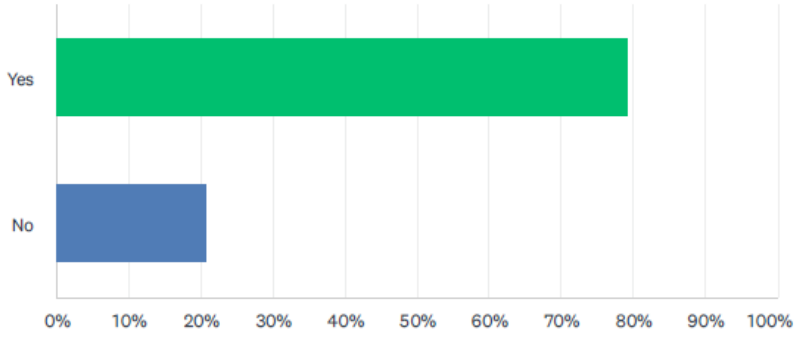
Q1 Do you receive positive feedback from the citizens of the community about the services you provide? Yes or no, if no please provide additional comments

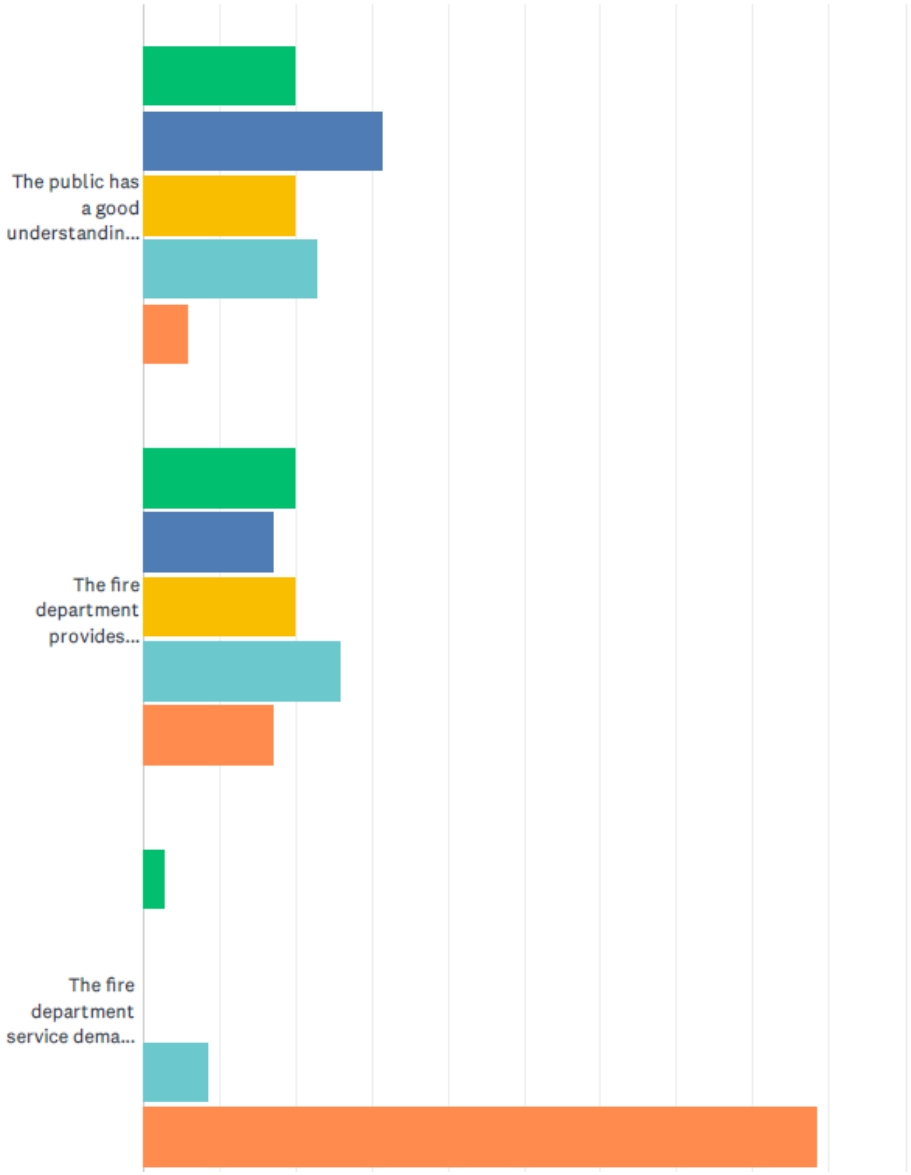
Answered: 34 Skipped: 1



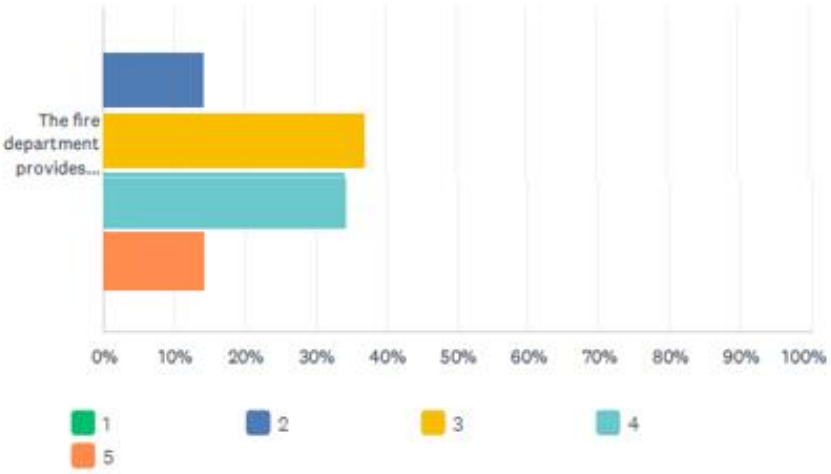
ANSWER CHOICES	RESPONSES	
Yes	79.41%	27
No	20.59%	7
TOTAL		34

Q2 Please rank the following statements in order of how strongly you agree, with 5 being the strongest and 1 being the weakest:

Answered: 35 Skipped: 0



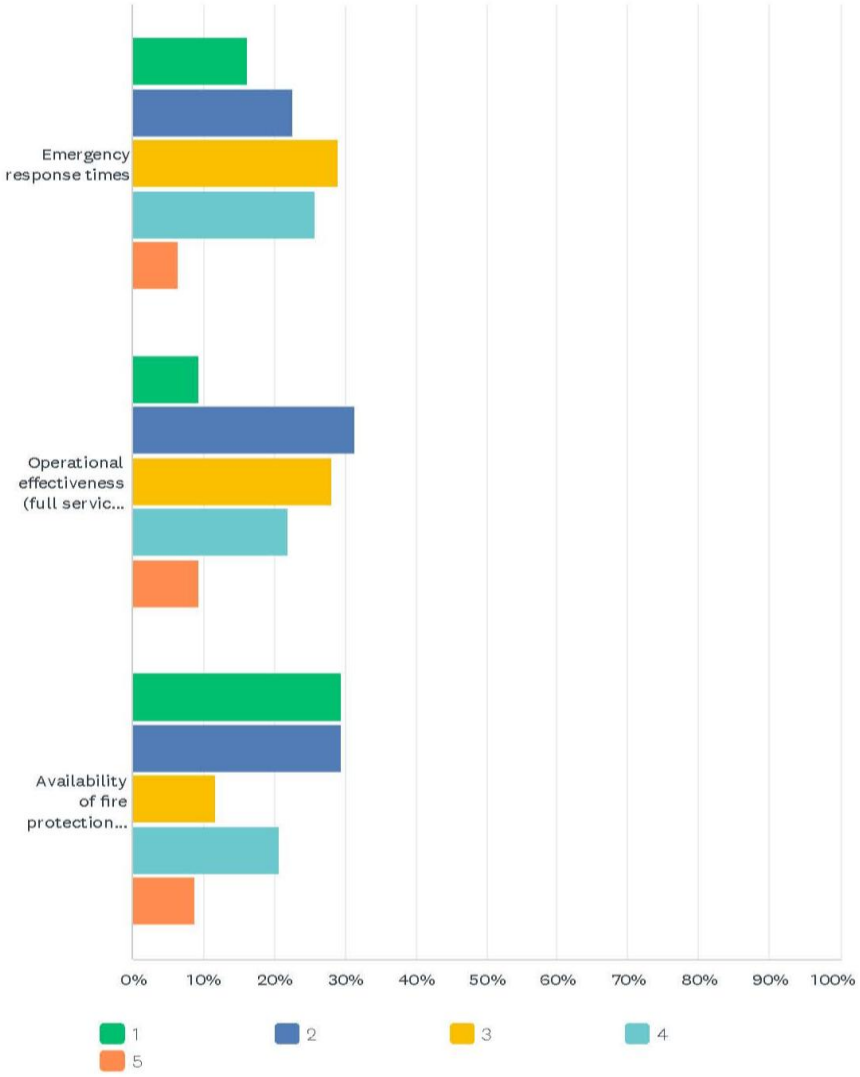
Q2 Continued



	1	2	3	4	5	TOTAL	WEIGHTED AVERAGE
The public has a good understanding of the fire service and its capabilities.	20.00% 7	31.43% 11	20.00% 7	22.86% 8	5.71% 2	35	2.63
The fire department provides adequate fire/rescue protection	20.00% 7	17.14% 6	20.00% 7	25.71% 9	17.14% 6	35	3.03
The fire department service demands will increase in the future due to community and economic growth	2.86% 1	0.00% 0	0.00% 0	8.57% 3	88.57% 31	35	4.80
The fire department provides adequate alternate fire risk reduction strategies (e.g., residential sprinklers, FireSmart program, public education, and fire prevention programs)	0.00% 0	14.29% 5	37.14% 13	34.29% 12	14.29% 5	35	3.49

Q3 Please rank the following aspects of fire/rescue protection that your department provides, with 5 being the most adequate and 1 being the least adequate:

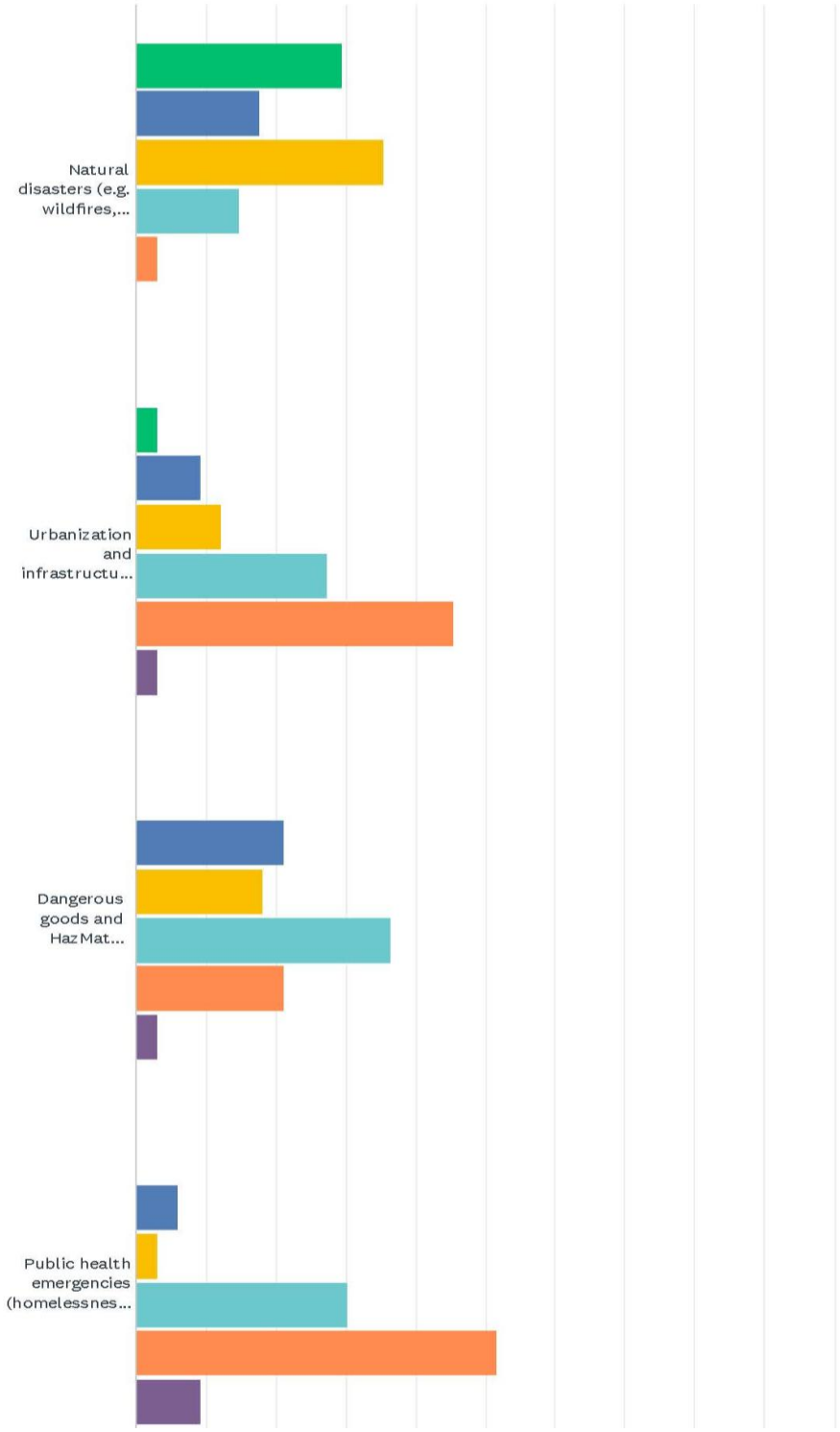
Answered: 35 Skipped: 0



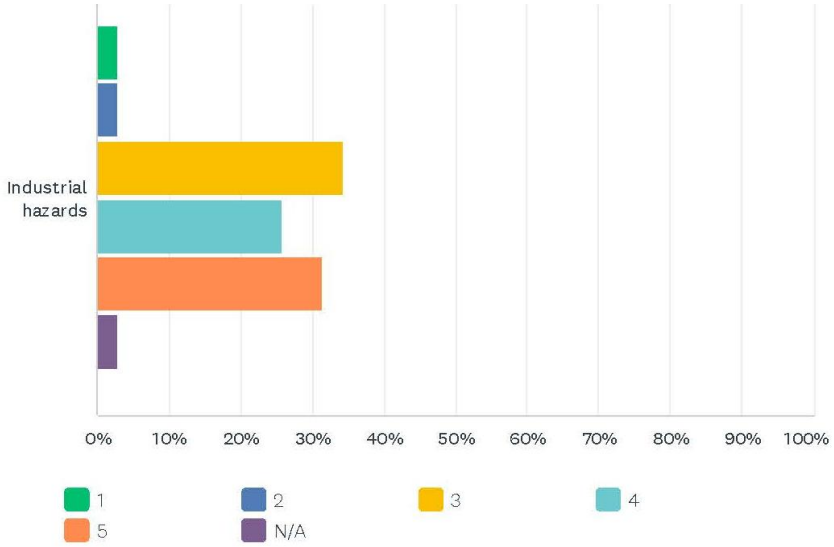
	1	2	3	4	5	TOTAL	WEIGHTED AVERAGE
Emergency response times	16.13% 5	22.58% 7	29.03% 9	25.81% 8	6.45% 2	31	2.84
Operational effectiveness (full service response capabilities and capacity)	9.38% 3	31.25% 10	28.13% 9	21.88% 7	9.38% 3	32	2.91
Availability of fire protection resources (fleet, equipment, staffing, facilities)	29.41% 10	29.41% 10	11.76% 4	20.59% 7	8.82% 3	34	2.50

Q4 Please rank the following risks in order of significance, with 5 being the highest risk and 1 being the lowest risk.

Answered: 35 Skipped: 0



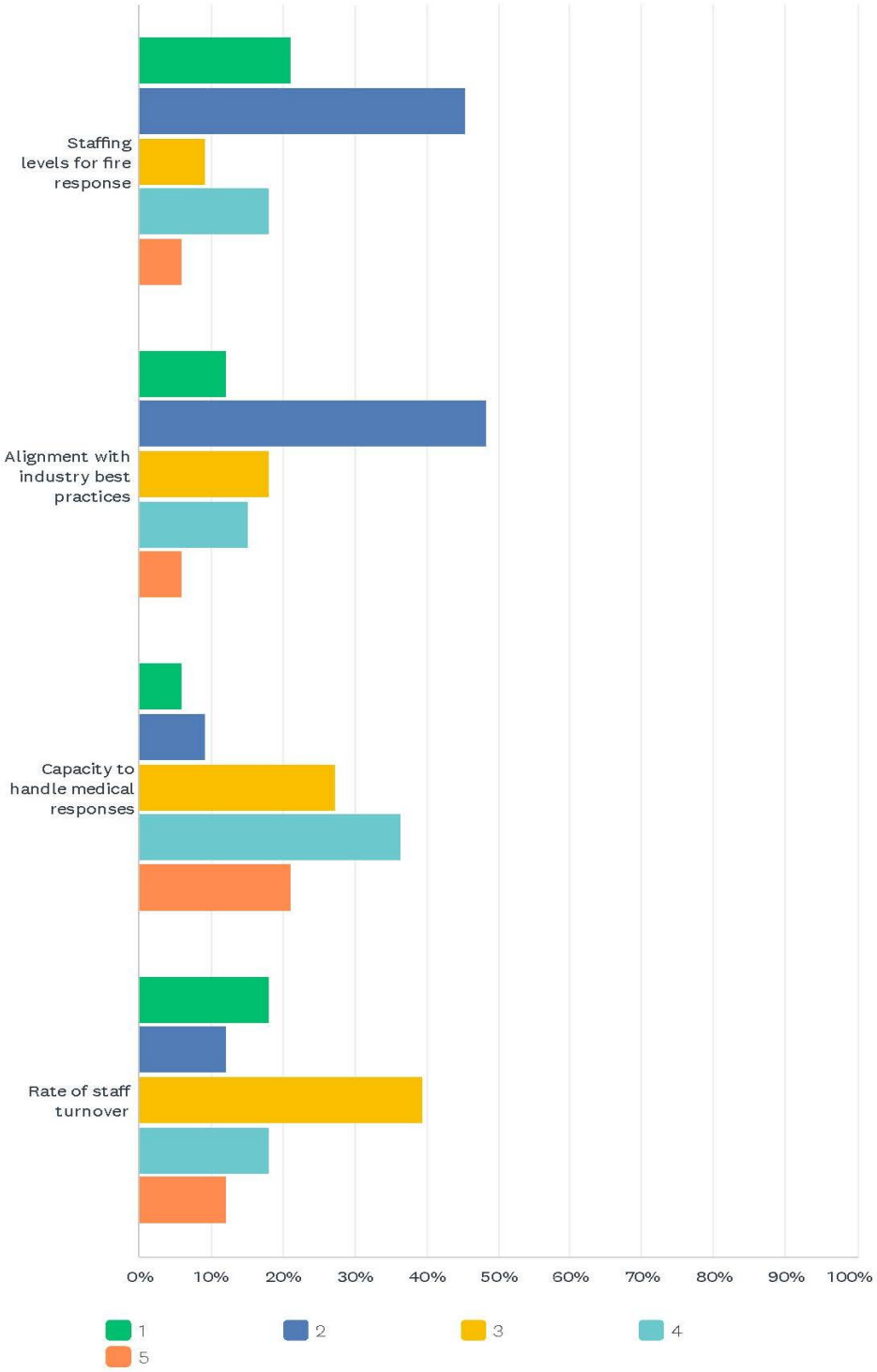
Q4 Continued



	1	2	3	4	5	N/A	TOTAL	WEIGHTED AVERAGE
Natural disasters (e.g. wildfires, flooding, climate change)	29.41% 10	17.65% 6	35.29% 12	14.71% 5	2.94% 1	0.00% 0	34	2.44
Urbanization and infrastructure development	3.03% 1	9.09% 3	12.12% 4	27.27% 9	45.45% 15	3.03% 1	33	4.06
Dangerous goods and HazMat Incidents	0.00% 0	21.21% 7	18.18% 6	36.36% 12	21.21% 7	3.03% 1	33	3.59
Public health emergencies (homelessness, drug crisis, pandemic)	0.00% 0	6.06% 2	3.03% 1	30.30% 10	51.52% 17	9.09% 3	33	4.40
Industrial hazards	2.86% 1	2.86% 1	34.29% 12	25.71% 9	31.43% 11	2.86% 1	35	3.82

Q5 Please rank the following aspects of your fire service's response model, with 5 being the most adequate and 1 being the least adequate. Provide additional comments if needed:

Answered: 33 Skipped: 2

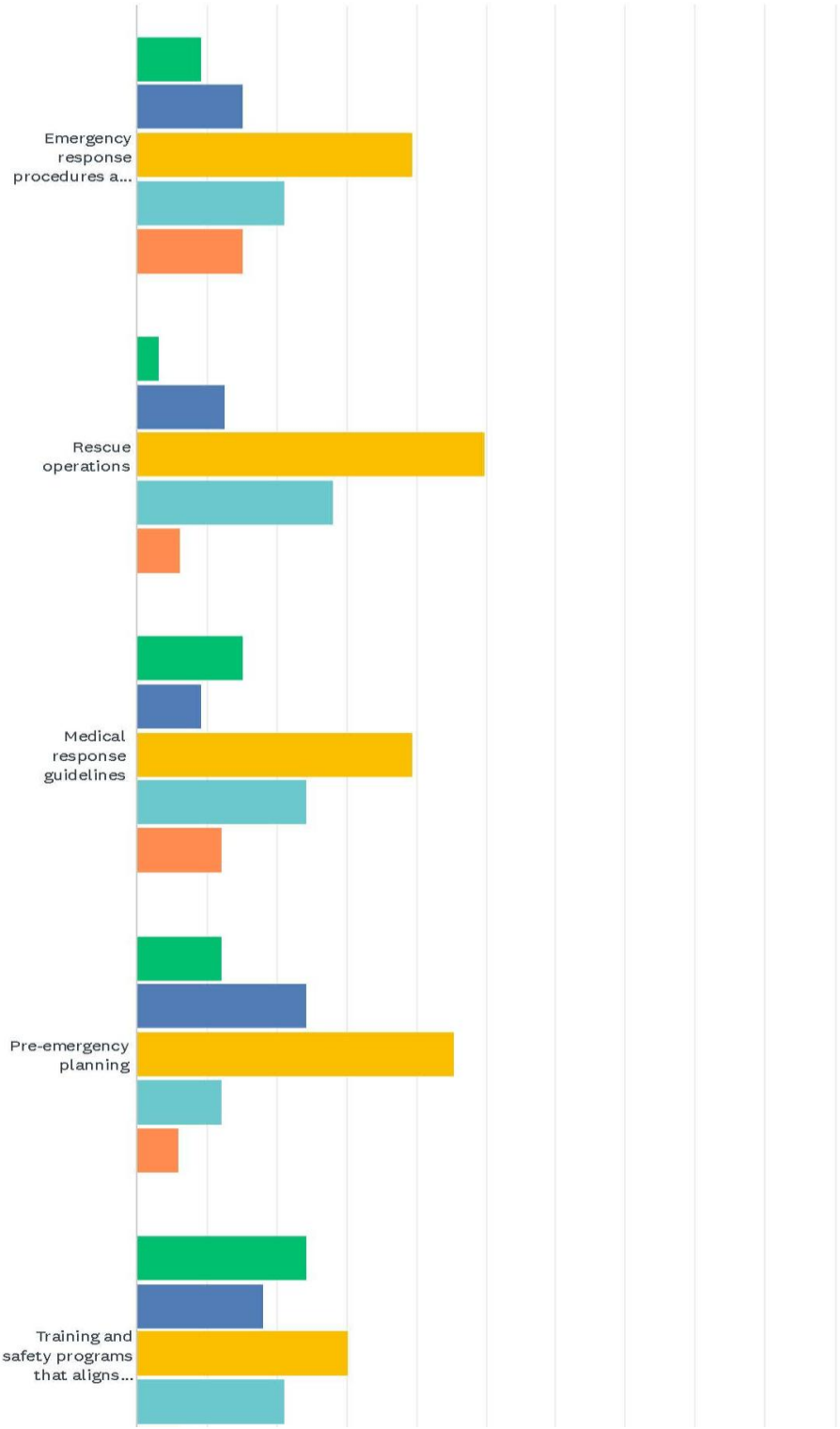


Q5 Continued

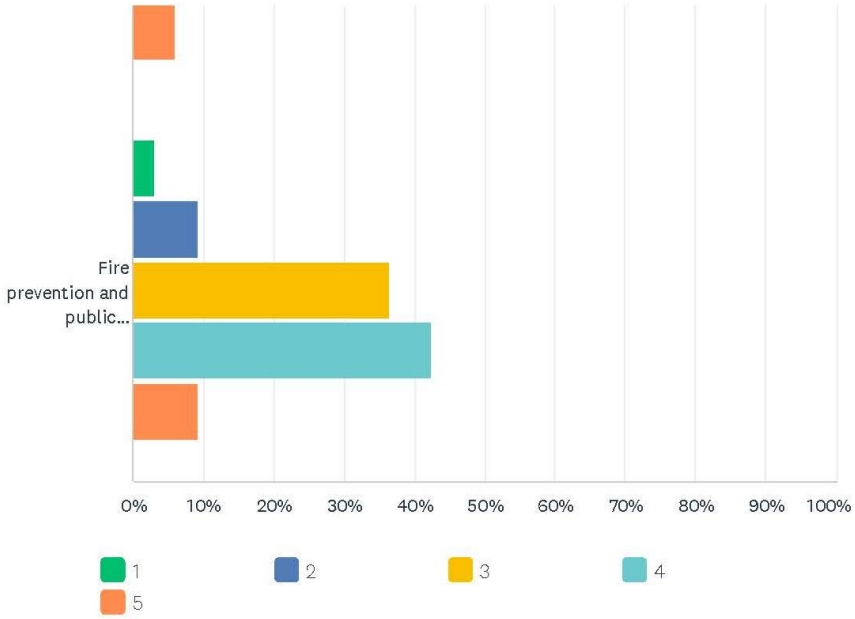
	1	2	3	4	5	TOTAL	WEIGHTED AVERAGE
Staffing levels for fire response	21.21% 7	45.45% 15	9.09% 3	18.18% 6	6.06% 2	33	2.42
Alignment with industry best practices	12.12% 4	48.48% 16	18.18% 6	15.15% 5	6.06% 2	33	2.55
Capacity to handle medical responses	6.06% 2	9.09% 3	27.27% 9	36.36% 12	21.21% 7	33	3.58
Rate of staff turnover	18.18% 6	12.12% 4	39.39% 13	18.18% 6	12.12% 4	33	2.94

Q6 Please rank the following policy/procedure/guidelines with respect to effectiveness and efficiency, with 5 being very effective and 1 being the least effective:

Answered: 33 Skipped: 2



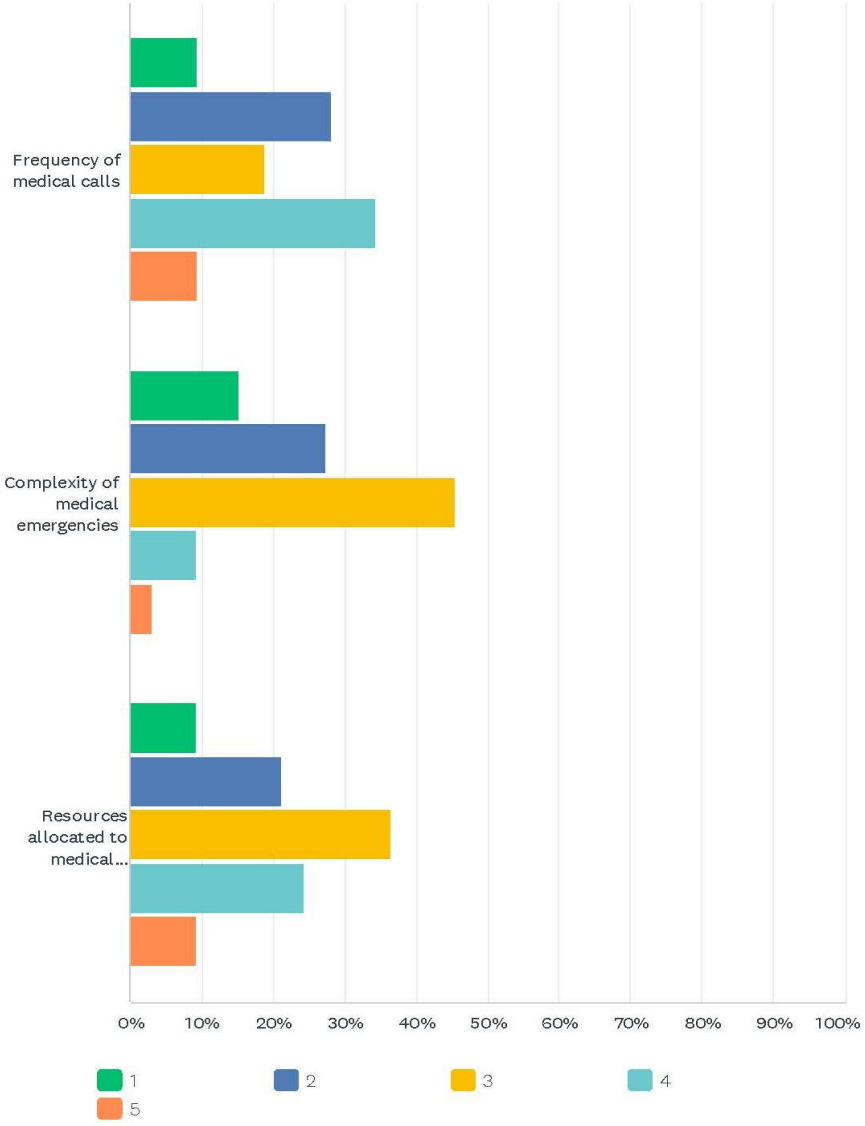
Q6 Continued



	1	2	3	4	5	TOTAL	WEIGHTED AVERAGE
Emergency response procedures and guidelines	9.09% 3	15.15% 5	39.39% 13	21.21% 7	15.15% 5	33	3.18
Rescue operations	3.13% 1	12.50% 4	50.00% 16	28.13% 9	6.25% 2	32	3.22
Medical response guidelines	15.15% 5	9.09% 3	39.39% 13	24.24% 8	12.12% 4	33	3.09
Pre-emergency planning	12.12% 4	24.24% 8	45.45% 15	12.12% 4	6.06% 2	33	2.76
Training and safety programs that aligns with core services	24.24% 8	18.18% 6	30.30% 10	21.21% 7	6.06% 2	33	2.67
Fire prevention and public education programs	3.03% 1	9.09% 3	36.36% 12	42.42% 14	9.09% 3	33	3.45

Q7 Please rank the following aspects of medical response in terms of how much they impact your capacity to provide other emergency response services, with 5 being the highest impact and 1 being the lowest impact:

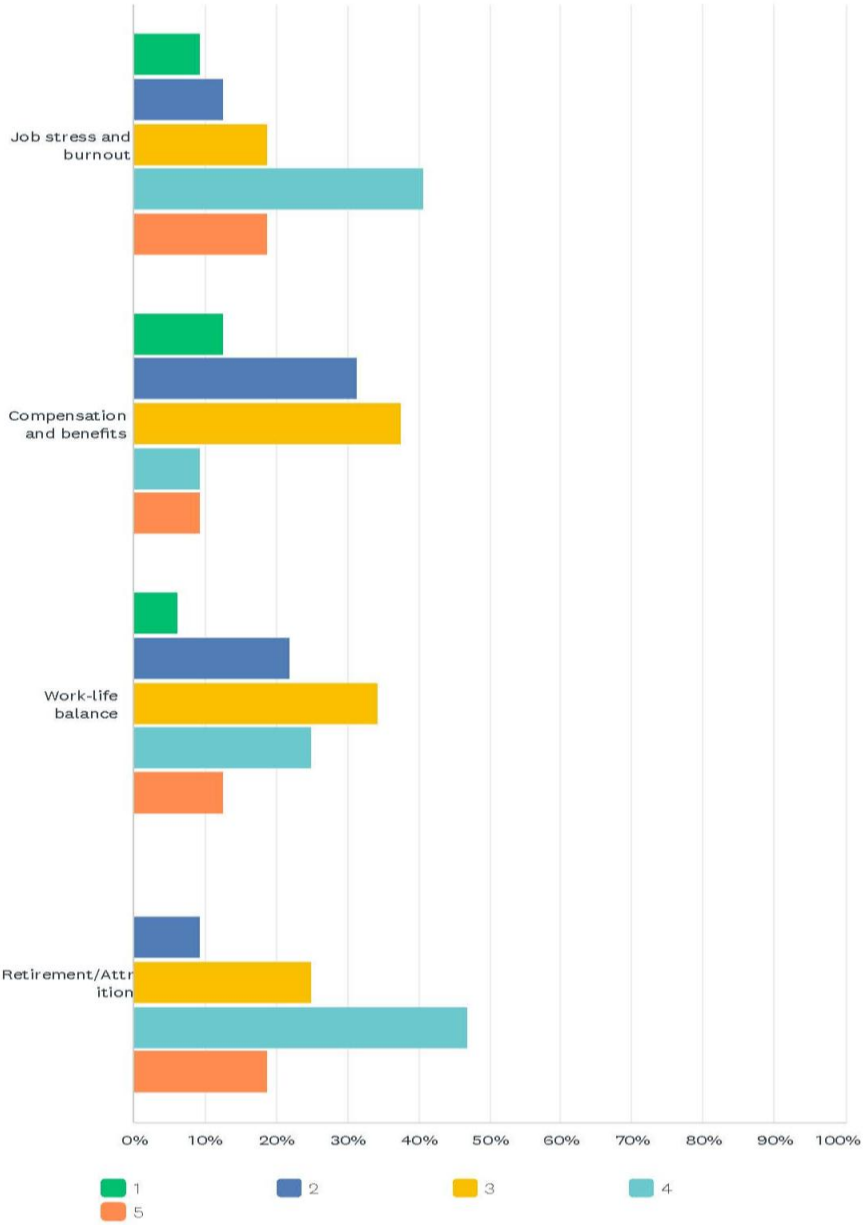
Answered: 33 Skipped: 2



	1	2	3	4	5	TOTAL	WEIGHTED AVERAGE
Frequency of medical calls	9.38% 3	28.13% 9	18.75% 6	34.38% 11	9.38% 3	32	3.06
Complexity of medical emergencies	15.15% 5	27.27% 9	45.45% 15	9.09% 3	3.03% 1	33	2.58
Resources allocated to medical response	9.09% 3	21.21% 7	36.36% 12	24.24% 8	9.09% 3	33	3.03

Q8 Please rank the following factors contributing to effective response and staff turnover within the department, with 5 being the most significant and 1 being the least significant:

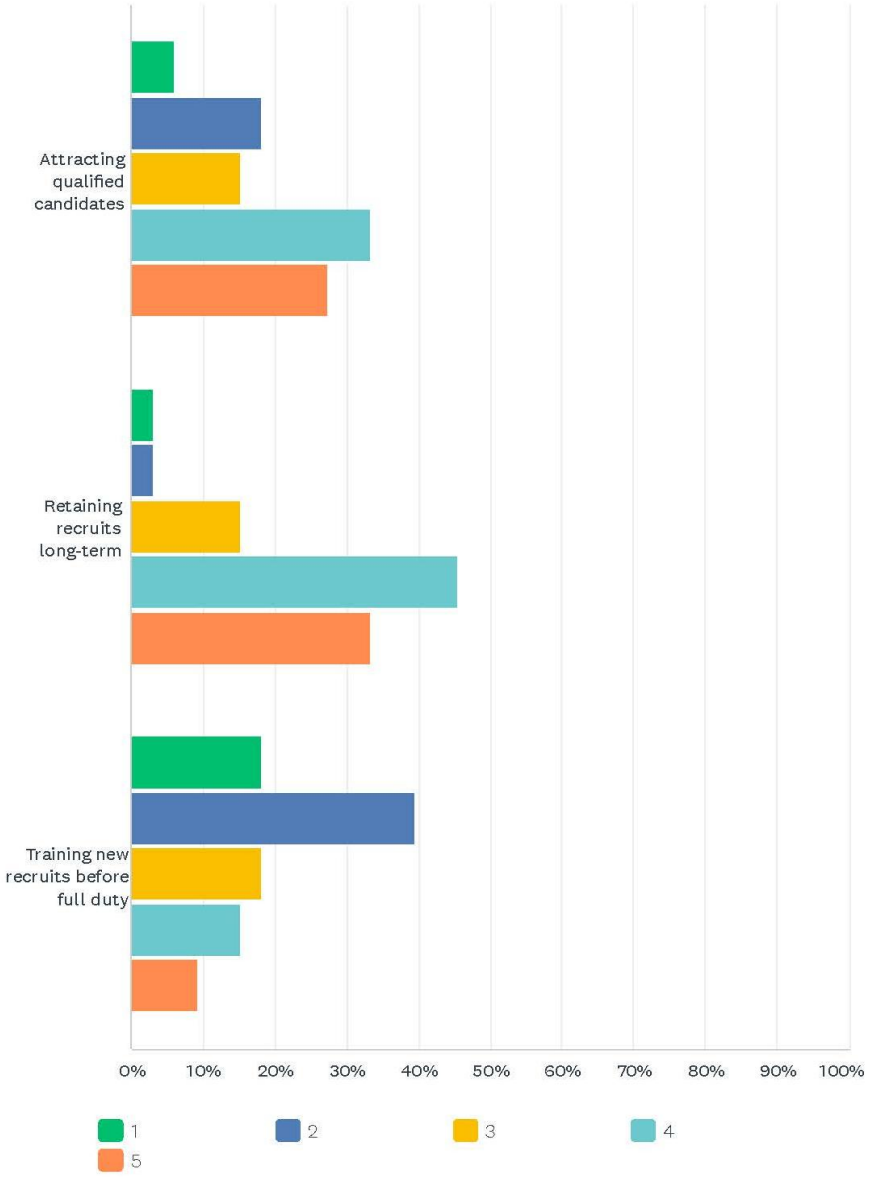
Answered: 32 Skipped: 3



	1	2	3	4	5	TOTAL	WEIGHTED AVERAGE
Job stress and burnout	9.38% 3	12.50% 4	18.75% 6	40.63% 13	18.75% 6	32	3.47
Compensation and benefits	12.50% 4	31.25% 10	37.50% 12	9.38% 3	9.38% 3	32	2.72
Work-life balance	6.25% 2	21.88% 7	34.38% 11	25.00% 8	12.50% 4	32	3.16
Retirement/Attrition	0.00% 0	9.38% 3	25.00% 8	46.88% 15	18.75% 6	32	3.75

Q9 Please rank the following aspects of the recruiting program in order of effectiveness, with 5 being the most effective and 1 being the least effective:

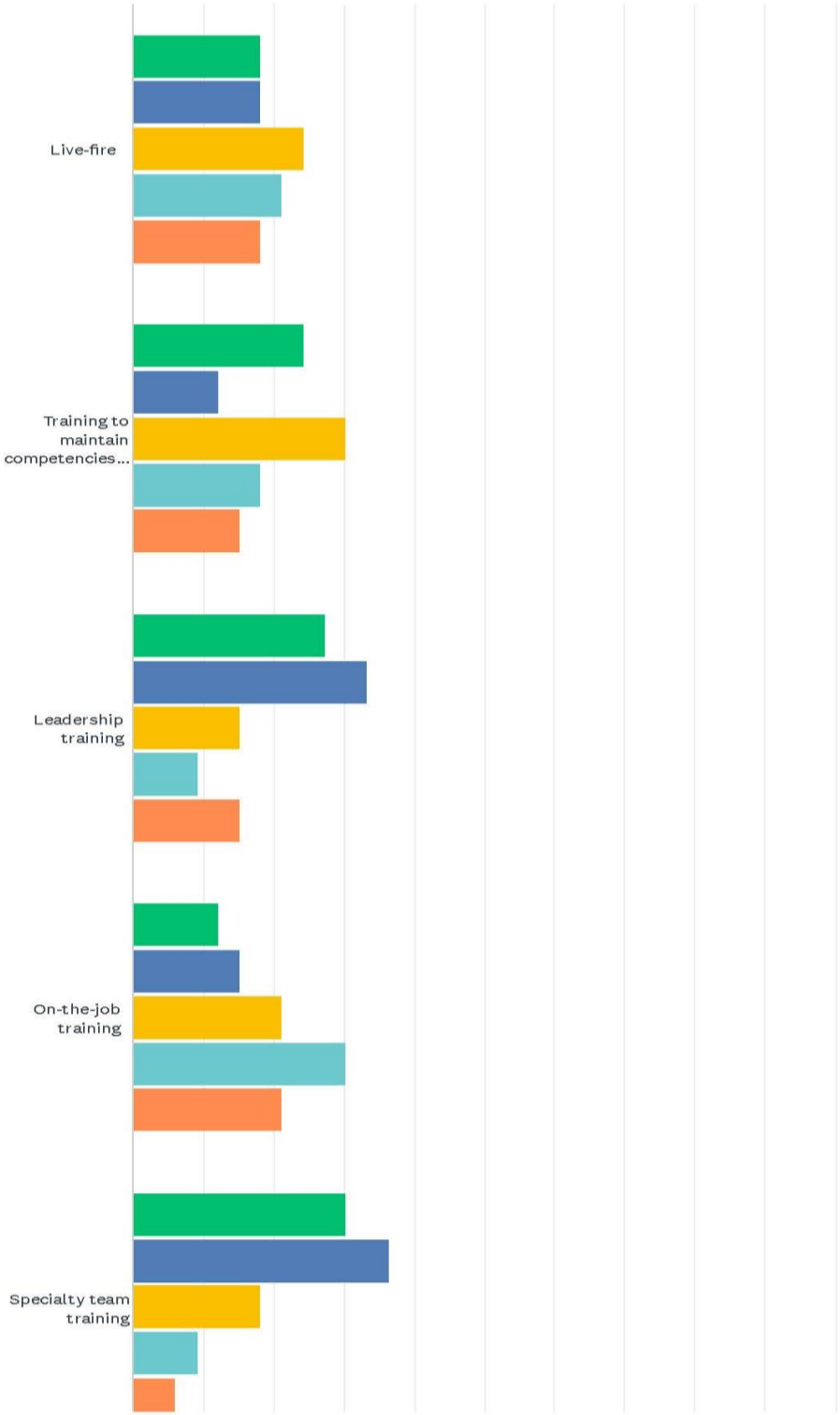
Answered: 33 Skipped: 2



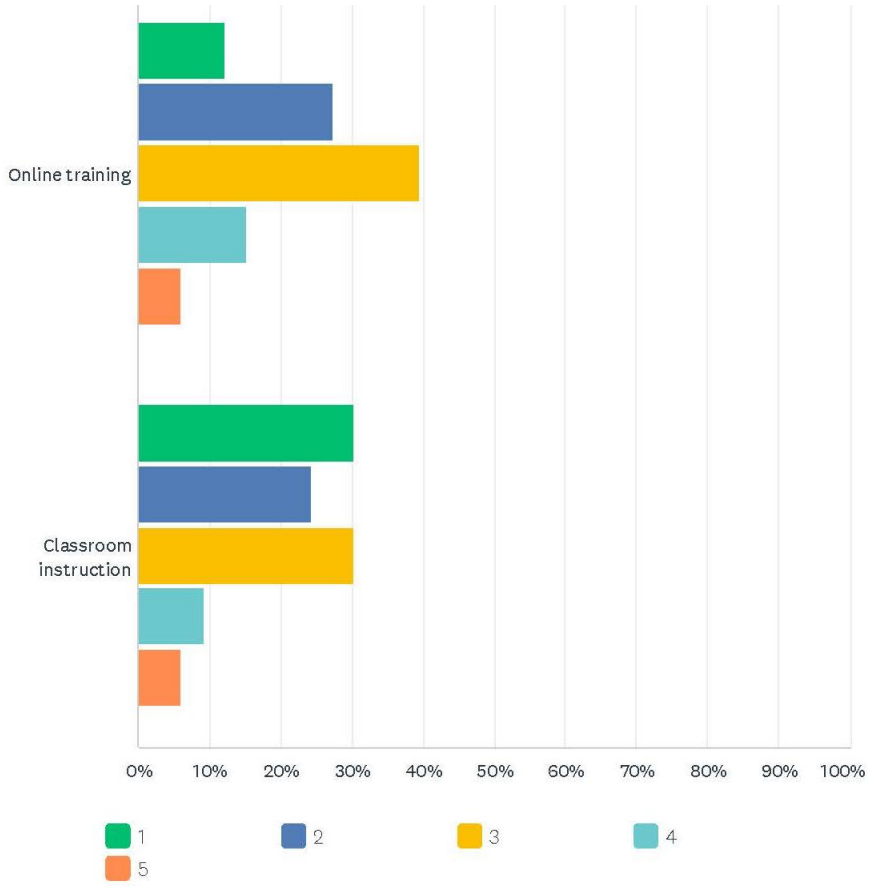
	1	2	3	4	5	TOTAL	WEIGHTED AVERAGE
Attracting qualified candidates	6.06% 2	18.18% 6	15.15% 5	33.33% 11	27.27% 9	33	3.58
Retaining recruits long-term	3.03% 1	3.03% 1	15.15% 5	45.45% 15	33.33% 11	33	4.03
Training new recruits before full duty	18.18% 6	39.39% 13	18.18% 6	15.15% 5	9.09% 3	33	2.58

Q10 Please rank the following training aspects, with 5 being the most adequate and 1 being the least adequate:

Answered: 33 Skipped: 2



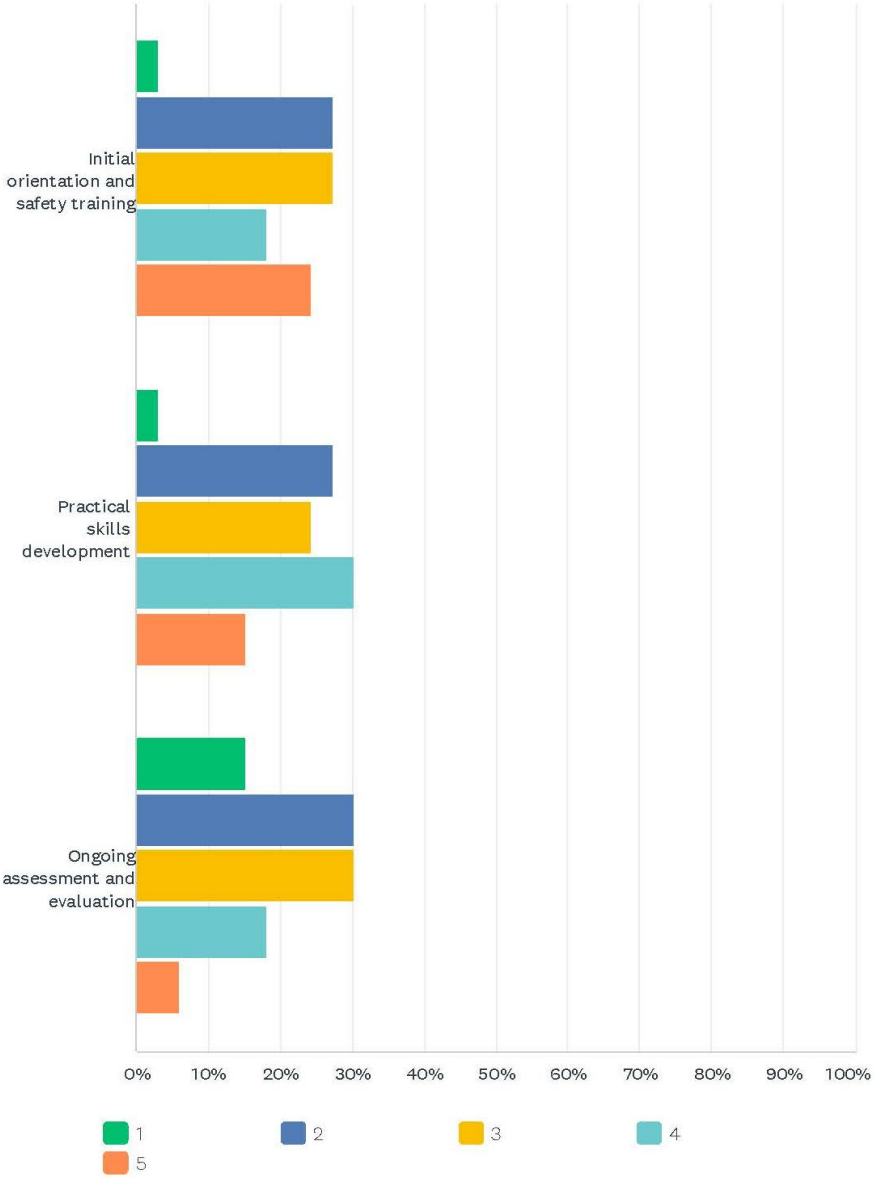
Q10 Continued



	1	2	3	4	5	TOTAL	WEIGHTED AVERAGE
Live-fire	18.18% 6	18.18% 6	24.24% 8	21.21% 7	18.18% 6	33	3.03
Training to maintain competencies and certifications	24.24% 8	12.12% 4	30.30% 10	18.18% 6	15.15% 5	33	2.88
Leadership training	27.27% 9	33.33% 11	15.15% 5	9.09% 3	15.15% 5	33	2.52
On-the-job training	12.12% 4	15.15% 5	21.21% 7	30.30% 10	21.21% 7	33	3.33
Specialty team training	30.30% 10	36.36% 12	18.18% 6	9.09% 3	6.06% 2	33	2.24
Online training	12.12% 4	27.27% 9	39.39% 13	15.15% 5	6.06% 2	33	2.76
Classroom instruction	30.30% 10	24.24% 8	30.30% 10	9.09% 3	6.06% 2	33	2.36

Q11 Please rank the following phases of recruit training in order of adequacy before full duty, with 5 being the most adequate and 1 being the least adequate:

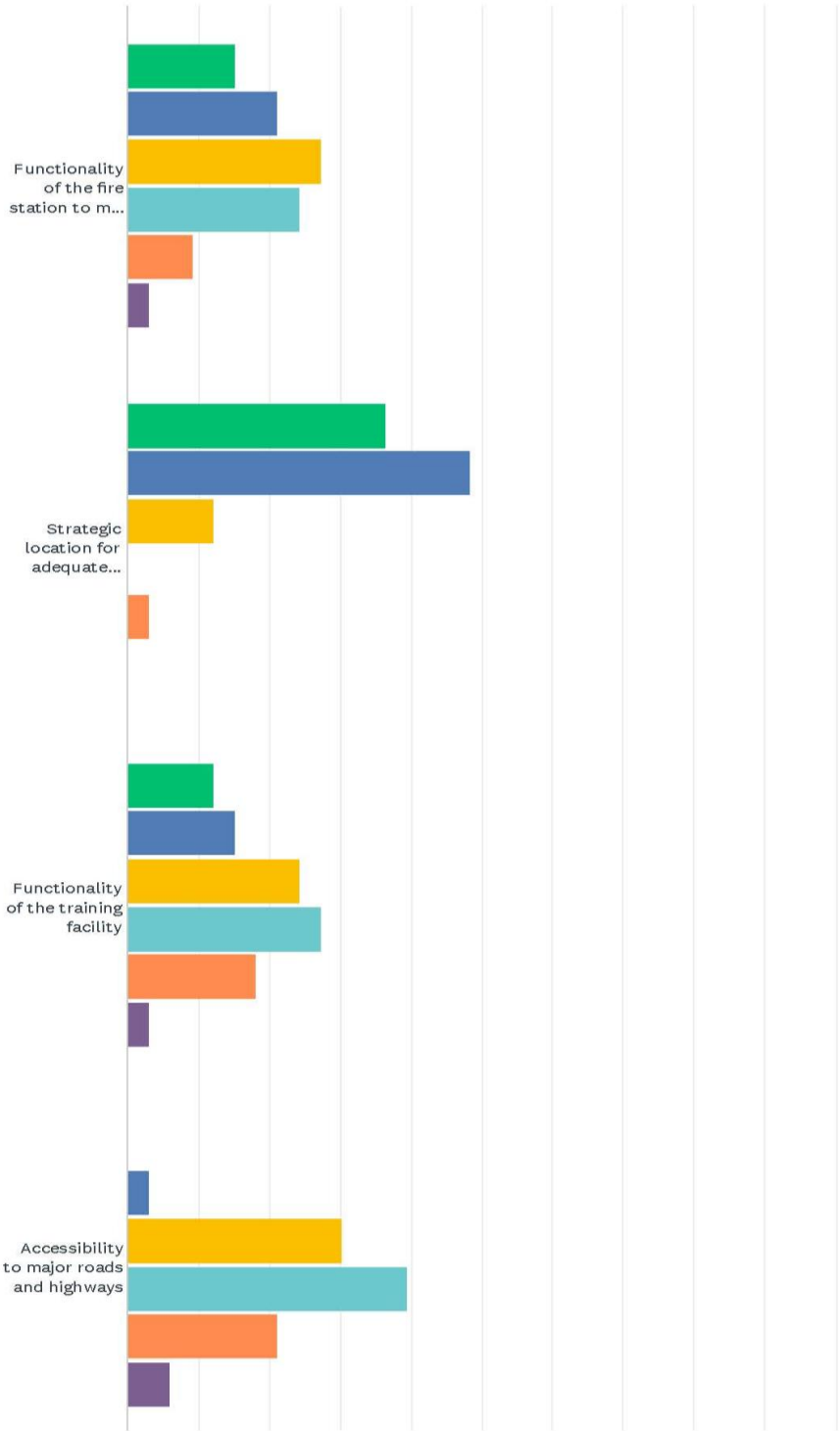
Answered: 33 Skipped: 2



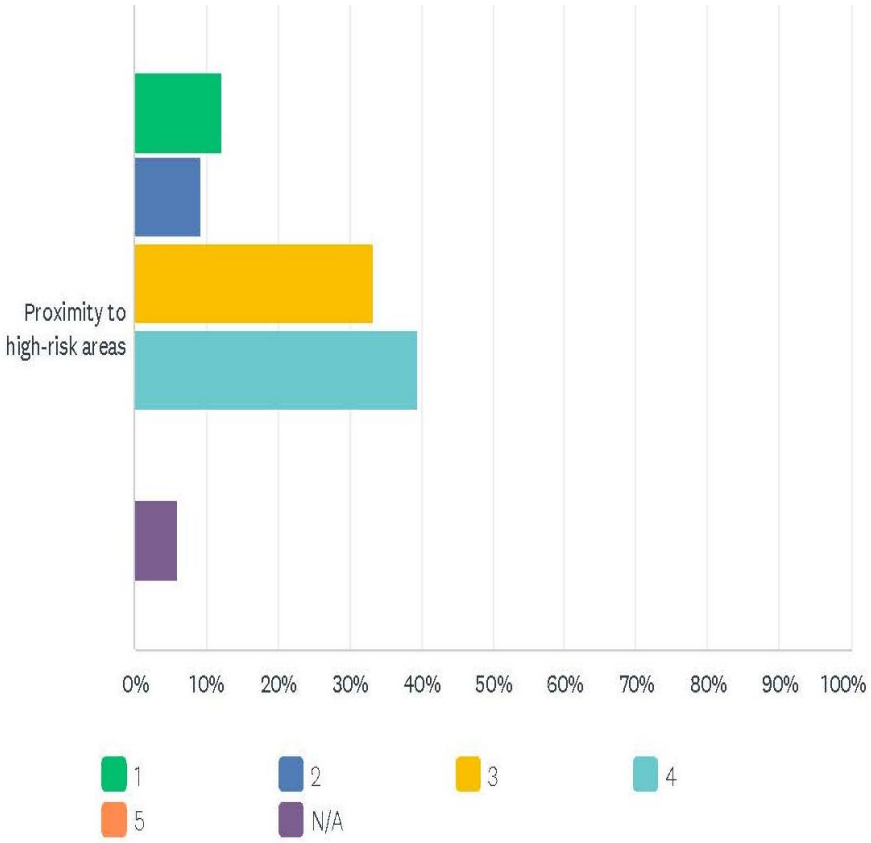
	1	2	3	4	5	TOTAL	WEIGHTED AVERAGE
Initial orientation and safety training	3.03% 1	27.27% 9	27.27% 9	18.18% 6	24.24% 8	33	3.33
Practical skills development	3.03% 1	27.27% 9	24.24% 8	30.30% 10	15.15% 5	33	3.27
Ongoing assessment and evaluation	15.15% 5	30.30% 10	30.30% 10	18.18% 6	6.06% 2	33	2.70

Q12 Please rank the following aspects of the fire facility(ies) on how well they meet the department's needs, with 5 being the best and 1 being the worst:

Answered: 33 Skipped: 2



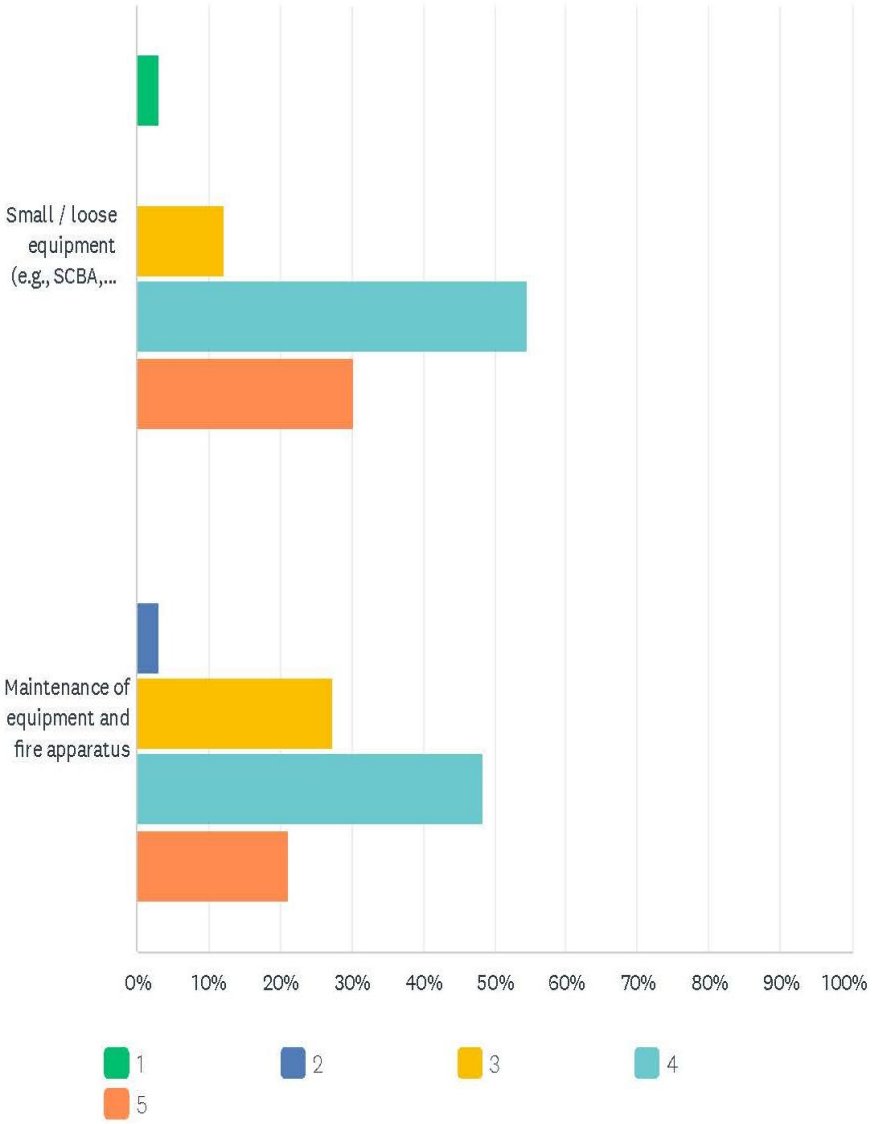
Q12 Continued



	1	2	3	4	5	N/A	TOTAL	WEIGHTED AVERAGE
Functionality of the fire station to meet operational needs	15.15% 5	21.21% 7	27.27% 9	24.24% 8	9.09% 3	3.03% 1	33	2.91
Strategic location for adequate geographic coverage	36.36% 12	48.48% 16	12.12% 4	0.00% 0	3.03% 1	0.00% 0	33	1.85
Functionality of the training facility	12.12% 4	15.15% 5	24.24% 8	27.27% 9	18.18% 6	3.03% 1	33	3.25
Accessibility to major roads and highways	0.00% 0	3.03% 1	30.30% 10	39.39% 13	21.21% 7	6.06% 2	33	3.84
Proximity to high-risk areas	12.12% 4	9.09% 3	33.33% 11	39.39% 13	0.00% 0	6.06% 2	33	3.06

Q13 Please rank the following equipment resources, with 5 being the most adequate and 1 being the least adequate:

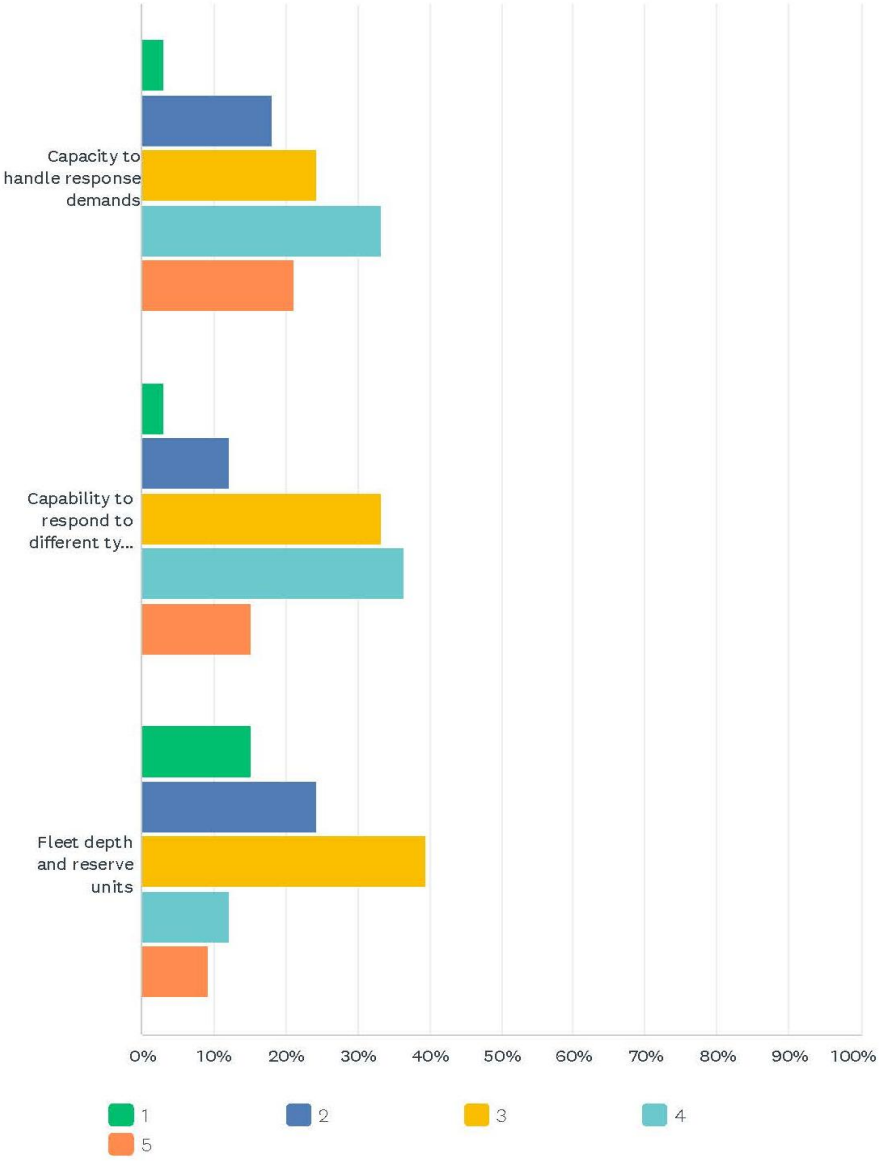
Answered: 33 Skipped: 2



	1	2	3	4	5	TOTAL	WEIGHTED AVERAGE
Small / loose equipment (e.g., SCBA, TIC, hydraulic equipment)	3.03% 1	0.00% 0	12.12% 4	54.55% 18	30.30% 10	33	4.09
Maintenance of equipment and fire apparatus	0.00% 0	3.03% 1	27.27% 9	48.48% 16	21.21% 7	33	3.88

Q14 Please rank the following aspects of fire apparatus and light-duty vehicle fleet in order of their effectiveness in meeting operational demands, with 5 being the most effective and 1 being the least effective:

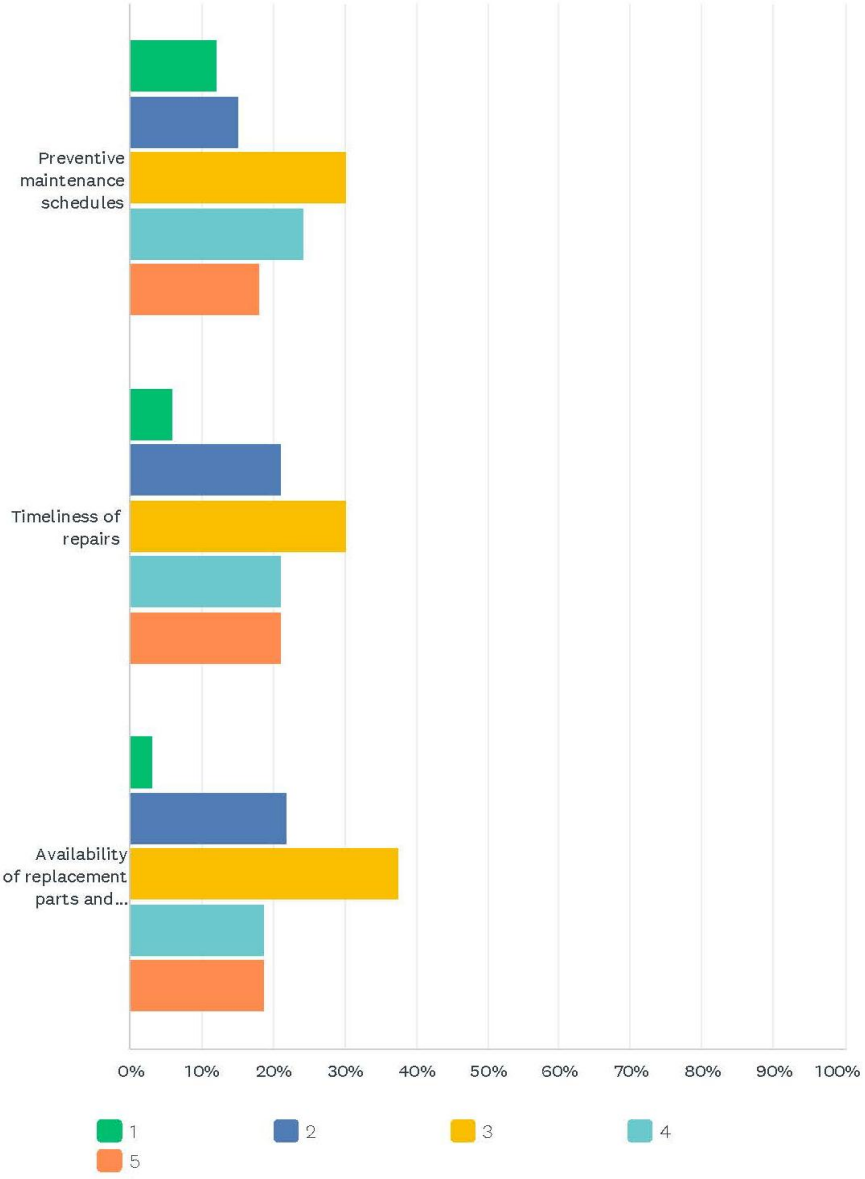
Answered: 33 Skipped: 2



	1	2	3	4	5	TOTAL	WEIGHTED AVERAGE
Capacity to handle response demands	3.03% 1	18.18% 6	24.24% 8	33.33% 11	21.21% 7	33	3.52
Capability to respond to different types of emergencies	3.03% 1	12.12% 4	33.33% 11	36.36% 12	15.15% 5	33	3.48
Fleet depth and reserve units	15.15% 5	24.24% 8	39.39% 13	12.12% 4	9.09% 3	33	2.76

Q15 Please rank the following maintenance practices in order of adequacy, with 5 being the most adequate and 1 being the least adequate:

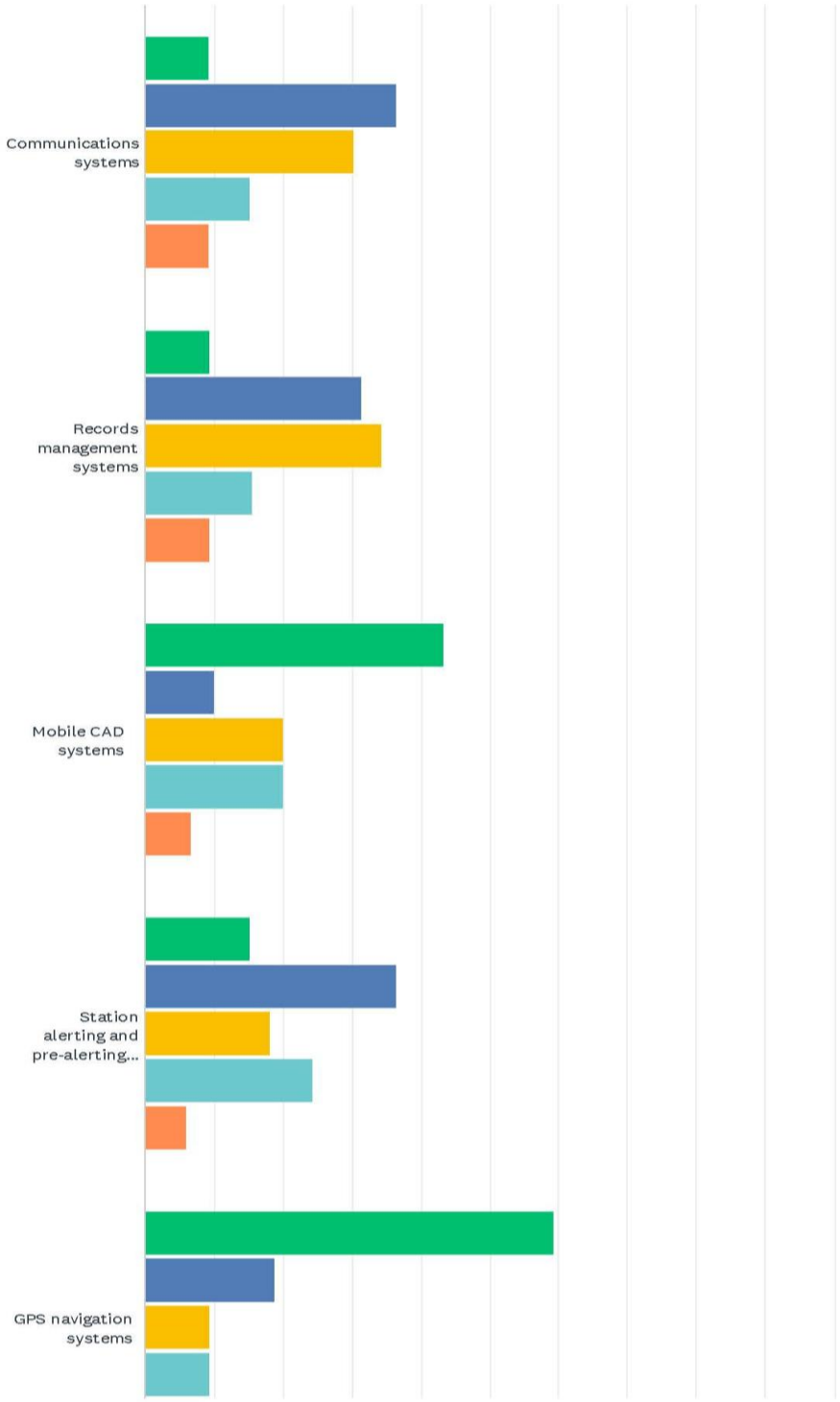
Answered: 33 Skipped: 2



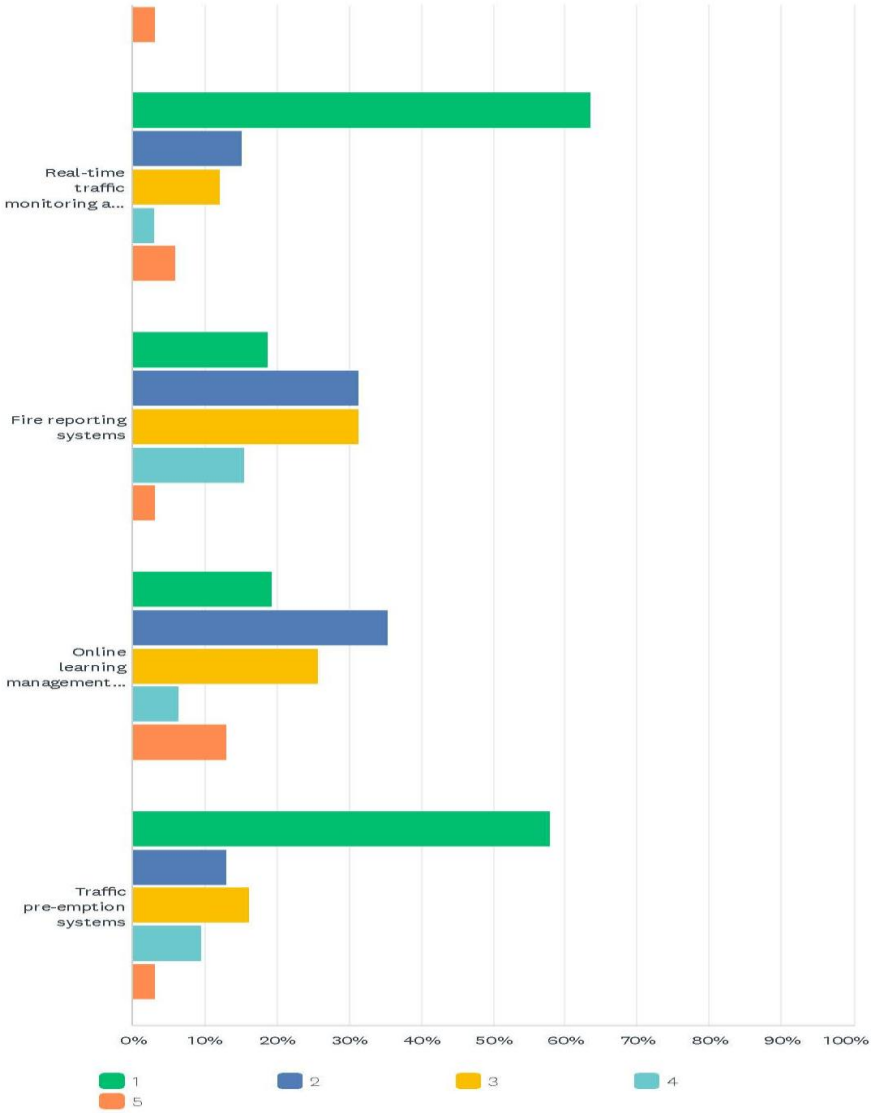
	1	2	3	4	5	TOTAL	WEIGHTED AVERAGE
Preventive maintenance schedules	12.12% 4	15.15% 5	30.30% 10	24.24% 8	18.18% 6	33	3.21
Timeliness of repairs	6.06% 2	21.21% 7	30.30% 10	21.21% 7	21.21% 7	33	3.30
Availability of replacement parts and resources	3.13% 1	21.88% 7	37.50% 12	18.75% 6	18.75% 6	32	3.28

Q16 Please rank the following technology areas in order of how well the service keeps pace with advancements in technology and process, with 5 being the most up-to-date and 1 being the least up-to-date:

Answered: 33 Skipped: 2



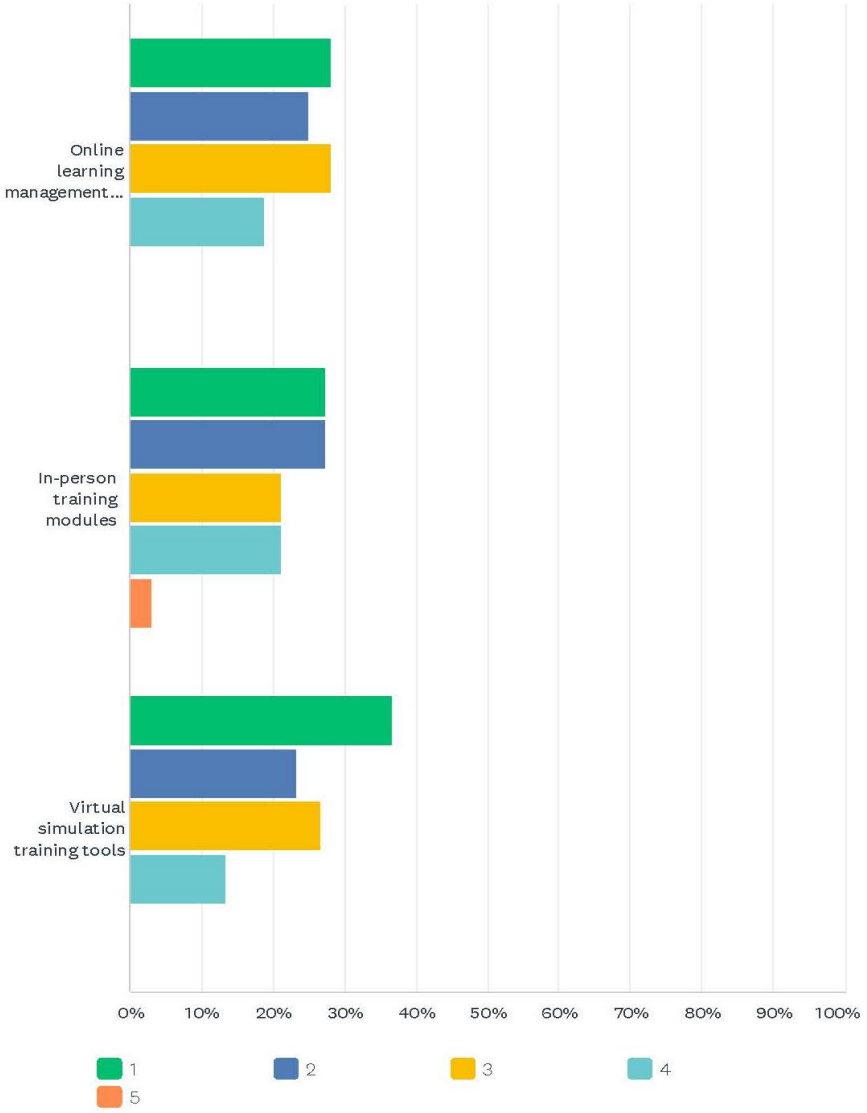
Q16 Continued



	1	2	3	4	5	TOTAL	WEIGHTED AVERAGE
Communications systems	9.09% 3	36.36% 12	30.30% 10	15.15% 5	9.09% 3	33	2.79
Records management systems	9.38% 3	31.25% 10	34.38% 11	15.63% 5	9.38% 3	32	2.84
Mobile CAD systems	43.33% 13	10.00% 3	20.00% 6	20.00% 6	6.67% 2	30	2.37
Station alerting and pre-alerting systems	15.15% 5	36.36% 12	18.18% 6	24.24% 8	6.06% 2	33	2.70
GPS navigation systems	59.38% 19	18.75% 6	9.38% 3	9.38% 3	3.13% 1	32	1.78
Real-time traffic monitoring and updates	63.64% 21	15.15% 5	12.12% 4	3.03% 1	6.06% 2	33	1.73
Fire reporting systems	18.75% 6	31.25% 10	31.25% 10	15.63% 5	3.13% 1	32	2.53
Online learning management systems (LMS)	19.35% 6	35.48% 11	25.81% 8	6.45% 2	12.90% 4	31	2.58
Traffic pre-emption systems	58.06% 18	12.90% 4	16.13% 5	9.68% 3	3.23% 1	31	1.87

Q17 Please rank the following training technologies in order of their effectiveness in supporting continuous learning, with 5 being the most effective and 1 being the least effective:

Answered: 33 Skipped: 2



	1	2	3	4	5	TOTAL	WEIGHTED AVERAGE
Online learning management systems (LMS)	28.13% 9	25.00% 8	28.13% 9	18.75% 6	0.00% 0	32	2.38
In-person training modules	27.27% 9	27.27% 9	21.21% 7	21.21% 7	3.03% 1	33	2.45
Virtual simulation training tools	36.67% 11	23.33% 7	26.67% 8	13.33% 4	0.00% 0	30	2.17

Appendix E: Mandatory Certification for Fire Protection Services

Item	Fire protection service	Minimum Certification Standard	Compliance Deadline
1	Firefighter Exterior Attack: Fire suppression operations from the exterior of the building only.	The following job performance requirements of NFPA 1001, "Standard for Fire Fighter Professional Qualifications", 2019 Edition, Chapter 4 (Firefighter I) and Chapter 5 (Firefighter II): 4.1, 4.2, 4.3.1, 4.3.2,4.3.3, 4.3.6, 4.3.7, 4.3.8, 4.3.10 (A1-A9, B1-B3, B4 (exterior stairway), B5-B10), 4.3.15, 4.3.16, 4.3.17, 4.3.18, 4.3.19, 4.3.20, 4.3.21, 4.5 5.1, 5.2, 5.3.1, 5.3.2 (A1-A4), 5.3.3, 5.3.4, 5.4.2, 5.5.3, 5.5.4, 5.5.5	July 1, 2026
2	Firefighter Exterior Attack and auto extrication: Fire suppression operations from the exterior of the building only and auto extrication rescue.	All job performance requirements in item 1 and the following job performance requirements of NFPA 1001, "Standard for Fire Fighter Professional Qualifications", 2019 Edition, Chapter 5 (Firefighter II): 5.4.1	July 1, 2026

Item	Fire protection service	Minimum Certification Standard	Compliance Deadline
3	Firefighter Exterior Attack and hazardous materials response: Fire suppression operations from the exterior of the building only and Operations-level hazardous materials response.	All job performance requirements in item 1, all job performance requirements of NFPA 1072, "Standard for Hazardous Materials/Weapons of Mass Destruction Emergency Response Personnel Professional Qualifications", 2017 Edition, Chapter 5 (Operations) and the following job performance requirements of Chapter 6 (Operations Mission Specific): 6.2 and 6.6	July 1, 2026
4	Firefighter Exterior Attack, auto extrication and hazardous materials response: Fire suppression operations from the exterior of the building only, automobile extrication rescue and Operations-level hazardous materials response.	All job performance requirements in items 1, 2 and 3.	July 1, 2026
5	Firefighter Interior Attack: Fire suppression operations that enter the interior of the building and can perform rescue.	All job performance requirements in item 1 and the following job performance requirements of NFPA 1001, "Standard for Fire Fighter Professional Qualifications", 2019 Edition, Chapter 4 (Firefighter I) and Chapter 5 (Firefighter II): 4.3.4, 4.3.9, 4.3.10 (A10-A11, B4 (interior stairway), B11), 4.3.11, 4.3.12, 4.3.13, 4.3.14 5.3.2 (A5-A9, B1-B6)	July 1, 2026

Item	Fire protection service	Minimum Certification Standard	Compliance Deadline
6	Firefighter Interior Attack and auto extrication: Fire suppression operations that enter the interior of the building and can perform rescue and automobile extrication rescue.	All job performance requirements in item 5 and the following job performance requirements of NFPA 1001, "Standard for Fire Fighter Professional Qualifications", 2019 Edition, Chapter 5 (Firefighter II): 5.4.1	July 1, 2026
7	Firefighter Interior Attack and hazardous materials response: Fire suppression operations that enter the interior of the building and Operations-level hazardous materials response.	All job performance requirements in item 5, all job performance requirements of NFPA 1072, "Standard for Hazardous Materials/Weapons of Mass Destruction Emergency Response Personnel Professional Qualifications", 2017 Edition, Chapter 5 (Operations) and the following job performance requirements of Chapter 6 (Operations Mission Specific): 6.2 and 6.6	July 1, 2026
8	Firefighter Interior Attack, auto extrication and hazardous materials response: Fire suppression operations that enter the interior of the building and can perform rescue, automobile extrication rescue and Operations-level hazardous materials response (full-service firefighter).	All job performance requirements of NFPA 1001, "Standard for Fire Fighter Professional Qualifications", 2019 Edition, Chapter 5 (Firefighter II).	July 1, 2026
9	Team Lead Exterior Attack: Supervision of firefighters that provide fire suppression operations from the exterior of the building only.	All job performance requirements in item 1 and the following job performance requirements of NFPA 1021, "Standard for Fire Officer Professional Qualifications", 2020 edition, Chapter 4 (Fire Officer I): 4.1.1, 4.2.1, 4.2.2, 4.2.3, 4.2.4, 4.4.1, 4.4.2, 4.4.4, 4.4.5, 4.5.3, 4.6, 4.7.1, 4.7.3	July 1, 2026

Item	Fire protection service	Minimum Certification Standard	Compliance Deadline
10	Team Lead Exterior Attack and auto extrication: Supervision of firefighters that provide fire suppression operations from the exterior of the building only or that provide auto extrication rescue.	All job performance requirements in item 2 and the following job performance requirements of NFPA 1021, "Standard for Fire Officer Professional Qualifications", 2020 edition, Chapter 4 (Fire Officer I): 4.1.1, 4.2.1, 4.2.2, 4.2.3, 4.2.4, 4.4.1, 4.4.2, 4.4.4, 4.4.5, 4.5.3, 4.6, 4.7.1, 4.7.3	July 1, 2026
11	Team Lead Exterior Attack and hazardous materials response: Supervision of firefighters that provide fire suppression operations from the exterior of the building only or that provide Operations-level hazardous materials response.	All job performance requirements in item 3 and the following job performance requirements of NFPA 1021, "Standard for Fire Officer Professional Qualifications", 2020 edition, Chapter 4 (Fire Officer I): 4.1.1, 4.2.1, 4.2.2, 4.2.3, 4.2.4, 4.4.1, 4.4.2, 4.4.4, 4.4.5, 4.5.3, 4.6, 4.7.1, 4.7.3	July 1, 2026
12	Team Lead Exterior Attack, auto extrication and hazardous materials: Supervision of firefighters that provide fire suppression operations from the exterior of the building only or that provide automobile extrication rescue or Operations-level hazardous materials response.	All job performance requirements in item 4, and the following job performance requirements of NFPA 1021, "Standard for Fire Officer Professional Qualifications", 2020 edition, Chapter 4 (Fire Officer I): 4.1.1, 4.2.1, 4.2.2, 4.2.3, 4.2.4, 4.4.1, 4.4.2, 4.4.4, 4.4.5, 4.5.3, 4.6, 4.7.1, 4.7.3	July 1, 2026

Item	Fire protection service	Minimum Certification Standard	Compliance Deadline
13	Team Lead Interior Attack: Supervision of firefighters that provide fire suppression operations from the interior of the building and can perform rescue.	All job performance requirements in item 5 and the following job performance requirements of NFPA 1021, "Standard for Fire Officer Professional Qualifications", 2020 edition, Chapter 4 (Fire Officer I): 4.1.1, 4.2.1, 4.2.2, 4.2.3, 4.2.4, 4.4.1, 4.4.2, 4.4.4, 4.4.5, 4.5.3, 4.6, 4.7.1, 4.7.3	July 1, 2026
14	Team Lead Interior Attack and auto extrication: Supervision of firefighters that provide fire suppression operations from the interior of the building and can perform rescue or that provide automobile extrication rescue.	All job performance requirements in item 6 and the following job performance requirements of NFPA 1021, "Standard for Fire Officer Professional Qualifications", 2020 edition, Chapter 4 (Fire Officer I): 4.1.1, 4.2.1, 4.2.2, 4.2.3, 4.2.4, 4.4.1, 4.4.2, 4.4.4, 4.4.5, 4.5.3, 4.6, 4.7.1, 4.7.3	July 1, 2026
15	Team Lead Interior Attack and hazardous materials response: Supervision of firefighters that provide fire suppression operations from the interior of the building and can perform rescue or that provide Operations-level hazardous materials response.	All job performance requirements in item 7 and the following job performance requirements of NFPA 1021, "Standard for Fire Officer Professional Qualifications", 2020 edition, Chapter 4 (Fire Officer I): 4.1.1, 4.2.1, 4.2.2, 4.2.3, 4.2.4, 4.4.1, 4.4.2, 4.4.4, 4.4.5, 4.5.3, 4.6, 4.7.1, 4.7.3	July 1, 2026
16	Team Lead Interior Attack, auto extrication and hazardous materials response: Supervision of firefighters that provide fire suppression operations from the interior of the building and can perform rescue or that provide automobile extrication rescue or Operations-level hazardous materials response (full-service fire officer).	All job performance requirements of NFPA 1021 "Standard for Fire Officer Professional Qualifications", 2020 edition, Chapter 4 (Fire Officer I).	July 1, 2026

Item	Fire protection service	Minimum Certification Standard	Compliance Deadline
17	Pump Operations: Operation of a pumper apparatus without driving the apparatus, or where the apparatus does not require a class D licence.	All job performance requirements of NFPA 1002, "Standard for Fire Apparatus Driver/Operator Professional Qualifications", 2017 Edition, Chapter 5 (Apparatus Equipped with Fire Pump), without pre-requisites in Chapter 4.	July 1, 2026
18	Pump Operations: driver: Driving and operating a pumper apparatus that requires a class D licence.	All job performance requirements in NFPA 1002 "Standard for Fire Apparatus Driver/Operator Professional Qualifications", 2017 Edition, Chapter 5 (Apparatus Equipped with Fire Pump).	July 1, 2026
19	Fire Prevention/Inspection Level I: conducting fire and life safety inspections.	All job performance requirements of NFPA 1031, "Standard for Professional Qualifications for Fire Inspector and Plan Examiner", 2014 Edition, Chapter 4 (Fire Inspector I).	July 1, 2026
20	Fire Prevention/Inspection Level II: conducting fire and life safety inspections including in facilities that store, handle or use flammable/combustible liquids.	All job performance requirements in item 19 and NFPA 1031, "Standard for Professional Qualifications for Fire Inspector and Plan Examiner", 2014 Edition, Chapter 5 (Fire Inspector II).	July 1, 2026
21	Fire Investigator: conducting fire cause and origin investigations.	All job performance requirements of NFPA 1033, "Professional Qualifications for Fire Investigator", 2014 Edition, Chapter 4 (Fire Investigator).	July 1, 2026
22	Fire and Life Safety Educator: providing fire and life safety education.	All job performance requirements of NFPA 1035, "Standard on Fire and Life Safety Educator, Public Information Officer, Youth Firesetter Intervention Specialist, and Youth Firesetter Program Manager Professional Qualifications", 2015 Edition, Chapter 4 (Fire and Life Safety Educator I).	July 1, 2026

Item	Fire protection service	Minimum Certification Standard	Compliance Deadline
23	Training Officer Level I: providing training and education to other fire personnel.	All job performance requirements of NFPA 1041, "Standard for Fire and Emergency Services Instructor Professional Qualifications", 2019 Edition, Chapter 4 (Fire and Emergency Services Instructor I).	July 1, 2026
24	Training Officer Level II: providing training and education to other fire personnel including lead instructor roles at live fire and above or below grades technical rescue practical training.	All job performance requirements in item 23 and NFPA 1041, "Standard for Fire and Emergency Services Instructor Professional Qualifications", 2019 Edition, Chapter 5 (Fire and Emergency Services Instructor II).	July 1, 2026
25	Emergency Communicators Level I: taking emergency calls.	All job performance requirements of NFPA 1061, "Standard for Public Safety Telecommunications Personnel Professional Qualifications", 2018 Edition, Chapter 4 (Public Safety Telecommunicator I).	July 1, 2026
26	Emergency Communicators Level II: taking emergency calls and dispatching emergency vehicles.	All job performance requirements in item 25 and NFPA 1061, "Standard for Public Safety Telecommunications Personnel Professional Qualifications", 2018 Edition, Chapter 5 (Public Safety Telecommunicator II).	July 1, 2026
27	Incident Safety Officers: undertaking the primary role of incident safety officer at emergency calls.	All job performance requirements of NFPA 1521, "Standard for Fire Department Safety Officer Professional Qualifications", 2020 Edition, Chapter 5 (Incident Safety Officer).	July 1, 2026
28	Hazardous Materials Response — Operations Mission Specific Level: responding to emergencies involving hazardous materials at the Operations Mission Specific Level.	All job performance requirements of NFPA 1072, "Standard for Hazardous Materials/Weapons of Mass Destruction Emergency Response Personnel Professional Qualifications", 2017 Edition, Chapter 6 (Operations Mission Specific)	July 1, 2026

Item	Fire protection service	Minimum Certification Standard	Compliance Deadline
29	Hazardous Materials Response — Technician Level: responding to emergencies involving hazardous materials at the Technician Level.	All job performance requirements of NFPA 1072, "Standard for Hazardous Materials/Weapons of Mass Destruction Emergency Response Personnel Professional Qualifications", 2017 Edition, Chapter 7 (Hazardous Materials Technician).	July 1, 2026
30	Rope Rescue — Operations: rope rescue at the Operations Level.	The following job performance requirements of NFPA 1006, "Standard for Technical Rescue Personnel Professional Qualifications", 2021 Edition, Chapter 5 (Rope Rescue) (Operations): 5.2	July 1, 2028
31	Rope Rescue — Technician: rope rescue at the Technician Level.	The following job performance requirements of NFPA 1006, "Standard for Technical Rescue Personnel Professional Qualifications", 2021 Edition, Chapter 5 (Rope Rescue) (Technician): 5.3	July 1, 2028
32	Structural Collapse — Operations: structural collapse rescue at the Operations Level.	The following job performance requirements of NFPA 1006, "Standard for Technical Rescue Personnel Professional Qualifications", 2021 Edition, Chapter 6 (Structural Collapse Rescue) (Operations): 6.2	July 1, 2028

Item	Fire protection service	Minimum Certification Standard	Compliance Deadline
33	Structural Collapse — Technician: structural collapse rescue at the Technician Level.	The following job performance requirements of NFPA 1006, "Standard for Technical Rescue Personnel Professional Qualifications", 2021 Edition, Chapter 6 (Structural Collapse Rescue) (Technician): 6.3	July 1, 2028
34	Confined Space — Operations: confined space rescue at the Operations Level.	The following job performance requirements of NFPA 1006, "Standard for Technical Rescue Personnel Professional Qualifications", 2021 Edition, Chapter 7 (Confined Space Rescue) (Operations): 7.2	July 1, 2028
35	Confined Space — Technician: confined space rescue at the Technician Level.	The following job performance requirements of NFPA 1006, "Standard for Technical Rescue Personnel Professional Qualifications", 2021 Edition, Chapter 7 (Confined Space Rescue) (Technician): 7.3	July 1, 2028
36	Trench Rescue — Operations: trench rescue at the Operations Level.	The following job performance requirements of NFPA 1006, "Standard for Technical Rescue Personnel Professional Qualifications", 2021 Edition, Chapter 12 (Trench Rescue) (Operations): 12.2	July 1, 2028

Item	Fire protection service	Minimum Certification Standard	Compliance Deadline
37	Trench Rescue — Technician: trench rescue at the Technician Level.	The following job performance requirements of NFPA 1006, "Standard for Technical Rescue Personnel Professional Qualifications", 2021 Edition, Chapter 12 (Trench Rescue) (Technician): 12.3	July 1, 2028
38	Surface Water Rescue — Operations: surface water rescue at the Operations Level.	The following job performance requirements of NFPA 1006, "Standard for Technical Rescue Personnel Professional Qualifications", 2021 Edition, Chapter 17 (Surface Water Rescue) (Operations): 17.2	July 1, 2028
39	Surface Water Rescue — Technician: surface water rescue at the Technician Level.	The following job performance requirements of NFPA 1006, "Standard for Technical Rescue Personnel Professional Qualifications", 2021 Edition, Chapter 17 (Surface Water Rescue) (Technician): 17.3	July 1, 2028
40	Swift Water Rescue — Operations: swift water rescue at the Operations Level.	The following job performance requirements of NFPA 1006, "Standard for Technical Rescue Personnel Professional Qualifications", 2021 Edition, Chapter 18 (Swiftwater Rescue) (Operations): 18.2	July 1, 2028

Item	Fire protection service	Minimum Certification Standard	Compliance Deadline
41	Swift Water Rescue — Technician: swift water rescue at the Technician Level.	The following job performance requirements of NFPA 1006, "Standard for Technical Rescue Personnel Professional Qualifications", 2021 Edition, Chapter 18 (Swiftwater Rescue) (Technician): 18.3	July 1, 2028
42	Ice Water Rescue — Operations: ice water rescue at the Operations Level.	The following job performance requirements of NFPA 1006, "Standard for Technical Rescue Personnel Professional Qualifications", 2021 Edition, Chapter 20 (Ice Rescue) (Operations): 20.2	July 1, 2028
43	Ice Water Rescue — Technician: ice water rescue at the Technician Level.	The following job performance requirements of NFPA 1006, "Standard for Technical Rescue Personnel Professional Qualifications", 2021 Edition, Chapter 20 (Ice Rescue) (Technician): 20.3	July 1, 2028

Appendix F: Fire Prevention Staffing Model – Current State

Capacity Planning Model by OBC Building Group Type

OBC Building Class	Inspection Frequency (Years)	NFPA 1730	Meet			
A	3	1	✓	33%	Classification	
B	1	1	✓	100%	Chief FPO	0
C	1	1	✓	100%	FPO	1
D	3	3	✓	33%	Inspector	1
E	3	3	✓	33%	Public Eductor	1
F	3	2	✓	50%		
F - Division 1	2	1	✓	50%	Total	3
						5
Efficiency Factor	78%				Total Added Staff Required	2

	Calculated	Adjusted
Inspectors Required (Inspections)	3.62	4.64
Inspectors Required (Other Activities)	0.39	0.51
	4	5
Number of Inspectors Required		5
Number of Additional Inspectors Required		2

Population	50,000		
FUS Ratio		Target	Deviation
Inspectors	9,715	15,000	5,285
Educators	25,000	50,000	25,000
Provincial Ratio			
Inspectors	9,715	26,000	16,285

CAPACITY PLANNING MODEL BY BUILDING GROUP TYPE

		Method of Inspection	Number of Buildings in Group (A)	Average Time to Complete Initial Inspection (Hours) (B)	Average Time to Complete Recall Inspection (Hours) (C)	Average Time to Complete Initial & Recall Inspection (Hours) (D)	Total Time to Inspect Group (Hours) (A x B)	Frequency of Inspections (Every 1, 2, 3 or 4 Years)	Total Time Each Year to Inspect Group (Person Weeks) (A x B)	Total Time to Inspect Group (Person Years) (A x B)
Group A	**Assembly occupancy** (Group 'A') means the **occupancy** or the use of a **building**, or part thereof, by a gathering of persons for civic, political, travel, religious, social, educational, recreational or like purposes or for the consumption of food or drink.		0	2.5	0.625	3.125	0	3	0.00	0.00
Group B	**Institutional occupancy** (Group 'B') means the **occupancy** or use of a **building** or part thereof by persons who require supervisory care, medical care or medical treatment or by persons who are under restraint for correctional purposes and are incapable of self preservation because of security measures not under their control.									
	Nursing Homes		0	17	4.25	21.25	0	1	0.00	3.44
	Long-Term Care Facilities		19	5	1.25	6.25	118.75	1	2.97	
	Retirement Communities and Homes		0	17	4.25	21.25	0	1	0.00	
	Other Group B Facilities		0	8	2	10	0	1	0.00	
	Detention Homes		0	8	2	10	0	1	0.00	
	Hospital		1	15	3.75	18.75	18.75	1	0.47	
Group C	**Residential occupancy** (Group 'C') means the **occupancy** or use of a **building** or part thereof by persons for whom sleeping accommodation is provided but who are not harboured or detained to receive medical care or treatment or are not involuntarily detained.									
	LOW RISE		13	3	0.75	3.75	48.75	2	0.61	
	HIGH RISE		11	14	3.5	17.5	192.5	1	4.81	

Capacity Planning Model by OBC Building Group Type

ROOMING, BOARDING, LODGING		0	4	1	5	0	1	0.00	0.10
DUAL PURPOSE - ACCESSORY APT.		0	2	0.5	2.5	0	1	0.00	
HOTEL, MOTEL, MOTOR LODGE		0	3	0.75	3.75	0	1	0.00	
SINGLE, SEMI, TOWNHOUSE, CONDO		15,000	N/A	N/A	N/A	N/A	N/A	N/A	
OTHER RESIDENTIAL (Seasonal Worker Homes)		0	1	0.25	1.25	0	5	0.00	

CAPACITY PLANNING MODEL BY BUILDING GROUP TYPE (cont.)

		Method of Inspection	Number of Buildings in Group (A)	Average Time to Complete Initial Inspection (Hours) (B)	Average Time to Complete Recall Inspection (Hours) (C)	Average Time to Complete Initial & Recall Inspection (Hours) (D)	Total Time to Inspect Group (Hours) (A x B)	Frequency of Inspections (Every 1, 2, 3 or 4 Years)	Total Time Each Year to Inspect Group (Person Weeks) (A x B)	Total Time to Inspect Group (Person Years) (A x B)
Group D	**Business and personal services occupancy** (Group 'D') means the **occupancy** or use of a **building** or part thereof for the transaction of business or the rendering or receiving of professional or personal services.			1.5	0.375	1.875	0	3	0.00	0.00
Group E	**Mercantile occupancy** (Group 'E') means the **occupancy** or use of a **building** or part thereof for the displaying or selling of retail goods, wares or merchandise.			2	0.5	2.5	0	3	0.00	0.00
Group F	**Industrial occupancy** (Group 'F') means the **occupancy** or use of a **building** or part thereof for assembling, fabricating, manufacturing, processing, repairing or storing of goods and materials.		43	3	0.75	3.75	161	1	4.03	0.08
Group F Division 1	**High hazard industrial occupancy** (Group 'F' Division 1) means an **industrial occupancy** that contains sufficient quantities of highly combustible and flammable or explosive materials that, because of their inherent characteristics, constitute a special fire hazard.		0	16	4	20	0	2	0.00	0.00
			87							3.62

CAPACITY PLANNING MODEL (ADDITIONAL SERVICES PROVIDED)

		Method of Inspection	Average Number of Inspections per Year	Average Time to Complete Initial Inspection (Hours) (B)	Average Time to Complete Recall Inspection (Hours) (C)	Average Time to Complete Initial & Recall Inspection (Hours) (D)	Total Time to Inspect This Type (Hours) (A x B)	Frequency of Inspections (Every 1, 2, 3 or 4 Years)	Total Time Each Year to Inspect This Type (Person Weeks) (A x B)	Total Time to Inspect This Type (Person Years) (A x B)
Plans Examination	Examination of building plans, blueprints and drawings for new building construction and site inspections of same		30	2	0	2	60	1	1.50	0.03

Capacity Planning Model by OBC Building Group Type

Complaint Inspections	Inspections done to address complaints of possible Fire Code violations or general fire and life safety concerns				50		2		0.5		2.5		125		1		3.13		0.06
Request Inspections	Inspections by owners to address concerns in their building				12		1.5		0		1.5		18		1		0.45		0.01
Information Inspections	Inspections done for third parties (ie. Lawyers, Insurance Companies, Banks, etc.)				42		2		0		2		84		1		2.10		0.04
Court and Prep Time					3		8		0		8		24		1		0.60		0.01
Business License Inspections					29		2		0.5		2.5		72.5		1		1.81		0.03
Fire Safety Plan Review					30		7		2		9		270		1		6.75		0.13
Public Education					90		2		1		3		270		1		6.75		0.00
Fire Investigations	Investigations into the cause and origin of a fire				14		12		0		12		168		1		4.20		0.08
Open Air burn permit house inspections	Inspections done for issuance of burning permit				157		1		0		1		157		1		3.93		0.08

Population in 2016						
100,000	@ Prov. Avg.	1:	26,000	~ Staff Req. =	3.8	
	@ IAO Std.	1:	15,323	~ Staff Req. =	6.5	

	0.39
	3.62
Total =	4.0

Adjusted - Effcy Factor = 5

Appendix G: Fire Prevention Staffing Model – Future State

Capacity Planning Model by OBC Building Group Type

OBC Building Class	Inspection Frequency (Years)	NFPA 1730	FUS	Meet			
A	2	1	0.5	✓	50%	Classification	
B	1	1	0.5	✓	100%	Chief FPO	0
C	1	1	0.5	✓	100%	FPO	1
D	3	3	1	✓	33%	Inspector	1
E	3	3	1	✓	33%	Public Eductor	1
F	2	2	0.5	✓	50%		
F - Division 1	1	1	0.25	✓	100%	Total	3

Population 50,000

FUS Ratio		Target	Deviation
Inspectors	8,159	15,000	6,841
Educators	25,000	50,000	25,000

Provincial Ratio			
Inspectors	8,159	26,000	17,841

Efficiency Factor 78%

	Calculated	Adjusted
Inspectors Required (Inspections)	4.39	5.62
Inspectors Required (Other Activities)	0.39	0.51
	5	6.13
Number of Inspectors Required		7
Number of Additional Inspectors Required		4

6.13
Total FPO Staff Required 7.0

CAPACITY PLANNING MODEL BY BUILDING GROUP TYPE

		Method of Inspection	Number of Buildings in Group (A)	Average Time to Complete Initial Inspection (Hours) (B)	Average Time to Complete Recall Inspection (Hours) (C)	Average Time to Complete Initial & Recall Inspection (Hours) (D)	Total Time to Inspect Group (Hours) (A x B)	Frequency of Inspections (Every 1, 2, 3 or 4 Years)	Total Time Each Year to Inspect Group (Person Weeks) (A x B)	Total Time to Inspect Group (Person Years) (A x B)
Group A	**Assembly occupancy** (Group 'A') means the **occupancy** or the use of a **building**, or part thereof, by a gathering of persons for civic, political, travel, religious, social, educational, recreational or like purposes or for the consumption of food or drink.		107	2.5	0.625	3.125	334.375	2	4.18	0.08
Group B	**Institutional occupancy** (Group 'B') means the **occupancy** or use of a **building** or part thereof by persons who require supervisory care, medical care or medical treatment or by persons who are under restraint for correctional purposes and are incapable of self preservation because of security measures not under their control.									
	Nursing Homes		0	17	4.25	21.25	0	1	0.00	3.69
	Long-Term Care Facilities		19	5	1.25	6.25	118.75	1	2.97	
	Retirement Communities and Homes		0	17	4.25	21.25	0	1	0.00	
	Other Group B Facilities		1	8	2	10	10	1	0.25	
	Detention Homes		0	8	2	10	0	1	0.00	
	Hospital		1	15	3.75	18.75	18.75	1	0.47	
Group C	**Residential occupancy** (Group 'C') means the **occupancy** or use of a **building** or part thereof by persons for whom sleeping accommodation is provided but who are not harboured or detained to receive medical care or treatment or are not involuntarily detained.									
	LOW RISE		13	3	0.75	3.75	48.75	2	0.61	
	HIGH RISE		11	14	3.5	17.5	192.5	1	4.81	

Capacity Planning Model by OBC Building Group Type

ROOMING, BOARDING, LODGING		0	4	1	5	0	1	0.00	0.10
DUAL PURPOSE - ACCESSORY APT.		0	2	0.5	2.5	0	1	0.00	
HOTEL, MOTEL, MOTOR LODGE		0	3	0.75	3.75	0	1	0.00	
SINGLE, SEMI, TOWNHOUSE, CONDO		15,000	N/A	N/A	N/A	N/A	N/A	N/A	
OTHER RESIDENTIAL (Seasonal Worker Homes)		0	1	0.25	1.25	0	5	0.00	

CAPACITY PLANNING MODEL BY BUILDING GROUP TYPE (cont.)

		Method of Inspection	Number of Buildings in Group (A)	Average Time to Complete Initial Inspection (Hours) (B)	Average Time to Complete Recall Inspection (Hours) (C)	Average Time to Complete Initial & Recall Inspection (Hours) (D)	Total Time to Inspect Group (Hours) (A x B)	Frequency of Inspections (Every 1, 2, 3 or 4 Years)	Total Time Each Year to Inspect Group (Person Weeks) (A x B)	Total Time to Inspect Group (Person Years) (A x B)
Group D	**Business and personal services occupancy** (Group 'D') means the **occupancy** or use of a **building** or part thereof for the transaction of business or the rendering or receiving of professional or personal services.		67	1.5	0.375	1.875	126	3	1.05	0.02
Group E	**Mercantile occupancy** (Group 'E') means the **occupancy** or use of a **building** or part thereof for the displaying or selling of retail goods, wares or merchandise.		235	2	0.5	2.5	588	3	4.90	0.09
Group F	**Industrial occupancy** (Group 'F') means the **occupancy** or use of a **building** or part thereof for assembling, fabricating, manufacturing, processing, repairing or storing of goods and materials.		357	3	0.75	3.75	1,339	2	16.73	0.32
Group F Division 1	**High hazard industrial occupancy** (Group 'F' Division 1) means an **industrial occupancy** that contains sufficient quantities of highly combustible and flammable or explosive materials that, because of their inherent characteristics, constitute a special fire hazard.		8	16	4	20	160	1	4.00	0.08
			819							4.39

CAPACITY PLANNING MODEL (ADDITIONAL SERVICES PROVIDED)

		Method of Inspection	Average Number of Inspections per Year	Average Time to Complete Initial Inspection (Hours) (B)	Average Time to Complete Recall Inspection (Hours) (C)	Average Time to Complete Initial & Recall Inspection (Hours) (D)	Total Time to Inspect This Type (Hours) (A x B)	Frequency of Inspections (Every 1, 2, 3 or 4 Years)	Total Time Each Year to Inspect This Type (Person Weeks) (A x B)	Total Time to Inspect This Type (Person Years) (A x B)
Plans Examination	Examination of building plans, blueprints and drawings for new building construction and site inspections of same		30	2	0	2	60	1	1.50	0.03

Capacity Planning Model by OBC Building Group Type

Complaint Inspections	Inspections done to address complaints of possible Fire Code violations or general fire and life safety concerns				50		2		0.5		2.5		125		1		3.13		0.06
Request Inspections	Inspections by owners to address concerns in their building				12		1.5		0		1.5		18		1		0.45		0.01
Information Inspections	Inspections done for third parties (ie. Lawyers, Insurance Companies, Banks, etc.)				42		2		0		2		84		1		2.10		0.04
Court and Prep Time					3		8		0		8		24		1		0.60		0.01
Business License Inspections					29		2		0.5		2.5		72.5		1		1.81		0.03
Fire Safety Plan Review					30		7		2		9		270		1		6.75		0.13
Public Education					90		2		1		3		270		1		6.75		0.00
Fire Investigations	Investigations into the cause and origin of a fire				14		12		0		12		168		1		4.20		0.08
Open Air burn permit house inspections	Inspections done for issuance of burning permit				157		1		0		1		157		1		3.93		0.08

Population in 2016							
100,000	@	Prov. Avg. 1:	26,000	~ Staff Req. =	3.8		0.39
	@	IAO Std. 1:	15,323	~ Staff Req. =	6.5	Total =	4.39
							4.8

Adjusted - Effcy Factor = 6