



# City of Brantford FIRE MASTER PLAN

Final Report  
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## Prepared by:

Behr Integrated Solutions Inc.  
Unit 4, 545 Trillium Drive  
Kitchener ON N2R 1J4  
[www.behrintegrated.com](http://www.behrintegrated.com)



## Preface

This document serves as the Fire Master Plan for the City of Brantford. The primary motivation for developing this document is to 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 Todd Binkley. Despite some challenges for the City of Brantford, Fire Chief Binkley remains positive in his efforts to enhance the service 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 fire service is clear.

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## ACRONYMS

| Acronym | Definition                            |
|---------|---------------------------------------|
| AHJ     | Authority Having Jurisdiction         |
| ASP     | Area Structure Plan                   |
| BFD     | Brantford Fire Department             |
| CRA     | Community Risk Assessment             |
| CSA     | Canadian Standards Association        |
| EMS     | Emergency Medical Services            |
| ERF     | Effective Response Force              |
| EVT     | Emergency Vehicle Technician          |
| FF      | Firefighter                           |
| FMP     | Fire Master Plan                      |
| FT      | Full-time                             |
| FTE     | Fulltime Equivalent                   |
| FUS     | Fire Underwriters Survey              |
| GPM     | Gallons Per Minute                    |
| KPI     | Key Performance Indicators            |
| KSA     | Knowledge, Skills, Abilities          |
| MVC     | Motor Vehicle Collisions              |
| MDS     | Minimum Duty Strength                 |
| NBC     | National Building Code of Canada      |
| NFPA    | National Fire Protection Associations |
| OBC     | Ontario Building Code                 |
| OFC     | Ontario Fire Code                     |
| OFM     | Office of the Ontario Fire Marshal    |
| OHS     | Occupational Health & Safety          |
| POC     | Paid On-Call                          |
| PPE     | Personal Protective Equipment         |
| PSAP    | Public Safety Answering Point         |
| PT      | Part-time                             |
| RMS     | Records Management System             |
| SCO     | Safety Codes Officer                  |
| SOC     | Standards Of Cover                    |
| SOG     | Standard Operating Guidelines         |
| SOP     | Standard Operating Procedures         |
| WSIB    | Workplace Safety and Insurance Board  |
| WUI     | Wildland Urban Interface              |

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## EXECUTIVE SUMMARY

### Introduction

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Fire and emergency services are continuously evolving to meet the demands of a rapidly changing environment. Services face persistent challenges such as budget limitations, population growth, rising call volumes, and increasingly complex and unconventional risks, all while being expected to deliver more with fewer resources. These pressures have expanded the scope of emergency response and management, prompting a shift in roles and the diversification of services.

To manage these demands effectively, emergency services leadership must possess a clear understanding of community risk and the capacity to implement appropriate mitigation strategies. Failure to recognize and address these challenges can leave both the community and its responders exposed and vulnerable.

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

The purpose of a Fire Master Plan (FMP) is to establish a strategic framework for the future of fire services. It offers a comprehensive and systematic approach to evaluating current capabilities through a community risk assessment, identifying areas for improvement, and guiding risk mitigation efforts. An FMP also supports the development and communication of strategic priorities, while identifying opportunities to enhance service delivery.

Additionally, an FMP serves as a communication tool for the public, municipal staff, and council, clarifying the municipality's approach to fire and emergency service planning, service delivery models, policy development, and long-term investment.

Ultimately, this plan will define options for an optimal service delivery model and act as a blueprint for building more effective and efficient fire and emergency services that are resilient to both current and future challenges.

## Strategic Objectives

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The Brantford Fire Department (BFD) 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 BFD to provide a comprehensive fire protection program.

The following Strategic Objectives are the foundational principles that will inform future resource allocations, policy development and operational enhancements:

### **Strategic Objective # 1: Administration**

Strengthen administrative systems and operational efficiency to ensure sustainability of program initiatives. Ensure the continuity of essential operations, deliver relevant performance monitoring data, and manage necessary resources to effectively support identified programs.

### **Strategic Objective #2: Public Education**

Enhance public fire safety education campaigns that target risks identified in the CRA to raise awareness about fire prevention, the importance of fire safety practices, and what to do in an emergency. BFD will expand existing engagement efforts to reach vulnerable populations including children and seniors, and the increasingly diverse community, reinforcing a shared culture of safety and community resilience.

### **Strategic Objective #3: Fire Prevention and Code Enforcement**

Advance the proactive fire safety inspection and enforcement program by maintaining a strong focus on high-risk occupancies and vulnerable populations. Through consistent code application, education, and enforcement, BFD will uphold a prevention-first approach to reducing community risk and supporting compliance.

### **Strategic Objective #4: Emergency Management**

Strengthen City of Brantford's (Brantford) capacity to prepare for, respond to, and recover from all types of emergencies. Through coordinated planning, training, and inter-agency collaboration, the Service will enhance community resilience, safeguard life and property, and support continuity of operations across a broad range of hazards.

**Strategic Objective #5: Emergency Response and Operations**

Provide emergency response services that reflect the community's identified risks, growth projections, and operational realities. Ongoing efforts will focus on optimizing deployment, staffing, and equipment to meet community growth while safeguarding life, property, and firefighter safety. Services will be delivered with a focus on a commitment to efficiency, effectiveness, and long-term value for the community.

**Strategic Objective #6: Training and Professional Development**

Deliver a progressive and sustainable training program aligned with the services authorized in its Establishing and Regulating Bylaw. The program will integrate current firefighting practices, safety standards, and emerging technologies to ensure personnel are equipped with the competencies needed to respond safely and effectively to evolving risks and service demands.

**Strategic Objective #7: Communications and Dispatch**

Maintain and enhance a technologically advanced communications system that supports the operational needs of a growing community. By adopting industry-leading practices, scalable technologies, and robust dispatch protocols, the Service will ensure timely, accurate, and resilient emergency communications that enhance firefighter safety and improve overall service delivery.

**Strategic Objective #8: Capital Assets**

Ensure that apparatus and equipment are available at the appropriate quantity, maintained in a ready and reliable state, which aligns with operational requirements. Through robust preventative maintenance and asset management practices, the Service will support safe, effective, and efficient emergency response across the community.

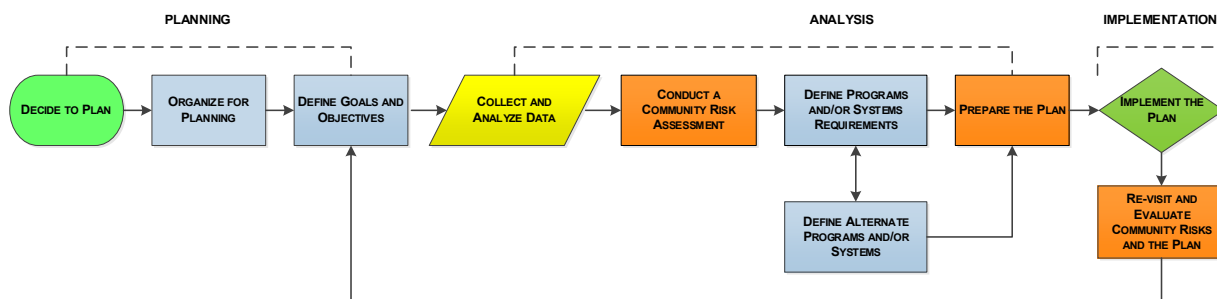
## Fire Services Master Plan Process

The diagram below outlines the methodology used to develop this plan. Often referred to as a “road map” for the future, a Fire Service Master Plan serves as a strategic guide for current and future fire service leaders and decision-makers.

As outlined in the implementation phase, it is strongly recommended that the plan be reviewed and evaluated at least annually. This ensures it remains responsive to evolving conditions, particularly in the face of significant changes such as population growth or increased residential and industrial development, factors that can substantially alter community risk profiles.

Where feasible, a third-party review should be conducted at the five-year mark. This external evaluation introduces an objective perspective, enhances the credibility of the planning process, and ensures the plan continues to reflect best practices and operational realities.

Figure 1: Fire Master Plan Process



## Project Approach and Consultative Process

While risks are the basis for prompting 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 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 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.

An industry peer comparative analysis<sup>1</sup> of BFD was conducted as a method of benchmarking the performance of BFD alongside similar municipalities. These benchmarks include budgets, performance, effectiveness, and efficiencies.

Although fire and emergency services have the same goal of ultimately protecting life, property and the environment, each community has its unique features in how to accomplish their goals. Our main criteria for comparative analysis are indicators of effectiveness and efficiencies for risk and mitigation amongst the communities.

The communities who participated, along with the City of Brantford, include:

- Town of Ajax
- City of Pickering
- City of Peterborough
- City of Cambridge
- Town of Whitby
- City of Guelph
- City of St. Catharines

In 2025, the eight municipalities included in the comparative analysis reported operating budgets ranging from \$122.9 million to \$595.3 million. Brantford ranks three out of eight, with an annual operating budget of \$210.9 million. BFD ranks fourth in fire department operating budgets, with \$24.8 million, compared to a range of \$20.1 million to \$33.1 million across the surveyed participants.

The eight municipalities compared three key measures: municipal budget, fire department budget, and fire cost per capita.

The key insights include:

- Guelph stands out for a substantially higher overall municipal budget, yet its fire budget and cost per capita are in the mid-range.
- Peterborough has a very high municipal budget but the lowest fire budget, resulting in the highest per-capita cost.
- Ajax appears the most cost-efficient with the lowest per-capita cost and a modest fire department allocation.
- Fire budgets do not scale proportionally with municipal budgets—indicating differing service models, population densities, or funding priorities.

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<sup>1</sup> Please see Section 1.9, *Municipal Comparative Analysis*, Page 12

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 to 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

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The City of Brantford is considered a mid-sized urban centre in southwestern Ontario that functions as a regional employment, transportation, and service hub within the Greater Golden Horseshoe. Brantford is situated about an hour west of Toronto on Highway 403 which runs through the community between Woodstock and Mississauga. This makes Brantford a key transportation corridor for the city and provides easy access to Toronto, Hamilton, and other major urban centres.

Its strategic location provides excellent transportation connectivity, including Highways 403 and 24, CN's Quebec-to-Windsor rail corridor for passenger and freight services, and the Brantford Municipal Airport, which connects to global aviation networks. The city is also within reach of major inland and international marine shipping facilities.

Although geographically surrounded by Brant County, Brantford is politically independent. Brantford's municipal planning framework emphasizes managed growth, intensification, employment development, and multimodal transportation integration, all of which have direct implications for fire service deployment, infrastructure planning, and resource allocation. Continued population growth and redevelopment activity reinforce the need for an adaptable and risk-informed approach to emergency service delivery.

## Community Risk Assessment

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In accordance with Ontario Regulation 378/18, Brantford completed a Community Risk Assessment (CRA) in 2025 to evaluate hazards, vulnerabilities, and risk factors that directly impact fire protection service needs. The CRA applied the nine provincially mandated profiles, geographic, building stock, critical infrastructure, demographics, hazard, public safety response, community services, economic, and past loss/event history, using data from BFD, the Office of the Fire Marshal (OFM), Statistics Canada, MPAC, and other municipal sources. This comprehensive approach ensured a balanced evaluation of both the probability and consequence of fire and rescue-related risks.

The CRA identified several high-priority risks requiring strategic attention. Chief among these is the predominance of residential occupancies (Group C), which account for over 98% of Brantford's building stock and most fire-related fatalities, injuries, and losses. Contributing factors include absent or malfunctioning smoke alarms and aging housing stock. Other significant risks include motor vehicle collisions along major transportation corridors, the presence of high-fuel-load industrial properties and large-footprint buildings, vulnerable occupancies such as long-term care homes, demographic risk factors associated with children and seniors, and some areas of aging water infrastructure. Collectively, these findings emphasize the importance of prevention, education, infrastructure planning, and operational readiness.

#### Top Fire & Rescue-Related Risks Identified in Brantford's CRA:

- Residential structure fires in Group C occupancies (predominant source of fatalities, injuries, and loss).
- Absent, failed, or malfunctioning smoke alarms reducing early warning and evacuation.
- Aging and higher-risk buildings that were constructed prior to modern buildings and fire codes.
- Transportation-related emergencies, particularly motor vehicle collisions and dangerous goods incidents along highways and rail.
- Industrial and large-footprint buildings with high fuel loads create disproportionate fire risk.
- Vulnerable occupancies (e.g., long-term care, daycares) with complex evacuation needs.
- Demographic risk factors, including higher proportions of seniors and children
- Aging water infrastructure and areas of network constraint.

## Fire Service Overview

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Brantford Fire Department (BFD) operates as a full-time, professional fire department from four strategically located fire stations that provide continuous 24/7 emergency coverage across the City of Brantford. With approximately 144 full-time personnel, including firefighters, officers, and support staff, BFD is structured to deliver a broad and increasingly complex range of emergency services. Core responsibilities include fire suppression, emergency medical response, hazardous materials incidents, technical rescue, and water and ice rescue, reflecting the department's essential role within the community's overall emergency response system.

These services are supported by a modern and diversified fleet that includes frontline pumper rescues, aerial apparatuses, and specialized equipment designed to address both routine and high-risk incidents. In addition to emergency response, BFD administers fire prevention and inspection programs, conducts public fire and life safety education, and

undertakes comprehensive training to maintain operational readiness. Thousands of training hours are completed annually to ensure personnel remain competent and compliant with applicable legislation and recognized industry standards, enabling the department to respond safely, effectively, and professionally to the evolving risks faced by the Brantford community.

## Summary of Observations and Recommendations

A Fire Master Plan intends to provide a series of recommendations which are generally implemented over a five to 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. 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 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 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.

| Level    | Timeline     | Meaning                                                      |
|----------|--------------|--------------------------------------------------------------|
| Critical | 1–12 months  | Immediate safety/compliance/operational risk; must act fast. |
| High     | 12–36 months | Important improvements: delay increases exposure.            |
| Medium   | 36–72 months | Enhances performance; flexible timing.                       |
| Low      | 72–84 months | Long-term planning items; low immediate impact.              |

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

## Strategic Objective #1: Administration

**Recommendation #1:** Update Bylaw 221-2021 to reflect current legislation and operational practice by modernizing training requirements, removing outdated references to the Ontario Fire Service Communications Standard, and aligning fire prevention programming with the CRA and FMP.

*Reference: Section 2.13 Legislative Requirements, Page 46*

**Suggested completion:** 1-12 months

**Cost:** Neutral

**Recommendation #2:** Amend the E&R Bylaw to clearly identify the additional circumstances under which BFD may respond outside of Brantford's limits. Add the following wording to the list of exceptions:

- a) that in the opinion of the Fire Chief, it threatens property in the City of Brantford or property situated outside the City of Brantford that is owned or occupied by the Corporation.
- f) on property beyond the City of Brantford's border where the Fire Chief or his or her designate determines that immediate action is necessary to preserve and protect life and/or property, and the correct department is notified to respond and/or assumes command or establishes alternative measures acceptable to the Fire Chief or designate

*Reference: Section 2.13 Legislative Requirements, Page 46*

**Suggested completion:** 1-12 months

**Cost:** Neutral

**Recommendation #3:** Implement a formal Succession Planning and Leadership Development Program that identifies, mentors, and prepares future leaders across all divisions. This program should include career pathing, targeted training, leadership shadowing, and secondment opportunities tied to the Fire Master Plan implementation timeline and operational growth triggers.

*Reference: Section 3.1.9 Succession Planning, Page 66*

**Suggested completion:** 12-24 months

**Cost:** Cost neutral

**Recommendation #4:** Conduct a comprehensive review of all SOPs and update them to reflect current practice. Establish a review schedule, ideally every 2-3 years, to ensure all SOPs remain current. Separate each SOP into a Policy document, a Guideline document, and an Instruction document as required.

*Reference: Section 3.1.11 Policies, Guidelines and Directives, Page 71*

**Suggested completion:** 24-36 months

**Cost:** Neutral

## Strategic Objective #2: Public Education

**Recommendation #5a:** Implement a records management process that provides detailed tracking of all public education activities undertaken by BFD staff, to allow for accurate reporting and the development of future business cases for additional resources.

*Reference: Section 3.2 Fire Public Education, Page 72*

**Suggested completion:** 12-36 months. More consistent excel tracking can be implemented in the shorter term (allowing for more accurate aggregate data reporting), potential implementation of a module of First Due will require a longer time period.

**Cost:** Neutral. Data is currently tracked using Excel but requires consistent naming conventions to allow for ease of data reporting at year end, and year-over-year comparisons. May be possible to use a model of First Due (e.g., Events and Activities), already included in Brantford's contract.

**Recommendation #5b:** Provide a dedicated vehicle for Public Education to provide a more efficient means to provide fire and life safety programs and materials throughout the community.

*Reference: Section 3.2 Fire Public Education, Page 72*

**Suggested completion:** 1-12 months, based on budget cycle.

**Cost:** \$40,000 (estimated based on fleet inventory provided).

**Recommendation #6a:** Use the findings of the CRA, incident data, and geographic analysis to inform the development of annual public fire safety education plans. Programming should be updated each year to reflect emerging risks, demographic shifts, and local trends in fire incidents, smoke alarm compliance, and vulnerable occupancy types.

*Reference: Section 3.2 Fire Public Education, Page 72*

**Suggested completion:** 12-36 months

**Cost:** Neutral. Program development can be completed by existing staff, and tracking can be completed in tandem with recommendation #5 above.

**Recommendation #6b:** Implement a GIS-based predictive analysis model and develop a participant tracking and evaluation system to monitor the reach and impact of public education programs.

*Reference: Section 3.2 Fire Public Education, Page 72*

**Suggested completion:** 12-36 months

**Cost:** None. Program development can be completed by existing staff, and tracking can be completed in tandem with recommendation #5 above.

**Recommendation #7a:** Develop and deliver targeted fire safety programs tailored for vulnerable and equity-deserving populations, incorporating input from community stakeholders, cultural organizations, and social service providers.

*Reference: Section 3.2 Fire Public Education, Page 72*

**Suggested completion:** 12-36 months

**Cost:** Neutral – can be done by existing staff. May be some costs associated with translation services.

**Recommendation #7b:** Leverage community data, GIS mapping, and stakeholder engagement to guide the development of fire safety programming tailored to the needs of specific neighbourhoods and population groups.

*Reference: Section 3.2 Fire Public Education, Page 72*

**Suggested completion:** 12-36 months

**Cost:** None – can be done by existing staff. May be some costs associated with translation services.

## Strategic Objective #3: Fire Prevention & Code Enforcement

**Recommendation #8:** Utilize predictive analytics using historical data, risk mapping, and response data, identify all higher risk areas for targeted code enforcement inspections.

*Reference: Section 3.3.2 Fire Code Inspection Services, Page 80*

**Suggested completion:** 24-36 months

**Cost:** Neutral – can be built in to work schedules of existing staff

**Recommendation #9:** Adopt and implement a CRA based inspection schedule as recommended in NFPA 1730, targeting properties and occupancies based on risk categorization.

*Reference: Section 3.3.2 Fire Code Inspection Services, Page 80*

**Suggested completion:** 12-24 months (depending on staffing)

**Cost:** Neutral. Inspections to be conducted by existing and future staff (See Recommendation #10).

**Recommendation #10:** Add two Fire Prevention Inspectors to the existing staff complement of the division. Use data from the implementation of the new records management system to determine the point at which additional staff are required in the future, based on productivity and growth.

*Reference: Section 3.3.2 Fire Code Inspection Services, Page 80*

**Suggested completion:** 12-24 months

**Cost:** Cost per fire inspector is \$67,616-\$112,694 (2026 rates) (plus benefits). Additional costs associated with uniforms, equipment and vehicle needs as required.

## Strategic Objective #4: Emergency Management

**Recommendation #11:** Commence an information/purchasing process for the acquisition of an appropriate technology solution to support the Community Emergency Management Coordinator and the EOC. A Request for Information (RFI) or Request for Proposals (RFP) process would assist in identifying viable solutions for Brantford that would integrate well with other software solutions already in use and provide cost estimates for inclusion in future budget requests.

*Reference: Section 3.4 Emergency Management, Page 89*

**Suggested completion:** 12-24 months

**Cost:** Dependent on the identified needs of the community. Expected to range from \$50,000-\$100,000 annually.

## Strategic Objective #5: Emergency Response & Operations

**Recommendation #12:** Provide auto extrication rescue services at the Technician level and ensure personnel are appropriately trained and equipped to deliver this service.

*Reference: Section 3.5.6 Moto Vehicle Rescue, Page 101*

**Suggested completion:** 24 - 36 months

**Cost:** \$70,000 to purchase tools and equipment, and to provide training.

**Recommendation #13a:** Technician-level rope rescue services would be delivered through a Fire Protection Services Agreement with the Cambridge or Hamilton Fire Departments. The agreement would include payment on a per-use basis, as ongoing or standing fees are not typically applied in these types of arrangements.

*Reference: Section 3.5.11 Structural Collapse Response, Page 108*

**Suggested completion:** 1 – 12 months

**Cost:** Depending upon the conditions of the agreement, costs could be \$0 unless a rescue is activated. When deployed, expenses typically include staff wages on scene, overtime for backfilling home-station coverage, and materials or fuel used. For an 8-hour rescue, estimated costs include: eight staff at \$60/hr. (\$3,840), backfilling eight staff at \$90/hr. (\$5,760), and approximately \$2,000 in materials and equipment servicing—for a total of about \$11,600 per deployment.

Cost deferral due to monies not being spent on equipment purchase, equipment service and replacement, and staff training and re-training would be re-invested towards services that are in greater demand in the community.

**Recommendation #13b:** Community risk should be monitored to determine if and when the service should be delivered directly by BFD. In the interim, Shift Training Instructors certified to the Technician level will continue to deliver Operations-level training to all fire suppression personnel until such a transition occurs.

*Reference: Section 3.5.11 Structural Collapse Response, Page 108*

**Suggested completion:** 36-60 months

**Cost:** Neutral (internal staff)

**Recommendation #14a:** Expand the pre-fire planning program to add all buildings identified as risks within the Community Risk Assessment (CRA), ensuring complete coverage of high-priority and high-hazard occupancies.

*Reference: Section 3.5.12 Pre-Emergency Planning, Page 111*

**Suggested completion:** 1-12 months

**Cost:** Neutral (internal staff)

**Recommendation #14b:** Re-design the pre-plan program to incorporate detailed tactical considerations such as apparatus positioning, attack stair locations, refuge floors, and other strategic considerations. Digitize all pre-plans and integrate them into CAD/GIS systems to allow mobile access for operational staff, with standardized data fields covering a comprehensive audit of all relevant building systems and hazards.

*Reference: Section 3.5.12 Pre-Emergency Planning, Page 111*

**Suggested completion:** 1-24 months to re-design program to incorporate strategic considerations, to begin to populate address specific strategies, and to integrate them into the mobile CAD/GIS system for fireground access.

**Cost:** Neutral (internal staff time)

**Recommendation #14c:** Establish defined triggers for post-incident plan updates and other significant changes, and implement a KPI dashboard to track program performance, including percentage of First-Due high-risk buildings with current surveys and median survey age. Conduct regular joint reviews between Fire Prevention, Training, and Dispatch divisions to ensure the plans remain accurate and operationally relevant.

*Reference: Section 3.5.12 Pre-Emergency Planning, Page 111*

**Suggested completion:** 12-60 months

**Cost:** Neutral (internal staff time)

**Recommendation #24:** Ongoing collaboration with municipal planning and transportation departments is recommended to ensure emergency response needs are integrated into road design, traffic management, and development approvals.

*Reference: Section 4.10.0 Station-Level Concurrent Call Load Analysis (2021-2025), Page 203*

**Suggested completion:** 12-24 months/ ongoing

**Cost:** Neutral

**Recommendation #25:** Use concurrent call analysis as a key input into long-term apparatus placement and growth planning.

*Reference: Section 4.11.3.1 Station 5 – Wayne Gretzky Parkway and Carter Street Area (Target 48-60 months), Page 212*

**Suggested completion:** 12-24 months / ongoing

**Cost:** Neutral

**Recommendation #26:** Advance the Planning, Construction, and Integration of Fire Station 5 to Support Southeastern Brantford Growth.

*Reference: Section 4.11.3.2 Station 3 Relocation - Wayne Gretzky Parkway and Powerline Road Area (Target: 60-108 Months), Page 215*

**Suggested completion:** 12-60 months

**Cost:** \$7.5 M-\$10 M

**Recommendation #27:** Relocate Fire Station 3 to Wayne Gretzky Parkway and Powerline Road between 2032 and 2035

*Reference: Section 4.11.10 Staffing Ration Implications, Page 231*

**Suggested completion:** 60-108 months

**Cost:** \$7.5-\$10 M

**Recommendation #28:** Implement a phased staffing plan to hire 20 Firefighters and promote 4 Captains over a two-year period (2029–2030) to fully staff Fire Station 5 upon commissioning.

*Reference: Section 4.11.10 Staffing Ration Implications, Page 231*

**Suggested completion:** 36-60 months

**Cost:** \$3.01M salaries (2026) - annual operating, Capital costs PPE (20FF) is approximately \$170,000.

**Recommendation #29:** Fully staff the station 2 rescue apparatus with four firefighters per shift beginning in 2028.

*Reference: Section 4.11.10 Staffing Ration Implications, Page 231*

**Suggested completion:** 12-24 months

**Cost:** \$3.01M (2026 rates) – annual operating. Capital costs PPE (20FF) is approximately \$170,000.

**Recommendation #29:** Implement a conditional second frontline apparatus at station 4 beginning in 2034.

*Reference: Section 4.11.10 Staffing Ration Implications, Page 231*

**Suggested completion:** 72-96 months

**Cost:** \$3.01M salaries (2026) - annual operating, \$1.5 M capital for new apparatus. Capital costs PPE (20FF) is approximately \$170,000.

## Strategic Objective #6: Training and Professional Development

**Recommendation #15:** Complete a comprehensive analysis of existing training processes, including course development, face-to-face training, remote training, practical and theory assessments, and proctoring, against the training demand outlined in the approved annual training calendar.

*Reference: Section 3.6.3 Professional Qualifications and Standards Division, Page 117*

**Suggested completion:** 12–24 months

**Cost:** To be determined, based on the scope and findings of the training analysis

**Recommendation #16** Add one (1) additional full-time Training Officer within the Professional Qualifications and Standards Division to support recruit training, operational competency development, and the expansion of specialized training programs, including technical rescue disciplines.

*Reference: Section 3.6.3 Professional Qualifications and Standards Division, Page 117*

**Suggested completion:** 12-24 months - aligned with the hiring of additional staff

**Cost:** \$143,439 (2026 rates) (plus benefits). Additional costs associated with uniforms, equipment and vehicle needs as required.

**Recommendation #17:** Develop a dedicated, purpose-built training facility to support live-fire training, technical rescue, driver training, incident command simulations, and classroom instruction. The facility should accommodate both recruit and ongoing suppression training, with capacity for multi-company and interagency use. A phased approach, starting with core infrastructure and expanding over time, will align capital investment with operational needs and available funding.

*Reference: Section 3.6.4 Training Facilities and Practical Skills Development, Page 122*

**Suggested completion:** 24-36 months

**Cost:** Cost TBD depending on final facility scope and design.

## Strategic Objective #7: Emergency Communications (Dispatch)

**Recommendation #18:** Revise the E&R Bylaw to include NFPA 1710 *Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Career Fire Departments (2020)* performance standards for Dispatch call processing times. Performance standards for suppression, inspection and public education frequency schedules are currently in the bylaw.

*Reference: Section 3.7.1 Communication Centre Staffing, Page 123*

**Suggested completion:** 1 – 12 months. Amend by-law in concert with amendments proposed in recommendation #2.

**Cost:** Neutral

## Strategic Objective #8: Capital Assets

**Recommendation #19:** Relocate or retrofit fitness and wellness facilities at Stations 1, 3, and 4 into clean, physically separated spaces that are isolated from apparatus bays and contaminated operational areas. Where full relocation is not immediately feasible, interim mitigation measures should be considered as part of phased upgrades, with full compliance achieved through future renovation or replacement projects.

*Reference: Section 3.8.1.2 Operational Analysis of Stations, Page 135*

**Suggested completion:** 24-48 months

**Cost:** To be determined depending on the project size and scope

**Recommendation #20:** Any new fire station constructed by BFD should reflect contemporary fire station design standards, including clear separation of contaminated and clean zones, dedicated wellness and training spaces, modern and inclusive accommodations, and building systems capable of supporting current and future apparatus, technology, and service delivery needs, while maintaining flexibility for future expansion.

*Reference: Section 3.8.1.2 Operational Analysis of Stations, Page 135*

**Suggested completion:** Ongoing combined with station 3 and station 5 recommendations

**Cost:** To be determined as part of a new station build

**Recommendation #21:** Conduct a feasibility study for the development of a purpose-built fire apparatus maintenance facility capable of supporting the size, complexity, and specialized servicing requirements of modern fire vehicles.

*Reference: Section 3.8.2.4 Fire Apparatus Maintenance and Repair, Page 144*

**Suggested completion:** 24-48 months

**Cost:** Cost are dependent on using internal or third-party resources

**Recommendation #22:** Continue regular monitoring of assembly time performance across all stations, platoons, and incident types, and apply targeted operational or facility-based improvements as needed to maintain consistent compliance with industry benchmarks and support continuous improvement.

*Reference: Section 4.6.2 Assembly Time, Page 177*

**Suggested completion:** 12-24 months (ongoing)

**Cost:** \$20 k-\$50 k

| Recommendations                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Months |    |    |    |    |    |    |    |    |     |     |
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|                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 1      | 12 | 24 | 36 | 48 | 60 | 72 | 84 | 96 | 108 | 120 |
| Strategic Objective #1: Administration |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |        |    |    |    |    |    |    |    |    |     |     |
| 1                                      | Update Bylaw 221-2021 to reflect current legislation and operational practice by modernizing training requirements, removing outdated references to the Ontario Fire Service Communications Standard, and aligning fire prevention programming with the CRA and FMP.                                                                                                                                                                                                                                                                                                                                                                                                                                                                |        |    |    |    |    |    |    |    |    |     |     |
| 2a                                     | Amend the E&R Bylaw to clearly identify the additional circumstances under which BFD may respond outside of Brantford’s limits. Add the following wording to the list of exceptions: a) that in the opinion of the Fire Chief, it threatens property in the City of Brantford or property situated outside the City of Brantford that is owned or occupied by the Corporation. f) on property beyond the City of Brantford’s border where the Fire Chief or his or her designate determines that immediate action is necessary to preserve and protect life and/or property, and the correct department is notified to respond and/or assumes command or establishes alternative measures acceptable to the Fire Chief or designate |        |    |    |    |    |    |    |    |    |     |     |
| 3                                      | Implement a formal Succession Planning and Leadership Development Program that identifies mentors and prepares future leaders across all divisions. This program should include career pathing, targeted training, leadership shadowing, and secondment opportunities tied to the Fire Master Plan implementation timeline and operational growth triggers.                                                                                                                                                                                                                                                                                                                                                                         |        |    |    |    |    |    |    |    |    |     |     |
| 4                                      | Conduct a comprehensive review of all SOPs and update them to reflect current practice. Establish a review schedule, ideally every 2-3 years, to ensure all SOPs remain current. Separate each SOP into a Policy document, a Guideline document, and an Instruction document as required.                                                                                                                                                                                                                                                                                                                                                                                                                                           |        |    |    |    |    |    |    |    |    |     |     |

| Recommendations                                                     |                                                                                                                                                                                                                                                                                                                                | Months |    |    |    |    |    |    |    |    |     |     |
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|                                                                     |                                                                                                                                                                                                                                                                                                                                | 1      | 12 | 24 | 36 | 48 | 60 | 72 | 84 | 96 | 108 | 120 |
| <b>Strategic Objective #2: Public Education</b>                     |                                                                                                                                                                                                                                                                                                                                |        |    |    |    |    |    |    |    |    |     |     |
| 5a                                                                  | Implement a records management process that provides detailed tracking of all public education activities undertaken by BFD staff, to allow for accurate reporting and the development of future business cases for additional resources.                                                                                      |        |    |    |    |    |    |    |    |    |     |     |
| 5b                                                                  | Provide a dedicated vehicle for Public Education to provide a more efficient means to provide fire and life safety programs and materials throughout the community.                                                                                                                                                            |        |    |    |    |    |    |    |    |    |     |     |
| 6a                                                                  | Use the findings of the CRA, incident data, and geographic analysis to inform the development of annual public fire safety education plans. Programming should be updated each year to reflect emerging risks, demographic shifts, and local trends in fire incidents, smoke alarm compliance, and vulnerable occupancy types. |        |    |    |    |    |    |    |    |    |     |     |
| 6b                                                                  | Implement a GIS-based predictive analysis model and develop a participant tracking and evaluation system to monitor the reach and impact of public education programs.                                                                                                                                                         |        |    |    |    |    |    |    |    |    |     |     |
| 7a                                                                  | Develop and deliver targeted fire safety programs tailored for vulnerable and equity-deserving populations, incorporating input from community stakeholders, cultural organizations, and social service providers.                                                                                                             |        |    |    |    |    |    |    |    |    |     |     |
| 7b                                                                  | Leverage community data, GIS mapping, and stakeholder engagement to guide the development of fire safety programming tailored to the needs of specific neighbourhoods and population groups.                                                                                                                                   |        |    |    |    |    |    |    |    |    |     |     |
| <b>Strategic Objective #3: Fire Prevention and Code Enforcement</b> |                                                                                                                                                                                                                                                                                                                                |        |    |    |    |    |    |    |    |    |     |     |
| 8                                                                   | Utilize predictive analytics using historical data, risk mapping, and response data, identify all higher risk areas for targeted code enforcement inspections.                                                                                                                                                                 |        |    |    |    |    |    |    |    |    |     |     |
| 9                                                                   | Adopt and implement a CRA based inspection schedule as recommended in NFPA 1730, targeting properties and occupancies based on risk categorization.                                                                                                                                                                            |        |    |    |    |    |    |    |    |    |     |     |
| 10                                                                  | Add two Fire Prevention Inspectors to the existing staff complement of the division. Use data from the implementation of the new records management system to determine the point at which additional staff are required in the future, based on productivity and growth.                                                      |        |    |    |    |    |    |    |    |    |     |     |

| Recommendations                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Months |    |    |    |    |    |    |    |    |     |     |
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|                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 1      | 12 | 24 | 36 | 48 | 60 | 72 | 84 | 96 | 108 | 120 |
| <b>Strategic Objective #4: Emergency Management</b>              |                                                                                                                                                                                                                                                                                                                                                                                                                                                          |        |    |    |    |    |    |    |    |    |     |     |
| 11                                                               | Commence an information/purchasing process for the acquisition of an appropriate technology solution to support the Community Emergency Management Coordinator and the EOC. A Request for Information (RFI) or Request for Proposals (RFP) process would assist in identifying viable solutions for Brantford that would integrate well with other software solutions already in use and provide cost estimates for inclusion in future budget requests. |        |    |    |    |    |    |    |    |    |     |     |
| <b>Strategic Objective #5: Emergency Response and Operations</b> |                                                                                                                                                                                                                                                                                                                                                                                                                                                          |        |    |    |    |    |    |    |    |    |     |     |
| 12                                                               | Provide auto-extrication rescue services at the Technician level and ensure personnel are appropriately trained and equipped to deliver this service.                                                                                                                                                                                                                                                                                                    |        |    |    |    |    |    |    |    |    |     |     |
| 13a                                                              | Technician-level rope rescue services would be delivered through a Fire Protection Services Agreement with the Cambridge or Hamilton Fire Departments. The agreement would include payment on a per-use basis, as ongoing or standing fees are not typically applied in these types of arrangements.                                                                                                                                                     |        |    |    |    |    |    |    |    |    |     |     |
| 13b                                                              | Community risk should be monitored to determine when the service should be delivered directly by BFD. In the interim, Shift Training Instructors certified to the Technician level would continue to deliver Operations-level training to all fire suppression personnel until such a transition occurs.                                                                                                                                                 |        |    |    |    |    |    |    |    |    |     |     |
| 14a                                                              | Expand the pre-fire planning program to add all buildings identified as risks within the Community Risk Assessment (CRA), ensuring complete coverage of high-priority and high-hazard occupancies.                                                                                                                                                                                                                                                       |        |    |    |    |    |    |    |    |    |     |     |
| 14b                                                              | Re-design the pre-plan program to incorporate detailed tactical considerations such as apparatus positioning, attack stair locations, refuge floors, and other strategic considerations. Digitize all pre-plans and integrate them into CAD/GIS systems to allow mobile access for operational staff, with standardized data fields covering a comprehensive audit of all relevant building systems and hazards.                                         |        |    |    |    |    |    |    |    |    |     |     |

| Recommendations                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                | Months |    |    |    |    |    |    |    |    |     |     |
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|                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                | 1      | 12 | 24 | 36 | 48 | 60 | 72 | 84 | 96 | 108 | 120 |
| <b>Strategic Objective #5: Emergency Response and Operations</b> |                                                                                                                                                                                                                                                                                                                                                                                                                |        |    |    |    |    |    |    |    |    |     |     |
| 14c                                                              | Establish defined triggers for post-incident plan updates and other significant changes, and implement a KPI dashboard to track program performance, including percentage of First-Due high-risk buildings with current surveys and median survey age. Conduct regular joint reviews between Fire Prevention, Training, and Dispatch divisions to ensure the plans remain accurate and operationally relevant. |        |    |    |    |    |    |    |    |    |     |     |
| 23                                                               | Ongoing collaboration with municipal planning and transportation departments is recommended to ensure emergency response needs are integrated into road design, traffic management, and development approvals.                                                                                                                                                                                                 |        |    |    |    |    |    |    |    |    |     |     |
| 24                                                               | Use concurrent call analysis as a key input into long-term apparatus placement and growth planning.                                                                                                                                                                                                                                                                                                            |        |    |    |    |    |    |    |    |    |     |     |
| 25                                                               | Advance the Planning, Construction, and Integration of Fire Station 5 to Support Southeastern Brantford Growth.                                                                                                                                                                                                                                                                                                |        |    |    |    |    |    |    |    |    |     |     |
| 26                                                               | Relocate Fire Station 3 to Wayne Gretzky Parkway and Powerline Road between 2032 and 2035                                                                                                                                                                                                                                                                                                                      |        |    |    |    |    |    |    |    |    |     |     |
| 27                                                               | Implement a phased staffing plan to hire 20 Firefighters and promote 4 Captains over a two-year period (2029–2030) to fully staff Fire Station 5 upon commissioning.                                                                                                                                                                                                                                           |        |    |    |    |    |    |    |    |    |     |     |
| 28                                                               | Fully staff the Station 2 rescue apparatus with 20 firefighters beginning in 2028.                                                                                                                                                                                                                                                                                                                             |        |    |    |    |    |    |    |    |    |     |     |
| 29                                                               | Implement a conditional second frontline apparatus at station 4 beginning in 2034.                                                                                                                                                                                                                                                                                                                             |        |    |    |    |    |    |    |    |    |     |     |

| Recommendations                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Months |    |    |    |    |    |    |    |    |     |     |
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|                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 1      | 12 | 24 | 36 | 48 | 60 | 72 | 84 | 96 | 108 | 120 |
| <b>Strategic Objective #6: Training and Professional Development</b> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |        |    |    |    |    |    |    |    |    |     |     |
| 15                                                                   | Complete a comprehensive analysis of existing training processes, including course development, face-to-face training, remote training, practical and theory assessments, and proctoring, against the training demand outlined in the approved annual training calendar.                                                                                                                                                                                                      |        |    |    |    |    |    |    |    |    |     |     |
| 16                                                                   | Add one (1) additional full-time Training Officer within the Professional Qualifications and Standards Division to support recruit training, operational competency development, and the expansion of specialized training programs, including technical rescue disciplines.                                                                                                                                                                                                  |        |    |    |    |    |    |    |    |    |     |     |
| 17                                                                   | Develop a dedicated, purpose-built training facility to support live-fire training, technical rescue, driver training, incident command simulations, and classroom instruction. The facility should accommodate both recruit and ongoing suppression training, with capacity for multi-company and interagency use. A phased approach, starting with core infrastructure and expanding over time, will align capital investment with operational needs and available funding. |        |    |    |    |    |    |    |    |    |     |     |
| <b>Strategic Objective #7: Emergency Communications (Dispatch)</b>   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |        |    |    |    |    |    |    |    |    |     |     |
| 18                                                                   | Revise the E&R Bylaw to include NFPA 1710 Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Career Fire Departments (2020) performance standards for Dispatch call processing times. Performance standards for Suppression, inspection and public education frequency schedules are currently in the bylaw.                                                                  |        |    |    |    |    |    |    |    |    |     |     |
| <b>Strategic Objective #8: Capital Assets</b>                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |        |    |    |    |    |    |    |    |    |     |     |
| 19                                                                   | Relocate or retrofit fitness and wellness facilities at Stations 1, 3, and 4 into clean, physically separated spaces that are isolated from apparatus bays and contaminated operational areas. Where full relocation is not immediately feasible, interim mitigation measures should be considered as part of phased upgrades, with full compliance achieved through future renovation or replacement projects.                                                               |        |    |    |    |    |    |    |    |    |     |     |

| Recommendations                               |                                                                                                                                                                                                                                                                                                                                                                                                                  | Months |    |    |    |    |    |    |    |    |     |     |
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|                                               |                                                                                                                                                                                                                                                                                                                                                                                                                  | 1      | 12 | 24 | 36 | 48 | 60 | 72 | 84 | 96 | 108 | 120 |
| <b>Strategic Objective #8: Capital Assets</b> |                                                                                                                                                                                                                                                                                                                                                                                                                  |        |    |    |    |    |    |    |    |    |     |     |
| 20                                            | Any new fire station constructed by BFD should reflect contemporary fire station design standards, including clear separation of contaminated and clean zones, dedicated wellness and training spaces, modern and inclusive accommodations, and building systems capable of supporting current and future apparatus, technology, and service delivery needs, while maintaining flexibility for future expansion. |        |    |    |    |    |    |    |    |    |     |     |
| 21                                            | Conduct a feasibility study for the development of a purpose-built fire apparatus maintenance facility capable of supporting the size, complexity, and specialized servicing requirements of modern fire vehicles.                                                                                                                                                                                               |        |    |    |    |    |    |    |    |    |     |     |
| 22                                            | Continue regular monitoring of assembly time performance across all stations, platoons, and incident types, and apply targeted operational or facility-based improvements as needed to maintain consistent compliance with industry benchmarks and support continuous improvement.                                                                                                                               |        |    |    |    |    |    |    |    |    |     |     |

## Conclusion

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This Fire Master Plan establishes a comprehensive, risk-informed roadmap to guide the evolution of fire protection and emergency services in the City of Brantford. Grounded in the findings of the 2025 Community Risk Assessment and supported by detailed analysis of current operations, infrastructure, and performance, the plan provides a clear framework for aligning service delivery with community needs. As Brantford continues to grow and evolve, the ability to proactively plan, adapt, and invest in fire services will be critical to maintaining public safety and organizational effectiveness.

The analysis confirms that while the Brantford Fire Department is a well-established, professional, and dedicated organization, it is operating within an increasingly complex and demanding environment. Population growth, urban intensification, emerging risks, and rising call volumes will continue to place pressure on staffing, infrastructure, and service delivery models. Addressing these pressures requires a balanced approach that integrates prevention, education, and response, while ensuring that resources are deployed efficiently and aligned with identified risks.

The recommendations outlined in this plan provide a structured and prioritized approach to strengthening all aspects of the service, including administration, operations, training, communications, and capital planning. Implementation will require ongoing collaboration between Council, senior administration, and fire service leadership, as well as a commitment to evidence-based decision-making and continuous improvement. Flexibility will be essential, as timelines and priorities may need to adapt to changing conditions, funding availability, and emerging risks.

Ultimately, this Fire Master Plan positions the City of Brantford to deliver safe, effective, and sustainable fire protection services both now and into the future. Through regular monitoring, annual review, and periodic external evaluation, Brantford can ensure the plan remains relevant, accountable, and responsive. By maintaining a strong focus on community risk, operational readiness, and strategic investment, Brantford will continue to enhance its resilience and uphold its commitment to protecting life, property, and the environment.

## SECTION 1

### INTRODUCTION

#### 1.1 Background and Significance

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Across Canada, community leaders are continually seeking innovative strategies to enhance the efficiency and effectiveness of public service delivery. Effectiveness refers to the ability to achieve desired outcomes, while efficiency focuses on maximizing the use of available resources—such as time, money, or effort. In practical terms, efficiency is often described as ‘doing more with less’ or delivering ‘value for money.’

Elected officials, Chief Administrative Officers (CAOs), city managers and departmental leaders face the ongoing challenge of designing service delivery models that are both effective and fiscally responsible. Public safety consistently ranks among the highest priorities for municipalities, yet it also represents one of the most significant financial investments. Services such as police, fire, EMS, and emergency management are foundational to a community’s social safety net, making their effectiveness non-negotiable.

At the same time, the need for fiscal prudence and operational review remains critical. Municipal leaders must remain vigilant in identifying sustainable, forward-thinking practices that balance service levels with financial realities. The goal is to ensure that residents receive high-quality services that are both responsive and cost-effective, delivering true value for every dollar spent.

#### 1.2 Project Scope

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This Fire Master Plan will serve as a comprehensive, strategic framework to guide the delivery and evolution of fire and emergency services over the next 5 to 7 years. Its primary objective is to develop a comprehensive plan to reduce risk and optimize community safety through aligning services with community risk profiles, projected population growth, legislative requirements, and recognized best practices in the fire service industry.

This plan is informed by an in-depth assessment of current response capabilities, utilizing insights from the Community Risk Assessment (CRA) to evaluate the service’s ability to meet present and future service demands. Historical response data, performance trends, and compliance with industry standards will be closely examined to ensure that services are not only responsive but also proactive in mitigating risk and protecting life, property, and the environment.

This strategic roadmap will serve as a foundational tool for Council and senior leadership in prioritizing service enhancements and achieving long-term public safety goals. Key components of the Fire Master Plan include:

- **Demand Zone Analysis:** Evaluate emergency service coverage, response times, and geographic demand to identify gaps and optimize station locations.
- **Comprehensive Service and Program Review:** Assess the effectiveness and efficiency of all fire service divisions, including operations, fire prevention, public education, training, and administration.
- **Staffing Model Evaluation:** Review current staffing levels and deployment strategies to ensure appropriate and safe 24/7 coverage aligned with community needs and legislative requirements.
- **Resource Alignment:** Identify opportunities to better align personnel, apparatus, and facilities with current and future service demands.
- **Cost Efficiency and Avoidance Measures:** Explore strategies to reduce operational costs, defer capital expenditures, and enhance financial sustainability without compromising service quality.
- **Evidence-Based Recommendations:** Develop actionable, data-driven recommendations grounded in industry standards, best practices, and community risk to guide strategic decision-making and resource planning.
- **Strategic Investment Planning:** Support long-term capital and operating planning by identifying service improvement priorities and critical infrastructure or staffing needs.
- **Governance and Policy Alignment:** Ensure recommendations aligned with applicable legislation, municipal priorities, and long-range planning frameworks.

### 1.3 Strategic Priorities

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This updated Fire Master Plan (FMP) is designed to serve as a strategic roadmap for the City of Brantford, guiding Council, and senior administration in making informed decisions about fire protection services over the next five-to-seven-year planning horizon. The planning framework outlined in this document is grounded in legislative compliance, operational analysis, and recognized best practices in the fire service sector.

A key component of this FMP is the identification of strategic priorities, foundational principles that will inform future resource allocation, policy development, and operational enhancements.

The following strategic priorities are intended to align fire protection services with community risk, support long-term sustainability, and deliver maximum public value:

**1. Risk-Informed Service Delivery**

Ensure the ongoing application of the CRA to identify and evaluate fire safety risks across the municipality. This assessment will guide the development of targeted goals, objectives, and service levels aligned with community fire life safety needs and legislative responsibilities.

**2. Strengthening the First Two Lines of Defence**

Optimize the use of public education and fire prevention, supported by the enforcement of fire safety standards and the Fire Code. These proactive measures are essential to reducing fire risk and enhancing community resilience through a comprehensive fire protection approach.

**3. Sustainable and Value-Driven Services**

Prioritize strategies that enhance the long-term sustainability of fire protection and emergency services. Focus on delivering the most effective and efficient levels of service to ensure fiscal responsibility and maximize value for the community.

The BFD will utilize the 2025 CRA to identify the fire safety risks within Brantford 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 BFD to provide a comprehensive fire protection program.

## **1.4 Strategic Goals and Objectives**

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The goal of developing this FMP is to create a strategic plan by conducting a comprehensive community risk assessment and reviewing the current capabilities 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 following strategic objectives are the foundational principles that will inform future resource allocations, policy development and operational enhancements:

**Strategic Objective # 1: Administration**

Strengthen administrative systems and operational efficiency to ensure sustainability of program initiatives. Ensure the continuity of essential operations, deliver relevant performance monitoring data, and manage necessary resources to effectively support identified programs.

**Strategic Objective #2: Public Education**

Enhance public fire safety education campaigns that target risks identified in the CRA to raise awareness about fire prevention, the importance of fire safety practices, and what to do in an emergency. BFD will expand existing engagement efforts to reach vulnerable populations including children and seniors, and the increasingly diverse community, reinforcing a shared culture of safety and community resilience.

**Strategic Objective #3: Fire Prevention and Code Enforcement**

Advance the proactive fire safety inspection and enforcement program by maintaining a strong focus on high-risk occupancies and vulnerable populations. Through consistent code application, education, and enforcement, BFD will uphold a prevention-first approach to reducing community risk and supporting compliance.

**Strategic Objective #4: Emergency Management**

Strengthening Brantford’s capacity to prepare for, respond to, and recover from all types of emergencies. Through coordinated planning, training, and inter-agency collaboration, the Service will enhance community resilience, safeguard life and property, and support continuity of operations across a broad range of hazards.

**Strategic Objective #5: Emergency Response and Operations**

Provide emergency response services that reflect the community's identified risks, growth projections, and operational realities. Ongoing efforts will focus on optimizing deployment, staffing, and equipment to meet community growth while safeguarding life, property, and firefighter safety. Services will be delivered with a focus on a commitment to efficiency, effectiveness, and long-term value for the community.

**Strategic Objective #6: Training and Professional Development**

Deliver a progressive and sustainable training program aligned with the services authorized in its Establishing and Regulating Bylaw. The program will integrate current firefighting practices, safety standards, and emerging technologies to ensure personnel are equipped with the competencies needed to respond safely and effectively to evolving risks and service demands.

**Strategic Objective #7: Communications and Dispatch**

Maintain and enhance a technologically advanced communications system that supports the operational needs of a growing community. By adopting industry-leading practices, scalable technologies, and robust dispatch protocols, BFD will ensure timely, accurate, and resilient emergency communications that enhance firefighter safety and improve overall service delivery.

**Strategic Objective #8: Capital Assets**

Ensure that apparatus and equipment are available at the appropriate quantity, maintained in a ready and reliable state, which aligns with operational requirements. Through robust preventative maintenance and asset management practices, BFD will support safe, effective, and efficient emergency response across the community.

## 1.5 Standards and References

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This plan considers the following references and standards:

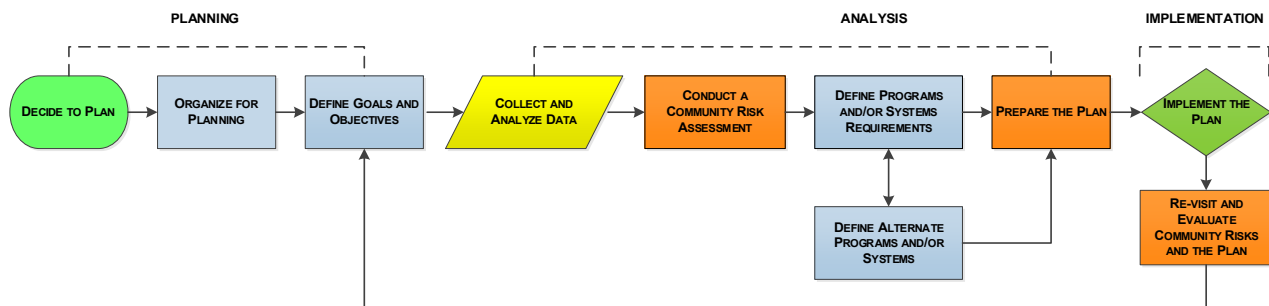
- Commission on Fire Accreditation International (CFAI)
- Canadian Standards Association (CSA)
- Fire Underwriters Survey (FUS)
- Ontario Emergency Management and Civil Protection Act
- Ontario Fire Protection and Prevention Act (FPPA)
  - O. Reg. 213/07: Ontario Fire Code (OFC)
  - O. Reg. 378/18: Community 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 (OHSA)
- Ontario Building Code (OBC)
- Underwriters Laboratories (UL/ULC)

## 1.6 Fire Master Plan Process

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

As outlined in the implementation phase, it is strongly recommended that this plan be reviewed and assessed at least annually, or more frequently in response to significant changes, such as population growth or increased residential and industrial development, that may impact community risk. When feasible, a third-party review and update should be conducted at the five-year mark to provide an objective evaluation of operations and enhance the credibility of the master planning process.

Figure 2: Fire Master Plan Process



## 1.7 Consultative Process

### 1.7.1 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.

### 1.7.2 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, fire service operations and municipal operations.

*Table 1: Targeted Interview List*

| No. | Name                                 | Job Title                         |
|-----|--------------------------------------|-----------------------------------|
| 1   | Todd Binkley                         | Fire Chief                        |
| 2   | Michael Bradley                      | CAO                               |
| 3   | Scott Hardwick                       | Chief Fire Prevention Officer     |
| 4   | Brenda Rutherford                    | Chief Human Resources Officer     |
| 5   | Nicole Wilmot                        | Chief Planner                     |
| 6   | Dave Barton                          | Chief Training Officer            |
| 7   | Dwayne Armstrong                     | Deputy Fire Chief                 |
| 8   | Wayne Robinson                       | Acting Deputy Fire Chief          |
| 9   | Kris Lutzi                           | Emergency Management Manager      |
| 10  | Josh Van Horne with<br>Gavin Jacklyn | Union President<br>H&S Chair      |
| 11  | Shawn Cavin                          | Lead Emergency Vehicle Technician |
| 12  | Gerry McKinnon                       | Platoon Chief                     |
| 13  | Jason Collard                        | Platoon Chief                     |
| 14  | Thomas Smith                         | Platoon Chief                     |

### 1.7.3 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 151 staff members, and 53 participated in the survey, which represents 35.1% of staff. Less than half of the survey respondents (37.74%) agreed that the community received adequate fire protection, while 11.32% were neutral, and more than half (50.94%) disagreed. Nearly all (94.34%) agreed that the demand for fire and emergency services would increase in the future, however, only 16.98% agreed that currently the response model is adequately staffed, while 9.43% were neutral and 73.58% disagreed.

Almost two-thirds of staff (64.16%) disagreed that the current level of live fire and specialty team training was adequate for the services provided, and only 24.53% agreed they receive adequate training to maintain competencies and certifications. Furthermore, less than half (39.62%) felt that recruits are adequately trained before they are assigned to duty.

The majority of staff (75.47%) disagree that the stations are currently located to provide adequate geographic coverage, while only 13.21% agreed. Most staff (90.57%) also disagreed that the current fire stations are functional to meet operational needs. Almost one-third of staff (32.08%) agree that small equipment is adequate, while 43.39% disagreed. Most staff (56.6%) agree that the apparatus is well maintained.

### **1.7.3.1 Summary of Interviews and Survey Results**

The FMP process began with a series of interviews involving BFD administration, senior fire officers, and select members of Brantford's senior administration. These interviews provided an opportunity to gather insights into various aspects of BFD operations. In total, 15 individuals were interviewed.

The feedback collected addressed both general observations about BFD and specific insights related to each participant's area of expertise. Overall, there was strong support and commitment expressed toward BFD. Interviews with BFD staff emphasized the importance of tailoring programs and standards to meet Brantford's changing community profile, along with their unique needs and circumstances.

A consistent theme throughout the interviews was the need for growth and development across all program areas to ensure the organization remains well-positioned to meet current demands and future challenges.

#### **Rapid Growth and Evolving Service Needs**

Brantford is facing significant residential and industrial expansion, including the addition of several high-rise structures of heights not previously constructed in the city. This growth will place increasing demands on BFD).

Areas such as high-rise coverage are emerging as priorities for enhanced service delivery. While public perception of service levels remains high, there is a recognized need to better align resources with community risk and expectations. Leaders consistently emphasized the importance of phased growth planning and risk-informed deployment models to support sustainable service delivery.

### **Staffing and Workforce Development**

The expansion of the footprint of Brantford, and the impending development of several high-rise structures highlights the importance of strengthening both frontline and administrative staffing. The need for experienced staff underscores the urgency of investing in workforce development. Efforts in succession planning should be focused on cultivating leadership, emotional intelligence, and internal promotion pathways. Continued emphasis on building project management and supervisory capacity will help ensure long-term organizational resilience.

### **Infrastructure and Facility Optimization**

While BFD maintains well-equipped apparatus, several facilities are nearing capacity or need replacement. For example, Station 1 is fully utilized, and maintenance operations are conducted in spaces that prevent additional expansion. Administrative and logistics areas are limited, and there is a lack of space to store equipment. There is strong support for strategic investment in new stations, and joint-use facilities, including a new Training Centre, guided by long-term capital planning.

### **Technology and Data Integration**

BFD is in the process of adopting new records management software, First Due. This has the capability of being an all-encompassing solution that integrates fire prevention, response, reporting, scheduling, and training records if implemented fully. A centralized, customizable system would enhance reporting, analytics, and decision-making, supporting transparency and continuous improvement. The upcoming transition to NG911 is another positive step.

### **Organizational Culture**

BFD benefits from a strong internal culture rooted in adaptability and commitment to service. To build on this foundation, there is a shared desire to strengthen internal communication, define key performance indicators, and formalize service level expectations.

## 1.8 Study Considerations

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

### Community-Specific Considerations

- Total geographical 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

### Fire Service-Specific Considerations

- Geographic and physical boundaries for response
- Fire service focused reports previously conducted (2021 Master Plan, 2025 FUS)
- Levels of service and service delivery models
- Budgets
- Fire station locations and other infrastructure
- Support services
- Fire Service structure
- Apparatus and equipment inventory, and future needs
- Operation and administrative staffing and qualifications
- 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

## 1.9 Municipal Comparative Analysis

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An industry peer comparative analysis was conducted as a method of benchmarking the performance of BFD alongside similar municipalities. The benchmarks encompass budgets, performance, effectiveness, and efficiencies. While fire and emergency services share the common goal of protecting life and property, each community has unique features influencing how they achieve this objective. The primary criteria for the community comparative analysis revolve around indicators of effectiveness and efficiencies in risk management and mitigation.

The communities who participated, along with the City of Brantford, include:

- Town of Ajax
- City of Pickering
- City of Peterborough
- City of Cambridge
- Town of Whitby
- City of Guelph
- City of St. Catharines

To develop this municipal comparison review, we used budgetary data from 2025 and response data from 2020-2024 collected from each of the participating communities. Recognizing each municipality has unique attributes, such as risk factors, historical decisions, and community profiles, comparing BFD to that of similar community remains an effective way to identify relative service levels, costs, and trends.

The community comparative analysis provides a reference, rather than an operational model, focusing on several benchmarks including budgets, service areas, service, levels, and staffing levels. Where appropriate, population-based comparisons are also provided. Highlights of this comparison are provided below, with additional data available in Appendix C: Community Comparative Analysis Results.

Our main criteria for collecting information are:

- Population – Utilizing 2021 Census data for consistency
- Budgets – 2025 reported budgets from municipal websites
- Department size
- Type (full-time, part-time or combination)
- Department staffing

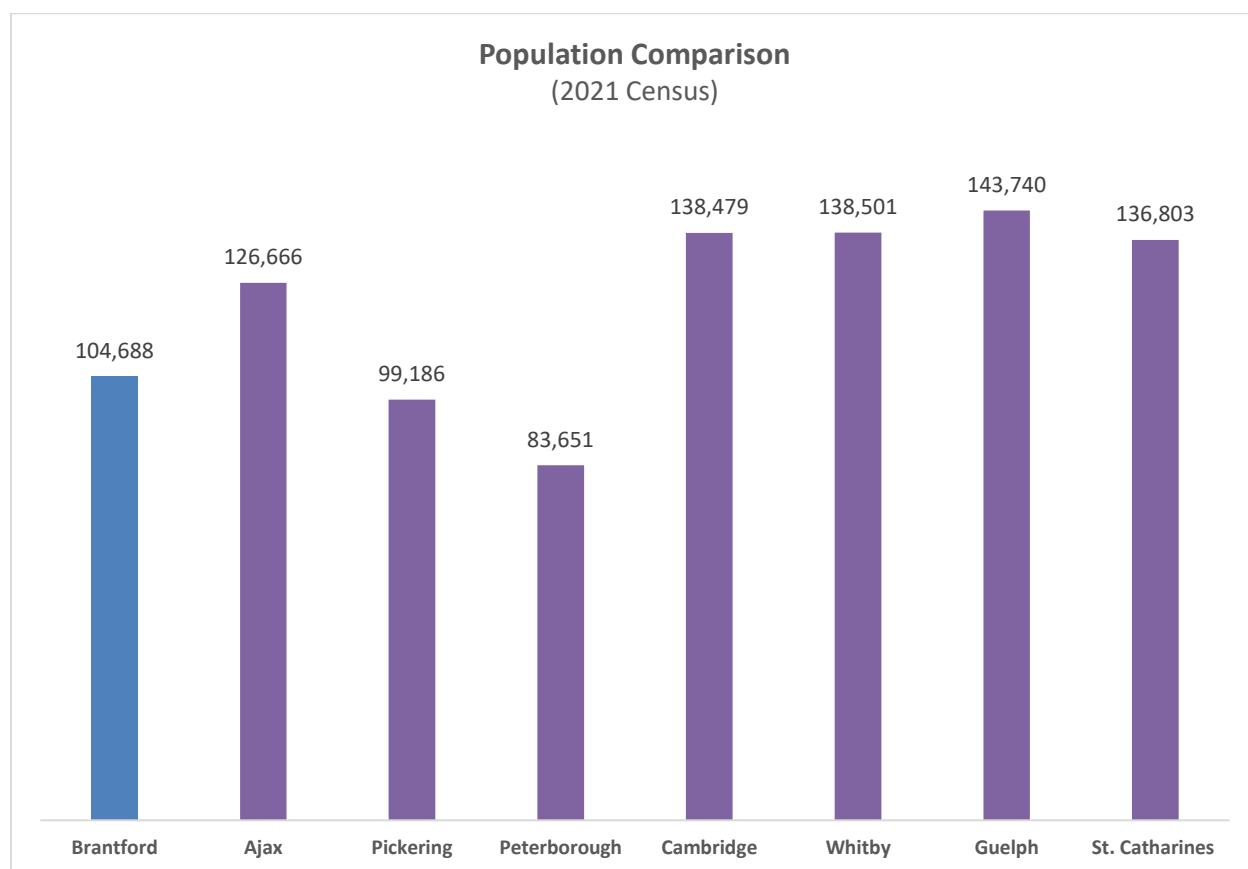
Additional information includes:

- Number of fire stations
- Call volume
- Call types

*Table 2: Participating Community Comparatives*

| Community              | Population<br>(2021 Census) | Land Area (km <sup>2</sup> ) | Area of Response (km <sup>2</sup> ) |
|------------------------|-----------------------------|------------------------------|-------------------------------------|
| City of Brantford      | 104,688                     | 98.65                        | 98.65                               |
| Town of Ajax           | 126,666                     | 66.64                        | 66.64                               |
| City of Pickering      | 99,186                      | 231.59                       | 231.59                              |
| City of Peterborough   | 83,651                      | 64.76                        | 64.76                               |
| City of Cambridge      | 138,479                     | 112.82                       | 226.24                              |
| Town of Whitby         | 138,501                     | 146.58                       | 146.58                              |
| City of Guelph         | 143,740                     | 87.43                        | 87.43                               |
| City of St. Catharines | 136,803                     | 96.20                        | 96.20                               |

*Image 1: Population Comparisons (2021 Census)*



## 1.9.1 Community Comparative Analysis Summary

### **Budget Comparisons**

In 2025, the eight municipalities included in the comparative analysis reported operating budgets ranging from \$122.9 million to \$595.3 million. Brantford ranks three out of eight, with an annual operating budget of \$210.9 million. BFD ranks fourth in fire department operating budgets, with \$24.8 million, compared to a range of \$20.1 million to \$33.1 million across the surveyed participants.

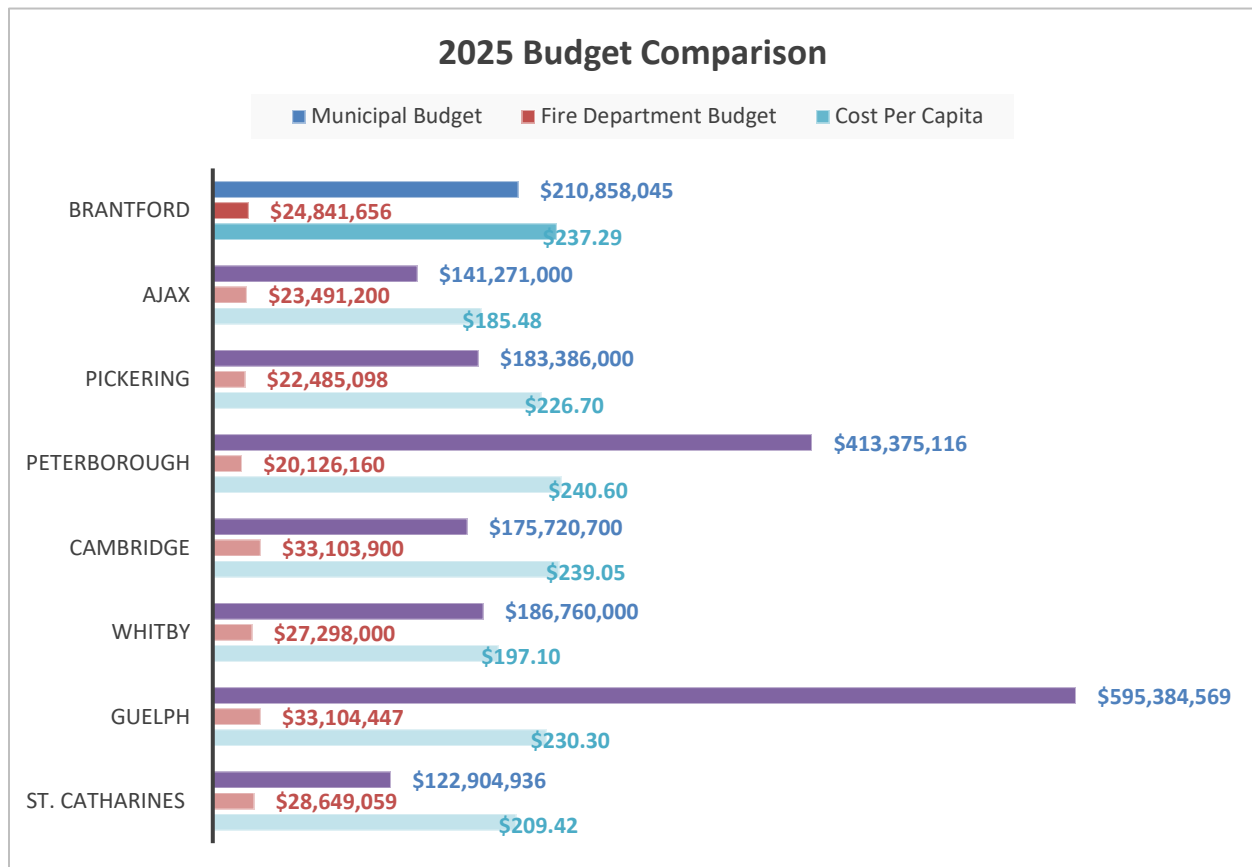
However, BFD's operational budget translates into the fourth highest cost per capital among the included municipalities at \$237.29 per person, with the average per capita expenditure being \$220.74.

Image 2 compares the eight municipalities across three key measures: municipal budget, fire department budget, and fire cost per capita.

The key insights include:

- Guelph stands out for a substantially higher overall municipal budget, yet its fire budget and cost per capita are in the mid-range.
- Peterborough has a very high municipal budget but the lowest fire budget, resulting in the highest per-capita cost.
- Ajax appears the most cost-efficient with the lowest per-capita cost and a modest fire department allocation.
- Fire budgets do not scale proportionally with municipal budgets—indicating differing service models, population densities, or funding priorities.

Image 2: 2025 Budget Comparisons



### **Staffing Model and Operational Capacity**

Brantford operates with a lean career staffing model, particularly in suppression, fire prevention, and support services. The service includes:

- 116 full-time suppression staff across four stations
- 7 full-time fire prevention officers (including the Chief Fire Prevention Officer), and one public educator
- 9 communications staff
- 2 full-time training staff
- 2 support staff and 2 full-time mechanics

In contrast, career services such as Pickering and St. Catharines employ 143 and 168 full-time suppression staff, respectively. Brantford's staffing approach emphasizes efficiency but may face constraints in sustaining service levels as community demands and risk profiles evolve.

### **Call-Volume and Service Capacity**

BFD's total call volume has increased from 4,524 in 2020 to 6,704 in 2024. This marks a 48.2% rise in total call volume over five years. Based on this growth, BFD's call volume remains among the average of the compared municipalities. While the population of the communities included in this study are similar, Brantford's total call volume is higher than Ajax (3,338 calls in 2024) and Pickering (5,426 calls in 2024). Of the communities included in this study, Guelph and Cambridge reported higher total call volume (9,299 and 10,330 in 2024 respectively). Brantford's call volume has evenly matched the volume and growth of St. Catharines from 2020 to 2024.

Notably, 50% of Brantford's calls in 2024 were fire related. This matches the average of the municipalities included in this study but remains high when compared to other municipalities where EMS calls typically dominate (70–80% of total volume). This discrepancy may be attributed to differences in tiered medical response protocols or incident classification practices.

Brantford responded to 3,352 EMS-related calls in 2024, compared to Ajax (930) and Pickering (3,022). Brantford's EMS call volume is like that of St. Catharines, at 3,470 in 2024. Of the departments included in this analysis, Peterborough, Cambridge, Whitby, and Guelph responded to significantly more EMS calls, ranging from 4,193 to 5,725 in 2024. This high level of EMS engagement reflects Brantford's ongoing demand from a full-tiered medical response model.

### **Comparative Limitations**

It is important to note that no standardized provincial or national framework exists for categorizing fire service incidents. As a result, incident classifications vary significantly among departments, influencing reported call types, EMS proportions, and fire-related totals. These variations, combined with differences in organizational structure, levels of service, station distribution, financial practices, and local risk profiles, limit the ability to make direct one-to-one comparisons between municipalities.

For this reason, the comparative analysis should be interpreted as a high-level benchmarking tool, offering context and directional insights rather than prescriptive equivalencies. Direct comparison between municipalities is strongly discouraged, and all findings should be viewed within the broader understanding of local risk, governance, and service expectations.

## SECTION 2

### THE ENVIRONMENT

#### 2.1 Community Overview

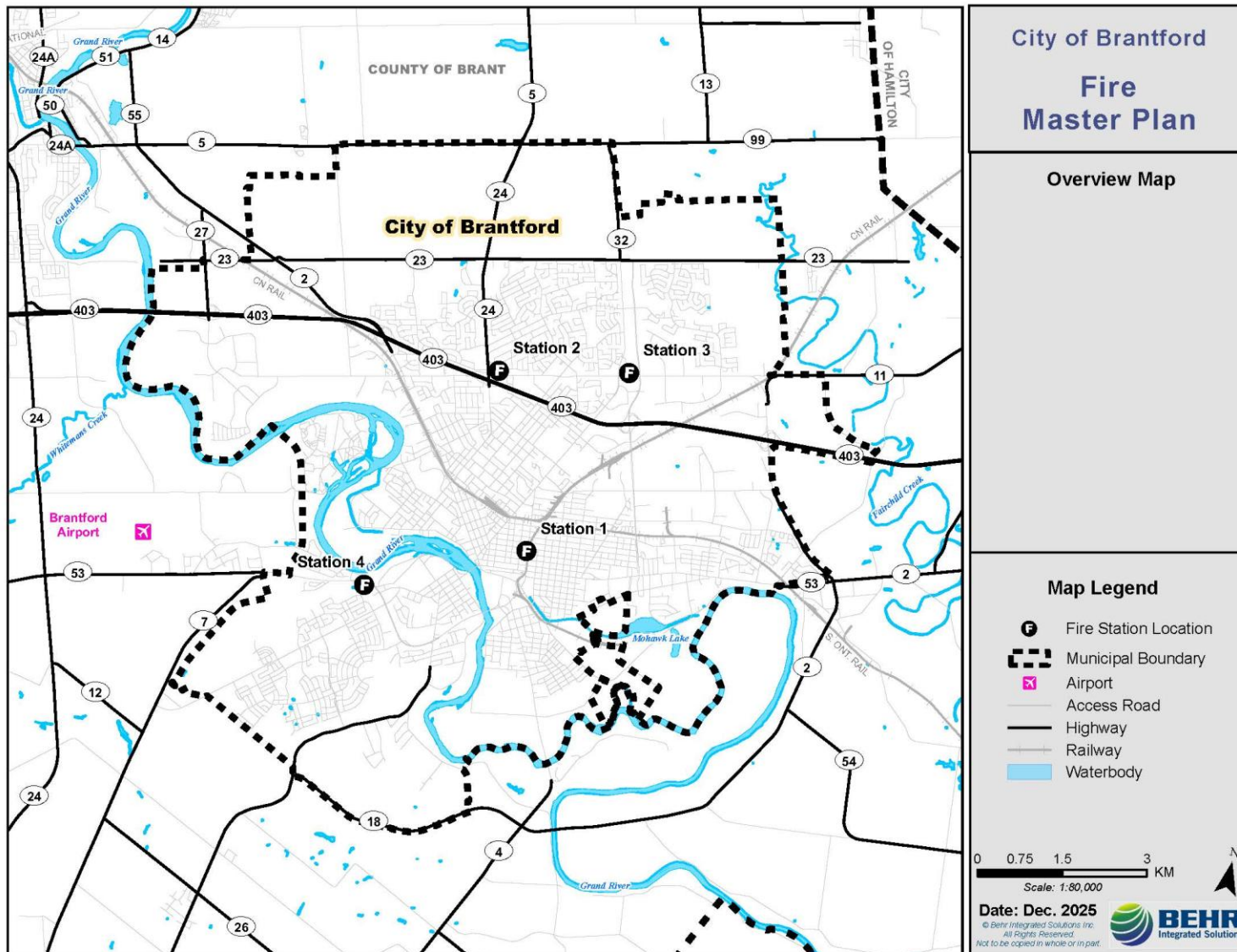
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Brantford is considered a mid-sized urban center in southwestern Ontario that functions as a regional employment, transportation, and service hub within the Greater Golden Horseshoe. Brantford is situated about an hour west of Toronto on Highway 403 which runs through the community between Woodstock and Mississauga. This makes Brantford a key transportation corridor for the city and provides easy access to Toronto, Hamilton, and other major urban centres.

Its strategic location provides excellent transportation connectivity, including Highways 403 and 24, CN's Quebec-to-Windsor rail corridor for passenger and freight services, and the Brantford Municipal Airport, which connects to global aviation networks. The city is also within reach of major inland and international marine shipping facilities.

Although geographically surrounded by Brant County, Brantford is politically independent. Brantford's municipal planning framework emphasizes managed growth, intensification, employment development, and multimodal transportation integration, all of which have direct implications for fire service deployment, infrastructure planning, and resource allocation. Continued population growth and redevelopment activity reinforce the need for an adaptable and risk-informed approach to emergency service delivery.

Map 1: City of Brantford Overview Map



## 2.2 Economic Indicators

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Brantford has experienced sustained population growth over the past decade, reflecting its role as a designated urban growth center within Ontario's Growth Plan for the Greater Golden Horseshoe. The population in 2021 Statistics Canada census was at 104,688 with projection estimates to be 124,578 in 2025. According to Advantage Brantford, Brantford has an estimated sustained growth rate of 1.21% from 2021 to 2025.

Brantford has a diverse manufacturing sector and a continually growing post-secondary presence. Brantford's major industrial sectors demonstrate the depth and diversity of Brantford's local economy. Brantford is home to leading businesses in advanced manufacturing, film television and digital media, food and beverage manufacturing, plastics and rubber products, and warehousing and distribution. Many other local businesses support these industries, ensuring that operations can continue.

Brantford's major employers span manufacturing, logistics, food processing, and public services. According to the Statistics Canada 2021 Census, Sales and Service, Trades/Transport/Equipment Operation, and Business/Finance/Administration are the top industries contributing to Brantford's economic base, comprising a collective 61% of all industries.

Table 3: Major Employers in the City of Brantford<sup>2</sup>

| Company                         | Service/Product                           | Address                   | Total Employees |
|---------------------------------|-------------------------------------------|---------------------------|-----------------|
| Food and Beverage Manufacturing |                                           |                           |                 |
| Ferrero Canada Ltd.             | Chocolate Manufacturing                   | 1 Ferrero Boulevard       | 900             |
| Aspire Bakeries                 | Food Manufacturing                        | 1 – 115 Sinclair Blvd.    | 385             |
| Pillars Find Foods              | Fine Food Manufacturing                   | 38 Middleton Street       | 150             |
| Treehouse Private Brands        | Snacks and Beverage Manufacturing         | 175 Savannah Oaks Drive   | 404             |
| Advanced Manufacturing          |                                           |                           |                 |
| Apotex Pharmachem Inc.          | Pharmaceuticals                           | 34 Spalding Drive         | 380             |
| Hartmann Canada                 | Packing Services                          | 58 Frank Street           | 180             |
| Mott Manufacturing Limited      | Business Manufacturing and Supply         | 452 Hardy Road            | 320             |
| Samuel Metal Blanking           | Metal Fabricator                          | 546 Elgin Street          | 115             |
| Tigercat Industries Inc.        | Business Manufacturing & Supply           | 637 54 Morton Avenue East | 289             |
| Plastic and Rubber Products     |                                           |                           |                 |
| Gates Canada Inc.               | Manufacturers of Power Transmission Belts | 225 Henry Street          | 250             |
| Hematite                        | Vehicle and Machinery Manufacturing       | 46 Plant Farm Blvd.       | 120             |
| Warehouse and Distribution      |                                           |                           |                 |
| Crown Life Trucks               | Tool and Machinery Manufacturing          | 21 Tallgrass Crt          | 120             |
| The Marco Corporation           | Warehouse services and co-packaging       | 225 Henry Street          | 267             |
| P&G/DHL                         | Distribution Center                       | 59 Fen Ridge Ct.          | 410             |

These companies represent Brantford's strong industrial base and growing logistics sector, supported by its location on Highway 403 and proximity to major markets.

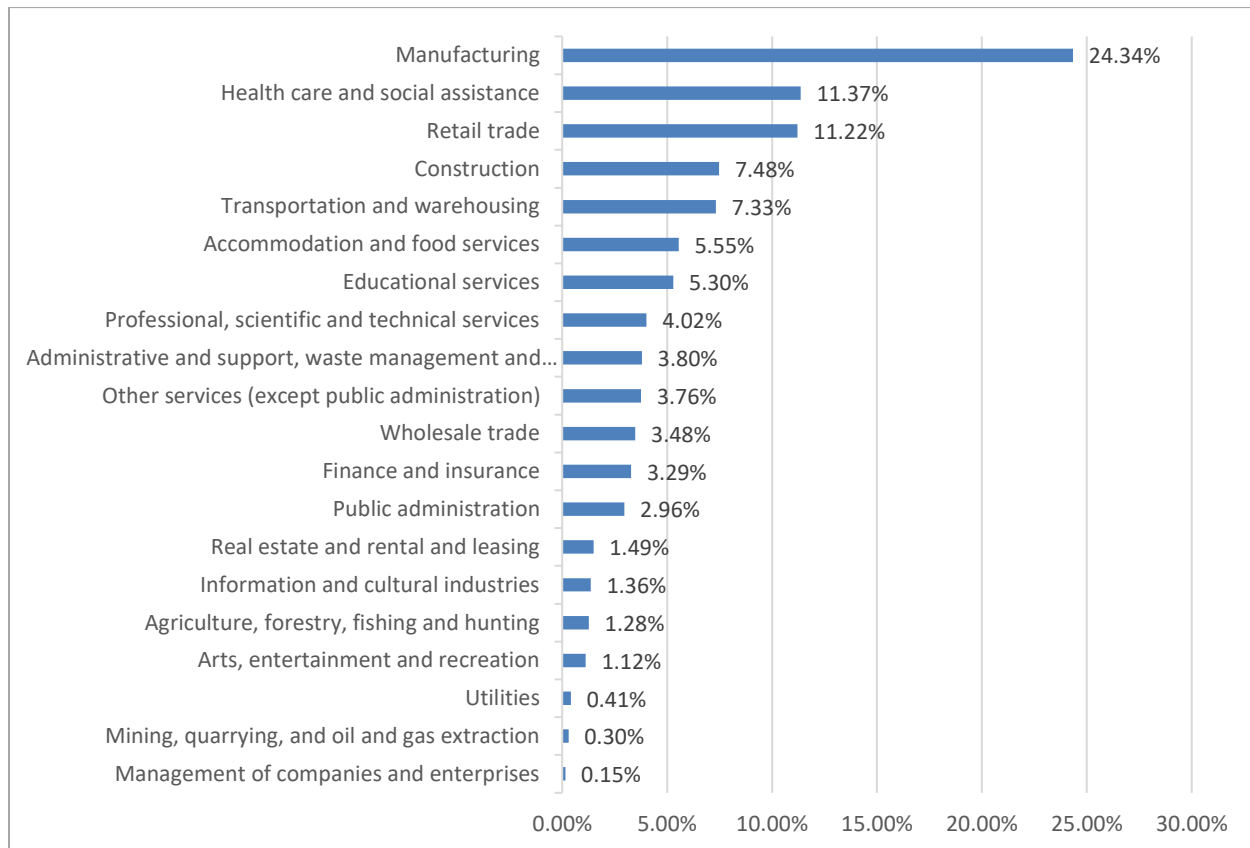
<sup>2</sup> City of Brantford Community Risk Assessment 2026

Table 4: Brantford Labour Force

|                                                                                                                                                | Total  | %      |
|------------------------------------------------------------------------------------------------------------------------------------------------|--------|--------|
| Legislative and senior management occupations                                                                                                  | 390    | 0.7%   |
| Business, finance, and administration occupations                                                                                              | 7,260  | 14.3%  |
| Natural and applied sciences and related occupations                                                                                           | 2,685  | 5.2%   |
| Health occupations                                                                                                                             | 3,735  | 7.3%   |
| Occupations in education, law and social, community and government services                                                                    | 5,490  | 10.8%  |
| Occupations in art, culture, recreation, and sport                                                                                             | 1,050  | 2.1%   |
| Sales and service occupations                                                                                                                  | 13,245 | 26.1%  |
| Trades, transport and equipment operators and related occupations                                                                              | 10,530 | 20.6%  |
| Natural resources, agriculture, and related production occupations                                                                             | 825    | 1.6%   |
| Occupations in manufacturing and utilities                                                                                                     | 5,810  | 11.3%  |
| Total                                                                                                                                          | 51,020 | 100.0% |
| Occupation – not applicable                                                                                                                    | 1,295  |        |
| Total - Labour force aged 15 years and over by occupation - Broad category - National Occupational Classification (NOC) 2021 - 25% sample data | 52,315 |        |

Table Source: Statistic Canada

Figure 3: Economic Sectors (2021)



## 2.3 Population and Growth Projections

Brantford's population has experienced sustained growth, driven by a combination of residential development, regional migration, and employment expansion. Growth has occurred through both greenfield development at the urban edge and intensification within established neighbourhoods, resulting in a diverse mix of housing forms, densities, and building ages.

The built environment includes:

- Established low- and medium-density residential neighbourhoods
- Higher-density residential and mixed-use development within the urban core
- Large institutional campuses and community facilities
- Expanding employment and industrial areas

This diversity produces varying emergency response profiles, including structural fire risk, medical incident demand, and technical rescue requirements associated with vertical development and complex occupancies.

Table 5 highlights the growth experienced by Brantford over the 25-year period from 1996 to 2021 in both population and total private dwellings. The most substantial increases occurred between 2016 and 2021, with an increase of 7.4% in population and 6.3% in total private dwellings, and a 17.3% increase in residential units in buildings greater than 5 stories in building height.

*Table 5: Population and Private Dwellings Change (1996 to 2021)*

| Year | Population | % Change | Total Private Dwellings | % Change | Apts. in buildings > 5 stories | % Change |
|------|------------|----------|-------------------------|----------|--------------------------------|----------|
| 2001 | 86,417     | 3.3      | 33,850                  | 6.4      | N/A                            |          |
| 2006 | 90,192     | 4.4      | 35,610                  | 5.2      | N/A                            |          |
| 2011 | 93,650     | 3.8      | 37,500                  | 5.3      | 3,680                          |          |
| 2016 | 97,495     | 4.1      | 39,215                  | 4.6      | 3,820                          | 3.8      |
| 2021 | 104,688    | 7.4      | 41,675                  | 6.3      | 4,480                          | 17.3     |

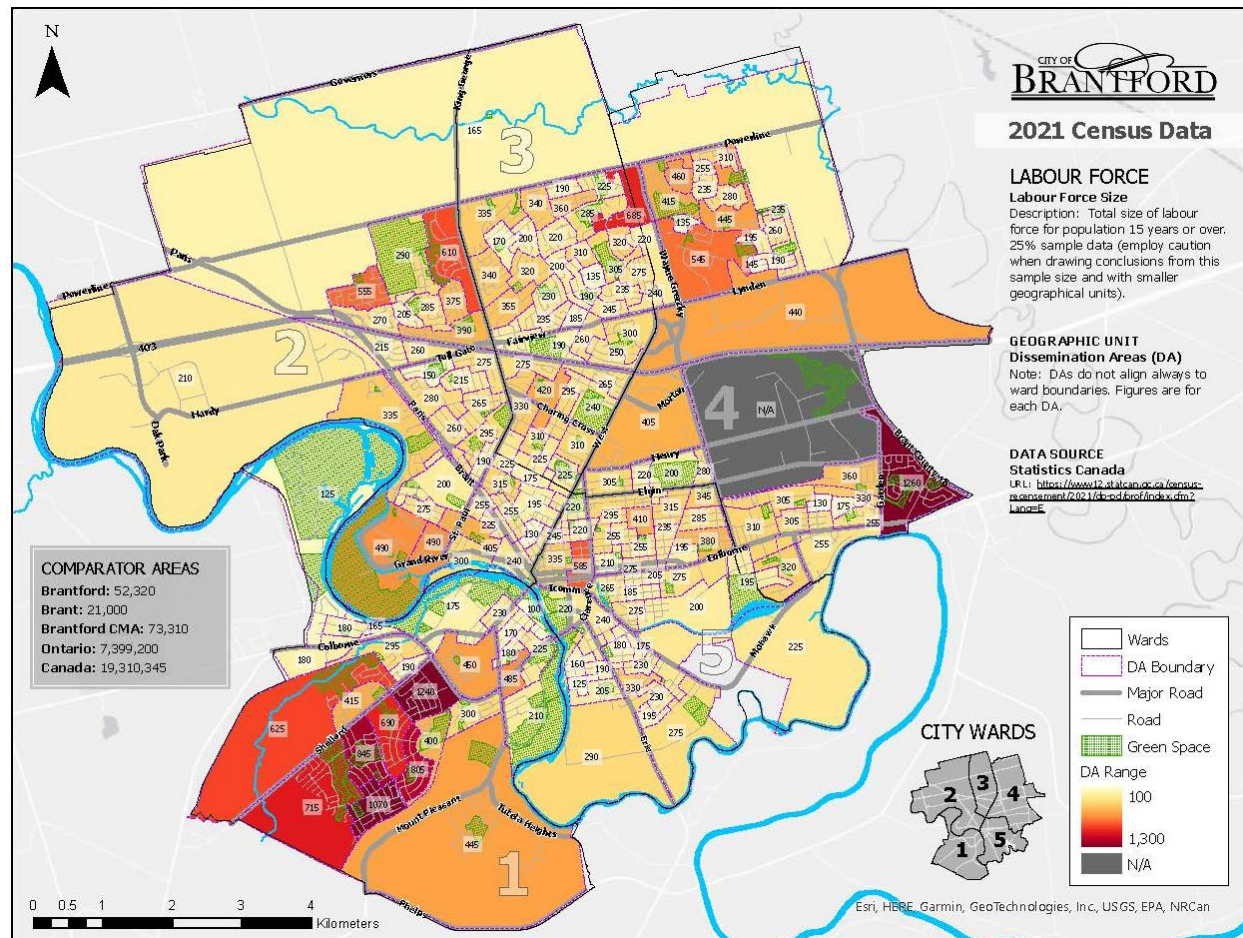
*Table Source: Statistics Canada*

Designated as a growth center under Ontario's *Places to Grow Act*, Brantford is positioned for sustained expansion. Following the 2017 enlargement of its municipal boundaries, the city is actively developing new residential, commercial, and industrial areas.

Map 2 outlines the population and employment growth in Brantford projected out to 2051. The anticipated growth is seen predominately in the north area of the city with infill and density being considered around main corridor areas in existing developed portions of the city.

Brantford's population is expected to increase to 124,000 by 2031 and 165,000 by 2051. Employment growth is anticipated to rise to 54,000 by 2031 and 80,000 by 2051. Population growth areas are distributed relatively evenly across built-up community areas, existing and new designated Greenfield areas. Employment growth will occur in built-up community areas and in existing and new employment zones. Housing growth is expected to be equally divided between Greenfield and built-up areas, with a total of approximately 30,000 housing units by 2051 (approximately 50% per each 10-year period).

Map 2: 2021 Census Data Labour Force



Map Source: Statistics Canada

By 2051, Brantford's population is projected to rise to 165,000, with an estimated workforce of 80,000, representing a 57.6% increase from its current population of 104,688.

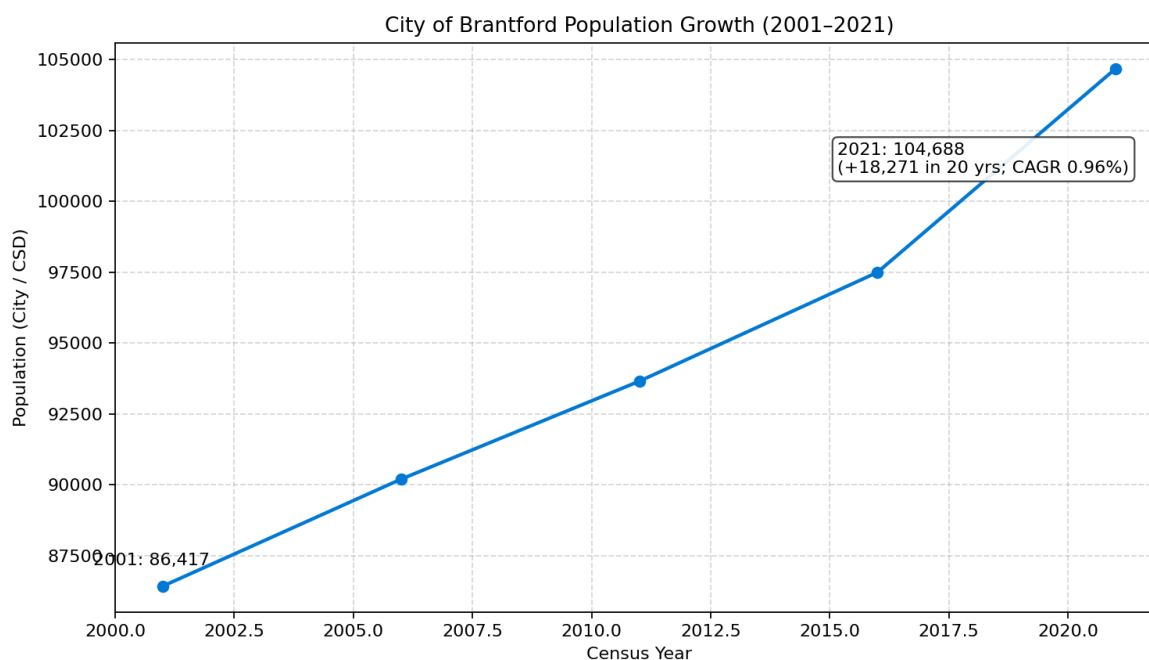
As Brantford's growth continues, the associated building types, including the increase in high buildings, will introduce a wide array of fire and emergency service risks. As well, growth areas will feature a mix of residential, commercial, institutional, and industrial developments, all of which will require unique response capabilities.

### 2.3.1 Population Growth

Table 6: Population growth (2016-2021)

| 2021    | 2016   | % Change |
|---------|--------|----------|
| 104,688 | 97,496 | 7.38%    |

Chart 1: Annual Growth Rate



### 2.3.2 Average & Median Age

Table 7: Average and Median Age 2021

|                           | Total | Male | Female |
|---------------------------|-------|------|--------|
| Average age of population | 42.0  | 41.1 | 42.9   |
| Median age of population  | 44    | 42.8 | 44.8   |

### 2.3.3 Population Distribution

Table 8: Population Distribution 2021

| Age Range         | Total | Male  | Female |
|-------------------|-------|-------|--------|
| 0-14 years        | 16.9% | 17.6% | 16.2%  |
| 15-64 years       | 64.7% | 65%   | 64.3%  |
| 65 years and over | 18.5% | 17.4% | 19.4%  |

## 2.4 Community Risk Assessment

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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.

Conducting a risk assessment is the first step towards establishing a strategic plan to manage community risks based upon local fire service 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.

A community is required to conduct a CRA pursuant to Ontario Regulation 378/18 and allow fire services 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 CRA must consider the following:

- The format be approved by the Ontario Fire Marshal (OFM) 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)).

### 2.4.1 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
- Topography
- Weather
- Historical response data

### 2.4.2 Risk Management

All communities require a process to identify and actively manage high-priority risks. Image 2 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.

Image 2: Risk Management Cycle Process



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.

### 2.4.3 Risk Evaluation vs. Service Levels

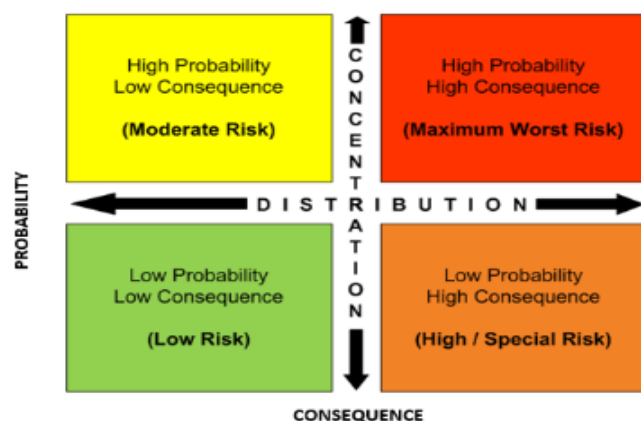
The evaluation of fire or rescue risks considers both the probability and consequence of emergency event types. The probability of an event is quantified by analyzing historical, current, and projected data. The consequence of the event type or risk is based on an informed assessment of the potential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

Figure 4: Risk Evaluation Matrix



- **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.

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 service 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 service 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.

#### 2.4.4 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/<br>Consequence | Insignificant<br>1 | Minor<br>10 | Moderate<br>100 | Major<br>1,000 | Catastrophic<br>10,000 |
|-----------------------------|--------------------|-------------|-----------------|----------------|------------------------|
| Almost Certain<br>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.

### 2.4.5 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 service 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 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 for each use and any building related risks known to the fire service. 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.

## 2.5 Ontario Building Code Occupancy Classifications: Building Stock Profile

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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 9: 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                                                   |

## 2.6 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 service 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 service resources. As building stocks increase, fire services should continue to monitor response capability and capacity to ensure service levels are maintained.

## 2.7 City of Brantford'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 10 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 (98.41%), representing 38,196 residential units. Within this category, single-detached (73.15) % and semi-detached dwellings (7.20%) account for most dwelling units, with smaller proportions of row housing (5.89) and apartment-style developments (10.36% combined). The second largest occupancy type within the city, although much smaller, is Group F- Industrial Occupancies, accounting for (.89%) of the city's property stock, followed by Mercantile (.94%) and Business & Personal Services (.85%).

Brantford's building stock is predominantly low-density residential with limited high-density housing. Ongoing development will increase the percentage of high density residential over the next ten years.

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<sup>3</sup> indicates that 68.69% of structure fires loss over the five-year period from January 1, 2019, to December 31, 2023, occurred within Group C - Residential Occupancies.

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<sup>3</sup> Brantford SIR- Municipal Fires: Overview Property Class, Injuries, Cause, Ignition Source (2019-2023)

Table 10: City of Brantford Total Existing Property Stock<sup>4</sup>.

| OBC Occupancy Classification | OFM Fire Risk Sub-Model Major Building Classifications | Occupancy # | Occupancy % |
|------------------------------|--------------------------------------------------------|-------------|-------------|
| Group A                      | Assembly Occupancies                                   | 225         | .58%        |
| Group B                      | Care or Detention Occupancies                          | 25          | .06%        |
| Group C                      | Residential Occupancies - Total                        | 38,196      | 98.41%      |
|                              | Single-detached                                        | 28,393      | 73.15%      |
|                              | Semi-detached                                          | 2,796       | 7.20%       |
|                              | Row                                                    | 2,286       | 5.89%       |
|                              | Apartment > 5 Storeys                                  | 638         | 1.64%       |
|                              | Apartment < 5 Storeys                                  | 3,388       | 8.72%       |
| Group D                      | Business & Personal Services                           | 329         | .85%        |
| Group E                      | Mercantile                                             | 366         | .94%        |
| Group F (all divisions) *    | Industrial Occupancies                                 | 348         | .89%        |
| Division F1                  | High Hazard                                            | 9           | .02%        |
| Division F2                  | Medium Hazard                                          | 335         | .86%        |
| Division F3                  | Low Hazard                                             | 4           | .01%        |
| Other                        | Not classified in OBC- Farm                            | 20          | .06%        |
|                              | Not classified in OBC - Government                     | 0           | 0.00%       |
| Total                        |                                                        | 38,814      | 100.00%     |

## 2.8 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.

<sup>4</sup> Brantford Community Risk Assessment 2026

### **2.8.1 Fuel Load Concerns**

Although Brantford's highest percentage of building stock is residential, it is important to note those buildings that fall within industrial (0.89%), mercantile (0.94%) and assembly (0.58%), which often pose an increased fire risk. These uses typically represent higher fuel load concerns, given the potential for significant combustible contents, which could include auto and auto parts, cannabis processing, food storage and production, general warehousing, and manufacturing.

The buildings may utilize materials such as oxidizers and flammable and combustible liquids and chemicals. Examples of such occupancies would include big-box retail stores, supermarkets, shopping centres, warehouses, distribution centers and restaurants. Although these occupancies account for a very small percentage of building stock, their risk potential is disproportionately high compared to their prevalence in the community.

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. Proactive identification of these occupancies will allow the fire service to better prioritize inspection resources. It should be noted that some of these companies routinely update emergency response plans and share them with the fire services.

## **2.9 Occupancies with Potential High Fire Life-Safety Risk**

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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.

## 2.9.1 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 vulnerable occupancies in Brantford as identified in the current Community Risk Assessment is presented in Tables 11 - 15. These include care occupancies, care and treatment occupancies and retirement homes.

*Table 11: Institutional occupancies*

| Property Name                     | Occupancy Classification | Location                 |
|-----------------------------------|--------------------------|--------------------------|
| Brantford General Hospital        | B2 (Hospital)            | 200 Terrance Hill Street |
| Brierwood Gardens                 | B2 (Long Term Care)      | 425 Park Road North      |
| Fox Ridge Care Community          | B2 (Long Term Care)      | 389 West Street          |
| John Nobel Home                   | B2 (Long Term Care)      | 97 Mt. Pleasant Street   |
| Participation House               | B2                       | 10 Bell Lane             |
| Brantwood Centre (main Bldg.)     | D/B2                     | 25 Bell Lane             |
| Brantford Police Station          | D/B1                     | 344 Elgin Street         |
| Ontario Superior Court of Justice | D/B1                     | 70 Wellington Street     |
| St. Joseph's Life Care Center     | B2                       | 99 Wayne Gretzky         |
| W. Ross MacDonald School          | B2                       | 350 Brant Avenue         |
| Ontario Court of Justice          | D                        | 38 Darling Street        |
| Provincial Offences Court         | D/B1                     | 102 Wellington Street    |
| Ontario Court of Justice          | D/B1                     | 44 Queen Street          |
| Hankinson House                   | B2                       | 445 Grey Street          |

*Table 12: Vulnerable Occupancies – Group Homes*

| Property Name (If Applicable) | Occupancy Classification | Location               |
|-------------------------------|--------------------------|------------------------|
| St. Leonards                  | B3                       | 75 Albion Street       |
| Brantwood                     | B3                       | 47 Beckett Drive       |
| CL Brant                      | B3                       | 55 Beaver Crescent     |
| St. Leonards                  | B3                       | 19 Buffalo Street      |
| CL Brant                      | B3                       | 1016 Colborne Street   |
| St. Leonards                  | B3                       | 331 Dalhousie Street   |
| Brantwood                     | B3                       | 104 Dundas Street      |
| St. Leonards                  | B3                       | 135 Elgin Street       |
| The Lions McInnes House       | B3                       | 170 Henry Street       |
| Brantwood                     | B3                       | 21 Kerr-Shaver Terrace |
| Brantwood                     | B3                       | 14 MacBride Court      |
| Brantwood                     | B3                       | 346 Nelson Street      |
| Brantwood                     | B3                       | 430 Nelson Street      |
| CL Brant                      | B3                       | 24 Riva Ridge          |
| CL Brant                      | B3                       | 45 Spartan Drive       |
| Brantwood                     | B3                       | 95 Tollgate Road       |
| Brantwood                     | B3                       | 129 Tollgate Road      |
| Brantwood                     | B3                       | 100 Paris Road         |
| Brantwood                     | B3                       | 485 St. Paul Avenue    |
| CL Brant                      | B3                       | 2 Fairmount Avenue     |
| CL Brant                      | B3                       | 225 Mohawk Street      |
| St. Leonards                  | B3                       | 144 Chatham Street     |
| CL Brant                      | B3                       | 12 Hampton Street      |
| Brantwood                     | B3                       | 25 Bell Lane           |
| Brantwood                     | B3                       | 32 Cumberland Street   |
| CL Brant                      | B3                       | 394 Park Road North    |
| SOAR                          | B3                       | 111 George Street      |
| CL Brant                      | B3                       | 111 Gillian Road       |

Table 13: Vulnerable Occupancies – Retirement Homes

| Property Name (If Applicable) | Occupancy Classification | Location              |
|-------------------------------|--------------------------|-----------------------|
| Bell Lane Retirement Village  | C                        | 55 Diana Avenue       |
| Charlotte Villa               | C                        | 120 Darling Street    |
| Tranquility Place             | B3                       | 436 Powerline Road    |
| Amber Lee Place               | C                        | 384 St. Paul Avenue   |
| Sheridan Place Lodge          | C                        | 6 Sheridan Street     |
| Riverview Terrace             | C                        | 104 Brant Avenue      |
| Park View Retirement Home     | C                        | 254 Dalhousie Street  |
| Brantford Retirement Manor    | C                        | 152 North Park Street |

Table 14: Vulnerable Occupancies – Licensed Lodging Homes

| Property Title (If Applicable) | Occupancy Classification | Location                |
|--------------------------------|--------------------------|-------------------------|
| Darling Place Residence        | C                        | 226 Darling Street      |
| Darling Place Residence 11     | C                        | 230 Darling Street      |
| Sheridan Villa                 | C                        | 80 Sheridan Street      |
|                                | Unclassified             | 29 Lynden Hill Crescent |
|                                | Unclassified             | 53 Sinden Road          |
|                                | Unclassified             | 110 North Park          |
| Kayorie Manor                  | C                        | 14 Nelson               |
|                                | Unclassified             | 111 Whitton Drive       |
| Geroge Street Manor            | C                        | 116 George Street       |
| Magnolia Retirement Home       | C                        | 318 Dalhousie Street    |
| Waterloo Lodging House         | C                        | 31 Pearl Street         |
| Yasmeen Abu-Soud               | C                        | 172 Chatham Street      |
|                                | Unclassified             | 25 Buffalo Street       |
| Homes of Learning Development  | B3/C                     | 96 Sherwood Drive       |

Table 15: Potential High Risk Residential

| Property Title                 | Occupancy Classification | Location                 |
|--------------------------------|--------------------------|--------------------------|
| Nova Vita                      | C (Shelter)              | 59 North Park Street     |
| Rosewood House                 | C (Shelter)              | 42 Nelson Street         |
| Salvation Army                 | C (Shelter)              | 187 Dalhousie Street     |
| Canadian Mental Health         | C                        | 20 Lyons Avenue          |
| Other High-Risk Center         |                          |                          |
| Participation Support Services | D                        | 99 Wayne Gretzky Parkway |

## 2.10 Community Risk Assessment Summary

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Brantford's Community Risk Assessment (CRA) was prepared in compliance with Ontario Regulation 378/18 under the Fire Protection and Prevention Act, 1997. The CRA identifies hazards, vulnerabilities, and risks specific to Brantford and is intended to inform the delivery of fire protection services and the development of Brantford's FMP. The assessment follows the Office of the Fire Marshal's Technical Guideline TG-02-2019 and evaluates the nine mandatory profiles, including geography, building stock, critical infrastructure, demographics, public safety response, community services, hazards, economic profile, and past loss and event history.

One of Brantford's most significant risk areas is its transportation network. Brantford has several provincial highways including Hwy 403 running east/west through it to the north, Hwy 53 running east/west through it to the south and Hwy 24 which runs north/south through the community and then continuing to the west. Between 2019 and 2023, BFD responded to approximately 1,294 motor-vehicle-related incidents, accounting for nearly 79% of all rescue calls and approximately 39% of total emergency responses. These corridors are also designated dangerous goods routes, meaning incidents involving hazardous materials pose a compounded risk to public safety, responders, property, and the environment, particularly where routes pass through densely populated areas.

Residential occupancies represent the most significant area of vulnerability in Brantford. Group C residential buildings account for approximately 98.4% of the city's building stock. From 2019 to 2023, 64.5% of all structure fires and 68.7% of total structure fire loss occurred in residential occupancies, and 100% of civilian fire fatalities were associated with these buildings. Smoke alarm performance remains a critical concern, as 33.7% of residential fires involved homes with no smoke alarm or a non-operational alarm, exceeding the provincial average of 29.6%. The age of the housing stock further compounds this risk, with approximately 62.8% of buildings constructed prior to 1981 and the adoption of modern Ontario Fire Code standards.

Ignition source data indicates an elevated behavioural fire risk profile within the community. Misuse of ignition sources accounted for 34.4% of all reported fire causes, exceeding the provincial average by more than 7%. Open flame tools and smokers' articles alone represented 26.6% of all ignition sources, nearly double the provincial rate. These trends reinforce the need for targeted public education, enforcement, and engineering controls focused on high-risk residential behaviours and vulnerable populations.

Industrial occupancies, while comprising less than 1% of Brantford’s property stock, represent a disproportionate share of fire risk. Industrial buildings accounted for approximately 15% of all structure fires and over 20% of total structure fire loss during the five-year study period, with more than \$7 million in associated damage. Brantford’s industrial fire incidence rate exceeds the provincial average by nearly 8%, reflecting the presence of high fuel loads, large-footprint facilities, and complex operational hazards. These occupancies present elevated consequences in terms of economic disruption, firefighter safety, and potential environmental impacts.

Additional moderate risks identified through the CRA include wildland and grass fires in agricultural and green space areas, particularly during dry summer conditions, as well as disruptions to critical infrastructure such as electrical distribution, transportation corridors, and water systems. Demographic trends also influence risk, with Brantford having higher-than-average proportions of seniors and children, both groups recognized provincially as higher-risk populations for residential fire fatalities.

The CRA concludes that Brantford’s highest-priority risks are concentrated in residential occupancies, transportation corridors, ignition source behaviours, and industrial properties, with additional moderate risks associated with infrastructure disruption and wildland fire potential. Key findings, including high motor-vehicle collision volume, above-average smoke alarm deficiencies, elevated industrial fire incidence, and an aging building stock, highlight areas where risk treatment strategies must be focused. These findings will directly inform the FMP by aligning resources, prevention efforts, enforcement, engineering controls, and emergency response with the “Three Lines of Defence” and the “Five E’s” of Community Risk Reduction to ensure risk-based, defensible fire protection service delivery in Brantford.

## 2.11 Hazards Risk Analysis Overview

Brantford's HIRA was reviewed and updated in 2025, indicating that Brantford has complied with its legislative requirements. As a component of the risk assessment and risk analysis process, the top risks in Brantford 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:

- Pandemic
- Flood-River
- Freezing rain/Ice Storm
- Critical Infrastructure
- Windstorm
- Tornado
- Cyber Attack
- Water Quality Emergency
- Snowstorm/Blizzard
- Flood – Urban
- Extreme temperatures/seasonal storms
- Oil or natural gas release
- Infectious disease
- Active threat
- Rail, light rail

**Note:** Some hazards are grouped together based on similar risks. Tornado which was an extreme risk identified in the 2022 HIRA is now ranked as very high. Freezing Rain/Ice Storm remains an extreme risk.

In addition to the overall highest risks to the community, certain events pose an increased risk specific to firefighting. The risk of 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.

## 2.12 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 jurisdiction. The results of this review, as they pertain to the hazards in Brantford, are presented in Table 16.

Table 16: Impacts of Hazards on Fire Protection Services

| Hazard                                                                                                                          | Possible Impact                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|---------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Pandemic                                                                                                                        | <p><b>Overall Impact</b></p> <p>Medically vulnerable people 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.</p> <p><b>Fire Services</b></p> <p>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 many 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.</p> |
| Freezing Rain/Ice Storm and Windstorm/Snowstorm/Blizzard<br>(Group together as the impact to the fire service would be similar) | <p><b>Overall Impact</b></p> <p>Could result disruption to critical services, including lighting, heating, communications in isolated areas or municipal wide depending on the extent of disruption.</p> <p><b>Fire Services</b></p> <p>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.</p>                                                                                                    |

| Hazard                                                                                 | Possible Impact                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>Flood-River<br/>Flood – Urban<br/>(similar impacts and effects on fire service)</p> | <p><b>Overall Impact</b><br/>It could result in serious injury or fatality, disruption to critical services, including lighting, heating, communications in isolated areas or municipal wide depending on the extent of disruption. Could cause secondary emergencies.</p> <p><b>Fire Services</b><br/>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. 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. Increased response volume.</p> |
| <p>Critical Infrastructure</p>                                                         | <p><b>Overall Impact</b><br/>Could result disruption to critical services, including lighting, heating, communications in isolated areas or municipal wide depending on the extent of disruption.</p> <p><b>Fire Services</b><br/>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.</p>                                                                             |
| <p>Tornado</p>                                                                         | <p><b>Overall Impact</b><br/>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.</p> <p><b>Fire Services</b><br/>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.</p>                                                                                                                                                                                    |

| Hazard                  | Possible Impact                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|-------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Water Quality Emergency | <p><b>Overall Impact</b></p> <p>All residents are at risk. Serious injury or fatality could require alternative measures to ensure safe water conditions.</p> <p><b>Fire Services</b></p> <p>Water Quality Emergencies 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 many 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.</p> |
| Sabotage                | <p><b>Overall Impact</b></p> <p>Threat to life safety may require evacuation/shelter in place of large population.</p> <p><b>Fire Services</b></p> <p>Requires coordination with police services. Threat to life safety of responders.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                     |

## 2.13 Legislative Requirements

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Under the Fire Protection and Prevention Act (FPPA), Brantford City Council holds responsibility for establishing the fire service and determining the level of fire protection services to be provided. Council has exercised this authority through Bylaw 221-2021, which repealed previous governing provisions and enacted a consolidated Establishing and Regulating (E&R) Bylaw for BFD. This bylaw serves as the primary legislative authority governing BFD.

Bylaw 221-2021 formally establishes the BFD and authorizes it to deliver Fire Protection Services, defined to include fire suppression, fire prevention, fire safety education, rescue and emergency services, communications, training, and administration. The bylaw identifies the Service's composition, governance structure, and reporting relationships, ensuring compliance with the FPPA and related provincial legislation.

The bylaw designates the Fire Chief as the head of the Service, reporting to Council through the Chief Administrative Officer. The Fire Chief is granted broad authority over service administration, staffing, apparatus, facilities, policies, and procedures, subject to Council-approved budgets and lawful direction. This structure clearly delineates Council's policy-setting role from the Fire Chief's operational authority.

Council-approved levels of service are established in Appendix "A" to the bylaw. These include offensive and defensive fire suppression operations, emergency medical responses delivered through a tiered response agreement, and a defined suite of specialized rescue services. Approved technical capabilities include vehicle extrication, water and ice rescue at the technician level, hazardous materials response at the operations (mission-specific) level, rope rescue at the operations level, and elevator rescue, with higher-risk rescue disciplines limited to the awareness level unless otherwise approved by Council.

Appendix "A" also establishes fire suppression performance benchmarks, including travel-time-based depth-of-response objectives for initial and sustained fireground operations. These benchmarks represent the only formal response performance measures embedded in the bylaw and are specific to fire suppression incidents rather than the full range of emergency responses handled by BFD.

In addition to emergency response, the bylaw authorizes fire prevention inspections, fire investigations, and public education programs delivered in accordance with the FPPA, the Ontario Fire Code, and Council-approved Fire Prevention policies. Emergency call taking and dispatching are provided in alignment with the Ontario Fire Service Communications Standard, reinforcing provincial compliance for communications and dispatch functions.

Overall, Bylaw 221-2021 provides a clear, compliant legislative foundation for BFD by defining authority, governance, and Council-approved service levels. While detailed performance monitoring and service evolution are addressed through Council-approved planning documents such as the FMP and CRA, the bylaw remains the core legal instrument that enables, governs, and limits the delivery of fire protection services within Brantford.

**Observation # 1:** Appendix A, Bylaw 221-2021 outlines the core services and performance benchmarks for BFD; however, several elements have become outdated or incomplete when evaluated against current legislation, standards, and operational practices. The training section cites NFPA standards only in broad terms and does not reflect updated provincial training requirements, evolving occupational health and safety obligations, or contemporary best practices for documenting competency and compliance.

The Appendix also references the Ontario Fire Service Communications Standard, which is no longer actively maintained or applied as an operational benchmark within Ontario fire communications centres. Current dispatch and communication practices are instead shaped by a combination of provincial guidance, municipal service agreements, and locally adopted standards, resulting in a disconnect between the bylaw's language and actual operational practice.

**Recommendation #1:** Update Bylaw 221-2021 to reflect current legislation and operational practice by modernizing training requirements, removing outdated references to the Ontario Fire Service Communications Standard, and aligning fire prevention programming with the CRA and FMP.

**Suggested completion:** 1-12 months

**Cost:** Neutral

**Strategic Objective #1:** Administration

**Rationale:** *Appendix A of the bylaw represents the formal expression of Council-approved service levels and is the primary legal reference defining what services BFD is authorized and expected to deliver. Ensuring that its content accurately reflects current legislation, standards, and practice is essential to maintaining regulatory compliance, operational clarity, and governance transparency.*

*Updating Appendix A will strengthen Council oversight, reduce the risk of misalignment between policy and practice, and ensure that training, communications, and fire prevention services are clearly authorized, defensible, and responsive to community risk. This update will also reinforce the role of the FMP and CRA as strategic planning tools while preserving Appendix A as the authoritative legislative framework guiding fire protection services in Brantford.*

**Observation # 2:** The current E&R Bylaw does not explicitly define the circumstances under which BFD personnel are authorized to respond outside the City’s municipal boundaries. While some discretion exists through mutual aid and Fire Chief authority, the absence of clearly articulated conditions creates uncertainty for Council, the Fire Chief, and responding personnel, particularly for incidents near municipal borders or involving City-owned or occupied property outside Brantford.

This lack of clarity is important because deploying resources beyond City limits can reduce response capacity within Brantford, leaving response areas vulnerable during concurrent emergencies. Reduced coverage may result in response delays that increase the risk of injury, property damage, and adverse life safety outcomes. Clearly defining when BFD may leave Brantford through the E&R Bylaw would strengthen governance, ensure Council intent is clearly expressed, and support defensible decision-making while maintaining appropriate protection for Brantford residents.

**Recommendation #2:** Amend the E&R Bylaw to clearly identify the additional circumstances under which BFD may respond outside of Brantford’s limits. Add the following wording to the list of exceptions:

- That in the opinion of the Fire Chief, it threatens property in the City of Brantford or property situated outside the City of Brantford that is owned or occupied by the Corporation.
- On property beyond the City of Brantford’s border where the Fire Chief or his or her designate determines that immediate action is necessary to preserve and protect life and/or property, and the correct department is notified to respond and/or assumes command or establishes alternative measures acceptable to the Fire Chief or designate

**Suggested completion:** 1-12 months

**Cost:** Neutral

**Strategic Objective #1:** Administration

**Rationale:** *The current E&R Bylaw provides only general direction regarding responses outside Brantford’s municipal boundaries and does not clearly define the specific circumstances under which BFD personnel are authorized to do so. This lack of specificity can create ambiguity for Council, the Fire Chief, and responding personnel, particularly in time-sensitive incidents near municipal borders or involving Brantford-owned property. Clear legislative direction is necessary to ensure extra-municipal responses are lawful, consistent, and aligned with Council’s intent under the Fire Protection and Prevention Act.*

*Additionally, updating the bylaw should explicitly address when BFD may respond beyond City limits, including threats to Brantford or municipally owned property, and situations where immediate action is required to preserve life or property until the appropriate authority assumes command. Clearly defining these conditions will strengthen governance, reduce liability risk, support inter-agency coordination, and ensure that operational decision-making remains both defensible and consistent with Council-approved service levels.*

## 2.14 Water Infrastructure

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Water supply is an essential component of firefighting and is accessible to the fire service through hydrant systems. A water supply shortage or damage to the distribution system could impede the BFD's ability to use these systems.

Brantford is serviced by a municipally owned and operated water system that is drawn primarily from the Grand River. Raw water is treated at the Brantford Water Treatment Plant, which can produce upwards of 100 million litres of potable water per day. Following treatment, water is conveyed through a pressurized distribution network of water mains, pumping stations, and elevated storage tanks to maintain consistent pressure and availability across the urban area. The system is continuously monitored and operated through a Supervisory Control and Data Acquisition (SCADA) system, staffed 24 hours per day to ensure water quality, system reliability, and rapid response to operational issues.

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.

For firefighting purposes, Brantford's distribution system provides hydrant coverage throughout the urbanized portions of Brantford. This coverage enables BFD to deliver effective fire suppression and meet response benchmarks in most developed areas. Hydrant spacing and system pressures are generally compliant with Fire Underwriters Survey (FUS) expectations, supporting favourable fire insurance grading for properties connected to the municipal system. However, as identified in Brantford's 2019 CRA, aging water infrastructure and areas of network constraint present localized challenges that require ongoing monitoring and capital reinvestment to ensure adequate fire flow under peak demand conditions.

Outside of fully serviced areas, particularly along the edges of Brantford's municipal boundary or where growth is extending into rural/agricultural lands, alternative water supply sources remain essential for firefighting. These sources may include static water bodies (ponds, rivers, and streams), engineered cisterns, and the use of tanker apparatus equipped with portable water tanks. However, Brantford's Planning Department, with input from BFD has determined that temporary service to facilitate construction of all new buildings and subdivisions will not be permitted.

BFD maintains equipment and training to deploy water shuttle operations, and through participation in the Brant County Mutual Aid Plan, can request additional tankers and support apparatus from neighbouring municipalities when required. This collaborative approach provides operational depth and reinforces Brantford's capability to sustain water supply for suppression in areas without hydrant coverage.

Achieving and maintaining FUS recognition for Superior Tanker Shuttle operations is a priority for Brantford, as it improves insurance grading for rural and un-serviced areas, demonstrates operational preparedness, and enhances community confidence. To support this, BFD continues to identify, map, and maintain site-specific rural water supply plans, including the use of dry hydrants and access points along the Grand River and other suitable water courses. These plans are integrated into pre-incident planning and operational response strategies, ensuring that crews can rapidly deploy alternate water supply tactics when municipal hydrants are not available.

Brantford's ongoing growth and intensification will require continued alignment of water servicing investments with fire protection needs. Ensuring that new subdivisions, employment areas, and infill projects are supported by adequate watermain sizing, hydrant spacing, and redundancy is vital to maintaining effective fire suppression capabilities. Capital coordination between the City's Public Works Department, Planning Department, and Fire Services will be essential to identify potential bottlenecks, upgrade aging infrastructure, and preserve the reliability of this critical lifeline for firefighting operations.

## SECTION 3

### FIRE SERVICE PROFILE

#### 3.1 Fire Service Overview

Modern fire services have evolved into a critical component of a community's social safety net. Whereas early fire services were historically established specifically to combat structure fires that, at the time, were often devastating, today, fire services 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 services must be properly structured, adequately resourced and equipped to deliver these services safely and competently.

BFD is a full-time professional service operating from four strategically located stations across the city. The fire service employs approximately 144 personnel, including firefighters, officers, and support staff, ensuring 24/7 emergency coverage. The service provides a wide range of services including fire suppression, hazardous materials response, technical rescue, water and ice rescue, emergency medical assistance, and public education programs.

The BFD fleet includes advanced pumper rescues, aerial apparatuses, and specialized equipment. BFD also manages fire prevention and inspection programs, conducts thousands of hours of training annually, and maintains NFPA-aligned response standards.

In June 2024, Brantford released a vision document called "Brantford 2050". The document represents a city-wide initiative built on extensive public consultation, including nearly 1,000 community members through surveys, focus groups, and interviews. The goal was to craft an updated mission, vision, and values statement to guide decision-making and planning over the coming decades.

#### 2050 Vision Overarching theme - Population Growth & Urban Expansion:

- The plan anticipates significant growth and intensification through 2050. This means **higher call volumes**, more complex building types, and increased demand for fire protection in new neighborhoods and high-density developments.
- Fire Services may need **additional stations, apparatus, and staffing** to maintain response times as the city expands.

Through feedback collection and structured engagement, six key focus areas emerged as priorities for Brantford's future:

### 1. Business and Industry

- Commercial and industrial expansion means increased demand for fire protection including more fire inspections, and hazardous materials responses.
- More businesses attract more workers and residents, increasing emergency call volumes.
- Other impacts include smart infrastructure, business continuity plans, critical infrastructure protection, and specialized training.

### 2. Climate and Sustainability

- Emphasis on climate resilience will require BFD to adapt to **more frequent severe weather events**, flooding, and heat-related emergencies.
- Integration of **green building standards** and renewable energy systems will require updated training for firefighters on new hazards (e.g., solar panels, battery storage).

### 3. Foster a Welcoming Community

- BFD will play a role in **community risk reduction**, fire prevention education, and outreach to vulnerable populations.
- The plan's focus on equity means ensuring **accessible fire safety programs** for all residents, including newcomers and marginalized groups.

### 4. Connected Community – Transit, Infrastructure & Technology

- The vision prioritizes modern infrastructure and connected neighborhoods, which aligns with Fire Services' **dispatch modernization** (Next Generation 9-1-1) and **radio system upgrades**.
- Smart city initiatives may enable **real-time data sharing**, improving emergency response coordination.

### 5. Tourism, Sport, and Culture

Growth in tourism and cultural events will increase **public assembly risks**, requiring enhanced **event safety planning** and emergency preparedness.

## 6. Supporting Vulnerable Persons

- Vulnerable populations including seniors, low-income households, marginalized communities, and individuals with disabilities often face higher risk due to older housing, limited resources for safety upgrades, and mobility challenges
- Firefighters will need effective home safety programs, development of multilingual safety materials, partnerships with agencies to reach vulnerable residents, and training, tools, and preparedness to assist people with mobility or cognitive challenges,

### 3.1.1 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 service strives to be in the future. Values are the beliefs and principles that drive the organization forward. In some cases, a fire service may align with their municipality's mission and vision or build upon those with fire service specific statements.

#### ***City of Brantford Mission Statement***

*The City of Brantford is committed to responsible leadership through sound fiscal management and the delivery of quality programs and services for the citizens of Brantford.*

This mission statement reflects the City's focus on stewardship, financial responsibility, and high-quality municipal service delivery.

#### ***City of Brantford Vision Statement***

*"Our vision is to be a contemporary community, thriving in a modern economy. The Brantford of tomorrow will be progressive and prosperous, a place that respects its past and embraces its future."*

The vision emphasizes balanced growth, economic vitality, and respect for Brantford's historical and cultural foundations.

### 3.1.2 Command Structure

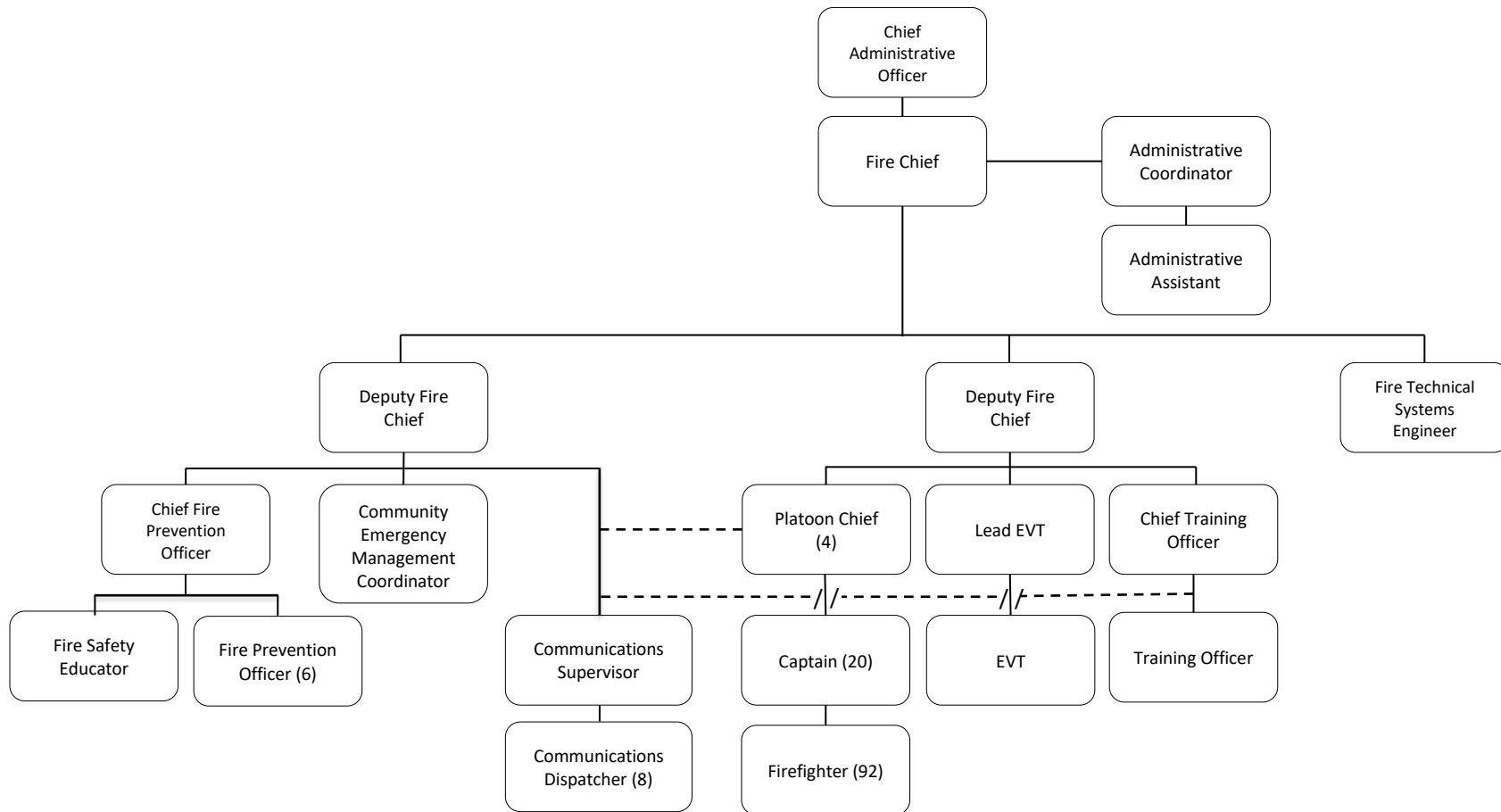
Effective emergency services operations rely on a clearly defined command structure to ensure safe, coordinated, and efficient incident management. A recognized incident command system supports the following outcomes:

- Clear identification of the lead agency (fire, police, EMS, or other)
- Maintenance of appropriate span-of-control over all resources
- Interoperability with allied and responding agencies
- Defined tactical objectives and operational benchmarks
- Standardized communication protocols
- Enhanced situational awareness and overall scene safety

BFD utilizes the Blue Card Command System, an industry-recognized incident command framework that aligns with NFPA 1561 *Standard on Emergency Services Incident Management System and Command Safety*. All BFD suppression staff receive training in the principles of the Incident Command System (ICS), which provides a scalable and adaptable approach to managing all-hazards emergency responses.

The system is fully implemented across the organization and is applied at all incidents, allowing for seamless expansion or contraction of command roles based on the size and complexity of the event. The Blue Card system also ensures compatibility with unified command structures and facilitates integration with external emergency management agencies when required.

Figure 6: Brantford Fire Service Organization Chart (2026)



### 3.1.3 Administration

**Strategic Objective #1:** Strengthen administrative systems and operational efficiency to ensure sustainability of program initiatives. Ensure the continuity of essential operations, deliver relevant performance monitoring data, and manage necessary resources to effectively support identified programs.

A fire department's employees are the 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. Brantford's Human Resources Department (HR) partners with the municipality departments to assist with achieving their human resources goals and objectives.

Functions provided include:

- Employee & Labour Relations
- Recruitment
- Disability Management
- Training & Development
- Employee & Family Assistance Program
- Compensation & Benefits
- Health and Safety and Wellness
- Return to Work Program

In addition to these core responsibilities, the Human Resources (HR) staff play a vital role in facilitating ongoing communication among departments, ensuring that all policies, procedures, and compliance standards are not only met, but also clearly understood across the organization. Impacts of corporate policies and labour decisions on all departments should be considered, including the fire services. This collaborative approach fosters an environment where staff at every level are empowered to work safely and productively, with a strong emphasis on mutual respect and support. Human Resources could further support BFD by assisting with succession planning initiatives, which is important for department growth and promoting internal candidates to supervisory and management roles.

### 3.1.3.1 Fire Service Leadership, Management and Operations

BFD administrative responsibilities, management and leadership are provided by the Fire Chief and two Deputy Fire Chiefs. 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 continuously looking for ways to increase the value for money proposition for their citizens. Fire Service 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:

- Developing performance measures and objectives for core services including emergency response, fire prevention, public education and health and safety.
- Regularly monitoring and reviewing performance; and
- Ensuring value for service.

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

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

Figure 7: Fire Service Time Management **Examples**

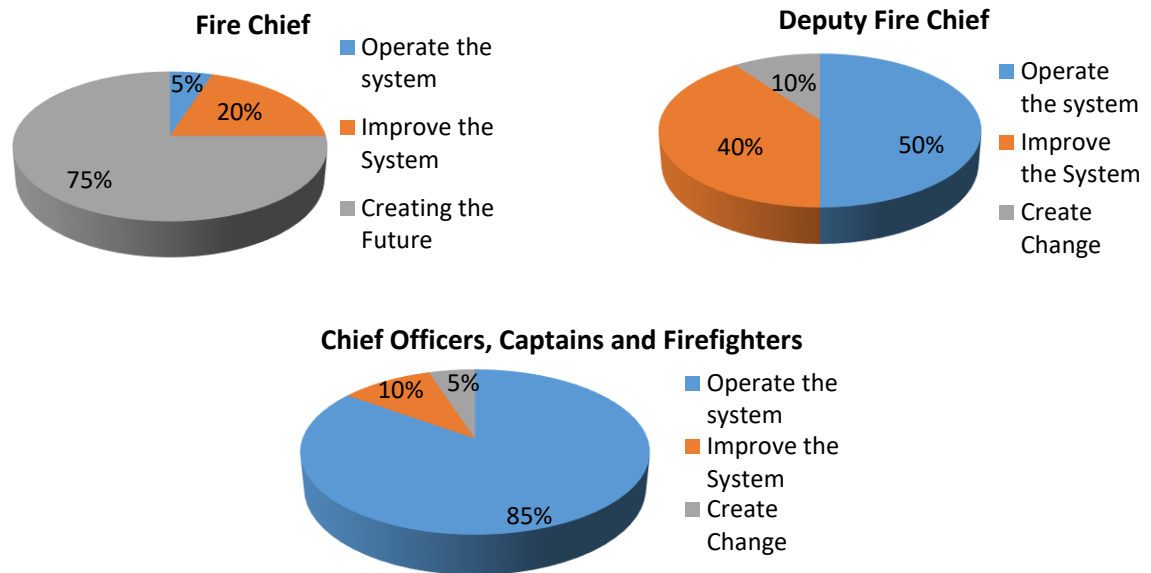


Figure 7 illustrates two important points:

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

The Fire Chief is responsible for the overall management of the BFD consistent with the Fire Service Establishing and Regulating Bylaw. Duties captured in this bylaw include (but are not limited to):

- Legislative duties as mandated by the Province of Ontario Fire Protection and Prevention Act 1997 (FPPA).
- Responsible to Council for the delivery of Fire Protection Services.
- Reporting through the Chief Administrative Officer (CAO) to Council for proper administration and operation of the fire department.
- Preparing, implementing, and maintaining a departmental fire service plan and program for the Corporation consistent with the Fire Master Plan.
- The preparation and delivery of an annual budget for approval and exercising control over the approved budget.

- Determining and establishing qualifications and appointing members and administrative support staff of the department.
- Developing and implementing general orders, policies, procedures, rules and regulations for the proper administration and efficient operation of the Fire Department and the effective management of Fire Protection Services for the Corporation, and for the prevention, control and extinguishment of fires, the protection of life and property and the management of emergencies.
- Administering and enforcing the Fire Bylaw and other corporate bylaws respective fire protection services and administer and enforce of all general orders, policies, procedures, rules, and regulations of the department made under the bylaw.
- Provide all the powers, rights and duties assigned to a fire chief under the FPPA.
- Liaising with the Office of the Fire Marshal of Ontario or other office or organization as required by Council, and with any union representing firefighters.
- Developing and implementing automatic aid, mutual aid and other negotiated fire protection and emergency service agreements within the Corporation's borders and/or within the municipal borders of adjoining municipalities.

The BFD Deputy Fire Chiefs are the second-ranking officers and act on behalf of the Fire Chief in case of absence or vacancy in the office of Fire Chief. The BFD Fire Chief may delegate some of the Fire Chief's responsibilities to the Deputy Chiefs for the effective and efficient management of the service.

The leadership team appears sufficient in competency and structure to deliver the high level of leadership required for a fire service. The administrative positions (Fire Chief and Deputy Fire Chiefs) have core responsibilities detailed within their respective job descriptions that allows for an appropriate division of work given the increased demands resulting from legislative requirements, managing a growing 24/7 operations, and the growth in the community and the BFD organization.

It is extremely important that the leadership within BFD 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
- Collaborative
- Supportive
- Clarity
- Adaptive
- Reflective

Leadership is a function of all members of BFD. Chief officers to firefighters contribute to the leadership required to achieve service excellence in a fire service. Day-to-day BFD 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 BFD staff. These roles are crucial in ensuring all services are aligned with BFD policy, as well as being the critical link in the chain of command between staff and administration. Within the current BFD organizational structure, it is imperative that the administration continues to work closely to provide direction and support while allowing for engagement, including constructive feedback.

### **3.1.3.2 Administrative Support**

As BFD continues to expand its service delivery model, the administrative demands on the organization have grown. Program areas such as fire prevention, training, communications, emergency planning, and dispatch are increasingly complex, and data driven. New technologies, including digital inspection systems, computer-aided dispatch (CAD), and learning management platforms, also generate additional administrative workload that require consistent and dedicated support.

Currently, BFD operates with two full-time administrative staff, including the Administrative Coordinator. This staffing level appears to be sufficient for current needs. However as new technology is introduced (First Due), and internal reporting becomes more demanding, there may be growing pressure on both administrative and uniformed personnel to manage routine tasks such as data entry, scheduling, records management, and internal communication. These limitations reduce departmental efficiency and force senior officers to divert time from their core strategic responsibilities. Inadequate administrative support can also delay program implementation, reduce internal responsiveness, and challenge the service's ability to meet evolving service and compliance requirements.

BFD should monitor these activities and ensure adequate administrative support is available in the future to support the needs of the service, freeing up the time of fire service staff to focus on their area of expertise and potentially deferring the need for additional staff in other areas. By reallocating routine support tasks to dedicated personnel, BFD can optimize its use of senior leadership and front-line resources, enhancing both internal capacity and service quality as the community and service continue to grow.

BFD 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 service 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 service and commitment to common goals cannot be overstated. 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. 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.

### **3.1.4 Non-Administrative Staff**

#### **3.1.4.1 Staffing Complement**

BFD is led by the Fire Chief reporting to the CAO and Council. The BFD Strategic Leadership and Administration division is comprised of the Fire Chief, and two Deputy Fire Chiefs supported by a dedicated Administrative Coordinator and one Administrative Assistant.

BFD maintains a regular staffing complement of 144 full-time personnel, organized into six key divisions and functions: Fire Communications, Fire Prevention, Suppression, Fleet and Facilities, Professional Qualifications and Standards and Emergency Management.

The Administration Division, located at Fire Station 1 (Headquarters), operates Monday through Friday, and supports the services' leadership, clerical, budgeting, and logistical coordination functions. The Fire Prevention Division, also based at Station 1, includes a Chief Fire Prevention Officer, six Fire Prevention Officers, and one Fire and Life Safety Educator. They operate on a 42-hour work week and are responsible for inspections, code enforcement, public education, and fire investigations.

The Training Division, based at Fire Station 1, provides ongoing training and professional development for BFD. Staff in this division work a 42-hour week, with flexibility based on course delivery and operational demand.

The Operations Division comprises full-time fire suppression staff working out of Stations 1, 2, 3, and 4. These firefighters work 24-hour shifts on a rotating platoon schedule, balancing to an average of 42 hours per week over a 28-day cycle.

The Communications Division consists of eight full-time Communications Dispatchers, and one Supervisor of Communications. Staff operate a primary communications centre located at Station 1, providing emergency call handling and dispatch services for BFD, County of Brant Fire Department and Six Nations Fire and Emergency Services. The team supports 24/7 operations and plays a critical role in inter-agency coordination, call triage, and resource deployment.

BFD maintains an in-house mechanical division, which currently includes two certified Emergency Vehicle Technicians (EVTs). This team is responsible for the maintenance, repair, testing, and certification of all front-line and reserve emergency vehicles and related equipment. Operations are primarily conducted at Station 1, which has designated but limited space for this division.

The established suppression staffing per platoon between the existing four fire stations is 21, including 1 Platoon Chief, 4 Captains and 16 firefighters. Emergency incidents that require a full response of apparatus and personnel may quickly consume all on-duty resources.

### 3.1.4.2 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 17, utilizing the above-mentioned staffing calculation should provide the basis for calculating the BFD 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 17: Brantford Fire Service Staffing Ratio Calculation

|    | Description                                                                                        | Hours     |
|----|----------------------------------------------------------------------------------------------------|-----------|
| 1  | Availability required per firefighter, in hours                                                    | 2,184     |
| 2  | Total yearly coverage required per 4 ff, in hours (one apparatus)                                  | 8,736     |
| 3  | Sick time certified, in hours per FF                                                               | 80.6      |
| 4  | Annual vacation time in hours per FF                                                               | 160.31    |
| 5  | Lieu time in hours per FF                                                                          | 126.04    |
| 6  | WSIB, STD, LTD in hours per FF                                                                     | 144.57    |
| 7  | Bereavement                                                                                        | 3.24      |
| 8  | Unavailable for duty in hours <b>(sum line 3 to line 7)</b>                                        | 515       |
| 9  | Avg availability per FF in hours <b>(Line 1-Line 8)</b>                                            | 1,669     |
| 10 | Staffing ratio required per 4 firefighters <b>(Line 2/Line 9)</b>                                  | 5.23      |
| 11 | # FF minimum staff required on duty to staff apparatus <b>(BFD current)</b>                        | 21        |
| 12 | Min. ff assigned per platoon to ensure minimum staffing maintained <b>((Line 11/ 4) X Line 10)</b> | 27.5      |
| 13 | Rounded to the next full FTE count                                                                 | <b>28</b> |

The staffing analysis confirms that platoon staffing requirements increase proportionally with changes to minimum on-duty staffing once leave, illness, injury, and other forms of unavailability are accounted for. Based on an average annual availability of approximately 1,669 hours per firefighter, a staffing ratio of 5.23 firefighters is required to sustain a continuously staffed four-person apparatus. This ratio is applied consistently across all scenarios to ensure reliable coverage and operational sustainability.

### 3.1.5 Recruitment

Recruitment is a key function of all emergency service agencies. The community places a tremendous amount of faith in their fire service 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 fire services 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.

BFD, like other fire services in North America, trains, maintains, and equips its firefighters and fire prevention/inspection staff to the recognized 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 of recruiting applicants for vacant positions has been established. Corporate Human Resources handle job postings, advertising, screening, and participate in interviews, but final hiring decisions are made by the Chief or Deputies. Recruiting firefighters typically takes about six months from start to finish and includes a portion where potential recruits go through a brief assessment with the Training Officers, before participating in a ride-along with existing crews. Training and suppression staff then provide input to the Chief and Deputies before a second interview process and ultimate job offers.

Most interview participants suggested that BFD recruiting efforts were successful in attracting quality applicants. Like other fire services, Brantford has seen a change in the quality of candidates applying. Traditionally, skills learned in various trades have been preferred but candidates with these skills are now less common.

Our review of the recruitment process, along with interviews results, indicates that the recruiting processes for career firefighters and fire prevention officers have generally been successful in identifying excellent candidates. Efforts geared to succession planning may assist in developing internal staff for officer positions that they may not feel ready to take or are unwilling to pursue due to lack of understanding of roles and responsibilities. Issues are more focused on the ability to adequately train staff following recruitment, both internally and through provincial resources for certification.

Vacancies in BFD typically occur as firefighters, fire prevention officers, and training officers are promoted into officer or chief ranks as positions become vacant (typically through retirement) or are newly created. Available positions are posted internally in the City of Brantford as well as externally with a defined opening and closing application submission period. A review of the website indicates that the requirements and process for new firefighter hires are not available outside of hiring opportunities. Providing this information permanently may assist candidates to ensure they have all the required skills and certifications before recruitment campaigns begin, assisting with the attraction of the best candidates.

Promotional processes are dictated by the Collective Agreement and are largely seniority based. Examinations for promotions are conducted under the direction of the Chief Training Officer and the Deputy Fire Chief, with a member of the Human Resources Department and one member of the Association also involved.

### **3.1.6 Retention**

BFD benefits from a highly stable, full-time career workforce, and employee retention is not considered an operational concern. As a career fire service with competitive compensation and opportunities for professional development, BFD experiences very low voluntary turnover. Vacancies typically arise only through predictable factors such as retirements or promotions.

Unexpected departures within Prevention, Training, Mechanical, or Administration Divisions can create operational challenges due to the technical competencies required and the time needed to certify replacements. These vacancies may temporarily affect service delivery, workload distribution, and budget allocations related to acting assignments, training, or overtime coverage.

### **3.1.7 Remuneration**

BFD 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 fire work force that details working conditions and compensation for its employees. This Collective Agreement is between the Corporation of the City of Brantford and the Brantford Professional Fire Fighters Association (BPFFA) affiliated through the International Association of Firefighters identified as IAFF Local 460. 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 are negotiated and form part of the Collective Agreement. The BFD Fire Chief and Deputy Chiefs' working conditions, remuneration and other terms of conditions of employment are determined by the CAO and approved by Council.

### **3.1.8 Promotion and Advancement**

Promotional and advancement processes within BFD are defined in the Collective Agreement, which governs advancement from Probationary Firefighter/Fire Prevention Officer through to Captain and Division Chief.

Promotions within unionized ranks are filled through competitive processes that include examinations and seniority-based criteria. Eligibility requirements include minimum years of service in the preceding rank, and other requirements as determined by the Fire Chief. Promotional processes occur as required by the Fire Chief.

Non-union positions, including Fire Chief and Deputy Chief are filled through a competitive appointment process outside of the bargaining unit, though internal applicants may compete where eligible. Temporary assignment provisions or secondments (happening at the time of writing with Platoon Chiefs rotating through Acting secondments as Deputy Fire Chief) allow qualified unionized employees to temporarily assume management roles without loss of seniority.

### **3.1.9 Succession Planning**

In the past, Brantford had to rely on external candidates to play key roles in the BFD. As the fire service continues to grow in the future, BFD should proactively position itself to meet emerging demands by investing in its people and enhancing leadership capacity to nurture talent from within. This organic approach provides a strong foundation upon which to build a more structured and forward-thinking succession planning program, one that ensures leadership continuity, enhances operational readiness, and supports a positive workplace culture.

Internal promotion of Captains and Chief Officers reflects the service's depth of commitment and operational experience. However, as these leaders transition into new roles, the need for intentional leadership development and mentorship becomes more apparent. Succession planning offers an opportunity to strengthen the leadership pipeline by equipping future leaders with the tools, confidence, and competencies required for success.

A formal succession planning initiative would establish clear pathways for advancement and prepare staff to take on increasingly complex roles across all divisions and sections. This could include leadership coaching, project management training, exposure to policy development, and mentorship opportunities with senior officers. Structured development opportunities ensure that as the service grows, both in staffing and scope of services, it can rely on a confident and capable leadership team that reflects BFD's values and commitment to excellence.

With additional fire stations and enhanced technical response capabilities, now is an ideal time to invest in people. A strong leadership team will be essential to guide operational staff, support emerging service models, and manage the complexity of an all-hazards environment. By embedding succession planning into its long-term strategy, BFD can ensure that leadership transitions are smooth, future challenges are met with confidence, and organizational knowledge is retained and passed forward. This investment in leadership will support the services' ability to adapt, innovate, and deliver the high level of service the Brantford community has come to expect.

**Observation #3:** In the past, Brantford has often needed to fill management positions within the Fire Services with external candidates. BFD currently has one permanent Deputy Fire Chief with the second Deputy Fire Chief position being filled in an acting capacity. The intent is to allow more than one staff member to experience the position in advance of posting to fill it on a permanent basis. The difficulty in promoting internal staff to management positions likely stems from several factors, including the limited availability of formal training, mentorship, and structured succession pathways. Without this, challenges are created for newly promoted officers, particularly in Operations, who may not have adequate opportunities to develop their leadership skills, project management capacity, and confidence in decision-making.

Further compounding the issue is a hesitancy among staff to pursue leadership roles. This is often due to an unwillingness to leave the 24-hour shift, fear of leaving their crews, lack of clarity about the responsibilities of management roles, and limited visibility into advancement opportunities. The absence of a formal succession planning framework places strain on existing leadership, makes workforce planning reactive rather than strategic, and increases the risk of burnout among middle managers. With continued organizational growth, added service pressures, and the introduction of new fire stations and disciplines, BFD must prepare its future leaders through intentional planning and structured development.

**Recommendation #3:** Implement a formal Succession Planning and Leadership Development Program that identifies, mentors, and prepares future leaders across all divisions. This program should include career pathing, targeted training, leadership shadowing, and secondment opportunities tied to the Fire Master Plan implementation timeline and operational growth triggers.

**Suggested completion:** 12-24 months

**Cost:** Neutral

**Strategic Objective #1:** Administration

***Rationale:** A structured succession plan will provide BFD with the tools to ensure stable and sustainable leadership as the organization expands. By proactively preparing internal candidates for future leadership roles, the service can ensure smoother transitions, maintain service continuity, and enhance confidence among both operational staff and senior leaders.*

*This approach also supports a healthy workplace culture by reducing the stress of reactive promotions and increasing transparency in career progression. It empowers personnel to see a future in the organization and understand what is required to advance. Moreover, as BFD activates new facilities (e.g., new fire station or training facility), expands technical disciplines, and considers broader responsibilities such as regional dispatching, having a confident, capable leadership team is essential.*

*Succession planning ensures the service is not only prepared to respond to operational needs, but also to lead strategically, manage projects, and mentor others, key capabilities that will define BFD's success over the next decade. This investment in people will be critical to building resilience, managing change, and delivering service expectations.*

### 3.1.10 Health and Wellness

The active pursuit of employee health and wellness is extremely important to an organization. The benefits may include but are 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' safety and insurance board (WSIB) 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
- Retiree Benefits
- Bereavement Leave
- Pregnancy, Parental and Adoption Leave

BFD has an established Joint Health and Safety committee with representation from administration and the Association, with a multi-site agreement in place.

The Committee's responsibilities are to:

- a) Identify Workplace Hazards.
- b) Obtain information from the Corporation about any existing or potential hazards in the workplace or workplace testing for safety purposes.
- c) Make recommendations to the Corporation to improve workplace health and safety.
- d) Investigate work refusals.
- e) Investigate serious accidents.
- f) Obtain statistical data from the WSIB.

Health and wellness initiatives are in place and standard operating policies and guidelines are established to ensure safe practices and procedures are followed.

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<sup>5</sup>, “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.

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<sup>5</sup> *Joint Labor Management Wellness-Fitness Initiative, 4<sup>th</sup> Edition, p.48*

Brantford provides health and wellness programs for its employees, including an Employee Assistance Program through a partnership with Homewood Health. 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 illnesses 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 BFD. There are many new opportunities provided at a provincial level, including programs like Warrior Health<sup>6</sup> that allow for low cost/ no cost services to be accessed by a fire service.

Brantford Fire supports a Peer Support Team (PST) that provides support services to any BFD members affected by a single or multiple traumatic incidents as well as members who are referred to or have requested assistance with mental health, personal or professional distress. The Peer Support Team is a volunteer, non-clinical, confidential mental health program that provides active and retired firefighters and their family members assistance with mental health and/or addiction issues. PST members may act as a bridge to external mental health and/or addiction treatment, through their knowledge of local and Provincial mental health resources and are available to provide education and training on mental health and wellness.

The goal of the PST is to provide the necessary assistance and/or support to enable an employee to return to a state of emotional and physical well-being.

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<sup>6</sup> <http://warriorhealth.ca/>

### 3.1.11 Policies, Guidelines, and Directives

A critical tool in the employer's scope of responsibility is the establishment of approved policies, guidelines, and instructions. 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.

Emergency responses are 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 a clear industry-specific set of Policies, Guidelines, and Directives.

- Policies are mandatory direction that must be followed. They 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.
- Guidelines represent recommended best practices but may be adjusted based on circumstances. During emergencies, flexibility is essential to ensure the safety of both the public and responders. Instructions are detailed 'how to' steps and practices that explain how to achieve Policies and Guidelines. They may be several pages long, include pictures and diagrams, and are commonly used during training scenarios.
- A directive is an operational instruction that tells staff *how* to carry out a policy or achieve a required outcome.

Ultimately, 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, guidelines, and instructions that are meant to keep them, their coworkers, and the worksite safe.

**Observation #4:** BFD has a comprehensive list of standard operating policies and guidelines for emergency and non-emergency operations. However, most BFD SOPs have not been updated since 2021 and may not reflect recent changes in the service and community, including new agreements, new technology, and revised procedures and services.

BFD Standard Operating Procedures are comprised of policies (shall/must statements), guidelines (best practices), and instructions ('how to' lists).

**Recommendation #4:** Conduct a comprehensive review of all SOPs and update them to reflect current practice. Establish a review schedule, ideally every 2-3 years, to ensure all SOPs remain current. Separate each SOP into a Policy document, a Guideline document, and an Instruction document as required.

**Suggested completion:** 24-36 months

**Cost:** Neutral

**Strategic Objective #1:** Administration

***Rationale:** Conducting regular reviews of SOPS ensures they remain current. This is a critical function of the Administration team to reduce health and safety risks to fire personnel, limit Departmental and Corporate liability, and maximize community service delivery efficiency, quality, and effectiveness.*

## 3.2 Fire Public Education

**Strategic Objective #2:** Enhance public fire safety education campaigns that target risks identified in the CRA to raise awareness about fire prevention, the importance of fire safety practices, and what to do in an emergency. BFD will expand existing engagement efforts to reach vulnerable populations including children and seniors, and the increasingly diverse community, reinforcing a shared culture of safety and community resilience.

The *Fire Protection and Prevention Act* require, at minimum, that fire services “establish a program in the municipality which must include public education with respect to fire safety and certain components of fire prevention” and “provide such other fire protection services as it determines may be necessary in accordance with its needs and circumstances.”

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. Fire safety is everyone’s responsibility, which is why it is critical that everyone plays a role in keeping themselves and others safe through prevention, detection, and escape.

BFD provides a range of fire safety programs designed to modify the behaviors and attitudes of individuals regarding fire safety. BFD tracks public education activities in spreadsheet form, but there is no consistent categorization or naming convention that allows for data to be presented and analyzed succinctly and easily.

In 2025, the public education spreadsheet contains 237 entries and indicates a total of 21,780 people reached. The activities included range from fireworks safety instructions reaching a single person at a time, to an event at the Brantford Bulldogs game that was estimated to have reached 2,500 people.

Public Education activities are directed by SOG 3.29, which recommends a frequency of public education priorities that appear difficult to achieve. BFD has a single Fire and Life Safety educator to develop and deliver all the public education programs offered by the service, or coordinate programming through other Fire Prevention Officers and/or suppression staff.

Although anecdotal evidence indicates a likely need for at least one additional staff resource to manage this responsibility, the absence of comprehensive data prevents precise quantification. As additional programs recommended in this section are developed, BFD will need to evaluate staffing levels to determine the point at which additional dedicated Fire and Life Safety Educators are required.

The implementation of First Due could help BFD better track data to assist in the development of this business case. Alternately, with continued limited staffing, fire suppression staff trained in NFPA 1035 *Standard on Fire and Life Safety Educator, Public Information Officer, Youth Firesetter Intervention Specialist, and Youth Firesetter Program Manager Professional Qualifications (2015)* would be better able to assist in effectively delivering fire safety education programs. Additionally, BFD should ensure the Fire and Life Safety Educator is appropriately equipped (including a vehicle) to provide services more efficiently.

**Observation #5:** BFD currently collects basic public education data, including information related to the program offered, number of people reached, etc. With no consistency to this data (including program naming), reporting outcomes are difficult, as are comparisons year over year. The use of records management software, such as the recently implemented First Due program may assist in providing better data that can be used to consistently track public education activities. This will help the BFD with future business cases to add staffing to this under-resourced area of BFD. Additionally, the BFD should ensure that Public Education staff are adequately equipped to provide the highest level of service with limited staff resources.

**Recommendation #5a:** Implement a records management process that provides detailed tracking of all public education activities undertaken by BFD staff, to allow for accurate reporting and the development of future business cases for additional resources.

**Suggested completion:** 12-36 months. More consistent excel tracking can be implemented in the shorter term (allowing for more accurate aggregate data reporting), potential implementation of a module of First Due will require a longer time period.

**Cost:** None. Data is currently tracked using Excel but requires consistent naming conventions to allow for ease of data reporting at year end, and year-over-year comparisons. May be possible to use a model of First Due (e.g., Events and Activities), already included in Brantford's contract.

**Recommendation #5b:** Provide a dedicated vehicle for Public Education to provide a more efficient means to provide fire and life safety programs and materials throughout the community.

**Suggested completion:** 1-12 months, based on budget cycle.

**Cost:** \$40,000 (estimate based on fleet inventory provided).

**Strategic Objective #2:** Fire Public Education

**Rationale:** *Implementing a consistent records management system to track public education activities will provide data necessary to develop an informed business case to support future staffing requests to ensure the continued ability to deliver targeted fire safety outreach that is responsive to evolving community needs, as identified in recommendations in this report related to the development of a data-informed annual public education plan.*

*Providing Public Education staff with a dedicated vehicle will allow staff to provide services more efficiently.*

The recent CRA identified 15 risks of moderate or high levels and 22 key findings. From the CRA, BFD can structure and prioritize public education programs on the risks identified, including targeting smoke alarm safety in all residential homes. One of the most significant challenges facing BFD is the predominance of residential (Group C) occupancies, which comprise over 98% of the building stock and account for most fire-related injuries, fatalities, and property loss.

Between 2109 and 2023, 100% fire-related fatalities and 86.21% of fire-related injuries occurred in Group C buildings between 2018 and 2022. Contributing factors include a concerning rate of absent or malfunctioning smoke alarms and an aging housing stock, with over 44.31% of structures built prior to the implementation of modern building and fire codes.

The following statistics are drawn from the 2025 CRA report:

- Residential occupancies represent 98.41% of the existing building stock, with 60.6% of those being single-detached homes.
- Over the period from January 1, 2019- December 31, 2023, Brantford experienced a total of 473 structure fires with 64.48% (305) of these fires occurring in Group C- Residential Occupancies, contributing to 68.69% of the total fire loss.
- Over a five-year period from January 1st, 2019, to December 31st, 2023, Brantford reported that in 22.45% of fires responded to, there was no smoke alarm present (4.1% higher than the provincial average). Incidents where a smoke alarm was present but failed to operate account for 11.22%.

**Observation #6:** BFD currently delivers general fire safety education across the community based on identified risks and some incident data; however, the program is not formally guided by a documented annual plan that aligns with risk data, incident trends, or demographic shifts. Findings from the CRA highlight specific patterns, such as higher fire loss in Group C residential occupancies and inconsistent smoke alarm compliance that should directly inform public education priorities. Additionally, while BFD collects some program participation data, it lacks a centralized system to track, evaluate, or adapt programming based on geographic impact, community risk, or audience engagement.

**Recommendation #6a:** Use the findings of the CRA, incident data, and geographic analysis to inform the development of annual public fire safety education plans. Programming should be updated each year to reflect emerging risks, demographic shifts, and local trends in fire incidents, smoke alarm compliance, and vulnerable occupancy types.

**Recommendation #6b:** Implement a GIS-based predictive analysis model and develop a participant tracking and evaluation system to monitor the reach and impact of public education programs.

**Suggested completion:** 12-36 months

**Cost:** None. Program development can be completed by existing staff, and tracking can be completed in tandem with recommendation #5 above.

**Strategic Objective #2:** Fire Public Education

***Rationale:** Developing a data-informed annual public education plan ensures that fire safety outreach is targeted, relevant, and responsive to evolving community needs. By incorporating findings from the CRA, incident response data, and demographic analysis, BFD can more effectively allocate resources to address emerging risks and improve fire safety outcomes. Updating the plan annually ensures responsiveness to trends such as population growth, shifts in building stock, and recurring fire causes, while reinforcing a performance-based approach to community risk reduction.*

*Implementing a GIS-based predictive analysis model and participant tracking system will further enhance the BFD's ability to evaluate the reach, equity, and effectiveness of its fire safety programs. These tools will allow BFD to identify underserved areas, measure outcomes, and ensure accountability by linking public education investments to risk reduction results. A modernized, data-driven approach not only supports strategic planning but strengthens transparency and improves the BFD's ability to demonstrate public value through measurable community impact.*

Demographic and economic trends further influence Brantford's risk profile. The youngest demographic, comprising individuals aged 14 years and under, accounts for 28.59% of the city's total population, which is higher than the province's average of 15.83%. Although they face a lower risk of fatality in residential occupancies compared to seniors or adults, youth in this age group remain an essential demographic for public education efforts.

The percentage of the population aged 65 years and older in Brantford represents 18.90% of the total population, which is slightly higher than the province's rate of 18.55%. Additionally, 13.59% of Brantford's population falls between the ages of 55 and 64. This larger population of older adults highlights the significance of implementing early intervention and prevention programs to mitigate fire risks as this cohort transitions into the senior demographic. Based on historic residential fire fatality data, this population faces greater risks. These demographic trends emphasize the importance of developing informed, targeted public education programs and risk reduction strategies within the community.

In Brantford, where the proportion of newcomers is significantly lower (15.6%) compared to Ontario (29.98%), cultural background and language considerations remain crucial factors for fire service providers when developing and delivering fire prevention and public education programs. While the immigrant population is smaller, communication barriers, including language proficiency and literacy levels, continue to be important to address. Even with a lower proportion of newcomers, there may still be familiarity challenges related to fire safety standards within immigrant populations. Therefore, targeted education initiatives are necessary to ensure that all residents, regardless of cultural background or language proficiency, have access to essential fire safety information and resources.

**Observation #7:** Brantford's population presents both opportunities and challenges for fire prevention and public education. The high percentage of the population comprising individuals aged 14 years and under offers a unique opportunity for early fire safety education.

And while the immigrant population is smaller, communication barriers, including language proficiency and literacy levels, continue to be important to address as there may still be familiarity challenges related to fire safety standards within immigrant populations. Additionally, CRA data shows that fire-related injuries, fatalities, and property loss are disproportionately concentrated in specific residential areas and building types, including Group C occupancies, which represents the highest property classification in Brantford.

At present, BFD offers seniors safety programs and programs geared to newcomers, however, there is no formalized framework that combines demographic insights, GIS risk mapping, and stakeholder feedback to guide public education efforts. As a result, education and outreach programs may not be fully aligned with the unique needs and risks faced by specific neighbourhoods or populations.

**Recommendation #7a:** Develop and deliver targeted fire safety programs tailored for vulnerable and equity-deserving populations, incorporating input from community stakeholders, cultural organizations, and social service providers.

**Recommendation #7b:** Leverage community data, GIS mapping, and stakeholder engagement to guide the development of fire safety programming tailored to the needs of specific neighbourhoods and population groups.

**Suggested completion:** 12-36 months

**Cost:** None – can be done by existing staff. May be some costs associated with translation services.

## **Strategic Objective #2: Fire Public Education**

**Rationale:** *To effectively reduce fire risk and improve safety outcomes, BFD must develop and deliver public education programs that are responsive to the unique needs of the population. Partnering with cultural organizations, community stakeholders, and social service providers allows the BFD to co-design fire safety messaging that is culturally appropriate, linguistically accessible, and sensitive to the lived experiences of those most at risk. Tailored education efforts can build trust, improve engagement, and help bridge critical knowledge gaps, particularly among children, newcomers, and residents of multi-unit or high-density housing.*

*By leveraging community risk data, GIS mapping, and neighbourhood-level engagement, BFD can prioritize public education efforts where they are needed most, targeting areas with high fire call volumes and absent or malfunctioning smoke alarms. This data-driven approach ensures that limited resources are deployed strategically, with a focus on impact, equity, and measurable outcomes. Integrating evidence-based planning with collaborative outreach strengthens the BFD's ability to prevent fires, reduce injuries and fatalities, and build a more resilient, informed community.*

### 3.3 Fire Prevention and Code Enforcement

**Strategic Objective #3:** Advance the proactive fire safety inspection and enforcement program by maintaining a strong focus on high-risk occupancies and vulnerable populations. Through consistent code application, education, and enforcement, BFD will uphold a prevention-first approach to reducing community risk and supporting compliance.

#### 3.3.1 Fire Prevention Services Overview

As fire services 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 124 deaths reported in 2025. Although difficult to directly measure, effective fire prevention programs 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.

BFD relies on the Fire Chief, Deputy Fire Chiefs, the Chief Fire Prevention Officer, and the Fire Prevention Officers as assistants to the Fire Marshal to carry out all directives required within the Fire Protection and Prevention Act, 1997, to the municipality. 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. BFD is currently under-resourced to meet the demands. With anticipated growth and a recommended approach to targeted public education, proactive inspection and code enforcement programs, additional staff will be required to be phased in.

Additionally, all Fire Prevention staff must be trained and certified to the appropriate NFPA standards, including NFPA 1031 *Standard for Professional Qualifications for Fire Inspector and Plan Examiner (2014)* Level 2 (level 2 due to the scope of inspection work required), NFPA 1033 *Fire Investigator* and NFPA 1035 *Standard on Fire and Life Safety Educator, Public Information Officer, Youth Firesetter Intervention Specialist, and Youth Firesetter Program Manager Professional Qualifications (2015)*.

### 3.3.2 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. BFD fire prevention officers provide inspections 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.

Table 18 outlines the inspection activities undertaken by the staff in Brantford's Fire Prevention division over the past five years.

*Table 18: Fire Inspections 2021-2025*

| Activity                    | 2021       | 2022       | 2023       | 2024       | 2025       |
|-----------------------------|------------|------------|------------|------------|------------|
| Building Under Construction | 4          | 9          | 4          | 8          | 3          |
| Business Licence            | 65         | 97         | 105        | 135        | 203        |
| Complaint                   | 116        | 150        | 135        | 146        | 153        |
| Notice to Building Owner    | 0          | 2          | 4          | 10         | 13         |
| Retrofit                    | 1          | 2          | 0          | 1          | 5          |
| Routine                     | 355        | 394        | 393        | 316        | 177        |
| Other                       | 35         | 47         | 81         | 69         | 59         |
| <b>Totals</b>               | <b>576</b> | <b>701</b> | <b>722</b> | <b>685</b> | <b>613</b> |

In addition to these activities, Fire Prevention Officers also recorded the activities noted in Table 19 over the same five-year period.

Table 19: Other Fire Prevention Activities 2021-2025

| Activity                 | 2021       | 2022       | 2023       | 2024       | 2025       |
|--------------------------|------------|------------|------------|------------|------------|
| Construction Plan Review | 0          | 4          | 2          | 0          | 9          |
| False Alarm Follow-Up    | 84         | 64         | 96         | 98         | 105        |
| Fire Drill               | 27         | 70         | 67         | 64         | 42         |
| Fire Investigation       | 58         | 58         | 67         | 64         | 60         |
| Fire Safety Plan Review  | 13         | 26         | 16         | 17         | 10         |
| Permission to Burn       | 5          | 13         | 14         | 20         | 16         |
| Site Plan Review         | 0          | 0          | 0          | 3          | 145        |
| Other                    | 19         | 64         | 53         | 44         | 77         |
| <b>Totals</b>            | <b>206</b> | <b>299</b> | <b>315</b> | <b>310</b> | <b>464</b> |

Fire prevention and life safety activities and programs industry best practices are outlined in NFPA 1730 *Standard on Organization and Deployment of Fire Prevention Inspection and Code Enforcement, Plan Review, Investigation, and Public Education Operations (2019)* and through the Fire Underwriters Survey (FUS), which recommends a very high level of fire inspection services not typically provided in most communities. Municipalities should examine the various recommended levels of inspection services based on local needs and circumstances and the identified risks within the community.

BFD has established a service level standard in *SOG 3.29 - Fire Prevention Programs and Services* that sets clear expectations to the public, Council, and staff. The Fire Prevention Division has been unable to meet this requirement due to insufficient resources, both in terms of the number of total staff and the experience levels of existing staff.

BFD's current inspection frequency rate, as well as standards for inspections set out by NFPA and FUS are outlined in Table 20. The schedule developed by Brantford as identified in *SOG 3.29 – Fire Prevention Program and Services* does not allow for proactive inspections of some building types. Adopting a CRA based inspection schedule as recommended in NFPA 1730 will require additional resources to be added to the staffing complement of the Fire Prevention Division but will ensure that inspections are conducted on all building types as per their identified hazard index. Additional resources required are detailed in Appendix G and included in Recommendation #10.

While this recommendation notes the need for two additional staff members, resources should be monitored as the calculations are based solely on conducting routine inspections on various occupancy types, and do not include the myriads of other responsibilities of Fire Prevention Officers, including plans examinations, complaint inspections, inspections required for licensing, and fire investigations. The charts in Appendix G do not consider the Chief Fire Prevention Officer in the FTE count, as it is assumed that this staff member is dedicated to supervision and more complicated work assignments and will contribute to actual inspection activities on a more limited basis as the division continues to grow. Also, recent trends requiring more than one staff member to attend some inspections due to health and safety reasons may also impact on the overall need for resources. These instances should be documented and tracked in a records management system to provide the data necessary in the future to support new staffing requests.

In addition to established standards for inspection cycles, municipalities should consider their community risk assessment, including historical fire data. Predictive analytics and GIS-based risk mapping can be used to identify and inspect properties with higher risks before incidents take place.

Table 20: Fire Prevention Inspection Frequency Levels

| OBC Building Class                                         | BFD SOG (Current)                                                                                                                                                                                                                                      | NFPA 1730* (months) | FUS (months) |
|------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|--------------|
| A                                                          | Schools, recreation centres (arenas), curling/golf centres, licensed public halls, and daycare facilities = 12-months<br>Large bar/restaurants (occupant load over 150) = 12-24 months                                                                 | 12                  | 6            |
| B                                                          | 12-months                                                                                                                                                                                                                                              | 12                  | 6            |
| C                                                          | High-rise apartment buildings; boarding, lodging and rooming houses; hotels, motels and occupancies regulated by Part 9.9 of the OFC = 12-months<br>3-6 storey apartments = 12-24 months<br>Apartments regulated by Part 9.5 of the OFC = 48-60 months | 12                  | 6            |
| D                                                          | Business and Personal Services Occupancies = Upon request/complaint or after a fire incident                                                                                                                                                           | 36                  | 12           |
| E                                                          | Mercantile Occupancies = Upon request/complaint or after a fire incident                                                                                                                                                                               | 36                  | 12           |
| F - Division 1                                             | Identified high Risk Industrial Occupancies = 12-months                                                                                                                                                                                                | 12                  | 3            |
| F                                                          | Other Group F = Upon request/complaint or after a fire incident                                                                                                                                                                                        | 24                  | 6            |
| Total Staff Required                                       | Unable to calculate without detailed Building Classification data. Annual schedule developed using staff resources available, adhering as closely as possible to the SOG. Current staffing level unable to achieve approved SOG.                       | 7.13                | 21.96        |
| Additional Staff Required (rounded to next full FTE count) |                                                                                                                                                                                                                                                        | 2                   | 16           |

\*Reference: NFPA 1730, Standard on Organization and Deployment of Fire Prevention Inspection and Code Enforcement, Plan Review, Investigation, and Public Education Operations (2019)

**Observation #8:** BFD currently conducts fire inspections based on a documented SOG, but lacks a formal, risk-based inspection model that prioritizes properties based on fire history, occupancy type, or known vulnerabilities. The CRA and incident response data reveal that a disproportionate number of structure fires, injuries, and fatalities occur in specific property types, particularly Group C residential occupancies. Despite this, inspection efforts are not systematically focused on these higher-risk zones (except for high-risk Group F Industrial). Predictive analytics, when combined with historical incident data and GIS-based risk mapping, present a clear opportunity to proactively identify and inspect higher-risk properties before incidents occur.

**Recommendation #8:** Utilize predictive analytics using historical data, risk mapping, and response data, identify all higher risk areas for targeted code enforcement inspections.

**Suggested completion:** 36 months

**Cost:** Neutral – can be built in to work schedules of existing staff

**Strategic Objective #3:** Fire Prevention and Code Enforcement

***Rationale:** Adopting a predictive, risk-based approach to code enforcement aligns with best practices in fire prevention by directing limited inspection resources to where they can have the greatest impact. Utilizing historical data, risk mapping, and incident trends allows BFD to prioritize inspections in areas with elevated fire risk, including properties with past violations, vulnerable occupancies, and buildings constructed before modern codes.*

*This proactive strategy enhances public safety, improves code compliance, and reduces fire loss by addressing hazards before they escalate. Moreover, targeted inspections support transparency and accountability, by linking inspection outcomes to community risk profiles, ensuring that prevention efforts are both equitable and data driven.*

**Observation #9:** BFD currently conducts fire inspections based on a documented SOG, although some property classifications are still inspected only because of a complaint or request, or after an incidence of fire. As identified in the CRA, certain occupancies, such as care facilities, schools, assembly occupancies, and multi-unit residential buildings, represent higher risk due to occupant vulnerability, complexity of evacuation, or history of code compliance issues. Industrial properties with high fuel loads and large building footprints present additional challenges.

SOG 3.29 does not allow for proactive inspections of Group D, E, and some Group F buildings, except on complaint or request, or after an incidence of fire. Adopting a risk-based inspection program as recommended in NFPA 1730, will ensure that all building types are proactively inspected for safety as per their identified hazard index.

**Recommendation #9:** Adopt and implement a CRA based inspection schedule as recommended in NFPA 1730, targeting properties and occupancies based on risk categorization.

**Suggested completion:** 12-24 months (depending on staffing)

**Cost:** Neutral. Inspections to be conducted by existing and future staff (See Recommendation #10).

**Strategic Objective #3:** Fire Prevention and Code Enforcement.

**Rationale:** *A phased, risk-based inspection program enables BFD to prioritize fire prevention efforts where the risk to life safety, property, and community resilience is greatest, while ensuring a manageable workload for existing and future Fire Prevention Officers. Aligning the program with the NFPA inspection recommendations ensures regulatory consistency and supports targeted enforcement based on objective data, including occupancy type, compliance history, and past incident patterns. This method promotes transparency, improves accountability, and ensures resources are applied efficiently. Ultimately, this strategy supports a modern approach to fire prevention that enhances safety, reduces loss, and strengthens public confidence in the fire service.*

**Observation #10:** BFD is currently experiencing service gaps in its Fire Prevention Division, driven by increasing call volumes, growing building stock, and rising demand for inspections, code enforcement, and public education. With ongoing residential intensification, and the continued expansion of institutional, commercial, and industrial development, the workload for Fire Prevention Officers (FPOs) is expected to increase significantly over the coming decade. Present staffing levels are insufficient to support proactive inspection cycles as recommended in the report, timely follow-up on violations, and other responsibilities including plans examinations, licensing inspections, complaint inspections and fire investigations.

Historically, prevention staffing resources have limited BFD's ability to implement its proactive inspection program, meaning that not all properties identified for inspections are completed as required by the schedule. Additionally, some property types are not included in the proactive schedule.

To address these service deficits and plan for future demand, a phased-in expansion of FPO positions is necessary. This includes the addition of two full-time Fire Prevention Officers in the near term to support an equitable and sustainable workload. Future staff will be required as the city grows, and additional development occurs.

The implementation of records management software already underway will assist in monitoring productivity and efficiency and will assist in identifying the point at which additional staff are required in the future. This includes accurate data tracking related to the actual time required for various inspection types, the time committed to other fire prevention activities, and monitoring the need for staff to perform inspections in pairs, due to health and safety considerations.

These staffing projections should be formally integrated into BFD's staffing and operating budget forecasts, allowing Brantford to align prevention resources with community growth, risk, and legislative requirements. Office space and vehicle allocations should also be built into these plans.

**Recommendation #10:** Add two Fire Prevention Inspectors to the existing staff complement of the division. Use data from the implementation of the new records management system to determine the point at which additional staff are required in the future, based on productivity and growth.

**Suggested completion:** 12-24 months

**Cost:** Cost per fire inspector is \$67,616-\$112,694 (2026 rates) (plus benefits). Additional costs associated with uniforms, equipment and vehicle needs as required.

**Strategic Objective #3:** Fire Prevention and Code Enforcement

***Rationale:** Expanding Fire Prevention staffing by two people in the short term, and in a phased, planned manner in the future ensures BFD can deliver a comprehensive, risk-based fire prevention program in alignment with the recommended NFPA inspection frequency model. Two additional Fire Prevention Officers will enable the BFD to increase inspection frequency for high-risk occupancies and improve response to complaints and violations. This supports community safety and reduces the likelihood of significant fire loss, injuries, or fatalities.*

*Integrating FPO staffing projections into long-term financial planning provides transparency and fiscal responsibility, allowing Brantford to gradually build capacity without abrupt operational or budgetary impacts. This proactive and data-driven approach also strengthens BFD's ability to meet future service level expectations, legislative mandates, and the demands of an expanding municipality.*

*A properly resourced Fire Prevention Division is critical to maintaining a balanced approach across all three lines of defense: public education, prevention, and emergency response.*

### 3.3.3 New Development Plan Reviews

There is good integration between the Building and Fire services, and it appears that the relationship between BFD and the building division is strong and very positive. Building handles inspections but involves fire as needed, with fire participating throughout all development applications. Both services sit together on the development review team, which improves communication and collaboration. The process is effective, though staff turnover can create challenges for new hires learning the system, reinforcing the need for succession planning and knowledge transfer.

Having BFD review new developments and construction plans provides the fire services with the knowledge of new developments that are planned and details on unique and potential risks with new buildings. Providing comments aligns BFD with their building division counterparts and ensures continuity with OBC and OFC once the building becomes occupied. It will be important to ensure staffing levels continue to support this important work as Brantford grows and develops in the future.

### **3.3.4 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.

Fire investigations in Brantford are conducted by the FPOs. Standard operating guideline SOG 3.07 provides the circumstances when Fire Prevention is contacted to make them aware of an incident. The need to investigate a fire for origin and cause is at the discretion of the CFPO and/or when directed by the on-call Chief during off-duty hours. Annually the FPOs conduct an average of 60 investigations.

The types of incidents investigated by FPO's are not currently documented in an SOG, but include:

- Fire resulting in a fatality
- Critical fire related Injury
- Explosion
- Suspected incendiary or no obvious cause
- Significant loss to community or in relation to property
- Public concern, (traditional media)
- Multi-unit residential and/or Vulnerable Occupancies
- Any illegal actions (e.g., industrial processes, lodging homes, etc.)
- Incidents where fire crews are unable to determine a suspected cause without disturbing the scene
- Any special process or equipment (e.g., spray booths, tire recycling, lithium-ion batteries, etc.)
- Failure or maintenance issues of fire and life safety systems
- Any other unpredictable reason.

A list of the types of incidents to be investigated by FPO's should be documented in an SOG, and updated regularly, as recommended in Section 3.3.8 of this report. The results of fire investigations can be a valuable tool for directing fire prevention and public education efforts.

SOG 3.09 outlines the process that is to be followed by Fire Prevention Officers assigned to conduct fire investigations. This SOG provides instruction and procedures for documenting investigations of a fire incident and general duties of fire investigators, including steps to be taken when investigating criminal or suspected incendiary fires.

BFD has appropriate guidelines and training/certification for conducting investigations, documentation, notification of appropriate agencies and the use of protective equipment.

### 3.4 Emergency Management

**Strategic Objective #4:** Strengthen Brantford's capacity to prepare for, respond to, and recover from all types of emergencies. Through coordinated planning, training, and inter-agency collaboration, the Service will enhance community resilience, safeguard life and property, and support continuity of operations across a broad range of hazards.

Under the Emergency Management and Civil Protection Act (EMCPA), all municipalities in Ontario are required to maintain a comprehensive emergency management program to safeguard the health, safety, and welfare of residents and property during emergencies. Brantford fulfills this obligation through a fire led program overseen by a dedicated Community Emergency Management Coordinator (CEMC), who works in coordination with the senior leadership across City departments.

Brantford's Emergency Management Program is guided by the City's Emergency Response Plan, a Council-approved document that provides the operational framework for mitigating, responding to, and recovering from emergencies (Bylaw number 207-2023). The plan outlines the roles and responsibilities of municipal departments, establishes activation protocols, and ensures alignment with the Province of Ontario's Incident Management System (IMS). This alignment supports consistent response coordination and role clarity during incidents of varying size and complexity.

The Community Emergency Management Coordinator job portfolio includes working with all departments regarding emergency response, preplanning, and recovery. Business continuity is also an important part of the process that Brantford is currently working on.

Program materials are comprehensive, as is the IMS training provided to Brantford staff. The program is constrained due to a lack of adequate funding and technological support, which would streamline training, record keeping and response to incidents. Emergency management software is beneficial for the centralization of data, improving real-time communication, and streamlining operations, particularly when an EOC may be operating on-line or remotely.

Access to real-time information updates ensures more coordinated responses by providing all sectors of the EOC with critical information, enabling efficient resource allocation, inter-agency coordination and automated reporting. Emergency Management (EM) software solutions vary significantly in cost based on an organization's size and specific needs. Major providers often use tiered subscription models to allow organizations to determine the specific modules needed to suit their needs or provide custom enterprise solutions for larger scale needs.

**Observation #11:** BFD has a comprehensive Emergency Management Plan that is well supported with staff and training; however, the program has limited or no technological support. Access to Emergency Management software would allow centralized access to incident reports, training records and would allow for simplified reporting and analysis for continuous improvement. It could also provide digital tools for training simulations, enhancing the skills of all staff who have a role in the EOC during an emergency.

**Recommendation #11:** Commence an information/purchasing process for the acquisition of an appropriate technology solution to support the Community Emergency Management Coordinator and the EOC. A Request for Information (RFI) or Request for Proposals (RFP) process would assist in identifying viable solutions for Brantford that would integrate well with other software solutions already in use and provide cost estimates for inclusion in future budget requests.

**Suggested completion:** 12-24 months

**Cost:** Dependent on the identified needs of the community. Expected to range from \$50,000-\$100,000 annually.

**Strategic Objective #4:** Emergency Management

***Rationale:** Emergency management software would transform the largely paper-based and fragmented reporting systems into a unified platform, making Brantford more efficient, effective, and resilient in a crisis. Implementing emergency management software is a strategic decision that can lead to better outcomes during emergencies.*

*Emergency management software helps organizations plan for, respond to, and recover from all types of emergencies and disasters. By streamlining response efforts and decision-making, EM software can reduce response times and improve the effectiveness of emergency responses. It would provide a centralized dashboard for real-time data and communications, allowing for efficient resource allocation and management during emergencies. Software solutions can be cost-efficient and scalable, allowing Brantford to adapt to changing needs and improve emergency response capabilities over time.*

## 3.5 Emergency Response and Operations

**Strategic Objective #5:** Provide emergency response services that reflect the community's identified risks, growth projections, and operational realities. Ongoing efforts will focus on optimizing deployment, staffing, and equipment to meet community growth while safeguarding life, property, and firefighter safety. Services will be delivered with a focus on a commitment to efficiency, effectiveness, and long-term value for the community.

### 3.5.1 Structural Firefighting

Fire service resources must be appropriately aligned with the most probable risks within a community. Structural fire suppression involves a broad spectrum of coordinated tactics used to control and extinguish fires arising from various sources, including electrical faults, cooking incidents, heating equipment, and arson. In Brantford, single-family dwellings represent the predominant building stock and thus present the most frequent type of structural fire risk. While fires in these structures are confined to one or two properties and are categorized as low to moderate in overall risk, they remain one of the leading causes of fire-related deaths, injuries, and property loss in Canada.

Though structural fires represent a small percentage of BFD's overall incident volume, just 8.6% of total emergency responses from 2021 to 2025, they demand a disproportionately high level of preparedness, training, and operational resources. These types of incidents require rapid coordination, sufficient personnel, and specialized equipment to ensure both effective incident resolution and the safety of firefighters and occupants. BFD personnel are trained according to the National Fire Protection Association (NFPA) 1001 *Standard for Fire Fighter Professional Qualifications* (2019) Level I and II standards, as mandated by provincial regulations, ensuring all frontline responders possess the requisite competencies for structural fire suppression.

Structural firefighting is inherently complex and time sensitive. Responders that require entry into a structure for fire control or rescue demand that multiple critical tasks, such as fire attack, search and rescue, ventilation, water supply, and incident command, be conducted concurrently. NFPA 1710 *Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Career Fire Departments* (2020) establishes best practice benchmarks for the deployment of personnel and apparatus to meet the operational needs of structural firefighting in a safe and effective manner.

For BFD, achieving these benchmarks requires an Effective Response Force (ERF) assembled from multiple stations to carry out these concurrent tasks without delay. If the appropriate number of personnel is not available upon arrival, life safety operations may be delayed, increasing risks to both occupants and firefighters. To meet these demands, BFD maintains a modern and well-equipped fleet of fire suppression apparatus, complemented by a team of full-time firefighters trained in structural firefighting tactics and rescue procedures.

The current deployment model involves crews responding from the closest fire station using the appropriate apparatus, supported by additional units from other stations to assemble the full ERF as defined in NFPA 1710 *Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Career Fire Departments (2020)*. This model is designed to optimize response coverage and maximize the service's capacity to respond to structure fires within recognized performance benchmarks.

Ensuring the service has an adequate number of trained personnel and the necessary apparatus to perform critical fireground tasks simultaneously is essential to both public safety and firefighter survivability. As Brantford continues to grow in both population and built form, ongoing investments in staffing, training, and equipment will be required to ensure BFD maintains its ability to meet structural firefighting demands in alignment with community risk and national standards.

### **3.5.2 High-Rise and Multi-Unit Residential Firefighting Operations**

Fire suppression operations in high-rise and multi-unit residential buildings present unique challenges to BFD. High-rise structures, typically defined under the Ontario Building Code (OBC) and Ontario Fire Code (OFC) as buildings with floor levels exceeding 18 metres (59 feet) above grade or six storeys, demand specialized strategies due to their height, complexity, and occupant load. Fire behaviour in tall buildings is heavily influenced by vertical air movement and the 'chimney effect', where smoke and heat can travel upwards, potentially compromising multiple floors in a short time. The need for vertical response, transporting personnel, hose lines, and equipment up stairwells, delays intervention and increases risk to both occupants and firefighters. These operations require increased staffing to complete critical tasks such as stairwell control, fire attack, search and rescue, ventilation, and firefighter accountability.

Evacuation from high-rise buildings also introduces operational complexity. Limited stairwell capacity, lack of occupant familiarity with emergency procedures, and malfunctioning communication systems can impede safe egress. In many high-rise buildings, “shelter-in-place” strategies are employed, relying on properly compartmentalized units, and working communication systems to protect occupants during an emergency. These strategies are only effective when supported by robust public education, functioning life safety systems, and diligent fire code enforcement. Ensuring all required OBC- and OFC-mandated systems are installed and maintained, such as fire-rated stairwells, sprinkler and standpipe systems, smoke control systems, and firefighter elevators, is essential to occupant and responder safety.

While high-rise buildings introduce operational challenges, modern buildings constructed to current OBC and OFC standards are safer than pre-OBC built buildings. These buildings incorporate advanced life safety features, including automatic sprinklers, compartmentation, fire detection systems, and smoke control systems that mitigate fire spread and improve the conditions for both evacuation and firefighting. However, as these systems age or are poorly maintained, risk can increase significantly. Therefore, regular inspections, enforcement, and public education campaigns remain essential, even in buildings built to current code.

Brantford’s building stock is undergoing transformation as the community intensifies its urban core. As of 2025, Brantford has 21 existing high-rise buildings, with an additional 2 under construction (33 Erie Avenue – 18 stories, and 141 King George Rd. – 12 stories). In parallel, the introduction of Additional Residential Units (ARUs), following changes to the Planning Act under Bill 23, permits the development of multiple units within single-detached, semi-detached, and townhouse dwellings. This change is expected to significantly increase the number and diversity of residential units in the community, particularly in established neighbourhoods.

Multi-unit residential buildings, both low-rise and high-rise, bring distinct fire protection challenges. Shared egress routes, interconnected systems, complex floor layouts, and the potential for rapid fire spread between units require a coordinated, multifaceted response. Firefighters must often manage simultaneous suppression, ventilation, and rescue operations under difficult conditions. Additionally, older buildings and unauthorized dwelling units may lack adequate fire separation, smoke alarms, or access for fire apparatus, compounding risk during emergency response. As more ARUs and informal conversions emerge, BFD must remain proactive in identifying, inspecting, and preparing for these higher-risk occupancies.

Current residential building stock data from MPAC illustrates this challenging landscape in Brantford. Residential units represent 98.41% of Brantford's building stock, with single-detached dwellings representing 73.15% of the building stock total. The remaining 25.26% of residential building stock is comprised of multiple unit buildings including units in apartments 5 stories and below (8.72%), semi-detached (7.2%), units in row houses (5.89%), and units in apartments greater than 5 stories (1.64%). Approximately 1 out of every 3.9 residential units in Brantford is in a multiple unit building. With infill development, secondary plan buildouts, and increasing demand for affordable housing, this ratio is expected to increase further. This densification will likely lead to increased call volumes in higher-risk structures, longer operational durations, and heightened staffing demands for BFD.

BFD recently revamped its high-rise SOP and have begun training with the new procedures and equipment. Adjustments and revisions will be required as time goes on to ensure the policy works well and evolves for Brantford.

BFD must continue to invest in firefighter training, inspection programs, pre-incident planning, and fire prevention initiatives tailored to multi-unit and high-rise residential occupancies. Building relationships with property managers and enforcing fire code compliance will help reduce risk. As Brantford continues toward greater density and vertical growth, aligning operational capabilities with the city's evolving residential profile will be essential to maintaining public safety and effective emergency response. A forward-looking, risk-informed approach will ensure that BFD remains ready to meet the complex demands of high-rise and multi-unit firefighting in the years ahead.

### **3.5.3 Medical Assist**

Medical assistance services are a valuable core service provided by as part of its all-hazards emergency response model. BFD has authority under the E&R Bylaw to perform emergency pre-hospital care responses and services as per the tiered response agreement. This agreement was signed in October 2021 and formalizes the medical response criteria used by Hamilton Central Ambulance Communications Centre to tier BFD. These include absence of breathing/cardiac arrest, unconscious/unresponsive/seizures, choking, chest pain/heart problems when combined with breathing problems, overdose, penetrating traumas, and allergic reactions.

Medical incidents accounted for 47.34% of total call volume from 2021 to 2025. These calls often involve life-threatening conditions, such as cardiac arrest, overdose, or severe respiratory distress where BFD's rapid response enabled by its strategically located fire stations, can provide immediate life-saving intervention before the arrival of paramedic services. Early intervention during these time-sensitive events significantly improves patient outcomes and aligns with BFD's mission of protecting life and property.

Since this agreement was signed, the Medical Priority Dispatch System (MPDS) has been implemented. This has changed the medical response criteria requiring a BFD response. The BFD Fire Chief is currently working with the EMS Chief to revise the tiered response agreement to reflect these changes.

Following the formalization of the revised tiered response agreement, it has been suggested that simultaneous dispatch (dispatching Fire and EMS at the same time) may be considered to further improve the timely delivery of life saving services to the community.

All front-line BFD firefighters are certified to the EMR level in First Responder care, including CPR, AED use, oxygen therapy, and basic trauma management. The BFD also has a designated Medical Director who provides oversight and delegation for medical interventions including defibrillation, intranasal naloxone administration, Narcan, and EpiPens ensuring clinical accountability and alignment with provincial medical standards.

As Brantford continues to grow and diversify, the demand for fire-based medical response is expected to increase. The adoption of the tiered agreement and integration with MPDS reflect a proactive approach by BFD to evolve its medical response capabilities in step with best practices and community need. Ongoing medical training, clinical oversight, performance monitoring, and collaboration with regional EMS partners will ensure that BFD continues to deliver timely, high-quality medical care while balancing its broader emergency response responsibilities.

### **3.5.4 Hazardous Materials/Dangerous Goods Response**

Hazardous materials (hazmat) incidents, including those involving dangerous goods, present complex and high-risk challenges to emergency responders, the public, and the natural environment. These incidents range in severity from minor fuel spills to large-scale chemical releases, battery storage incidents, and transportation-related events. While infrequent, the potential consequences of these occurrences are significant.

Brantford's Hazard Identification and Risk Analysis (HIRA) classify chemical incidents as having a likely likelihood score, paired with a major consequence rating, resulting in an overall high-risk classification. According to the 2026 CRA, industrial occupancies make up only 0.9% of Brantford's overall building stock, yet they account for 15.12% of all structure fires and 20.92% of total structure-fire dollar loss recorded between 2019 and 2023. This represents a 5.38% higher incident rate than the province during this period.

This elevated risk is also driven by the potential for major spills occurring on provincial highways, rail corridors, waterways, and within residential neighbourhoods. As such, the response capabilities of BFD must reflect both the community's risk profile and nationally recognized response standards.

The CRA identified 58 properties within Brantford as having a potentially high fuel load, increasing their fire risk and potential exposure during hazardous materials incidents. In addition, Brantford is intersected by multiple designated dangerous goods transportation routes, including Highways 403 and 24, and rail services.

In Brantford, three corporations provide rail services: VIA Rail Canada, CN Rail (CN) and Canadian Pacific Kansas City (CPKC). CN has a stop at the Brantford train station. The closest CPKC trans-loading facility that connects Brantford to the CPKC network is in Hamilton. In addition to freight services, VIA Rail provides passenger service out of the Brantford train station. CN's Quebec-to-Windsor rail corridor for passenger and freight services where large volumes of hazardous materials are transported regularly.

Rail lines and operations are of concern from the perspective of fire protection services in a hazardous materials/dangerous goods environment due to the following factors:

- Accidents involving transportation of hazardous cargo could result in release of hazardous material requiring hazardous materials response.
- Potential for explosions, fires, and destabilization of surrounding structures.
- For passenger train derailments or collisions, passenger and rail employee extrication and technical rescue may be required.
- Difficulty accessing scene.
- Major incidents resulting in long term recovery could delay daily shipment of goods and services, with potential negative affects to local economy.
- Potential risk for grass and brush fires along the track areas and threat to adjacent residential properties

Response competencies for hazardous materials incidents are governed by NFPA 1072 *Standard for Hazardous Materials/Weapons of Mass Destruction Emergency Response Personnel Professional Qualifications (2017)*, which outlines three service levels: awareness, operations, and technician. BFD currently operates at the operations-level mission specific which equips personnel to perform defensive actions such as damming, diking, absorption, and scene control using personal protective equipment (PPE). Firefighters at this level can support rescue and containment activities within the hot zone and are trained to establish decontamination zones to protect personnel and the public. These competencies enable BFD to take immediate, measured actions that help prevent escalation until more advanced support arrives.

The technician level, which involves offensive operations to contain or neutralize hazardous material releases, requires specialized hazmat suits, technical tools, and advanced training. Due to the significant financial and logistical requirements associated with this level of service, technician response is typically provided by large metropolitan fire services or contracted third-party providers. In the event of a large-scale or complex hazardous materials incident, BFD would request support from the Ontario Fire Marshal's (OFM) Provincial Hazmat Response Team or other external agencies equipped for technician-level operations.

Between 2021 and 2025, BFD responded to 730 public hazard incidents, many of which were directly or indirectly related to hazardous materials. These included 138 carbon monoxide (CO) presence calls, 149 natural gas leaks, 42 fuel spills, and 69 events involving downed or arcing power lines. BFD also responded to 3 toxic chemical spills and 50 ruptured water or steam line incidents, each of which carried unique operational and safety considerations. While most incidents were minor in scale, they underscore the importance of maintaining a strong operational-level hazmat response capability, supported by regular training, risk monitoring, and coordination with external partners.

Although BFD does not maintain a dedicated hazmat unit or provide technician-level service, it plays a critical role as the initial responder for hazardous materials incidents in Brantford. Continued investment in training, equipment, and inter-agency coordination will ensure that BFD remains capable of protecting residents, property, and the environment in alignment with its risk profile. BFD's current service level reflects a balanced, responsible, and scalable approach appropriate to Brantford's size, growth trajectory, and operational priorities.

Table 21: Public Hazard Incidents 2021-2025

| Call Type                        | 2021 | 2022 | 2023 | 2024 | 2025 | Total | Total % |
|----------------------------------|------|------|------|------|------|-------|---------|
| Public Hazard                    | 124  | 152  | 163  | 135  | 156  | 730   |         |
| CO incident, CO present          | 29   | 25   | 36   | 15   | 33   | 138   | 18.90%  |
| Gas Leak - Miscellaneous         | 4    | 1    | 2    | 0    | 2    | 9     | 1.23%   |
| Gas Leak - Natural Gas           | 19   | 31   | 28   | 34   | 37   | 149   | 20.41%  |
| Gas Leak - Propane               | 1    | 3    | 0    | 3    | 2    | 9     | 1.23%   |
| Gas Leak - Refrigeration         | 1    | 1    | 2    | 3    | 0    | 7     | 0.96%   |
| Other Public Hazard              | 18   | 18   | 17   | 9    | 15   | 77    | 10.55%  |
| Power Lines Down, Arcing         | 18   | 17   | 10   | 12   | 12   | 69    | 9.45%   |
| Public Hazard call false alarm   | 9    | 22   | 35   | 27   | 26   | 119   | 16.30%  |
| Public Hazard no action required | 7    | 9    | 15   | 8    | 9    | 48    | 6.58%   |
| Ruptured Water, Steam Pipe       | 5    | 16   | 8    | 8    | 13   | 50    | 6.85%   |
| Spill- Gasoline or Fuel          | 8    | 6    | 9    | 14   | 5    | 42    | 5.75%   |
| Spill - Miscellaneous            | 2    | 1    | 1    | 1    | 2    | 7     | 0.96%   |
| Spill - Toxic Chemical           | 1    | 1    | 0    | 1    | 0    | 3     | 0.41%   |
| Suspicious substance             | 2    | 1    | 0    | 0    | 0    | 3     | 0.41%   |

### 3.5.5 Technical Rescue Services

Technical rescue operations often involve low frequency but high-risk events that require specialized knowledge, equipment, and training to ensure responder safety and incident success. These events may include motor vehicle extrications, confined space incidents, industrial entrapments, high-angle rope rescues, and water or ice rescues. Due to the complexity and infrequency of these incidents, fire services must invest heavily in structured training programs, routine equipment maintenance, and a certification process to ensure operational readiness and responder safety. Maintaining technical rescue competencies requires a deliberate and sustained commitment, even when actual call volumes remain low.

BFD is responsible for a broad range of rescue operations within the municipality. Like many fire services, BFD faces challenges associated with maintaining technical proficiency in low-frequency, high-risk disciplines. Currently, BFD provides:

- **Awareness-Level Response** in confined space, trench, confined space rescues
- **Technician-Level Responses** in ice/water rescues
- **Operation-Level Responses** in vehicle extrication, rope rescue (slope and high-angle), hazardous materials, and machinery entrapments.

According to Standard Incident Reporting (SIR) data from the Ontario Office of the Fire Marshal, and data from BFD, BFD responded to 1,839 rescue-related calls between 2021 and 2025. Of these, 1,453 calls (78.03%) were vehicle collisions, and 70 calls (3.81%) involved vehicle extrication. Other notable incidents included 180 (9.79%) elevator related incidents, 35 (1.90%) water/ice rescues, 3 slope rescues, and 3 high rope rescues. These statistics demonstrate that most BFD's rescue operations fall within the scope of its existing certifications and training.

BFD must assess the evolving risk landscape and balance operational readiness with resource availability. Specialized rescue training typically requires a minimum of 40 hours of hands-on instruction, followed by formal certification and annual skills maintenance. As such, any future expansion of technical rescue services should be approached through a phased implementation strategy, prioritizing disciplines with the highest risk-to-frequency ratio. Consideration must also be given to firefighter workload, instructor availability, equipment costs, and the capacity of the organization to sustain long-term competency across multiple disciplines.

To support future service delivery goals, BFD should continue to strengthen inter-agency coordination with local and regional partners capable of providing technician-level response for less frequent, high-consequence incidents. The BFD is well-positioned to meet the current technical rescue demands of the community; however, further enhancements may be warranted as Brantford's population and industrial footprint continue to expand. Clear operational guidelines, ongoing investment in technical rescue training, and alignment with NFPA standards will ensure that BFD continues to deliver safe, efficient, and scalable technical rescue services into the future.

Table 22: 2021-2025 Rescue response incidents:

| Call Type                      | 2021 | 2022 | 2023 | 2024 | 2025 | Total | Total % |
|--------------------------------|------|------|------|------|------|-------|---------|
| Rescue                         | 260  | 358  | 409  | 362  | 450  | 1,839 |         |
| Animal Rescue                  | 2    | 7    | 1    | 3    | 4    | 17    | 0.92%   |
| Building Collapse              | 0    | 0    | 0    | 0    | 0    | 0     | 0.00%   |
| Commercial Industrial Accident | 0    | 1    | 0    | 0    | 0    | 1     | 0.05%   |
| High Angle Rescue              | 1    | 0    | 0    | 0    | 2    | 3     | 0.16%   |
| Home/Residential Accident      | 1    | 3    | 4    | 1    | 4    | 13    | 0.71%   |
| Low Angle Rescue               | 0    | 0    | 0    | 1    | 2    | 3     | 0.16%   |
| Other Rescue                   | 9    | 5    | 9    | 4    | 14   | 41    | 2.23%   |
| Persons Trapped in Elevator    | 26   | 40   | 44   | 30   | 40   | 180   | 9.79%   |
| Rescue False Alarm             | 0    | 3    | 1    | 4    | 1    | 9     | 0.49%   |
| Rescue No Action Required      | 6    | 6    | 6    | 6    | 8    | 32    | 1.74%   |
| Vehicle Collision              | 197  | 278  | 317  | 288  | 355  | 1,435 | 78.03%  |
| Vehicle Extrication            | 11   | 12   | 17   | 18   | 12   | 70    | 3.81%   |
| Water Ice Rescue               | 1    | 2    | 1    | 0    | 5    | 9     | 0.49%   |
| Water Rescue                   | 6    | 1    | 9    | 7    | 3    | 26    | 1.41%   |

### 3.5.6 Motor Vehicle Rescue

Motor vehicle collisions (MVCs) continue to be a significant incident type requiring a comprehensive and coordinated emergency response. These incidents can involve complex hazards to both victims and responders, including entrapment, fire, hazardous materials, and unstable vehicle conditions. Vehicle extrication is a specialized technical operation that requires extensive training, specialized equipment, and precise coordination with police and ambulance services to ensure safe and effective incident management. External factors such as weather conditions, traffic volume, and roadway design further influence the severity of these incidents and the ability of responders to manage the scene safely.

Modern vehicles introduce new risks that increase the complexity of MVC response. Firefighters must consider features such as multiple-stage airbags, high-voltage battery systems in electric and hybrid vehicles, fuel cells, and advanced structural reinforcements that can impede extrication efforts. Additionally, incidents involving commercial vehicles or transport trucks may include dangerous goods, increasing the risk to responders and requiring advanced hazard assessment, containment, and potential decontamination efforts. As such, all BFD personnel receive training in accordance with NFPA 1001 *Standard for Fire Fighter Professional Qualifications (2019)* and NFPA 1006 *Standard for Technical Rescue Personnel Professional Qualifications (2021)* to manage motor vehicle collisions safely and effectively.

Over the five-year period from 2021 to 2025, BFD responded to 1,435 vehicle collisions, accounting for 78.03% of all rescue-related calls. An additional 70 calls (3.81%) were classified as vehicle extrications, requiring specialized stabilization, and cutting tools. These incidents are categorized under the broader “Rescue” incident type, which collectively represented 1,839 total responses, or 5.93% of the service’s total call volume. High-speed regional and provincial roadways that run through and around Brantford, including Highway 403 and key arterial corridors, create zones of elevated risk and require rapid response and resource deployment. MVCs on these roadways can present hazardous conditions for all responders due to traffic, visibility, and environmental conditions.

The BFD deployment model includes dispatching two fire pumpers for a motor vehicle collision with report of people trapped, and one pumper for all others. For all highway calls including Highway 403 two pumper trucks are dispatched, along with the tanker as a blocker. If the tanker is not available, one of the pumper trucks acts as the blocker vehicle. These responses are highly dynamic and may require a full range of tactical interventions including scene safety management, fire suppression, patient care, vehicle stabilization, and mechanical extrication. In many cases, firefighters must operate in high-stress, time-critical environments while maintaining safety for themselves, victims, and bystanders. Inter-agency coordination with Brantford Police Service, Brantford-Brant Paramedic Services, and provincial highway authorities is essential to manage these scenes effectively and return traffic corridors to normal operation.

BFD has recently introduced heavy vehicle collision training (Technician level). Shift training instructors attended courses on this subject and are prepared to begin training BFD personnel on this discipline. The E&R Bylaw will be required to be changed to provide BFD with the authority to operate at this level. Equipment will be required to be purchased and training completed before this service can be rolled out to the public. With the high incidence of truck traffic on highways 403 and 24, it is advisable to continue to introduce this service.

The following table shows the difference between the Operations and Technician level:

*Table 23: Auto Extrication: Operations Level – Site Specific vs. Technician Level*

| Category                    | Operations Level – Site Specific                                                                                                           | Technician Level                                                                                                                                       |
|-----------------------------|--------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------|
| Overall Role                | Defensive / basic rescue operations tailored to site policies                                                                              | Offensive / advanced rescue operations                                                                                                                 |
| Primary Focus               | Scene safety, hazard control, basic access                                                                                                 | Full disentanglement and extrication                                                                                                                   |
| Scene Size-Up               | Size-up and hazards per site SOPs                                                                                                          | Comprehensive hazard assessment including complex situations                                                                                           |
| Vehicle Stabilization       | Basic stabilization (cribbing, chocks, simple struts if allowed)                                                                           | Advanced stabilization (tensioned systems, multi-point, lifting)                                                                                       |
| Patient Access              | Initial/simple access                                                                                                                      | Full extrication pathway creation                                                                                                                      |
| Tool Use                    | Hand tools: limited power tools if permitted                                                                                               | Full use of hydraulic, pneumatic, electric tools                                                                                                       |
| Extrication Techniques      | Limited, low-impact                                                                                                                        | Full structural modifications (dash roll, roof flap, third door, etc.)                                                                                 |
| Specialty Scenarios         | Awareness of EV/hybrid hazards                                                                                                             | Advanced EV/hybrid, heavy vehicle, underride, rollover operations                                                                                      |
| Leadership Role             | Support role following site SOPs                                                                                                           | Leads tool teams and plans the extrication                                                                                                             |
| Training Depth              | Basic training for local hazards and equipment                                                                                             | In-depth technical training and planning                                                                                                               |
| Types of Vehicles Worked On | Standard passenger vehicles (sedans, SUVs, light pickups) as defined by site policy; no advanced techniques on heavy or specialty vehicles | All vehicle types: passenger vehicles, heavy trucks, buses, commercial vehicles, agricultural machinery, EV/hybrids, specialty, or reinforced vehicles |

*Table Source: National Fire Protection Association NFPA 1670, Standard on Operations and Training Technical Search and Rescue Incidents.*

As Brantford continues to grow in both population and transportation infrastructure, the volume and complexity of MVCs is expected to rise. BFD’s continued investment in technical rescue training, fleet capabilities, and collaborative emergency planning with partner agencies is essential to ensuring public safety and maintaining operational readiness. These investments will support BFD’s ability to mitigate the risks associated with vehicle collisions and provide timely, effective, and safe emergency response to all roadway incidents within the municipality.

**Observation #12:** BFD currently operates at the Operations service level (site specific) for motor vehicle auto extrication rescue responses. The Operations level is good for basic rescue situations but may not encompass many of the situation's BFD may face on Highways 24 and 403.

**Recommendation #12:** Provide auto extrication rescue services at the Technician level and ensure personnel are appropriately trained and equipped to deliver this service.

**Suggested completion:** 12-36 months

**Cost:** \$70,000 to purchase tools and equipment, and to provide training.

**Strategic Objective #5:** Emergency Response and Operations

***Rationale:** 78% of all rescue calls BFD has performed between 2021 and 2025 have been motor vehicle collisions, the fastest growing rescue call during this timeframe. With the growth anticipated in Brantford, this number is expected to increase. This anticipated growing call volume, coupled with the large volume of truck traffic on Brantford area highways, necessitates that BFD increase this level of service to the Technician level.*

### 3.5.7 Surface Ice and Water Rescue

BFD currently delivers surface water and ice rescue services at the technician level as authorized under City of Brantford Bylaw 221-2021, a bylaw to govern and regulate the Fire Service of Brantford, and as defined by the NFPA 1006 *Standard for Technical Rescue Personnel Professional Qualifications (2021)* and 1670 *Standard on Operations and Training Technical Search and Rescue Incidents*. These technical rescue disciplines are high-risk and low frequency in nature, requiring rigorous training, proper equipment, and clearly defined operational procedures to ensure responder and public safety.

The importance of maintaining high standards in these areas was underscored by the May 2017 Coroner's Inquest into the death of a firefighter during an ice rescue training exercise. The inquest recommended that all 'ice/cold/swift water rescue services' training be reviewed and paused until the jury's recommendations were fully addressed. It also drew a critical distinction between surface water rescue and swift water rescue, with only the former being within the scope of BFD's currently authorized service levels.

It is important to note that BFD does not provide swift water rescue services, which involve significantly different environmental conditions and response requirements. BFD's operational posture remains focused on shore-based, controlled interventions in line with its staffing, training, and risk profile.

As part of this service, all BFD firefighters are trained at the Technician level. There are 8 Shift Training Instructors who stay current and provide training to all personnel at least annually. Every Pumper vehicle and the Aerial truck have a minimum of 2 rope throw bags and life jackets. BFD has two Zodiac boats at Headquarters, and at Station 4 along with all associated water/ice rescue equipment. BFD is not limited to shore-based rescue and to that end it also has a Fortuna.

### **3.5.8 High/Low Angle Rope Rescue**

BFD currently provides rope rescue services at the Operations Level as authorized under City of Brantford Bylaw 221-2021, a bylaw to govern and regulate the Fire Service of the City of Brantford and in alignment with the competencies and training requirements outlined in NFPA 1670 *Standard on Operations and Training Technical Search and Rescue Incidents* and NFPA 1006 *Standard for Technical Rescue Personnel Professional Qualifications (2021)*. This level of service allows BFD to perform simple low angle slope/rope-based rescues under supervision, set up basic anchor systems, use simple mechanical advantage systems for raising/lowering where the rescuer can maintain footing, and patients can be packaged and raised/lowered in low/slope emergencies. It does not allow for high-angle or vertical rescues, (cliffs, towers, structures) or permit advanced rigging or technical system design.

To perform high angle or vertical rescues, fire personnel must be trained beyond the Operations level and certified to the Technician level. This level represents a significant increase in knowledge, skill, and responsibility. Technician-level rescuers are expected to work on rope, manage complex systems, and adapt tactics based on changing conditions.

Technician-level responsibilities include entering and operating within the hazard zone, performing rescues while suspended on rope, acting as litter attendants or primary rescuers, designing, evaluating, and modifying rope systems, supervising rope rescue operations and personnel, and managing advanced rope systems. Technician-level rescuers must also understand system behavior, load distribution, and force management.

NFPA standards do not prescribe a specific number of annual maintenance training hours for rope rescue operations or technician levels. Instead, NFPA 1006 *Standard for Technical Rescue Personnel Professional Qualifications (2021)* and NFPA 1670 *Standard on Operations and Training for Technical Search and Rescue Incidents (2017)* require that personnel remain current and demonstrate competency on an annual basis, with training frequency and depth determined by the Authority Having Jurisdiction (AHJ).

In practice, many fire departments allocate approximately 8–16 hours of annual maintenance training per person for Operations-level rope rescue personnel and 24–40 hours (sometimes more) annually per person for Technician-level personnel to maintain operational readiness and risk-based competency.

An analysis of BFD's 2021–2025 response data indicates that BFD responded to three high angle rope rescue-related incidents within the approximately 31,034 emergency calls received between 2021 and 2025. While this is a low incident rate, it is still a community risk that should be addressed. This risk, coupled with the increase in the number of high buildings planned for Brantford, makes it advisable to immediately enter into a formal fire protection services agreement with a neighbouring fire department to provide technician level high angle rope rescue service until such time as BFD implements this service level.

BFD should monitor this risk to determine if and when they will provide this service level directly. The department is aware of the risk and has already started preparing for the transition by arranging training for Shift Training Instructors and beginning to acquire the required equipment.

### **3.5.9 Machine Rescue Operations**

BFD currently maintains Operations level certification for machinery rescue operations, as defined under NFPA 1006 *Standard for Technical Rescue Personnel Professional Qualifications (2021)* and NFPA 1670 *Standard on Operations and Training for Technical Search and Rescue Incidents (2017)*. Machinery rescue involves the disentanglement and extrication of people who have become trapped in or under mechanical equipment. These incidents may involve industrial machinery, agricultural equipment, conveyor systems, powered tools, or other mechanical devices used in commercial, industrial, or residential settings.

Examples of typical machinery rescue incidents include victims trapped in conveyor belts, augers, press machines, manufacturing equipment, or heavy-duty cutting and compacting devices. While these incidents are low in frequency, they can result in severe trauma, life-threatening injuries, or fatalities. Time-sensitive intervention is often required to prevent further harm, necessitating advanced knowledge of mechanical systems, stabilization techniques, and the use of specialized extrication tools.

The skill sets required for machinery rescue closely overlap with those used in other disciplines such as vehicle extrication. This overlap makes machinery rescue a practical and cost-effective component of the BFD's rescue portfolio. The training and tools used for patient disentanglement in vehicular settings can often be applied effectively to industrial entrapments, allowing BFD to maintain operational readiness across multiple rescue scenarios without duplicating resources or increasing burden on staff.

As Brantford continues to experience significant growth in its industrial and commercial sectors, including manufacturing, warehousing, and logistics facilities, the likelihood of machinery-related incidents may increase. These occupancies often house large-scale, complex machinery and processes that pose elevated risks for worker entrapment or injury. Maintaining technician-level capability ensures that BFD is adequately prepared to respond to such emergencies in a safe and effective manner. Given the current industrial expansion and incident potential, sustaining the existing service level is both appropriate and proactive.

BFD should continue to invest in machinery rescue training through annual skill refreshers, scenario-based exercises, and close coordination with local industries to understand the specific risks and machinery types present within the community. This forward-looking approach will help ensure BFD remains aligned with industry standards and capable of meeting emerging response demands tied to Brantford's evolving industrial landscape.

### **3.5.10 Confined Space and Trench Rescue**

Under Ontario Regulation 632/05 – Confined Spaces, made under the Occupational Health and Safety Act, a confined space is defined as a fully or partially enclosed space not designed for continuous human occupancy and where atmospheric hazards may occur due to its design, contents, or associated work. The regulation places specific obligations on employers, including the requirement to establish on-site rescue procedures when workers are exposed to confined space risks.

Importantly, there is no provincial mandate for municipalities in Ontario to deliver confined space or trench rescue services through their fire services. However, fire services like BFD are often the first to arrive at such emergencies and must be prepared to assess, secure, and stabilize these complex and hazardous scenes.

Although confined space and trench rescues are low-frequency events, they are extremely high-risk due to factors such as limited access, hazardous atmospheres, the potential for secondary collapse, and specialized equipment needs. With the ongoing expansion of Brantford's industrial and construction sectors, including residential subdivisions, commercial facilities, and public infrastructure, the risk of encountering these scenarios is increasing. Trench rescues, which involve collapsed excavations or ditches, often overlap in hazard profile with confined spaces, particularly when atmospheric risks or structural instability are involved.

Currently, BFD is authorized under City of Brantford Bylaw 221-2021, a bylaw to govern and regulate the Fire Service of Brantford to provide this service at the NFPA Awareness level. This allows BFD to identify what qualifies as a confined space or trench, secure the scene, understand common hazards (oxygen deficient, etc.), understand regulations, and initiate specialized help. BFD cannot enter the confined space or trench, cannot set up rescue systems, or perform physical rescue tasks.

This level of service is consistent with industry best practices for fire services that do not regularly encounter trench incidents or lack the volume to justify advanced certification and equipment investment. Awareness-level training focuses on hazard identification, isolation, initial scene management, and support of incoming technical rescue teams when necessary. To ensure a scalable and sustainable response model, BFD should consider entering into a Fire Protection Services Agreement with a Fire Service who provides a technician-level confined space and trench rescue service.

### **3.5.11 Structural Collapse Response**

In the event of a structural collapse BFD will most likely be the first emergency service on scene. As such, the BFD must be prepared to secure the site, assess hazards, initiate scene control, and implement appropriate life-safety measures while awaiting specialized resources. Structural collapses may result from explosions, natural disasters, building failures, or construction-related incidents. While not considered high-frequency events, they are high-impact and can require extensive coordination and technical capabilities to manage effectively.

Over the past decade, several Ontario municipalities including Mississauga, Caledon, London, and Hamilton, have experienced structural collapse incidents that required extended operations and specialized resources. In these cases, support was provided through the Ontario Heavy Urban Search and Rescue (HUSAR) program, operated by the Office of the Fire Marshal (OFM). The increase in complex urban infrastructure and vertical growth in Ontario communities has prompted fire services to revisit their response capabilities for structural collapse scenarios.

Given the low-probability but high-consequence nature of structural collapse incidents, BFD maintains an awareness-level capability for structural collapse response in accordance with NFPA 1670 *Standard on Operations and Training for Technical Search and Rescue Incidents (2017)*, Chapter 6 (Structural Collapse Rescue Operations), and all suppression personnel are trained to the awareness level defined in NFPA 1006 *Standard for Technical Rescue Personnel Professional Qualifications (2021)*, Chapter 6 (Structural Collapse Rescue). This training enables responders to identify collapse hazards, secure perimeters, manage risks, support evacuation and initial triage, and determine when higher-level resources are required. Maintaining awareness-level competency ensures a safe and effective initial response and supports rapid escalation to advanced operations when necessary.

In alignment with the Fire Marshal's Communiqué 2016-05, BFD maintains fire service agreements or memorandums of understanding with neighbouring departments or regional partners that provide operations- or technician-level structural collapse capability. BFD also maintains formal awareness of and access to the provincial HUSAR program coordinated through the Provincial Emergency Operations Centre (PEOC). When required, HUSAR deployment can be coordinated through the local fire coordinator under the MAP, ensuring timely access to specialized technical rescue resources during large-scale structural collapse events.

As Brantford continues to grow in population and density, including the development of multi-story residential and commercial structures, the likelihood and potential complexity of structural collapse incidents may increase. BFD's current approach, grounded in awareness-level readiness and provincial coordination, provides a practical, scalable, and fiscally responsible model for ensuring community protection from this type of high-risk emergency. Ongoing training, scenario-based exercises, and inter-agency planning will support operational readiness and alignment with provincial best practices.

**Observation #13:** BFD maintains awareness-level capabilities for several technical rescue disciplines, including trench rescue, confined space, and building collapse. Low-Angle Rope Rescue is performed at the Operations level, with no High-Angle Rope Rescue Technician-level service available.

**Recommendation #13a:** Technician-level rope rescue services would be delivered through a Fire Protection Services Agreement with the Cambridge or Hamilton Fire Departments. The agreement would include payment on a per-use basis, as ongoing or standing fees are not typically applied in these types of arrangements.

**Suggested completion:** 1–12 months

**Cost:** Depending upon the conditions of the agreement, costs could be \$0 unless a rescue is activated. When deployed, expenses typically include staff wages on scene, overtime for backfilling home-station coverage, and materials or fuel used. For an 8-hour rescue, estimated costs include: eight staff at \$60/hr (\$3,840), backfilling eight staff at \$90/hr (\$5,760), and approximately \$2,000 in materials and equipment servicing—for a total of about \$11,600 per deployment.

Cost deferral due to monies not being spent on equipment purchase, equipment service and replacement, and staff training and re-training would be re-invested towards services that are in greater demand in the community.

**Recommendation #13b:** Community risk should be monitored to determine if and when the service should be delivered directly by BFD. In the interim, Shift Training Instructors certified to the Technician level would continue to deliver Operations-level training to all fire suppression personnel until such a transition occurs.

**Suggested completion:** 36-60 months

**Cost:** Neutral (internal staff)

**Strategic Objective #5:** Emergency Response and Operations

**Rationale:** Formalizing service agreements with neighbouring fire departments or third-party providers allows BFD to access specialized technical rope rescue without bearing the full cost and operational burden of developing these competencies in-house.

Maintaining technician-level proficiency requires significant investments in equipment, ongoing certification, scenario-based training, and 24/7 staff availability. By partnering with regional providers that already possess these capabilities, BFD can ensure timely, expert-level response to low-frequency but high-risk incidents while maintaining cost efficiency and operational focus on core services.

In addition, these formalized agreements improve clarity and coordination during joint responses by establishing roles, responsibilities, cost recovery expectations, and communications protocols in advance of an emergency. This proactive approach strengthens interoperability and eliminates ambiguity during critical incidents, ensuring a more seamless and effective multi-agency deployment. It also positions BFD to participate in reciprocal support arrangements, enhancing regional resilience and resource optimization.

### 3.5.12 Pre-Emergency Planning

Pre-fire planning is a cornerstone of operational readiness: it improves size-up, speeds decision-making, and reduces risk to civilians and firefighters by giving crews building-specific intelligence before they arrive. It is a process to gather key data that supports effective incident management and protection of life and property. It enhances a Fire Crew's preparedness and familiarization so they can operate strategically and tactically when it matters most.

BFD SOP 2.36, Pre-Incident Planning, establishes their pre-incident plan procedure. Each Platoon Chief is assigned a list of buildings annually to pre-plan based upon the Community Hazard Identification and Risk Assessment (HIRA). The Platoon Chief and Company Officer are responsible for assigning and scheduling building site appointments with building owners to conduct thorough planned inspections. Data, including photos, floor plans, drawings, etc. are captured on the pre-incident plan form, reviewed, and approved by the Platoon Chief, and stored electronically for access through the apparatus mobile data terminals (MDTs).

**Observation #14:** BFD has a functional pre-incident planning program. However, following interviews with BFD personnel it appears that there may be room for improvement in this program. It is unclear if there is a list of priority properties within the assigned HIRA properties (e.g., vulnerable occupancies, high rise and low-rise residential buildings, high and medium hazard industrial occupancies, downtown buildings, etc.).

This may potentially leave gaps in tactical readiness for certain occupancies. Some pre-plans remain in a mixed format, limiting real-time accessibility and integration with operational systems such as CAD and GIS. In addition, the existing process does not yet fully standardize building data fields, tactical considerations, or establish automated triggers for updates following significant incidents or changes in building configuration.

**Recommendation #14a:** Expand the pre-fire planning program to add all buildings identified as risks within the Community Risk Assessment (CRA), ensuring complete coverage of high-priority and high-hazard occupancies.

**Suggested completion:** 1-12 months

**Cost:** Neutral

**Strategic Objective #5:** Emergency Response and Operations

**Recommendation #14b:** Re-design the pre-plan program to incorporate detailed tactical considerations such as apparatus positioning, attack stair locations, refuge floors, and other strategic considerations. Digitize all pre-plans and integrate them into CAD/GIS systems to allow mobile access for operational staff, with standardized data fields covering a comprehensive audit of all relevant building systems and hazards.

**Suggested completion:** 1-24 months to re-design program to incorporate strategic considerations, to begin to populate address specific strategies, and to integrate them into the mobile CAD/GIS system for fireground access.

**Cost:** Neutral (internal staff time)

**Strategic Objective #5:** Emergency Response and Operations

**Recommendation #14c:** Establish defined triggers for post-incident plan updates and other significant changes, and implement a KPI dashboard to track program performance, including percentage of First-Due high-risk buildings with current surveys and median survey age. Conduct regular joint reviews between Fire Prevention, Training, and Dispatch divisions to ensure the plans remain accurate and operationally relevant.

**Suggested completion:** 12-60 months

**Cost:** Neutral (internal staff time)

**Strategic Objective #5:** Emergency Response and Operations

**Rationale:** Expanding and modernizing BFD's pre-fire planning program will close identified risk gaps, improve situational awareness, and enhance operational decision-making. Including all CRA-identified risks ensures that firefighters have the information they need for a broad range of incident types, including those involving emerging hazards. Digitizing pre-plans and integrating them with CAD/GIS systems will improve access during emergencies, reduce time spent on scene gathering basic building information, and support a coordinated, efficient response.

Standardizing comprehensive data fields and tactical considerations will ensure consistency across all plans, improving interoperability and clarity for crews regardless of assignment. Post-incident update triggers will keep plans current, while a KPI dashboard will provide a measurable way to monitor program performance and prioritize updates. Regular cross-divisional reviews will ensure the program evolves alongside Brantford's growing and changing built environment, sustaining its value as a critical operational tool.

### 3.5.13 Mutual Aid and Other Service Agreements

Fire services across Ontario, including BFD, recognize that large-scale or concurrent emergencies can quickly exceed the capabilities of any single municipality, particularly those with limited staffing, apparatus, or specialized resources. While BFD is equipped to manage a wide range of emergency incidents, certain low-frequency but high-consequence events, such as multiple-alarm structure fires, hazardous materials incidents, complex rescues, or weather events, necessitate access to additional support. To address this need, mutual aid and automatic aid agreements play a critical role in expanding emergency response capacity and ensuring continuity of operations during significant or concurrent incidents.

Mutual aid agreements are formal arrangements between fire services to aid across jurisdictional boundaries when requested. These agreements support collaborative response efforts when local resources are insufficient to manage an emergency independently. Assistance under mutual aid may include personnel, fire suppression equipment, and specialized services such as technical rescue or hazardous materials response. Requests for aid are made on an as-needed basis and responding services will provide support if they have the available capacity. Unlike automatic aid, mutual aid is not pre-assigned or guaranteed and depends on the discretion and availability of the responding agency.

Automatic aid agreements, by contrast, provide for a predetermined response arrangement whereby a neighboring fire service is automatically dispatched to certain incidents within Brantford. This is particularly beneficial in areas where a bordering municipality can provide a faster or more effective response based on proximity or specialized capabilities. These agreements enhance the speed and effectiveness of the initial response, improve coverage in remote or high-risk areas, and support critical intervention during time-sensitive emergencies.

In Ontario, the Office of the Fire Marshal (OFM) administers a provincial Mutual Aid Plan (MAP) to ensure consistency and coordination among municipal fire services. Each geographic area in the province is assigned a fire coordinator responsible for organizing and maintaining the local MAP, which is designed to support standardized procedures for inter-agency cooperation during emergencies. The plan promotes an efficient and scalable approach to resource deployment, with the goal of minimizing loss of life, property damage, and environmental impact through coordinated efforts among fire services and other emergency partners.

Brantford is an active participant in the Brant County Mutual Aid Plan, which facilitates collaboration among BFD, Brant County, and Six Nations Fire and Emergency Services. If an incident escalates beyond local and regional capacity, BFD may request additional support through the Provincial Emergency Operations Centre (PEOC), enabling access to specialized provincial resources coordinated by OFMEM.

These agreements ensure that BFD can provide timely, effective service to the community during complex or large-scale events while maintaining operational continuity. As Brantford continues to grow in population, infrastructure, and risk complexity, these mutual and automatic aid agreements will remain a vital component of Brantford's emergency response system. Ongoing collaboration, joint training, and regular updates to service agreements will ensure that the community is well-supported during all levels of emergency response.

## 3.6 Training & Professional Development

**Strategic Objective #6:** Deliver a progressive and sustainable training program aligned with the services authorized in its Establishing and Regulating Bylaw. The program will integrate current firefighting practices, safety standards, and emerging technologies to ensure personnel are equipped with the competencies needed to respond safely and effectively to evolving risks and service demands.

### 3.6.1 Training Overview

Training and professional development are core pillars of BFD, ensuring all personnel are fully equipped to deliver safe, efficient, and effective fire protection services. Mandatory certification requirements under O. Reg. 343/22: Firefighter Certification, administered by the Office of the Fire Marshal (OFM), establish the minimum standards for fire protection services across Ontario. These provincial requirements align firefighter and officer training, education, and competency expectations with their defined roles and responsibilities.

The OFM provides leadership, guidance, and oversight to support municipal compliance with certification standards. 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 services 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 is found in Appendix F, which describes the minimum certification standards for the various fire protection services and the compliance timeline.

Training and education priorities are identified by assessing the Knowledge, Skills, and Abilities (KSAs) required for personnel to perform their duties as outlined in departmental SOGs and procedures. When firefighters possess the KSAs necessary for the services they provide, operational risk is reduced and both firefighters and public safety are enhanced. All training programs must be aligned with BFD's core services and the community's identified risk profile.

### 3.6.2 Industry-Recommended Qualifications

NFPA certification standards represent industry best practices. Position profiles and associated knowledge, skills, and abilities (KSAs) should ensure staff are prepared to competently deliver services that address community risk. Many NFPA standards have been incorporated as mandatory under O. Reg. 343/22 Firefighter Certification, enforced under the Fire Protection and Prevention Act, 1997, which requires every

municipality and fire department to ensure that firefighters perform the duties defined in the regulation.

Organizational size and structure influence the breadth of tasks and competencies required for specific positions. Larger career departments often have greater specialization in senior roles and less need for senior officers to be directly involved in suppression or rescue operations.

The following NFPA standards are provided as general guidelines for professional qualification standards aligned with BFD positions. All positions within BFD meet or exceed the NFPA training standards based on the level of service provided.

#### Fire Chief, Deputy Chiefs, Assistant Chiefs

- NFPA 472, Standard for Competence of Responders to Hazardous Material/Weapons of Mass Destruction Incidents (2018)
- NFPA 1001, Standard for Fire Fighter Professional Qualifications (2019) (Level 2)
- NFPA 1002, Standard for Fire Apparatus Driver/Operator Professional Qualifications (2017)
- NFPA 1021 Standard for Fire Officer Professional Qualifications (2020) (Level 2)
- NFPA 1041 Standard for Fire and Emergency Services Instructor Professional Qualifications (2019) (Level 1)
- NFPA 1403 Standard on Live Fire Training Evolutions (2018)
- NFPA 1521 Standard for Fire Department Safety Officer Professional Qualifications (2020)

#### Captains and Lieutenants

- NFPA 472 Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents (2018)
- NFPA 1001 Standard for Fire Fighter Professional Qualifications (2019) (Level 2)
- NFPA 1002 Standard for Fire Apparatus Driver/Operator Professional Qualifications (2017)
- NFPA 1021 Standard for Fire Officer Professional Qualifications (2020) (Level 1)
- NFPA 1041 Standard for Fire and Emergency Services Instructor Professional Qualifications (2019) (Level 1)
- NFPA 1403 Standard on Live Fire Training Evolutions (2018)
- NFPA 1521 Standard for Fire Department Safety Officer Professional Qualifications (2020)

#### Safety Officer

- NFPA 1521 Standard for Fire Department Safety Officer Professional Qualifications (2020)

Firefighter

- NFPA 472 Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents (2018)
- NFPA 1001 Standard for Fire Fighter Professional Qualifications (2019) (Level 1)
- NFPA 1002 Standard for Fire Apparatus Driver/Operator Professional Qualifications (2017)
- NFPA 1006 Standard for Technical Rescue Personnel Professional Qualifications (2021) (Level 1)

Pump Operator

- NFPA 472 Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents (2018)
- NFPA 1001 Standard for Fire Fighter Professional Qualifications (2019) (Level 1)
- NFPA 1002 Standard for Fire Apparatus Driver/Operator Professional Qualifications (2017)
- NFPA 1002 Standard for Fire Apparatus Driver/Operator Professional Qualifications (2017)
- NFPA 1006 Standard for Technical Rescue Personnel Professional Qualifications (2021) (Level 1)

Training Officer

- NFPA 1041 Standard for Fire and Emergency Services Instructor Professional Qualifications (2019) (Level 1)
- NFPA 1403 Standard on Live Fire Training Evolutions (2018)

Fire Inspector/Fire Investigator

- NFPA 1031 Standard for Professional Qualifications for Fire Inspector and Plan Examiner (2014)
- NFPA 1033 Standard for Professional Qualifications for Fire Investigator (2022)
- NFPA 1035 Standard on Fire and Life Safety Educator, Public Information Officer, Youth Firesetter Intervention Specialist, and Youth Firesetter Program Manager Professional Qualifications (2015)

### **3.6.3 Professional Qualifications and Standards Division**

The Professional Qualifications and Standards Division ensures that all BFD personnel meet and maintain the professional, legal, and technical standards required for safe and effective operations. This division serves as the department's internal authority on certification, compliance, training standards, and performance measurement.

BFD delivers a comprehensive training program coordinated by a full-time Chief Training Officer and Training Officer, both of whom typically work a forty-two (42) hour week. Training staff may adjust their schedules as needed to support the diverse training requirements of both recruit and full-time firefighters.

Meeting the regulated and operational training demands of a modern fire service requires deliberate planning and coordination. Instructor availability, facility scheduling, and operational readiness must be balanced to ensure uninterrupted delivery service. BFD manages these demands through a structured annual training plan within a three-year cycle, outlining core competencies, mandated certification programs, and refresher or specialty skill development. This plan is reviewed and adjusted in collaboration with Administrative and Suppression leadership to address emerging needs and training gaps.

Training is delivered through a blended instructional approach that supports both theoretical learning and practical skill development, including:

- Classroom or online theoretical instruction
- Practical evolutions conducted on-duty and/or off-duty
- Combined theoretical and practical assessments for NFPA and/or provincial certification

Training requirements for BFD include, but are not limited to:

- Firefighter recruitment
- Firefighter core competency
- Driver/operator
- Officer development
- Specialty rescues
- Dangerous Goods
- OHS
- Fire prevention and public education
- City of Brantford programs

BFD must coordinate these training obligations considering the scope of each program, resources required and time of year, while being able to react to immediate training priorities that may arise throughout the year. To meet these demands, BFD designates Shift Training Instructors in specific disciplines, drawing from qualified suppression personnel. Qualified chief officers and station captains are required to support practical training evolutions and ensure realistic, scenario-based training.

To expand training capacity, particularly for firefighter recruit programs and specialized disciplines, BFD engages adjunct instructors, primarily captains from the suppression division, to deliver subject-matter-specific training. This integrated instructional model strengthens consistency across all ranks and staffing groups.

Technical rescue and other specialized operations require training officers with appropriate certifications, operational experience, and subject-matter expertise to deliver effective training in each discipline. BFD responds to several high-risk, low-frequency technical rescue disciplines, making it essential that training in these areas be delivered by personnel with advanced competency and credibility.

Recruit training is essential to sustaining operational capacity, yet it places significant scheduling and instructional demands on Training Officers and requires substantial support from on-duty suppression staff. During these periods, the Division's ability to deliver training to existing suppression personnel is reduced, underscoring the need to balance recruitment with ongoing training obligations. Notably, 2025 marked the first time a senior suppression officer was seconded to lead the recruit class.

Recruit classes are delivered as operational demand requires. In recent years, BFD has typically conducted three to four firefighter recruit classes per year, with class sizes varying based on the number of recruits. The effectiveness and efficiency of each class is closely tied to its size.

For small to mid-sized fire departments, smaller classes of 8–12 recruits are optimal to maximize hands-on training opportunities and ensure safety during complex, multi-company drills involving simultaneous fireground tasks. Smaller classes, however, require greater participation from on-duty operational staff to support practical evolutions that accurately replicate full-scope operational task coordination.

A structured process for identifying both the need for recruitment and the optimal timing of recruit firefighter classes is necessary to support evidence-based decision-making. By analyzing anticipated staffing needs, including projected retirements, resignations, known long-term disabilities, and planned leaves such as vacation. In the future, the timing and size of future firefighter recruit classes will be essential to sustaining the minimum FTE complement, particularly as Brantford continues to grow and demand for fire services rises.

Ideally, BFD would schedule future recruit classes in a way that optimizes resource use across both the Professional Qualifications and Standards Division and the Operations Division.

**Observation #15:** BFD currently develops an annual training calendar based on a three-year cycle to forecast training requirements for the upcoming year and beyond. Maintaining a strong focus on the department's capacity to meet these requirements - including resource allocation, instructional hours, and delivery methods, is essential to ensuring effective training delivery. The training program depends on an effective network of trainers who are available and coordinated while preserving the operational capacity of suppression staff.

**Recommendation #15:** Complete a comprehensive analysis of existing training processes, including course development, face-to-face training, remote training, practical and theory assessments, and proctoring, against the training demand outlined in the approved annual training calendar.

**Suggested completion:** 12–24 months

**Cost:** To be determined, based on the scope and findings of the training analysis

**Strategic Objective #6:** Training and Professional Development

***Rationale:** A structured analysis comparing available instructor capacity (full-time training officers plus qualified on-shift trainers) to the approved annual training calendar is essential to prevent training from becoming a bottleneck. This review should account for the full workload associated with course design and updating, lesson planning, e-learning development, face-to-face delivery, remote facilitation, live-fire and practical evolutions, equipment and prop logistics, facility booking, theory and practical assessments, proctoring, documentation and signoffs, and after-action improvements, across both on-duty and off-shift hours.*

*By quantifying the true instructional hours required per curriculum and discipline, instructor-to-learner ratios, and throughput needed for mandatory certifications, probationary progression, officer development, apparatus/driver training, and technical rescue proficiency, the department can identify gaps and risks to safety, compliance, and operational readiness. The findings will support a right-sized training model - for example, designating discipline lead instructors, expanding the instructor cadre, and, where warranted, adding full-time or part-time training officer capacity to ensure consistent, standardized delivery across all platoons and sustain readiness as service demands grow.*

**Observation #16:** The Brantford Fire Department's training program continues to increase in scope and complexity as the department grows, conducts multiple recruit classes annually, and maintains compliance with O. Reg. 343/22: Firefighter Certification. The Professional Qualifications and Standards Division is currently staffed by a Chief Training Officer and one Training Officer who are responsible for coordinating recruit training, maintaining operational competencies for suppression personnel, delivering officer development, and supporting specialized operational programs such as technical rescue and hazardous materials response.

As the department expands staffing levels and service delivery capabilities, the training division must also manage the increasing volume of mandatory certification training, annual competency requirements, and specialized discipline development. During recruit training periods in particular, the available training staff are heavily committed to foundational firefighter training, which reduces the division's capacity to deliver ongoing operational and specialty training to existing personnel. This creates competing priorities and limits the department's ability to proactively develop specialized programs and maintain training continuity across all platoons.

**Recommendation #16:** Add one (1) additional full-time Training Officer within the Professional Qualifications and Standards Division to support recruit training, operational competency development, and the expansion of specialized training programs, including technical rescue disciplines.

**Suggested completion:** 12-24 months - aligning with the hiring of additional staff

**Cost:** \$143,439 (2026 rates) (plus benefits). Additional costs associated with uniforms, equipment and vehicle needs as required.

**Strategic Objective #6:** Training and Professional Development

***Rationale:** Maintaining a progressive and sustainable training program requires sufficient staffing resources to manage recruit training, certification compliance, operational competency development, and specialized program delivery simultaneously. As firefighter staffing levels increase and service demands evolve, the training division must support a larger workforce while ensuring personnel maintain the knowledge, skills, and abilities required to safely perform their duties. This includes coordinating certification programs under provincial regulations, delivering annual core competency training, and supporting officer development and specialized disciplines such as technical rescue.*

*The addition of another Training Officer would provide the capacity needed to sustain recruit training while maintaining consistent training delivery for existing suppression personnel. It would also support the development and management of specialized programs, improve scheduling flexibility across platoons, and ensure the department can continue to meet regulatory requirements while adapting training programs to address emerging risks and service demands within the community.*

### 3.6.4 Training Facilities and Practical Skills Development

BFD has established dedicated or ad hoc training areas at or near each station to support daily skills maintenance. However, the department does not currently have a centralized practical training facility within the municipality for individual and multi-company training and practical evolutions. Instead, BFD relies primarily on external facilities at SNFES, Grimsby, and Kitchener-Waterloo, all of which require taking firefighters, apparatus, and equipment out of the city and ‘out of service.’ These facilities currently provide the key training infrastructures, including burn towers and specialized props, enabling BFD to meet mandatory live fire training and advanced tactical evolution requirements consistent with NFPA and OFM standards.

BFD has identified the need for a dedicated training facility within city limits. Preliminary capital funding has been approved for the 2028 budget year.

**Observation #17:** BFD currently relies on a combination of on-site training spaces, borrowed municipal facilities, and opportunistic use of external locations to deliver both recruit and ongoing suppression training. While this approach has allowed the department to meet minimum training requirements, it limits the ability to conduct realistic, scenario-based, and multi-company training. The absence of a dedicated training facility creates scheduling conflicts, reduces training flexibility, and constrains the department’s ability to maintain consistent skill development across all ranks. As training demands increase, driven by population growth, expanding service expectations, and the need for continuous professional development, the current model is no longer sufficient to support operational readiness.

**Recommendation #17:** Develop a dedicated, purpose-built training facility to support live-fire training, technical rescue, driver training, incident command simulations, officer development, and other classroom instruction. The facility should accommodate both recruit and ongoing suppression training, with capacity for multi-company and interagency use. A phased approach, starting with core infrastructure and expanding over time, will align capital investment with operational needs and available funding.

**Suggested completion:** 24-36 months

**Cost:** TBD depending on final facility scope and design.

**Strategic Objective #6:** Training and Professional Development

**Rationale:** A dedicated training facility would provide BFD with the infrastructure necessary to deliver consistent, high-quality training that aligns with NFPA standards, provincial requirements, and modern fire service best practices.

### 3.7 Emergency Communications and Dispatch

**Strategic Objective #7:** Maintain and enhance a technologically advanced communications system that supports the operational needs of a growing community. By adopting industry-leading practices, scalable technologies, and robust dispatch protocols, the Service will ensure timely, accurate, and resilient emergency communications that enhance firefighter safety and improve overall service delivery.

The BFD Communications Centre is located on the second floor of Fire Headquarters and forms a vital part of BFD's emergency response infrastructure. The back-up centre, as required by NFPA, is located at Station 4. The Communications function is responsible for handling fire dispatch, emergency call-taking, and radio communications. Oversight is provided by the Supervisor of Communications.

Under the City of Brantford's E & R Bylaw, BFD has been authorized to provide Emergency Communications/Dispatch services. The bylaw states that the Ontario Fire Service Communications Standard is to be used as a reference guide, and that the Fire Chief has the authority to provide this service to other municipalities as he determines. As such, Dispatch agreements are in place to provide services to Brant County (June 25, 2024), and Six Nations of the Grand River (October 28, 2024).

#### 3.7.1 Communications Centre Staffing

The Communications Centre is staffed by eight full-time Communicators working 10-hour days and 14-hour night shifts on four platoons, and one full-time Supervisor working Monday to Friday daytime hours. BFD aims to meet NFPA 1225 *Standard for Emergency Services Communications (2022)* staffing best practices, which recommend two Communicators per shift to manage concurrent calls, breaks, and complex events. There are also six firefighters trained as back-up, in the event only one Communicator is available for a shift.

BFD has not formally adopted NFPA 1225 *Standard for Emergency Services Communications (2022)* and NFPA 1710 *Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Career Fire Departments (2020)* as performance benchmarks for call processing times (64 seconds or less, 90% of the time), however in 2025, BFD achieved the following:

Table 24: BFD Call Processing Times (2025)

| Comms Position        |            | Year Avg   |                                                     |
|-----------------------|------------|------------|-----------------------------------------------------|
| Call Taker            | Dispatcher | # of Calls | % of time call was processed within 64 secs or less |
| Brantford - Totals    |            | 6,650      | 89.47%                                              |
| FCO                   | FCO        | 4,436      | 91.30%                                              |
| FCO                   | FF         | 1,031      | 87.29%                                              |
| FF                    | FCO        | 781        | 87.45%                                              |
| FF                    | FF         | 402        | 78.85%                                              |
| Six Nations - Totals  |            | 1,022      | 86.40%                                              |
| FCO                   | FCO        | 702        | 90.60%                                              |
| FCO                   | FF         | 142        | 81.69%                                              |
| FF                    | FCO        | 103        | 85.44%                                              |
| FF                    | FF         | 75         | 57.33%                                              |
| Brant County - Totals |            | 1,036      | 73.81%                                              |
| FCO                   | FCO        | 756        | 76.80%                                              |
| FCO                   | FF         | 119        | 70.59%                                              |
| FF                    | FCO        | 101        | 68.32%                                              |
| FF                    | FF         | 60         | 51.67%                                              |

Table Source: Brantford Fire Service Data

**Observation #18:** The data indicates a decline in call-processing performance when back-up firefighters are staffing the Communications Centre compared to when trained Communicators (FCOs) are on duty. The NFPA processing standard (64 seconds) is ideally met 90% of the time. In 2025 BFD met this 90% standard:

- With 2 FCOs on duty, the 90% standard was met 98.31% of the time,
- With 1 FCO/1 FF on duty, the 90% standard was met 95.20% of the time,
- With 2 FFs on duty, the 90% standard was met 82.81% of the time.

There was a call processing performance decline of 15.7% when 2 FFS were on duty. Currently, only 6.1% of calls have two firefighters assigned. The option of hiring an additional Fire Communications Officer (FCO) was evaluated to reduce the frequency of these instances. Assuming this position would fully eliminate occasions with just two firefighters on duty, the projected improvement would be 15.7% for 6.1% of calls - translating to 62 more calls meeting the 90% threshold. This equates to less than a 1% increase across the total 8,708 calls anticipated in 2025. As a result, further staffing increases are not recommended currently.

**Recommendation #18:** Revise the E&R Bylaw to include NFPA 1710 *Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Career Fire Departments (2020)* performance standards for Dispatch call processing times. Performance standards for Suppression, and inspection and public education frequency schedules are currently in the bylaw.

**Suggested completion:** 1 – 12 months. Amend by-law in concert with amendments proposed in recommendation #2.

**Cost:** Neutral

**Strategic Objective #7:** Emergency Communications and Dispatch

**Rationale:** Adding Dispatch standards will further enhance the level of performance excellence that BFD has established and provide expectations consistently within all BFD Divisions.

### 3.7.2 Training and Certification

Communicators at BFD perform both emergency call-taking and dispatching duties. Communicators and back-up firefighters are trained and certified to NFPA 1061 *Standard for Public Safety Telecommunications Personnel Professional Qualifications (2018)* at Communicator Level II. Training is delivered in-house and through online programs provided by the Association of Public Safety Communications Officials (APCO). In accordance with Ontario Regulation 344/22 under the Fire Protection and Prevention Act, all fire communications staff must achieve NFPA 1061 *Standard for Public Safety Telecommunications Personnel Professional Qualifications (2018)* certification.

### 3.7.3 Policies, Procedures, and Operations

Operational knowledge in most Fire Service Communications Centres has traditionally relied on informal training and mentorship. BFD has developed and implemented Standard Operating Procedures covering many of the responsibilities, functions, and expectations for Communicators.

See Section 3.3.8 *Policies, Procedures, and Guidelines* for additional information and recommendations.

### 3.7.4 Communications Infrastructure

BFD uses Symposium as its Computer Aided Dispatch (CAD) system. It is under the Horizon EME platform and in addition to CAD, enables the use of mobile data terminals (MDTs) in fire trucks. Solacom works in conjunction with Symposium and will be BFD's solution for NG9-1-1 compliance. First Due is utilized by BFD as their Records Management System (RMS). BFD also uses Harris as their radio system, on the P25 network.

The current Communications Centre continues to serve BFD well with a total of 3 desks in place (2 active Communications desks, and 1 Training desk).

### 3.7.5 Next Generation 9-1-1 (NG9-1-1)

The Canadian Radio-television and Telecommunications Commission (CRTC) has mandated the transition to NG9-1-1 for all Public Safety Answering Points (PSAPs), including secondary PSAPs like BFD. NG9-1-1 introduces advanced communication capabilities, such as video, photo, and text transmission, along with real-time medical data sharing, which enhance situational awareness and operational response. BFD is on course to be compliant with the NG9-1-1 requirement via Solacom in 2026.

## 3.8 Capital Assets

**Strategic Objective #8:** Ensure that apparatus and equipment are available in the appropriate quantity, maintained in a ready and reliable state, which aligns with operational requirements. Through robust preventative maintenance and asset management practices, the Service will support safe, effective, and efficient emergency response across the community

### 3.8.1 Fire Stations

Fire stations have a long history going back to the late 17<sup>th</sup> century when 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 stations are designed with functionality, efficiency, and health and safety in mind. These facilities are strategically located to ensure optimal emergency response times and are built to accommodate larger and heavier fire apparatus. In addition to operational needs, contemporary fire stations integrate environmental and occupational health considerations into their design, including dedicated decontamination areas, separate zones for contaminated gear (hot zones) and clean areas (cold zones), proper ventilation systems, and wellness amenities to support firefighter health and resilience.

### 3.8.1.1 Fire Stations Overview and Assessments

Brantford operates four fire stations through BFD. These stations are strategically located to serve the community. An overview of the BFD's fire stations and an assessment of what are considered necessary amenities for a fully functional fire station are detailed.

| Station 1                                                                           |                                                                                                                                             |                |      |
|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------|----------------|------|
| Address:                                                                            | 60 Clarence Street                                                                                                                          | Year Built:    | 2000 |
| Use:                                                                                | Administration, Mechanical, Communications, Fire Prevention, Professional Qualifications and Standards, and Emergency Management Divisions. |                |      |
| Bays:                                                                               | 3 drive through, 2 back-in only, 1 drive thru shop                                                                                          | Unit Capacity: | 6    |
|  |                                                                                                                                             |                |      |

Table 25: Station 1 Assessment

| Item | Description                                                          | Yes | No | Comments                                               |
|------|----------------------------------------------------------------------|-----|----|--------------------------------------------------------|
| 1    | Site security                                                        | ✓   |    | Mag Lock System                                        |
| 2    | Adequate parking for staff and visitors                              | ✓   |    |                                                        |
| 3    | Internet and intranet connectivity                                   | ✓   |    |                                                        |
| 4    | Adequate space for training – training props, hydrant                |     | ✓  | Limited due to size and congestion of property         |
| 5    | Back-up power supply                                                 | ✓   |    |                                                        |
| 6    | Fire Chiefs' office                                                  | ✓   |    | Second Floor                                           |
| 7    | Deputy's Chief's offices                                             | ✓   |    | Second Floor                                           |
| 8    | Emergency management office                                          |     | ✓  |                                                        |
| 9    | Administrative support office/space                                  | ✓   |    | Second Floor                                           |
| 10   | Training room / meeting room                                         | ✓   |    | Combined with common dorm                              |
| 11   | Office security                                                      | ✓   |    |                                                        |
| 12   | Dorm rooms                                                           | ✓   |    | Common Dorm                                            |
| 13   | Day use area                                                         | ✓   |    | Combined with Kitchen                                  |
| 14   | Kitchen                                                              | ✓   |    | Combined with day use                                  |
| 15   | Fitness / wellness area                                              | ✓   |    | Located on bay floors                                  |
| 16   | Firefighter men's and ladies' bathrooms and showers                  | ✓   |    |                                                        |
| 17   | Space to safely garage and do minor maintenance on vehicles          | ✓   |    | Major repairs done in one of the bays by EVT mechanics |
| 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                                     | ✓   |    | Extractor, industrial washer, and 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                                           | ✓   |    |                                                        |
| 28   | Locker room                                                          | ✓   |    |                                                        |
| 29   | Proper interior Lighting                                             | ✓   |    |                                                        |

Station 2

|          |                          |                |      |
|----------|--------------------------|----------------|------|
| Address: | 21 Fairview Drive        | Year Built:    | 2020 |
| Use:     | Fire & Rescue Deployment |                |      |
| Bays:    | 3 drive thru bays        | Unit Capacity: | 3    |



Table 26: Station 2 Assessment

| Item | Description                                                          | Yes | No | Comments                                         |
|------|----------------------------------------------------------------------|-----|----|--------------------------------------------------|
| 1    | Site security                                                        | ✓   |    | Mag-Lock System                                  |
| 2    | Adequate parking for staff and visitors                              | ✓   |    |                                                  |
| 3    | Internet and intranet connectivity                                   | ✓   |    |                                                  |
| 4    | Adequate space for training – training props, hydrant                | ✓   |    | Limited                                          |
| 5    | Back-up power supply                                                 | ✓   |    |                                                  |
| 6    | Fire Chiefs' office                                                  |     | ✓  | See Station 1                                    |
| 7    | Deputy's Chief's offices                                             |     | ✓  | See Station 1                                    |
| 8    | Emergency management office                                          |     | ✓  | N/A                                              |
| 9    | Administrative support office/space                                  |     | ✓  | See Station 1                                    |
| 10   | Training room / meeting room                                         | ✓   |    |                                                  |
| 11   | Office security                                                      | ✓   |    |                                                  |
| 12   | Dorm rooms                                                           | ✓   |    | Individual dorms                                 |
| 13   | Day use area                                                         | ✓   |    |                                                  |
| 14   | Kitchen                                                              | ✓   |    |                                                  |
| 15   | Fitness / wellness area                                              | ✓   |    |                                                  |
| 16   | Firefighter men's and ladies' bathrooms and showers                  | ✓   |    |                                                  |
| 17   | Space to safely garage and do minor maintenance on vehicles          | ✓   |    | Major repairs done at Station 1 by EVT mechanics |
| 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                                     | ✓   |    | Extractor, industrial washer, and 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                                           | ✓   |    |                                                  |
| 28   | Locker room                                                          |     | ✓  | Located in dorm rooms                            |
| 29   | Proper interior Lighting                                             | ✓   |    |                                                  |

**Station 3**

|          |                          |                |      |
|----------|--------------------------|----------------|------|
| Address: | 7 Lyneden Rd             | Year Built:    | 1975 |
| Use:     | Fire & Rescue Deployment |                |      |
| Bays:    | 2 drive thru bays        | Unit Capacity: | 2    |



Table 27: Station 3 Overview

| Item | Description                                                          | Yes | No | Comments                                         |
|------|----------------------------------------------------------------------|-----|----|--------------------------------------------------|
| 1    | Site security                                                        | ✓   |    | Mag-Lock System                                  |
| 2    | Adequate parking for staff and visitors                              | ✓   |    |                                                  |
| 3    | Internet and intranet connectivity                                   | ✓   |    |                                                  |
| 4    | Adequate space for training – training props, hydrant                | ✓   |    | Rear of Station                                  |
| 5    | Back-up power supply                                                 | ✓   |    |                                                  |
| 6    | Fire Chiefs' office                                                  |     | ✓  | See Station 1                                    |
| 7    | Deputy's Chief's offices                                             |     | ✓  | See Station 1                                    |
| 8    | Emergency management office                                          |     | ✓  |                                                  |
| 9    | Administrative support office/space                                  |     | ✓  | See Station 1                                    |
| 10   | Training room / meeting room                                         | ✓   |    |                                                  |
| 11   | Office security                                                      | ✓   |    |                                                  |
| 12   | Dorm rooms                                                           | ✓   |    | Common dorm with combined lockers                |
| 13   | Day use area                                                         | ✓   |    | Combined with Kitchen                            |
| 14   | Kitchen                                                              | ✓   |    |                                                  |
| 15   | Fitness / wellness area                                              | ✓   |    | On the bay floors                                |
| 16   | Firefighter men's and ladies' bathrooms and showers                  | ✓   |    |                                                  |
| 17   | Space to safely garage and do minor maintenance on vehicles          | ✓   |    | Major repairs done at Station 1 by EVT mechanics |
| 18   | Hose drying area                                                     | ✓   |    |                                                  |
| 19   | Small equipment storage and maintenance room                         | ✓   |    |                                                  |
| 20   | Air filling station room complete with proper ventilation            | ✓   |    | On bay floor                                     |
| 21   | Industrial washer and dryer room                                     | ✓   |    | Extractor, industrial washer, and 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                                           | ✓   |    |                                                  |
| 28   | Locker room                                                          | ✓   |    | Combined with dorm                               |
| 29   | Proper interior Lighting                                             | ✓   |    |                                                  |

## Station 4

|          |                                                |                |      |
|----------|------------------------------------------------|----------------|------|
| Address: | 400 Colborne Street West                       | Year Built     | 2005 |
| Use:     | Fire & Rescue Deployment and one ambulance bay |                |      |
| Bays:    | 2 drive thru bays                              | Unit Capacity: | 4    |



Table 28: Station 4 Overview

| Item | Description                                                          | Yes | No | Comments                                         |
|------|----------------------------------------------------------------------|-----|----|--------------------------------------------------|
| 1    | Site security                                                        | ✓   |    | Mag Lock System                                  |
| 2    | Adequate parking for staff and visitors                              | ✓   |    |                                                  |
| 3    | Internet and intranet connectivity                                   | ✓   |    |                                                  |
| 4    | Adequate space for training – training props, hydrant                | ✓   |    | Rear of Station                                  |
| 5    | Back-up power supply                                                 | ✓   |    |                                                  |
| 6    | Fire Chiefs' office                                                  |     | ✓  | See Station 1                                    |
| 7    | Deputy's Chief's offices                                             |     | ✓  | See Station 1                                    |
| 8    | Back up Fire Communications                                          | ✓   |    |                                                  |
| 9    | Administrative support office/space                                  |     | ✓  | See Station 1                                    |
| 10   | Training room / meeting room                                         | ✓   |    |                                                  |
| 11   | Office security                                                      | ✓   |    |                                                  |
| 12   | Dorm rooms                                                           | ✓   |    | Common combined with lockers                     |
| 13   | Day use area                                                         | ✓   |    | Combined with kitchen                            |
| 14   | Kitchen                                                              | ✓   |    |                                                  |
| 15   | Fitness / wellness area                                              | ✓   |    | Located on bay floor                             |
| 16   | Firefighter men's and ladies' bathrooms and showers                  | ✓   |    |                                                  |
| 17   | Space to safely garage and do minor maintenance on vehicles          | ✓   |    | Major repairs done at Station 1 by EVT mechanics |
| 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                                     | ✓   |    | Extractor, industrial washer, and 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                                           | ✓   |    |                                                  |
| 28   | Locker room                                                          | ✓   |    | Combined with dorm                               |
| 29   | Proper interior Lighting                                             | ✓   |    |                                                  |

### 3.8.1.2 Operational Analysis of Stations

The BFD operates four fire stations that collectively support emergency response, administration, training, fleet maintenance coordination, and firefighter wellness. Overall, the station network is generally well distributed and functional; however, several operational and infrastructure challenges have been identified that affect long-term sustainability, safety, and efficiency.

#### Station 1 - Fire Headquarters

Station 1 serves as the administrative and operational hub for BFD, housing Fire Administration, Communications, Fire Prevention, Emergency Management, Professional Qualification and Standards, and mechanical support functions. While the facility was constructed in 2000 and incorporates many modern design features, it is now approaching its functional capacity limits.

Key operational pressures include:

- Space constraints for administrative and support functions, with multiple roles consolidated into shared or repurposed areas.
- Limited training space, both interior and exterior, due to site congestion and lack of expansion capacity.
- Fleet maintenance limitations, as the on-site Emergency Vehicle Technicians (EVTs) operate within active apparatus bays. This arrangement constrains efficient workflow, limits simultaneous maintenance activities, and introduces safety and operational conflicts with response-ready vehicles.
- Fitness and wellness areas located on apparatus bay floors, which exposes personnel to diesel exhaust, noise, and operational hazards, and is inconsistent with current best practices for firefighter health and cancer risk reduction.

Given its centralized role, continued growth in staffing, apparatus complexity, and support functions will further strain Station 1 unless space, layout, or alternative support facilities are addressed.

## Station 2

Station 2, constructed in 2020, represents the most modern facility in the BFD inventory and generally aligns well with contemporary fire station design standards. It includes individual dorm rooms, appropriate separation of clean and contaminated spaces, and adequate operational support areas.

Operational considerations include:

- Limited exterior training space, restricting the ability to conduct hands-on drills on-site.
- Dependence on Station 1 for administrative, senior officer, and major maintenance functions.

Overall, Station 2 functions effectively as a deployment-focused station with minimal immediate deficiencies.

## Station 3

Station 3, built in 1975, is the most dated facility within the BFD station network and presents the most significant operational and infrastructure challenges.

Key issues include:

- Outdated design and layout, which does not reflect modern standards for firefighter health, safety, and gender inclusivity.
- Common dormitories combined with locker areas, limiting privacy and flexibility and complicating future workforce diversification.
- Fitness equipment is located on apparatus bay floors, exposing firefighters to contaminants and operational hazards.
- Limited capacity for modern apparatus, equipment storage, and technological upgrades.
- Aging building systems that may require increasing levels of maintenance and capital investment.

From an operational perspective, Station 3's design constraints reduce efficiency and resilience and present long-term risks if not addressed through significant renovation or replacement planning.

## Station 4

Station 4, built in 2005, functions effectively as a deployment station and includes accommodation for one ambulance bay. While generally adequate, it shares some common challenges with other stations, including:

- Combined dormitory and locker arrangements.
- Fitness space is located on bay floors.
- Limited expansion capacity on the existing site.

## System-Wide Observations

Across the station network, several recurring operational themes were identified:

- Fitness and wellness areas located within apparatus bays at multiple stations, which are inconsistent with current occupational health best practices.
- Reliance on Station 1 for centralized administration and fleet maintenance, increasing pressure on an already constrained facility.
- Limited on-site training space at most stations, requiring reliance on off-site or shared training opportunities.

While the BFD station network currently supports effective emergency response, aging infrastructure, space limitations, and evolving health and safety standards present growing operational challenges. Station 3 is the most functionally obsolete and represents a priority for future capital planning. Fire Headquarters are approaching capacity limits, particularly with respect to administrative growth and EVT operations. Addressing these issues through phased upgrades, facility expansion, or long-term replacement strategies will be essential to maintaining service levels, firefighter safety, and organizational resilience.

**Observation #19:** Fitness and wellness facilities at Stations 1, 3, and 4 are located on the apparatus bay floor, placing firefighters near diesel exhaust emissions, operational noise, and active response movements. These environments expose personnel to airborne contaminants, carcinogens, and physical hazards associated with moving apparatus and equipment. The frequency of apparatus activity within these bays increases both acute safety risks and cumulative occupational exposure, particularly given the routine use of fitness spaces during on-duty hours. This arrangement is inconsistent with contemporary fire station design standards, firefighter cancer prevention strategies, and best practices related to contaminant control and occupational health. In older facilities, such as Station 3, these risks are compounded by outdated layouts and limited ability to separate clean and contaminated zones.

**Recommendation #19:** Relocate or retrofit fitness and wellness facilities at Stations 1, 3, and 4 into clean, physically separated spaces that are isolated from apparatus bays and contaminated operational areas. Where full relocation is not immediately feasible, interim mitigation measures should be considered as part of phased upgrades, with full compliance achieved through future renovation or replacement projects.

**Suggested completion:** 24-48 months

**Cost:** To be determined depending on the project size and scope

**Strategic Objective #8:** Capital Assets

***Rationale:** Locating fitness and wellness facilities in clean, physically separated environments supports firefighter health, safety, and overall operational effectiveness. Reducing routine exposure to diesel exhaust, airborne contaminants, and operational hazards aligns with contemporary fire service best practices and emerging research related to firefighter wellness and cancer prevention.*

*Purpose-built wellness spaces also promote consistent physical training, contribute to injury prevention, and support workforce resilience. Integrating these design principles into station upgrades and future facility planning helps ensure that BFD infrastructure reflects modern standards, supports sustainable operations, and enhances the long-term well-being and performance of personnel.*

## Possible Interim Solutions for Fitness Concerns

### 1. Physical Separation (Best Immediate Impact)

*Even without full renovation, you can create clear barriers between “dirty” and “clean” zones:*

- *Install temporary framed walls or modular partitions (e.g., gym enclosure systems)*
- *Use floor-to-ceiling polycarbonate or gypsum barriers where feasible*
- *Create a dedicated enclosed fitness zone within the bay footprint*
- *Ensure self-closing doors to maintain separation*

**Goal:** *Establish a defined clean room environment, even if inside the bay footprint.*

### 2. Ventilation & Air Quality Controls

*Reduce airborne contamination exposure:*

- *Install portable HEPA air filtration units in fitness areas*
- *Use negative air machines to prevent bay air infiltration*
- *Rebalance HVAC to create positive pressure in fitness areas*
- *Add CO and NO<sub>2</sub> monitoring with alarms*

**Note:** *This is one of the most important interim measures if full separation is not possible.*

### 3. Equipment Relocation (Partial)

*Reduce exposure by relocating high-use fitness equipment:*

- *Move cardio equipment (treadmills, bikes) into:*
  - *Offices*
  - *Training rooms*
  - *Mezzanines*
  - *Portable trailers (if space constrained)*
- *Keep only low-risk / low-use equipment in bay areas temporarily*

**Note:** *Even partial relocation significantly reduces cumulative exposure.*

### 4. Cleaning & Maintenance Regime

*Increase cleaning frequency and standards:*

- *Daily HEPA vacuuming of fitness area*
- *Routine wet cleaning (not dry sweeping)*
- *Scheduled deep cleaning of equipment and flooring*
- *Use non-porous mats and surfaces where possible*

## 5. Temporary External Solutions (If Space Allows)

*Where stations are severely constrained:*

- *Deploy modular fitness trailers or sea-can gyms*
- *Partner with nearby municipal recreation facilities*
- *Use shared training facilities for structured fitness programs*

**Observation #20:** The operational assessments of existing BFD stations highlight the importance of integrating modern fire station design principles into any new station construction. Key considerations include the separation of clean and contaminated spaces, appropriate placement of fitness and wellness facilities, accommodation for modern apparatus and equipment, and flexible layouts that can adapt to future staffing, technology, and service delivery changes. Experience within the current station network demonstrates that facilities not designed to contemporary standards face limitations related to firefighter health, operational efficiency, and long-term adaptability.

**Recommendation #20:** Any new fire station constructed by BFD should reflect contemporary fire station design standards, including clear separation of contaminated and clean zones, dedicated wellness and training spaces, modern and inclusive accommodations, and building systems capable of supporting current and future apparatus, technology, and service delivery needs, while maintaining flexibility for future expansion.

**Suggested completion:** Ongoing combined with station 3 and station 5 recommendations

**Cost:** To be determined as part of a new station build

**Strategic Objective #8:** Capital Assets

*Rationale: Incorporating modern design principles at the outset ensures that new fire stations support firefighter health, operational effectiveness, and long-term sustainability. Purpose-built facilities reduce operational inefficiencies, improve day-to-day functionality, and better accommodate evolving service delivery models. Designing for flexibility and future needs maximizes the value of capital investment, minimizes the need for costly retrofits, and ensures that new infrastructure remains resilient, adaptable, and aligned with the long-term objectives of the Fire Master Plan.*

## 3.8.2 Apparatus and Equipment

### 3.8.2.1 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 services 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 (2016)

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 will 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, Inspection, Maintenance, Testing, and Retirement of In-Service Emergency Vehicles (2017)

The NFPA 1911 *Inspection, Maintenance, Testing, and Retirement of In-Service Emergency Vehicles (2017)* 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 (2016)* 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 Standard for Automotive Fire Apparatus (2016) have been truly significant, especially in safety, fire services 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 Standard for Fire Apparatus Refurbishing (2016); 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 those that are over 25 years old should be replaced.*

#### **3.8.2.2 Underwriters Laboratories of Canada**

Current Underwriters Laboratories of Canada (ULC<sup>7</sup>) and NFPA 1901 *Standard for Automotive Fire Apparatus (2016)* 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 29, some emergency vehicles' life cycles can be extended due to low usage or serviceable condition.

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<sup>7</sup> Underwriters Laboratories of Canada (ULC), [www.canada.ul.com](http://www.canada.ul.com)

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 vehicles.

Table 29: Fire Apparatus Service Schedule (Fire Insurance Grading)

| Apparatus Age (Yrs.)                                                                                                                                                                                                                                 | Major Cities <sup>3</sup> | Medium Sized Cities <sup>4</sup>             | Small Communities <sup>5</sup> and Rural Centres               |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|----------------------------------------------|----------------------------------------------------------------|
| 0 – 15                                                                                                                                                                                                                                               | First Line Duty           | First Line Duty                              | First Line Duty                                                |
| 16-20                                                                                                                                                                                                                                                | Reserve                   | 2 <sup>nd</sup> Line Duty                    | First Line Duty                                                |
| 20-25 <sup>1</sup>                                                                                                                                                                                                                                   | No Credit in Grading      | No Credit in Grading or Reserve <sup>2</sup> | No Credit in Grading or 2 <sup>nd</sup> Line Duty <sup>2</sup> |
| 26-29 <sup>1</sup>                                                                                                                                                                                                                                   | No Credit in Grading      | No Credit in Grading or Reserve <sup>2</sup> | No Credit in Grading or Reserve <sup>2</sup>                   |
| 30+                                                                                                                                                                                                                                                  | No Credit in Grading      | No Credit in Grading                         | No Credit in Grading                                           |
| <sup>1</sup> 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).                                               |                           |                                              |                                                                |
| <sup>2</sup> 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.                          |                           |                                              |                                                                |
| <sup>3</sup> 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.        |                           |                                              |                                                                |
| <sup>4</sup> 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. |                           |                                              |                                                                |
| <sup>5</sup> 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.          |                           |                                              |                                                                |

### 3.8.2.3 Fire Apparatus Design and Procurement

Fire apparatus for the City of Brantford are designed and procured to meet the operational requirements of Brantford Fire and the specific risks and service demands present within the community. The apparatus specification process considers local building types, roadway networks, response profiles, staffing models, and the operational roles that each apparatus must fulfill within the fire suppression and emergency response system.

The design, tendering, and procurement of fire apparatus is a lengthy and complex process, typically requiring two to three years or more from initial specification development to final delivery. As a result, apparatus planning must consider both current operational requirements and anticipated future needs associated with population growth, urban development, and evolving community risk.

Given that fire apparatus generally has service life cycles of 20 years or longer, procurement decisions must be made with a long-term perspective to ensure that vehicles remain operationally relevant, cost-effective, and capable of supporting the service delivery model throughout their lifecycle. Careful planning and alignment with long-term infrastructure and growth strategies are therefore essential to ensure that apparatus investments continue to meet the needs of the City of Brantford over time.

### **3.8.2.4 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 services 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.

BFD currently manages the maintenance, repair, testing, and certification of all heavy emergency vehicles in-house through two certified EVT's. These technicians are responsible for maintaining a growing fleet of front-line and reserve apparatus, ensuring compliance with National Fire Protection Association (NFPA) standards and applicable provincial safety regulations. The EVT team plays a critical role in sustaining the operational readiness of fire apparatus and safeguarding firefighters and public safety. Routine and preventive maintenance tasks, including pump testing, annual inspections, brake servicing, and minor repairs, are performed by the EVT's, who have demonstrated a high level of technical competence and commitment to the reliability of BFD's fleet.

In addition to responsibility for all of BFD's vehicles and equipment, the mechanics are also responsible for the care and control of fire station facilities. This work would more appropriately be directed to a corporate facilities management group and would allow the mechanical team to prioritize vehicle and equipment maintenance.

**Observation # 21:** Currently, mechanical staff operate within active apparatus bays at Station 1. This arrangement constrains efficient workflow, limits simultaneous maintenance activities, and introduces safety and operational conflicts with response-ready vehicles. Space limitations have become increasingly apparent as the fleet and service demands grow. The bay lacks sufficient clearance for some vehicles, requiring work to be done outside. Some maintenance and repair activities are contracted out, including tires, suspension work and body work.

**Recommendation #21:** Conduct a feasibility study for the development of a purpose-built fire apparatus maintenance facility capable of supporting the size, complexity, and specialized servicing requirements of modern fire vehicles.

**Suggested completion:** 24-48 months

**Cost:** Cost are dependent on using internal or third-party resources

**Strategic Objective # 8:** Capital Assets

***Rationale:** As BFD continues to expand its fleet in response to community growth and intensification, the limitations of the current maintenance arrangement will become a more significant operational concern. Without a purpose-built or upgraded maintenance facility, the department faces increasing risk of delayed apparatus availability, overreliance on costly external repairs, and compromised safety or compliance.*

*Addressing the current state of apparatus maintenance through infrastructure improvements or a future centralized logistics and maintenance hub should be considered a strategic priority in long-range planning efforts. This will ensure the sustainability of the in-house maintenance model and support the safe, reliable delivery of emergency services across Brantford.*

### 3.8.2.5 Fire Apparatus Replacement and Dispersal

A list of all BFD apparatus and light vehicles with their anticipated replacement dates has been developed and maintained. BFD apparatus have a target of 15 years for frontline apparatus and 3-5 years in reserve, with replacement after 18-20 years. Light emergency vehicles are replaced as required and typically have an anticipated replacement time frame of 7-10 years. There is some concern that the replacement schedule for heavy vehicles could suffer from recently escalating costs due to the impacts of exchange rates, tariffs, and supply issues. The timelines for ordering and receiving heavy fleet vehicles have also increased significantly, meaning orders must be placed well in advance, which may also have budget implications.

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, increased maintenance costs of older vehicles, 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 and projected costs of future new vehicles.

Although both NFPA and FUS have criteria for re-classifying or retiring apparatuses, modifications or upgrades may be required based on age or heavy usage. For example:

- Pumpers: 16-20 years frontline (FUS & NFPA), but can be reduced due to high usage
- Aerial 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 2021 with a 20–21-year replacement timeline with an annual depreciation of 20% per year.

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 30: Fire Apparatus Life Cycle Cost Projection **Example**

| Period | Year | *Replacement cost | Estimated Inflation % | Diff. between original vs replacement | Depreciated value |
|--------|------|-------------------|-----------------------|---------------------------------------|-------------------|
| 0      | 2021 | \$642,619.79      |                       | \$0.00                                | \$642,619.79      |
| 1      | 2022 | \$706,881.77      | 10.0%                 | \$64,261.98                           | \$514,095.84      |
| 2      | 2023 | \$770,501.13      | 9.0%                  | \$127,881.34                          | \$411,276.67      |
| 3      | 2024 | \$832,141.22      | 8.0%                  | \$189,521.43                          | \$329,021.33      |
| 4      | 2025 | \$890,391.11      | 7.0%                  | \$247,771.32                          | \$263,217.07      |
| 5      | 2026 | \$948,266.53      | 6.5%                  | \$305,646.74                          | \$210,573.65      |
| 6      | 2027 | \$1,009,903.86    | 6.5%                  | \$367,284.06                          | \$168,458.92      |
| 7      | 2028 | \$1,075,547.61    | 6.5%                  | \$432,927.81                          | \$134,767.14      |
| 8      | 2029 | \$1,145,458.20    | 6.5%                  | \$502,838.41                          | \$107,813.71      |
| 9      | 2030 | \$1,219,912.99    | 6.5%                  | \$577,293.19                          | \$86,250.97       |
| 10     | 2031 | \$1,299,207.33    | 6.5%                  | \$656,587.53                          | \$69,000.78       |
| 11     | 2032 | \$1,383,655.81    | 6.5%                  | \$741,036.01                          | \$55,200.62       |
| 12     | 2033 | \$1,473,593.43    | 6.5%                  | \$830,973.64                          | \$44,160.50       |
| 13     | 2034 | \$1,569,377.01    | 6.5%                  | \$926,757.21                          | \$35,328.40       |
| 14     | 2035 | \$1,671,386.51    | 6.5%                  | \$1,028,766.72                        | \$28,262.72       |
| 15     | 2036 | \$1,780,026.63    | 6.5%                  | \$1,137,406.84                        | \$22,610.17       |
| 16     | 2037 | \$1,895,728.37    | 6.5%                  | \$1,253,108.57                        | \$18,088.14       |
| 17     | 2038 | \$2,018,950.71    | 6.5%                  | \$1,376,330.92                        | \$14,470.51       |
| 18     | 2039 | \$2,150,182.51    | 6.5%                  | \$1,507,562.71                        | \$11,576.41       |
| 19     | 2040 | \$2,289,944.37    | 6.5%                  | \$1,647,324.57                        | \$10,000.00       |
| 20     | 2041 | \$2,438,790.75    | 6.5%                  | \$1,796,170.96                        | \$10,000.00       |

**\*Estimated average cost for a custom municipal pumper**

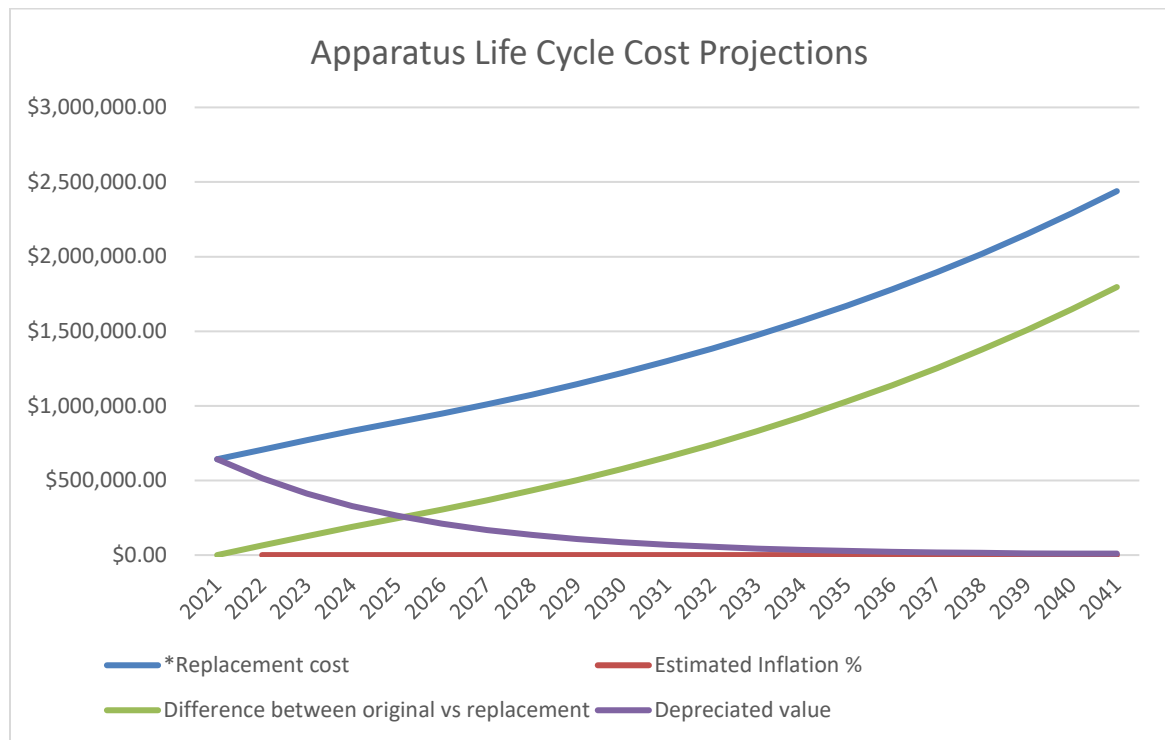
Figure 8: Fire Apparatus Life Cycle Cost Projection **Example**

Table 30 and Figure 8 illustrate the increasing replacement costs and decreasing value of a new pumper vehicle purchased in 2021, over a 20-year period. As depicted, the five-year increase in the projected replacement cost is \$658,764.12 for apparatus aged 15 to 20 years, which is also the time period when escalating maintenance costs can be expected, suggesting earlier replacement should be considered. Analyzing local operating conditions when determining the optimal replacement timing for each major piece of apparatus will help ensure that sufficient funds are available when replacements are required.

### 3.8.2.6 Apparatus and Light-Duty Fleet

BFD through the City of Brantford owns and maintains a wide array of heavy apparatus including pumpers, rescues, aerials/ladder, and tankers along with light duty support vehicles and watercraft. Each piece of apparatus and light-duty vehicle is assigned to a fire station and has specific roles in anticipation of the risks in their response zone. The light vehicles are utilized by administration, fire prevention officers, mechanical division, training staff, and utility.

BFD inventory of apparatus and equipment is modern and well maintained. A detailed list of the current heavy apparatus fleet is described in the following table.

**Note:** BFD has been advised that final inspections for the new pumper should be in April and the new aerial in May/June. This will replace 922 and 913, respectively.

Table 31: BFD Apparatus and Planned Life Cycle

| No. | Location  | Unit #      | Description                                                  | Use                             | Year built | In-service year | Est. Year replacement |
|-----|-----------|-------------|--------------------------------------------------------------|---------------------------------|------------|-----------------|-----------------------|
| 1   | Station 1 | 910         | Ford F-150 Pick/Up                                           | Front-line Support              | 2024       | 2024            | 2034                  |
| 2   | Station 1 | 911         | 2019 Spartan Metro Star / Smeal (1750/500/30F) Pumper Rescue | Front-line Support              | 2019       | 2020            | 2037                  |
| 3   | Station 1 | 917         | 2006 Ferrara Altair / Smeal 100' platform Aerial             | Front-line Support              | 2006       | 2006            | 2024                  |
| 4   | Station 1 | 912 (Spare) | Pumper Rescue, Spartan Gladiator / Crimson (1250/500)        | Front-line Support              | 2009       | 2009            | 2026                  |
| 5   | Station 1 | 913 (Spare) | Quint, Spartan Gladiator / Smeal 55' ladder                  | Front-line Support              | 2008       | 2009            | 2020                  |
| 6   | Station 1 | Car 91      | Ford Explorer                                                | Administration                  | 2025       | 2025            | 2035                  |
| 7   | Station 1 | Car 92      | Ford Explorer                                                | Administration                  | 2022       | 2022            | 2032                  |
| 8   | Station 1 | Car 93      | Ford Explorer                                                | Administration                  | 2018       | 2018            | 2028                  |
| 9   | Station 1 | CH 94       | 2020 Ford Expedition                                         | Administration, Command Vehicle | 2019       | 2019            | 2029                  |
| 10  | Station 1 | Car 1       | Ford F250, Mechanical Division                               | Support Vehicle                 | 2017       | 2017            | 2027                  |
| 11  | Station 1 | Car 9       | F-150, Training Division                                     | Support, Back-up                | 2024       | 2024            | 2034                  |
| 12  | Station 1 | Car 3       | Ford Explorer                                                | Fire Prevention                 | 2017       | 2017            | 2027                  |
| 13  | Station 1 | Car 4       | Ford F-150 Pick/Up                                           | Fire Prevention                 | 2024       | 2024            | 2034                  |
| 14  | Station 1 | Car 5       | Toyota Corolla                                               | Fire Prevention                 | 2023       | 2023            | 2033                  |
| 15  | Station 1 | Car 6       | Toyota Corolla                                               | Fire Prevention                 | 2020       | 2020            | 2030                  |
| 16  | Station 1 | Car 7       | Chevy Equinox                                                | Fire Prevention                 | 2016       | 2016            | 2026                  |
| 17  | Station 1 | Car 8       | Toyota Corolla                                               | Fire Prevention                 | 2020       | 2020            | 2030                  |

| No. | Location  | Unit #         | Description                                             | Use                           | Year built | In-service year | Est. Year replacement |
|-----|-----------|----------------|---------------------------------------------------------|-------------------------------|------------|-----------------|-----------------------|
| 18  | Station 1 | Prevention     | Streamline Trailer                                      | Fire Prevention               | 2004       | 2004            | 2029                  |
| 19  | Station 1 | CEMC           | American Trailer                                        | CEMC Administration           | 2017       | 2017            | 2042                  |
| 20  | Station 1 | Zodiac 1       | Boat and Trailer                                        | Front-line Support            | 2014       | 2014            | 2034                  |
| 21  | Station 2 | 921            | Spartan Metro Star / Smeal (1750/500/30A) Pumper Rescue | Front-line Support            | 2015       | 2016            | 2032                  |
| 22  | Station 2 | 922<br>(Spare) | Spartan Diamond / Seagrave (1050/500) Pumper Rescue     | Front-line Support            | 2005       | 2006            | 2024                  |
| 23  | Station 2 | 929            | Spartan ER FC-94 Heavy Rescue                           | Front-line Support            | 2021       | 2023            | 2042                  |
| 24  | Station 3 | 933            | Spartan Metro Star / Smeal 75' ladder                   | Front-line Support            | 2020       | 2021            | 2038                  |
| 25  | Station 3 | 934            | Freightliner M2 / Dependable (2500 tank) Tanker         | Front-line Support            | 2010       | 2011            | 2031                  |
| 26  | Station 4 | 941            | Spartan Gladiator / Crimson (1050/500) Pumper Rescue    | Front-line Support            | 2009       | 2009            | 2027                  |
| 27  | Station 4 | 913            | Spartan/Smeal 55' Quint                                 | Front-line Support            | 2008       | 2008            | 2019                  |
| 28  | Station 4 | 942            | Chevrolet Silverado 3500 w/ skid unit                   | Front-line Support, Bush Fire | 2011       | 2011            | 2030                  |
| 29  | Station 4 | UTV 1          | John Deere Gator                                        | Front-line Support            | 2014       | 2014            | 2034                  |
| 30  | Station 4 | Zodiac 2       | Zodiac boat and trailer                                 | Front-line Support            | 2014       | 2014            | 2034                  |

### 3.8.3 Ancillary Equipment

Equipment needed for response operations, such as vehicle extrication tools, hand tools and blowers, etc. are current and appropriate for the needs of BFD. The ancillary equipment is designed and maintained to meet the BFD's current core service, goals, and objectives. BFD 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.

### 3.8.4 Personal Protective Equipment

BFD 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. Each station has turnout gear washing and extraction machines for regular cleaning. BFD utilizes a third-party vendor for annual and deep cleaning and maintenance programs in compliance with NFPA 1971 *Standard on Protective Ensembles for Structural Fire Fighting and Proximity Fire Fighting (2018)* for the health and safety of their firefighters.

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

### 3.8.5 Specialized Operations Equipment

Effective and efficient response to an incident requires equipment designed for a specific purpose. BFD 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.

BFD equipment currently meets the goals and objectives of the service. There were concerns expressed through the surveys that there was a shortage of equipment to completely outfit the spare/backup apparatus.

### 3.8.6 Asset Management

Brantford's Asset Management Program (AMP) provides the framework through which BFD's infrastructure is planned, maintained, and renewed in a fiscally responsible and sustainable manner. The AMP supports lifecycle-based decision-making and ensures that fire protection assets align with community risk, service level objectives, and long-term financial planning. Integration of the FMP with Brantford's AMP ensures that investments in fire stations, apparatus, and equipment are evidence-based, transparent, and compliant with provincial asset management requirements.

BFD assets included in the AMP encompass fire stations, front-line and support apparatus, specialized firefighting and rescue equipment, communications systems, and supporting facilities and infrastructure. These assets are assessed for age, condition, functionality, and operational criticality, recognizing that fire stations and suppression apparatus represent high-risk, mission-critical infrastructure. The AMP allows BFD to identify deficiencies related to health and safety, reliability, capacity, and regulatory compliance, particularly where aging facilities or apparatus may negatively affect response performance or firefighter safety.

Risk-based prioritization within the AMP enables BFD to proactively address infrastructure challenges associated with increasing call volumes, concurrent incidents, and community growth. As development intensifies and service demand increases, asset condition, location, and suitability must be continually evaluated to ensure that response times, Effective Response Force (ERF), and operational reliability are maintained. The AMP provides a defensible methodology to quantify risk and guide capital investments before service degradation occurs.

The FMP builds upon Brantford's AMP by identifying future fire station requirements, apparatus replacement and expansion needs, and facility upgrades necessary to support modern fire and emergency response operations. All major capital recommendations contained in this FMP are intended to be integrated into Brantford's asset management plans, long-range capital forecasts, and financial strategies. This coordinated approach ensures that fire protection infrastructure remains resilient, sustainable, and aligned with Brantford's long-term growth and service delivery objectives.

## SECTION 4

### RESPONSE PERFORMANCE AND CAPABILITIES

#### 4.1 Response Performance

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BFD provides emergency response across a geographically diverse municipality that includes densely populated urban neighbourhoods, growing suburban corridors, and limited rural and agricultural lands. This variability in development patterns, road infrastructure, and risk types requires BFD to adopt a differentiated approach to response performance standards—one that is realistic, risk-informed, and service-level appropriate across all zones.

Response performance is commonly measured in three key phases: dispatch handling time, crew assembly time, and travel time to the incident location. The ability to meet performance benchmarks is influenced by multiple local factors including station proximity, traffic conditions, road connectivity, staffing model, apparatus availability, and water supply infrastructure. Recognizing that a one-size-fits-all model does not reflect the operational realities in Brantford, BFD must consider urban performance standards that align with industry best practices and the unique risks of each service area.

This section provides an overview of relevant industry standards and provincial legislation related to fire service response performance in Ontario. This section also includes a detailed analysis of the trends in incident types occurring within BFD's response performance.

##### 4.1.1 Urban Response Performance Standards

BFD applies to a high-performance response model based on rapid turnout and travel benchmarks, which reflect the dense infrastructure and availability of firefighting resources. These areas typically benefit from full-time staffing, strategically located fire stations, interconnected road networks, and comprehensive municipal hydrant systems. Urban response standards prioritize fast intervention for incidents where time is critical to life safety, such as structure fires, medical emergencies, and alarm activations in high-occupancy or high-rise buildings.

BFD should aim to deploy a full initial response to high-risk incidents within established target times, while also tracking performance at the 90th percentile to ensure consistent service delivery. Travel time expectations in these areas are within 4 -5 minutes from station to scene, with additional focus placed on maintaining effective response force (ERF) assembly, particularly in multi-unit incidents. Continued monitoring of turnout and travel times, as well as enhancements to dispatch and pre-fire planning systems, support a robust and efficient response model in urban environments.

Suggested Performance Response Standards, include:

- Alarm Processing time: 64 seconds (time the phone is answered until the tones are activated)- 90th percentile.
- Turnout Time: 80 seconds (time tones are set to the time truck radios on the air) - 90th percentile.
- Travel time: 240 seconds (time truck radios on air to the time initial truck arrives on scene) - 90th percentile.
- Total Response time (initial): 384 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.

## 4.2 Industry Leading Practices and Standards

### 4.2.1 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 1886, "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 service effectiveness and firefighter safety. NFPA research is applied in establishing industry benchmarks for fire service 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 responses for responders and victims. The standard addressing fire service operational performance and service levels is NFPA 1710 *Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Career Fire Departments* (2020). This standard provides the framework for fire service emergency response performance analysis, which will be discussed further in this section. Additionally, NFPA 1201 *Standard for Providing Fire and Emergency Services to the Public* (2020) outlines several practices for establishing and managing an effective and efficient fire service, including governance, organizational structure, planning, and resource deployment.

#### **4.2.2 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 their 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 *Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Career Fire Departments* (2020). 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 AHJ.

### 4.3 Incident Types and Frequency Analysis

Fire and rescue services typically have access to large amounts of incidents 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 response data provided by the BFD was analyzed. The data includes all incidents from January 2021 to December 2025. 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, such as stakeholder reporting, and information needs vary depending on their level of interest in BFD activities.

**Note:** 2024 and 2025 data have not been verified by the OFM SIR program and are subject to change once verified. These years utilized raw BFD Data. 2021 -2023 have been verified using OFM SIR data.

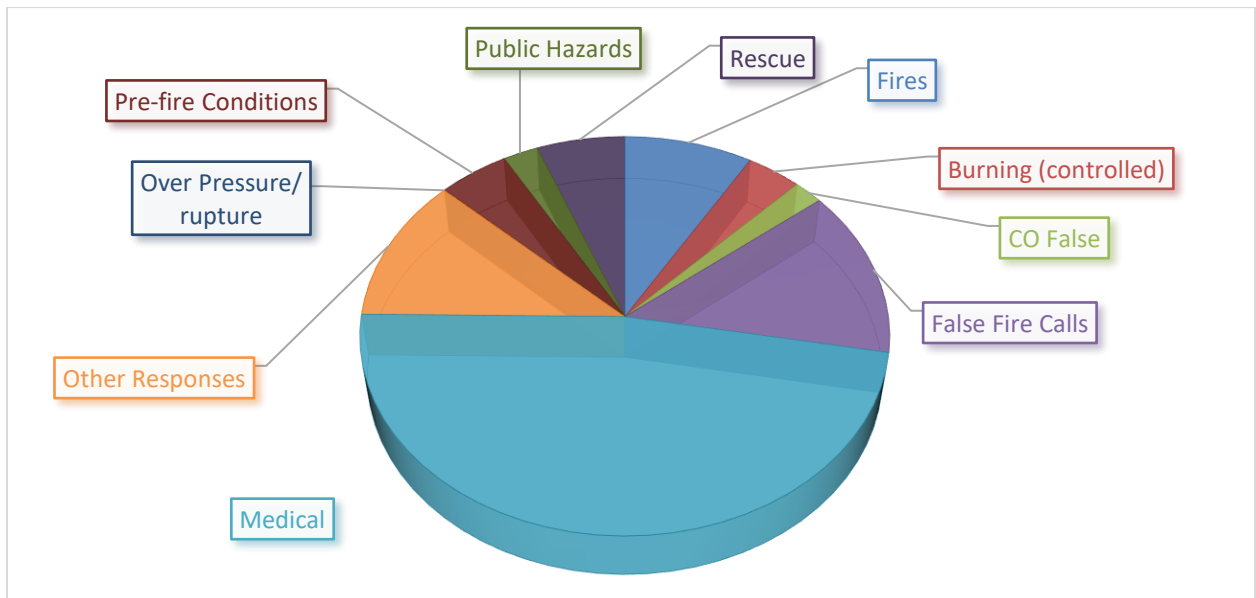
### 4.3.1 Incident Response Types

Table 32 identifies all 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 service responded to, along with the reported incident types and their respective frequencies. It excludes mutual aid responses which fall outside the Brantford municipal boundary.

Table 32: Incident Response Types (2021 to 2025)

| Incident Type          | 2021  | 2022  | 2023  | 2024  | 2025  | Total  | %      |
|------------------------|-------|-------|-------|-------|-------|--------|--------|
| Fires                  | 378   | 507   | 545   | 612   | 628   | 2,670  | 8.63%  |
| Burning (controlled)   | 252   | 245   | 223   | 213   | 216   | 1,149  | 3.70%  |
| CO False               | 170   | 103   | 125   | 122   | 95    | 615    | 1.98%  |
| False Fire Calls       | 757   | 746   | 793   | 787   | 1,129 | 4,212  | 13.57% |
| Medical                | 1,793 | 3,100 | 2,989 | 3,352 | 3,456 | 14,690 | 47.32% |
| Other Responses        | 585   | 700   | 723   | 817   | 820   | 3,645  | 11.74% |
| Over Pressure/ rupture | 3     | 3     | 1     | 4     | 2     | 13     | 0.04%  |
| Pre-fire Conditions    | 183   | 233   | 391   | 299   | 364   | 1,470  | 4.74%  |
| Public Hazards         | 124   | 152   | 163   | 135   | 156   | 730    | 2.35%  |
| Rescue                 | 260   | 358   | 409   | 362   | 450   | 1,839  | 5.92%  |
| Total                  | 4,505 | 6,147 | 6,362 | 6,703 | 7,316 | 31,033 | 100%   |

Figure 9: Percent of Incidents by Subcategory (2021 to 2025)



### 4.3.2 Unique Incidents by Sub-Category

Table 33 identifies all unique incidents occurring within the municipal boundary listed by sub-category. This analysis provides a specific overview of the types of emergencies that the fire service was dispatched to and their respective frequency.

Table 33: Incidents by sub-categories (2021-2025)

| Call Type                                        | 2021  | 2022  | 2023  | 2024  | 2025  | Total  | Total %       |
|--------------------------------------------------|-------|-------|-------|-------|-------|--------|---------------|
| A. Structure Fire                                | 90    | 76    | 104   | 118   | 137   | 525    | 1.69%         |
| B. Other Fire                                    | 37    | 44    | 28    | 60    | 142   | 311    | 1.00%         |
| C. Vehicle Fire                                  | 21    | 37    | 11    | 19    | 15    | 103    | 0.38%         |
| D. No Loss Fire                                  | 69    | 66    | 82    |       |       | 217    | 0.70%         |
| E. No Loss Fire (Excluded)                       | 161   | 284   | 320   | 416   | 341   | 1,522  | 4.90%         |
| F. Non-Fire Call                                 | 4,127 | 5,640 | 5,817 | 6,091 | 6,688 | 28,363 | 91.39%        |
| Total                                            | 4,505 | 6,147 | 6,362 | 6,703 | 7,316 | 31,033 |               |
| F. Non-Fire Call Breakdown                       |       |       |       |       |       |        | % of category |
| Burning Controlled                               | 252   | 245   | 223   | 213   | 216   | 1,149  |               |
| Authorized controlled burning complaint          | 40    | 19    | 25    | 17    | 13    | 114    | 9.92%         |
| Open Air Burning/unauthorized controlled burning | 212   | 226   | 198   | 196   | 203   | 1,035  | 90.08%        |
| CO False Fire Calls                              | 170   | 103   | 125   | 122   | 95    | 615    |               |
| CO false alarm - equipment malfunction           | 106   | 65    | 87    | 71    | 56    | 385    | 62.60%        |
| CO false alarm - perceived emergency             | 64    | 38    | 38    | 51    | 39    | 230    | 37.40%        |
| False Fire Calls                                 | 757   | 746   | 793   | 787   | 1129  | 4,212  |               |
| Alarm System Equipment Accidental Activation     | 146   | 139   | 152   | 154   | 239   | 830    | 19.71%        |
| Alarm System Equipment Malfunction               | 266   | 267   | 246   | 286   | 392   | 1,457  | 34.59%        |
| Human - Accidental                               | 74    | 74    | 108   | 104   | 173   | 533    | 12.65%        |
| Human - Malicious                                | 46    | 72    | 69    | 65    | 94    | 346    | 8.21%         |
| Human - Perceived Emergency                      | 206   | 164   | 184   | 145   | 197   | 896    | 21.27%        |
| Other False Fire Call                            | 19    | 30    | 34    | 33    | 34    | 150    | 3.56%         |

### 4.3.3 Unique Incidents – Medical/Resuscitator Calls

Table 34 identifies all medical/resuscitator incidents occurring within the municipal boundary listed by sub-category. This analysis provides a specific overview of the types of medical/resuscitator emergencies that the fire service was dispatched to and their respective frequency.

Table 34: Non-Fire Call Breakdown by Sub-Category - Medical (2021 to 2025)

| Call Type                                    | 2021  | 2022  | 2023  | 2024  | 2025  | Total  | Total % |
|----------------------------------------------|-------|-------|-------|-------|-------|--------|---------|
| Medical/Resuscitator Call                    | 1,793 | 3,100 | 2,989 | 3,352 | 3,456 | 14,690 |         |
| Accident or illness                          | 89    | 186   | 192   | 194   | 247   | 908    | 6.18%   |
| Alcohol or Drug Related                      | 404   | 369   | 303   | 426   | 335   | 1,837  | 12.51%  |
| Asphyxia, respiratory Condition              | 26    | 174   | 210   | 247   | 218   | 875    | 5.96%   |
| Burns                                        | 1     | 0     | 2     | 1     | 1     | 5      | 0.03%   |
| Chest Pains or Suspected Heart Attack        | 39    | 418   | 484   | 673   | 671   | 2,285  | 15.55%  |
| CPR administered                             | 39    | 28    | 29    | 20    | 40    | 156    | 1.06%   |
| Defibrillator Used                           | 35    | 68    | 66    | 54    | 50    | 273    | 1.86%   |
| Electric Shock                               | 0     | 1     | 0     | 0     | 0     | 1      | 0.01%   |
| Medical aid not required on arrival          | 432   | 768   | 707   | 744   | 846   | 3,497  | 23.81%  |
| Medical Resuscitator call false alarm        | 58    | 69    | 37    | 53    | 35    | 252    | 1.72%   |
| Medical Resuscitator call no action required | 99    | 162   | 126   | 123   | 101   | 611    | 4.16%   |
| Other Medical Resuscitator Call              | 94    | 190   | 187   | 210   | 255   | 936    | 6.37%   |
| Oxygen Administered                          | 24    | 95    | 76    | 60    | 52    | 307    | 2.09%   |
| Seizure                                      | 342   | 463   | 458   | 443   | 492   | 2,198  | 14.96%  |
| Traumatic Shock                              | 1     | 0     | 1     | 1     | 3     | 6      | 0.04%   |
| Vital Signs Absent, DOA                      | 110   | 109   | 111   | 103   | 110   | 543    | 3.70%   |

#### 4.3.4 Unique Incidents – Other Response/Overpressure & Rupture Calls

Table 35 identifies all other response incidents occurring within the municipal boundary listed by sub-category. This analysis provides a specific overview of the types of other emergencies and overpressure/rupture incidents that the fire service was dispatched to and their respective frequency.

Table 35: Non-Fire Call Breakdown by Sub-Category – Other Response/Overpressure (2021 to 2025)

| Call Type                                                | 2021 | 2022 | 2023 | 2024 | 2025 | Total | Total % |
|----------------------------------------------------------|------|------|------|------|------|-------|---------|
| Other Response                                           | 585  | 700  | 723  | 817  | 820  | 3,645 |         |
| Assistance not required by other agencies                | 53   | 20   | 17   | 27   | 24   | 141   | 3.87%   |
| Assist other agencies                                    | 15   | 15   | 15   | 13   | 8    | 66    | 1.81%   |
| Assistance to Police                                     | 33   | 47   | 34   | 36   | 45   | 195   | 5.35%   |
| Assisting other Fire Department (Automatic Aid)          | 0    | 0    | 0    | 0    | 0    | 0     | 0.00%   |
| Assisting other Fire Department (Mutual Aid)             | 0    | 2    | 0    | 0    | 0    | 2     | 0.05%   |
| Assisting other Fire Department (Other)                  | 0    | 0    | 0    | 0    | 0    | 0     | 0.00%   |
| Cancelled on Route                                       | 132  | 133  | 143  | 139  | 152  | 699   | 19.18%  |
| Illegal Grow Operation (no fire)                         | 0    | 0    | 1    | 0    | 0    | 1     | 0.03%   |
| Incident Not Found                                       | 79   | 138  | 172  | 194  | 255  | 838   | 22.99%  |
| Other Public Service                                     | 254  | 332  | 323  | 394  | 421  | 1,724 | 47.30%  |
| Other Response                                           | 19   | 13   | 18   | 14   | 40   | 104   | 2.85%   |
| Overpressure Rupture/explosion (no fire)                 | 3    | 3    | 1    | 4    | 6    | 17    |         |
| Overpressure Rupture (no fire- steam boilers, hot water) | 2    | 0    | 0    | 4    | 6    | 12    | 70.6%   |
| Overpressure-gas pipe (no fire)                          | 1    | 3    | 1    | 0    | 0    | 5     | 29.4%   |

### 4.3.5 Unique Incidents – Pre-Fire Conditions/Public Hazard Calls

Table 36 identifies all pre-fire conditions and public hazard incidents occurring within the municipal boundary listed by sub-category. This analysis provides a specific overview of the types of pre-fire conditions and public hazard emergencies that the fire service was dispatched to and their respective frequency.

Table 36: Non-Fire Call Breakdown by Sub-Category – Pre-Fire Condition/Public Hazard (2021 to 2025)

| Call Type                               | 2021 | 2022 | 2023 | 2024 | 2025 | Total | Total % |
|-----------------------------------------|------|------|------|------|------|-------|---------|
| Pre-Fire Conditions (no fire)           | 183  | 233  | 391  | 299  | 364  | 1,470 |         |
| Fireworks (no fire)                     | 20   | 31   | 76   | 64   | 20   | 211   | 14.35%  |
| Lightning (no fire)                     | 1    | 0    | 0    | 0    | 0    | 1     | 0.07%   |
| Other (cooking, toasting, smoke, steam) | 73   | 106  | 192  | 129  | 206  | 706   | 48.03%  |
| Other pre-fire conditions (no fire)     | 19   | 27   | 25   | 29   | 15   | 115   | 7.82%   |
| Overheat (no fire- mechanical devices)  | 29   | 35   | 29   | 36   | 75   | 204   | 13.88%  |
| Pot on Stove                            | 41   | 34   | 69   | 41   | 48   | 233   | 15.85%  |
| Public Hazard                           | 124  | 152  | 163  | 135  | 156  | 730   |         |
| CO incident, CO present                 | 29   | 25   | 36   | 15   | 33   | 138   | 18.90%  |
| Gas Leak - Miscellaneous                | 4    | 1    | 2    | 0    | 2    | 9     | 1.23%   |
| Gas Leak - Natural Gas                  | 19   | 31   | 28   | 34   | 37   | 149   | 20.41%  |
| Gas Leak - Propane                      | 1    | 3    | 0    | 3    | 2    | 9     | 1.23%   |
| Gas Leak - Refrigeration                | 1    | 1    | 2    | 3    | 0    | 7     | 0.96%   |
| Other Public Hazard                     | 18   | 18   | 17   | 9    | 15   | 77    | 10.55%  |
| Power Lines Down, Arcing                | 18   | 17   | 10   | 12   | 12   | 69    | 9.45%   |
| Public Hazard call false alarm          | 9    | 22   | 35   | 27   | 26   | 119   | 16.30%  |
| Public Hazard no action required        | 7    | 9    | 15   | 8    | 9    | 48    | 6.58%   |
| Ruptured Water, Steam Pipe              | 5    | 16   | 8    | 8    | 13   | 50    | 6.85%   |
| Spill- Gasoline or Fuel                 | 8    | 6    | 9    | 14   | 5    | 42    | 5.75%   |
| Spill - Miscellaneous                   | 2    | 1    | 1    | 1    | 2    | 7     | 0.96%   |
| Spill - Toxic Chemical                  | 1    | 1    | 0    | 1    | 0    | 3     | 0.41%   |
| Suspicious substance                    | 2    | 1    | 0    | 0    | 0    | 3     | 0.41%   |

### 4.3.6 Unique Incidents – Rescue Calls

Table 37 identifies all rescue incidents occurring within the municipal boundary listed by sub-category. This analysis provides a specific overview of the types of rescue emergencies that the fire service was dispatched to and their respective frequency.

Table 37: Non-Fire Call Breakdown by Sub-Category - Rescue (2021 to 2025)

| Call Type                      | 2021 | 2022 | 2023 | 2024 | 2025 | Total | Total % |
|--------------------------------|------|------|------|------|------|-------|---------|
| Rescue                         | 260  | 358  | 409  | 362  | 450  | 1,839 |         |
| Animal Rescue                  | 2    | 7    | 1    | 3    | 4    | 17    | 0.92%   |
| Building Collapse              | 0    | 0    | 0    | 0    | 0    | 0     | 0.00%   |
| Commercial Industrial Accident | 0    | 1    | 0    | 0    | 0    | 1     | 0.05%   |
| High Angle Rescue              | 1    | 0    | 0    | 0    | 2    | 3     | 0.16%   |
| Home/Residential Accident      | 1    | 3    | 4    | 1    | 4    | 13    | 0.71%   |
| Low Angle Rescue               | 0    | 0    | 0    | 1    | 2    | 3     | 0.16%   |
| Other Rescue                   | 9    | 5    | 9    | 4    | 14   | 41    | 2.23%   |
| Persons Trapped in Elevator    | 26   | 40   | 44   | 30   | 40   | 180   | 9.79%   |
| Rescue False Alarm             | 0    | 3    | 1    | 4    | 1    | 9     | 0.49%   |
| Rescue No Action Required      | 6    | 6    | 6    | 6    | 8    | 32    | 1.74%   |
| Vehicle Collision              | 197  | 278  | 317  | 288  | 355  | 1,435 | 78.03%  |
| Vehicle Extrication            | 11   | 12   | 17   | 18   | 12   | 70    | 3.81%   |
| Water Ice Rescue               | 1    | 2    | 1    | 0    | 5    | 9     | 0.49%   |
| Water Rescue                   | 6    | 1    | 9    | 7    | 3    | 26    | 1.41%   |

### 4.3.7 Incident Types Analysis

An analysis of five years of incident response data demonstrates that the BFD operates as a multi-service, all-hazards emergency response organization, with most incidents unrelated to active fire suppression. From January 2021 to December 2025, BFD responded to a total of 31,041 incidents within the municipal boundary, excluding all mutual aid responses outside of Brantford.

#### Overall Incident Distribution

Medical and resuscitator incidents represent the dominant demand on BFD resources, accounting for 14,690 responses (47.33%) of all incidents. Medical calls increased sharply between 2021 and 2022 and continued to rise through 2025, reaching their highest annual volume in the final year of the study period. This sustained growth reflects broader demographic, social, and health-related trends and reinforces the fire service's critical role within the community's emergency medical safety net.

False fire-related calls are the second-largest response category, totaling 4,212 incidents (13.57%), followed closely by Other Responses at 3,645 incidents (11.74%). Combined, these non-fire, non-medical responses account for approximately one-quarter of total call volume, representing a substantial operational commitment despite generally lower on-scene risk. These incidents nonetheless require full dispatch, response, and readiness, impacting overall system capacity.

Fire incidents, including structure fires, vehicle fires, and other fire events, totaled 2,678 incidents (8.63%) over the five-year period. While fire incidents comprise a relatively small proportion of total responses, they remain the highest risk events in terms of potential life loss, property damage, and firefighter safety, and are central to Effective Response Force and NFPA performance considerations.

#### Fire Incidents and Fire-Related Activity

Structure fires exhibit notable year-over-year variation, with a marked increase in 2025 following elevated activity in 2024. This trend warrants continued monitoring, particularly given the higher resource demands and consequence profile associated with working structure fires. No-loss and excluded fire incidents represent a significant share of reported fire-related activity, highlighting the importance of early detection, precautionary dispatching, and public reporting of potential fire conditions.

Controlled burning incidents accounted for 1,149 responses (3.70%), the majority of which involved unauthorized open-air burning. While these incidents are typically low consequence, they contribute to overall call volume and underscore ongoing opportunities for targeted enforcement and public education initiatives.

### **Medical and Resuscitator Incidents**

Medical incidents consistently represent the single greatest demand for BFD resources. The most frequent medical sub-categories include:

- Chest pains or suspected heart attacks: 2,285 incidents (15.55%)
- Seizures: 2,198 incidents (14.96%)
- Alcohol- or drug-related emergencies: 1,837 incidents (12.51%)
- Medical aid not required on arrival: 3,497 incidents (23.81%)

In addition, medical calls classified as “no action required” further contribute to the proportion of lower-acuity outcomes. The high frequency of these call types indicates that BFD is often dispatched as a precautionary or secondary medical responder. While typically lower risk, these responses still require full operational readiness and have measurable impacts on unit availability, staffing fatigue, and response reliability for higher-consequence incidents.

### **Rescue Incidents**

Rescue incidents accounted for 1,839 responses (5.93%) during the study period. Vehicle collisions dominate this category, comprising 1,435 incidents (78.03%) of all rescue calls. Vehicle extrications, while less frequent (70 incidents; 3.81%), represent high-risk, resource-intensive events requiring specialized training, equipment, and coordinated multi-agency response.

Elevator rescues represent a notable secondary demand, with 180 incidents (9.79%), reflecting Brantford’s building stock and increasing vertical development. Water and ice rescue incidents remain relatively infrequent; however, they require specialized capabilities and ongoing training to ensure responder safety when such incidents occur.

### **Pre-Fire Conditions and Public Hazards**

Pre-fire condition incidents totaled 1,470 responses (4.74%), with nearly half related to cooking, smoke, steam, or toasting incidents. “Pot on stove” events and overheating mechanical devices remain common contributors, reinforcing the importance of targeted prevention strategies, public education, and smoke alarm compliance initiatives.

Public hazard incidents accounted for 730 responses (2.35%), driven primarily by gas leaks, carbon monoxide incidents, downed power lines, and infrastructure-related failures. Although lower in frequency, these incidents present significant life-safety risks and often require rapid, technically informed response and coordination with utility partners.

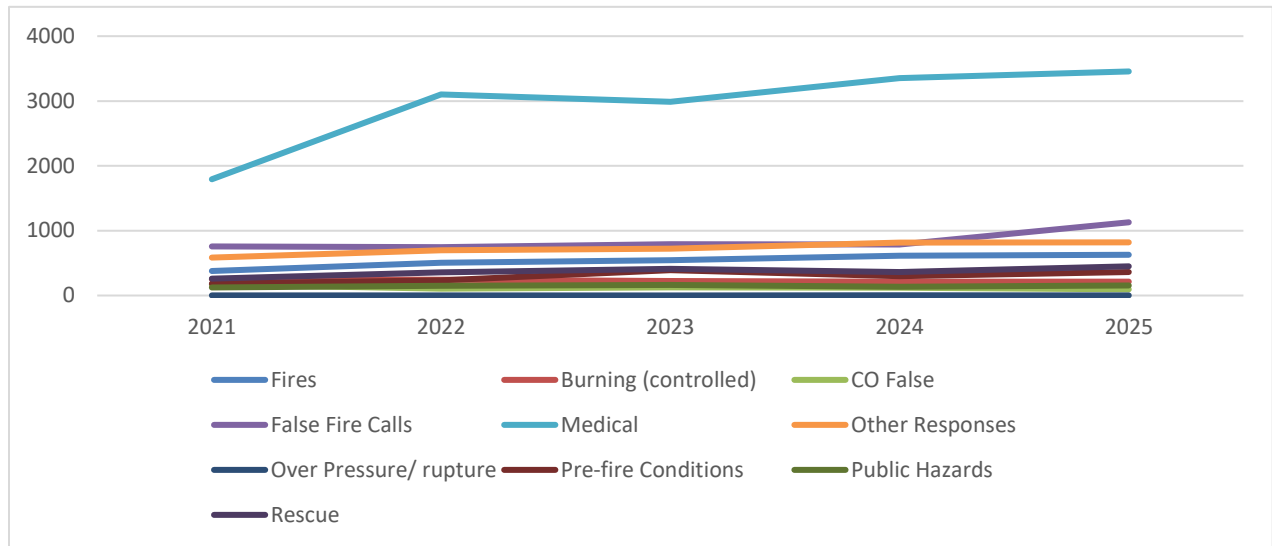
### **Other Responses and Operational Impacts**

“Other Response” incidents represent a substantial operational workload, with 3,645 responses recorded over the five-year period. Approximately 42% of these calls involve incidents not found or cancellations while en-route. While common in emergency response systems, these outcomes suggest potential opportunities for enhanced call screening, improved dispatch triage, and continued public education regarding appropriate use of emergency services.

### **Key Observations and Planning Implications**

- Non-fire incidents dominate overall demand, requiring staffing, training, and deployment models that extend well beyond traditional fire suppression.
- Medical response is the primary driver of workload, with continued upward trends that have direct implications for staffing levels, apparatus availability, and inter-agency coordination.
- False alarms and precautionary responses consume significant operational resources, affecting readiness for higher-consequence incidents.
- Fire incidents, while fewer in number, remain the highest-risk events, necessitating sustained investment in suppression capability, prevention programming, and firefighter health and safety.

Overall, the incident profile confirms that BFD functions as an all-hazards emergency response agency. These findings should directly inform future decisions related to staffing models, training priorities, response standards, prevention initiatives, and long-term resource and infrastructure planning.

*Figure 10: Unique Incidents by Incident Type (2021 to 2025)*

## 4.4 Incident Frequency Analysis

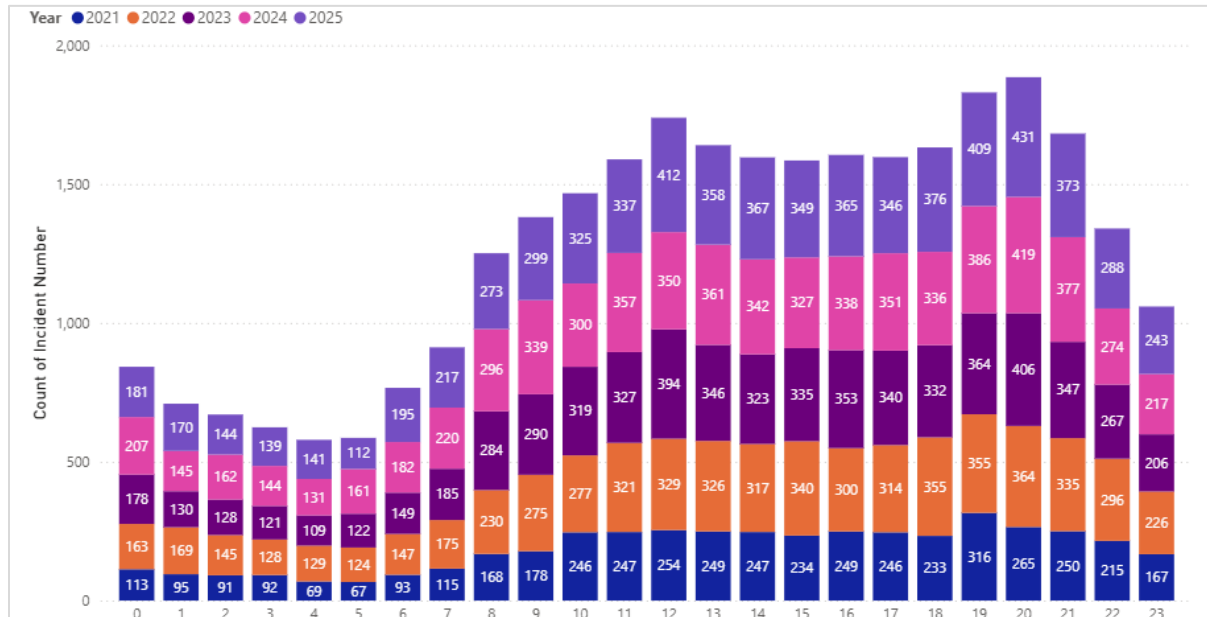
Analyzing the frequency of fire incidents by time of day and day of the week is essential for optimizing operational readiness and improving public safety outcomes. Understanding when incidents most commonly occur enables fire services to strategically allocate resources and staff to meet demand. For instance, identifying peak periods, such as evenings or weekends, allows services to adjust shift schedules, ensure adequate apparatus availability, and reduce response times. This analysis also supports data-driven decisions around pre-positioning resources in anticipation of high-call volumes, enhancing the service's ability to respond quickly and effectively.

Beyond operations, temporal analysis of fire incidents informs prevention and education strategies. Recognizing patterns, such as increased residential fires during early morning cooking hours or late-night fires linked to smoking or alcohol use, enables targeted outreach efforts tailored to specific times and behaviors. It also contributes to predictive risk modeling, helping identify periods of elevated danger and proactively reduce fire occurrence. Moreover, data on timing trends can be used to justify budget requests, inform policy changes, and guide long-term planning, making it a critical component of both reactive and preventative fire service strategies.

### 4.4.1 Incidents by Time of Day

The time incidents occur are 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 11 begins with 0 hours (12 a.m. – 1 a.m.) and ends at 23 hours (11 p.m. to 12 p.m.).

Figure 11: Incidents by Time of Day (2021 to 2025)



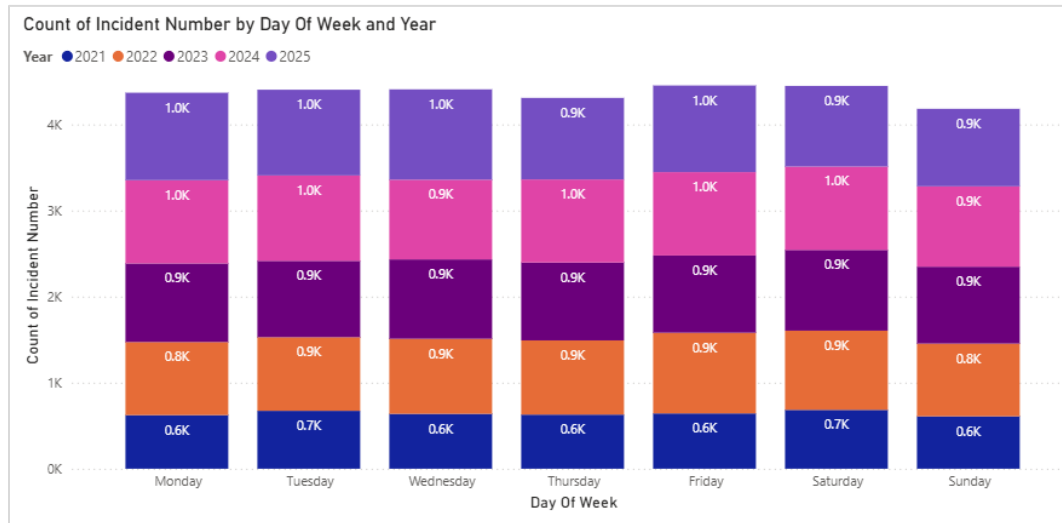
The following observations regarding the time incidents occurred were noted:

- Incident activity begins to rise steadily after 06:00, with a pronounced increase between 07:00 and 10:00, reflecting the start of daily commuting, commercial activity, and institutional operations across Brantford.
- Peak incident demand occurs during the mid-day and afternoon period, with the highest overall volumes consistently recorded between 11:00 and 18:00. The single busiest hour is 20:00, closely followed by late-afternoon and early evening hours, indicating sustained operational demand beyond standard business hours.
- Incident volumes remain elevated from approximately 12:00 through 21:00, demonstrating a prolonged plateau of high activity rather than a short peak period. This reflects Brantford's mixed residential, commercial, and evening activity patterns.
- The lowest call volumes occur overnight, particularly between 01:00 and 05:00, when community activity is minimal and incident demand is at its lowest.
- Overall, the distribution confirms that BFD experiences extended daytime and early evening demand, underscoring the importance of maintaining full operational readiness across multiple consecutive hours rather than focusing resources on a narrow peak window.

#### 4.4.2 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 BFD. Figure 12 presents the incident data from 2021 to 2025.

Figure 12: Incidents by Day of the Week (2021 to 2025)



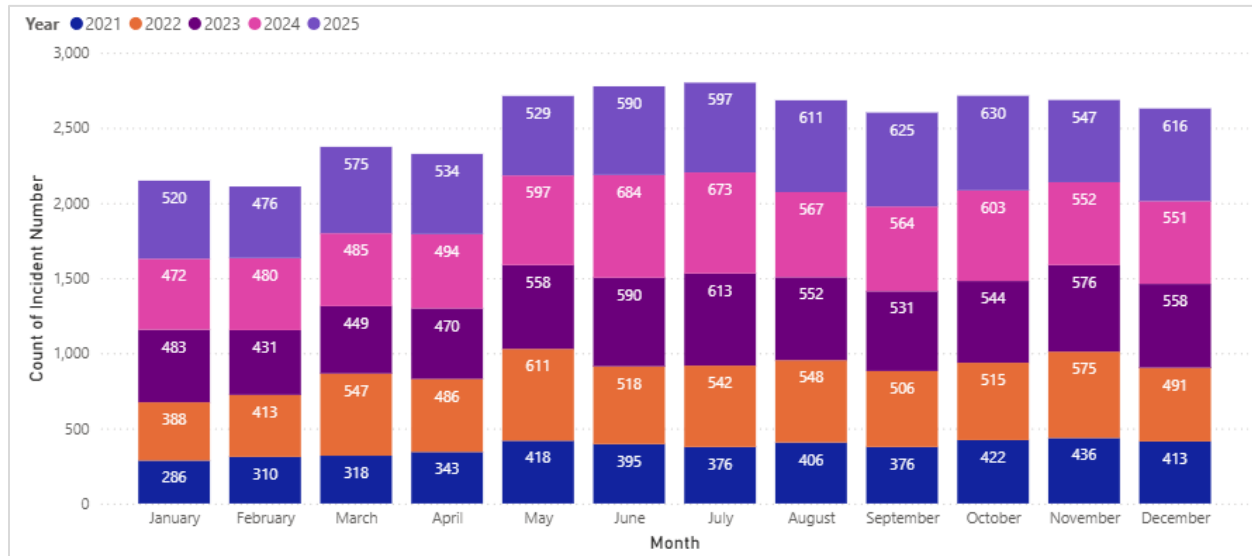
The following observations were noted in service demands for different days of the week:

- Incident volumes are relatively consistent across weekdays (Monday through Friday), with only modest day-to-day variation. This pattern indicates a stable and predictable level of operational demand throughout the workweek rather than sharp peaks tied to specific weekdays.
- Friday and Saturday show the highest overall incident volumes, with Friday marginally leading in several years. This trend suggests increased demand associated with end-of-week factors such as higher traffic volumes, commercial and industrial activity, social gatherings, and recreational activity extending into the weekend.
- Sunday consistently records the lowest incident volume across the five-year period, with particularly lower totals evident in earlier years. This reflects reduced commercial activity and commuting patterns, resulting in comparatively lower service demand for BFD.

### 4.4.3 Incidents by Month of the Year

Understanding which months see higher or lower incident volumes can help the BFD optimize resource allocation and preparedness. Figure 13 presents the incident data from 2021 to 2025.

Figure 13: Incidents by Month of the Year (2021 to 2025)



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

- Late spring through summer (May to August) represents the peak incident period, with the highest total call volumes consistently occurring in June, July, and August across the five-year period. Monthly totals routinely exceed 2,600 incidents, with July and August recording the highest sustained activity, reflecting increased population mobility, outdoor recreation, seasonal events, and elevated medical and public-assistance demand during warmer months.
- January through March show the lowest overall incident volumes, with February consistently recording the fewest incidents across most years. Reduced outdoor activity, fewer large-scale community events, and more stable daily routines during winter months contribute to lower incident generation, despite weather-related calls.
- Incident activity remains elevated into the fall, with September through November maintaining volumes comparable to peak spring months. October demonstrates strong and consistent call demand, influenced by:
  - Transitional weather conditions.
  - Increased traffic and commuting activity.
  - Heating system activations and related alarms.

- December activity remains moderate to high, surpassing early year winter levels in most years. This reflects the combined effects of holiday-related incidents, increased residential occupancy, seasonal cooking activity, and winter weather conditions.
- Overall, the chart demonstrates a clear seasonal pattern for BFD, with operational demand building steadily from late winter, peaking in summer, and remaining elevated through the fall before declining modestly at year-end.

## 4.5 Response Performance

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The following sections provide an analysis of the response performance of BFD. The response performance goals applied in the analysis are identified in the NFPA 1710 *Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Career Fire Departments* (2020). Five years of consistent response data provided by BFD were analyzed, covering all incidents from January 2021 to December 2025. 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, such as stakeholder reporting, and information needs vary depending on their level of interest in BFD activities.

### 4.5.1 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 AHJ regularly. The causes of significant changes in response time performance should be identified and discussed with the AHJ.

Incident management time variable and depends on the type of incident and the resources required to manage it safely. Fire service 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 service 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. It is important to note that in rural response zones, travel times are inherently longer due to distance and limited road networks, while the overall call volume is typically lower than in urban and suburban areas. This creates a different service delivery dynamic, where longer travel times must be factored into planning, and response strategies may require adaptation to ensure that life safety and property conservation objectives are achieved.

Figure 14 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. It should be noted that the continuum will see increased travel times for Rural areas of the municipality.

*Figure 14: Incident Intervention Continuum (Urban Area)*

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

**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 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 call is answered by fire services (If not the PSAP) and ends with the arrival of the first responding apparatus at the scene.

**Total Response Time (NFPA 1710 Definition):** The total elapsed time from when the emergency call is received by the PSAP until the arrival of the first responding apparatus at the scene.

**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.

#### 4.5.2 Performance Standards

Industry best practices for urban and suburban fire services have established performance benchmarks for emergency responses that include alarm answering, dispatch processing, crew assembly (or chute time), and travel time. These benchmarks serve as a foundation for developing service level objectives and performance measurements for career-staffed fire services. In addition to time-based targets, best practices also outline the number of personnel and apparatus required to safely and effectively manage various types of fire, rescue, and medical emergencies.

While industry benchmarks do not prescribe exact standards for total response times of the first arriving apparatus or the full alarm assignment, a commonly accepted interpretation aggregates target performance times for alarm handling, assembly, and travel. This results in an inferred goal of 6 minutes and 39 seconds for the arrival of the first fire suppression unit capable of initiating intervention, and 10 minutes and 39 seconds for the arrival of the full complement of resources needed to safely manage a working structure fire or equivalent emergency, both 90% of the time.

*Table 38: Industry Performance Standards*

| Time Segment                               | Industry Benchmarks (90 <sup>th</sup> Percentile) |
|--------------------------------------------|---------------------------------------------------|
| Alarm processing                           | 64 seconds                                        |
| Assembly                                   | 80 seconds                                        |
| Travel (first arriving)                    | 240 seconds (4 minutes)                           |
| Travel (full alarm)                        | 480 seconds (8 minutes)                           |
| First arriving engine with 4 firefighters  | 384 seconds (6 minutes, 39 seconds) *             |
| Full alarm assignment with 16 firefighters | 624 sec/90 <sup>th</sup> Percentile*              |

*\*These benchmarks are derived from the sum of the time segments and are widely used as inferred industry targets.*

These timeframes aim to minimize intervention time, which is defined as the elapsed time from when the fire service is notified of an emergency to when effective emergency operations begin at the scene. This is a critical metric in determining the success of a fire service's response capacity. Delays in intervention time may have significant consequences, including:

- Reduced survivability for individuals trapped in fire or medical emergencies.
- Increased property loss or structural damage.
- Higher insurance premiums for property owners.
- Stricter limitations on building design and fire protection requirements.
- Negative impacts on local economic development and business continuity.

In evaluating fire service performance, it is important to assess two core elements: initial response time (first unit on scene capable of initiating intervention) and effective response force (ERF) assembly time, which reflects the service's total capacity to manage larger or escalating incidents. These two metrics serve as key indicators of a service's operational readiness and overall system resilience. The following section analyzes the service's current ability to meet these benchmarks.

## 4.6 Emergency Response Performance Analysis

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The time segments identified in Section 4.6 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 BFD focuses on emergency responses from 2021 to 2025. 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 improvement strategies
- Developing or modifying service level standards
- Planning for future resource needs (operational and capital)

Historically, fire services 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 service.

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). Northern 911 is PSAP. Fire service-related calls are then transferred to the BFD dispatch centre. All requests for service provided by BFD are dispatched by the communications team within the BFD dispatch centre. 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 BFD dispatch center.

### 4.6.1 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 service is dispatched.

Industry standards state 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 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, gathering enough information to dispatch the appropriate resources, 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. Standards allow for additional time and set a 90-second target for these situations. No data was available to identify these scenarios as part of the analysis.

Table 39 provides a summary of alarm processing times, including analysis at the 90th percentiles and compliance percentage to industry standards for both Fires/Explosions and All Incidents.

Table 39: Alarm Processing Times (90th percentile)

| Alarm Processing                                                  | 2021 | 2022 | 2023 | 2024 | 2025 | 5-Year |
|-------------------------------------------------------------------|------|------|------|------|------|--------|
| False Incidents                                                   | 92   | 91   | 80   | 75   | 83   | 84     |
| Fire / Explosion                                                  | 123  | 106  | 93   | 93   | 87   | 100    |
| Other Responses                                                   | 107  | 107  | 86   | 85   | 81   | 93     |
| Hazardous Materials Responses                                     | 123  | 94   | 74   | 94   | 86   | 95     |
| Medical                                                           | 62   | 59   | 54   | 48   | 48   | 52     |
| Rescue                                                            | 111  | 79   | 78   | 72   | 73   | 79     |
| All Incidents (90 <sup>th</sup> percentile)                       | 95   | 83   | 73   | 67   | 69   | 75     |
| NFPA 64 sec 90 <sup>th</sup> compliance for fire /explosion calls | 55%  | 67%  | 71%  | 74%  | 76%  | 70%    |
| NFPA 64 sec 90 <sup>th</sup> compliance for all incidents         | 78%  | 82%  | 86%  | 89%  | 88%  | 86%    |

The following observations regarding alarm processing performance were noted:

- All incident types demonstrate a consistent reduction in 90th percentile alarm processing times over the five-year period, indicating sustained improvements in call handling efficiency and dispatch operations.
- All incidents (90th percentile) decreased from 95 seconds in 2021 to 69 seconds in 2025, representing an approximate 27% improvement over the study period.
- Fire/Explosion incidents improved from 123 seconds in 2021 to 87 seconds in 2025, a reduction of approximately 29%, although this category continues to experience the longest processing times due to increased call complexity.
- False incidents showed a moderate but steady improvement, decreasing from 92 seconds to 83 seconds over five years, reflecting more efficient call screening and classification.
- Rescue incidents experienced a significant improvement, declining from 111 seconds in 2021 to 73 seconds in 2025, representing a 34% reduction, one of the more notable gains among higher-complexity response types.
- NFPA 1710 64-second compliance for Fire/Explosion incidents improved from 55% in 2021 to 76% in 2025, with a five-year average of 70%, reflecting meaningful progress toward benchmark performance.
- NFPA 1710 64-second compliance for all incidents increased from 78% in 2021 to 88% in 2025, peaking in 2024 at 89%, and yielding a strong five-year average compliance of 86%.

#### 4.6.2 Assembly Time

Assembly time is measured from the point of fire service 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 *Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Career Fire Departments (2020)* identifies a 90th percentile chute time standard of 80 seconds for full-time 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 40 identifies 90th percentile assembly times for incident types. This analysis is for the first unit enroute to the incident only.

*Table 40: Assembly Performance by Incident Type (in seconds) \**

| Incident Type                                  | 2021 | 2022 | 2023 | 2024 | 2025 | 5-Year |
|------------------------------------------------|------|------|------|------|------|--------|
| False Incidents                                | 91   | 86   | 79   | 87   | 90   | 86     |
| Fire / Explosion                               | 88   | 89   | 86   | 86   | 87   | 87     |
| Medical                                        | 82   | 77   | 68   | 69   | 71   | 73     |
| Other Responses                                | 93   | 87   | 83   | 87   | 91   | 89     |
| Hazardous Materials                            | 84   | 83   | 88   | 82   | 90   | 87     |
| Rescue                                         | 87   | 83   | 84   | 76   | 80   | 81     |
| All Incident Types                             | 87   | 82   | 76   | 78   | 80   | 81     |
| NFPA 80 seconds compliance (excluding medical) | 85%  | 88%  | 92%  | 87%  | 85%  | 86%    |
| NFPA 60 seconds compliance medicals            | 68%  | 72%  | 81%  | 81%  | 81%  | 78%    |

\* Medical call turnout is measured at 60 seconds

Table 41 and Table 42 display assembly performance by station and can help identify where there may be workflow differences between stations, given that they operate in different physical environments. This analysis is for the first unit en-route to the incident only.

*Table 41: Assembly Performance by Station Excluding Medical - 80 Secs. Target (In Seconds)*

| Station      | 2021 | 2022 | 2023 | 2024 | 2025 | 5-Year |
|--------------|------|------|------|------|------|--------|
| Station 1    | 88   | 81   | 75   | 77   | 77   | 79     |
| Station 2    | 83   | 82   | 75   | 86   | 84   | 82     |
| Station 3    | 81   | 80   | 78   | 74   | 80   | 79     |
| Station 4    | 96   | 87   | 79   | 77   | 90   | 86     |
| All Stations | 87   | 82   | 76   | 78   | 80   | 81     |

*Table 42: Assembly Performance by Station Medical Only 60 Seconds Target (In Seconds) \**

| Station      | 2021 | 2022 | 2023 | 2024 | 2025 | 5-Year |
|--------------|------|------|------|------|------|--------|
| Station 1    | 84   | 74   | 68   | 69   | 68   | 72     |
| Station 2    | 78   | 80   | 66   | 79   | 73   | 75     |
| Station 3    | 74   | 76   | 70   | 66   | 68   | 71     |
| Station 4    | 82   | 85   | 72   | 68   | 80   | 78     |
| All Stations | 82   | 77   | 68   | 69   | 71   | 73     |

Table 43 presents the assembly times in seconds for each station and platoon from 2021 to 2025, categorized into All Incidents (excluding medical) (with an 80-second target) and Medical Incidents (with a 60-second target). Table 44 illustrates the 5-year, 90<sup>th</sup> percentile assembly times for these categories.

*Table 43: Assembly Time by Platoons (excluding Medical) - Incidents (excluding medical)*

| Stations         | 2021 | 2022 | 2023 | 2024 | 2025 | 5-Year |
|------------------|------|------|------|------|------|--------|
| <b>Station 1</b> |      |      |      |      |      |        |
| A                | 89   | 81   | 75   | 80   | 78   | 82     |
| B                | 83   | 82   | 72   | 77   | 75   | 78     |
| C                | 89   | 80   | 81   | 76   | 79   | 80     |
| D                | 89   | 79   | 73   | 74   | 74   | 78     |
| <b>Station 2</b> |      |      |      |      |      |        |
| A                | 86   | 86   | 78   | 82   | 91   | 86     |
| B                | 77   | 80   | 68   | 76   | 80   | 77     |
| C                | 89   | 82   | 79   | 78   | 84   | 82     |
| D                | 78   | 81   | 78   | 98   | 74   | 83     |
| <b>Station 3</b> |      |      |      |      |      |        |
| A                | 86   | 85   | 80   | 80   | 82   | 82     |
| B                | 79   | 74   | 75   | 69   | 80   | 76     |
| C                | 82   | 77   | 77   | 64   | 76   | 77     |
| D                | 74   | 82   | 78   | 79   | 75   | 80     |
| <b>Station 4</b> |      |      |      |      |      |        |
| A                | 102  | 86   | 77   | 78   | 89   | 89     |
| B                | 90   | 82   | 83   | 82   | 90   | 85     |
| C                | 95   | 90   | 85   | 73   | 84   | 85     |
| D                | 88   | 89   | 72   | 73   | 93   | 85     |

Table 44: Assembly Time by Platoons (Medical) - Medical Incidents Only

| Station   | 2021 | 2022 | 2023 | 2024 | 2025 | 5-year |
|-----------|------|------|------|------|------|--------|
| Station 1 |      |      |      |      |      |        |
| A         | 84   | 76   | 65   | 72   | 70   | 74     |
| B         | 82   | 73   | 66   | 65   | 66   | 69     |
| C         | 89   | 72   | 71   | 70   | 73   | 73     |
| D         | 84   | 75   | 68   | 65   | 64   | 71     |
| Station 2 |      |      |      |      |      |        |
| A         | 83   | 80   | 69   | 75   | 83   | 79     |
| B         | 67   | 75   | 64   | 68   | 64   | 69     |
| C         | 83   | 80   | 66   | 73   | 69   | 73     |
| D         | 71   | 79   | 69   | 88   | 73   | 79     |
| Station 3 |      |      |      |      |      |        |
| A         | 77   | 77   | 68   | 70   | 77   | 72     |
| B         | 75   | 71   | 68   | 61   | 74   | 69     |
| C         | 71   | 70   | 69   | 59   | 64   | 67     |
| D         | 70   | 81   | 75   | 67   | 60   | 74     |
| Station 4 |      |      |      |      |      |        |
| A         | 82   | 85   | 68   | 66   | 73   | 76     |
| B         | 86   | 76   | 75   | 70   | 86   | 77     |
| C         | 74   | 88   | 74   | 68   | 74   | 75     |
| D         | 80   | 87   | 67   | 68   | 90   | 81     |

The following key observations regarding assembly time were noted:

**Overall Assembly Time Trends (All Incidents):**

- The 90th percentile assembly time for all incident types improved over the five-year period, declining from 87 seconds in 2021 to 80 seconds in 2025, with a five-year average of 81 seconds.
- Performance reached its strongest levels in 2023 and 2024, demonstrating measurable progress toward the NFPA 1710 benchmark of 80 seconds for non-medical incidents.
- While some year-to-year fluctuation remains, the overall trend indicates sustained improvement rather than a systemic deficiency in assembly performance.

**Non-Medical Incidents (NFPA target: 80 seconds at the 90th percentile):**

- Compliance with the NFPA 80-second benchmark remained strong, ranging from 85% to 92% over the five-year period, with a five-year average compliance rate of 86%.
- Peak performance occurred in 2023, when 92% of non-medical incidents met the benchmark.
- Minor increases in assembly time observed in 2024 and 2025 suggest opportunities for continued reinforcement of station routines and situational awareness, rather than fundamental performance gaps.

**Medical Incidents (NFPA target: 60 seconds at the 90th percentile):**

- Medical incident assembly times showed notable improvement over time, decreasing from 82 seconds in 2021 to 71 seconds in 2025, with a five-year average of 73 seconds.
- Compliance with the 60-second medical benchmark increased substantially from 68% in 2021 to 81% from 2023 onward, resulting in a five-year average compliance rate of 78%.
- Although the benchmark is more challenging due to the rapid response expectation, results indicate improving consistency and operational focus.

**By Station – Non-Medical Incidents:**

- Stations 1 and 3 demonstrated the strongest five-year average performance at 79 seconds, effectively meeting the NFPA benchmark on average.
- Station 2 recorded a five-year average of 82 seconds, slightly above the benchmark, with variability driven by performance in 2024 and 2025.
- Station 4 exhibited the highest five-year average at 86 seconds, indicating a need for targeted review of station layout, crew movement patterns, or call processing workflows.
- Overall station-level differences suggest that physical station configuration and local operating conditions influence assembly time performance.

**By Station – Medical Incidents:**

- Stations 1 and 3 achieved the strongest medical assembly performance, each averaging approximately 71–72 seconds over five years.
- Station 4 again recorded the longest medical assembly times, with a five-year average of 78 seconds, reflecting consistent challenges relative to other stations.
- Performance variability across stations highlights opportunities for sharing best practices and standardizing medical call readiness procedures.

**By Platoon / Shift:**

- All platoons demonstrated gradual improvement in assembly times over the five-year period for both medical and non-medical incidents.
- Performance differences between platoons were generally modest, indicating a relatively consistent operational culture across shifts.
- Platoons at Station 4 showed the greatest variability, particularly for non-medical incidents, suggesting localized operational or facility-related influences rather than service-wide issues.
- Overall, no single platoon consistently underperformed across all years, reinforcing that assembly time challenges are situational rather than systemic.

**Summary Observation:**

BFD's assembly time performance generally aligns with NFPA 1710 *Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Career Fire Departments* (2020) expectations, particularly for non-medical incidents where compliance exceeds 85% over five years. Continued monitoring, focused attention on Station 4 performance, and reinforcement of best practices during peak fluctuation periods will support further optimization of turnout times and sustained compliance with industry standards. BFD's assembly time performance generally aligns with industry-recognized benchmarks and shows sustained improvement over the five-year period from 2021 to 2025. The 90th percentile assembly time for non-medical incidents improved from 87 seconds in 2021 to 80 seconds in 2025, resulting in a five-year average of 81 seconds.

Compliance with the NFPA 1710 *Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Career Fire Departments* (2020) benchmark of 80 seconds remained strong, averaging 86% over the period and peaking at 92% in 2023. Medical incident assembly times also improved, declining from 82 seconds to 71 seconds over the same period, with compliance to the 60-second benchmark increasing to 81% from 2023 onward.

**Observation #22:** Station-level analysis indicates that Stations 1 and 3 consistently perform at or near benchmark levels, while Station 4 exhibits longer average assembly times and greater variability for both medical and non-medical incidents. These differences suggest that local station configuration, crew movement patterns, or workflow conditions influence assembly performance rather than service-wide procedural or cultural issues. Overall, platoon-level results demonstrate relatively consistent performance across shifts, reinforcing that assembly time challenges are situational and appropriate for targeted, station-specific optimization rather than systemic change.

**Recommendation #22:** Continue regular monitoring of assembly time performance across all stations, platoons, and incident types, and apply targeted operational or facility-based improvements as needed to maintain consistent compliance with industry benchmarks and support continuous improvement.

**Suggested completion:** 12-24 months (ongoing)

**Cost:** \$20 k-\$50 k

**Strategic Objective #8:** Capital Assets

**Rationale:** Assembly time is a critical and cost-effective component of total response time that can be optimized without immediate investment in additional apparatus or stations. BFD's strong overall performance and high compliance with NFPA 1710 Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Career Fire Departments (2020) benchmarks indicate that existing procedures, training, and organizational culture are largely effective. Continued monitoring allows leadership to sustain these gains, identify emerging trends, and address localized performance variations before they become systemic.

Targeted attention to station-specific factors, such as crew movement patterns, station layout, and readiness routines, can yield incremental improvements and promote consistency across the station network. Ongoing performance reporting also supports continuous improvement, reinforces best practices, and ensures that assembly time remains aligned with operational expectations as call volume, staffing models, and facility conditions evolve. Maintaining this focus supports reliable response performance and reinforces BFD's commitment to operational excellence.

### 4.6.3 Travel Time Performance

Travel time is measured from the point where 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. Larger fire services 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. Industry standards identify a first-arriving travel time performance goal of 240 seconds, 90% of the time, for full-time 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. BFD's travel time performance mirrors industry standards. 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 45: Travel Time by Station (In Seconds)

| Station                                    | 2021 | 2022 | 2023 | 2024 | 2025 | 5-Year |
|--------------------------------------------|------|------|------|------|------|--------|
| Station 1 (90 <sup>th</sup> )              | 326  | 329  | 363  | 363  | 363  | 350    |
| Station 2 (90 <sup>th</sup> )              | 373  | 359  | 357  | 407  | 388  | 365    |
| Station 3 (90 <sup>th</sup> )              | 408  | 406  | 424  | 441  | 418  | 418    |
| Station 4 (90 <sup>th</sup> )              | 394  | 359  | 405  | 419  | 435  | 400    |
| All Stations (90 <sup>th</sup> percentile) | 357  | 355  | 380  | 393  | 389  | 374    |

Table 46: Travel Performance by Incident Type Fire Service Wide (In Seconds)

| Incident Type                          | 2021 | 2022 | 2023 | 2024 | 2025 | 5-Year |
|----------------------------------------|------|------|------|------|------|--------|
| False Incidents                        | 342  | 348  | 357  | 376  | 350  | 344    |
| Fire / Explosion                       | 391  | 397  | 437  | 452  | 422  | 421    |
| Medical                                | 296  | 310  | 331  | 325  | 339  | 323    |
| Other Responses                        | 442  | 443  | 477  | 509  | 513  | 483    |
| Hazardous Materials                    | 384  | 430  | 447  | 455  | 534  | 455    |
| Rescue                                 | 326  | 346  | 358  | 347  | 352  | 342    |
| All Incident Types                     | 357  | 355  | 380  | 393  | 389  | 374    |
| Percentage met NFPA 1710 - 240 seconds | 70%  | 69%  | 66%  | 60%  | 63%  | 65%    |

Over the five-year analysis period (2021–2025), BFD achieved the NFPA 1710 *Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Career Fire Departments* (2020) best practice travel time benchmark of 240 seconds (4 minutes) approximately 65% of the time for first-arriving apparatus. While this indicates that most responses meet or approach industry expectations, overall travel time performance remains above the recommended benchmark when assessed at the 90th percentile.

Fire Service-wide travel time performance at the 90th percentile averaged 374 seconds (6 minutes, 14 seconds) over five years. Annual results show a gradual increase in travel times beginning in 2023, peaking in 2024, with a slight stabilization in 2025. This trend warrants continued monitoring, as increasing travel times may signal emerging operational pressures related to call volume growth, land-use changes, traffic congestion, increased use of traffic-calming measures, or increased reliance on cross-station responses due to unit unavailability.

Travel time performance varies by station and incident type. Stations with larger or more geographically dispersed response areas, particularly Stations 3 and 4, consistently exhibit longer 90th percentile travel times, reflecting the spatial characteristics of their service areas rather than deficiencies in operational performance. Similarly, incident types such as Other Responses and Hazardous Materials incidents demonstrate the longest travel times, which is expected given their lower frequency, specialized nature, and broader geographic distribution.

Medical incidents continue to achieve the most favorable travel time outcomes, with a five-year 90th percentile average of 323 seconds, reflecting priority dispatching and optimized deployment practices for high demand call types. Fire and explosion responses average 421 seconds at the 90th percentile, exceeding the benchmark but remaining consistent with peer urban fire services operating within mixed-density communities.

The percentage of incidents meeting the 240-second benchmark declined from 70% in 2021 to a low of 60% in 2024, before improving slightly to 63% in 2025. This modest recovery suggests that recent operational or deployment adjustments may be stabilizing performance; however, the overall downward trend reinforces the need for proactive planning.

Several factors may contribute to extended travel times, including:

- Increased incident demand and concurrent call load, resulting in first-due apparatus being unavailable.
- Growth occurs at the periphery of existing station service areas.
- Traffic congestion and evolving transportation patterns.
- The geographic size and road network characteristics of certain response districts.

These findings underscore the importance of ongoing monitoring of travel time performance as a key service-level indicator. As Brantford continues to evolve, travel time data should inform future decisions related to station placement, apparatus deployment, staffing models, and road network planning to ensure that emergency response capabilities keep pace with community needs.

Travel time performance should be interpreted in conjunction with alarm processing and assembly time metrics, as overall response effectiveness is dependent on the combined performance of all response components rather than travel time alone.

#### 4.6.4 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 industry best practice implies a response time performance goal of 384 seconds (excluding alarm answering time) for the first arriving fire apparatus in urban areas (see Section 4.5.2).

Table 47 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 industry best practice was measured.

Table 47: 90th Percentile Response Performance (in seconds)

| Incident Type                               | 2021 | 2022 | 2022 | 2024 | 2025 | 5-Year | %   |
|---------------------------------------------|------|------|------|------|------|--------|-----|
| False Incidents                             | 466  | 470  | 462  | 488  | 463  | 459    | 79% |
| Fire / Explosion                            | 540  | 525  | 550  | 551  | 538  | 536    | 65% |
| Medical                                     | 397  | 404  | 416  | 408  | 420  | 409    | 82% |
| Other Responses                             | 575  | 566  | 592  | 623  | 622  | 604    | 57% |
| Hazardous Materials                         | 524  | 614  | 567  | 543  | 641  | 580    | 63% |
| Rescue                                      | 459  | 471  | 489  | 463  | 477  | 461    | 80% |
| All Incidents (90 <sup>th</sup> percentile) | 484  | 470  | 484  | 496  | 494  | 483    | 75% |
| 384 second compliance                       | 74%  | 77%  | 74%  | 73%  | 73%  | 75%    |     |

Table 48: 90th Percentile Total Response Performance by Station (NFPA 384 sec.) – Excluding Medicals, provides overall response time performance for all stations.

Table 48: 90<sup>th</sup> Percentile Total Response Performance by Station (NFPA 384 sec.) – Excluding Medicals

| Station      | 2021 | 2022 | 2023 | 2024 | 2025 | 5-Year | %   |
|--------------|------|------|------|------|------|--------|-----|
| Station 1    | 449  | 438  | 463  | 461  | 457  | 452    | 79% |
| Station 2    | 490  | 478  | 459  | 507  | 494  | 477    | 76% |
| Station 3    | 532  | 515  | 532  | 551  | 519  | 528    | 66% |
| Station 4    | 528  | 484  | 516  | 526  | 549  | 517    | 67% |
| All Stations | 484  | 470  | 484  | 496  | 492  | 482    | 75% |

Table 49: 90<sup>th</sup> Percentile Total Response Performance by Station (NFPA 364 sec.) – Medical Only

| Station      | 2021 | 2022 | 2023 | 2024 | 2025 | 5-Year | %   |
|--------------|------|------|------|------|------|--------|-----|
| Station 1    | 371  | 380  | 397  | 384  | 394  | 386    | 86% |
| Station 2    | 406  | 421  | 396  | 432  | 428  | 417    | 83% |
| Station 3    | 437  | 474  | 464  | 440  | 464  | 455    | 73% |
| Station 4    | 439  | 420  | 434  | 425  | 441  | 428    | 76% |
| All Stations | 397  | 404  | 416  | 408  | 420  | 409    | 82% |

Based on the total response time analysis for BFD, the following observations are noted:

- The overall 90th percentile total response time for all incidents over the five-year period (2021–2025) was 483 seconds (8 minutes, 3 seconds). BFD achieved the implied industry best practice benchmark of 384 seconds approximately 75% of the time, indicating a generally strong level of performance for an urban fire service.
- Total response time performance has remained relatively stable over the five-year period, fluctuating within a narrow range from 470 seconds to 496 seconds. This consistency suggests that, while incremental improvements have occurred in some years, structural and geographic factors continue to influence response outcomes.
- Medical incidents demonstrated the shortest total response times, with a five-year 90th percentile average of 409 seconds. Medical responses met the NFPA 364-second benchmark 82% of the time, reflecting prioritization, streamlined dispatch protocols, and focused operational practices for medical calls.

- False incidents and rescue responses also performed relatively well, with five-year 90th percentile response times of 459 seconds and 461 seconds, respectively, and compliance rates near or above 80%.
- Fire/Explosion incidents exhibited longer total response times, with a five-year 90th percentile average of 536 seconds and a compliance rate of 65%. This reflects the increased complexity, risk assessment requirements, and operational demands associated with fire-related emergencies.
- Other Responses and Hazardous Materials incidents recorded the longest response times, with five-year averages of 604 seconds and 580 seconds, respectively. These incident types consistently demonstrated lower compliance with the 384-second benchmark, highlighting the operational challenges associated with specialized responses.

Station-level analysis (excluding medical incidents) shows that Stations 1 and 2 performed strongest overall, achieving compliance rates of 79% and 76%, respectively. Stations 3 and 4 exhibited longer response times, with five-year averages exceeding 500 seconds and compliance rates below 70%, suggesting geographic coverage limitations and travel distance impacts.

As part of a comprehensive assessment of total response time, BFD should continue to examine each contributing component, alarm processing, assembly time, and travel time. Alarm processing and assembly times are currently measured at a fire service-wide level rather than by station, which may mask localized operational inefficiencies related to station layout, crew movement patterns, or staffing configurations.

Travel time remains the most significant contributor to extended total response times, particularly in outlying areas and during periods of high call concurrency. Factors such as distance from stations, roadway configuration, traffic congestion, and the need for cross-station coverage during simultaneous incidents all influence these outcomes. Continued monitoring of spatial demand patterns and station service areas will be critical in identifying where future resource deployment or infrastructure investments may be required to maintain service level objectives.

**Observation #23:** Analysis of travel time and total response time data indicates that community growth and transportation network characteristics are increasingly influencing emergency response performance. Development at the urban periphery has expanded travel distances from existing fire stations, particularly within response areas served by Stations 3 and 4. In several locations, response routes are constrained by limited access points, indirect road patterns, or reliance on a small number of arterial corridors. Additionally, increasing traffic congestion during peak periods has contributed to longer and more variable travel times, as reflected in the upward trend in 90th percentile travel times since 2023.

**Recommendation #23:** Ongoing collaboration with municipal planning and transportation departments is recommended to ensure emergency response needs are integrated into road design, traffic management, and development approvals.

**Suggested completion:** 12-24 months/ ongoing

**Cost:** Neutral

**Strategic Objective #5:** Emergency Response and Operations

***Rationale:** Aligning emergency response planning with municipal growth management and transportation planning provides an opportunity to proactively address factors that extend travel times but fall outside direct fire service control. Early and ongoing collaboration with planning and transportation departments allows emergency access, road connectivity, signal prioritization, and development design to be considered during the planning and approval stages. Integrating these considerations supports more efficient response routes, reduces the long-term impact of congestion and peripheral growth, and helps ensure that emergency response capabilities remain aligned with the evolving built environment and community risk profile.*

## 4.7 Response Coverage Mapping

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

**$\text{Response Time Goal} - (90^{\text{th}} \text{ Percentile Alarm Processing Time} + 90^{\text{th}} \text{ Percentile Assembly Time}) = \text{Theoretical Travel Time}$**

For example:

384 seconds (6-minutes, 24 seconds) or 480 seconds (8-minute) - (90<sup>th</sup> percentile alarm processing time of 83 seconds + 90<sup>th</sup> 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 50 shows the calculated travel time for the 90<sup>th</sup> percentile from all stations.

The calculated theoretical travel time using this approach is a conservative calculation. Use of the 90<sup>th</sup> 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 50<sup>th</sup> 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 90<sup>th</sup> percentile times, the mapped area coverage is 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 must travel from a neighboring station to respond.

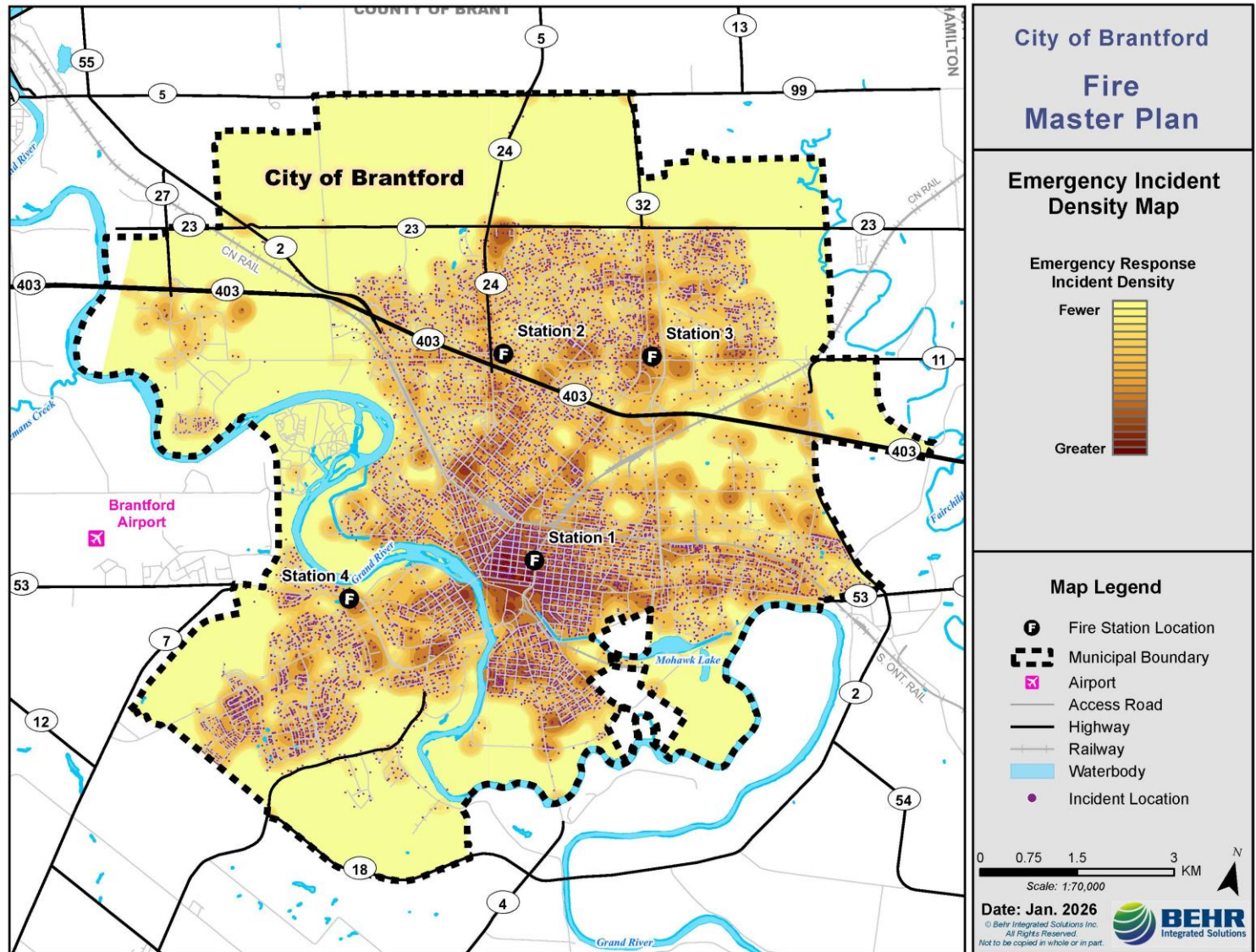
*Table 50: Theoretical Travel Time Calculation (in seconds)*

| Total Response time Goal (secs) | Theoretical Initial Response time goal (secs) | ERF Total Response time goal (secs) | Theoretical ERF Response Goal Travel Time |
|---------------------------------|-----------------------------------------------|-------------------------------------|-------------------------------------------|
| 384                             | 228                                           | 624                                 | 468                                       |
| 444                             | 288                                           | 684                                 | 528                                       |

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.

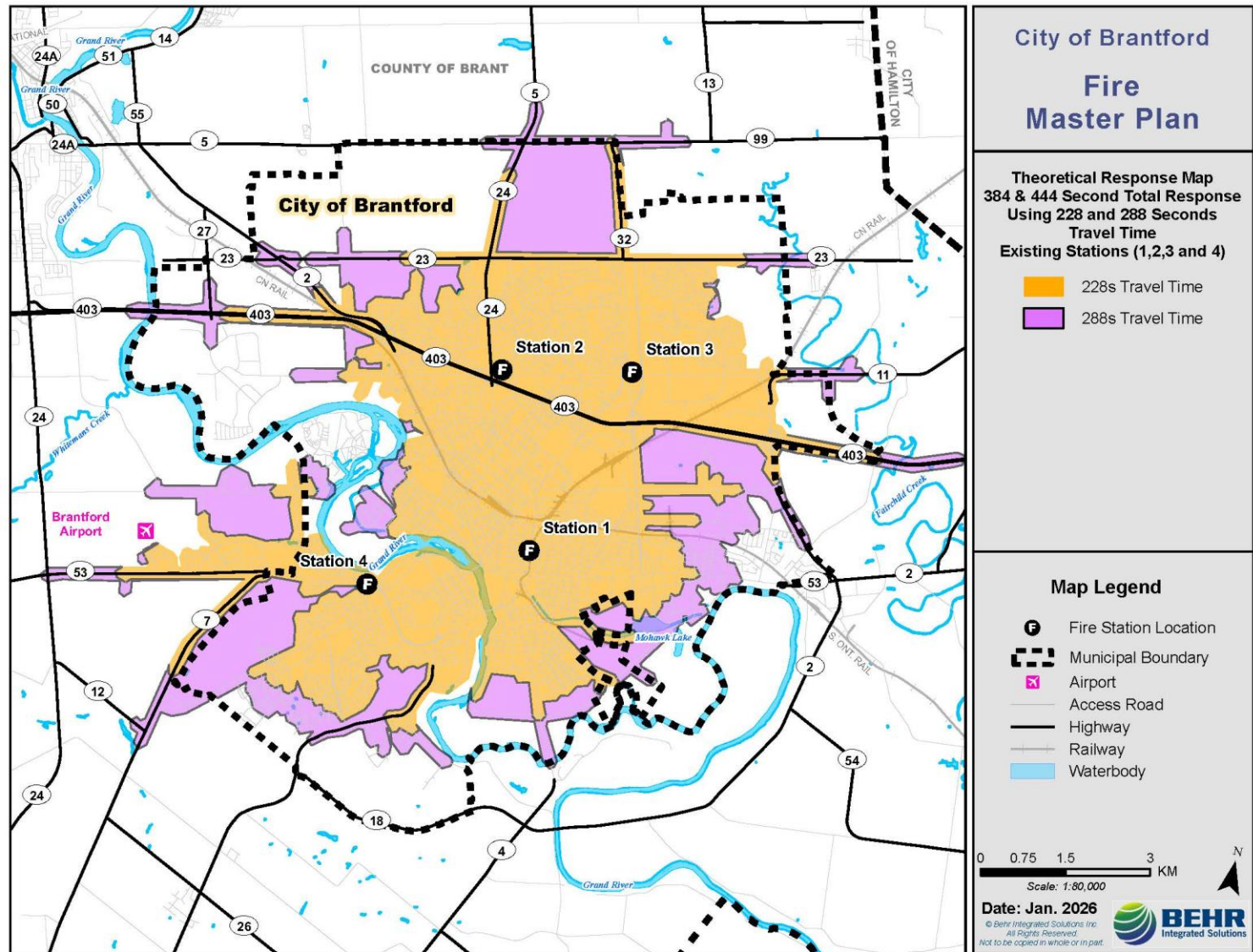
Map 3: Emergency Call Density Map

This map visualizes the density of historical incidents.



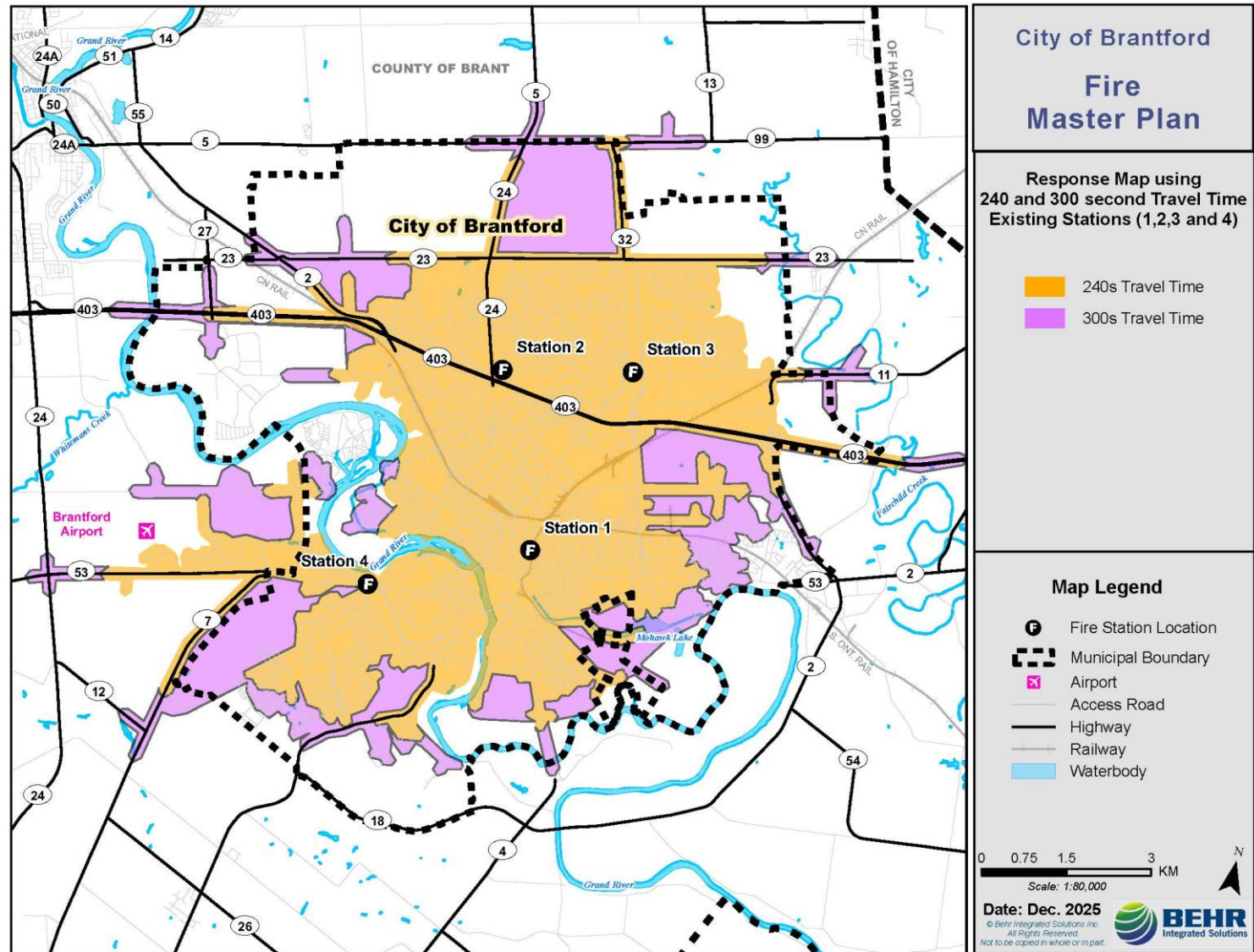
Map 4: Response Coverage Based Upon 228 Seconds and 288 Seconds Travel Time

This map shows coverage based on the industry best practice 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 to indicate a 5-minute travel time.



Map 5: 240 & 300 Second Travel Time

This map illustrates the principles of industry best practice recommend travel times at the 90<sup>th</sup> 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.



### Observations on response coverage based on 240 and 300 second travel time:

Analysis of the 240-second (4-minute) and 300-second (5-minute) travel-time coverage for BFD shows that initial-unit response performance is strongest within the central built-up area, where station spacing and road connectivity support rapid travel times. The 240-second coverage footprint forms a broad, continuous band extending across the traditional urban core and much of the established neighbourhoods surrounding Stations 1, 2, and 3. Station 4's influence increases 4-minute coverage in the southwest. t

The 300-second band significantly expands the area reached by an initial responding unit, capturing nearly all remaining built-up neighbourhoods beyond the 4-minute envelope. This includes northern growth corridors along Highway 24, eastern residential districts beyond Station 3's immediate grid, and additional southwest pockets influenced by Station 4. The remaining gaps are largely constrained to outlying rural zones, industrial fringe areas, and a pocket along the eastern border, locations where greater travel distances, discontinuous road networks, and physical barriers (rail lines, river crossings, and the Highway 403 corridor) extend travel times.

Estimated City Coverage (Existing Stations 1,2,3, & 4)

- ≤240 s (4 min): 65-70% of the city
- ≤300 s (5 min): 80-85% of the city

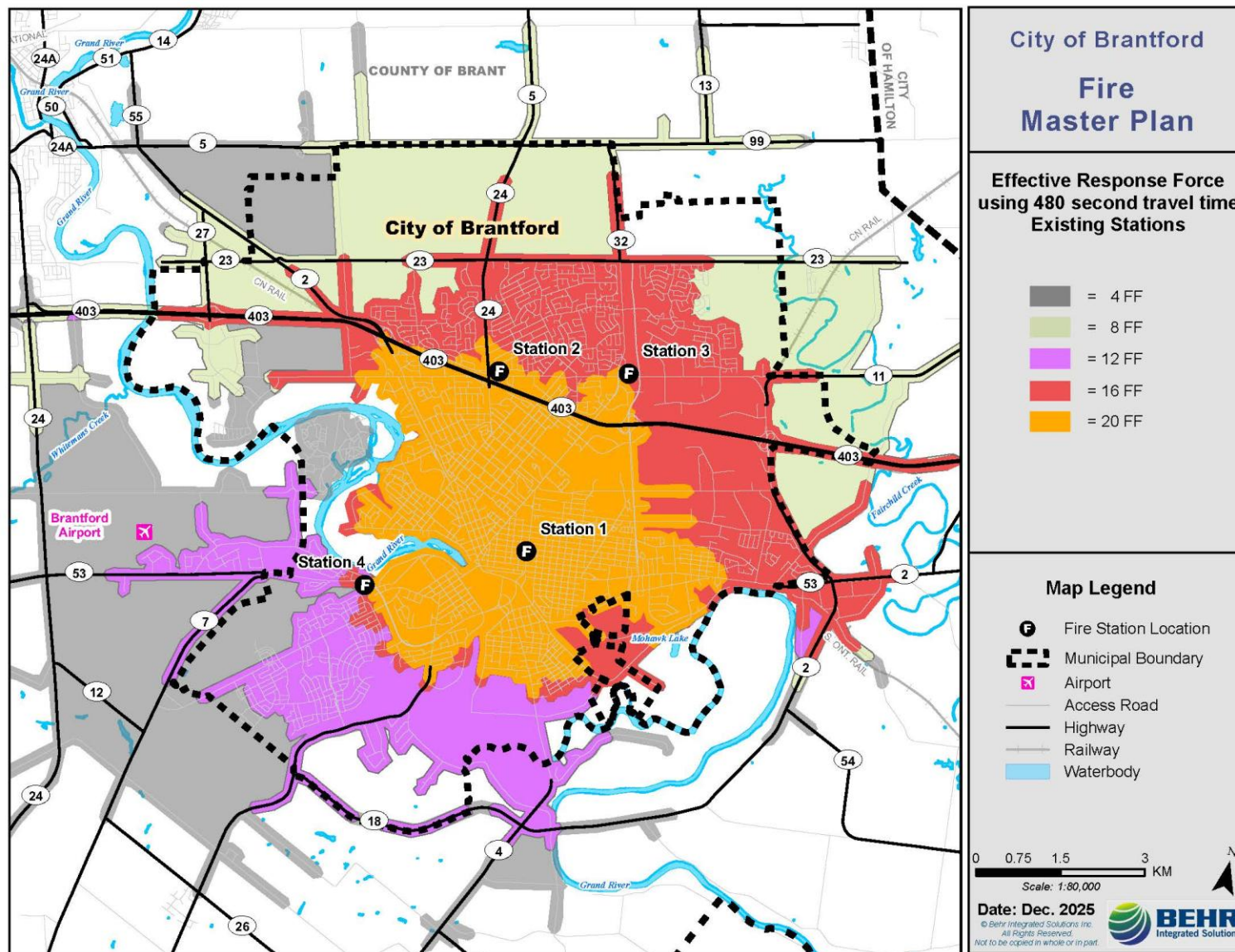
## **4.8 Effective Response Force**

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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, other industry's best practices suggest 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.

Map 6: 480 second ERF Response Coverage



Analysis of response performance using the updated ERF mapping for Brantford's existing stations shows that the system delivers strong first-alarm coverage across the central urban area but has limited depth toward the municipal periphery. The highest level of ERF performance, 20 firefighters within the targeted 480-second (8-minute) travel time, is extremely limited, representing only a small zone in the downtown core immediately surrounding Station 1, with narrow extensions toward Stations 2 and 3. This represents approximately 1–2% of the land area within the municipal boundary.

Surrounding this very small core, a broader urban band can assemble 16 firefighters within 480 seconds. This zone extends through much of the established neighbourhoods east and north of Station 1 and portions of the areas influenced by Stations 2 and 3, representing approximately 12–15% of the urban area. This provides a solid first-alarm capability in the central part of the city, where station spacing supports meaningful ERF overlap.

Beyond the central band, ERF depth drops quickly. Large portions of southwest Brantford, the neighbourhoods served by Station 4, and several fringe residential districts can assemble only 12 firefighters within 480 seconds. These areas, representing roughly 30–35% of the urban fabric, rely primarily on two-station overlap and have limited redundancy if units are committed elsewhere.

The remainder of the municipality, particularly the outer industrial corridors, the north boundary near Powerline Road, and the southern and western periphery, is limited to 8 firefighters (or in some pockets, fewer) within 8 minutes. These areas constitute approximately 60–65% of the total land area but include a mix of industrial, rural, and lower-density zones. In these locations, assembling a full ERF requires additional apparatus responding from more distant stations, extending total assembly times, and reducing operational predictability.

In practice, achieving a 16- to 20-firefighter ERF under the current deployment model typically requires the response of units from at least three, and often four, stations. This introduces additional travel-time variability and increases system stress during concurrent or high-demand periods. While improvements in call processing, turnout performance, and unit availability can modestly increase the proportion of incidents meeting the 8-minute ERF objective, fundamental limitations related to station spacing and available staffing remain inherent to the current configuration.

Higher-risk or complex incidents, such as large industrial fires, multi-residential structure fires, or emergencies involving vulnerable populations, regularly exceed the standard first-alarm ERF requirements. These events often necessitate additional suppression resources, which drive total assembly times beyond the 8-minute benchmark and further highlight the importance of clear critical-task assignments, escalation protocols, and deployment strategies that reflect the operational realities of Brantford’s four-station model.

## 4.9 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 completing 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 pumper 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 services 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 BFD response capacity or apparatus.

*Table 51: 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 52: 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 53: 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 54: 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 55: 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 |

## 4.10 Optimizing Station location and Apparatus placement

### 4.10.1 Station Location

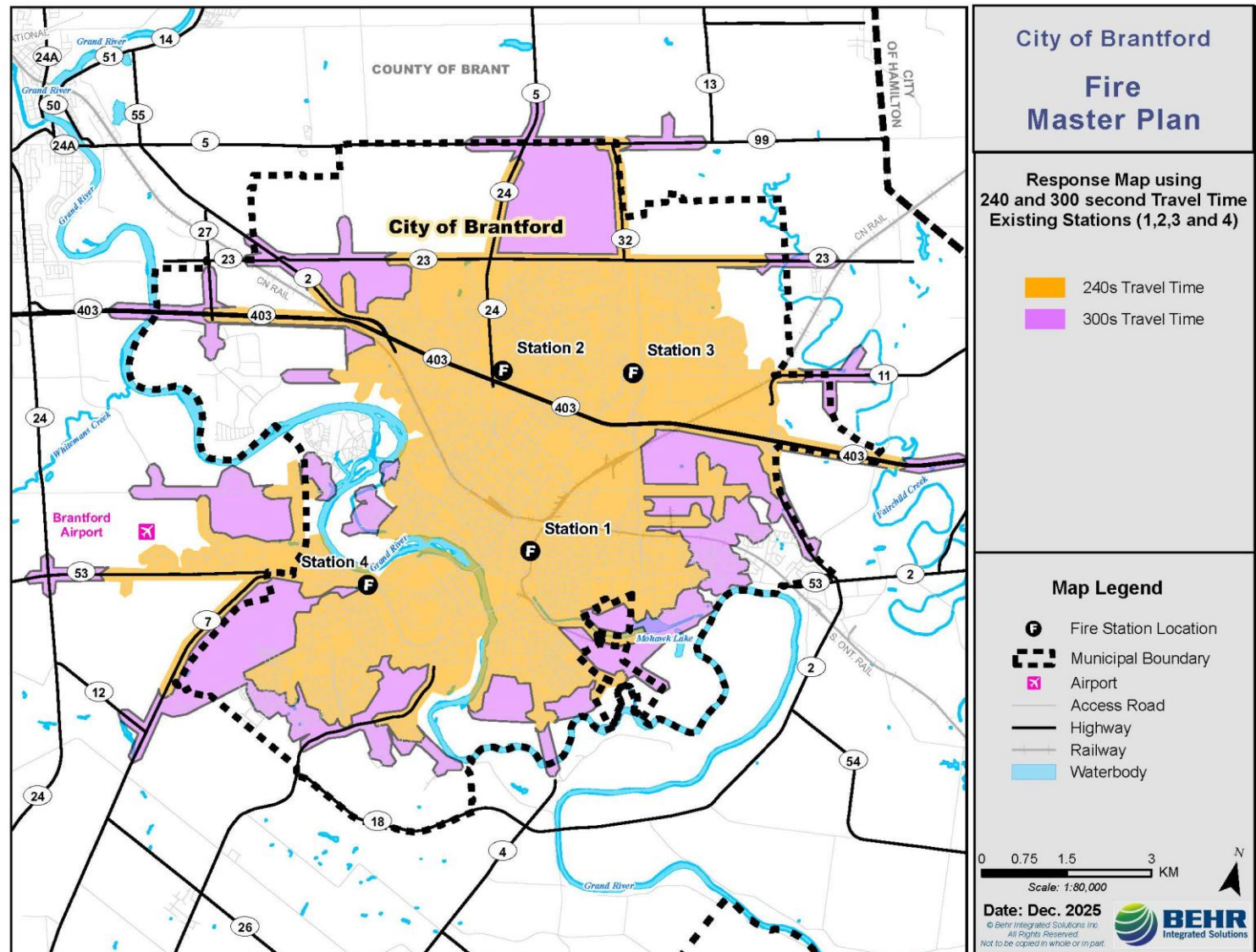
As Brantford continues to grow and expand both horizontally and vertically, the BFD must explore opportunities to optimize station locations and response performance. The location of fire stations to provide a quick response time for the first-in unit allows Brantford to provide a level of service that 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 land and necessary funding.

Map 7: Current Coverage 240 & 300 Second Travel Time

This map 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 7.



## 4.10.2 Apparatus Placement

The current placement of apparatus with the minimum number of staff regularly assigned to each unit is outlined in Table 56 below.

*Table 56: Apparatus List, Minimum Staffing, and Location*

| Location  | Apparatus | Minimum Staffing | Type of Apparatus |
|-----------|-----------|------------------|-------------------|
| Station 1 | CH94      | 1                | Command           |
| Station 1 | 911       | 4                | Pumper            |
| Station 1 | 917       | 4                | Aerial            |
| Station 2 | 921       | 4                | Pumper            |
| Station 2 | 929       | 0                | Rescue            |
| Station 3 | 933       | 4                | Quint             |
| Station 4 | 941       | 4                | Pumper            |
| Total     | 7         | 21               |                   |

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.

Between 2021 and 2025, the fire service experienced a gradual increase in concurrent call activity, with overlapping incidents rising from 279 in 2021 to 539 in 2025. The most notable increases occurred in 2022 and 2023, followed by a stabilization in 2024 and a moderate rise in 2025. The increase observed in later years coincides with the implementation and maturation of a new records management and reporting system, suggesting that some year-over-year variation may be influenced by changes in data capture and incident classification rather than a direct and proportional increase in operational demand.

Despite this upward trend, concurrent calls continue to represent a relatively modest proportion of total annual incidents, increasing from 6.19% in 2021 to 11.62% in 2025. While this represents a measurable change over the study period, concurrency levels remain within reasonable operational parameters and do not currently present a material risk to public safety. This is largely attributable to the concentration of concurrent activity within the Station 1 response area, where multiple staffed frontline apparatus is assigned, providing built-in redundancy and resiliency during periods of overlapping demand.

A station-level review reinforces this finding. Over the five-year period, Station 1 accounted for 2,158 concurrent calls, representing an average concurrency rate of 13.29%, significantly higher than all other stations. In contrast, Stations 2, 3, and 4 experienced considerably lower concurrency rates, averaging 2.21%, 2.07%, and 3.12%, respectively. These patterns indicate that concurrency pressures are highly localized rather than system-wide and that existing apparatus placement and staffing configurations continue to effectively manage overlapping demand across most response areas.

Medical-related incidents account for the largest share of concurrent call activity and are a primary driver of overlap due to their high frequency and tendency to cluster during peak daytime and evening hours. Fire and rescue incidents, while less frequent, also contribute to concurrency because of longer on-scene durations that temporarily limit apparatus availability. False fire and other non-emergency response types further contribute to overall concurrency but generally pose lower operational risk.

Overall, concurrent call activity has increased in parallel with overall service demand; however, current levels do not indicate a widespread degradation of response performance. Continued monitoring and validation of concurrent call data will remain important, particularly as reporting practices stabilize following system changes. Ongoing analysis will support informed, evidence-based decisions related to apparatus deployment, staffing strategies, and service level planning, ensuring that response performance remains effective, resilient, and aligned with community risk as Brantford continues to grow. Table 57 demonstrates the five-year concurrent call load involvement by unit type.

Table 57: 5-Year Concurrent Call Load Unit Involvement

|        |       | Station 1 | Station 2 | Station 3 | Station 4 |
|--------|-------|-----------|-----------|-----------|-----------|
| 2021   | Calls | 244       | 13        | 11        | 11        |
|        | %     | 10.11%    | 1.80%     | 1.50%     | 1.83%     |
| 2022   | Calls | 513       | 24        | 26        | 21        |
|        | %     | 15.82%    | 2.50%     | 2.56%     | 2.28%     |
| 2023   | Calls | 605       | 17        | 17        | 39        |
|        | %     | 18.02%    | 1.79%     | 1.58%     | 4.03%     |
| 2024   | Calls | 388       | 6         | 11        | 20        |
|        | %     | 10.44%    | 0.61%     | 1.04%     | 2.03%     |
| 2025   | Calls | 408       | 42        | 38        | 51        |
|        | %     | 11.62%    | 4.19%     | 3.44%     | 4.75%     |
| 5-year | Calls | 2158      | 102       | 103       | 142       |
| Totals | %     | 13.29%    | 2.21%     | 2.07%     | 3.12%     |

### 4.10.3 Station-Level Concurrent Call Load Analysis (2021–2025)

An assessment of concurrent call activity by station provides insight into operational pressure within individual response areas and supports evaluation of apparatus placement and staffing resiliency. Concurrent calls are defined as incidents occurring simultaneously within the same station response area while primary apparatus is already committed to an active incident.

Station 1 consistently experiences the highest level of concurrent call activity within BFD across the five-year study period. Annual concurrent calls increased from 244 incidents (10.11%) in 2021 to 408 incidents (11.62%) in 2025, with notable peaks in 2022 and 2023. Over the five-year period, Station 1 recorded a total of 2,158 concurrent calls, representing an average concurrency rate of 13.29%, significantly higher than all other stations. This pattern reflects Station 1’s higher call volume, central service area, and concentration of frontline and specialized apparatus. While concurrency levels fluctuate year to year, the sustained volume reinforces the operational importance of maintaining multiple staffed units at this location to manage peak demand and preserve response reliability.

Station 2 consistently records the lowest concurrent call activity across all five years. Annual concurrency ranged from 1.80% in 2021 to 4.19% in 2025, with a modest increase observed in the final year of the study period. Over five years, Station 2 experienced 102 concurrent calls, resulting in an average concurrency rate of 2.21%. These results indicate limited overlap in demand and suggest that current apparatus placement and staffing levels remain appropriate for the station's response area. Continued monitoring is recommended to confirm whether the increase observed in 2025 represents a temporary fluctuation or an emerging trend.

Station 3 demonstrates a generally low but variable concurrency profile over the study period. Concurrent calls ranged from 11 incidents (1.50%) in 2021 to 38 incidents (3.44%) in 2025. The station recorded a five-year total of 103 concurrent calls, corresponding to an average concurrency rate of 2.07%. While concurrency levels remain low overall, the gradual increase observed in later years suggests changing demand characteristics within the response area. At present, these levels remain operationally manageable, but continued review is warranted as development and call volumes evolve.

Station 4 shows a moderate concurrency pattern relative to Stations 2 and 3. Concurrent calls increased from 11 incidents (1.83%) in 2021 to 51 incidents (4.75%) in 2025. Over the five-year period, Station 4 recorded 142 concurrent calls, representing an average concurrency rate of 3.12%. The upward trend in recent years may reflect increased incident activity, longer on-scene durations, or changing risk profiles within the station's coverage area. While concurrency remains within acceptable operational thresholds, ongoing monitoring is recommended to ensure apparatus availability is maintained.

Overall, concurrent call activity across BFD remains within reasonable and manageable limits. Concurrency is clearly concentrated at Station 1, while Stations 2, 3, and 4 experience relatively low levels of overlap. Although year-to-year variability is evident, particularly in later years, the data does not currently indicate system-wide capacity constraints. Continued tracking and validation of concurrent call trends will remain important to ensure apparatus deployment, staffing strategies, and response performance remain aligned with community risk and service expectations.

**Observation #24:** Stations 2, 3 and 4 have historically experienced relatively low to moderate concurrency; however, both stations show a notable increase in overlapping incidents in 2024 and 2025. While current levels remain manageable, the upward trend suggests emerging pressure that may impact response reliability during peak demand periods.

Medical-related incidents account for nearly half (46.0%) of all concurrent calls system-wide. These calls occur frequently during peak daytime and evening hours and often overlap with other medical or non-fire incidents, placing cumulative pressure on apparatus availability rather than isolated high-risk events.

**Recommendation #24:** Use concurrent call analysis as a key input into long-term apparatus placement and growth planning.

**Suggested completion:** 12-24 months / ongoing

**Cost:** Neutral

**Strategic Objective #5:** Emergency Response and Operations

***Rationale:** Concurrent call activity within BFD has increased in parallel with overall service demand but remains manageable under current deployment and staffing models. Station 1 continues to bear the greatest operational pressure, while emerging trends at Stations 2, 3 and 4 underscore the need for continued monitoring. By maintaining strategic apparatus redundancy, integrating concurrency metrics into planning, and refining medical response strategies, BFD can sustain effective response performance and operational resilience as community risk and service demands evolve.*

## 4.11 Fire Station Location Analysis

### 4.11.1 Strategic Role of Station Location in Service Delivery

The location of fire stations is a critical determinant of emergency response effectiveness. As Brantford continues to grow rapidly, especially in the north quadrant, strategic fire station planning must ensure that station deployment aligns with response time performance targets, community risk concentrations, and infrastructure development. A well-positioned fire station can significantly reduce emergency response times, increase survivability and containment success rates, and reduce public exposure to fire-related hazards or other emergencies.

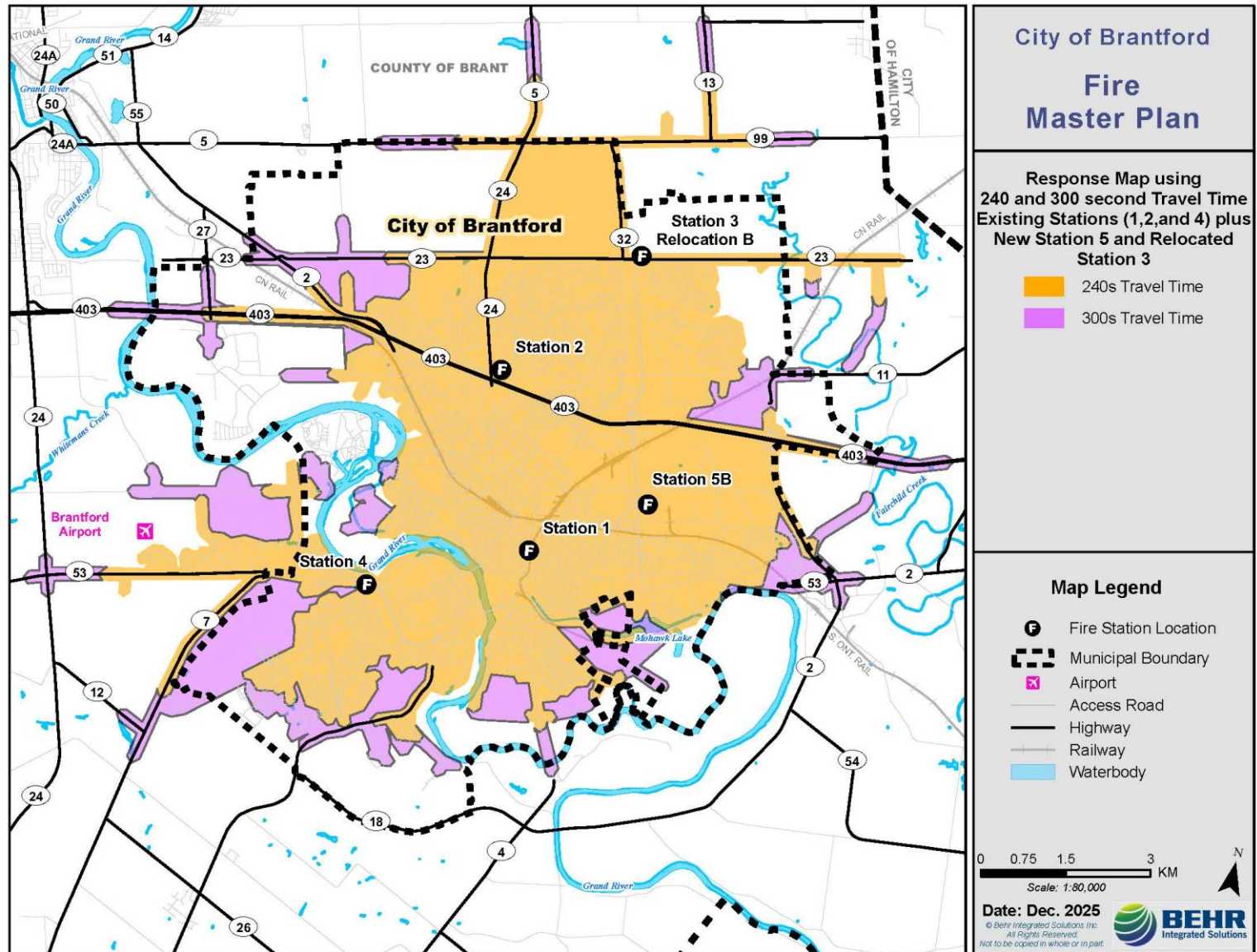
Fire stations are not static assets; they must evolve in response to population changes, road network expansions, and land-use developments. This requires a forward-looking strategy that integrates growth forecasts, risk assessments, and service delivery benchmarks. Timely fire suppression response is directly linked to improved outcomes in emergencies, especially structure fires, medical incidents, and rescues. As such, establishing new stations is both a public safety imperative and a proactive risk mitigation investment.

As identified in Behr's 2024 Fire Station Location Study, the optimization of station locations included the addition of a new fire station and relocating the existing station 3 to a location further north.

Adding a new Station 5 in the Carter Street and Wayne Gretzky Parkway area, relocating Station 3 to the Wayne Gretzky Parkway and Powerline Road area, and assigning an additional apparatus to both Station 2 and Station 4 will further optimize response performance.

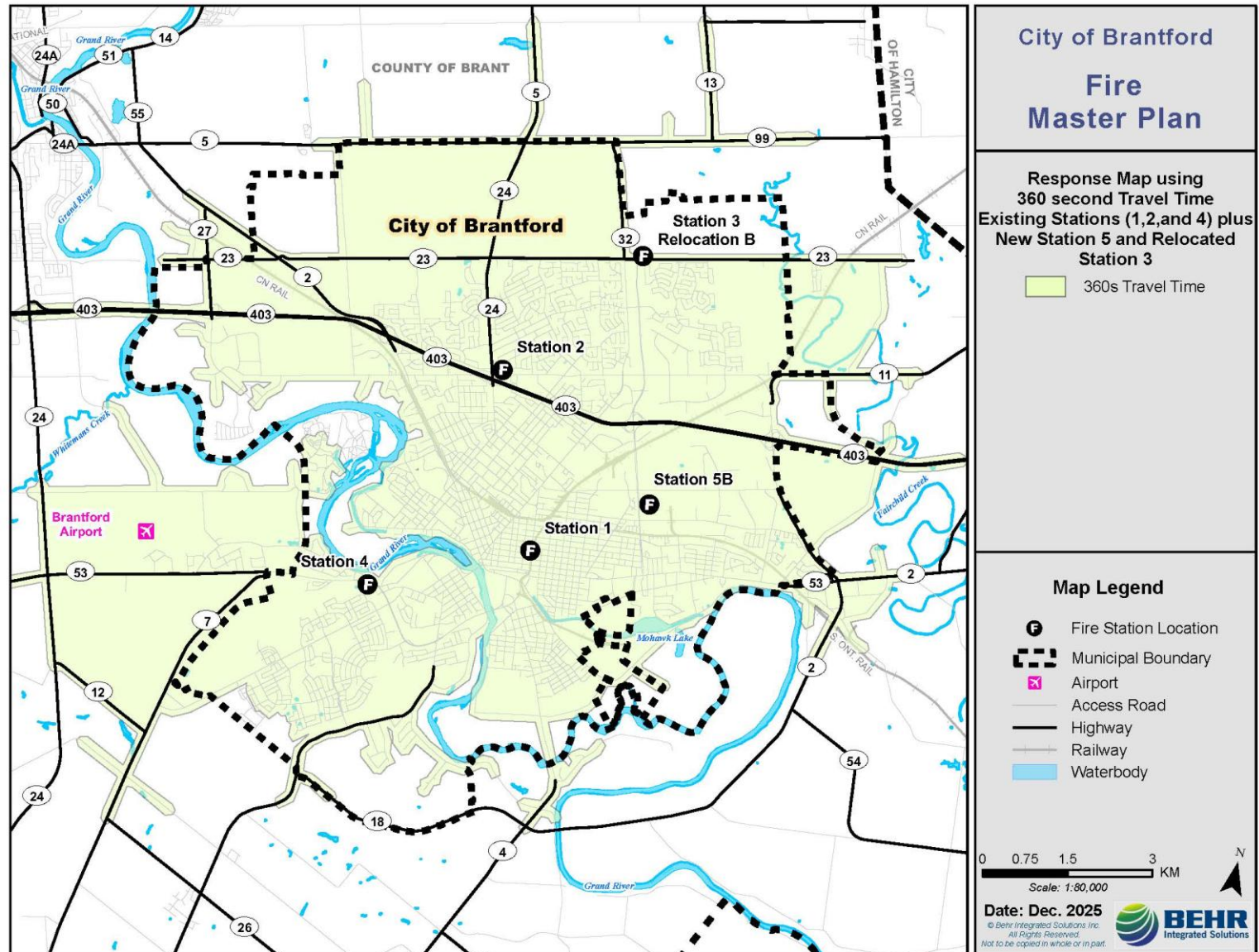
Map 8: 240-Second Travel Time from New Station 5 & Relocation Station 3

This map identifies the 240 second (4-minute) travel time coverage for the entire city, reflecting the improved coverage with the newly added and relocated stations.



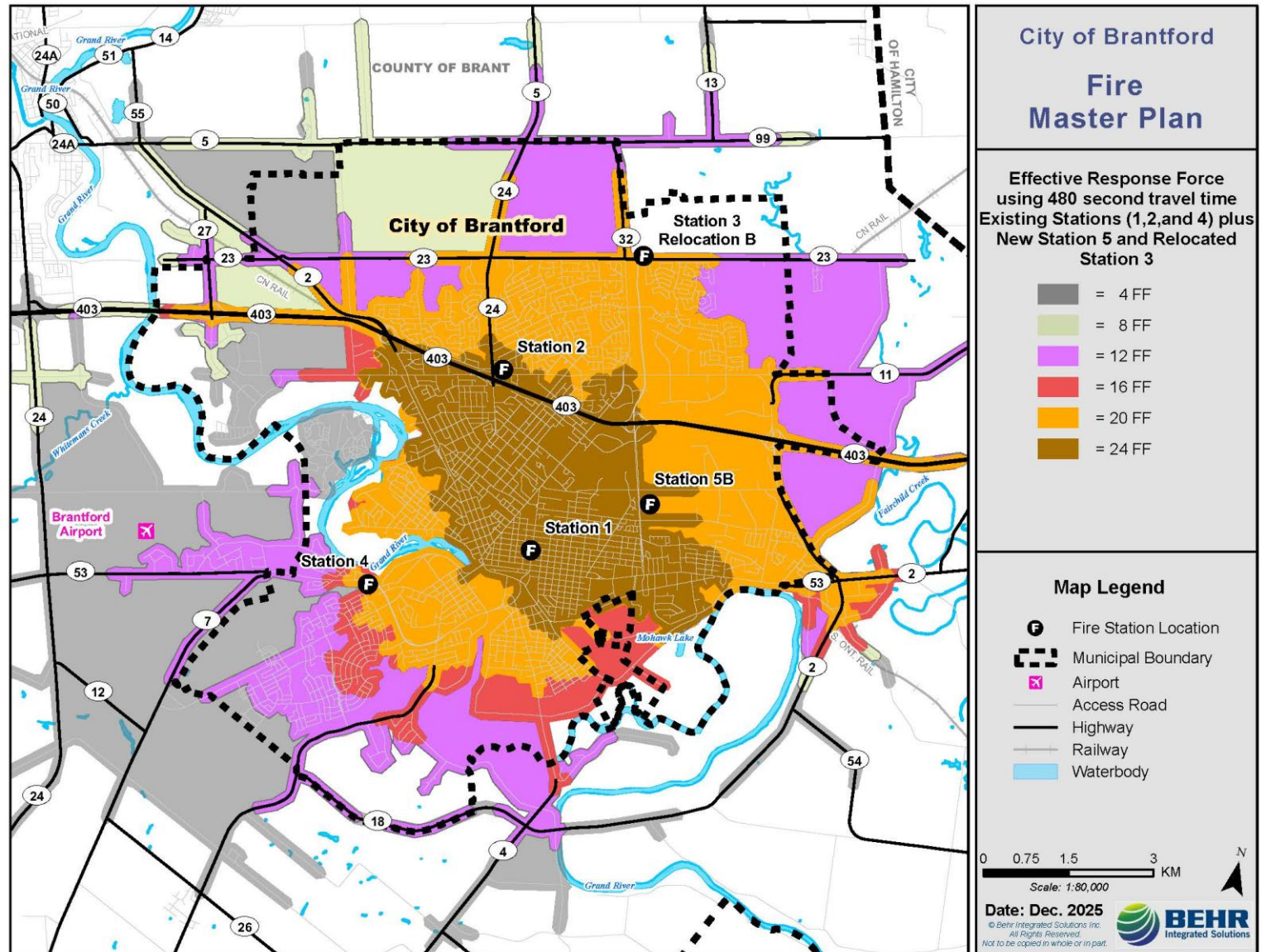
Map 9: 360-Second Travel Time New Station 5 & Relocation Station 3

This map identifies the 360 second (6-minute) travel time coverage to represent the second unit on-scene.



Map 10: ERF - 480 second Travel Time new Station 5 & Relocation Station 3

This map identifies the 480 second (8-minute) travel time coverage to represent the travel time to obtain an ERF.



#### **4.11.2 Principles of Station Location Planning**

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. 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.

##### **1. Emergency Response Concentrations**

- Locations must be responsive to historical and projected call volumes.
- Incident mapping identifies geographic hotspots, particularly for fires, medical calls, MVCs, and rescues.
- These concentrations help determine where demand pressure is most acute, particularly in newly urbanized or intensifying areas.

##### **2. Travel Time Performance**

- Stations must maximize compliance with performance standards: 240-second (4-minute) travel time for the first-due apparatus and 480-second (8-minute) Effective Response Force (ERF) assembly time.
- These benchmarks are derived from the principles of industry best practices and are essential for time-sensitive incidents such as cardiac arrest, active structure fires, and hazardous materials incidents.
- Road infrastructure, topographical barriers, and traffic congestion must be considered when siting new stations.

##### **3. Road Network Access**

- Stations should be sited with direct access to arterial roads and minimal delay points (e.g., intersections, rail crossings).
- Strategic proximity to grid connectors ensures optimal ingress and egress for emergency vehicles.

#### 4. Land Suitability and Availability

- Preference is given to municipally owned land to reduce acquisition costs and ensure zoning compatibility.
- Minimum 1 to 1.5-acre parcels are needed to support station construction, apparatus maneuvering, parking, crew amenities, and possible future expansion.
- Land banking in advance of development build-out is recommended to ensure affordability and locational flexibility.

#### 5. Alignment with Official Plan and Growth Forecasts

- Siting new stations must align with the City's Official Plan, Secondary Plans, and Brantford's servicing framework.
- Understanding the 10–20-year growth trajectory ensures that capital investments remain relevant and capable of serving the community over the long term.

#### 4.11.3 Growth Factors Driving the Need for New Stations

Growth analysis from Brantford's Official Plan Envisioning Our City: 2051 and associated secondary/block plan work identifies several strategic growth areas that will significantly increase population and structural risk within existing and expansion neighbourhoods:

##### **Downtown Urban Growth Centre and Intensification Corridors**

Planned mid- and high-rise mixed-use intensification in the Downtown Urban Growth Centre and along designated Intensification Corridors and nodes, concentrating a larger residential population, institutional uses, and higher-rise apartments in the core and along key transit corridors.

##### **West Brant / Shellard Lane Community Area**

Ongoing build-out of West Brant, including the Shellard Lane corridor, with new elementary schools, community facilities, and higher-density low-rise and mid-rise housing forms, creating a large family-oriented suburb at the western edge of the urban area.

##### **North Brantford Boundary Expansion Lands**

New Designated Greenfield Areas in the North Brantford expansion lands planned for a mix of low-, mid- and higher-density residential, neighbourhood centres, and community facilities, subject to block plan requirements and higher density targets (55–60 residents and jobs per hectare in key areas) to meet overall greenfield density objectives.

### **Tutela Heights Expansion Area**

Planned community growth in Tutela Heights, including Suburban, Transitional, and corridor-based residential designations with 2–4 storey-built form along neighbourhood corridors, introducing new fully serviced subdivisions and mixed forms of housing south of the existing urban fabric.

### **Highway 403 Employment and Business Parks**

Significant employment growth directed to expanded Employment Areas and business parks along Highway 403 and within the boundary expansion lands, adding large industrial/commercial buildings, logistics, and warehousing uses that increase fire load and technical risk profiles.

Collectively, these areas will accommodate a substantial share of Brantford's forecast growth, approximately 60,000 additional residents and over 34,000 new jobs between 2016 and 2041, with the Official Plan planning for a total population of about 165,000 residents and 80,000 jobs by 2051. This pattern of growth increases both the volume and complexity of emergency calls, with higher concentrations of vulnerable populations (students, seniors, and lower-income households in intensification areas), increased fire load associated with larger buildings and denser construction, and elevated risk of concurrent incidents within emerging neighbourhoods at the urban fringe where travel distances are greatest and redundancy in coverage is limited.

#### **4.11.3.1 Station 5 – Wayne Gretzky Parkway and Carter Street Area (Target 48-60 months)**

##### **Current Response Challenges in the Station 5 Target Area**

Southeastern Brantford currently falls outside both the 384-second total response target, and the 240-second travel-time target achievable under the existing four-station model. This gap is exacerbated by the system's heavy dependence on Station 1, the busiest station in the city, responding to roughly 3,500 calls annually with a 11–18% concurrent call load and growing travel-time degradation as development expands southeast. As a result, Station 1 is increasingly unavailable for primary incidents, while Stations 1 and 4 cannot consistently deliver two trucks within six minutes or a full ERF within eight minutes. This poses a significant risk in an area characterized by rising residential density, expanding industrial uses, and ongoing intensification.

### **Preferred Site—Wayne Gretzky Parkway & Carter Street**

The Fire Station Location Study identifies the Wayne Gretzky Parkway and Carter Street area as the optimal site for Station 5, directly addressing the city's largest performance gap. This location sits outside the 4-minute coverage areas of Stations 1 and 3, overlaps with high incident density, and aligns with major infill and redevelopment trends. Its direct access to Wayne Gretzky Parkway, Colborne Street, Dalhousie Street, and the Highway 403 interchange supports rapid deployment in all directions.

Establishing Station 5 significantly improves ERF reliability in the southeastern and southern sectors, relieves chronic workload pressures at Station 1, and strengthens system resilience by adding another staffed apparatus to the network.

### **Growth Timing Considerations and Recommended Implementation**

Southeastern Brantford is experiencing steady intensification, eastward residential expansion, and continued growth in employment lands near the Highway 403 interchange. With the city's population projected to reach approximately 124,000 by 2031, including substantial growth within Station 5's proposed catchment, response performance will continue to erode without intervention. Station 5 should therefore be advanced in three stages:

- 2026–2027 for land acquisition and design, addressing immediate response deficiencies and rising call volume
- 2029–2031 for construction and commissioning as growth accelerates and mutual support between Stations 1 and 4 becomes increasingly strained
- Integration with the future relocation of Station 3 post-2032 to achieve a balanced, long-term station deployment model
- Optimal Target Opening: 2030–2031, ensuring Station 5 is operational ahead of the city's southeastern growth surge and before performance in this high-risk area declines further

**Observation #25:** Southeastern Brantford is experiencing steady residential intensification, eastward urban expansion, and continued employment land development near the Highway 403 interchange. This growth is occurring within the proposed Station 5 catchment area and is contributing to rising incident volumes and increasing travel times for Stations 1 and 4, which currently provide primary and secondary coverage. With the city's population projected to reach approximately 124,000 by 2031, continued reliance on existing stations will place growing strain on response performance, reduce operational redundancy during concurrent incidents, and increase the risk of service degradation in a high-growth, high-risk area.

**Recommendation #25:** Advance the Planning, Construction, and Integration of Fire Station 5 to Support Southeastern Brantford Growth.

**Suggested completion:** 12-60 months

**Cost:** \$7.5 M-\$10 M

**Strategic Objective #5:** Emergency Response and Operations

***Rationale:** Advancing Fire Station 5 through a phased implementation, beginning with land acquisition and design in 2026–2027, followed by construction and commissioning in 2028–2029, and achieving operational readiness by 2029–2030, will proactively align emergency response infrastructure with projected growth and risk. This approach ensures Station 5 becomes operational ahead of the anticipated southeastern growth surge, mitigates further erosion of travel time performance, and reduces dependence on mutual support from Stations 1 and 4. Integrating Station 5 into the longer-term station deployment strategy, including the planned relocation of Station 3 post-2032, will support a balanced, resilient, and sustainable fire station network that maintains acceptable service levels as Brantford continues to grow.*

### System-Wide Benefits

Bringing Station 5 online substantially improves 4-minute coverage and three-station ERF assembly (Stations 1, 4, and 5) in the southeast, reducing dependency on Station 1 and improving its availability for high-risk core incidents. It also enables the relocated Station 3 to function more effectively by balancing coverage around the city's perimeter and forming a coherent long-range station deployment strategy. Station 5 is a cornerstone of Brantford's future emergency response system and essential to achieving NFPA 1710 *Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Career Fire Departments* (2020) travel-time expectations.

#### **4.11.3.2 Station 3 Relocation – Wayne Gretzky Parkway and Powerline Road Area (Target: 60-108 Months)**

Fire Station 3, located at 7 Lynden Road and built in 1975, is nearing 50 years of service and no longer meets the operational requirements needed to support current or future response performance. The Fire Station Location Study confirms that the existing site provides inadequate coverage to Brantford's rapidly developing north and northwest, limiting the service's ability to meet NFPA 1710 *Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Career Fire Departments (2020)* travel-time targets and assemble an Effective Response Force (ERF) in key growth areas. With Brantford's population projected to rise from 104,688 in 2021 to 165,000 by 2051, growth that will be concentrated almost entirely north of Powerline Road, demand for service will increasingly outpace the capability of Station 3 at its current location. Its 90th-percentile travel time of 412 seconds (6:52) is the longest in the city and falls well beyond the 240-second benchmark for first-in arrival. Remaining at the current site also limits ERF reliability in Station 2's west and northwest zones, constraining response capacity as development, traffic congestion, and concurrent call loads increase. Meanwhile, the nearly 50-year-old facility will require substantial capital investment regardless of relocation.

The preferred relocation site, Wayne Gretzky Parkway and Powerline Road, positions Station 3 to directly serve the city's primary growth front. This site aligns with Brantford's 2051 urban structure by placing apparatus closer to new northern neighbourhoods, expanding northwest employment lands, and emerging intensification corridors. Relocating Station 3 significantly improves NFPA travel-time performance, reduces both first-in and total response times, and addresses ERF gaps that currently affect Station 2's northwest response area. The site also supports a modern station footprint, long-term expansion capacity, and the potential sale of the Lynden Road property to offset costs.

Timing for relocation should follow the growth-based sequencing outlined in the Fire Station Location Study: additional apparatus at Station 2, construction of Station 5, relocation of Station 3, and later expansion at Station 4. Between 2025 and 2030, early northern residential and employment development will begin pushing travel times beyond acceptable thresholds, making land acquisition and preliminary design appropriate in this early window. From 2030 to 2035, as northern neighbourhoods reach moderate occupancy and call volumes rise in zones 2CA, 2CA\_T, and 3BA\_T, ERF deficits will intensify, making this the ideal period for Station 3 construction and commissioning.

Beyond 2035, continued growth and congestion will significantly degrade performance from the current location, making relocation essential to maintain NFPA 1710 *Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Career Fire Departments* (2020) standards.

**Optimal Target Date for Relocation: 2032–2035**, following Station 5’s completion and aligned with the northern population surge and evolving apparatus deployment needs. Relocating Station 3 to Wayne Gretzky Parkway and Powerline Road is a critical, long-term investment that strengthens Brantford’s emergency response system, resolves travel-time deficiencies, and positions the city to meet performance expectations for the next 50 years.

**Observation #26:** Brantford’s northern area is expected to experience continued population growth and evolving development patterns over the next two decades, placing increasing demand on fire and emergency response services. The current location of Station 3 presents growing travel time challenges to portions of the north end and limits the service’s ability to optimally deploy apparatus as call volumes and concurrency increase. Following the completion of Station 5, the existing station network will require further adjustment to maintain balanced coverage across the municipality and to respond effectively to shifting risk and demand profiles.

**Recommendation #26:** Relocate Fire Station 3 to Wayne Gretzky Parkway and Powerline Road between 2032 and 2035.

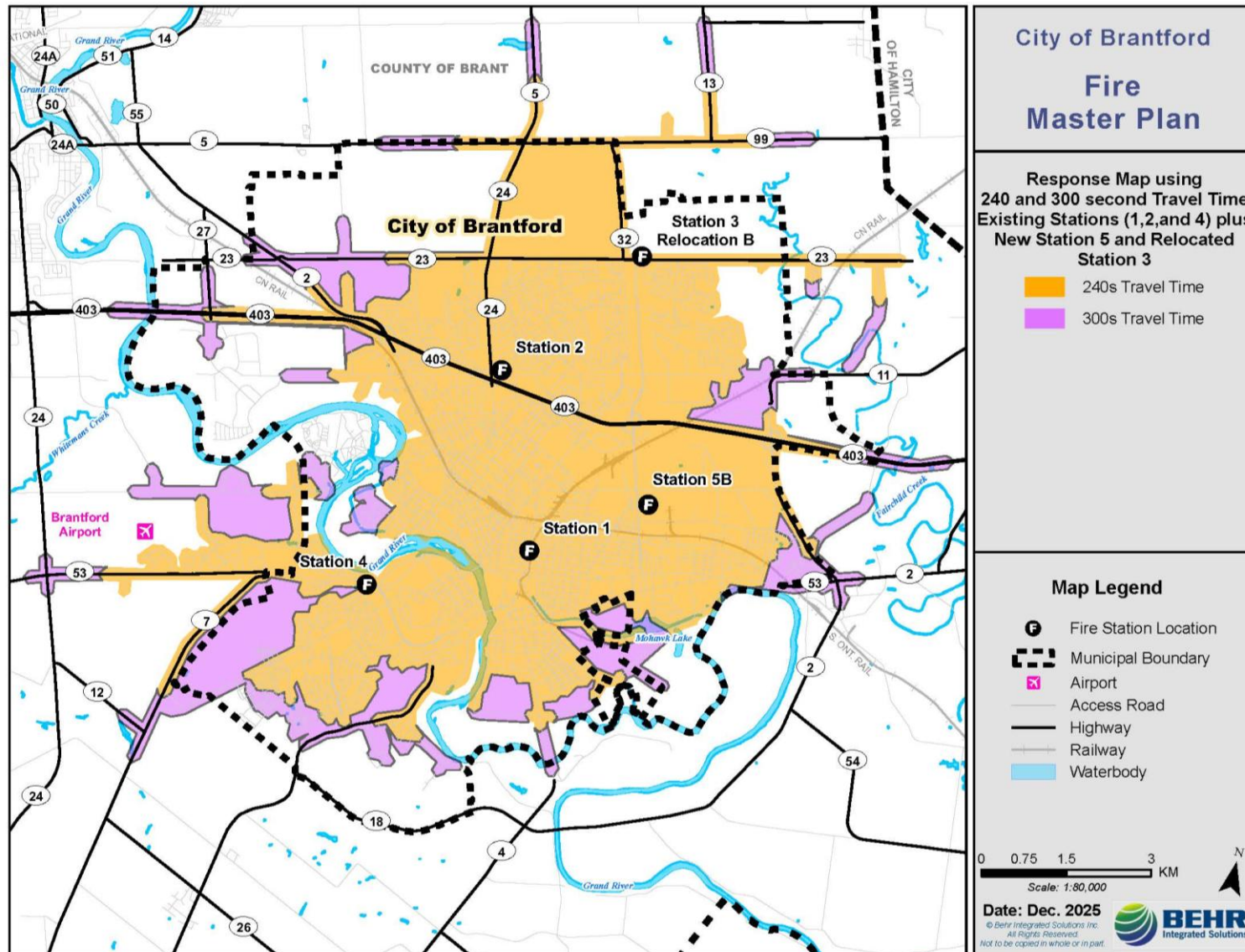
**Suggested completion:** 60-108 months

**Cost:** \$7.5-\$10 M

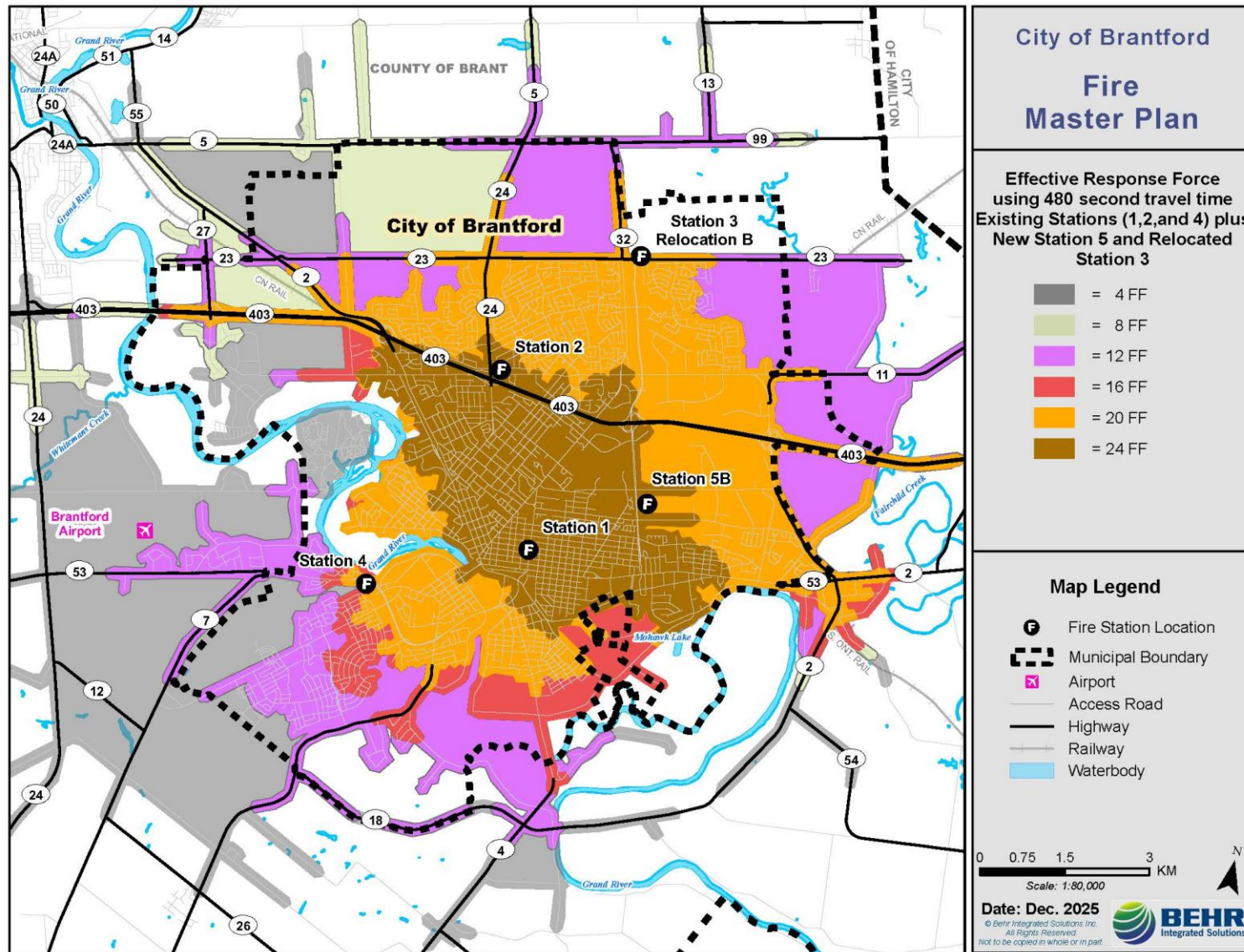
**Strategic Objective #5:** Emergency Response and Operations

**Rationale:** Relocating Station 3 to the Wayne Gretzky Parkway and Powerline Road area within the 2032–2035 timeframe aligns long-term fire station infrastructure with projected northern population growth and evolving apparatus deployment needs. This timing allows the City to sequence major capital investments following Station 5’s completion while avoiding service gaps or compounding response performance issues. The proposed relocation resolves existing and future travel time deficiencies, improves network balance, and provides a strategically located facility capable of supporting emergency response requirements for the next 50 years, ensuring the fire service remains resilient, adaptable, and aligned with community growth.

Map 11: 240 & 300 Second Travel Time, New Station 5 & Relocate Station 3



Map 12: ERF, New Station 5 & Relocation of Station 3



The following observations to ERF with the addition of Station 5 & relocation of Station 3:

The addition of Station 5 in the southeast and the relocation of Station 3 to a more central, northeast position materially strengthens Brantford’s initial unit response performance and Effective Response Force (ERF) assembly capabilities across the urban area. The enhanced station configuration closes several historical coverage gaps, particularly in the southeast, eastern fringe, and southwest river-adjacent neighbourhoods, and creates stronger redundancy across the core.

Key benefits include:

- Brings the growing southeast corridor into reliable first-due coverage. Neighbourhoods near Mount Pleasant Road, Shellard Lane, Garden Avenue, and the Lynden Road commercial/industrial area now fall within the 240–300-second envelope of either Station 5 or the relocated Station 3, eliminating previous 4–5-minute coverage gaps.
- Creates meaningful overlap between Stations 1, 3, and 5, significantly improving depth and redundancy across the southern and eastern sectors of the city. This overlap reduces single-station dependency in areas that previously required extended travel from Stations 1 or 3.
- Expands rapid coverage along key transportation and employment corridors, including Highway 403 interchanges, the Wayne Gretzky Parkway corridor, and eastern industrial districts, improving response reliability to higher-risk occupancies.

Table 58: ERF Coverage Gains

| ERF Firefighters (FF) | Existing Stations (1–4) | With Station 5B + Relocated Station 3B | Resulting Change                                     |
|-----------------------|-------------------------|----------------------------------------|------------------------------------------------------|
| 8 FF                  | 60-65%                  | 75-80%                                 | Major improvement in first-due reach                 |
| 12 FF                 | 30-35%                  | 40-45%                                 | Nearly doubles the area with 3-unit ERF              |
| 16 FF                 | 12-18%                  | 18-22%                                 | Meaningful expansion of core ERF depth               |
| 20 FF                 | 5-8%                    | 8-12%                                  | Stronger overlap across central + east/south sectors |
| 24 FF                 | 0%                      | 3-6%                                   | Highest density overlap achieved in central core     |

**Operational Impacts:**

- Considerably improved reliability for initial attack, ERF assembly, and critical tasks in the east, southeast, and south-central portions of Brantford.  
These areas previously relied heavily on response from Stations 1 and 3 with limited reinforcement; the new configuration resolves that dependency.
- Reduced reliance on central core stations for peripheral calls, especially during simultaneous incidents.  
With new overlapping coverage in the southeast and east, core stations retain more availability for high-demand areas.
- Improved resilience during peak call periods, as the expanded station grid better distributes workload and reduces long travel paths for second-due units.
- Enhanced performance in industrial, commercial, and mixed-use nodes along Highway 403 and Lynden Road, where risk profiles require stronger ERF depth.

**4.11.4 Staffing Model and Phased Implementation**

Each new station requires 20 full-time firefighters to maintain a 4-person crew across 4 platoons. This staffing model aligns with:

- **Response performance based on the principles of industry best-practice** standards for career fire services
- **2-in/2-out** for interior fire attack

The minimum four-person crew ensures that initial attack teams can operate safely and within legal parameters. It also permits immediate entry in life-threatening conditions without delay.

**Strategic Staffing Phasing**

The staged hiring approach allows:

- Budget smoothing over multiple fiscal cycles
- Integration of new hires into existing crews for mentorship
- Utilization of recruits to address rising call volumes ahead of station opening

### Support Staffing Requirements

- Additional training resources will be needed as the number of full-time personnel continues to grow.
- Increased fire prevention and public education resources will be essential to address recommended inspection schedules, expanding inspection zones and increasing public education needs for a growing population.
- Consideration should be given to administrative, scheduling, and data analysis support roles to ensure operational efficiency.

## 4.11.5 Concurrent Call Demand, Apparatus Deployment, and Staffing Strategy (2027–2036)

### 4.11.5.1 Purpose and Context

Concurrent call activity is a critical indicator of operational pressure and system resiliency, reflecting the frequency with which multiple emergency incidents occur simultaneously within the same response area while the primary apparatus is already committed. As Brantford continues to experience sustained population and employment growth, concurrency analysis provides essential insight into where and when additional apparatus and staffing capacity will be required to maintain response reliability, Effective Response Force (ERF), and firefighter safety.

This section integrates historical concurrency trends (2021–2025), ten-year station-level projections, Community Risk Assessment (CRA) findings, and planned infrastructure expansion, most notably the introduction of Fire Station 5, to establish a coordinated apparatus and staffing strategy for BFD.

### 4.11.5.2 Planning Assumptions and Forecast Methodology

Projected concurrency and resource requirements are based on the following planning assumptions:

- **Incident Growth Alignment:** Emergency incident volume is expected to increase broadly in line with projected population growth of approximately 1.0–1.2% annually through 2031, with continued growth thereafter as Brantford approaches a population of approximately 165,000 by 2051.

- **Medical Demand as Primary Driver (Modified by MPDS):** Medical incidents continue to represent the largest proportion of emergency responses and remain a key contributor to concurrent call activity due to their frequency and temporal clustering. However, the implementation of the Medical Priority Dispatch System (MPDS) by EMS is expected to reduce lower-acuity medical responses attended by Brantford Fire Department by up to 25%, moderating growth in medical-driven concurrency over the planning horizon. Higher-acuity medical responses and non-medical incidents are not expected to decline and will continue to influence peak demand periods.
- **Localized Concurrency:** Concurrency pressures are expected to remain geographically concentrated rather than system-wide, reflecting land use patterns, station location, and risk distribution across the community.
- **Station 5 Commissioning:** Fire Station 5 is assumed to become operational between 2031 and 2032, absorbing demand from southeast growth areas currently served by Stations 1 and 4.
- **Service Model Continuity:** Projections assume no fundamental change to BFD's career staffing model, deployment philosophy, or response standards.

These assumptions provide a conservative and defensible framework for long-range fire protection planning.

#### 4.11.5.3 Ten-Year Projected Concurrent Call Load by Station

Based on historical data and growth projections, concurrent call activity is expected to increase modestly but remain operationally manageable over the ten-year planning horizon.

Table 59: Projected Annual Concurrent Call Load by Station (2035)

| Station         | 2021–2025 Average | Projected Annual Concurrent Calls | Projected Concurrency Rate |
|-----------------|-------------------|-----------------------------------|----------------------------|
| Station 1       | 432               | 400-455                           | 10-12%                     |
| Station 2       | 20                | 25-35                             | 2-3%                       |
| Station 3       | 21                | 30-40                             | 2-3%                       |
| Station 4       | 28                | 40-55                             | 3-4%                       |
| Station 5 (New) | N/A               | 40-50                             | 3-3.5%                     |
| System Total    | 540 (2025)        | 535-625                           | 8-10%                      |

**Note:** Figures represent planning-level estimates adjusted to reflect anticipated reductions in low-acuity medical responses resulting from EMS MPDS implementation.

## 4.11.6 Station-Level Forecast Analysis and Deployment Implications

### Station 1 – Central/Core Area

Station 1 is projected to remain the primary location for concurrent call activity due to its central geography, high incident density, and continued concentration of medical-related responses. Annual concurrent call volumes at Station 1 are projected to range between approximately 400 and 455, representing a concurrency rate of 10–12%.

The commissioning of Fire Station 5 is expected to redistribute demand from the southeast sector, while anticipated reductions in medical-related responses will further moderate concurrency growth. Given Station 1's existing two-unit configuration and projected concurrency levels, no additional apparatus or staffing resources are recommended within the ten-year planning horizon. Continued performance monitoring is recommended to confirm that projected demand moderation is realized.

### Station 2 – Northwest Area

Station 2 continues to experience the lowest levels of concurrent call activity in the system. Projections estimate 25 to 35 annual concurrent calls, corresponding to concurrency rates of approximately 2–3%.

Despite low concurrency levels, the CRA identifies ongoing exposure to transportation incidents, industrial/ commercial and medical incident risks that require appropriate unit responses (rescue) and reliable ERF capability on arrival. While Station 2 operates two frontline units, the rescue apparatus is not consistently staffed with four firefighters, limiting initial ERF capability during both single and concurrent incidents.

To address this capability gap, it is recommended that Station 2 Rescue be fully staffed with four firefighters per shift beginning in 2027, requiring the addition of twenty full-time firefighters. This recommendation is based on current and future community risks and ERF reliability rather than call volume growth and will improve first-arriving operational effectiveness, reduce reliance on cross-station responses, and enhance system resilience during overlapping incidents.

### Station 3 – Northeast Area

Station 3 is projected to experience modest concurrency growth associated with northern residential development and corridor intensification. Projections estimate 30 to 40 annual concurrent calls, representing concurrency rates of approximately 2–3%.

The anticipated reduction in medical-related responses is expected to partially offset growth-driven demand, maintaining concurrency within manageable thresholds. No additional apparatus or staffing is recommended within the planning horizon; however, ongoing monitoring is recommended as development progresses to ensure service levels remain aligned with evolving risk profiles.

### **Station 4 – Southwest Area**

Station 4 serves an area characterized by increasing residential and medical-related risks and demonstrates a sustained upward trend in concurrent call activity.

Projections estimate 40 to 55 annual concurrent calls, corresponding to concurrency rates of approximately 3–4%.

Despite this moderation, Station 4’s single-unit configuration continues to present operational vulnerability during overlapping incidents. To mitigate this risk, a second staffed frontline apparatus is recommended on a phased and conditional basis beginning in 2034, aligned with demonstrated concurrency growth, service area build-out, and staffing maturation. This enhancement will improve local redundancy, preserve ERF capability, and reduce extended cross-station response times during concurrent incidents.

### **Station 5 – Southeast Growth Area**

Fire Station 5 represents a critical strategic investment driven by CRA-identified risks and sustained population and employment growth in southeast Brantford. Projections estimate 40 to 50 annual concurrent calls, representing approximately 3–3.5% of system concurrency. While EMS MPDS triage is expected to reduce lower-acuity medical demand, overall emergency workload in this area will continue to be driven by growth-related fire, rescue, and transportation risks.

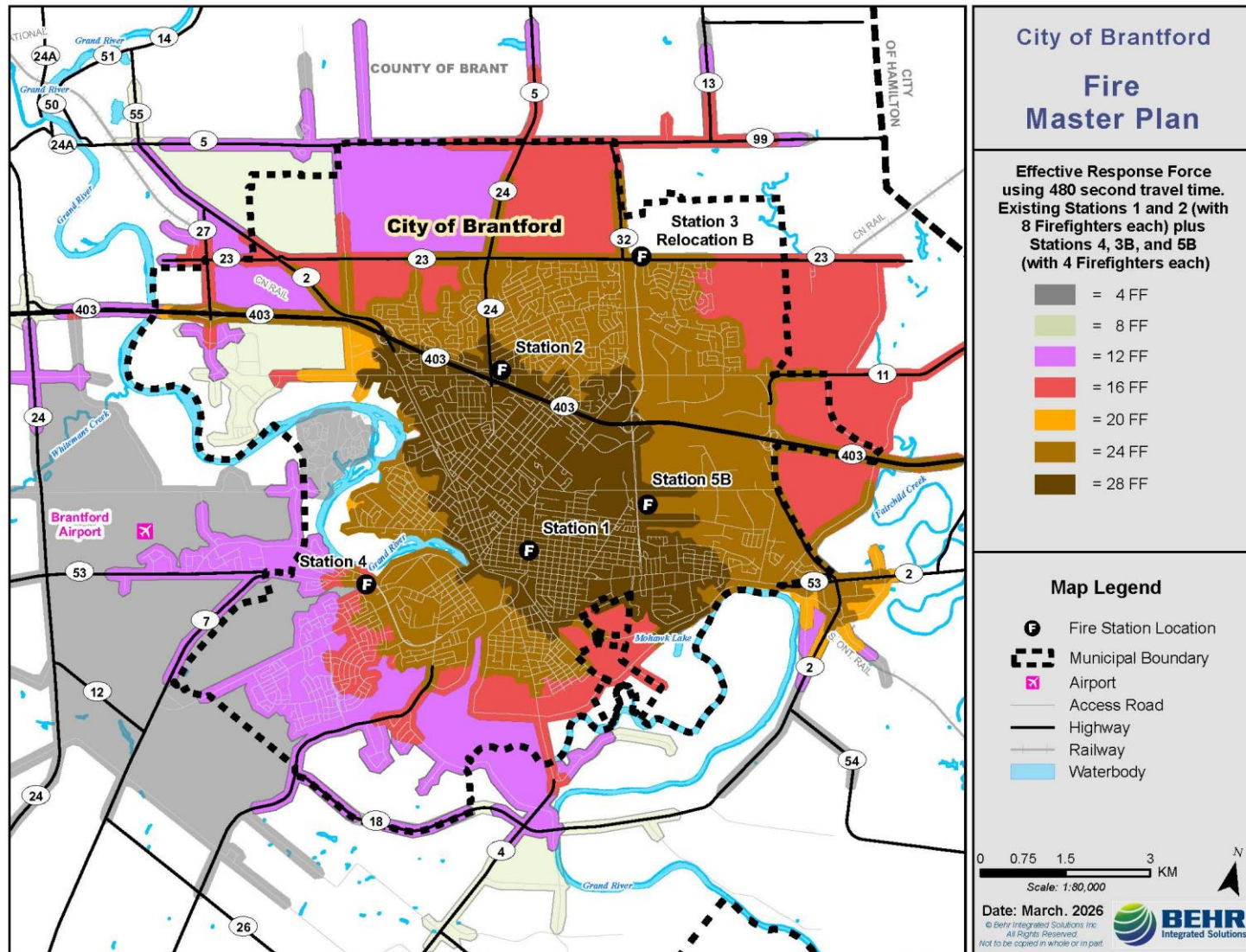
The station will require a full-time complement of 20 personnel, consisting of 16 Firefighters and four Captains, operating under a four-platoon model to always ensure a minimum of four firefighters on duty.

Staffing is recommended to be phased between 2029 and 2030 using a 10-10 model, enabling Fire Station 5 to open fully staffed while also providing interim system-wide operational capacity benefits during the transition period.

## 4.11.7 Staffing Impacts On Effective Response Force

Map 13: ERF with Expanded Staff at Station 2

The deployment model illustrated reflects a partially centralized staffing approach, with enhanced staffing at Stations 1 and 2 and 4-person crews at Stations 3, 4, and 5. This configuration strengthens ERF performance within the central and north-central portions of Brantford while maintaining improved geographic coverage through the relocation of Station 3 and the addition of Station 5.



The following observations to the ERF for Stations 1 and 2 (8 firefighters each), plus Stations 3, 4, and 5 (4 firefighters each):

Key benefits include:

- Strong ERF concentration in the central and north-central city.

The overlap between Stations 1 and 2 (both staffed with 8 firefighters) creates a substantial coverage area where 12 and 16-firefighter ERFs can be achieved within 480 seconds. This includes the downtown core and extends northward toward Station 3.

- Improved geographic coverage but reduced staffing depth in outer areas.

Stations 3, 4, and 5 significantly improved first-due reach across the southeast, southwest, and northeast; however, with only 4 firefighters each, their contribution to higher-order ERF assembly is limited. There is a noticeable east-west imbalance in ERF depth. The strongest ERF coverage is concentrated between Stations 1 and 2, with diminishing coverage toward the southwest (Station 4 area) and southeast (Station 5 area), where fewer higher-order ERFs are achieved within target timeframes.

- Moderate multi-station overlaps along key corridors.

Key routes such as Highway 403, Wayne Gretzky Parkway, and Lynden Road benefit from improved access to multiple stations, but the reduced staffing outside Stations 1 and 2 limits the ability to rapidly build larger ERFs.

Operational Impacts:

- Improved initial response reliability across the municipality.

All areas benefit from consistent first-arriving coverage due to the five-station configuration, particularly in growth areas in the southeast and northeast.

- Centralized strength with reduced peripheral ERF depth.

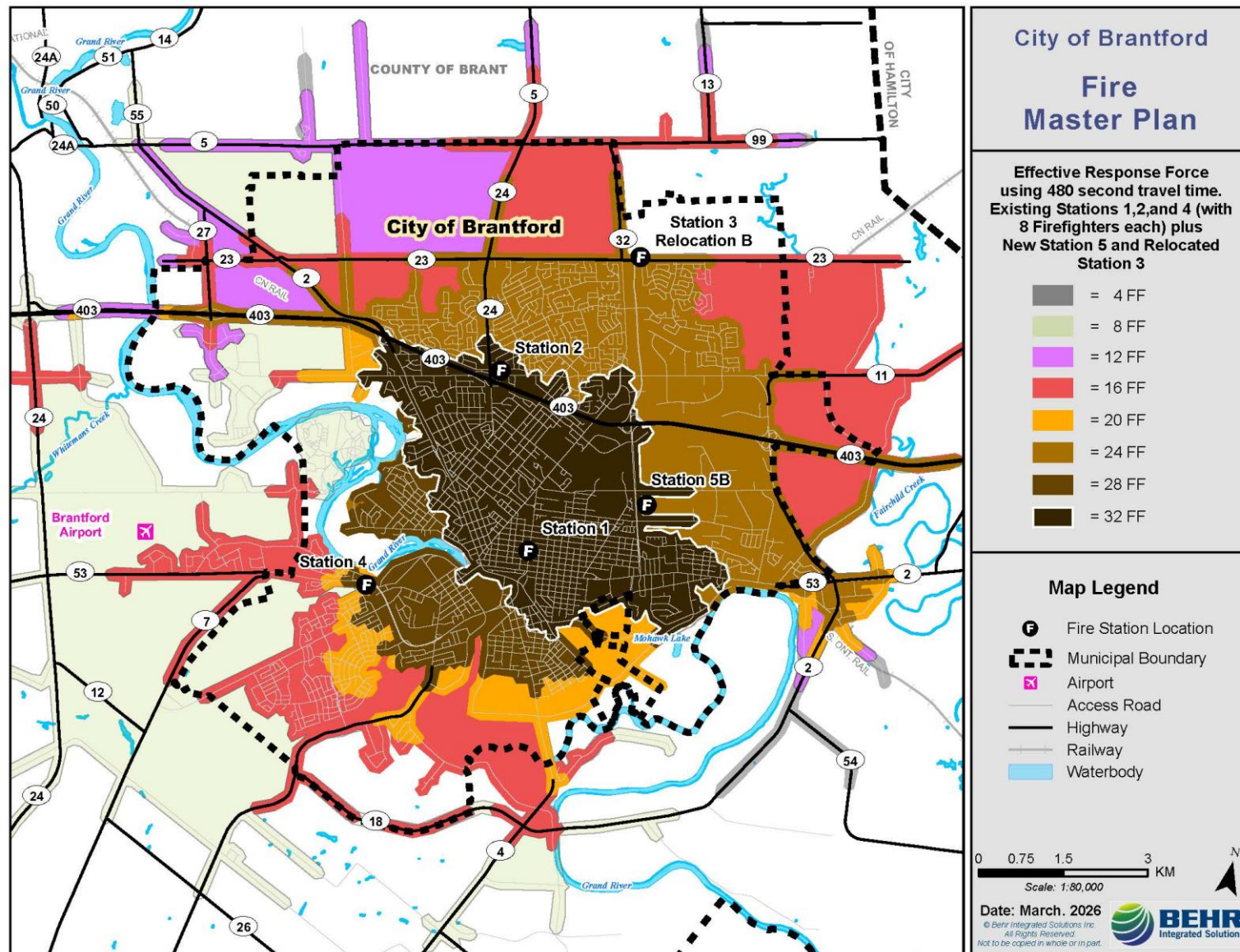
Stations 1 and 2 provide strong ERF capability; however, areas further from these stations experience reduced ability to assemble larger firefighting forces within the target timeframe.

- Improved resilience for concurrent incidents.

With five stations contributing to response, the system distributes workload more effectively and reduces reliance on a single station.

This configuration provides a balanced approach between enhanced central staffing and expanded geographic coverage, resulting in strong ERF performance in the core and improved first-due reach citywide. However, the system remains centrally weighted, with reduced ERF depth in outer areas and limited ability to assemble higher-order firefighting forces.

Map 14: ERF with Expanded Staff at Station 2 and Station 4



The following observations to ERF with Stations 1, 2, and 4 (8 firefighters each) plus Station 5 and relocated Station 3 (4 firefighters each):

The addition of Station 5 in the southeast and the relocation of Station 3 to a more central northeast position, combined with enhanced staffing at Stations 1, 2, and 4, significantly strengthens Brantford's initial response capability and overall ERF performance. This configuration establishes a well-balanced system that improves both geographic coverage and staffing depth, particularly within the built-up urban area.

Enhanced deployment closes historical response gaps in the southeast, eastern fringe, and southwest river-adjacent neighbourhoods while creating strong overlap across the central core. As a result, Brantford achieves near-complete first-due coverage and materially improves its ability to assemble effective firefighting forces within the 480-second travel time.

Key benefits include:

- Brings the growing southeast corridor into reliable coverage. Neighbourhoods along Mount Pleasant Road, Shellard Lane, Garden Avenue, and the Lynden Road corridor now fall within consistent 240–300 second travel times. These areas benefit from response from Station 5 and support from Stations 1 and 3B, eliminating previous extended travel gaps.
- Creates strong multi-station overlaps across the central and south-central city. The combination of 8-person staffing at Stations 1, 2, and 4, supported by Stations 3 and 5, produces a dense coverage network. This significantly improves the ability to assemble 12-, 16-, and higher firefighter ERFs across the core.
- Expands coverage along key transportation and employment corridors. Improved response depth is evident along Highway 403, Wayne Gretzky Parkway, and Lynden Road. These corridors, which include higher-risk industrial and commercial occupancies, now benefit from stronger and more reliable ERF assembly.
- Improves coverage balance across the city. The addition of Stations 3B and 5B reduces reliance on central stations for peripheral responses, while still maintaining strong ERF depth in the core through enhanced staffing at Stations 1, 2, and 4.

## Operational Impacts:

- Significantly improved initial attack and task capability. The presence of 8 firefighters at three stations enables faster initiation of critical fireground tasks, including fire attack, search, water supply, and incident command.
- Stronger and more reliable ERF assembly. The system can now assemble 12- and 16-firefighter ERFs across a substantial portion of the urban area, with higher-order ERFs achievable within the central core.
- Reduced reliance on central stations for citywide coverage. Stations 3 and 5 absorb demand in growth areas, allowing Stations 1 and 2 to maintain availability for high-call-volume areas and complex incidents.
- Improved system resilience during concurrent incidents. Enhanced station distribution and staffing depth reduce single-station dependency and improve overall system reliability during peak demand periods.
- Enhanced performance in higher-risk areas. Industrial, commercial, and transportation corridors benefit from improved ERF depth, supporting safer and more effective operations in higher-risk environments.

This configuration represents a significant advancement in Brantford’s fire protection capability. It achieves a strong balance between comprehensive geographic coverage and sufficient staffing depth, ensuring that most of the municipality benefits from timely initial response while the central core maintains the capacity to assemble larger, more effective firefighting forces.

While higher-order ERF (24–32 firefighters) remains concentrated within the core, the overall system demonstrates a substantial improvement in operational effectiveness, resilience, and alignment with community risk and growth

The following table provides an illustrated ERF comparison through the adding of additional stations and the additional staffing options.

*Table 60: ERF Coverage City-Wide Comparison*

| ERF Firefighters (FF) | Existing Stations (1–4) | With Station 5 + Relocated Station 3 | Adding 8 FF to Station 2 | Adding 8 FF to each Station 2 and Station 4 |
|-----------------------|-------------------------|--------------------------------------|--------------------------|---------------------------------------------|
| 8 FF                  | 65-70%                  | 70-75%                               | 75-80%                   | 82-86%                                      |
| 12 FF                 | 30-35%                  | 40-45%                               | 45-50%                   | 58-63%                                      |
| 16 FF                 | 12-18%                  | 18-22%                               | 22-27%                   | 30-35%                                      |
| 20 FF                 | 5-8%                    | 8-12%                                | 10-14%                   | 15-19%                                      |
| 24 FF                 | 0%                      | 3-6%                                 | 5-8%                     | 9-12%                                       |
| 28 FF                 | 0%                      | 0%                                   | 1-3%                     | 5-7%                                        |
| 32 FF                 | 0%                      | 0%                                   | 0%                       | 2-4%                                        |

The table demonstrates a clear and progressive improvement in ERF coverage as staffing capacity is increased across additional stations. While the existing four-station configuration provides reasonable first-due (8 firefighters) coverage, it shows limited ability to assemble higher-order ERFs, with virtually no coverage beyond 20 firefighters. The introduction of Station 5 and the relocation of Station 3 improve overall system reach and moderately enhance multi-unit response capability, particularly at the 12–20 firefighter levels.

Incremental staffing enhancements, first at Station 2, and then at both Stations 2 and 4, produce significant gains in ERF depth and overall system performance. The addition of 8 firefighters to multiple stations results in substantial expansion of 12- and -16 firefighter coverage and introduces meaningful coverage at the 20–32 firefighter levels. Notably, the configuration with 8 firefighters at Stations 1, 2, and 4 achieves the strongest and most balanced ERF performance, demonstrating that increasing staffing at strategically located stations has a compounding effect on both coverage area and the ability to assemble effective firefighting forces within the target response time.

#### 4.11.8 Integrated Apparatus and Staffing Implementation Strategy

Staffing and apparatus enhancements are intentionally phased to align with verified growth, concurrency trends, and fiscal sustainability. Incremental hiring supports effective onboarding, certification, officer development, and flexible interim deployment prior to full station or apparatus activation.

*Table 61: Phased Staffing and Apparatus Implementation Summary (added cost includes class progressions year over year and benefits)*

| Year | Station 5 | Station 2 | Station 4 | Total | Added cost | Cumulative cost |
|------|-----------|-----------|-----------|-------|------------|-----------------|
| 2027 |           | 10        |           | 10ff  | \$1.03M    | \$1.03M         |
| 2028 |           | 10        |           | 10ff  | \$1.18M    | \$2.21M         |
| 2029 | 10        |           |           | 10ff  | \$1.33M    | \$3.54M         |
| 2030 | 10        |           |           | 10ff  | \$1.48M    | \$5.02M         |
| 2031 |           |           |           |       | \$0.44M    | \$5.46M         |
| 2032 |           |           | 4         | 4ff   | \$0.71M    | \$6.17M         |
| 2033 |           |           | 8         | 8ff   | \$1.03M    | \$7.20M         |
| 2034 |           |           | 8         | 8ff   | \$1.00M    | \$8.20M         |

#### 4.11.9 System-Wide Implications and Monitoring

Overall, concurrent call activity across BFD is projected to increase in parallel with service demand while remaining localized and manageable. Station 1 will continue to experience the highest concurrency, supported by multi-unit redundancy. Station 5 represents the highest priority for future apparatus expansion, followed by Station 4 on a conditional basis.

Concurrency trends should continue to be monitored annually and used as a trigger metric, alongside response times and ERF performance, to guide future apparatus and staffing decisions. Post-commissioning analysis of Station 5 will be essential to confirm anticipated demand redistribution and operational benefits.

##### 4.11.10 Staffing Ratio Implications

As identified in section 3.1.4.2 (Operations Staffing Ratio, based on an average annual availability of approximately 1,669 hours per firefighter, a staffing ratio of 5.23 firefighters is required to sustain a continuously staffed four-person apparatus. This ratio is applied consistently across all scenarios to ensure reliable coverage and operational sustainability.

Under the current staffing model, a minimum of 21 firefighters (including 1 PC and 4 Captains) are required on duty to staff existing apparatus, translating to a platoon requirement of approximately 27.5 firefighters, rounded to 28 full-time equivalents (FTEs). Staffing the rescue truck to four personnel raises the minimum on-duty requirement to 25 firefighters and results in a platoon requirement of 32.7 firefighters, rounded to 33 FTEs.

The addition of a new staffed unit at Station 5 further increases minimum on-duty staffing to 29 firefighters, requiring approximately 36.6 firefighters per platoon, rounded to 37 FTEs. The highest growth scenario, involving the addition of a staffed unit at Station 4, increases minimum on-duty staffing to 32 firefighters and results in a platoon requirement of approximately 41.8 firefighters, rounded to 42 FTEs.

Overall, the analysis demonstrates that increases in minimum staffing levels result in corresponding increases in total platoon staffing once operational absences are considered. Accordingly, any service expansion or change to minimum crew configurations must account for the full staffing complement required to sustain those changes on a long-term basis.

Table 62: Brantford Fire Department Expanded Staffing Ratio Calculations, Per Platoon

| Description |                                                                                           | Current | 4 on Rescue | Station 5 - added unit | Station 4 added unit |
|-------------|-------------------------------------------------------------------------------------------|---------|-------------|------------------------|----------------------|
|             |                                                                                           | Hours   | Hours       | Hours                  | Hours                |
| 1           | Availability required per firefighter, in hours                                           | 2184    | 2184        | 2184                   | 2184                 |
| 2           | Total yearly coverage required per 4 ff, in hours (one apparatus)                         | 8736    | 8736        | 8736                   | 8736                 |
| 3           | Sick time (STD) certified, in hours per FF                                                | 80.6    | 80.6        | 80.6                   | 80.6                 |
| 4           | Annual vacation time in hours per FF                                                      | 160.31  | 160.31      | 160.31                 | 160.31               |
| 5           | Lieu time in hours per FF                                                                 | 126.04  | 126.04      | 126.04                 | 126.04               |
| 6           | WSIB in hours per FF                                                                      | 144.57  | 144.57      | 144.57                 | 144.57               |
| 7           | Bereavement                                                                               | 3.24    | 3.24        | 3.24                   | 3.24                 |
| 8           | Unavailable for duty in hours (sum line 3 to line 7)                                      | 515     | 515         | 515                    | 515                  |
| 9           | Avg availability per FF in hours (Line 1-Line 8)                                          | 1669    | 1669        | 1669                   | 1669                 |
| 10          | Staffing ratio required per 4 firefighters (Line 2/Line 9)                                | 5.23    | 5.23        | 5.23                   | 5.23                 |
| 11          | # FF minimum staff required on duty to staff apparatus plus 1 PC)                         | 21      | 25          | 29                     | 33                   |
| 12          | Min. ff assigned per platoon to ensure minimum staffing maintained (Line 11/4) X Line 10) | 27.5    | 32.7        | 37.9                   | 43.1                 |
| 13          | Rounded to the nearest full FTE count                                                     | 28      | 33          | 38                     | 44                   |

**Observation #27:** The commissioning of Fire Station 5 represents a significant operational expansion for the service and introduces clear staffing implications that must be addressed well in advance of the station becoming operational. A minimum staffing complement of 20 full-time personnel, comprised of 16 Firefighters and 4 Captains, is required to support a four-platoon model, and ensure four firefighters are always on duty. This staffing level reflects accepted best practices for full-time fire services and is necessary to safely conduct interior fire suppression in accordance with the 2-in/2-out principle, as well as to meet obligations under the Occupational Health and Safety Act. Operating with fewer personnel would increase operational risk, limit tactical options at emergency scenes, and expose the municipality to regulatory and liability concerns.

Phasing staffing in advance of Station 5's opening provides important organizational and operational benefits. A gradual hiring approach allows the department to recruit, train, and certify new firefighters without overwhelming training capacity, supervision, or operational culture. Incremental onboarding also provides flexibility to deploy new hires for relief coverage, special assignments, or overtime mitigation prior to the station opening, thereby delivering service-wide benefits before the facility is commissioned. From a financial perspective, spreading staffing costs over multiple budget years improves affordability and predictability while avoiding a single-year staffing spike at the time of station activation.

**Recommendation #27:** Implement a phased staffing plan to hire 20 Firefighters and promote 4 Captains over a two-year period (2029–2030) to fully staff Fire Station 5 upon commissioning.

**Suggested completion:** 36-60 months

**Cost:** \$3.01M salaries (2026) - annual operating. Capital costs PPE (20FF) is approximately \$170,000.

**Strategic Objective #5:** Emergency Response and Operations

**Rationale:** *A phased staffing strategy ensures that Fire Station 5 can become operational immediately upon opening with a complete and competent suppression crew, avoiding transitional service gaps or reduced response capability. Early hiring supports thorough training, mentoring, and operational integration, which are critical for maintaining safety, performance, and consistency with existing platoons. It also allows the service to build supervisory capacity through timely Captain promotions, ensuring appropriate leadership and command coverage from day one.*

*This approach also aligns staffing growth with capital project timelines and long-term financial planning. By distributing personnel costs across several budget cycles, the municipality can better manage wage, benefit, and training expenditures while maintaining overall fiscal sustainability. Additionally, the use of incremental hires prior to station opening provides interim operational value to the broader system, strengthening resilience, reducing overtime pressures, and supporting evolving service demands as community growth continues.*

**Observation #28:** Station 2 serves an area characterized by medical, transportation, and a mix of commercial, industrial, and residential risks where rescue responses frequently require a quick response. Under the current staffing model, the rescue apparatus is not consistently staffed with four firefighters, limiting the unit's ability to immediately initiate critical lifesaving and hazard-control operations upon arrival. This staffing configuration somewhat limits Effective Response Force (ERF) on first arrival and delays task-level execution during rescue-oriented emergencies.

Rescue incidents, including medical calls, motor vehicle collisions, and technical rescue events, require sufficient on-scene staffing to safely perform patient care, scene control, extrication support, and initial incident stabilization simultaneously. A rescue apparatus staffed with fewer than four firefighters limit operational capacity, increases dependency on secondary arriving units, and introduces avoidable delays during time-sensitive emergencies. Ensuring a consistent four-firefighter crew directly enhances the unit's effectiveness, firefighter safety, and compliance with established ERF and occupational health and safety expectations.

**Recommendation #28:** Fully staff the Station 2 rescue apparatus with 20 firefighters beginning in 2028.

**Suggested completion:** 12-24 months

**Cost:** \$3.01M (2026 rates) – annual operating. Capital costs PPE (20FF) is approximately \$170,000.

**Strategic Objective #5:** Emergency Response and Operations

**Rationale:** Fully staffing the Station 2 rescue unit with four firefighters ensures that Effective Response Force requirements can be achieved immediately upon early arrival for rescue-oriented incidents. A four-person crew provides the minimum operational capacity necessary to safely and efficiently initiate simultaneous critical tasks, including patient assessment and care, hazard isolation, scene control, and initial fire or rescue intervention. This configuration directly supports firefighter safety, compliance with occupational health and safety expectations, and timely life-saving outcomes during high-risk, time-sensitive emergencies.

Consistent four-firefighter staffing on the rescue also reduces reliance on delayed reinforcement from other stations to achieve ERF in the stations response area, particularly during periods when system-wide resources may already be committed. By strengthening first-due capability at Station 2, BFD enhances overall system resilience, improves operational consistency across shifts, and ensures equitable service delivery regardless of incident timing or location. This targeted staffing enhancement represents a highly effective means of improving frontline performance without introducing additional apparatus or facilities.

**Observation #29:** Station 4 serves a response area experiencing continued residential growth and increasing transportation and medical-related incident demand. These factors have contributed to a steady rise in overall call volume and overlapping incidents, particularly those requiring time-sensitive emergency medical intervention and multi-task responses. While concurrency levels remain within acceptable system thresholds, the increasing frequency and complexity of incidents place growing operational pressure on the station's single-unit configuration.

The current single-frontline-unit model at Station 4 limits the station's ability to independently manage simultaneous incidents and to assemble Effective Response Force (ERF) on first arrival for higher-demand events. Medical emergencies, motor vehicle collisions, and residential fire incidents frequently require multiple concurrent tasks, which cannot be fully supported by a single crew without reinforcement. As a result, ERF attainment often depends on secondary units responding from other stations, extending response times, and increasing system-wide dependency.

**Recommendation #29:** Implement a conditional second frontline apparatus at Station 4 beginning in 2034.

**Suggested completion:** 72-96 months

**Cost:** \$3.01M salaries (2026) - annual operating, \$1.5 M. Capital costs PPE (20FF) is approximately \$170,000.

**Strategic Objective #5:** Emergency Response and Operations

***Rationale:** Introducing a second staffed frontline apparatus at Station 4 would materially improve local ERF capability by enabling two crews to initiate coordinated operations immediately upon arrival. This enhancement supports safer and more effective responses to residential fires, medical emergencies, and transportation-related incidents, where rapid task allocation and sustained staffing are critical to patient outcomes and firefighter safety.*

*Phasing this enhancement on a conditional basis beginning in 2034 allows BFD to align ERF improvements with verified demand trends and staffing maturation following the commissioning of Station 5. This approach ensures fiscal sustainability while strengthening local response reliability and reducing reliance on cross-station support. Improved ERF capability at Station 4 also enhances overall system resilience by preserving coverage depth during concurrent incidents elsewhere in the city.*

## APPENDICES

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## 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 receive 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. The 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 effects 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 which many fire departments utilize to carry on day-to-day operations. |
| Response                             | Those measures undertaken immediately after an emergency have 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 is 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. |

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## Appendix C: Municipal Comparative Analysis

### Budgets

Department budgets are of particular importance for most communities. In some instances, fire and emergency services are a considerable portion of a municipality's operating budget. This information was obtained using reported 2025 budgets.

Table 63: Community Comparative Budget Ranking

| Community                                             | Municipal Budget 2025 | Fire Dept. Operating Budget | % of Municipal Budget | Cost Per Capita |
|-------------------------------------------------------|-----------------------|-----------------------------|-----------------------|-----------------|
| Brantford                                             | \$210,858,045         | \$24,841,656                | 11.78%                | \$ 237.29       |
| Ajax                                                  | \$141,271,000         | \$23,491,200                | 16.63%                | \$185.46        |
| Pickering                                             | \$183,386,000         | \$22,485,098                | 12.26%                | \$226.70        |
| Peterborough                                          | \$413,375,116         | \$20,126,160                | 4.87%                 | \$240.60        |
| Cambridge                                             | \$175,720,700.00      | \$33,103,900.00             | 18.84%                | \$239.05        |
| Whitby                                                | \$186,760,000.00      | \$27,298,000.00             | 14.62%                | \$197.10        |
| Guelph                                                | \$595,384,569.00      | \$33,104,447.00             | 5.56%                 | \$230.31        |
| St. Catharines                                        | \$122,904,936.00      | \$28,649,059.00             | 23.31%                | \$209.42        |
| Per Capita Net Expenditure Fire (Brantford): \$237.29 |                       |                             |                       |                 |
| Average Per Capita Net Expenditure Fire: \$220.74     |                       |                             |                       |                 |

Image 3: Fire Department Budget as Percent of Municipal Budget

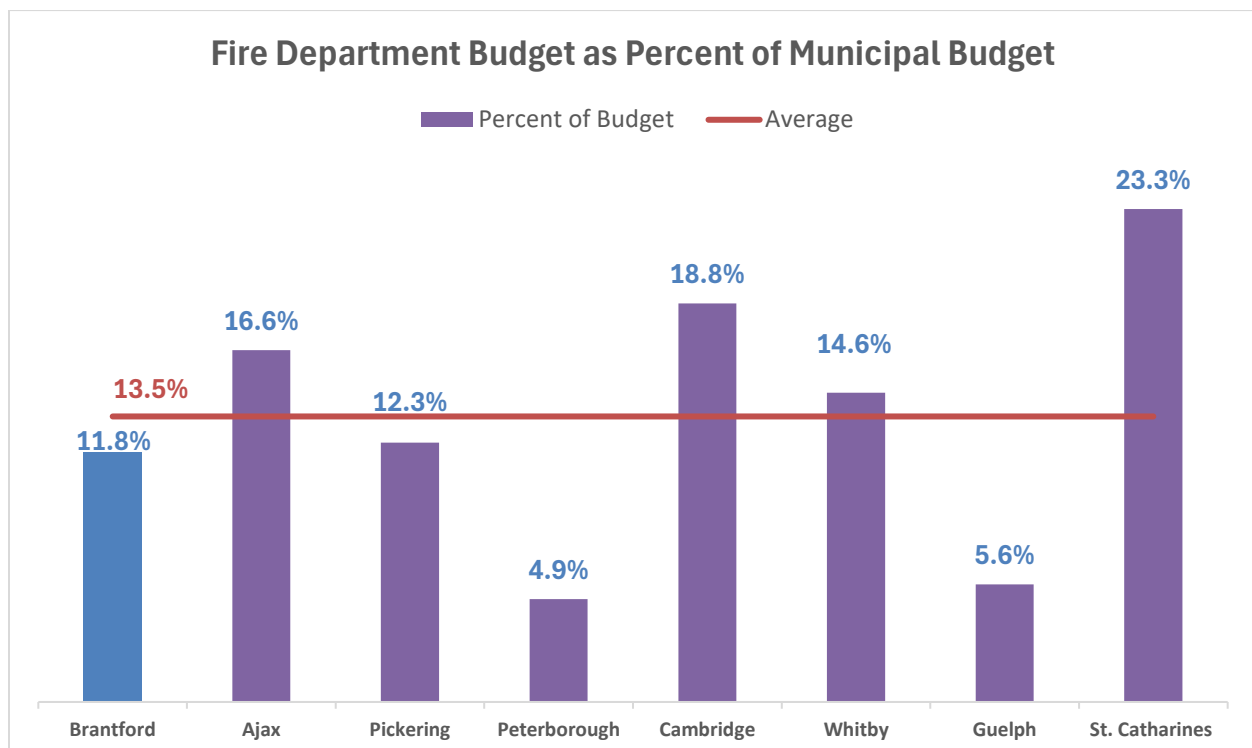
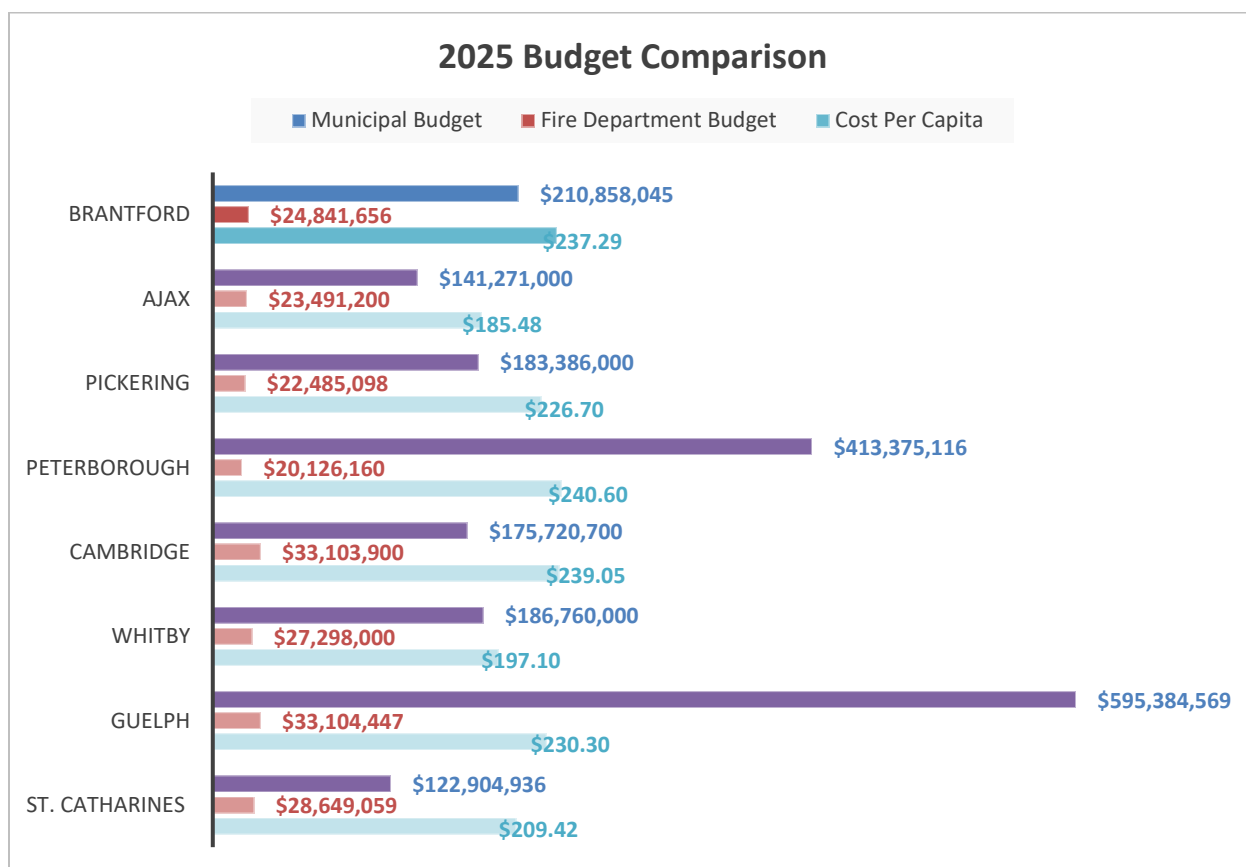


Image 4: Fire Department 2025 Budget Comparison



## Industry Standards

Standard of Cover is written policies and procedures that establish the response expectations, requirements, and resources, including initial response and effective response force, for fire services to address identified incident types and risks in their community.

Table 64: Community Comparative Standard of Cover

| Community      | Standard of Cover | Council Approved? (Yes / No) | Standard based on a leading practice, i.e., NFPA, OHS, etc. |
|----------------|-------------------|------------------------------|-------------------------------------------------------------|
| Brantford      | Yes               | Yes                          | Yes                                                         |
| Ajax           | Yes               | Yes                          | No                                                          |
| Pickering      | No                | No                           | No                                                          |
| Peterborough   | No                | No                           | No                                                          |
| Cambridge      | No                | No                           | No                                                          |
| Whitby         | Yes               | Yes                          | Yes                                                         |
| Guelph         | No                | No                           | No                                                          |
| St. Catharines | Yes               | Yes                          | Yes                                                         |

## Department Profile

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

Table 65: Community Comparative Departments' Profile

| Community                           | Brantford | Ajax     | Pickering | Peterborough | Cambridge | Whitby   | Guelph    | St. Catharines |
|-------------------------------------|-----------|----------|-----------|--------------|-----------|----------|-----------|----------------|
| Department Type                     | Fulltime  | Fulltime | Fulltime  | Fulltime     | Fulltime  | Fulltime | Fulltime  | Fulltime       |
| No. of Stations                     | 4         | 3        | 5         | 3            | 6         | 5        | 6         | 6              |
| Total Staff                         | 144       | 135      | 162       | 120          | 153       | 162      | 181       | 205            |
| Fire Chief (FT/PT)                  | 1 FT      | 1 FT     | 1 FT      | 1 FT         | 1 FT      | 1 FT     | 1 FT      | 1 FT           |
| Total Deputy Chief (PT/FT)          | 2 FT      | 2 FT     | 2 FT      | 1 FT         | 3 FT      | 2 FT     | 2 FT      | 2 FT           |
| Total Assistant Deputy Chief (ADC)  |           |          |           |              |           |          |           |                |
| Total Support Staff (PT/FT)         | 2 FT      | 5 FT     | 5 FT      | 3 FT/PT      | 4 FT      | 5 FT     | 3 FT      | 3 FT           |
| Total Suppression Staff (PT/FT)     | 116 FT    | 114 FT   | 143 FT    | 92 FT        | 132 FT    | 143 FT   | 147 FT    | 168 FT         |
| Total Fire Prevention Staff (PT/FT) | 7 FT      | 10 FT    | 7 FT      | 5 FT         | 9 FT      | 7 FT     | 7 FT      | 9 FT           |
| Total Training Staff (PT/FT)        | 2 FT      | 3 FT     | 4 FT      | 2 FT         | 2 FT      | 4 Ft     | 2 FT      | 4 FT           |
| Total Dispatch Staff (PT/FT)        | 9 FT      | 0        | 0         | 16 FT        | 0         | 0        | 9 FT      | 18 FT          |
| Mechanical                          | 2 FT      | 0        | 0         | 0            | 2 FT      | 0        | 2 FT      | 0              |
| Other                               | 1 FT - IT | 0        | 0         | 0            | 0         | 0        | 1 FT - IT | 0              |

FT: Fulltime      PT: Part-time

## Response Data

The same 2020–2024 information was used in comparing the response data for each community. Information is shared using two categories: Incident Type and Call Volume. Using these breakdowns allows for the uniqueness of each community to be represented as well as highlighting the areas of similarity for fire and emergency response.

Table 66: Examples of Incident Types for Statistical Analysis (Sample Only)

| 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<br>Burning Complaint<br>Structure Fire<br>Minor Fire<br>Smoke                           | Car Fire<br>Re-check<br>Wildfire – Grass, Brush, Outdoor<br>Oven/Pot on Stove<br>Explosion |
| MVI (Motor Vehicle Incident), aka MVC (Motor Vehicle Collision) | Extrication                                                                                   | No Extrication                                                                             |
| Rescue                                                          | Stalled Elevator<br>Lake/Marine Rescue<br>High Angle                                          | Swift Water<br>Building Collapse<br>Ice Rescue                                             |
| Hazmat/Dangerous Good                                           | Highway Incident<br>Rail Incident                                                             | Industrial Incident<br>Resident Incident                                                   |
| Non-Emergency                                                   | Carbon Monoxide<br>Gas/Oil Smell/Spill<br>Power/Telephone/Cable Line Down<br>Natural Gas Leak | Aircraft Standby Incident<br>Bomb Threat<br>Hazardous Materials<br>Propane Leak/Smell      |
| Other                                                           | Inspection<br>Burning Pile Inspection<br>Assist Other Agency<br>Public Service                | Needle Pick-up<br>Flood Assessment<br>Water Problem (in structure)                         |

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

Table 67: Municipal Comparative Response Call Volume

| Community          |      | Brantford | Ajax  | Pickering | Peterborough | Cambridge | Whitby | Guelph*       | St. Catharines |
|--------------------|------|-----------|-------|-----------|--------------|-----------|--------|---------------|----------------|
| Total Call Volume  | 2020 | 4,524     | 3,029 | 2,573     | 5,429        | 4837      | 3,833  | 5914          | 4,239          |
|                    | 2021 | 4,505     | 2,672 | 2,199     | 6,436        | 8261      | 3,310  | 7395          | 5,851          |
|                    | 2022 | 6,147     | 3,323 | 3,413     | 6,620        | 7958      | 5,027  | 8248          | 6,441          |
|                    | 2023 | 6,362     | 3,476 | 5,133     | 7,487        | 9709      | 7,647  | 8836          | 6,786          |
|                    | 2024 | 6,704     | 3,338 | 5,426     | 7,986        | 10330     | 8,385  | 9299          | 7,025          |
| Fire Related Calls | 2020 | 2,800     | 690   | 1,800     | 2,600        | 779       | 2,627  | N/A           | 935            |
|                    | 2021 | 2,712     | 721   | 1,755     | 3,034        | 386       | 2,652  | Oct-Dec: 583  | 1,011          |
|                    | 2022 | 3,047     | 915   | 2,156     | 3,256        | 426       | 3,376  | 3049          | 906            |
|                    | 2023 | 3,373     | 1,013 | 2,536     | 3,331        | 505       | 3,842  | 3249          | 988            |
|                    | 2024 | 3,352     | 990   | 2,404     | 3,671        | 449       | 4,192  | 3657          | 986            |
| EMS Related Calls  | 2020 | 1,724     | 1,134 | 773       | 2,829        | 2340      | 1,206  | N/A           | 1,167          |
|                    | 2021 | 1,793     | 643   | 444       | 3,402        | 5282      | 658    | Oct-Dec: 1213 | 2,690          |
|                    | 2022 | 3,100     | 811   | 1,257     | 3,364        | 4507      | 1,651  | 6859          | 3,125          |
|                    | 2023 | 2,989     | 985   | 2,597     | 4,156        | 5734      | 3,805  | 6541          | 3,423          |
|                    | 2024 | 3,352     | 930   | 3,022     | 4,315        | 5725      | 4,193  | 5064          | 3,470          |

\* Guelph implemented a change in RMS in October 2021

Image 5: Municipal Comparative Response Call Volume (2023& 2024)

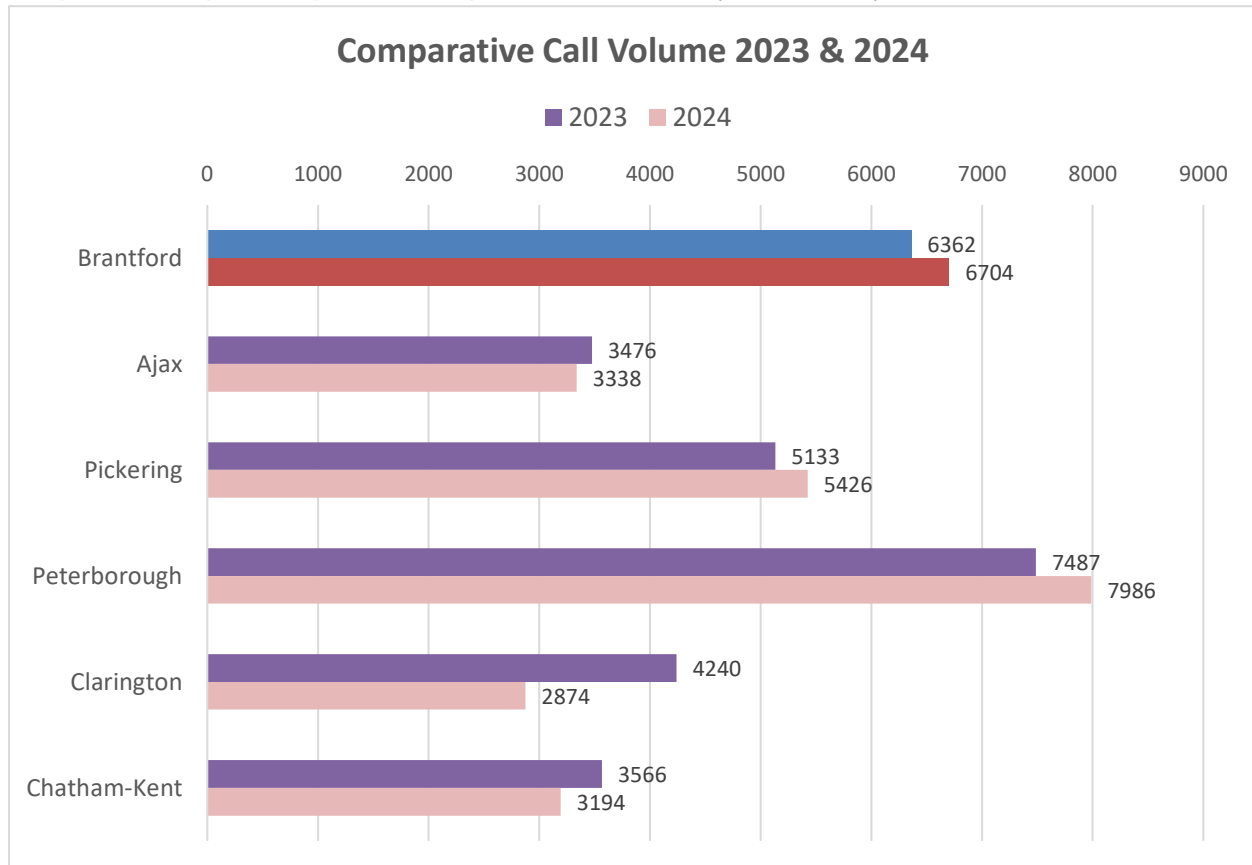


Table 68: Population Based Fire Department Comparisons

| Community                                         | Brantford | Ajax     | Pickering | Peterborough | Cambridge | Whitby   | Guelph   | St. Catharines |
|---------------------------------------------------|-----------|----------|-----------|--------------|-----------|----------|----------|----------------|
| Fire Department Cost per Capita (2025)            | \$237.29  | \$185.46 | \$226.70  | \$240.60     | \$239.05  | \$197.10 | \$230.31 | \$209.42       |
| Population per Fire Station                       | 26,172    | 42,222   | 19,837    | 27,884       | 23,080    | 27,700   | 23,957   | 22,801         |
| Total Fire Department Staff per Capita            | 0.001     | 0.001    | 0.002     | 0.001        | 0.001     | 0.001    | 0.001    | 0.001          |
| Population per Suppression Staff member           | 902       | 1,111    | 694       | 909          | 1,049     | 969      | 978      | 814            |
| Population per Prevention Staff member            | 14,955    | 12,667   | 14,169    | 16,730       | 15,387    | 19,786   | 20,534   | 15,200         |
| Total Fire Department Responses (2024) per Capita | 0.064     | 0.026    | 0.055     | 0.095        | 0.075     | 0.061    | 0.065    | 0.051          |

## Appendix D: 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.

### Data Formats

Preference of ESRI Shapefiles

### Base Data Layers Requested

#### A. Hydrology

- Supports response planning for water-related incidents (e.g., water rescue units).
- Enables analysis of spill contamination risks and containment strategies, especially in relation to rail networks and overland flow.
- Identifies bridge crossings that may be incident-prone (e.g., MVC/MVA, spills).
- Enhances map completeness and situational awareness.

#### B. Single-Line Road/Transportation Network

- Used to calculate response times based on road speeds.
- Roads are modeled into a network to support response routing.

#### C. Railways

- Identifies risk areas where rail infrastructure may impede response times.
- Assists in planning for derailments, chemical spills, and evacuation scenarios.

#### D. Municipal Boundaries

- Defines mutual aid limits and jurisdictional responsibilities.
- Supports sub-area mapping and regional response zone identification.
- Provides data for gap analysis and future station planning.

#### E. Parks

- Highlights accessibility challenges and opportunities for station placement.
- Supports locational analysis for new stations based on proximity.
- Includes classification of parks (local, regional, provincial, national).

#### F. Projection File

- Ensures spatial consistency with client or municipal datasets.
- Enables accurate measurement of distance and time for analysis.

**G. Orthophoto (GeoTIFF, Mr.SID)**

- Used for ground-truthing and visual verification of locations.
- Not typically included in final maps due to size and transfer limitations.

**H. Emergency Services Locations**

- Ensures accurate geolocation of facilities beyond matching address.
- Adjustments may be made to align facility points with road networks (typically within 50 meters).

**Response Zone Modeling****A. Assumptions**

- Average weather conditions (no storms, snow, etc.).
- Roadway segments include nodes/junctions at intersections.
  - If missing, network requires cleaning and fixing.
- Roadways may extend beyond municipal boundaries.
- Emergency responders are trained, and vehicles are operational.
- Roads are dry and in good condition.
- No time penalties for left turns.
- Road speeds provided by client; if unavailable:
  - Speeds are derived from road class tables.
  - Posted speeds are reduced by up to 5%.
- Average traffic volume; assumes free-flowing lanes.
- Rail crossings are unobstructed.
- Time of day modeled between 9 AM – 9 PM.
- Traffic signal pre-emption systems (e.g., Opticom) are assumed to be present.
- No intersection delays unless specified.
- School zones are adjusted only if identified.

**B. Response Time Calculation**

- Customized based on input from Emergency Services.
- Includes 80% of typical service calls.
- Based on total drive time using road speed data.
- Adjustments made for known variances or trends.

**C. Response Polygons**

- Define general response areas based on maximum drive limits.
- Identify mutual aid zones and coverage gaps.
- Support fire zone development and station planning.
- Highlight potential station relocations.

**Additional Analysis****A. Out-of-Scope (Subject to Client Discussion)**

- Transition from project-based to operational modeling:
  - Time-of-day and seasonal variations
  - Call volume and types
  - Advanced modeling and scripting for batch processing

**B. Data Availability**

- Client-provided data is used when sufficiently detailed.
- Assumptions are made when data is incomplete.

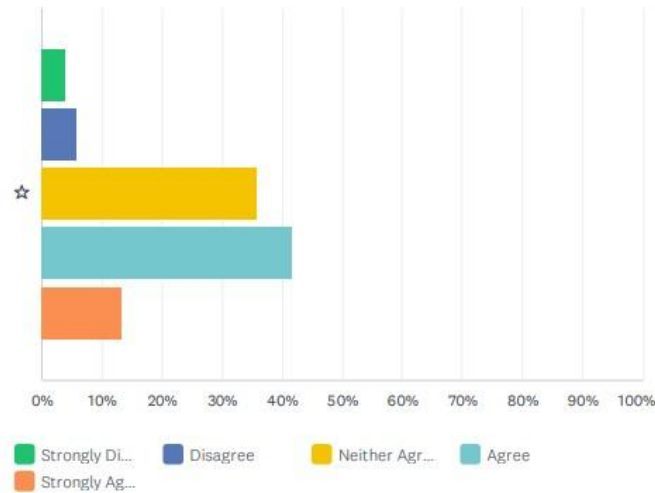
**C. Advanced Analysis (Optional)**

- Intersection-based speed reductions (e.g., stop signs, traffic lights).
- May be complex and time-intensive due to:
  - Limited client engagement
  - Inaccessible or missing data
  - One-off nature of projects

## Appendix E: Firefighter Online Survey

Q1 The public feels they are getting good value for their tax dollars for fire services.

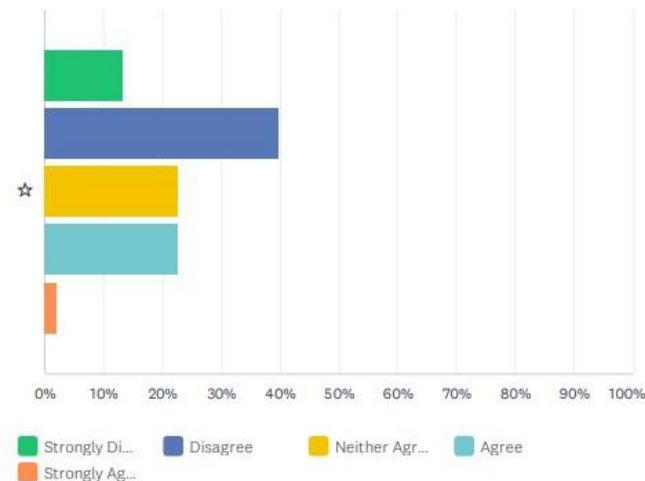
Answered: 53 Skipped: 0



|   | STRONGLY DISAGREE | DISAGREE   | NEITHER AGREE NOR DISAGREE | AGREE        | STRONGLY AGREE | TOTAL | WEIGHTED AVERAGE |
|---|-------------------|------------|----------------------------|--------------|----------------|-------|------------------|
| ☆ | 3.77%<br>2        | 5.66%<br>3 | 35.85%<br>19               | 41.51%<br>22 | 13.21%<br>7    | 53    | 0.00             |

Q2 The public has a good understanding of the fire service and its capabilities.

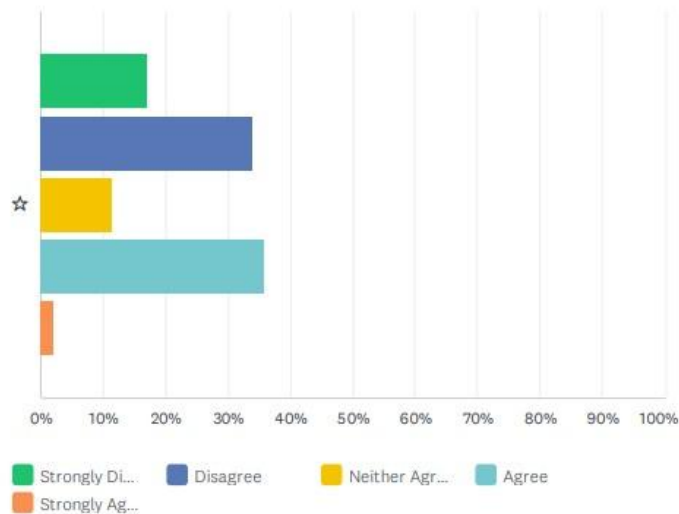
Answered: 53 Skipped: 0



|   | STRONGLY DISAGREE | DISAGREE     | NEITHER AGREE NOR DISAGREE | AGREE        | STRONGLY AGREE | TOTAL | WEIGHTED AVERAGE |
|---|-------------------|--------------|----------------------------|--------------|----------------|-------|------------------|
| ☆ | 13.21%<br>7       | 39.62%<br>21 | 22.64%<br>12               | 22.64%<br>12 | 1.89%<br>1     | 53    | 0.00             |

### Q3 Your community receives adequate fire/rescue protection.

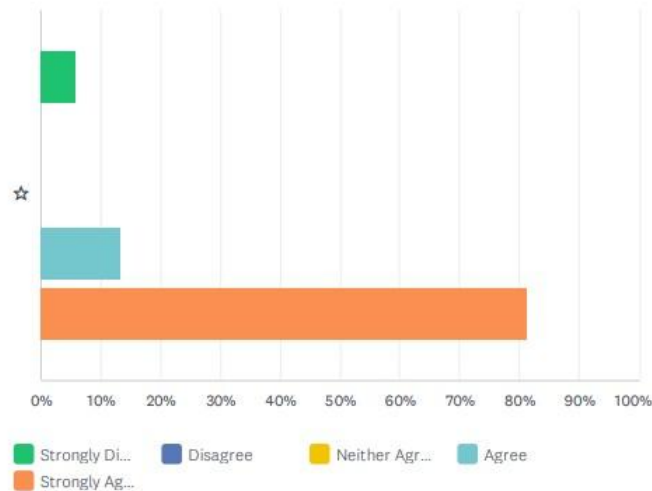
Answered: 53 Skipped: 0



|   | STRONGLY DISAGREE | DISAGREE | NEITHER AGREE NOR DISAGREE | AGREE  | STRONGLY AGREE | TOTAL | WEIGHTED AVERAGE |
|---|-------------------|----------|----------------------------|--------|----------------|-------|------------------|
| ☆ | 16.98%            | 33.96%   | 11.32%                     | 35.85% | 1.89%          | 53    | 0.00             |
|   | 9                 | 18       | 6                          | 19     | 1              |       |                  |

### Q4 Based on the rate of community and economic growth, fire service demands will increase in the future.

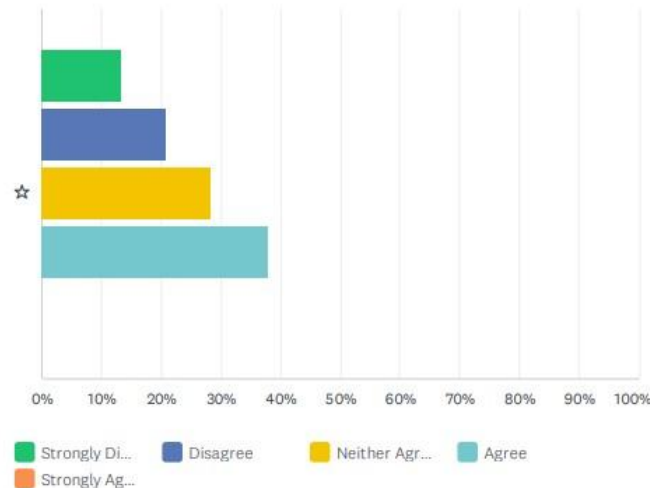
Answered: 53 Skipped: 0



|   | STRONGLY DISAGREE | DISAGREE | NEITHER AGREE OR DISAGREE | AGREE  | STRONGLY AGREE | TOTAL | WEIGHTED AVERAGE |
|---|-------------------|----------|---------------------------|--------|----------------|-------|------------------|
| ☆ | 5.66%             | 0.00%    | 0.00%                     | 13.21% | 81.13%         | 53    | 0.00             |
|   | 3                 | 0        | 0                         | 7      | 43             |       |                  |

**Q5 The community has adequate alternate fire risk reduction strategies  
(e.g. residential sprinklers, public education).**

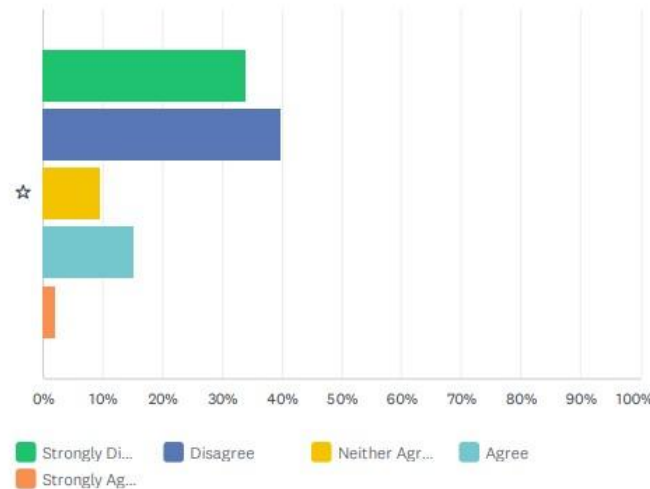
Answered: 53 Skipped: 0



|   | STRONGLY DISAGREE | DISAGREE | NEITHER AGREE NOR DISAGREE | AGREE  | STRONGLY AGREE | TOTAL | WEIGHTED AVERAGE |
|---|-------------------|----------|----------------------------|--------|----------------|-------|------------------|
| ☆ | 13.21%            | 20.75%   | 28.30%                     | 37.74% | 0.00%          | 53    | 0.00             |
|   | 7                 | 11       | 15                         | 20     | 0              |       |                  |

**Q6 The fire service's current response model is adequately staffed for fire response.**

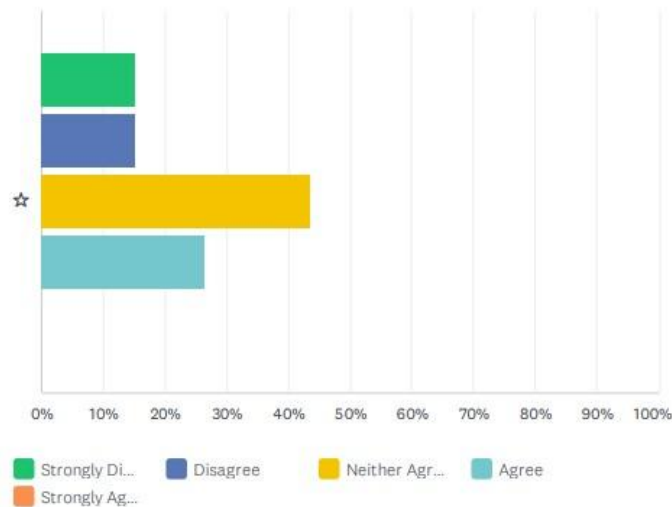
Answered: 53 Skipped: 0



|   | STRONGLY DISAGREE | DISAGREE | NEITHER AGREE NOR DISAGREE | AGREE  | STRONGLY AGREE | TOTAL | WEIGHTED AVERAGE |
|---|-------------------|----------|----------------------------|--------|----------------|-------|------------------|
| ☆ | 33.96%            | 39.62%   | 9.43%                      | 15.09% | 1.89%          | 53    | 0.00             |
|   | 18                | 21       | 5                          | 8      | 1              |       |                  |

### Q7 The fire service's policies/procedures reflect fire/rescue industry best practices.

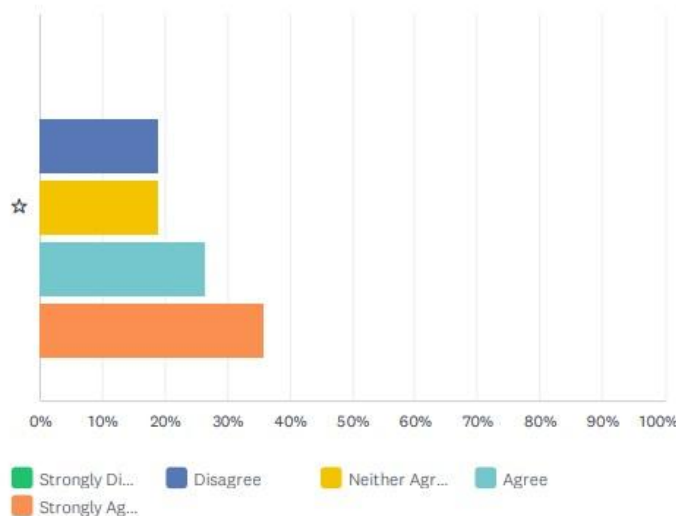
Answered: 53 Skipped: 0



|   | STRONGLY DISAGREE | DISAGREE | NEITHER AGREE NOR DISAGREE | AGREE  | STRONGLY AGREE | TOTAL | WEIGHTED AVERAGE |
|---|-------------------|----------|----------------------------|--------|----------------|-------|------------------|
| ☆ | 15.09%            | 15.09%   | 43.40%                     | 26.42% | 0.00%          | 53    | 0.00             |
|   | 8                 | 8        | 23                         | 14     | 0              |       |                  |

### Q8 Medical responses are over tasking the service's response capacity.

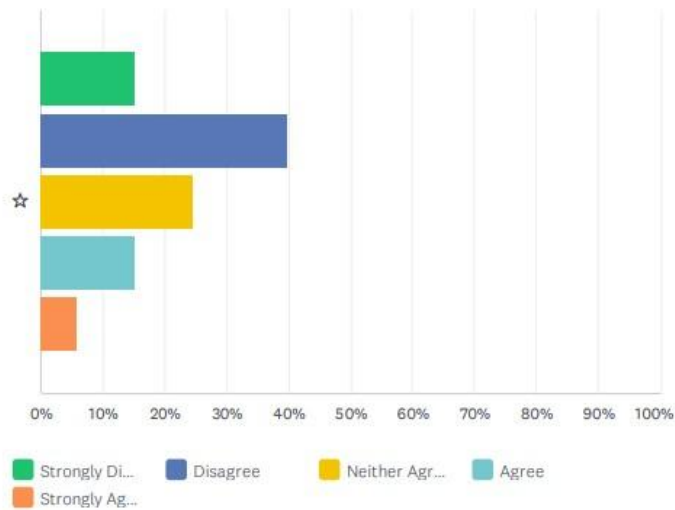
Answered: 53 Skipped: 0



|   | STRONGLY DISAGREE | DISAGREE | NEITHER AGREE NOR DISAGREE | AGREE  | STRONGLY AGREE | TOTAL | WEIGHTED AVERAGE |
|---|-------------------|----------|----------------------------|--------|----------------|-------|------------------|
| ☆ | 0.00%             | 18.87%   | 18.87%                     | 26.42% | 35.85%         | 53    | 0.00             |
|   | 0                 | 10       | 10                         | 14     | 19             |       |                  |

### Q9 Your fire service experiences a high rate of turnover.

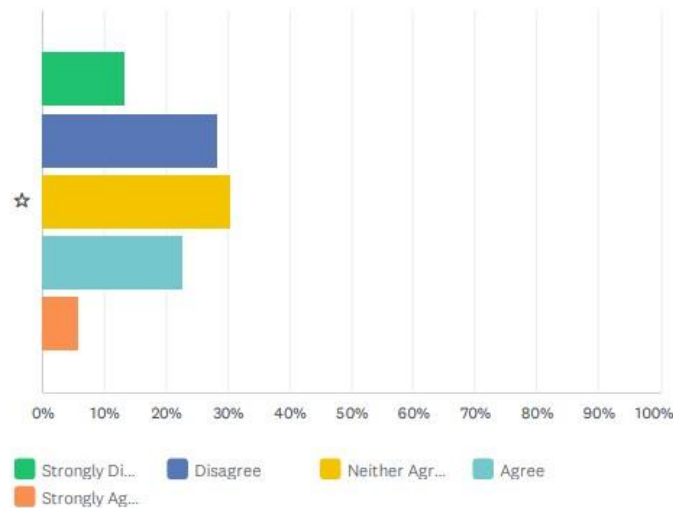
Answered: 53 Skipped: 0



|   | STRONGLY DISAGREE | DISAGREE | NEITHER AGREE NOR DISAGREE | AGREE  | STRONGLY AGREE | TOTAL | WEIGHTED AVERAGE |
|---|-------------------|----------|----------------------------|--------|----------------|-------|------------------|
| ☆ | 15.09%            | 39.62%   | 24.53%                     | 15.09% | 5.66%          | 53    | 0.00             |
|   | 8                 | 21       | 13                         | 8      | 3              |       |                  |

### Q10 Your current recruiting program is effective.

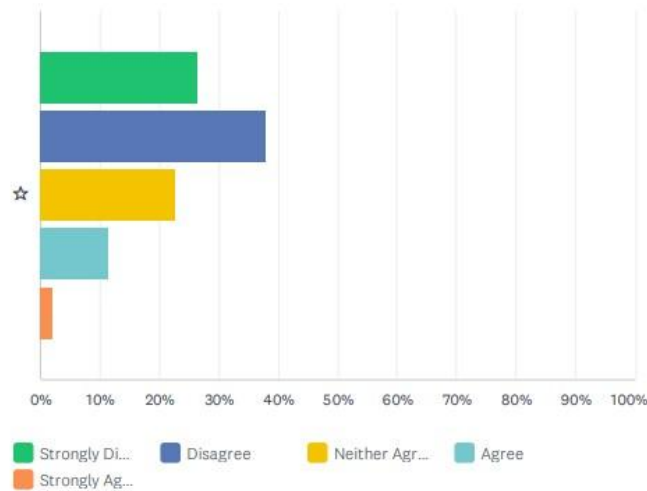
Answered: 53 Skipped: 0



|   | STRONGLY DISAGREE | DISAGREE | NEITHER AGREE NOR DISAGREE | AGREE  | STRONGLY AGREE | TOTAL | WEIGHTED AVERAGE |
|---|-------------------|----------|----------------------------|--------|----------------|-------|------------------|
| ☆ | 13.21%            | 28.30%   | 30.19%                     | 22.64% | 5.66%          | 53    | 0.00             |
|   | 7                 | 15       | 16                         | 12     | 3              |       |                  |

**Q11 The current level of live-fire and specialty team training is adequate for the services provided.**

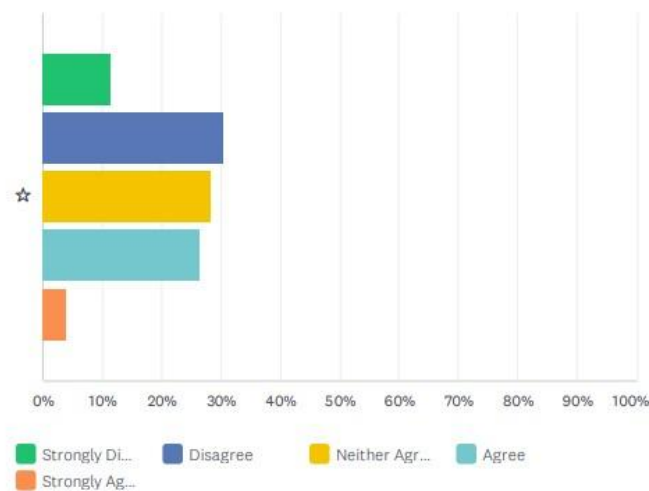
Answered: 53 Skipped: 0



|   | STRONGLY DISAGREE | DISAGREE     | NEITHER AGREE NOR DISAGREE | AGREE       | STRONGLY AGREE | TOTAL | WEIGHTED AVERAGE |
|---|-------------------|--------------|----------------------------|-------------|----------------|-------|------------------|
| ☆ | 26.42%<br>14      | 37.74%<br>20 | 22.64%<br>12               | 11.32%<br>6 | 1.89%<br>1     | 53    | 0.00             |

**Q12 The current level of theoretical fire/rescue or leadership training you receive is adequate.**

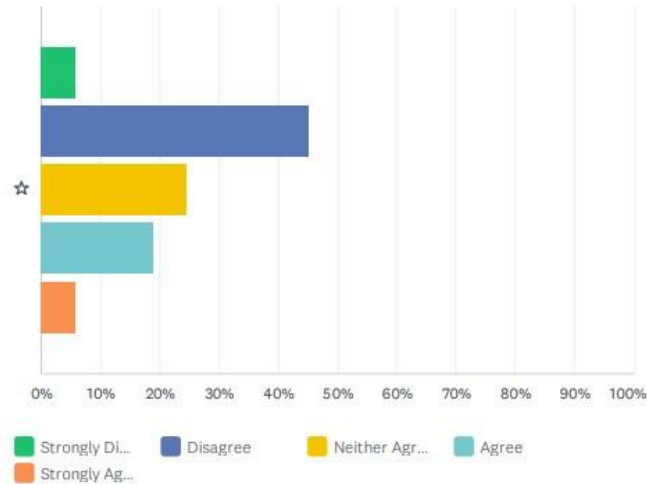
Answered: 53 Skipped: 0



|   | STRONGLY DISAGREE | DISAGREE     | NEITHER AGREE NOR DISAGREE | AGREE        | STRONGLY AGREE | TOTAL | WEIGHTED AVERAGE |
|---|-------------------|--------------|----------------------------|--------------|----------------|-------|------------------|
| ☆ | 11.32%<br>6       | 30.19%<br>16 | 28.30%<br>15               | 26.42%<br>14 | 3.77%<br>2     | 53    | 0.00             |

**Q13 You receive adequate training to maintain competencies and certifications.**

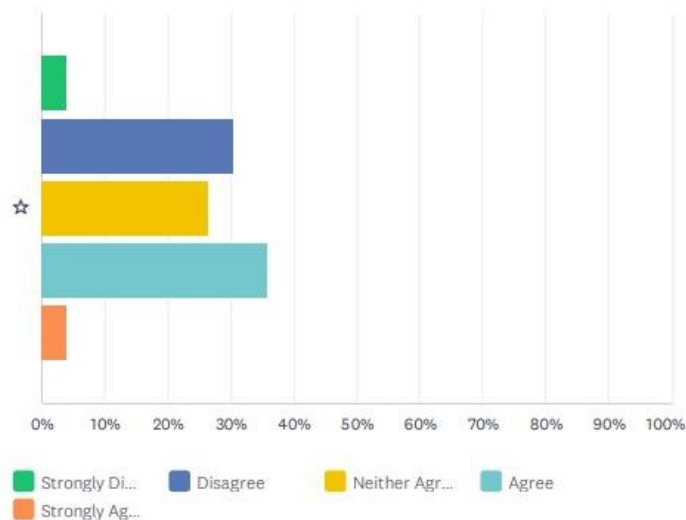
Answered: 53 Skipped: 0



|   | STRONGLY DISAGREE | DISAGREE | NEITHER AGREE NOR DISAGREE | AGREE  | STRONGLY AGREE | TOTAL | WEIGHTED AVERAGE |
|---|-------------------|----------|----------------------------|--------|----------------|-------|------------------|
| ☆ | 5.66%             | 45.28%   | 24.53%                     | 18.87% | 5.66%          | 53    | 0.00             |
|   | 3                 | 24       | 13                         | 10     | 3              |       |                  |

**Q14 Recruits are adequately trained before they are assigned to full duty.**

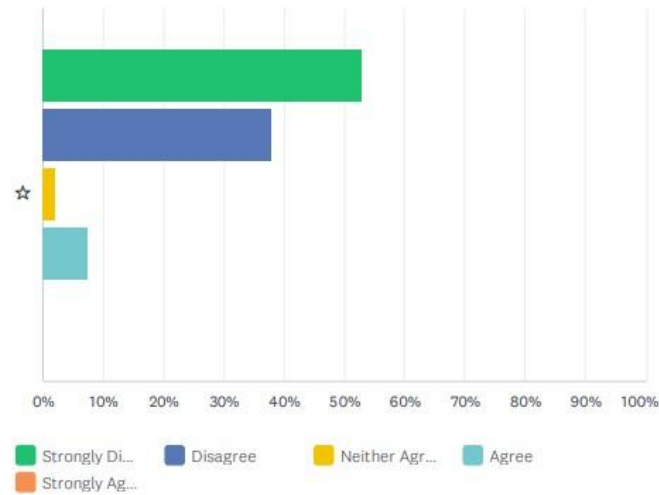
Answered: 53 Skipped: 0



|   | STRONGLY DISAGREE | DISAGREE | NEITHER AGREE NOR DISAGREE | AGREE  | STRONGLY AGREE | TOTAL | WEIGHTED AVERAGE |
|---|-------------------|----------|----------------------------|--------|----------------|-------|------------------|
| ☆ | 3.77%             | 30.19%   | 26.42%                     | 35.85% | 3.77%          | 53    | 0.00             |
|   | 2                 | 16       | 14                         | 19     | 2              |       |                  |

**Q15 The current fire station(s) is functional and meet the operational requirements of the department.**

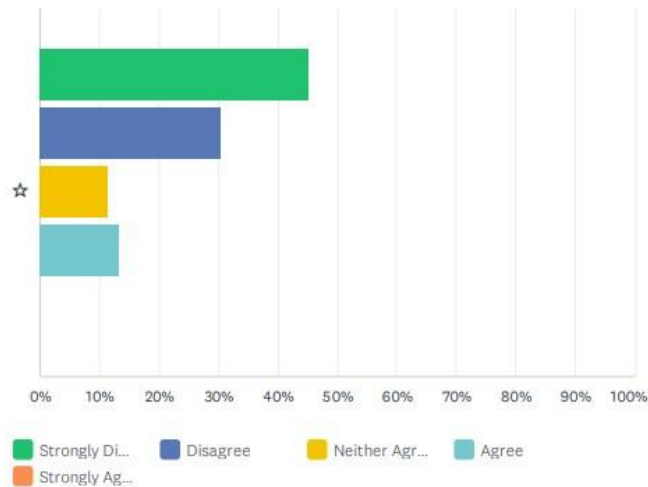
Answered: 53 Skipped: 0



|   | STRONGLY DISAGREE | DISAGREE     | NEITHER AGREE NOR DISAGREE | AGREE      | STRONGLY AGREE | TOTAL | WEIGHTED AVERAGE |
|---|-------------------|--------------|----------------------------|------------|----------------|-------|------------------|
| ☆ | 52.83%<br>28      | 37.74%<br>20 | 1.89%<br>1                 | 7.55%<br>4 | 0.00%<br>0     | 53    | 0.00             |

**Q16 The current fire station(s) is strategically located for adequate geographic coverage.**

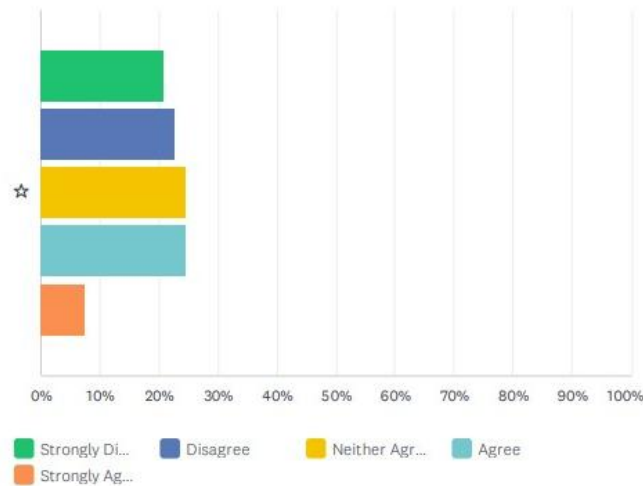
Answered: 53 Skipped: 0



|   | STRONGLY DISAGREE | DISAGREE     | NEITHER AGREE NOR DISAGREE | AGREE       | STRONGLY AGREE | TOTAL | WEIGHTED AVERAGE |
|---|-------------------|--------------|----------------------------|-------------|----------------|-------|------------------|
| ☆ | 45.28%<br>24      | 30.19%<br>16 | 11.32%<br>6                | 13.21%<br>7 | 0.00%<br>0     | 53    | 0.00             |

**Q17 The service is adequately resourced with small equipment (i.e. SCBA, light duty vehicles, loose equipment and consumables).**

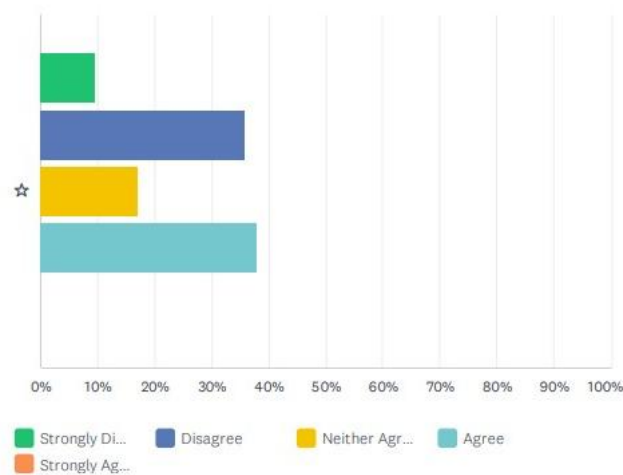
Answered: 53 Skipped: 0



|   | STRONGLY DISAGREE | DISAGREE     | NEITHER AGREE NOR DISAGREE | AGREE        | STRONGLY AGREE | TOTAL | WEIGHTED AVERAGE |
|---|-------------------|--------------|----------------------------|--------------|----------------|-------|------------------|
| ☆ | 20.75%<br>11      | 22.64%<br>12 | 24.53%<br>13               | 24.53%<br>13 | 7.55%<br>4     | 53    | 0.00             |

**Q18 The current vehicle fleet of fire apparatus provides the capacity/capability necessary to meet the demands and types of responses.**

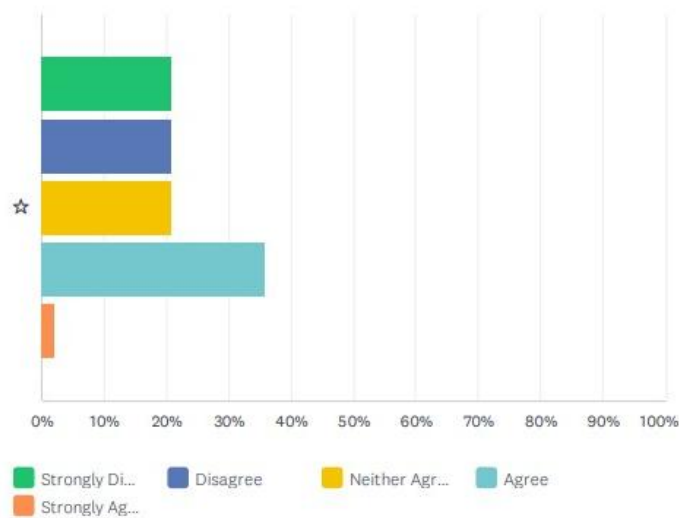
Answered: 53 Skipped: 0



|   | STRONGLY DISAGREE | DISAGREE     | NEITHER AGREE NOR DISAGREE | AGREE        | STRONGLY AGREE | TOTAL | WEIGHTED AVERAGE |
|---|-------------------|--------------|----------------------------|--------------|----------------|-------|------------------|
| ☆ | 9.43%<br>5        | 35.85%<br>19 | 16.98%<br>9                | 37.74%<br>20 | 0.00%<br>0     | 53    | 0.00             |

### Q19 Fire apparatus are appropriately life-cycled.

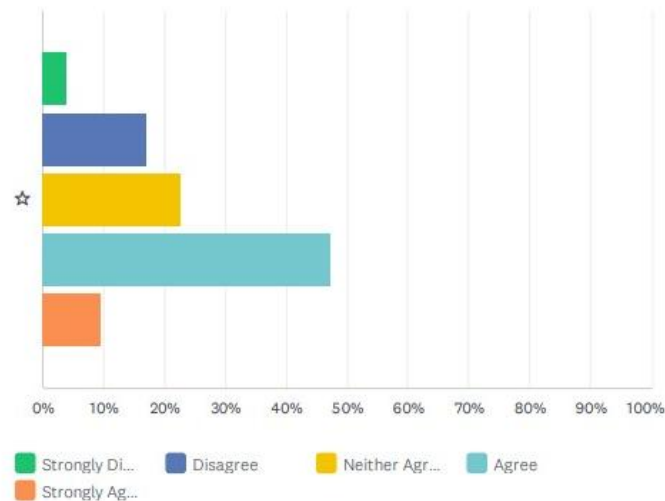
Answered: 53 Skipped: 0



|   | STRONGLY DISAGREE | DISAGREE | NEITHER AGREE NOR DISAGREE | AGREE  | STRONGLY AGREE | TOTAL | WEIGHTED AVERAGE |
|---|-------------------|----------|----------------------------|--------|----------------|-------|------------------|
| ☆ | 20.75%            | 20.75%   | 20.75%                     | 35.85% | 1.89%          | 53    | 0.00             |
|   | 11                | 11       | 11                         | 19     | 1              |       |                  |

### Q20 The maintenance of fire apparatus is adequate.

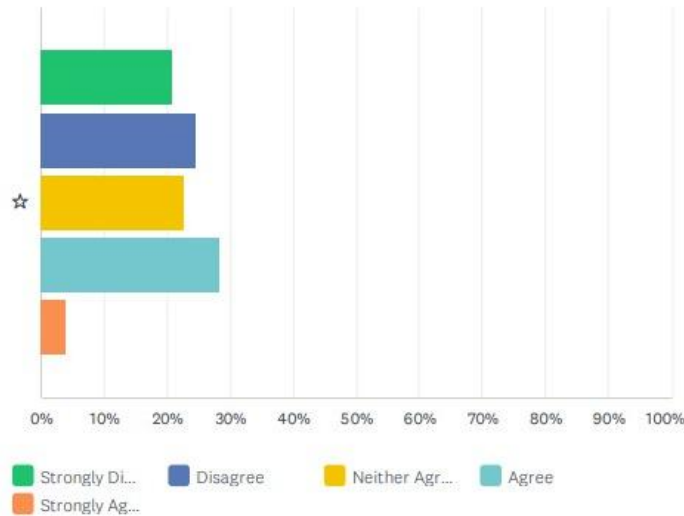
Answered: 53 Skipped: 0



|   | STRONGLY DISAGREE | DISAGREE | NEITHER AGREE NOR DISAGREE | AGREE  | STRONGLY AGREE | TOTAL | WEIGHTED AVERAGE |
|---|-------------------|----------|----------------------------|--------|----------------|-------|------------------|
| ☆ | 3.77%             | 16.98%   | 22.64%                     | 47.17% | 9.43%          | 53    | 0.00             |
|   | 2                 | 9        | 12                         | 25     | 5              |       |                  |

### Q21 The service keeps pace with technology in communications systems.

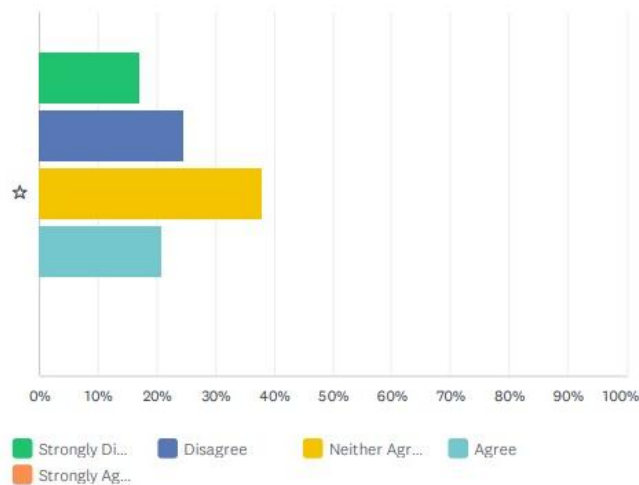
Answered: 53 Skipped: 0



|   | STRONGLY DISAGREE | DISAGREE     | NEITHER AGREE NOR DISAGREE | AGREE        | STRONGLY AGREE | TOTAL | WEIGHTED AVERAGE |
|---|-------------------|--------------|----------------------------|--------------|----------------|-------|------------------|
| ☆ | 20.75%<br>11      | 24.53%<br>13 | 22.64%<br>12               | 28.30%<br>15 | 3.77%<br>2     | 53    | 0.00             |

### Q22 The service keeps pace with technology in records management system and mobile CAD systems.

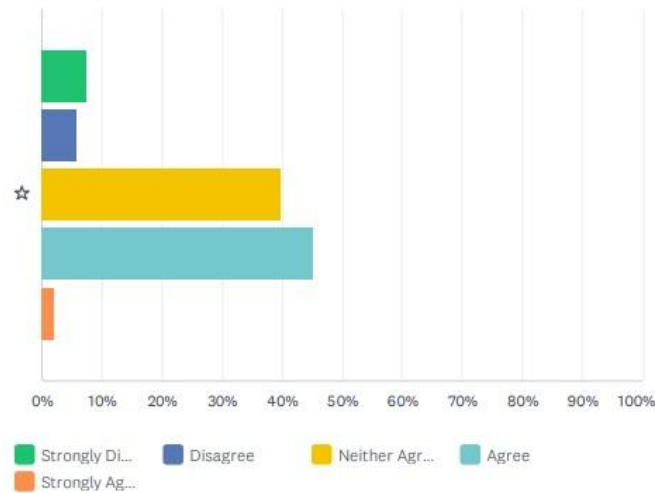
Answered: 53 Skipped: 0



|   | STRONGLY DISAGREE | DISAGREE     | NEITHER AGREE NOR DISAGREE | AGREE        | STRONGLY AGREE | TOTAL | WEIGHTED AVERAGE |
|---|-------------------|--------------|----------------------------|--------------|----------------|-------|------------------|
| ☆ | 16.98%<br>9       | 24.53%<br>13 | 37.74%<br>20               | 20.75%<br>11 | 0.00%<br>0     | 53    | 0.00             |

### Q23 The service keeps pace with technology in station alerting and pre-alerting.

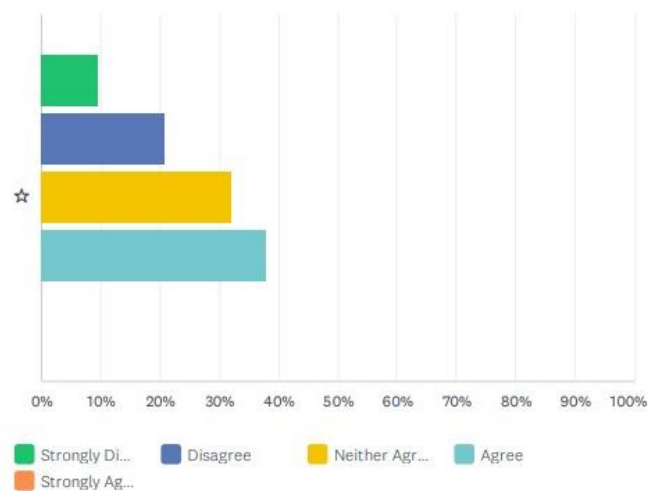
Answered: 53 Skipped: 0



|   | STRONGLY DISAGREE | DISAGREE | NEITHER AGREE NOR DISAGREE | AGREE  | STRONGLY AGREE | TOTAL | WEIGHTED AVERAGE |
|---|-------------------|----------|----------------------------|--------|----------------|-------|------------------|
| ☆ | 7.55%             | 5.66%    | 39.62%                     | 45.28% | 1.89%          | 53    | 0.00             |
|   | 4                 | 3        | 21                         | 24     | 1              |       |                  |

### Q24 The service keeps pace with technology in records management and fire reporting systems.

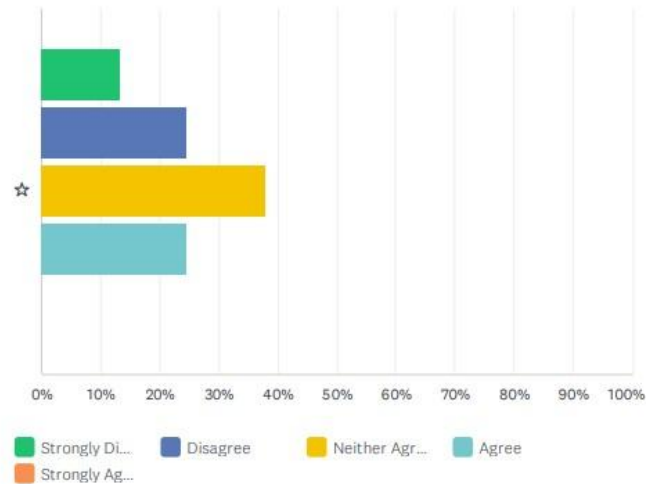
Answered: 53 Skipped: 0



|   | STRONGLY DISAGREE | DISAGREE | NEITHER AGREE NOR DISAGREE | AGREE  | STRONGLY AGREE | TOTAL | WEIGHTED AVERAGE |
|---|-------------------|----------|----------------------------|--------|----------------|-------|------------------|
| ☆ | 9.43%             | 20.75%   | 32.08%                     | 37.74% | 0.00%          | 53    | 0.00             |
|   | 5                 | 11       | 17                         | 20     | 0              |       |                  |

**Q25 The service keeps pace with technology in online learning management systems (LMS).**

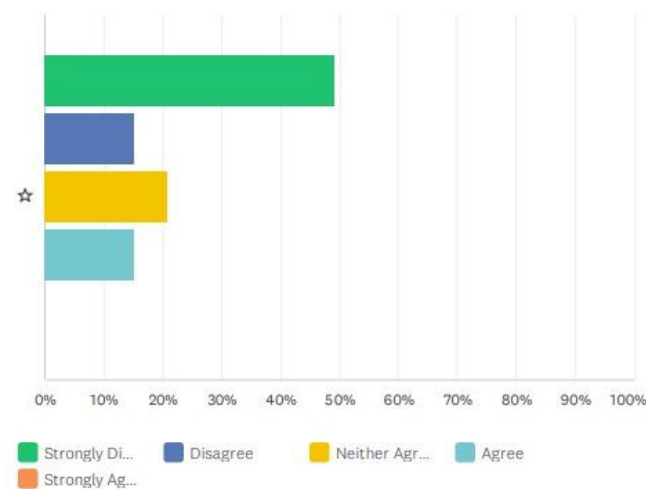
Answered: 53 Skipped: 0



|   | STRONGLY DISAGREE | DISAGREE     | NEITHER AGREE NOR DISAGREE | AGREE        | STRONGLY AGREE | TOTAL | WEIGHTED AVERAGE |
|---|-------------------|--------------|----------------------------|--------------|----------------|-------|------------------|
| ☆ | 13.21%<br>7       | 24.53%<br>13 | 37.74%<br>20               | 24.53%<br>13 | 0.00%<br>0     | 53    | 0.00             |

**Q26 The service keeps pace with technology for the traffic pre-emption system.**

Answered: 53 Skipped: 0



|   | STRONGLY DISAGREE | DISAGREE    | NEITHER AGREE NOR DISAGREE | AGREE       | STRONGLY AGREE | TOTAL | WEIGHTED AVERAGE |
|---|-------------------|-------------|----------------------------|-------------|----------------|-------|------------------|
| ☆ | 49.06%<br>26      | 15.09%<br>8 | 20.75%<br>11               | 15.09%<br>8 | 0.00%<br>0     | 53    | 0.00             |

## Appendix F: 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.                                                                                    | <p>The following job performance requirements of NFPA 1001, Standard for Fire Fighter Professional Qualifications (2019), Chapter 4 (Firefighter I) and Chapter 5 (Firefighter II):</p> <p>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</p> <p>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</p> | July 1, 2026        |
| 2    | Firefighter Exterior Attack and auto extrication: Fire suppression operations from the exterior of the building only and auto extrication rescue.                                   | <p>All job performance requirements in item 1 and the following job performance requirements of NFPA 1001, Standard for Fire Fighter Professional Qualifications (2019), Chapter 5 (Firefighter II):</p> <p>5.4.1</p>                                                                                                                                                                                                                                 | July 1, 2026        |
| 3    | Firefighter Exterior Attack and hazardous materials response: Fire suppression operations from the exterior of the building only and Operations-level hazardous materials response. | <p>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), Chapter 5 (Operations), and the following job performance requirements of Chapter 6 (Operations Mission Specific):</p> <p>6.2 and 6.6</p>                                                                                 | July 1, 2026        |

| Item | Fire protection service                                                                                                                                                                                                               | Minimum Certification Standard                                                                                                                                                                                                                                                                                                                                | Compliance Deadline |
|------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|
| 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), Chapter 4 (Firefighter I) and Chapter 5 (Firefighter II):<br><br>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<br><br>5.3.2 (A5-A9, B1-B6) | July 1, 2026        |
| 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), Chapter 5 (Firefighter II):<br><br>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), Chapter 5 (Operations) and the following job performance requirements of Chapter 6 (Operations Mission Specific):<br><br>6.2 and 6.6 | July 1, 2026        |

| Item | Fire protection service                                                                                                                                                                                                                                                                   | Minimum Certification Standard                                                                                                                                                                                                                                                                   | Compliance Deadline |
|------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|
| 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), 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), Chapter 4 (Fire Officer I):<br><br>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        |
| 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), Chapter 4 (Fire Officer I):<br><br>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), Chapter 4 (Fire Officer I):<br><br>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 |
|------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|
| 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), Chapter 4 (Fire Officer I):<br><br>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        |
| 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), Chapter 4 (Fire Officer I):<br><br>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), Chapter 4 (Fire Officer I):<br><br>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), Chapter 4 (Fire Officer I):<br><br>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 |
|------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|
| 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), Chapter 4 (Fire Officer I).                                                                            | July 1, 2026        |
| 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), 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), 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), 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), Chapter 5 (Fire Inspector II).                                    | July 1, 2026        |
| 21   | Fire Investigator: conducting fire cause and origin investigations.                                                                                                                                                                                                                                                                      | All job performance requirements of NFPA 1033, Standard for Professional Qualifications for Fire Investigator (2022), Chapter 4 (Fire Investigator).                                                               | July 1, 2026        |

| Item | Fire protection service                                                                                                                                                                         | Minimum Certification Standard                                                                                                                                                                                                                                                        | Compliance Deadline |
|------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|
| 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), Chapter 4 (Fire and Life Safety Educator I). | July 1, 2026        |
| 23   | Training Officer Level I: providing training and education to other fire personnel.                                                                                                             | All job performance requirements of Standard for Fire and Emergency Services Instructor Professional Qualifications (2019), 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), 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), 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), 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), Chapter 5 (Incident Safety Officer).                                                                                                                   | July 1, 2026        |

| Item | Fire protection service                                                                                                                                             | Minimum Certification Standard                                                                                                                                                                                                | Compliance Deadline |
|------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|
| 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        |
| 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), 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), Chapter 5 (Rope Rescue) (Operations):<br><br>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), Chapter 5 (Rope Rescue) (Technician):<br><br>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), Chapter 6 (Structural Collapse Rescue) (Operations):<br><br>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), Chapter 6 (Structural Collapse Rescue) (Technician):<br><br>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) Chapter 7 (Confined Space Rescue) (Operations):<br><br>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), Chapter 7 (Confined Space Rescue) (Technician):<br><br>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), Chapter 12 (Trench Rescue) (Operations):<br><br>12.2            | July 1, 2028        |
| 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), Chapter 12 (Trench Rescue) (Technician):<br><br>12.3            | July 1, 2028        |

| Item | Fire protection service                                                          | Minimum Certification Standard                                                                                                                                                                   | Compliance Deadline |
|------|----------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|
| 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), Chapter 17 (Surface Water Rescue) (Operations):<br><br>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), Chapter 17 (Surface Water Rescue) (Technician):<br><br>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), Chapter 18 (Swiftwater Rescue) (Operations):<br><br>18.2    | July 1, 2028        |
| 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), Chapter 18 (Swiftwater Rescue) (Technician):<br><br>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), Chapter 20 (Ice Rescue) (Operations):<br><br>20.2           | July 1, 2028        |

| Item | Fire protection service                                                  | Minimum Certification Standard                                                                                                                                                         | Compliance Deadline |
|------|--------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|
| 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), Chapter 20 (Ice Rescue) (Technician):<br><br>20.3 | July 1, 2028        |

## Appendix G: Fire Prevention Staffing Model – FUS and NFPA Standards

### FUS Model

#### Capacity Planning Model by OBC Building Group Type

| OBC Building Class                                  | Inspection Frequency (Years) | NFPA 1730 | FUS  | Meet | Classification | FTE #s |
|-----------------------------------------------------|------------------------------|-----------|------|------|----------------|--------|
| A                                                   | 3                            | 2         | 0.5  | ✓    | 67% Chief FPO  | 1      |
| B                                                   | 1                            | 1         | 0.5  | ✓    | 100% Captain   |        |
| C                                                   | 2                            | 2         | 0.5  | ✓    | 100% FPO       | 6      |
| D                                                   | 3                            | 3         | 1    | ✓    | 33%            |        |
| E                                                   | 3                            | 3         | 1    | ✓    | 33%            |        |
| F                                                   | 3                            | 2         | 0.5  | ✓    | 50%            |        |
| F - Division 1                                      | 2                            | 1         | 0.25 | ✓    | 50%            |        |
| Total                                               |                              |           |      |      |                | 6      |
| Efficiency Factor 75%                               |                              |           |      |      |                | 21.96  |
| Inspectors Required (Inspections)                   |                              |           |      |      |                | 16.47  |
| Inspectors Required (Other Activities)              |                              |           |      |      |                | 0.00   |
| Total                                               |                              |           |      |      |                | 16.47  |
| Number of Staff Required (rounded to next full FTE) |                              |           |      |      |                | 22     |
| Number of Additional Staff Required                 |                              |           |      |      |                | 16     |

#### 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.                                                                         | 225                              | 2.5                                                     | 0.625                                                  | 3.125                                                            | 703.125                                     | 0.5                                                 | 35.16                                                        | 0.68                                               |
| 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                                                                                                                                                                                                                                                                                                                        | 4                                | 4                                                       | 1                                                      | 5                                                                | 20                                          | 0.5                                                 | 1.00                                                         |                                                    |
|         | Special Care                                                                                                                                                                                                                                                                                                                         | 8                                | 2                                                       | 0.5                                                    | 2.5                                                              | 20                                          | 0.5                                                 | 1.00                                                         |                                                    |
|         | Assisted -Supportive Living Facility                                                                                                                                                                                                                                                                                                 | 12                               | 2                                                       | 0.5                                                    | 2.5                                                              | 30                                          | 0.5                                                 | 1.50                                                         |                                                    |
|         | Group Homes                                                                                                                                                                                                                                                                                                                          |                                  | 2                                                       | 0.5                                                    | 2.5                                                              | 0                                           | 0.5                                                 | 0.00                                                         |                                                    |
|         | Detention Police                                                                                                                                                                                                                                                                                                                     |                                  | 3                                                       | 0.75                                                   | 3.75                                                             | 0                                           | 0.5                                                 | 0.00                                                         |                                                    |
|         | Hospital                                                                                                                                                                                                                                                                                                                             | 1                                | 8                                                       | 2                                                      | 10                                                               | 10                                          | 0.5                                                 | 0.50                                                         |                                                    |
| 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                                                                                                                                                                                                                                                                                                                             |                                  | 3                                                       | 0.75                                                   | 3.75                                                             | 0                                           | 0.5                                                 | 0.00                                                         |                                                    |
|         | HIGH RISE                                                                                                                                                                                                                                                                                                                            |                                  | 4                                                       | 1                                                      | 5                                                                | 0                                           | 0.5                                                 | 0.00                                                         |                                                    |
|         | ROOMING, BOARDING, LODGING                                                                                                                                                                                                                                                                                                           |                                  | 4                                                       | 1                                                      | 5                                                                | 0                                           | 0.5                                                 | 0.00                                                         |                                                    |
|         | Apartment                                                                                                                                                                                                                                                                                                                            | 4026                             | 2                                                       | 0.5                                                    | 2.5                                                              | 10065                                       | 0.5                                                 | 503.25                                                       |                                                    |
|         | HOTEL, MOTEL, MOTOR LODGE                                                                                                                                                                                                                                                                                                            |                                  | 3                                                       | 0.75                                                   | 3.75                                                             | 0                                           | 0.5                                                 | 0.00                                                         |                                                    |
|         | SINGLE, SEMI, TOWNHOUSE, CONDO                                                                                                                                                                                                                                                                                                       | 33,475                           | N/A                                                     | N/A                                                    | N/A                                                              | N/A                                         | N/A                                                 | N/A                                                          |                                                    |

**Capacity Planning Model by  
OBC Building Group Type**

|                   |  |    |   |      |      |    |     |      |  |
|-------------------|--|----|---|------|------|----|-----|------|--|
| OTHER RESIDENTIAL |  | 20 | 1 | 0.25 | 1.25 | 25 | 0.5 | 1.25 |  |
|-------------------|--|----|---|------|------|----|-----|------|--|

| CAPACITY PLANNING MODEL BY<br>BUILDING GROUP TYPE<br>(cont.) |                                                                                                                                                                                                                                                                         | Method of<br>Inspection |  | Number of<br>Buildings in<br>Group (A) |  | Average<br>Time to<br>Complete<br>Initial<br>Inspection<br>(Hours) (B) |  | Average<br>Time to<br>Complete<br>Recall<br>Inspection<br>(Hours) (C) |  | Average<br>Time to<br>Complete<br>Initial &<br>Recall<br>Inspection<br>(Hours) (D) |  | Total Time<br>to Inspect<br>Group<br>(Hours)<br>(A x B) |  | Frequency<br>of<br>Inspection<br>s (Every 1,<br>2, 3 or 4<br>Years) |  | Total Time<br>Each Year<br>to Inspect<br>Group<br>(Person<br>Weeks) (A<br>x B) |  | Total Time<br>to Inspect<br>Group<br>(Person<br>Years)<br>(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.                                                       |                         |  | 329                                    |  | 1.5                                                                    |  | 0.375                                                                 |  | 1.875                                                                              |  | 617                                                     |  | 1                                                                   |  | 15.42                                                                          |  | 0.30                                                              |       |      |  |
| 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.                                                                                                          |                         |  | 366                                    |  | 2                                                                      |  | 0.5                                                                   |  | 2.5                                                                                |  | 915                                                     |  | 1                                                                   |  | 22.88                                                                          |  | 0.44                                                              |       |      |  |
| 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.                                                                          |                         |  | 339                                    |  | 3                                                                      |  | 0.75                                                                  |  | 3.75                                                                               |  | 1,271                                                   |  | 0.5                                                                 |  | 63.56                                                                          |  | 1.22                                                              |       |      |  |
| Group F<br>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. |                         |  | 9                                      |  | 6                                                                      |  | 1.5                                                                   |  | 7.5                                                                                |  | 68                                                      |  | 0.25                                                                |  | 6.75                                                                           |  | 0.13                                                              |       |      |  |
|                                                              |                                                                                                                                                                                                                                                                         |                         |  | 5,339                                  |  |                                                                        |  |                                                                       |  |                                                                                    |  |                                                         |  |                                                                     |  |                                                                                |  |                                                                   | 16.47 |      |  |
|                                                              |                                                                                                                                                                                                                                                                         |                         |  |                                        |  |                                                                        |  |                                                                       |  |                                                                                    |  |                                                         |  |                                                                     |  |                                                                                |  | Total =                                                           |       | 16.5 |  |

Adjusted - Effcy Factor = 22

**NFPA Model**

**Capacity Planning Model by  
OBC Building Group Type**

| OBC Building Class                                  | Inspection Frequency (Years) | NFPA 1730 | FUS  | Meet |      | Classification | FTE #'s |
|-----------------------------------------------------|------------------------------|-----------|------|------|------|----------------|---------|
| A                                                   | 3                            | 1         | 0.5  | ✓    | 33%  | Chief FPO      | 1       |
| B                                                   | 1                            | 1         | 0.5  | ✓    | 100% | Captain        |         |
| C                                                   | 2                            | 2         | 0.5  | ✓    | 100% | FPO            | 6       |
| D                                                   | 3                            | 3         | 1    | ✓    | 33%  |                |         |
| E                                                   | 3                            | 3         | 1    | ✓    | 33%  |                |         |
| F                                                   | 3                            | 2         | 0.5  | ✓    | 50%  |                |         |
| F - Division 1                                      | 2                            | 1         | 0.25 | ✓    | 50%  |                |         |
| Total                                               |                              |           |      |      |      |                | 6       |
| Efficiency Factor 75%                               |                              |           |      |      |      |                | 8.00    |
| Inspection Frequency                                |                              |           |      |      |      |                |         |
| Calculated                                          |                              |           |      |      |      |                | 7.13    |
| Adjusted                                            |                              |           |      |      |      |                | 0.00    |
| Inspection Frequency                                |                              |           |      |      |      |                |         |
| 5                                                   |                              |           |      |      |      |                | 7.13    |
| Number of Staff Required (rounded to next full FTE) |                              |           |      |      |      |                | 8       |
| Number of Additional Staff Required                 |                              |           |      |      |      |                | 2       |
| Total additional FPO Staff Required                 |                              |           |      |      |      |                | 2.0     |

**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.                                                                         | 225                              | 2.5                                                     | 0.625                                                  | 3.125                                                            | 703.125                                     | 1.0                                                 | 17.58                                                        | 0.34                                               |
| 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                                                                                                                                                                                                                                                                                                                        | 4                                | 4                                                       | 1                                                      | 5                                                                | 20                                          | 1.0                                                 | 0.50                                                         |                                                    |
|         | Special Care                                                                                                                                                                                                                                                                                                                         | 8                                | 2                                                       | 0.5                                                    | 2.5                                                              | 20                                          | 1.0                                                 | 0.50                                                         |                                                    |
|         | Assisted -Supportive Living Facility                                                                                                                                                                                                                                                                                                 | 12                               | 2                                                       | 0.5                                                    | 2.5                                                              | 30                                          | 1.0                                                 | 0.75                                                         |                                                    |
|         | Group Homes                                                                                                                                                                                                                                                                                                                          |                                  | 2                                                       | 0.5                                                    | 2.5                                                              | 0                                           | 1.0                                                 | 0.00                                                         |                                                    |
|         | Detention Police                                                                                                                                                                                                                                                                                                                     |                                  | 3                                                       | 0.75                                                   | 3.75                                                             | 0                                           | 1.0                                                 | 0.00                                                         |                                                    |
|         | Hospital                                                                                                                                                                                                                                                                                                                             | 1                                | 8                                                       | 2                                                      | 10                                                               | 10                                          | 1.0                                                 | 0.25                                                         |                                                    |
| 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                                                                                                                                                                                                                                                                                                                             |                                  | 3                                                       | 0.75                                                   | 3.75                                                             | 0                                           | 2.0                                                 | 0.00                                                         |                                                    |
|         | HIGH RISE                                                                                                                                                                                                                                                                                                                            |                                  | 4                                                       | 1                                                      | 5                                                                | 0                                           | 2.0                                                 | 0.00                                                         |                                                    |
|         | ROOMING, BOARDING, LODGING                                                                                                                                                                                                                                                                                                           |                                  | 4                                                       | 1                                                      | 5                                                                | 0                                           | 2.0                                                 | 0.00                                                         |                                                    |
|         | Apartment                                                                                                                                                                                                                                                                                                                            | 4026                             | 2                                                       | 0.5                                                    | 2.5                                                              | 10065                                       | 2.0                                                 | 125.81                                                       |                                                    |
|         | HOTEL, MOTEL, MOTOR LODGE                                                                                                                                                                                                                                                                                                            |                                  | 3                                                       | 0.75                                                   | 3.75                                                             | 0                                           | 2.0                                                 | 0.00                                                         |                                                    |
|         | SINGLE, SEMI, TOWNHOUSE, CONDO                                                                                                                                                                                                                                                                                                       | 33,475                           | N/A                                                     | N/A                                                    | N/A                                                              | N/A                                         | N/A                                                 | N/A                                                          |                                                    |
|         |                                                                                                                                                                                                                                                                                                                                      |                                  |                                                         |                                                        |                                                                  |                                             |                                                     |                                                              | 2.43                                               |

**Capacity Planning Model by  
OBC Building Group Type**

| OTHER RESIDENTIAL                                            |                                                                                                                                                                                                                                                                         | 20                      | 1                                      | 0.25                                                                      | 1.25                                                                     | 25                                                                                    | 2.0                                                     | 0.31                                                              |                                                                   |                                                                   |
|--------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|----------------------------------------|---------------------------------------------------------------------------|--------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------|-------------------------------------------------------------------|-------------------------------------------------------------------|-------------------------------------------------------------------|
| CAPACITY PLANNING MODEL BY<br>BUILDING GROUP TYPE<br>(cont.) |                                                                                                                                                                                                                                                                         | Method of<br>Inspection | Number of<br>Buildings in<br>Group (A) | Average<br>Time to<br>Complete<br>Initial<br>Inspection<br>(Hours)<br>(B) | Average<br>Time to<br>Complete<br>Recall<br>Inspection<br>(Hours)<br>(C) | Average<br>Time to<br>Complete<br>Initial &<br>Recall<br>Inspection<br>(Hours)<br>(D) | Total Time<br>to Inspect<br>Group<br>(Hours)<br>(A x B) | Frequency<br>of<br>Inspection<br>(Every 1,<br>2, 3 or 4<br>Years) | Total Time<br>to Inspect<br>Group<br>(Person<br>Weeks) (A<br>x B) | Total Time<br>to Inspect<br>Group<br>(Person<br>Years)<br>(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.                                                       |                         | 329                                    | 1.5                                                                       | 0.375                                                                    | 1.875                                                                                 | 617                                                     | 3                                                                 | 5.14                                                              | 0.10                                                              |
| 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.                                                                                                          |                         | 366                                    | 2                                                                         | 0.5                                                                      | 2.5                                                                                   | 915                                                     | 3                                                                 | 7.63                                                              | 0.15                                                              |
| 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.                                                                          |                         | 339                                    | 3                                                                         | 0.75                                                                     | 3.75                                                                                  | 1,271                                                   | 2.0                                                               | 15.89                                                             | 0.31                                                              |
| Group F<br>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. |                         | 9                                      | 6                                                                         | 1.5                                                                      | 7.5                                                                                   | 68                                                      | 1.00                                                              | 1.69                                                              | 0.03                                                              |
|                                                              |                                                                                                                                                                                                                                                                         |                         | 5,339                                  |                                                                           |                                                                          |                                                                                       |                                                         |                                                                   |                                                                   | 5.35                                                              |
|                                                              |                                                                                                                                                                                                                                                                         |                         |                                        |                                                                           |                                                                          |                                                                                       |                                                         |                                                                   | Total =                                                           | 5.3                                                               |
| Adjusted - Effcy Factor = 7                                  |                                                                                                                                                                                                                                                                         |                         |                                        |                                                                           |                                                                          |                                                                                       |                                                         |                                                                   |                                                                   |                                                                   |