



Our Family Protecting Your Family

Town of Halton Hills

Fire Master Plan

2026-04-17



HALT



Table of Contents

- Introduction..... ii
 - Purpose ii
 - What is a Master Plan?..... ii
 - Report Design..... iii
 - Current Needs iv
 - Current Needs Advice..... v
- 1 Understanding Fire Department Response to Emergencies and Risk..... 1
 - 1.1 Understanding Emergency Response 1
 - 1.2 Implications for Halton Hills 3
- 2 Halton Hills Fire Department Data..... 4
 - 2.1 Data Gap..... 5
 - 2.2 Determining the Incident Records Used for Performance Analysis..... 7
- 3 The Need for Suppression Resources at a Fire 10
 - 3.1 How Many Firefighters are Needed to Fight a Fire?..... 10
 - 3.2 Is This Suppression Resource Configuration an Issue?..... 11
 - 3.3 What is the Firefighter Assembly Timing in Halton Hills? 13
 - 3.4 Where Do Fires Occur in Halton Hills?..... 16
 - 3.5 Structure Fire Building Age 22
- 4 Organization and Resources of the Halton Hills Fire Department Services..... 23
 - 4.1 Strategic Organizational Adjustment 23
 - 4.2 Operational Organizational Adjustment..... 25
 - 4.3 Firefighter Complement Calculations..... 26
- 5 Working with the Dispatch Centres to Refine Response and Resource Commitment. 30
- 6 Future-State Fire Resources and Station Locations..... 32
- 7 Other Important Considerations 44
 - 7.1 Asset Allocation and Vehicles 44
 - 7.2 Succession Planning..... 44
 - 7.3 Establishing and Regulating Bylaw..... 45
 - 7.4 Apparatus and Equipment Inventories and Asset Management..... 46
 - 7.5 Vehicle Maintenance and Repair and Records 46
 - 7.6 Health and Wellness 47
 - 7.7 Training Centre 48

7.8 Contracted Service Provisions.....	49
7.9 Emergency Management Program.....	50
7.10 The Fire Prevention and Public Education Program.....	51
7.11 Training Division.....	52
8 Conclusion.....	54
Appendix A Response Time and Incident Type Data.....	56
Response Time and Incident Type Data.....	57
Incident Responses by Type.....	63
Total Incidents by Year.....	65
Total Vehicles Dispatched.....	67
Appendix B Statistical Process Flow Charts.....	68

Exhibits

Exhibit 1: Response Graphic.....	2
Exhibit 2: Fire Response Graphic.....	2
Exhibit 3: Number of Incidents by Category as Dispatched 1 January 2019–31 July 2024.....	5
Exhibit 4: Fire Service Call Sequence.....	6
Exhibit 5: How Many Firefighters are Needed to Fight a Fire?.....	11
Exhibit 6: Sequence of Arrival and Duties.....	12
Exhibit 7: Structure Fire Incidents Showing Five-Minute Travel Time Contours, from Each Station January 2019 to 31 July 2024.....	17
Exhibit 8: Structure Fire Incidents Showing 8-Minute Travel Time Contours, from Each Station January 2019 to 31 July 2024.....	18
Exhibit 9: Structure Fire Incidents, Showing 8-Minute Travel Time Contours, from Acton Station January 2019 to 31 July 2024.....	19
Exhibit 10: Structure Fire Incidents, Showing 8-Minute Travel Time Contours, from Georgetown Maple Avenue Station January 2019 to 31 July 2024.....	20
Exhibit 11: Structure Fire Incidents Showing 8-Minute Travel Time Contours, from Georgetown Headquarters Station January 2019 to 31 July 2024.....	21
Exhibit 12: Number of Halton Hills Structure Fires Relative to Population Increase Since 1996... 38	
Exhibit 13: Demonstrated Response for 12 Full-Time Firefighters in Georgetown, Using Acton Station 1.....	40
Exhibit 14: Demonstrated Response for 12 Firefighters in Georgetown Using a Composite Firefighter Response Model.....	41
Exhibit 15: Demonstrated 12 Firefighter Assembly Timeline in Georgetown; Additional Staffing at the Georgetown Stations.....	41
Exhibit 16: Structure Fires per Dwelling Trend Since 1996.....	42
Exhibit 17: Current Training Location.....	49

Exhibit 18: Response Percentiles All Halton Hills Stations, All Incident Types.....	58
Exhibit 19: Drive Time at the 90th Percentile, All Stations, All Incident Types.....	58
Exhibit 20: Response Percentiles Station 1 – Acton, All Incident Types	59
Exhibit 21: Response Percentiles Station 2 – Georgetown, All Incident Types	59
Exhibit 22: Response Percentiles Station 3 – Georgetown Headquarters, All incident Types.....	60
Exhibit 23: Structure Fire 90th Percentile, All Stations	60
Exhibit 24: Structure Fire 90th Percentile Drive Time, All Stations	61
Exhibit 25: Structure Fire 90th Percentiles, Station 1 – Acton	61
Exhibit 26: Structure Fire 90th Percentiles, Station 2 – Georgetown.....	62
Exhibit 27: Structure Fire 90th Percentiles, Station 3 – Georgetown Headquarters	62
Exhibit 28: Structure Fire Dispatches by Station.....	63
Exhibit 29: Other Fire Dispatches by Station.....	64
Exhibit 30: Other Incident Types.....	65
Exhibit 31: Total Incidents by Year, by Station	66
Exhibit 32: Incidents by Month, by Station.....	67
Exhibit 33: Time of First Apparatus Arrival at Structure Fires 2019–31 July 2024.....	70
Exhibit 34: Time of Second Apparatus Arrival at Structure Fires 2019–31 July 2024	71
Exhibit 35: Time of Third Apparatus Arrival at Structure Fires 2019–31 July 2024.....	72

Tables

Table 1: Percentage Distribution of Travel Time – First Truck.....	14
Table 2: Percentage Distribution of Arrival Time of Second Truck After First Truck	14
Table 3: Percentage Distribution of Arrival Time of Third Truck After First Truck.....	15
Table 4: Percentage Distribution of Arrival Time of Fourth Truck After First Truck	15
Table 5: Build Year of Properties Experiencing Structure Fires.....	22
Table 6: Firefighter Average Approved Absence Hours	27
Table 7: Complement Requirement Calculations per Fire Station.....	27
Table 8: Current Staffing Pattern Complement Shortfall	28
Table 9: Complement Required to Staff One Fire Truck at Each Station 24 Hours a Day	29
Table 10: Town of Halton Hills Population Change Forecast to 2051.....	32
Table 11: Town of Halton Hills Employment Forecast to 2051.....	32
Table 12: Halton Region Population Change Forecast to 2051.....	33
Table 13: Halton Region Employment Forecast to 2051.....	33
Table 14: Fire Truck Arrival Times in Response Scenarios Shown in Minutes and Seconds.....	42
Table 15: Halton Hills Establishing and Regulating Bylaw, Examples of Suggested Changes.....	46
Table 16: Total Incidents by Year, by Station.....	66
Table 17: Ratio of Vehicles Dispatched per Incident	67

If readers click on a link, ALT + Left Arrow will navigate back to the original location.

The following terminology is important to the content of this report.

“Advise” (as in “We advise the town to...”)

This term indicates that based on our education, experience, research, and training, the information that follows is vital to achieve the successful outcome of the report.

“Should” or “Suggest”

These terms indicate that the statement that follows can be taken into consideration as the better thing to have or do but is not expected to be pivotal to the successful outcome of the report.

“Recommend”

*To the extent possible, the term “recommend” has been avoided in this report to avoid confusion as to whether a statement constitutes advice (as defined in **Advise**, above) or a suggestion.*

POMAX CONSULTING

Introduction

Purpose

This report is the culmination of a fire master plan project for Halton Hills, the goal of which is to

- provide a systematic and comprehensive approach to identifying fire and life safety risks in the community;
- evaluate the delivery of fire protection services in Halton Hills;
- garner Council, citizen, and stakeholder input;
- recommend the establishment of strategic priorities for the Halton Hills Fire Department; and
- optimize fire protection services to the community.

A further requirement of the request for proposals was to deliver a community risk assessment that meets the requirement of Ontario Regulation 378/18. That has been provided to the fire department¹ as a separate document.

What is a Master Plan?

Simply put, a master plan provides overall guidance, in this case to the town about its fire department. A master plan should be based on data, analysis, quantification, risk options, cost, and decisions. Fire service master plans are straightforward but not easy to accomplish. They are, in their simplest form, a result of

- deep diving into multiple years of fire service response data and records;
- correlating the data with changes in the protected area during the same years as the data were gathered, including changes in population, land area, demographics, development, and economy;
- establishing patterns within incidents, response, and outcomes; and
- establishing a risk profile based on the correlation.

The resulting information, combined with population and demographic forecasts from Statistics Canada, the Ontario Ministry of Finance, and the municipality, plus official plans and site-specific planning, will assist in forecasting expected human and physical resource needs and timing – and associated costs – for the master plan duration.

¹ Halton Hills Fire Department is the official name of the town's fire department. We use other terminology, such as fire service, to avoid repetition and satiation in the document.

The strategic part of any master plan (bullet four in [Purpose \[above\]](#)) is conceptual and short term.² That is, it should support the vision, mission, and values of a municipality while establishing, adjusting, or supporting the fire service's vision. The strategy and master plan should enable Halton Hills, and its fire department, to make the best use of resources and outline a logical, phased change plan that includes maximizing the benefit of the fire service's human and capital assets.

Most important to establishing a master plan and the strategic pillars being pursued as part of the goal of this assignment are accurate data that can be used to correctly measure the success of a strategy. Data accuracy is critical to the determination of performance and the work of the fire department. Data correctness has a direct correlation to the effectiveness of program delivery efforts in risk reduction or mitigation efforts, as well as to measuring the resource requirements and capability of the fire service.

Halton Hills Fire Department has recently purchased a new record management system. Unfortunately, it will not, as we [explain later](#), meet the requirements to adequately help the municipality determine the best efficiency and effectiveness model for the fire department. Follow the link in the previous sentence for an explanation of why this is not unique to Halton Hills.

Report Design

This report is designed to, first, provide facts relating to fire services in Ontario that are important for the municipality to know; we will then relate those facts specifically and objectively to Halton Hills. We will then move on to the subjective aspects of fire and emergency services protection, along with our advice to the town.

Traditionally, fire master plans address items such as the number of firefighters; station locations and their number; speed of response; assets; and other customary, conventional fire service issues. Less frequently do they discuss organizational and administrative items that can improve efficiency and effectiveness and avoid future expenses and non-essential growth in the fire department (the strategy parts). In the few cases where a fire master plan does suggest a competent organizational design, the staff positions required to make a fire service – or any organization – successful are often considered optional or as a second tier of importance when funding considerations are brought into play, but they are not. In fact, offsetting costs in the future requires a capable organizational strategy in the present. One of the objectives of this fire plan report is to demonstrate how a shift from those customary, historical plan designs can improve effectiveness and avoid costs.

² Strategy evaluation should recur after approximately three years to determine if the approach is working or needs to be adjusted. Master planning is longer term (up to 20 years) and is focused on change and the resources needed (people, fixed properties, etc.) to manage that change.

Traditionally, fire master plans have concentrated on outputs such as speed of response and measurement of resources against National Fire Protection Association standards. This fire master plan acknowledges the need to continue to measure speed of response and resources where necessary, but it also concentrates on offering the fire department the tools required to improve effectiveness and efficiency, which are outcomes. Good record keeping and analysis are a primary requirement for productivity improvement.

Current Needs

We were impressed with the commitment of Halton Hills Fire Department administration and staff. However, although the town of Halton Hills has gained the population of a small city and is poised for rapid growth, particularly in the Georgetown urban area and south Halton Hills where increased commercial and industrial establishments are expected, the fire department is challenged by operating, to various degrees, as if it was mostly a part-time or composite³ fire organization.

While it is true that the organization is a composite fire service, and acknowledging that in some areas, such as Acton, the department can continue to operate in that manner, the rest of the organization should strive to keep up with the urban growth that has occurred in the last 10 to 20 years and the expected change in the next 10 years. Simply put, Halton Hills Fire Department is facing urban growth issues with an organization that is, in many respects, still designed for a part-time fire service.

Our advice to the town of Halton Hills acknowledges the need for the fire department to meet the fire protection needs of Halton Hills today and prepare for future challenges, but this should be done strategically based on data and evidence as opposed to intuitively. This work encompasses

- a decisive commitment to data gathering – we refer to this as data input;
- a two-year strategy to achieve data analysis, including an outcome relational database, since data are critical to determining performance and value;
- comprehensive technology updates for administration, fire prevention, public education, and staffing;
- a strategic approach to resource accrual and, where practical, divestment;
- a data-derived approach to incident response; and
- a renewed commitment to public education and fire prevention, including the use of suppression staff to assist the initiative.

We encourage council to implement our recommendations as expeditiously as possible. The recommendations support a strategy of protecting the community through improved effectiveness and efficiency.

³ A composite fire service is one made up of full-time and part-time staff.

Current Needs Advice

Our advice with respect to **strategic priorities** for Halton Hills Fire Department incorporates the following.

1. **Reducing the day-to-day operational load on the executive level of the fire department and improving incident scene management by implementing Platoon Chief positions**
 - a) Platoon chiefs would be responsible for the shift-to-shift operation of the fire department, thus relieving the deputies and Fire Chief from that function on a day-to-day basis and lightening the on-call responsibilities of executive staff, who are currently called back to work for major fires and other events (**entails four full-time equivalents [FTEs]**).
2. **Improving data effectiveness and quality control**
 - a) There is a need within the organization for either a new position, or the realignment of an existing position, to take on the role of data lead and quality control.
 - b) We have noted several times in this report that Halton Hills has had, until recently, an inadequate record management system, with the result that insufficient data are gathered upon which to make objective decisions. Even when the newly purchased record management system is implemented, there will not be the capability to analyze outcome information as part of a relational database,⁴ which means that determining effectiveness of response practices and resource assignments will continue to be an intuitive process.
 - c) The data lead responsibility includes working with Halton Hills' information technology team to design and capture fire officers' notes in a database format and to combine those notes with record management system data as a tool for including outcome data as part of incident analysis. In addition, the position would analyze data to discover opportunities for effectiveness and efficiency, based on output and outcome information.
 - d) The role would also act as a liaison with the contracted dispatch provider to ensure techniques are developed to elicit information from callers to assist the accurate assignment of resources to different incident types.
 - e) We see this position reporting to the Fire Chief due to the importance of the role. It would have the responsibility to work with all divisions in the fire organization to find efficiency and effectiveness techniques, thereby improving service delivery and achieving value for effort expended. This position is expected to have wide latitude for reviewing all fire department practices and advising the Chief about change (**entails possibly one FTE or a redistribution of duties within the existing complement**).

⁴ We have not found any commercial fire record management system vendor that includes an "outcome information utility" as part of a fire record management system.

3. **Engaging a technical writer**

- a) The fire department has been striving to modernize many out-of-date policies and standard operating guidelines and has a committee of firefighters in place to achieve this update. But progress is slow. Hiring a technical writer, reporting directly to the Fire Chief, will accomplish the update in a short period of time so that staff can work with current-state guidelines to avoid operational confusion (**entails a time-limited contract**).

Our advice with respect to **operational priorities** for Halton Hills Fire Department incorporates the following.

1. **Public education**

- a) Create two FTE public education positions.
- b) Halton Hills has inadequate public education resources. The public education officer is a full-time fire captain who is trying to undertake fire education initiatives, even though his primary purpose is responding to incidents and ensuring firefighter on-shift training.
- c) Having two full-time public education positions is expected to reduce the incidence of fires and promote public safety (**entails two FTEs**).

2. **Fire prevention**

- a) Increase the prevention complement by one (**entails one FTE**).
- b) Achieve the function of yearly business licensing inspections through other means, such as self-reporting and ad hoc inspections.
- c) Reassign the fire inspector – who is currently mostly dedicated to the business licensing function – to existing building and residential inspections, along with the new complement and the assistance of suppression firefighters.
- d) The current workload prevents the fire prevention staff from performing the function of routine inspection of existing buildings or from implementing new initiatives such as conducting residential fire safety assessments (considering that most fire incidents occur in residential buildings) in cooperation with the public education team.

3. **Training instructors**

- a) The fire department has one training instructor, which limits the incumbent's time available for research, planning for longer-term needs, and developing teaching plans. The training instructor is struggling to meet the needs of the department, and conducting sessions for both part-time and full-time firefighters is difficult.
- b) Increase the training instructor complement by one for a permanent complement of two (**entails one FTE**).

4. **Emergency vehicle and equipment technician**

- a) The fire department currently has a firefighter-mechanic on staff, whose primary role is to coordinate and effect the maintenance and repair of vehicles and other equipment. The complement position that the firefighter-mechanic fills is allocated to a firefighter,

which means that even though the primary responsibility is that of vehicle maintenance, the incumbent has to respond to emergency incidents as needed.

- b) Add an emergency vehicle technician's position to ensure the continued, timely maintenance of fire vehicles and equipment **(entails one FTE)**.

5. **Administrative support for the Logistics and Services Division**

- a) Logistics and support staff fulfill important non-suppression roles such as public education, fire prevention, data analysis, the emergency vehicle technician, and training instructors.
- b) The positions in what we have categorized as "logistics and services" have historically provided their own administrative support. This means that 15% or more of their time is spent on administrative work, whereas incumbents could be achieving greater effectiveness being dedicated to field duties.
- c) We understand that Halton Hills Fire Department is currently allocated a part-time administrative position. Increasing this position to full-time status dedicated to the Logistics and Services Division will improve effectiveness **(entails one FTE)**.

6. **Firefighter complement**

- a) This report extensively describes the challenges of assembling an adequate number of firefighters at fire events, within reasonable time targets. An increase of two firefighters for 24 hours a day at the Georgetown headquarters station will ensure reasonable initial resource levels at fire scenes. In the Georgetown urban area, with a population of approximately 46,000, the current practice of relying on a total of six full-time firefighters (four on duty at the Georgetown Maple Avenue station and two on duty at the headquarters station on 10 Side Road), backed up by part-time firefighters, continues a risk element that we are not able to support.
- b) This report also explains that there is a [shortfall](#) in the current firefighter complement, which is being covered through overtime expenditure. The current complement shortfall plus the staff increase at the headquarters station requires 16 FTEs **(entails 16 FTEs)**.

7. **Health and wellness**

- a) Many agencies around the world, including Ontario's Workplace Safety and Insurance Board, recognize that firefighters are at a higher risk for some cancers than the public.
- b) Provide a cancer screening program for Halton Hills Fire Department members and reference the Firefighters Cancer Prevention Checklist developed by the Fire Service Section 21 Committee. Halton Hills Fire Department should monitor the investigations, resolutions, and publications related to carcinogenic materials in firefighter clothing and adjust exposure and decontamination policies and procedures accordingly. Purchasing requirements should be adjusted as necessary.
- c) Ensure workplace policies and procedures are provided that limit, to the greatest degree possible, exposure to toxic chemicals on the fireground. Ensure adequate

decontamination of firefighters' protective clothing, equipment, and tools used on the fireground.

- d) Identify and formalize through written policies the existing and future programs and resources available to firefighters who experience stressful events.

Include personality and emotional intelligence testing as part of future firefighter hiring procedures. Hiring policies should include screening for potential effects on candidates who will be exposed to traumatic events during their careers as an emergency service provider.

- e) Develop response protocols that provide an adequate number of responders to enable relief and recovery/rehabilitation opportunities for firefighters working at significant events in the community. Provision of proactive health and safety measures will help to mitigate potential Workplace Safety and Insurance Board claims and costly work absences related to mental health.

1 Understanding Fire Department Response to Emergencies and Risk

Understanding a fire department's response to emergencies and risk is the complex, yet critical, part of a fire master plan – that is, it requires understanding what emergency response is, the true elapsed time that occurs, the levels of what is commonly referred to as an emergency, and the tasks performed at different emergencies. Not every situation is life-threatening; in fact, few "emergencies" are life-threatening. Understanding emergency response is part of a risk analysis that leads to identifying gaps between fire department service levels and risk and to determining the best way to protect the public.

1.1 Understanding Emergency Response

[Exhibit 1: Response Graphic \(page 2\)](#) demonstrates the stages of an incident response. An emergency process includes the following steps.

1. Detection or recognition of a fire or other emergency
2. Reporting the emergency by calling 9-1-1
3. Call handling, dispatching firefighters, and turnout (the duration required for the communications centre to obtain information from a caller and alert the fire department and for firefighters to depart the station)
4. Driving time (wheels start turning to wheels stop turning)
5. Setup (the "action" time) – for example,
 - a) the time it takes to access equipment from a fire truck, to travel from a truck (upon "wheels stop turning") to an incident such as an apartment or other location requiring vertical travel, or for the ground travel if firefighters have to move from the fire truck to the incident (for example, down railway tracks or to the back of a building); or
 - b) the time it takes to access a victim, recognize the issue, and start definitive activity in a scenario other than fire; or
 - c) the time it takes to prepare to investigate other incident types such as a smoke or carbon monoxide alarm; or
 - d) the time it takes to connect to a hydrant, water source, or foam
6. Harm limiting
 - a) applying water or foam; or
 - b) caring for victims

[Exhibit 1](#) demonstrates response to all types of events (incidents);

Exhibit 1: Response Graph

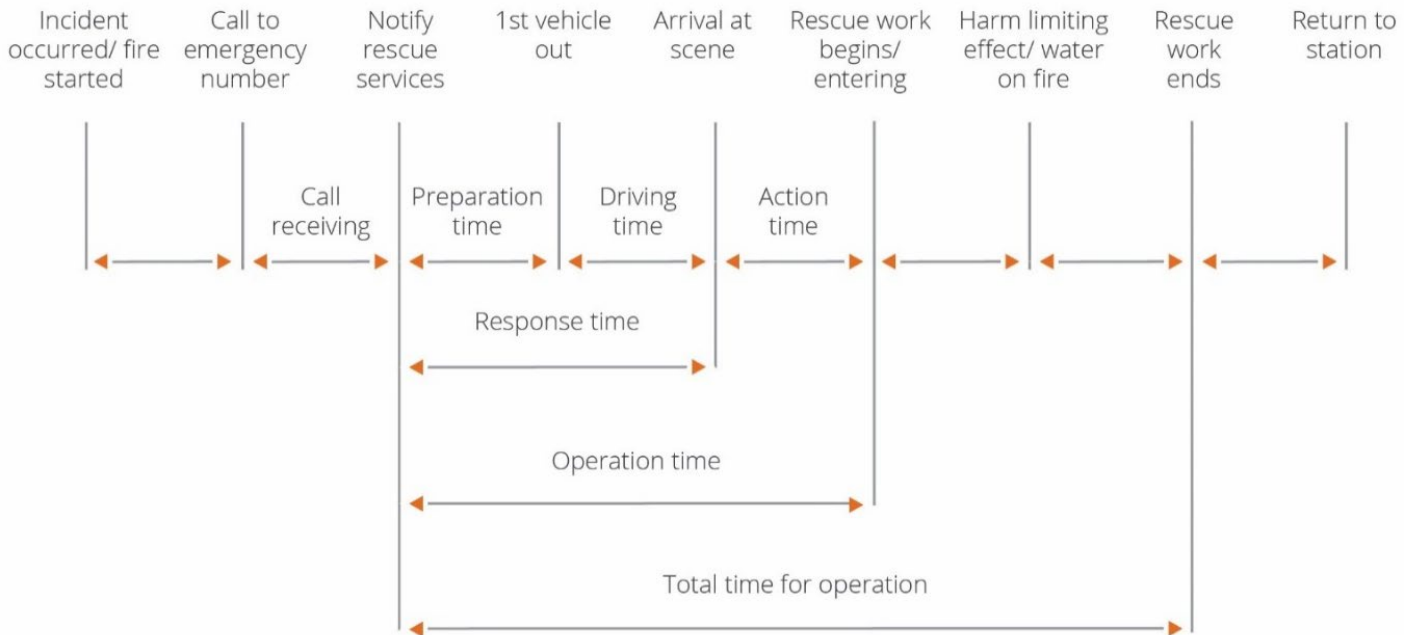
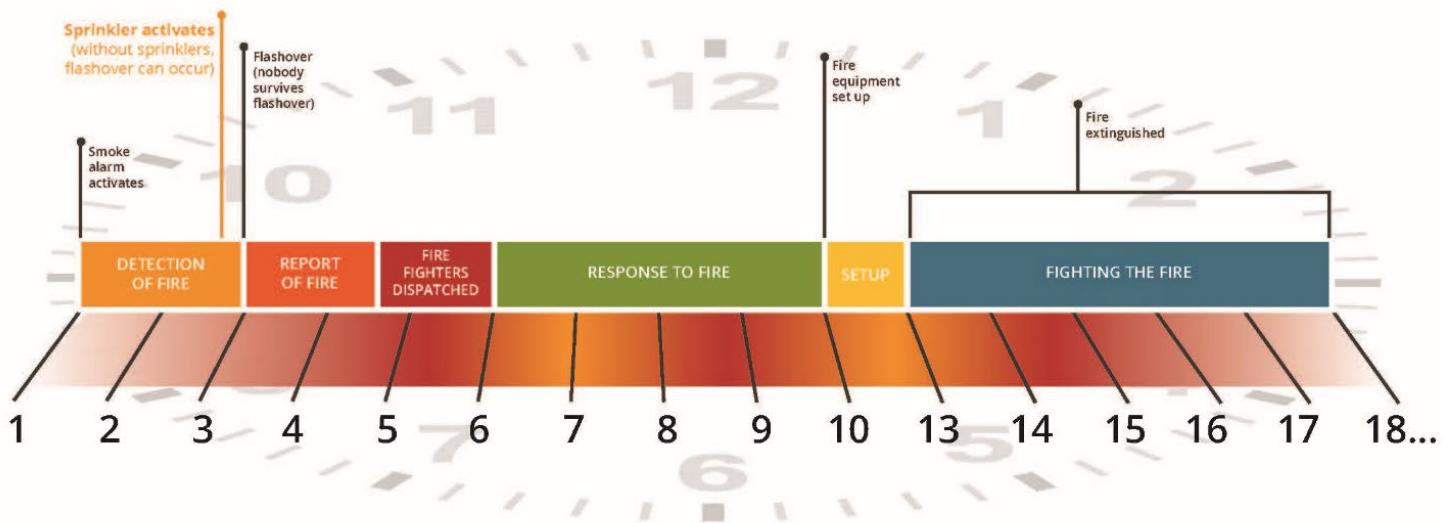


Exhibit 2: Fire Response Graph



Note: Sprinklers are activated by heat. Sprinkler initiation, at the approximately three-minute mark, assumes a fire has become sufficiently hot to actuate the sprinklers (if they exist). Some fires may not generate enough heat this early in the timeline.

The setup time presented in [Exhibit 2](#) is three minutes (between the 10- and 13-minute marks). Information from the Office of the Fire Marshal, Ontario, provided in a 2016 inquest, indicates that, in Ontario, it takes an average of five to seven minutes to get agent (water or foam) on a fire after arriving at a scene. We have seen setup times as low as two minutes during demonstrations, but those times were in a training site parking lot with a hydrant immediately available. Three minutes was chosen for this graphic even though it might be optimistic.

As [Exhibit 2](#) shows, the elapsed time from the time of fire detection to applying water or foam can be 13 minutes. This assumes a driving time of about four minutes. The proximity of a fire to a fire station or a change in driving time may affect the extent and duration of a fire before an agent is applied. Additionally, overall response can be negatively affected by impediments to gaining access to an incident – for example, fire in a multi-storey building.

1.2 Implications for Halton Hills

We must recognize that Halton Hills is a composite fire service wherein the second or third wave of firefighters are mostly part-time; that is, they are responding to the fire station from home or other locations. This adds about six minutes to overall scene arrival time for a second or third truck responding to a fire or other emergencies. Comparing this situation to [Exhibit 2](#), instead of it taking approximately 90 seconds to don firefighting gear and leave the station, as is expected of full-time firefighters, part-time on-call firefighters have to travel to the station then dress for firefighting, meaning that the “getting out of station time” (or turnout time) is about seven and a half minutes.

Adding all the time components together means that from detection of a fire until water is applied is about 13 minutes for the first truck, assuming that getting hoses off a truck and applying water can be accomplished in three minutes and that the incident is within four minutes of a fire station, but the arrival of the second and third trucks could be 20 minutes after detection.

It’s not possible to put too fine a point on this observation: It is not the time it takes to drive a fire truck to a fire that is the most important factor, it is the time it takes to apply water or foam to a fire from the time the fire was discovered. The way to decrease negative impacts is through fire prevention and safety education.

2 Halton Hills Fire Department Data

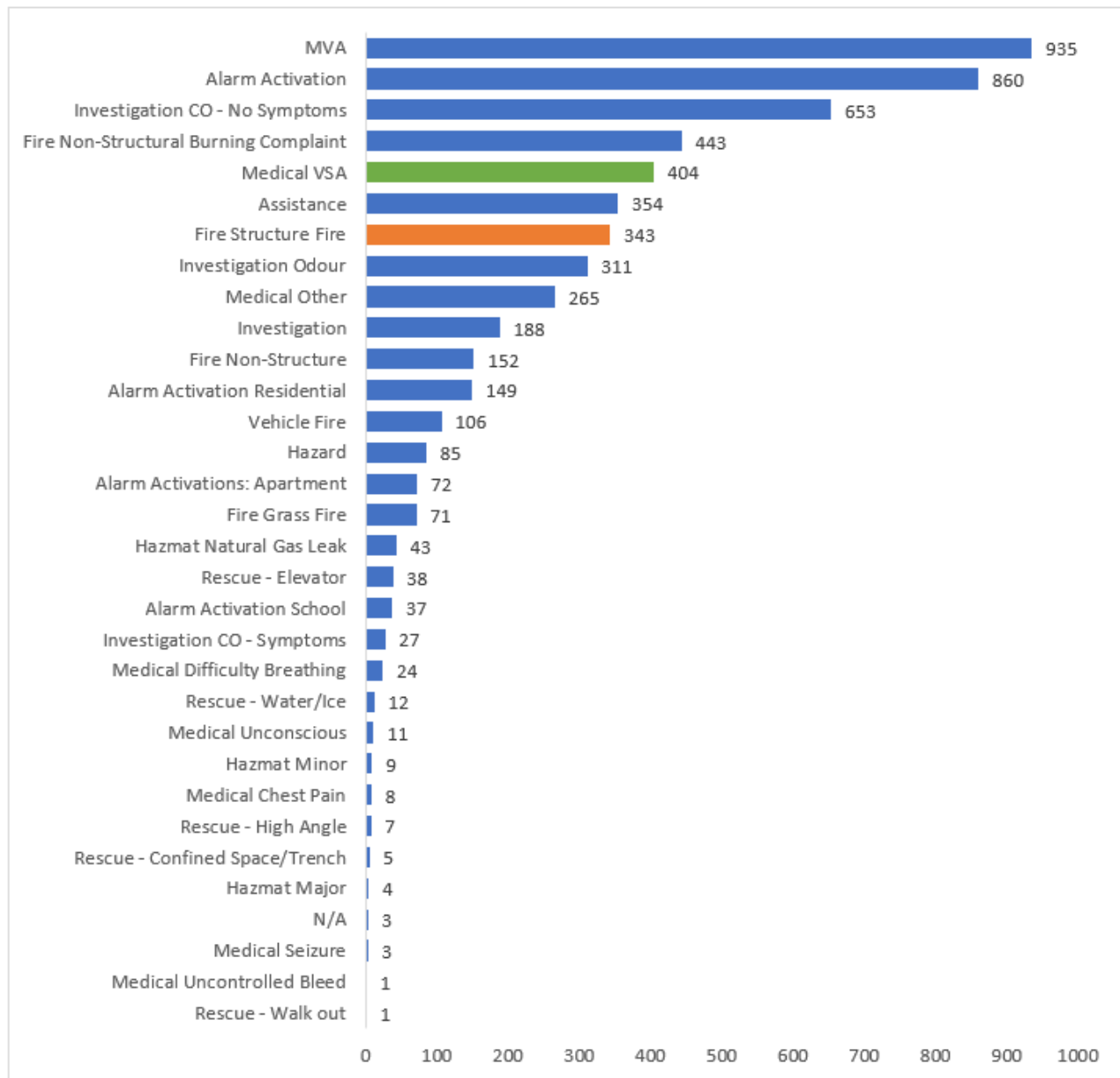
Early in this project Halton Hills Emergency Service cautioned the consultants that data extraction was a challenge because of an old record management system. They were correct and, despite the fire department's best efforts, Pomax had to rely mostly on data from the dispatch service provided by the City of Burlington's fire department. A primary challenge of relying on dispatch data is that the records show incidents within "as dispatched" categories rather than "as found". An example of this is that the dispatch system categorizes many fires as "structure fires", whereas the incident may turn out to be a vehicle fire or a non-structure fire. Fire department record management systems usually list incident types "as found", which may be different than "as dispatched".

[Exhibit 3 \(page 5\)](#) offers an example of such a discrepancy. The exhibit indicates the incident types, as determined at the time of the call by the dispatch centre, and the number of incidents of each type to which Halton Hills Fire Department was dispatched from 1 January 2019 to 31 July 2024. Structure fires are highlighted by the orange bar, and a total of 343 dispatches are noted. This is an average of about 61 structure fires a year, whereas submissions from the fire department to the Office of the Fire Marshal reported between 18 to 30 structure fires per year. Efforts by the fire department – which included manual review of incidents – and Pomax resulted in a determination that there were 124 structure fires in the 2019–2024 period rather than 343.

Considerable time had to be put into data cleaning and rectifying, particularly determining whether incident types "as dispatched" were really indicative of the incidents as found upon the arrival of the fire crews. Another example is that of the 404 medical vital signs absent responses, shown as a green bar in [Exhibit 3](#). That is an average of 72 per year, which in our experience is a high number for the municipality's population. While we did not reconcile the vital signs absent incidents, enough data cleaning work was done so that we can be confident in our conclusions and advice.

Importantly, this experience of trying to find accurate data underlines the fact that it is currently arduous for the fire department to make evidence-based response and resource decisions.

Exhibit 3: Number of Incidents by Category as Dispatched 1 January 2019–31 July 2024



2.1 Data Gap

Fire services – industry wide – experience a data gap with respect to outcome data. Outcome data, as the name suggests, would inform fire services and municipalities of the activities at an incident and enable communities to determine the benefit of response to certain call types, equipment that should be carried and in which trucks, vehicle type and size, staff requirements, training that should be undertaken, and organizational structure. Such information would also answer many other questions that either cannot be satisfied currently without significant effort or that have not been asked because of a lack of awareness of the need. Outcome data,

combined with dispatch intake information and response data, will also lead to being able to better match resources to fire service prevention activities and delivery.

Exhibit 4: Fire Service Call Sequence



Exhibit 4: Fire Service Call Sequence shows the five major steps in any fire service event. Information about steps 1, 2, and 4 is gathered via the computer-aided dispatch system, but the most important aspect – that of what happened in step 3 – is only manually recorded in officers’ notes after each incident (step 5). But these notes are in narrative form rather than tabular, which means they are not searchable and cannot be related to steps 1, 2, and 4 of the fire service call sequence. Therefore, there is no way of measuring the benefit and resource needs of various types of incidents.

It is also reasonable to expect senior officers’ narratives to vary in detail and completion levels because each is prepared by different officers. This lack of associative information between the response activity and the service provided at each incident, compiled by incident type, means that the monetary and service value of the fire department cannot be objectively measured.

As noted above, Halton Hills Fire Department is in the process of implementing an updated, more sophisticated record management system, but it does not offer a utility that gathers outcome data. We have not found any commercial record management system that does, and vendors have told us that there is not a market for that utility in the fire service to warrant the effort and expenditure required to produce a function for which there is minimal demand. A record management system that records on-scene and outcome data is common in paramedic and police services though.

The result of not having a deep enough level of data is that Halton Hills Fire Department, or a consulting team, cannot conduct a sufficient economic and value assessment of activities – at least, not without extensive manual effort – to determine where costs can be saved or avoided or where expenditures can be redirected.

The good news is that Halton Hills’ record management system provider is responsive to inquiries and has informed us that the system can be configured to capture incident outcome information, although the effort that may be required, or cost, has not been defined.

Our advice is that the fire service work with its record management system vendor and the town's information technology section to develop a tabular database outcome utility that is relational to data recorded in steps 1, 2, and 4 ([Exhibit 4](#)). But it is important not to underestimate the resources required to create and maintain a database that will support an [integrated risk assessment](#) methodology. Nevertheless, the effort and cost should be recovered within the first two to three years through cumulative efficiency and effectiveness, while enabling the municipality to improve safety and reduce the frequency of fires and response requirements over five to seven years.

2.2 Determining the Incident Records Used for Performance Analysis

The dispatch data showed a total of 22,998 vehicle records from 1 January 2019 to 31 July 2024. For almost all calculations other than the statistical process flow charts (scatter charts) in Appendix B, our interest was in the times recorded for the first arriving vehicle for each incident. To attain those first arriving incidents we took the 22,998 records and performed the following filtering:

- Removed summary (duplicate) records that include elapsed times calculated by the dispatch record management system. Pomax performs its own calculations of each response stage of individual records instead of relying on those calculated by the dispatch software. This enables us to discover anomalies in the data.
- Filtered out non-emergency vehicles such as the Chief's and deputies' cars or administrative vehicles.
- Filtered out records with missing en route times because performance calculations cannot be achieved if the data aren't complete.
- Filtered out records with missing arrived-scene times for the same reason as the previous bullet.

The result was that of the original 22,998 records, 5,624 were unique incidents that we could use for performance calculations, an average of 1,022 annually for the five and a half years reviewed.

In the United States and Canada, it is common for fire departments to strive to meet National Fire Protection Association performance standards relative to response times and resources. Pomax supports the use of integrated risk management planning ([explained later](#)) as a more comprehensive way to determine resource requirements, but the National Fire Protection Association standards are included as reference material.

The National Fire Protection Association has standards⁵ that apply to career fire departments and part-time departments, and Section 3.3.13 of National Fire Protection Association standard 1710 includes a definition of a career fire department.

3.3.13 Career Fire Department. *A fire department that utilizes full-time or full-time-equivalent (FTE) station-based personnel immediately available to comprise at least 50 percent of an initial full alarm assignment.*

An initial full alarm assignment is described as follows:

3.3.40 Initial Full Alarm Assignment. *Those personnel, equipment, and resources ordinarily dispatched upon notification of a structure fire.*

National Fire Protection Association standard 1710 further describes the response time targets for an initial full alarm assignment as follows:

4.1 Fire Department Organizational Statement

4.1.2.1 The fire department shall establish the following performance objectives for the first-due response zones that are identified by the AHJ [authority having jurisdiction]:

4.1.2.1 (3) 240 seconds or less travel time for the arrival of the first engine company at a fire suppression incident (4) 360 seconds or less travel time for the arrival of the second company with a minimum staffing of 4 personnel at a fire suppression incident*

(5) For other than high-rise, 480 seconds or less travel time for the deployment of an initial full alarm assignment at a fire suppression incident

The intent of standard 1710's section 4.1 is to indicate that in zones that the authority having jurisdiction determines should achieve the performance objectives stated in the section – and taking into account other statements in standard 1710's section 5.2.4.1.1 – 12 firefighters should arrive within eight minutes at a structure fire in a typical two-storey single-family dwelling without a basement and other exposed dwellings. There are different resource standards in circumstances of various building types (strip malls, apartments, high-rise apartments) and for urban, suburban, rural, and remote areas.

⁵ Although referred to as "standards", National Fire Protection Association material is a voluntary target unless adopted by a municipality or through legislation.

Incident response data and charts for Halton Hills and each fire station can be found in [Appendix A](#). These observe the applicable National Fire Protection Association standards, but Pomax does not rely on them to draw conclusions. Our conclusions are based on a modified integrated risk assessment, recognizing that data limitations prevent a robust risk review.

In Canada and the United States, National Fire Protection Association guidelines relating to emergency response and resource requirements are widely followed, but this is not the case in countries and regions such as the United Kingdom, Scandinavia, and some parts of Asia, which have moved away from prescribed times and resources and employ a risk assessment to determine standards of cover. The United Kingdom, since the *Fire and Rescue Services Act, 2004*, has shifted the focus of fire services to preventing emergencies by employing integrated risk management planning.⁶

Integrated risk management planning is highly dependent on detailed statistical gathering and analysis, which, as we have stated several times, is not yet available to Halton Hills Fire Department and requires development.

Some of the exhibits in [Appendix A](#) refer to percentiles. Percentiles are a common way of measuring emergency service performance, although, depending on the country, the level of percentile can be different. For example, in North America, which is predominantly influenced by the National Fire Protection Association standards, the 90th percentile of each component of an incident sequence is used as a performance objective measurement. In contrast, when the United Kingdom had fire department performance objectives, the 75th percentile was used to measure first appliance (truck) arrival; however, this was measured from the time the call was received at the 9-9-9 centre.

In most cases, as can be seen in [Appendix A](#), Halton Hills is unable to achieve National Fire Protection Association response time guidelines.

⁶ Integrated Risk Management Planning can be expressed as “identify[ing] risks facing the community and describ[ing] how a fire and rescue authority will address those risks, and prevent and respond to fires and other emergencies. In short, it serves as our organisational plan for the future.” Cheshire Fire Authority, Community Risk Management Plan 2024–2028 (Cheshire Fire Authority, 2024), <https://www.cheshirefire.gov.uk/your-service/key-information/community-risk-management-plan/>.

3 The Need for Suppression Resources at a Fire

3.1 How Many Firefighters are Needed to Fight a Fire?

[Exhibit 5](#) indicates the number of firefighters required to fulfill all the roles at a single-family dwelling fire. The illustration shows the work that takes place starting from about 13 minutes after a fire is detected.

The firefighters include

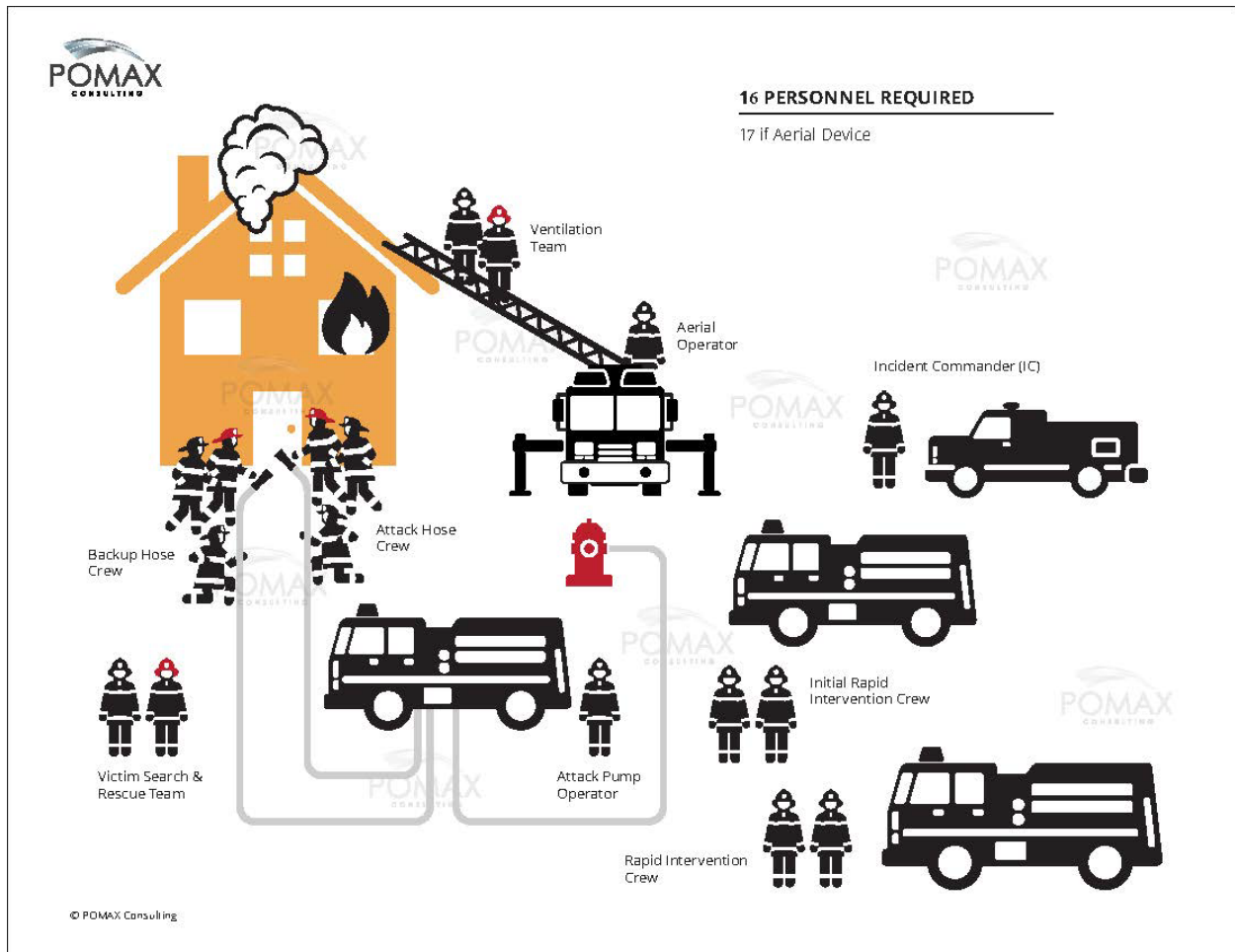
- an incident commander to direct all operations at the event;
- a hose crew, which is made up of two firefighters to handle the nozzle end of the hose because of the pressure and one firefighter to ensure the flow to the nozzle continues and assist with moving and placing the hose as the firefighters at the nozzle move forward into the fire;
- a second hose crew, also made up of three people, who perform the same functions as the first hose crew;
- a pump operator to make sure the water supply remains at the right pressure to fight the fire;
- a victim search and rescue crew (two firefighters) to search the building for occupants;
- a ventilation team to exhaust smoke and gases from the building, enabling the firefighters inside to operate more safely;
- a firefighter to operate the aerial apparatus if one is used;
- an initial rapid intervention crew who are prepared to rescue the first teams of firefighters if they become trapped, injured, or lost in the building; and
- a rapid intervention crew to assist with rescues, if needed, and because there may be two or more firefighting teams in the building.

Even though the need for duties as shown in [Exhibit 5](#) may vary depending on the fire – for example, if there are no victims then the victim search and rescue crew may not be required – the incident commander can assign staff to other duties, such as tracking which firefighters are entering and leaving the building, acting as relief for the first group of firefighters who were deployed into the building, or staffing another hose.

[Exhibit 5](#) is based on a description of firefighting duties found in National Fire Protection Association standard 1710, which in section 5.2.4.1.1 suggests that the resources shown in the graphic make up an *initial full alarm assignment* that should arrive at a structure fire within a travel time of eight minutes 90% of the time. Halton Hills' response varies in the urban areas, depending on whether the incident is in Acton or Georgetown. In Georgetown, six firefighters arrive within six or more minutes' travel time, and they are followed up by part-time firefighters in a further four to six minutes. In Acton, four full-time firefighters can respond to most of the

urban area in under five minutes' travel time, with another four to eight part-time firefighters arriving within a further six minutes, allowing for call-in response time.

Exhibit 5: How Many Firefighters are Needed to Fight a Fire?



3.2 Is This Suppression Resource Configuration an Issue?

In the Georgetown urban area, two to four firefighters may arrive on the first truck, depending on where the event is occurring. There is little two firefighters can do while awaiting the next truck, which is often three, five, or more minutes away. The usual cadre of six firefighters in Georgetown, while awaiting part-time staff, means that choices have to be made, such as

- staffing only one hose line, or
- not having a victim rescue team, or
- not having a rapid intervention team, or
- not ventilating the building.

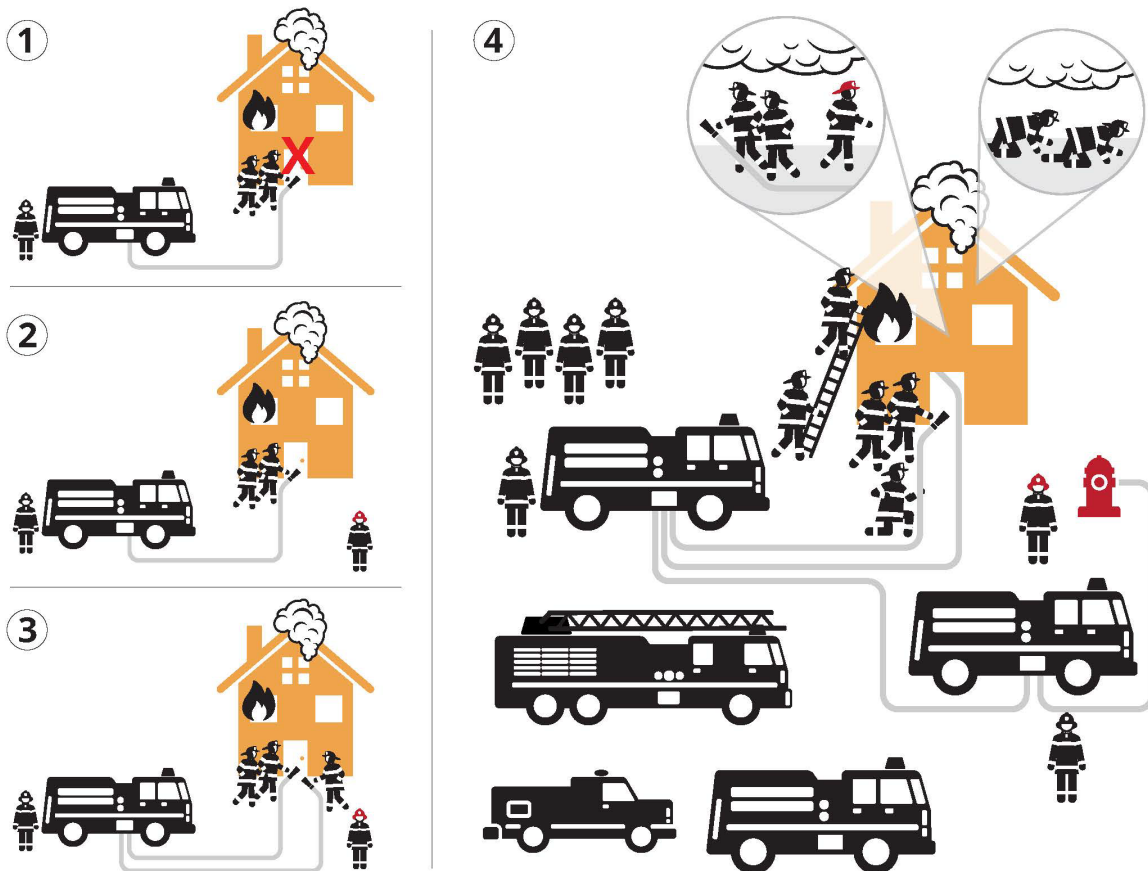
There is also no relief for firefighters until off-duty staff are called in or mutual aid is used.

The first panel in [Exhibit 6](#), indicates that even with three arriving firefighters a hose can be hooked up, but it is highly risky for firefighters to work their way into a building since there is no backup and recovery if they get into trouble. The headquarters station usually has only two firefighters, which increases the risk. Alternatively, if a victim needs rescuing, two firefighters could attempt the rescue, but no one would be available for hose duty until other firefighters arrive. The rescue could be attempted but without the benefit of others suppressing the fire.

Four firefighters (panel 2) means that one firefighter can be the pump operator, two can staff the hose, and the captain can act as the incident commander and safety person until more staff arrive.

Panel 4 shows the distribution of duties of 16 or 17 firefighters, similar to that shown in [Exhibit 5](#).

Exhibit 6: Sequence of Arrival and Duties



3.3 What is the Firefighter Assembly Timing in Halton Hills?

Firefighter assembly is the time it takes to achieve an initial full alarm assignment at a fire suppression incident. That is the first 12 firefighters, according to the National Fire Protection Association, but the National Fire Protection Association standards indicate that municipalities can make decisions about assembly targets that best fit the community or parts of the community.

[Table 1 to Table 4](#) indicate the percentage of time it took for the first to the fourth fire trucks to arrive at structure fires in each year studied. The percentages are based on all structure fires that occurred in an indicated year.

For example, [Table 1 \(page 14\)](#) shows that in 2024 travel time to fire incidents for the first arriving truck was less than four minutes in 40.7% of cases, and it took more than 7 minutes for the first truck to arrive in 29.6% of incidents. Also in 2024, the second truck arrived within four minutes of the first truck almost 85% of time ([Table 2](#)). But in the majority of fire incidents – because of the Georgetown staffing configuration where most fire incidents happen – this means there would still be only six firefighters on scene.

More detailed information for every structure fire incident can be found in the statistical process control charts in [Appendix B](#).



Table 1: Percentage Distribution of Travel Time – First Truck

	First truck arrival in 4 minutes or less	First truck arrival between 4 and 5 minutes	First truck arrival between 5 and 6 minutes	First truck arrival between 6 and 7 minutes	First truck arrival in more than 7 minutes
2019	28.60%	19.00%	9.50%	14.30%	28.60%
2020	57.90%	0.00%	10.50%	5.30%	26.30%
2021	29.60%	14.80%	25.90%	14.80%	14.80%
2022	66.70%	16.70%	5.60%	5.60%	5.60%
2023	25.00%	41.70%	16.70%	0.00%	16.70%
2024	40.70%	11.10%	11.10%	7.40%	29.60%

Table 2: Percentage Distribution of Arrival Time of Second Truck After First Truck

	Second truck arrival in 4 minutes or less	Second truck arrival between 4 and 5 minutes	Second truck arrival between 5 and 6 minutes	Second truck arrival between 6 and 7 minutes	Second truck arrival between 7 and 8 minutes	Second truck arrival between 8 and 9 minutes	Second truck arrival between 9 and 10 minutes	Second truck arrival in more than 10 minutes
2019	45.00%	10.00%	5.00%	10.00%	10.00%	0.00%	5.00%	15.00%
2020	73.70%	15.80%	10.50%	0.00%	0.00%	0.00%	0.00%	0.00%
2021	66.70%	0.00%	18.50%	3.70%	3.70%	3.70%	3.70%	0.00%
2022	35.30%	11.80%	5.90%	11.80%	23.50%	5.90%	5.90%	0.00%
2023	66.70%	0.00%	8.30%	16.70%	0.00%	8.30%	0.00%	0.00%
2024	84.60%	3.80%	3.80%	3.80%	0.00%	0.00%	0.00%	3.80%

Table 3: Percentage Distribution of Arrival Time of Third Truck After First Truck

	Third truck arrival in 4 minutes or less	Third truck arrival between 4 and 5 minutes	Third truck arrival between 5 and 6 minutes	Third truck arrival between 6 and 7 minutes	Third truck arrival between 7 and 8 minutes	Third truck arrival between 8 and 9 minutes	Third truck arrival between 9 and 10 minutes	Third truck arrival in more than 10 minutes
2019	18.80%	0.00%	12.50%	6.30%	25.00%	6.30%	6.30%	18.80%
2020	35.30%	11.80%	5.90%	11.80%	11.80%	0.00%	0.00%	23.50%
2021	14.80%	22.20%	18.50%	18.50%	11.10%	0.00%	3.70%	11.10%
2022	7.10%	7.10%	0.00%	21.40%	7.10%	14.30%	14.30%	28.60%
2023	25.00%	0.00%	8.30%	25.00%	16.70%	0.00%	16.70%	8.30%
2024	37.50%	6.30%	18.80%	6.30%	6.30%	18.80%	6.30%	0.00%

Table 4: Percentage Distribution of Arrival Time of Fourth Truck After First Truck

	Fourth truck arrival in 4 minutes or less	Fourth truck arrival between 4 and 5 minutes	Fourth truck arrival between 5 and 6 minutes	Fourth truck arrival between 6 and 7 minutes	Fourth truck arrival between 7 and 8 minutes	Fourth truck arrival between 8 and 9 minutes	Fourth truck arrival between 9 and 10 minutes	Fourth truck arrival in more than 10 minutes
2019	18.80%	0.00%	12.50%	6.30%	25.00%	6.30%	6.30%	18.80%
2020	35.30%	11.80%	5.90%	11.80%	11.80%	0.00%	0.00%	23.50%
2021	14.80%	22.20%	18.50%	18.50%	11.10%	0.00%	3.70%	11.10%
2022	7.10%	7.10%	0.00%	21.40%	7.10%	14.30%	14.30%	28.60%
2023	25.00%	0.00%	8.30%	25.00%	16.70%	0.00%	16.70%	8.30%
2024	37.50%	6.30%	18.80%	6.30%	6.30%	18.80%	6.30%	0.00%

3.4 Where Do Fires Occur in Halton Hills?

[Exhibit 7](#) indicates structure fires that occurred in Halton Hills since 2019 and the five-minute travel time contours from each station; that is, the area an emergency vehicle can cover on the road network in five minutes. Contour line overlap denotes those areas that can be reached by the second truck within five minutes. Keep in mind this is travel only and does not include the approximately six minutes that elapse from a call being received at the dispatch centre to the time a fire truck becomes mobile, or the three to five minutes of setup time after arriving at the scene, assuming there are four firefighters on the first arriving truck, or longer if there are two firefighters.

There is no five-minute coverage overlap between stations in Halton Hills.

[Exhibit 8](#) is the same as [Exhibit 7](#) except that it shows the area that a fire truck can cover on the road network in eight minutes. The exhibit indicates that there are significant sections of the Georgetown urban area that do not receive second vehicle coverage within eight minutes, and – even with second truck arrival – only six firefighters are on scene pending part-time third truck arrival.

Larger maps for each station area showing individual travel time contours, and a better depiction of geographic references, can be found in [Exhibit 9](#) to [Exhibit 11](#). If viewed on screen, the maps can be increased substantially to better see where fires occurred.

Exhibit 7: Structure Fire Incidents Showing Five-Minute Travel Time Contours, from Each Station January 2019 to 31 July 2024

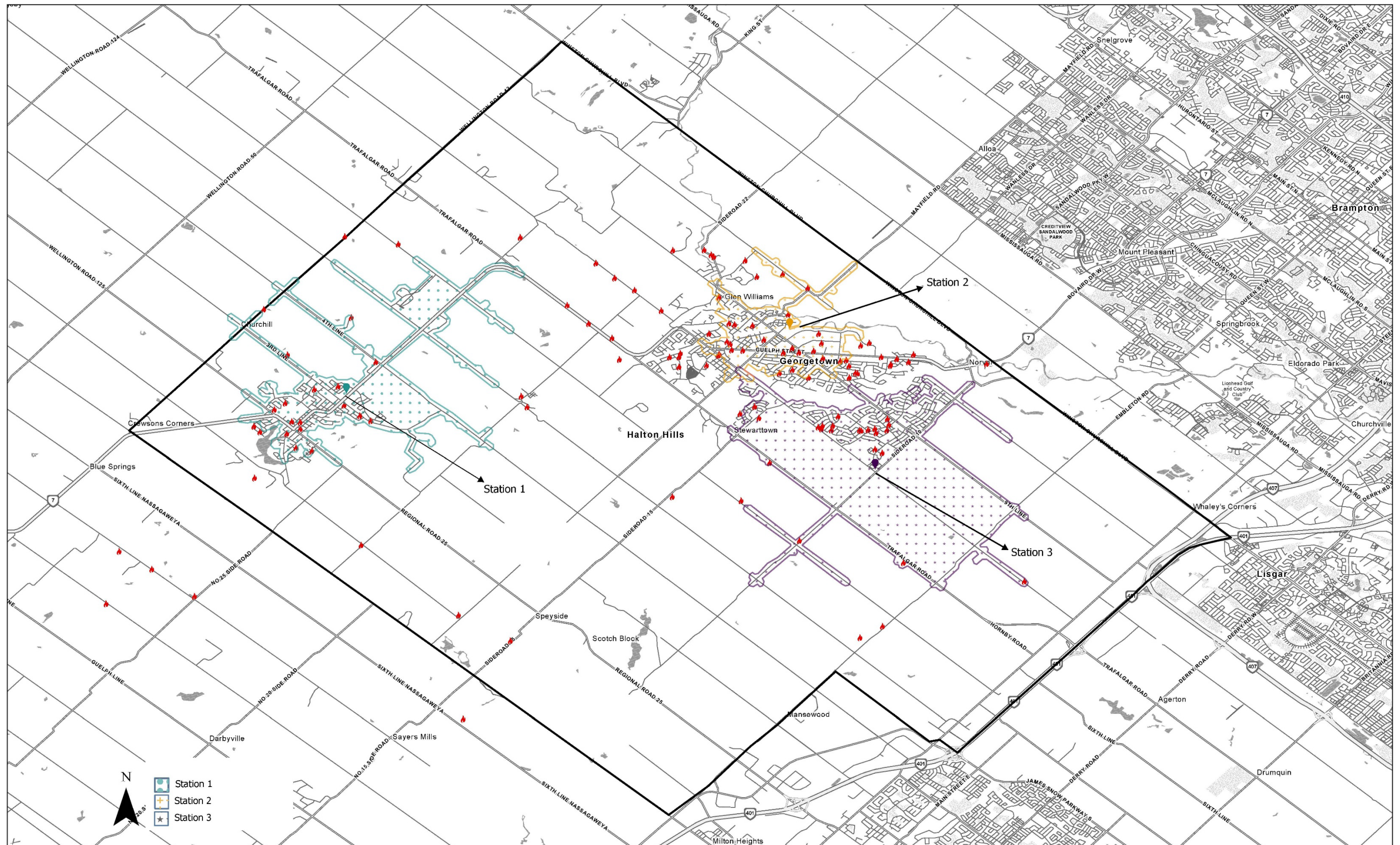


Exhibit 8: Structure Fire Incidents Showing 8-Minute Travel Time Contours, from Each Station January 2019 to 31 July 2024

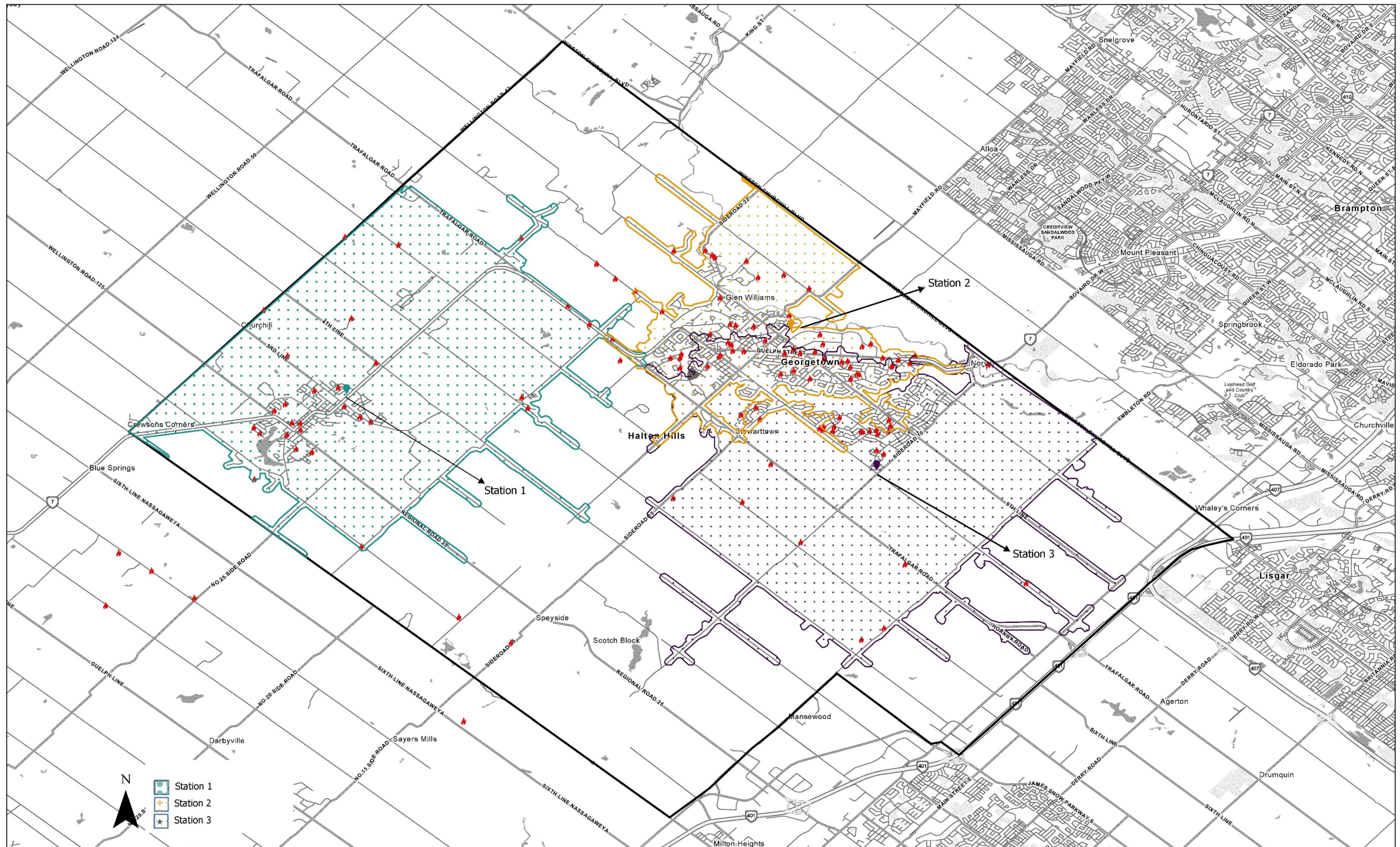


Exhibit 9: Structure Fire Incidents, Showing 8-Minute Travel Time Contours, from Acton Station January 2019 to 31 July 2024

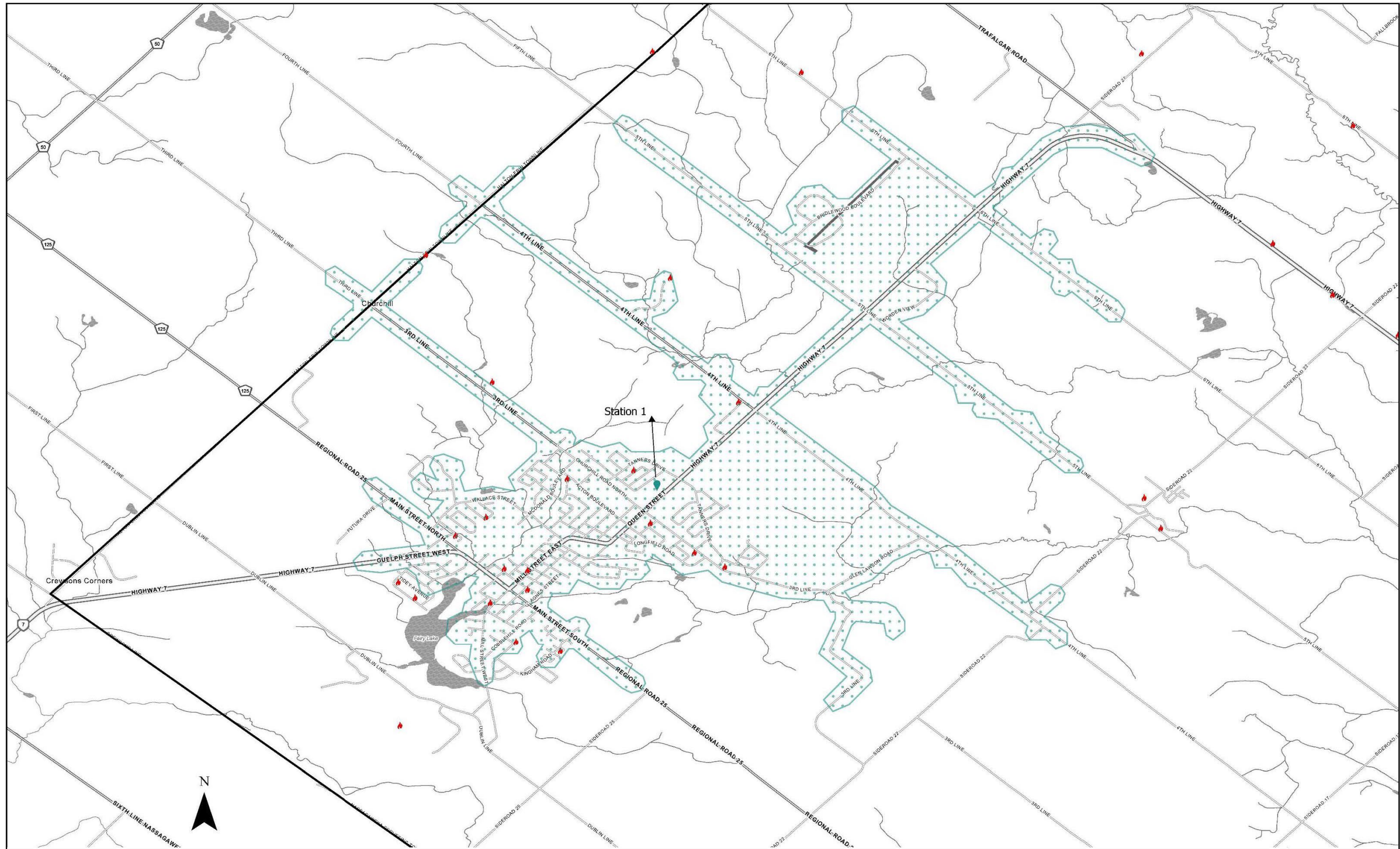


Exhibit 10: Structure Fire Incidents, Showing 8-Minute Travel Time Contours, from Georgetown Maple Avenue Station January 2019 to 31 July 2024

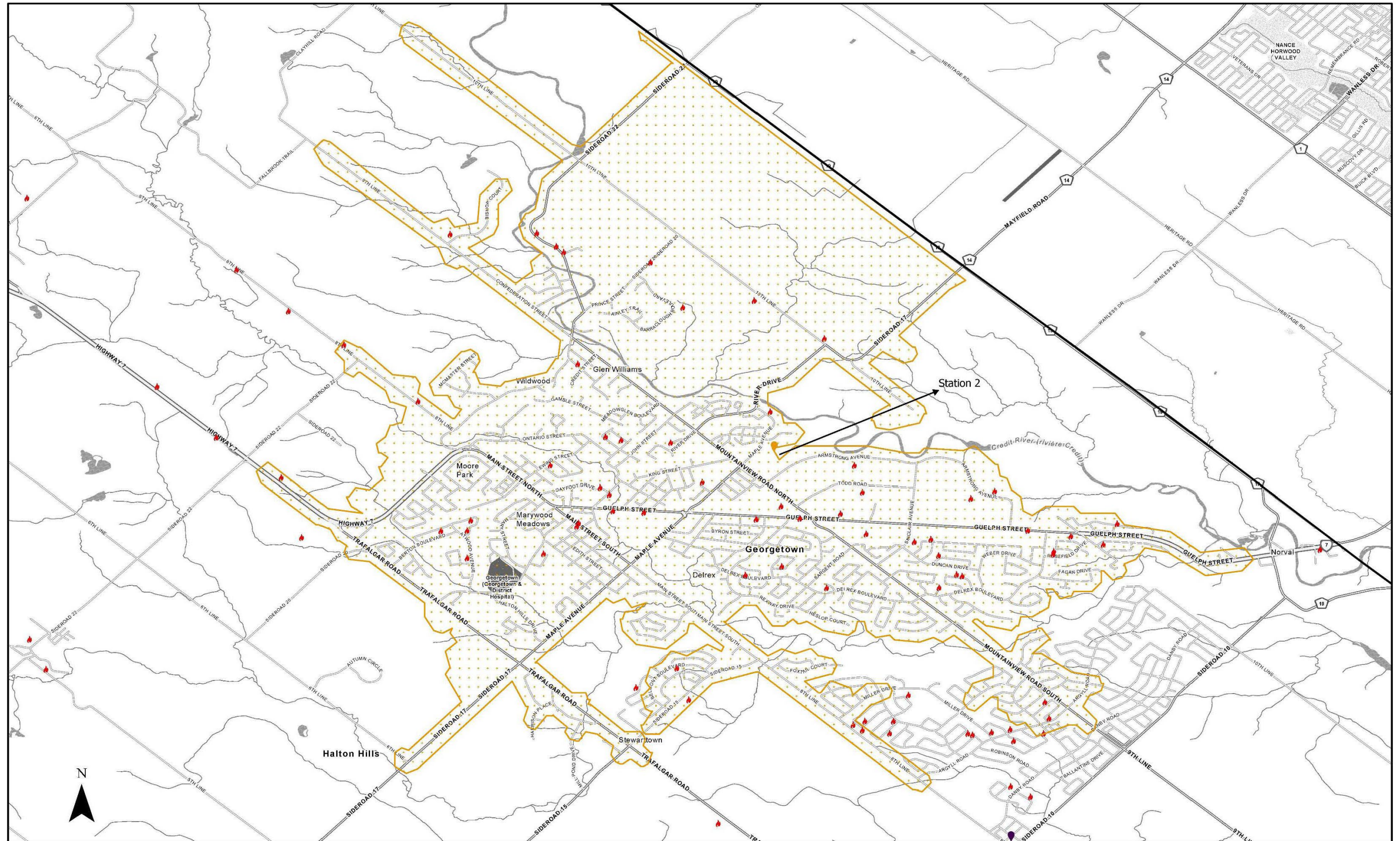
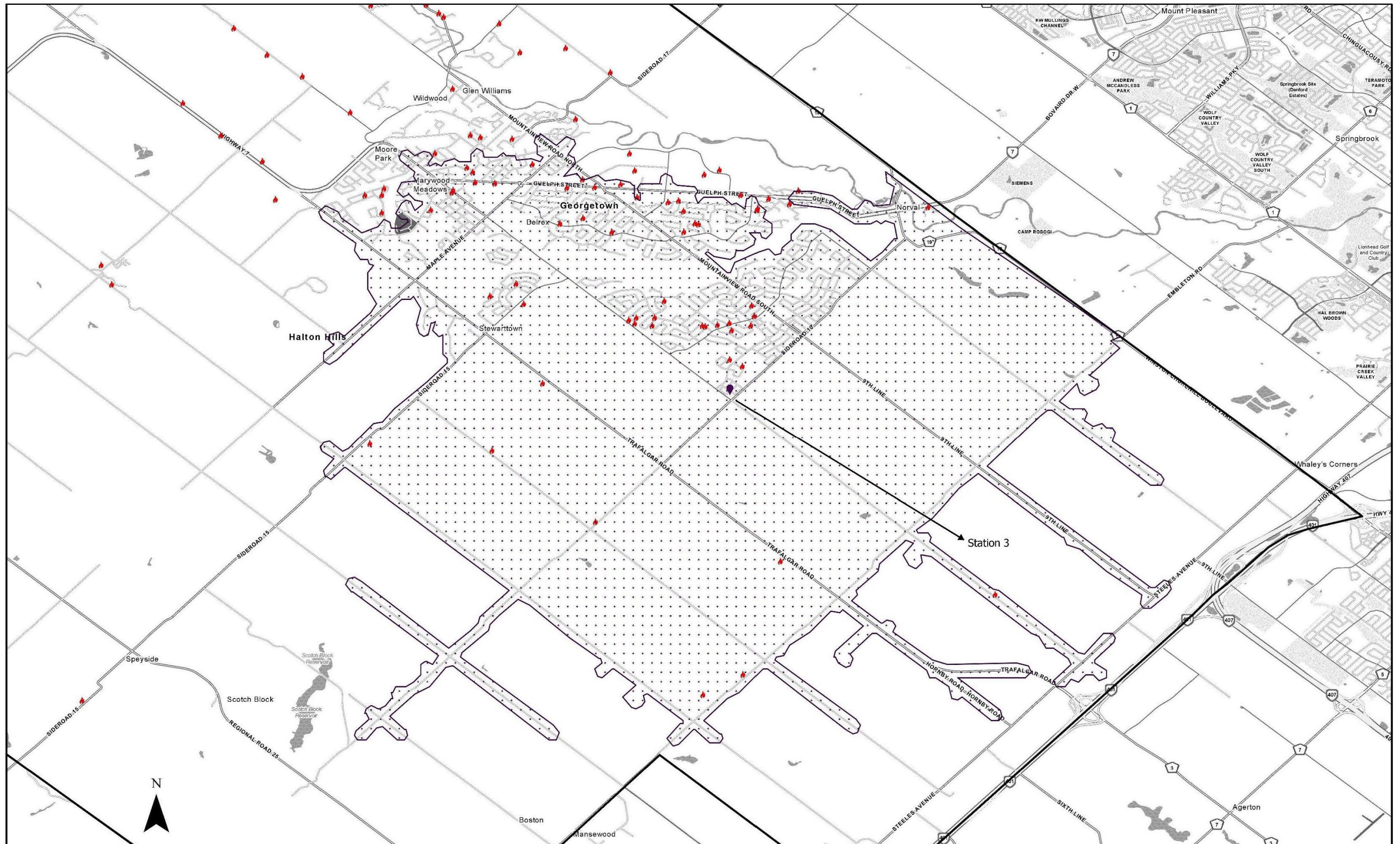


Exhibit 11: Structure Fire Incidents Showing 8-Minute Travel Time Contours, from Georgetown Headquarters Station January 2019 to 31 July 2024.



3.5 Structure Fire Building Age

Through Municipal Property Assessment Corporation data, we were able to find the build dates of 85 of 124 properties that had experienced structure fires since 2019. They are shown in [Table 5](#) below. The greatest percentage of fires occurred in structures built in the 1960s and 2000s, followed by the 1990s and the 1970s. While we can not speculate on the reasons, it would be useful for the Fire Prevention Division to review the fires that occurred in buildings of these decades to see if patterns exist or if there are opportunities for public education.

Table 5: Build Year of Properties Experiencing Structure Fires

Decade Built	Number of Fires	Percentage of Structure Fires
1850–1859	1	1.2%
1870–1879	3	3.5%
1880–1889	2	2.4%
1890–1899	1	1.2%
1900–1909	2	2.4%
1910–1919	1	1.2%
1920–1929	2	2.4%
1930–1939	2	2.4%
1940–1949	2	2.4%
1950–1959	8	9.4%
1960–1969	14	16.5%
1970–1979	11	12.9%
1980–1989	4	4.7%
1990–1999	12	14.1%
2000–2009	14	16.5%
2010–2019	4	4.7%
2020–2024	2	2.4%
Total	85	

4 Organization and Resources of the Halton Hills Fire Department Services

We briefly discussed strategy and strategic pillars in the [Introduction](#) of this document and noted that offsetting costs in the future requires a capable organizational strategy in the present. During interviews with firefighters, captains, trainers, fire prevention and public education staff, and others within the fire department, we learned that through the efforts of the Chief and deputies the work environment and work satisfaction within the organization has improved greatly since the current administration came on board. Everyone from the Chief down is putting in maximum effort, but we have the clear sense that everyone is trying to achieve an effective and efficient environment with insufficient resources.

Halton Hills Fire Department is facing urban growth issues with an organization designed for a part-time fire service. It is time to change, which, admittedly, is going to have a financial impact on the municipality. But we point to the experience of the United Kingdom over the past 30 years where, through good planning and data mining and by employing integrated risk management planning, the number of emergencies attended has been reduced by two thirds. We are not suggesting that the same reductions can be achieved in Halton Hills, but good output and outcome data can result in improved efficiency and, possibly, public safety.

Modifying response conventions – based on outcome data analysis and effectiveness monitoring from the beginning of the call cycle when the phone rings at the dispatch centre, combined with a prevention and public education strategy – is expected to increase public safety while reducing the cost of operation. But we need to be clear that implementing such a strategy will not be successful without the right organizational resources for support.

4.1 Strategic Organizational Adjustment

1. **Reduce the day-to-day operational load on the executive level of the fire department and improve incident scene management by implementing Platoon Chief positions**
 - a) Platoon chiefs would be responsible for the shift-to-shift operation of the fire department, thus relieving the deputies and Fire Chief from that function on a day-to-day basis and lightening the on-call responsibilities of executive staff, who are currently called back to work for major fires and other events.
 - b) The implementation of four Platoon Chief complement positions, plus funding for approved absences and scheduling coverage, to take responsibility for the day-to-day operations of the fire service will enable the Fire Chief and deputies to take a more strategic role, thereby increasing effectiveness and value. Platoon chiefs would have the following responsibilities (not an exhaustive list):
 - overseeing all on-shift activity;
 - ensuring suppression staff assist with public education and awareness;
 - on-shift training as coordinated by the Training Division;

- assisting the emergency vehicle technician with maintenance coordination;
- being the incident commander at emergency scenes, thereby reducing the need for the deputies or Fire Chief to attend;
- becoming an additional oversight complement at fire events; and
- assisting with assessing the efficiency, effectiveness, and quality control of fire department activity.

2. **Improve data effectiveness and quality control**

- a) There is a need within the organization for either a new position, or the realignment of an existing position, to take on the role of data lead and quality control.
- b) We have noted several times in this report that Halton Hills has an inadequate record management system, with the result that insufficient data are gathered upon which to make objective decisions. Even when the newly purchased record management system is implemented, there will not be the capability to analyze outcome information as part of a relational database,⁷ which means that determining the effectiveness of response practices and resource assignments will continue to be an intuitive process.
- c) The data lead responsibility includes working with Halton Hills' information technology team to design and capture fire officers' notes in a database format and combine those notes with data captured by the record management system as a tool for including outcome data as part of incident analysis. In addition, the position would analyze data to discover opportunities for effectiveness and efficiency, based on output and outcome information.
- d) The role would also act as a liaison with the contracted dispatch provider to ensure techniques are developed to elicit information from callers to assist the accurate assignment of resources to different incident types.
- e) [Section 5, Working with the Dispatch Centres to Refine Response and Resource Commitment](#), supports the implementation of methods to refine dispatch techniques and improve effectiveness and efficiency. We view this role as being critical to quality control responsibility.
- f) We see this position reporting to the Fire Chief due to the importance of the role. It would be responsible for working with all divisions in the fire organization to find efficiency and effectiveness techniques, thereby improving service delivery and achieving value for effort expended. This position should have wide latitude for reviewing all fire department practices.

⁷ We have not found any commercial fire record management system vendor that includes an "outcome information utility" as part of a fire record management system.

3. **Engage a technical writer**

- a) The fire department has been striving to modernize many out-of-date policies and standard operating guidelines and has a committee of firefighters in place to achieve this update. But progress is slow. Contracting a technical writer, reporting directly to the Fire Chief, will accomplish the update in a short period of time so that staff can work with current-state guidelines to avoid operational confusion. This position would be engaged on a time-limited basis.

4.2 Operational Organizational Adjustment

1. **Public education**

- a) Create two FTE public education positions.
- b) Halton Hills has inadequate public education resources. The public education officer is a full-time fire captain who is trying to undertake fire education initiatives, even though his primary purpose is responding to incidents and ensuring firefighter on-shift training. Having two full-time public education positions is expected to reduce the incidence of fires and promote public safety (**entails two FTEs**).

2. **Fire prevention**

- a) Increase the fire prevention complement by one.
- b) Achieve the function of yearly business licensing inspections through other means, such as self-reporting and ad hoc inspections.
- c) The fire inspector, who is currently mostly dedicated to the business licensing function, should be reassigned to existing building and residential inspections, along with the new complement and the assistance of suppression firefighters.
- d) The current workload prevents the fire prevention staff from performing the function of routine inspection of existing buildings or from implementing new initiatives such as conducting residential fire safety assessments (considering that most fire incidents occur in residential buildings) in cooperation with the public education team.

3. **Training instructors**

- a) The fire department has one training instructor, which limits the incumbent's time available for research, planning for longer-term needs, and developing teaching plans. The training instructor is struggling to meet the needs of the department, and conducting sessions for both part-time and full-time firefighters is difficult.
- b) Increase the training instructor complement by one for a permanent complement of two.

4. **Emergency vehicle technician**

- a) The fire department currently has a firefighter-mechanic on staff, whose primary role is to coordinate and effect the maintenance and repair of vehicles and other equipment. The complement position that the firefighter-mechanic fills is allocated to a firefighter,

which means that even though the primary responsibility is that of vehicle maintenance, the incumbent has to respond to emergency incidents as needed.

- b) Add an emergency vehicle technician's position to ensure the continued, timely maintenance of fire vehicles and equipment.

5. **Administrative support for the Logistics and Services Division**

- a) Logistics and support are important, non-operational, non-suppression roles such as public education, fire prevention, data analysis, the emergency vehicle technician, and training instructors.
- b) The positions in what we have categorized as logistics and services have historically provided their own administrative support. This means that 15% or more of their time is spent on administrative work, whereas incumbents could be achieving greater effectiveness being dedicated to field duties.
- c) We understand that Halton Hills Fire Department is currently allocated a part-time administrative position. Increasing this position to full-time status dedicated to the Logistics and Services Division would increase the division's effectiveness.

6. **Firefighter complement**

- a) This report extensively describes the challenges of assembling an adequate number of firefighters at fire events, within reasonable time targets. An increase of two firefighters for 24 hours a day at the Georgetown headquarters station will ensure reasonable initial resource levels at fire scenes. In the Georgetown urban area, with a population of approximately 46,000, the current practice of relying on a total of six full-time firefighters (four on duty at the Georgetown Maple Avenue station and two on duty at the headquarters station on 10 Side Road), backed up by part-time firefighters, continues a risk element that we are not able to support.

4.3 Firefighter Complement Calculations

To expand on point 6.a, above, the fire department has a 46-firefighter complement, with a minimum staffing of four firefighters in Acton and the Georgetown Maple Avenue station and two at the headquarters station. However, using a minimum staffing pattern of four firefighters at each station, and allowing for approved absences, requires a complement of 21 firefighters at each station. Below, we show how we calculated that number.

First, the collective agreement with the Halton Hills Professional Firefighters Association allows approved absences for each member annually. We used the collective agreement plus budgetary history to calculate time off for firefighters, as presented in [Table 6](#). These are averages for calculation purposes, but the actual approved absence hours may be higher or lower, depending upon the tenure of each firefighter.

Table 6: Firefighter Average Approved Absence Hours

Sick Time	Vacation Hours	Off-site Training	Other (court, bereavement, parental)	Statutory Holidays	Total per Firefighter
108	168	36	36	144	492

Each firefighter works an average of 42 hours a week, based on a compressed work week model totalling 2,190 hours a year. Assuming 492 hours a year of approved absences (scheduled and short-notice time off) results in each firefighter averaging 1,698 work hours per year. Assuming a staffing pattern of a minimum of four firefighters 24 hours a day, every day of the year, the FTE complement requirements are calculated as shown in [Table 7](#).

Table 7: Complement Requirement Calculations per Fire Station

Firefighters on Shift	Hours	Days	Staffed Hours	Hours Paid per Firefighter	Approved Annual Absences per Firefighter	Hours Each Firefighter Is available	Number of FTEs Required to Staff 4 Firefighters 24 Hours a Day (35,040 ÷ 1,698)
4	24	365	35,040	2,190	492	1,698	21



[Table 8](#) shows that Halton Hills currently experiences a shortfall of six complement to satisfy its approved minimum staffing pattern of four firefighters 24 hours a day in the Acton and Georgetown Maple Avenue stations and two firefighters at the headquarters station.

Table 8: Current Staffing Pattern Complement Shortfall

Station	Firefighters on Shift	Hours	Days	Staffed Hours	Hours Paid per Firefighter	Approved Annual Absences per Firefighter (Hours)	Hours Each Firefighter Is Available	Number of Complement Required to Staff 4 Firefighters 24 Hours a Day
Acton	4	24	365	35,040	2,190	492	1,698	21
Maple Ave	4	24	365	35,040	2,190	492	1,698	21
Headquarters	2	24	365	17,520	2,190	492	1,698	10

Total complement required: 52

Current complement: 46

Additional firefighters required: 6

Points to note:

- The current staffing pattern requires 52 complement, whereas the fire department has 46.
- The difference appears to be resolved through an approximately \$1,000,000 annual overtime expenditure.

Earlier, in [section 3](#), we explained the need for suppression resources at a fire scene and demonstrated, in graphics in [Exhibit 5](#) and [Exhibit 6](#), the duties and distribution of firefighters at a structure fire event. We explained, within [Exhibit 1](#) and [Exhibit 2](#), the sequence of a fire and the elapsed time it takes to start action at a fire after a fire is recognized and a call for help is placed to 9-1-1. We demonstrate in [Appendix B – Statistical Process Flow Charts](#) the time it takes for each fire truck to travel to incidents, and in [Table 1](#) through [Table 4](#) we showed the percentage distribution of arrival. Based on what we discovered from data, our staffing advice is summarized in the lists in [Section 4.1, Strategic Organizational Adjustment](#) and immediately above, above, including an increase in suppression staffing.

Our advice to the town of Halton Hills is this:

- Increase the firefighter complement to 21 at each station to accommodate a minimum of four firefighters at each location (see [Table 9](#)). It appears that Halton Hills is achieving the operational requirement of four firefighters at the Acton and Maple Avenue stations and two firefighters at headquarters through overtime expenditure. Therefore, increasing the complement to eliminate the current shortfall of six positions should not have a budgetary impact, but we recognize that Halton Hills will have to conduct its own due diligence on budget effect.

To enable three stations to be staffed with four firefighters 24 hours a day, plus accounting for time off, will require 62 positions, an increase of 16 firefighters from current levels.

Table 9: Complement Required to Staff One Fire Truck at Each Station 24 Hours a Day

Station	Firefighters on Shift	Hours	Days	Staffed Hours	Hours Paid per Firefighter	Approved Annual Absences per Firefighter (Hours)	Hours Each Firefighter Is Available	Number of Complement Required to Staff 4 Firefighters 24 Hours a Day
Acton	4	24	365	35,040	2,190	492	1,698	21
Maple Ave	4	24	365	35,040	2,190	492	1,698	21
Headquarters	4	24	365	35,040	2,190	492	1,698	21

Total complement required: 62

Current complement: 46

Additional firefighters required: 16

5 Working with the Dispatch Centres to Refine Response and Resource Commitment

Part of our activity when conducting fire master plans is to interview a wide range of municipal staff and agency partners, including firefighters. Halton Hills was no exception. Multiple interviews were held with staff at the stations and online. A comment heard several times was about being sent to incidents when the fire service was not needed. This includes being dispatched and cancelled, arriving at a medical incident to find that an ambulance had arrived prior to or within minutes of the fire truck, arriving a traffic collision that was without injuries, or responding to automatic alarms, which are false up to 99% of the time.

The frequency of these non-critical call-outs can be reduced through two activities:

1. working with 911/police, paramedic services, and the fire dispatch centre to refine call-taking, dispatch, and call-out procedures, and
2. using analytics to refine response methods.

The expected result would be a significant reduction in dispatches, except mostly to critical incidents where time may make a difference.

In an emergency, a call goes to the 9-1-1 centre. In the Halton Region, the police service operates the 9-1-1 function, and calls for fire or paramedic services are routed to the appropriate dispatch centre.

The fire service can be activated in several ways (the following examples are not intended to be all-encompassing):

- The incident may be a fire or other event such as a water rescue or a carbon monoxide, smoke, or fire alarm, etc., for which the fire service is the primary response.
- An incident wherein the paramedic service determines the fire department may be needed for assistance and requests the fire department. Such calls include cardiac arrest, unconscious patient, entrapment, serious traffic collisions, and events where paramedic services may require help gaining access to a patient.
- The police service may determine that the fire service is required for an incident such as a motor vehicle collision, drowning, or rescue.
- An agreement may be in place, such as the tiered response agreement between Halton Hills and Halton Region Paramedic Services, which indicates which incident type the fire department wishes to attend.

In the case of fire departments, the target is for the dispatch centre to alert firefighters to respond within 60 seconds of receiving a call for assistance.

So, why would these dispatches be a problem and cause comments from firefighters about being dispatched only to find out they were not required? It is because dispatch centres and emergency services err on the side of safety, which is a good practice but done to an overcautious extent, with a resulting over-deployment of fire services.

There are several techniques that can be used to refine dispatch practices and improve effectiveness and efficiency.

1. Create a joint dispatch service planning group for the purpose of reviewing selected incidents and refining dispatch information gathering and dispatch techniques.
2. The fire service should review a sample of emergency calls, including listening to the recordings from the moment a call is received at the 9-1-1 centre or fire dispatch, until scene arrival and incident assessment. Approximately 20–30 randomly selected events of all types should be reviewed monthly.
 - a) Review the recording to see what information was received by the call taker and the effort made to determine the full nature of the call so that effective and efficient resources are sent to the incident.
 - b) Determine how the assets deployed could be reevaluated, resulting in greater efficiency and reduced risk.
 - c) Work with 9-1-1, police, and paramedic services dispatch centres to recognize information patterns at the call-taking stage, to eventually increase efficiency of call-taking and dispatch processes.
3. Review outcome data (officers' notes) manually until the record management system is developed sufficiently to record on-scene activity in a relational database.
 - a) Equate information gathered at the call-taking stage with "as found" information on scene for congruency.
 - b) Work with the dispatch centres to find techniques for querying callers so that information gathered more closely aligns with "as found" information on scene.
4. Except in cases such as confirmed fires, confirmed cardiac arrest, and a few other emergencies where minutes count, the dispatch centre should disregard a 60-second dispatch target and take another 30 or 40 seconds to obtain additional information, which may reduce the number of times firefighters are dispatched.

Taking these steps over the next two to three years, and comparing caller information with outcome data, will offer an opportunity to refine resource commitment, reduce dispatches, and reserve resources for more urgent incidents.

In concert with the advice above, the fire department should seek peer-reviewed studies from scientific journals or other impartial publications to either confirm or question existing response methods. This is not specific to dispatch but applies to all aspects of response and other fire department activity and responsibility.

6 Future-State Fire Resources and Station Locations

The prior sections addressed the resources and organization that Halton Hills Fire Department should have in place now. This section deals with future-state considerations.

Halton Hills is expected to enjoy robust growth over the next few years. The planning and growth information contained in this section was sourced from the Halton Hills planning department and Halton Region.

The town of Halton Hills is a lower-tier municipality located in the Regional Municipality of Halton, in the Greater Toronto and Hamilton Area. Halton Region includes the cities of Burlington and Oakville, and the towns of Milton and Halton Hills. Halton Hills includes the main population centres of Georgetown and Acton, several smaller hamlets, the surrounding rural areas, and is separated from the remainder of Halton Region by Highway 401. Urban development (on full municipal services) is limited to the Georgetown and Acton designated urban areas and the Premier Gateway Employment Area on both sides of Steeles Avenue, extending across the southern boundary of the town (Highway 401).

Historically, urban development in Halton Hills has occurred at modest levels, due in part to limited ground water supply for municipal drinking water and to limited sewage treatment capacity. The Halton Region Water and Wastewater Master Plan was recently approved to form the basis of a proposed lake-based water supply and wastewater treatment scheme that will provide for longer-term urban growth in the Halton Region, including Halton Hills. It is anticipated that the extension of those urban services will be available to Halton Hills in 2025. Outside of the urban areas there is very little development expected in rural areas.

Municipal planning is governed by provincial policy established in the Growth Plan for the Greater Toronto and Hamilton Area, the Halton Region Official Plan, and the Town of Halton Hills Official Plan. In this context, it is the Halton Region Official Plan that establishes growth forecasts for population and employment. Table 1 of that regional plan is reproduced below in [Table 10](#) to [Table 13](#) and includes the following growth forecasts for Halton Hills over a planning horizon spanning to 2051.

Table 10: Town of Halton Hills Population Change Forecast to 2051

Population 2021	66,010
Population 2041	98,980
Population 2051	132,050

Table 11: Town of Halton Hills Employment Forecast to 2051

Population 2021	24,510
Population 2041	45,900
Population 2051	65,640

Table 12: Halton Region Population Change Forecast to 2051

Population 2021	620,990
Population 2041	929,400
Population 2051	1,098,070

Table 13: Halton Region Employment Forecast to 2051

Population 2021	279,220
Population 2041	421,230
Population 2051	507,240

In 2024, the Province of Ontario enacted Bill 162, which allocated community and employment lands to accommodate growth to the year 2051. The Halton Region is now a region without planning responsibilities.

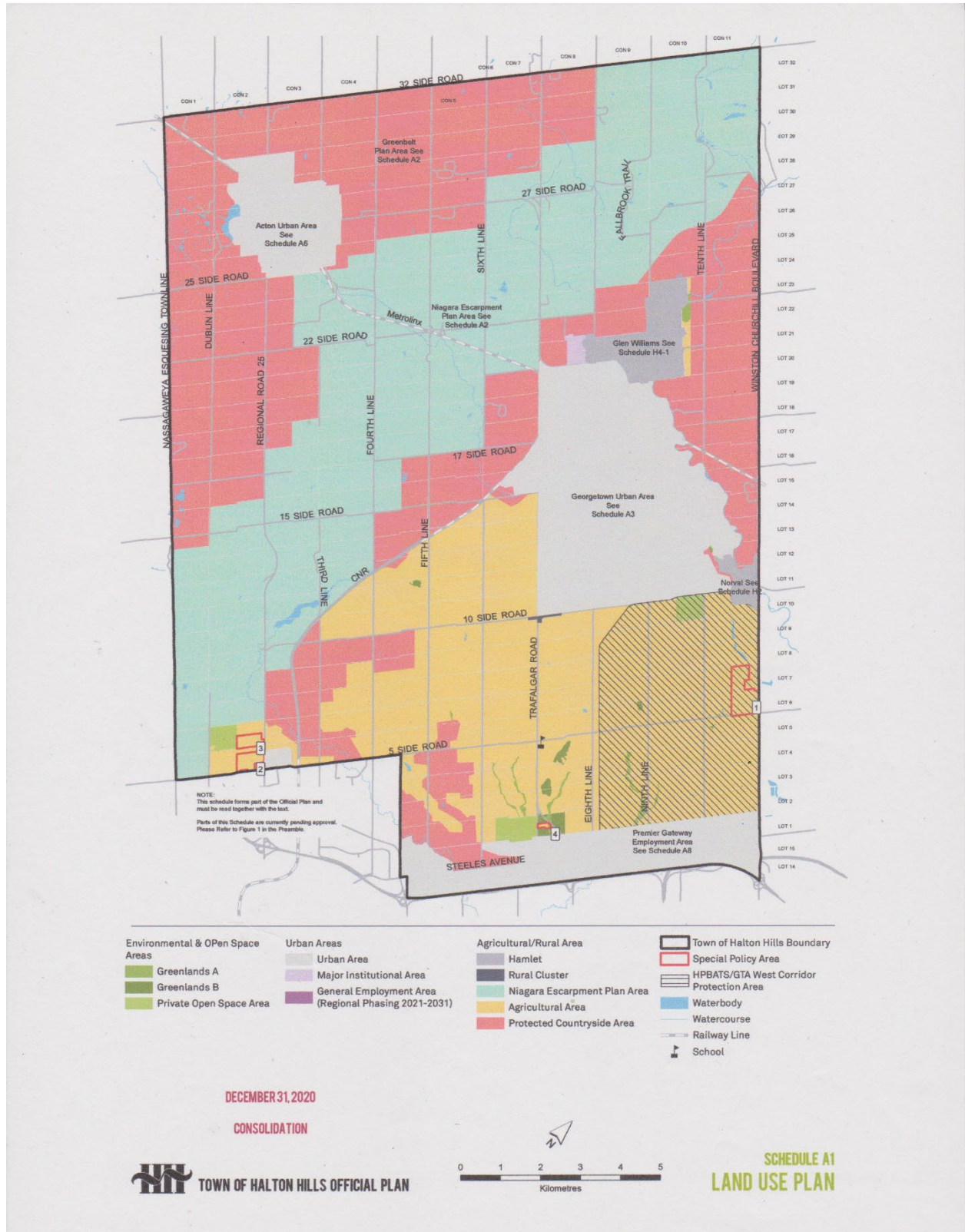
The official plans at both municipal levels include general land-use designations, with more detailed, use-specific designations being shown at the local level (that is, in the Town of Halton Hills Official Plan). The regional plan includes the urban boundary expansion as approved by the province through Bill 162, as well as reference to the phasing of these additional lands occurring between 2021 and 2051. The identified urban area expansion is located immediately south of Georgetown and in the Premier Gateway Employment Area lands which could provide for significant future residential and employment growth respectively.

The Town of Halton Hills Official Plan was adopted in 2006, approved by the Halton Region in 2008, and consolidated in 2024 to include a number of amendments. It has a planning horizon of 2031. The latest version of the plan shows the existing urban designation around Acton, Georgetown, and the Premier Gateway Employment Area (see Halton Hills' schedules A1, A3, A6, and A8, below). The town will be initiating a review of the official plan to bring it into conformity and consistency with provincial plans and policies. Through this process, lands will be added to the town's urban area mapping. In addition, a growth capacity analysis will be completed to verify growth projections for the town.

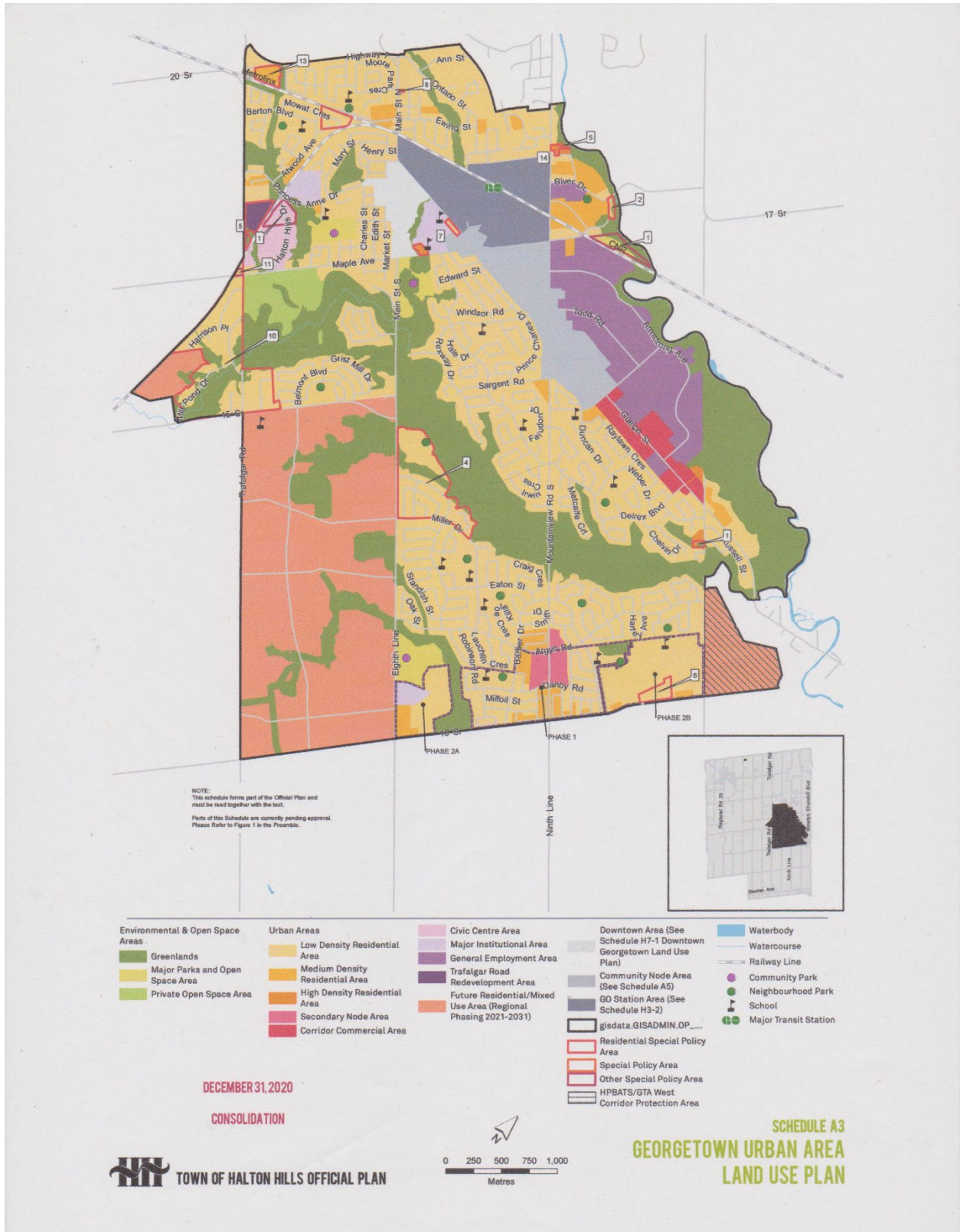
Within the Acton urban area, the Acton Major Transit Station Area is primarily within downtown Acton. This area is intended to accommodate moderate levels of intensification. There are also pockets of existing employment (industrial) lands in Acton, Georgetown, and Mansewood, with a limited supply of vacant employment land in Georgetown and Acton being subject to servicing. The Premier Gateway Employment Area is seen as providing long-term employment lands and the greatest potential for large-scale employment sites.

It should be noted that a large portion of the lands lying south of the Georgetown urban area through to Highway 401 and the east municipal boundary are currently subject to the Greater Toronto Area West Corridor Protection Area designation (see Schedule A1, below). This relates to the provincial government's proposed Highway 413 and requires that a preferred alignment be established and protected before the lands could be developed.

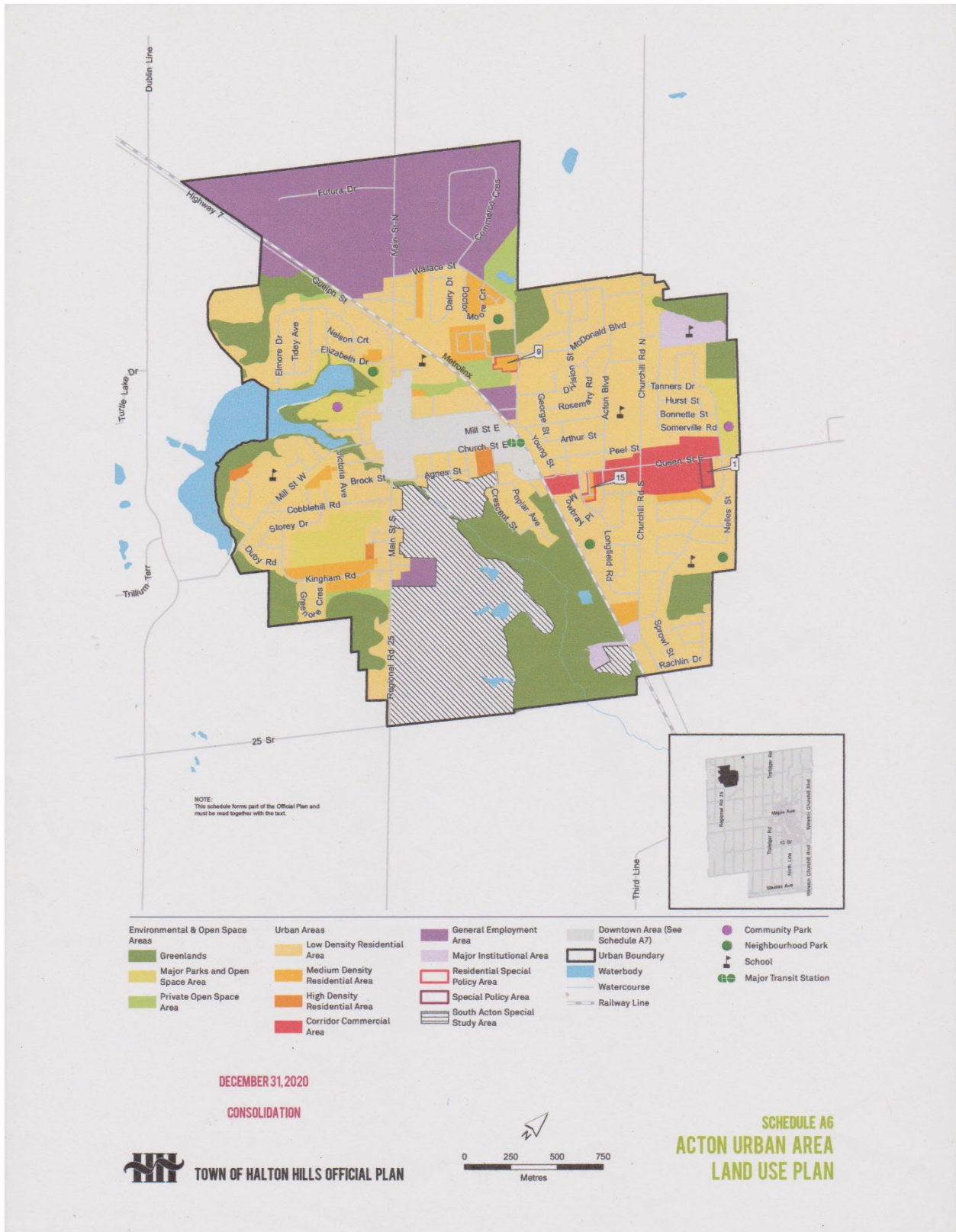
Halton Hills Schedule A1



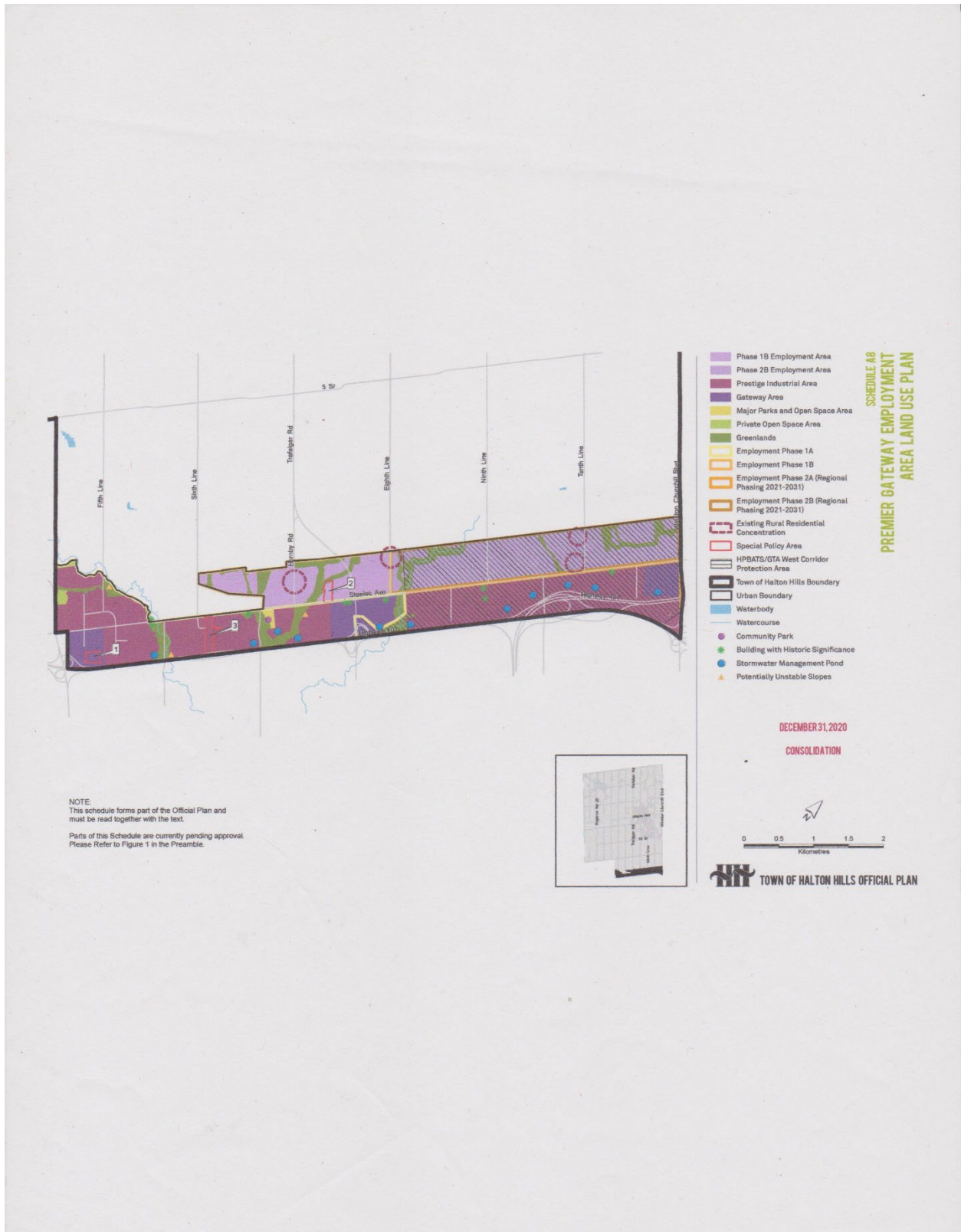
Halton Hills Schedule A3



Halton Hills Schedule A6



Halton Hills Schedule A8

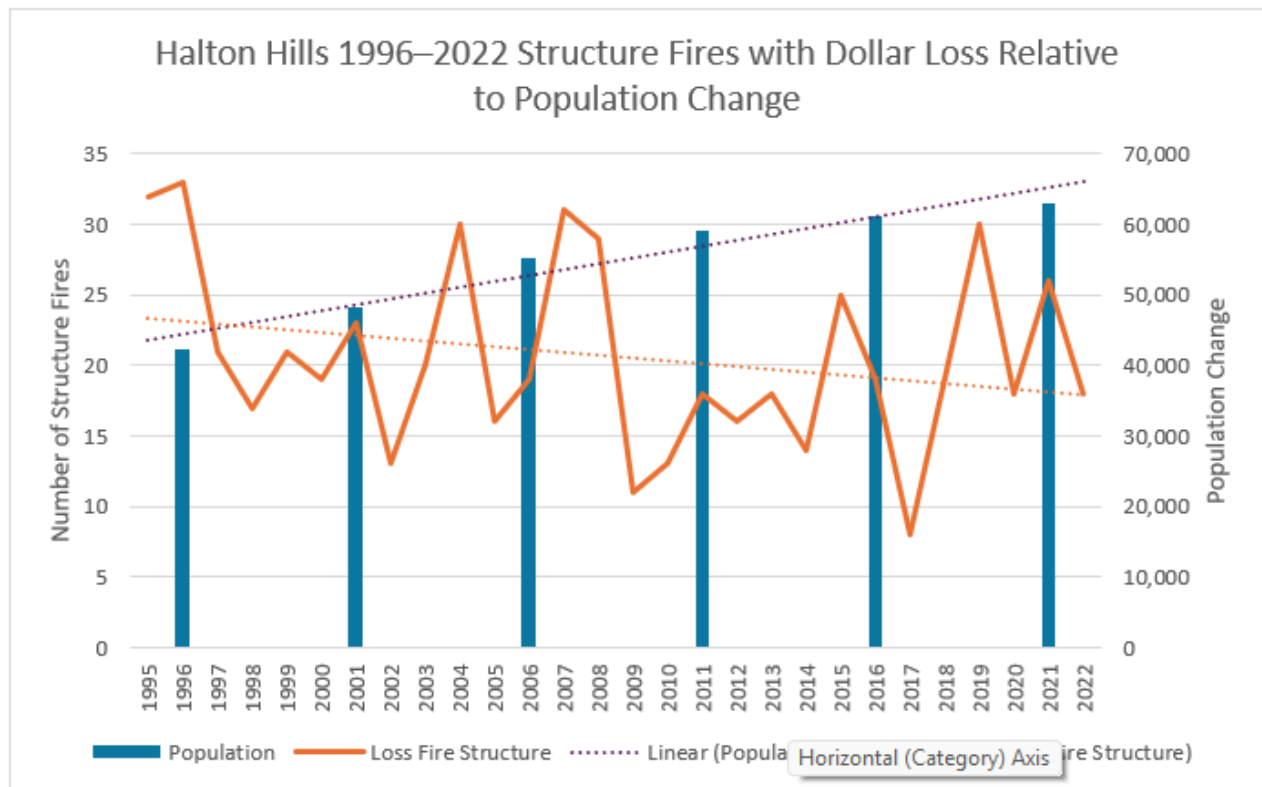


Even though Halton Hills is expected to see vigorous development, particularly in the south, growth does not always translate to an increase in fire service activity. [Exhibit 12](#) indicates a declining trend in structure fires since 1996, even though population in Halton Hills has increased by approximately 20,000.

However, it is important to note that recent data from Office of the Fire Marshal Standardized Incident Reports indicate that there were 40 structure fires in 2024, representing a loss of \$7.7 million. The previous highs for structure fires were 33 in 1996, 31 in 2007, and 30 in 2004 and 2019. Therefore, it is essential to plan for growth, including for full-time and part-time resources and their locations.

Our expectation is that if the data initiative (including scrutiny of outcome data once developed) is implemented, combined with intensive prevention and education activities, especially in single-family residential environments where most fire events occur, then call frequency and the deployment of vehicles will decrease.

Exhibit 12: Number of Halton Hills Structure Fires Relative to Population Increase Since 1996



There are three primary considerations when planning for future resources:

1. residential expansion in Georgetown;
2. population and construction growth in south Halton Hills; and
3. the potential decline in the availability of part-time firefighters.

Dealing with the part-time issue first, there is a general decrease in volunteerism in many organizations that have historically relied on part-time resources, and fire departments are no different.

Training requirements for part-time firefighters will become more stringent by July of 2026, and we are told by clients that it is becoming more difficult to attract part-time firefighters due to the time commitment. The exception to this challenge may be in very rural environments. The Georgetown area of Halton Hills is similar in population to some small cities that have turned to an all-full-time staffing configuration, yet Halton Hills is fortunate to be able to maintain some part-time staff. But plans should be made to reduce the dependency on part-time firefighters for third truck support because the struggle to attract and maintain part-time staff will continue and eventually be laborious and inefficient. Calling in part-time firefighters for the third truck support at a structure fire can protract the time it takes to assemble an initial full alarm assignment.

If the part-time program in Georgetown is concluded, the third truck options would be:

- Continue to dispatch Acton to assist Georgetown, and call Acton part-time firefighters to staff the Acton fire station if data support the call in practice.
 - Acton has an eight-minute driving time to get to the northwest edge of Georgetown and about 11 to 12 minutes to reach central west Georgetown.
- Refine or establish mutual aid and automatic aid agreements with neighbouring fire departments to provide third truck support.
- Increase full-time staffing in Georgetown.
 - In addition to our advice to increase current firefighter staffing levels, add an additional full-time staffed fire vehicle 24 hours a day to one of the two Georgetown stations at an estimated cost of \$2.4 million annually.
- Transfer the full-time Acton firefighters to one of the Georgetown stations, preferably Maple Avenue, and return Acton to a part-time station.
 - Acton experiences an average of less than one structure fire per month and few medical responses where time is critical. Most other incidents are not time critical.
 - Relocating full-time firefighters from Acton will increase the overall response time to those incidents in Acton that are time critical, but many volunteer services handle a similar number of calls as Acton.
 - The fire department advises us that raising a part-time response in Acton (and all stations), especially on weekdays, is challenging.

[Exhibit 13 to Exhibit 15](#) offer an estimate of assembly time of 12 firefighters to a fire incident in Georgetown, under each of the scenarios outlined above. The elapsed times shown are estimates based on the data available, but assembly time will vary depending on the location of the fire event. Of interest, the assembly time of 12 firefighters to an incident in Georgetown appears to vary by only a couple of minutes between models. The option of adding four full-time firefighters to one of the Georgetown stations does offer the advantage of the first two vehicles arriving sooner to fires in some locations.

Exhibit 13: Demonstrated Response for 12 Full-Time Firefighters in Georgetown, Using Acton Station 1

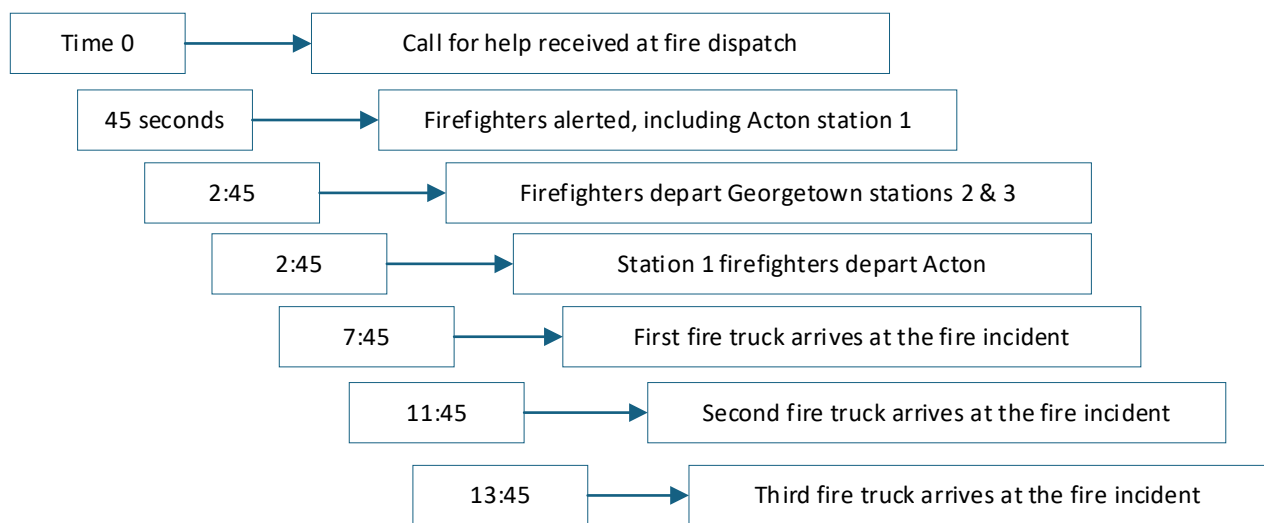


Exhibit 14: Demonstrated Response for 12 Firefighters in Georgetown Using a Composite Firefighter Response Model

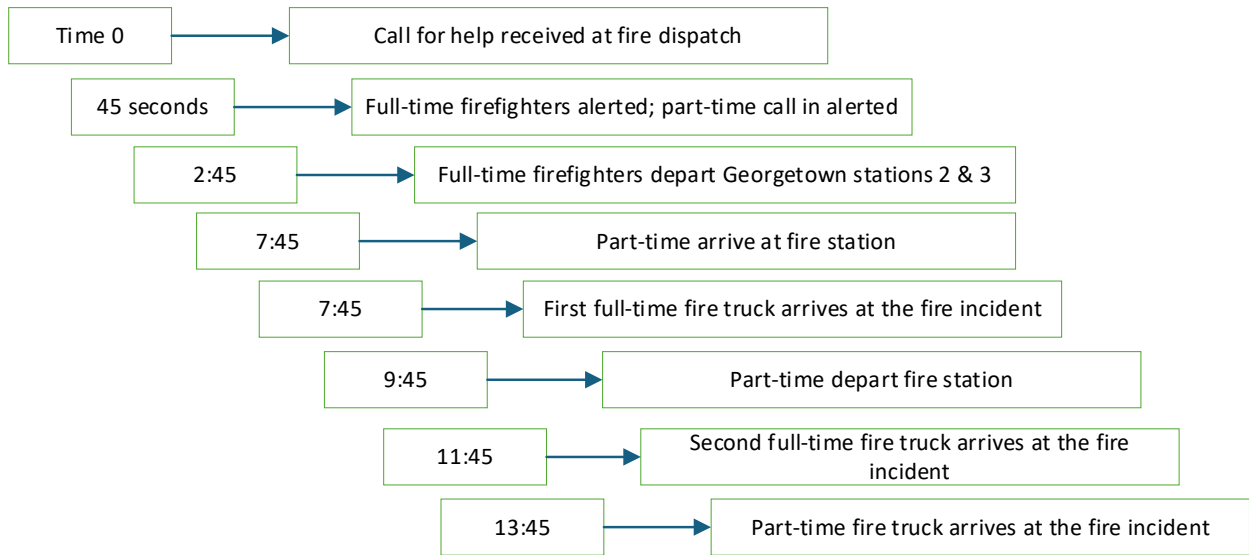
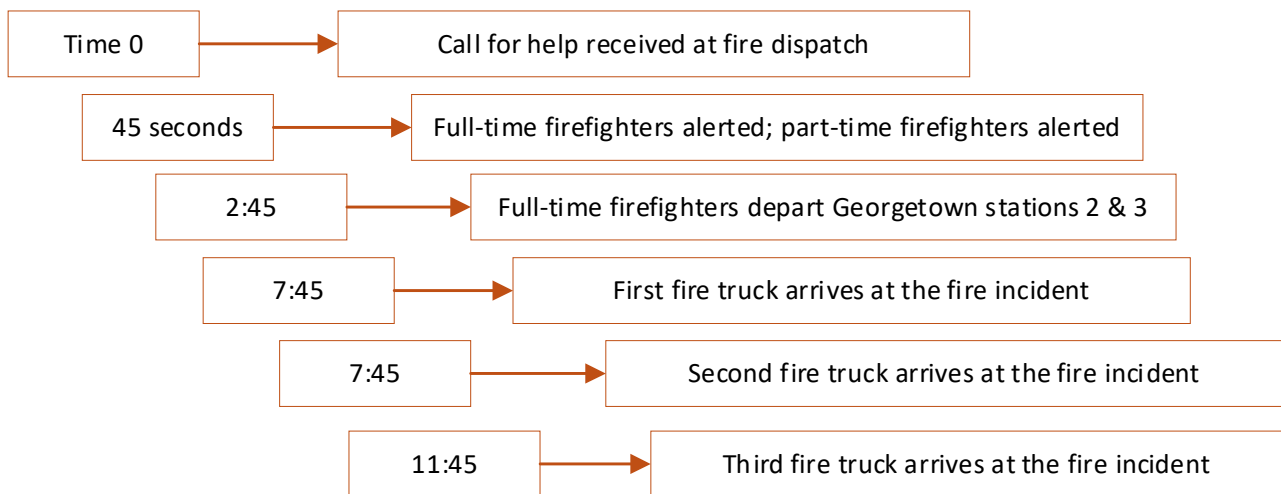


Exhibit 15: Demonstrated 12 Firefighter Assembly Timeline in Georgetown; Additional Staffing at the Georgetown Stations



If we view these models in a table ([Table 14](#)), the best performance and assembly of firefighters occurs if staffing at one of the Georgetown stations (preferably Maple Avenue) is enhanced by four firefighters 24 hours a day. In that scenario, eight firefighters arrive at an incident four minutes sooner than in the other two models, and 12 firefighters arrive two minutes sooner.

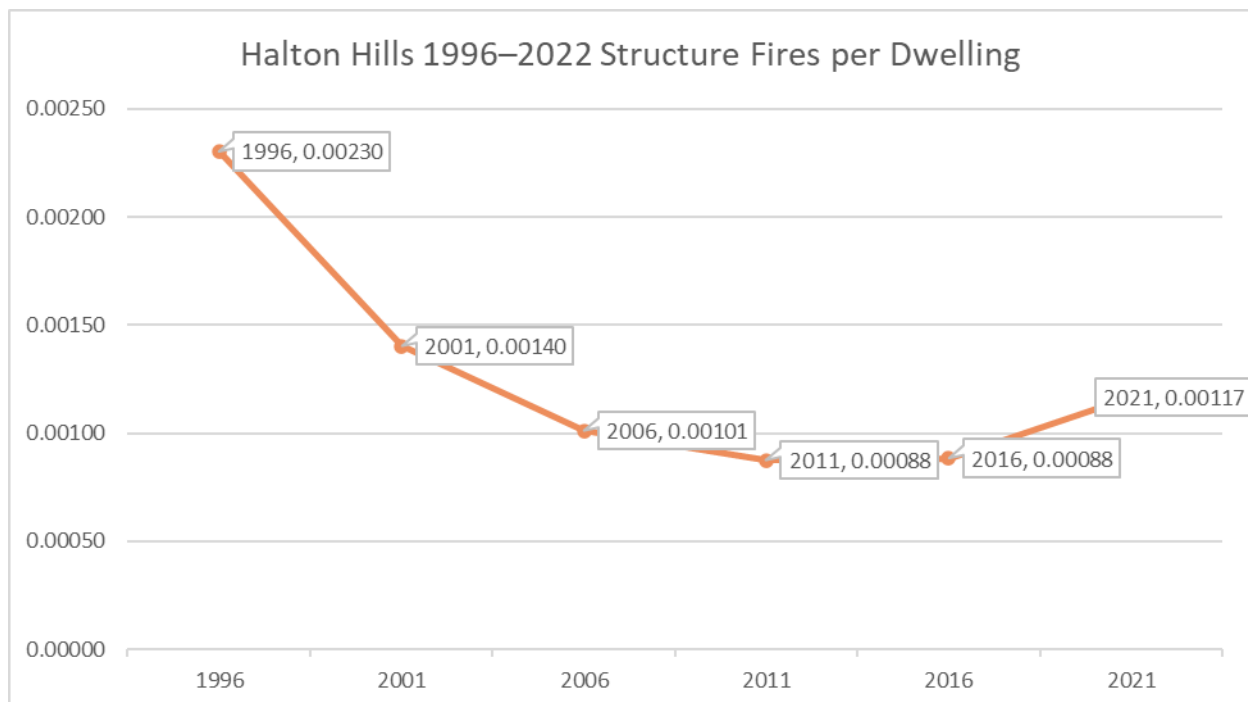
Table 14: Fire Truck Arrival Times in Response Scenarios Shown in Minutes and Seconds

	First fire truck arrives at the fire incident	Second fire truck arrives at the fire incident	Third fire truck arrives at the fire incident
Currently: Acton full-time responds to Georgetown	07:45	11:45	13:45
Georgetown part-time called in	07:45	11:45	13:45
Additional staffing at a Georgetown station	07:45	07:45	11:45

The actual arrival times shown for the scenarios discussed above will vary depending on the fire incident location.

[Exhibit 7 \(page 17\)](#) demonstrates that there are few fires in south Halton Hills (the area is primarily agricultural), and we can see in [Exhibit 16](#) that, based on Ontario Office of the Fire Marshal’s data, structure fires per dwelling have been on the decline since 1996. However, 2021 shows an increase, and the first seven months of 2024 have seen as many structure fires as have occurred in previous full years.

Exhibit 16: Structure Fires per Dwelling Trend Since 1996



At some point, either because of the decline of volunteerism or because of growth and need in Halton Hills, an additional fire station will need to be built, or staff added at one of the existing Georgetown stations. Adding staff at a current station brings with it the challenge of having sufficient space to house the firefighters. We suggest, as part of the fire master plan and based on the data analysis strategy and methodology within this report, that Halton Hills should review the utility of continuing to operate a composite response plan in Georgetown no later than the end of 2027, and, if a decision is made to continue a composite response profile, revisit the response design every two years thereafter.

Our advice to the town of Halton Hills is this:

- Continue the use of the Acton station as third vehicle response to Georgetown while tracking all data related to the practice, including concurrent incidents and the nature of the incidents.
- Enhance complement at the Maple Avenue station to reduce second truck response to Georgetown fires by four minutes and third truck response by two minutes.

The Acton area is not expected to experience significant change for the duration of the fire master plan, and although our conclusion is that the current staffing configuration should remain in place, an option is to relocate Acton full-time staff to one of the Georgetown stations and convert Acton to a part-time station. An internal reassessment should take place every five years.

There was discussion about the expectation that a fourth fire station would be needed in south Halton Hills. As growth and development continue, the fire department suggests that a future site should be to the northeast of Sixth Line and toward Trafalgar Road to accommodate expected growth. The Regional Police Service and Paramedic Service are cooperating on a North Halton Region Emergency Service campus in this area. Halton Hills may determine that the emergency service campus might be the best location when a fourth fire station is required.

There is no compelling evidence that a fourth station is required now, but it is not unreasonable to expect that it will be required, depending on development timing. But, remaining with the strategy of this fire master plan, the need and location should be based on robust response data and incident type information.

7 Other Important Considerations

7.1 Asset Allocation and Vehicles

Halton Hills Fire Department has commented that the service has an abundance of vehicles. We agree but we have no conclusions as to which to keep and which to repurpose or remove. We acknowledge that those reading this report are likely getting weary of the focus on data, but – once again – gathering the right data will inform Halton Hills Fire Department of

- the frequency of vehicle use;
- the vehicles' purpose, such as whether they are used as firefighting resources or as a means of conveying firefighters to an incident;
- the equipment used and how often it is used;
- whether all trucks have to carry the same equipment or if specialization is possible; and
- whether there are alternatives to acquiring full-sized trucks, such as a smaller European design, vans for staff response (part-time) if another truck is not need at an emergency incident, response cars for medical incidents, etc.

The same data-informed factors come into play for determining the depth of other motorized assets such as off-road utility vehicles or non-motorized assets, which include generators, rescue tools, and hose lengths.

Fire equipment is expensive, as is the maintenance and operation of large fire trucks. Data gathering and objective data utilization will provide opportunities to ensure asset effectiveness and efficiency.

7.2 Succession Planning

Fire administration requested that the consultants comment on succession planning. Human resource organizations sometimes define succession planning as the process of identifying the critical positions within an organization and developing action plans for individuals to assume those positions.

Good succession planning is more complicated than most view it. It should include

- first identifying the organizations' (Halton Hills' and its fire department's) business and service strategies;
- determining key competencies required for principal positions and establishing a plan for developing those competencies;
- identifying staff members who have an aptitude for the skills required for each succession-identified position;
- developing a progressive plan for teaching the competencies; and

- linking the succession plan to key indicators, thereby enabling measurement of its effectiveness.

Sometimes simpler development and opportunity planning for staff is more appropriate. Rather than succession planning, development opportunities enable staff members to avail themselves of courses or other programs that they have an interest in, will improve staff opportunities in the future both within and outside the organization, keep staff members engaged in their job and future with Halton Hills fire, and develop talent that will assist Halton Hills Fire Department to accomplish its goals and objectives. For example, skills development in areas such as project planning, behavioural economics, and decision making would offer efficiency and effectiveness opportunities for the fire department and staff. Linking skill requirements in job descriptions would enable staff to understand the prerequisites that would contribute to career advancement.

The collective agreement with the Halton Hills Professional Firefighters Association offers staff reimbursement of up to \$200 per year for textbooks and up to \$1,250 per year for tuition fees. In addition, the Chief and deputies should look for opportunities for staff development that will benefit both the fire service and the staff.

7.3 Establishing and Regulating Bylaw

Halton Hills' Establishing and Regulating Bylaw # 2013-0051 for fire services is more than 12 years old and should be reviewed for update opportunities. The consultants have provided a commentary document to the fire service that highlights areas of the bylaw that should be considered for revision. Some examples from the Establishing and Regulating commentary are provided in [Table 15](#).

There is a Fire Marshal's Communique #2017-06 that may assist with the Establishing and Regulating Bylaw.

Table 15: Halton Hills Establishing and Regulating Bylaw, Examples of Suggested Changes

Halton Hills – Establishing and Regulating Bylaw Sections	Delete/Revise	Comment
Preamble lists base statutes as <i>Municipal Act & Fire Protection and Prevention Act</i>	Consider adding in: <i>Whereas the Fire Protection and Prevention Act, 1997, Part II, sections 2(1) and (2) require a municipality to provide certain fire protection services and to provide other fire protection services as it determines necessary in accordance with its needs and circumstances;</i>	May consider removing the reference to the <i>Municipal Act</i> , given the authority under the <i>Fire Protection and Prevention Act</i> for a Council to establish, maintain, and operate a fire department
#1 – Definitions section	Add definition related to Three Lines of Defence. Consider referencing Ontario Regulation 378/18 Community Risk Assessment.	OK – Define and organize under “Three Lines of Defence”
#20 – List of services to be provided by fire department	Revise to list Council-Approved “Core Services” based upon local needs and circumstances and as identified in the Community Risk Assessment.	List the applicable services and service level definitions as found within National Fire Protection Association standards.
#21 – Proper measures for the prevention, control, and extinguishment of fires and the protection of life and property	Revise to reflect Director not Fire Chief. Consider inserting provision to recover costs specifically for fire investigation, firefighting costs, and emergency response, and making a property safe after a fire or emergency has taken place.	Include provision to recover expenses

7.4 Apparatus and Equipment Inventories and Asset Management

We found the apparatus inventories and asset management record difficult to reconcile. As an example, corporate vehicle numbers and fire department vehicle numbers are different, which resulted in a challenge when trying to evaluate costs against assets. There is an opportunity for the fire department and corporate asset management to resolve any asset-tracking discrepancies and rely on one asset management program, probably best handled corporately.

7.5 Vehicle Maintenance and Repair and Records

There is an opportunity to improve the recording of maintenance and repair records and costs. We endeavoured to track maintenance and repair costs of apparatus either over the life of a vehicle or for a minimum of five years. We were only able to retrieve information for some vehicles for one year, which was insufficient for determining cost trends.

Maintenance and repair costs for all assets, especially rolling stock, should be tracked on an invoice basis (even for work completed by the fire department technician) and rolled up on a monthly and annual basis including mileage. Fuel, oil, lubrication, and other incidentals should be recorded. The fire service should discuss the possibility of accessing the corporate fleet record management system for recording purposes. Otherwise, an easily created spreadsheet tracking method could be used.

We have been made aware that the fire department is in the process of implementing both Cityworks, the corporate fleet record management system, and tracking within the fire department's first-due records application.

7.6 Health and Wellness

The request for proposals for this master fire plan indicated that the plan should include an approach to addressing several issues, including occupational health and safety, mental health, and critical incident stress concerns. We reviewed minutes from the 2022 and 2023 health and safety committees and received comments on these issues during interviews with firefighters, the Halton Hills Professional Fire Fighters' Association Local 3327, and department leadership.

Firefighters and Cancer

The *Workplace Safety and Insurance Act, 1997*, [as amended in sections 2(1), 15, 15.1(4)-(7), 15.2, and 94] identifies more than 30 types of cancer that are automatically presumed to be a work-related (firefighting) disease. In addition to this, recent studies have identified carcinogenic materials that are found in the protective clothing issued to firefighters across North America. The investigation into this matter and possible resolutions is currently ongoing.

Safety guidance notes for the Ontario fire services are developed by the Fire Service Section 21 Committee, as authorized in Section 21 of the *Occupational Health and Safety Act*. Included in the published Firefighter Guidance Notes is a cancer prevention checklist to assist municipalities in their efforts to reduce the experience of work-related cancers in fire service personnel.

Our advice to the town of Halton Hills is this:

- Provide a cancer screening program for fire department members.
 - Reference the Firefighters Cancer Prevention Checklist developed by the Fire Service Section 21 Committee to develop a cancer prevention program.
 - Monitor the investigations, resolutions, and publications related to carcinogenic materials in firefighter protection clothing and adjust exposure and decontamination policies and procedures accordingly. Purchasing requirements should be adjusted as necessary.
 - Establish workplace policies and procedures that limit, to the greatest degree possible, exposures to toxic chemicals on the fireground and ensure adequate decontamination of firefighter protective clothing, equipment, and tools used on the fireground.

Mental Health in the Workplace

Post-traumatic stress disorder has become a significant issue for emergency services, including the fire service across Ontario. There are a number of initiatives and programs to assist firefighters and fire departments to deal with the stressful events they encounter on the job. Halton Hills Fire Department has been involved in such programs. However, effort is needed to ensure a consistent approach is communicated to firefighters who may need to access such services.

Firefighters, like other emergency services staff, will experience troubling and stressful situations. It is a fact of the job, and, ideally, personal resilience and the aptitude and attitude to cope with such occasions should be assessed during the hiring process. Expertise is needed to assess the optimum personality type suited to the firefighting work environment. Halton Hills Fire Department should work with the corporate Human Resources Department to develop a hiring process that includes such assessments.

Our advice to the town of Halton Hills is this:

- Identify and formalize, through written policies, existing and future programs and resources available to firefighters who experience stressful events.
- Include personality and emotional intelligence testing as part of future firefighter hiring procedures. Hiring policies should include screening for potential effects on candidates who will be exposed to traumatic events during their careers as an emergency service provider.

Emergency Response – Impact on Physical and Mental Health

Fire department response models also affect firefighter well-being. Specifically, provision of an adequate number of responders to a working fire provides opportunities for relief and rehabilitation of responding firefighters during the emergency. Failure to provide physical recovery opportunities requires firefighters to work for extended periods in hazardous environments, resulting in physical and mental stress. Mental fatigue and physical exhaustion are known to be contributing factors to workplace injuries.

Our advice to the town of Halton Hills is this:

- Develop response protocols that provide an adequate number of responders to enable relief and recovery/rehabilitation opportunities for firefighters working at significant events in the community.
- Provision of proactive health and safety measures will help to mitigate potential Workplace Safety and Insurance Board claims and costly work absences related to mental health.

7.7 Training Centre

One of the areas that the consultants were tasked with assessing and commenting on is that of a training centre. During interviews we listened to the challenges of providing adequate training with only one training position, not having sufficient space to store training materials and props,

and the time and frustration of tracking and finding training equipment. Most discussions led to the idea of a training centre in Halton Hills, including a facility for live fire training.

There is little argument that having a local training centre would be most convenient and would provide the best opportunity to schedule staff and trainers to the greatest benefit of the service. When planning to build a new station or renovate an existing one, consideration should be given to including a training centre, based on an independent cost–benefit review. Training centres are expensive to acquire and operate and, not unlike determining the best location for a commercial establishment, should be sited where there would be the greatest chance of attracting other fire services as paying users of the facility. Alternatively, it may be fiscally beneficial to use already established training centres in neighbouring municipalities, even though it would not be convenient from a scheduling perspective.

Halton Hills should complete a siting and cost–benefit analysis as part of a training centre deliberation.

Exhibit 17: Current Training Location



7.8 Contracted Service Provisions

Halton Hills Fire Department has contracted a First Response, an environmental emergency and disaster response company, headquartered in Hamilton, Ontario, to provide the town with response and technical expertise to infrequent events such as confined space and hazardous material rescue and clean up. Halton Hills also has agreements with the towns of Milton and Erin to provide emergency response to some areas of those municipalities. In turn, Milton delivers response to south Halton Hills. Other agreements include one with the City of Mississauga to deliver trench rescue to Halton Hills and general response to the southeast corner of the town. The town of Milton provides rope rescue capabilities and covers the southwest corner of Halton Hills.

In early 2025, the fire department contracted with the town of Tillsonburg Fire and Rescue to provide call-taking and dispatch services for Halton Hills. Prior to 2025, Halton Hills had a contract for the City of Burlington to deliver those services to Halton Hills. Halton Hills Fire Department estimates a cost reduction of \$1.64 million over five years for a similar level of service from Tillsonburg.

Interviews and weekly meetings over the duration of the master plan assignment did not reveal dissatisfaction or concerns with the mentioned contracts or responses to adjacent municipalities. We included response from Milton fire stations 1 and 4 into Halton Hills as part of the emergency response mapping profiles but did not find any indication that this arrangement needs to change.

7.9 Emergency Management Program

The Halton Hills emergency management program was another subject that was not at the forefront of conversation during interviews and meetings, and there is no indication of dissatisfaction with the program. However, as a practice Pomax advises municipalities that responsibility for emergency management programs should reside elsewhere than the fire department, possibly in the form of a separate position reporting to the Municipal Clerk / Director of Legislated Services, the Chief Administrative Officer, or a department with responsibility for corporate strategic management.

Municipal emergency management can cover a wide area of corporate responsibilities and planning coordination, including snow emergencies, floods, business continuity, information technology outages, and even strike disruption. Fire service is a front-line response agency, with the Chief or deputies being responsible for performing those operational front-line services, often meaning that municipal emergency coordination duties may conflict with front-line response management responsibility.

The Fire Chief is professionally qualified in emergency management, and it is unlikely that our suggestion to transfer the responsibility to another corporate section or person will be accepted. But this is a 10-year plan, and changes within the fire department, or corporately, may offer an opportunity to reconsider the town's emergency management structure.

Although the fire service should continue its role in the municipal emergency planning process, the lead responsibility and municipal coordination should be assigned to a department other than fire services. This proposed shift may be influenced by the practicality that six fire department staff are trained to Community Emergency Management Coordinator level. However, in a significant incident these staff may be needed at the scene rather than the emergency management centre, which means they would not be available in the municipal command centre.

7.10 The Fire Prevention and Public Education Program

Fire prevention and public education is a key contributor to public fire safety awareness. Prevention and education programs should be targeted rather than using the conventional broad-brush technique of a similar approach and methodology for all audiences.⁸ Whether prevention and education programs are delivered by staff assigned to a Prevention and Public Education Division, or efforts are supported by suppression staff, the design, monitoring, and measurement of these initiatives are not something that can be accomplished with inadequate resources.

Fire Prevention

Prior to the adoption of a recent fire-department-wide record management system, fire prevention endeavours were recorded via emails and other notes. The new record management system allows entry of prevention efforts, which is expected to improve focused activity and program measurement.

During staff interviews we heard that workload has made it difficult for prevention staff to monitor and update policies. We also heard that workload restricts the time available to conduct proactive occupancy inspections. The staff are completing business licence inspections, mandatory vulnerable occupancy inspections, complaint and request inspections, planning requests, and fire safety plan reviews; however, staff do not have time to complete or assess any retrofit inspections, such as low rise, high rise, assembly occupancy, and accessory units such as basement apartments. At the time of our interviews, 18–20 fire safety plans for public buildings and other occupancies were awaiting review.

Both fire prevention staff are fully trained as investigators, which means that each covers half a year of after hours on-call for fire investigations. In less complex fires, fire suppression staff will take the lead on fire cause assessment. But as of July 2026, Ontario regulations will change, with the result that anyone who is tasked with determining a fire cause will have to be certified to the National Fire Protection Association 1033 Investigations standard. Therefore, unless trained to this standard, suppression staff will no longer be permitted to perform that function, thereby adding to the investigators' workload. The Fire Prevention Division will have to attend all fires to evaluate cause, even if it is a basic cooking fire.

⁸ Marcus Runefors and Finn Nilson, "The Influence of Sociodemographic Factors on the Theoretical Effectiveness of Fire Prevention Interventions on Fatal Residential Fires," *Fire Technology* 57, no. 5 (2021): 2433–50, <https://doi.org/10.1007/s10694-021-01125-x>; Anne Doyle et al., "Profile of Fire Fatalities in Ireland Using Coronial Data," *Fire Safety Journal* 110 (December 2019): 102892, <https://doi.org/10.1016/j.firesaf.2019.102892>; Nargess Ghassempour et al., "Comparison of Causes, Characteristics and Consequences of Residential Fires in Social and Non-Social Housing Dwellings in New South Wales, Australia," *Preventive Medicine Reports* 28 (August 2022): 101860, <https://doi.org/10.1016/j.pmedr.2022.101860>.

Public Education

Halton Hills does not have a dedicated public education specialist. The public education person is a suppression captain who is personally dedicated to the principles of public awareness but who sometimes has to use overtime hours to fit in events and activities that cannot be disrupted by a response. Public education is an important part of the fire and safety understanding of Halton Hills residents, but it is inadequately resourced.

7.11 Training Division

There is one training instructor responsible for both full-time and part-time firefighter training, and the instructor is struggling to meet the needs of the department. Having only one training instructor limits the time available for research, planning for longer-term needs, developing teaching plans, and oversight of part-time staff training and the on-shift training of full-time firefighters. Part-time officers (lieutenants and captains) conduct the majority of training for part-time firefighters. There have been five training instructors in the past three years, which challenges the principle of consistency in training delivery.

The fire department has an improvised training facility on public works property (Exhibit 17), but use is limited, which contributes to a reduced ability to conduct hands-on training. The fire department tells us that public works would like to reclaim the space currently taken by fire department training equipment and assets. Storage is limited, resulting in training materials and equipment being stored in several locations without good control or tracking, which leads to lost time while trying to find materials.

Interviewees informed us that live fire training seldom occurs, although the fire service has purchased a Bullard fire simulator system (digital system), but it does not provide a hands-on, live fire experience.

Future needs for the Training Division include

- two permanent training instructor positions, one being a Chief Training Instructor responsible for training and education design and coordination;
- proper classroom and training ground facilities; and
- adequate office space.



8 Conclusion

As we mentioned in the introduction to this report ([p. iii](#)), one of the objectives of this fire master plan report is to demonstrate how a shift from a customary, historical master plan design can improve effectiveness and avoid costs. For this reason, we have focused more on the strategic aspect of the goal of this master planning process (see [p. ii](#)).

A strategy is an integrative set of choices that positions an organization in a way that it can accomplish its vision. But a strategy isn't a plan. Planning is things such as the following: ..."

- We should build a new fire station in 10 years.
- We need to hire more staff.
- We need to replace trucks every 15 to 20 years.

A strategy is a theory. The strategy (theory) that this report advises the town of Halton Hills and its fire department to adopt is that of building a robust database that includes input, output, and outcome data – which is a challenge and a learning curve on its own – objectively interpreting the data, and using that information to build plans as time goes on.

Now, we understand that this is a different approach than what is customarily presented in fire master plans, which often provide steps such as a table showing the years in which fire trucks should be replaced, or the opening of a new fire station and its location 10 years hence, or hiring additional staff in three, five, or even 10 years' time. But we contend that those types of recommendations are based on a traditional approach to fire services that is intuitive and has not incorporated outcome data or objective analysis.

The advice in this document is strategic in that it suggests an approach that will enable the town and the fire department to determine the path that should be taken to achieve an efficient and effective method to protect the community from the danger of fires and other incidents. Instead of laying out blueprints for the next 10 years, which are likely to be altered by the reality of what occurs in the community versus what we try to forecast, our advice is for the municipality and fire department to remain fluid in plans for change within fire protection services.

Knowledgeable use of a complete data set, once developed, will enable the fire department to approach council with objectively supported and timely plans for fire service evolution while improving efficiency and effectiveness.

The following actions are important to this strategic approach:

- Hire sufficient staff to ensure one Platoon Chief is on duty 24 hours a day, thus relieving senior fire administration from current operational pressures.
- Hire a position to take on the role of data developmental lead and quality control. The fire department believes that an existing staff position can take on this responsibility. We disagree. Our experience is that the workload of a data lead and quality control person, and the formal education required, is almost always underestimated.
- Contract a technical writer to modernize out-of-date policies and operational guidelines so that all staff will be aware of up-to-the-moment policies and procedures. This will also support the fire department's mission statement.

Pomax's other advice about operational priorities represents initiatives that should be in place now. These operational priorities include

- public education,
- fire prevention,
- training staff,
- emergency vehicle technician complement,
- logistics administration support,
- firefighter complement, and
- health and wellness.

So, to include a table in this document suggesting that some of these initiatives could take place in six, 12, or 60 months would undermine their importance. They should be implemented as soon as council is able to prioritize funds (recognizing the challenges of prioritizing and distributing money to all departments in a municipality).

Understanding the difference between strategy and planning, and the importance of strategy leading planning rather than the other way around, is fundamental to improving effectiveness, efficiency, and public fire protection.

Successfully implementing the approach laid out in this document will be difficult, requiring commitment by the fire department and support from the municipality. The intent is to understand and be aware of the time-honoured approach to determining fire department needs, while adopting data-supported effectiveness and efficiency practices that have been successful for many years in private industry worldwide and in fire services outside North America.

Appendix A Response Time and Incident Type Data

Response Time and Incident Type Data

The percentiles in the following exhibits indicate that 90% of incident stages were completed in the time shown but that 10% exceeded that time.

In most cases, Halton Hills fire was unable to meet the National Fire Protection Association performance objectives. These performance objectives are as follows:

- call receiving and processing – 64 seconds, 90% of the time;
- preparation time (“turnout time” in the National Fire Protection Association standards) – 80 seconds, 90% of the time;
- drive time for the first arriving truck (“travel time” in the National Fire Protection Association standards) – 240 seconds (four minutes), 90% of the time; and
- overall, the period from the time the incident is received at the fire dispatch to arrival at the incident should be less than 6 minutes and 24 seconds, 90% of the time.

In the charts that follow, 2024 data represent incidents up to 31 July.

There are some time inconsistencies in the charts where, in several years, the historical times are out of norm to other years. We did not delve into the reasons for the anomalies, but possibilities include

- a change from all part-time staffing to full-time staffing of the first responding truck in Acton;
- the relocation of staff from headquarters to Maple Avenue;
- the geographic distribution of incidents from year to year; or
- data entry errors.

Data shown in the following exhibits reflect the times of the first arriving truck only.

Exhibit 18: Response Percentiles All Halton Hills Stations, All Incident Types

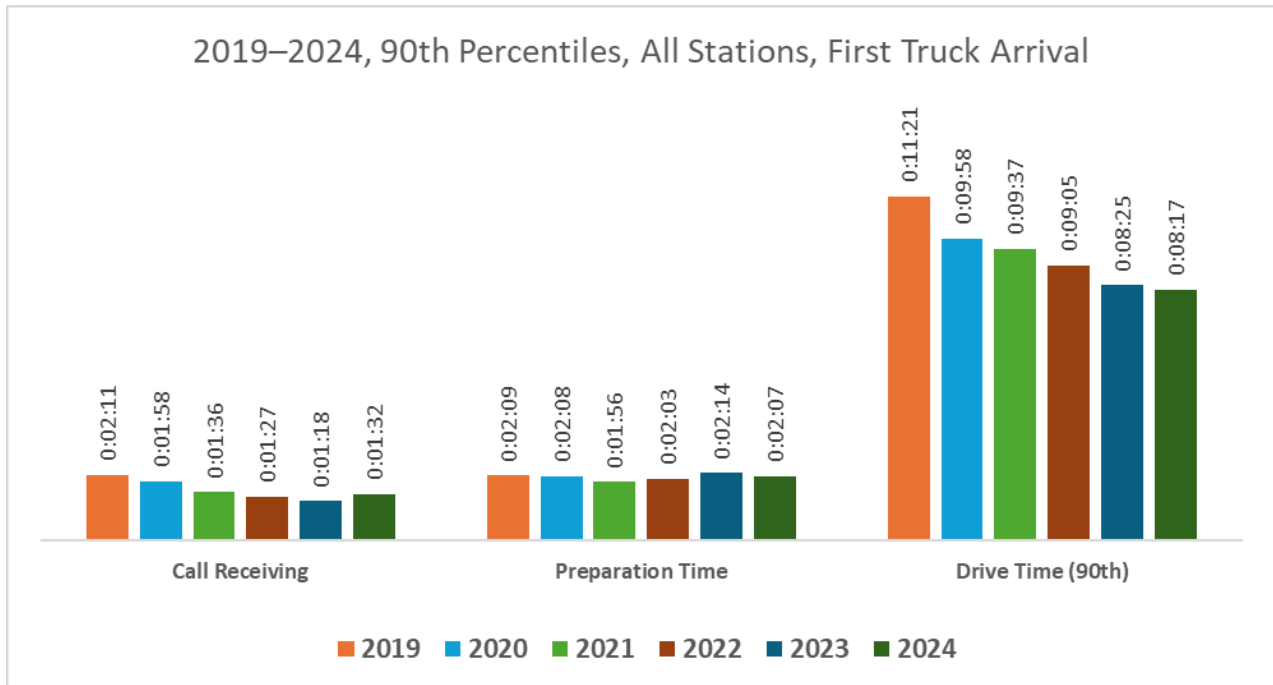


Exhibit 19: Drive Time at the 90th Percentile, All Stations, All Incident Types

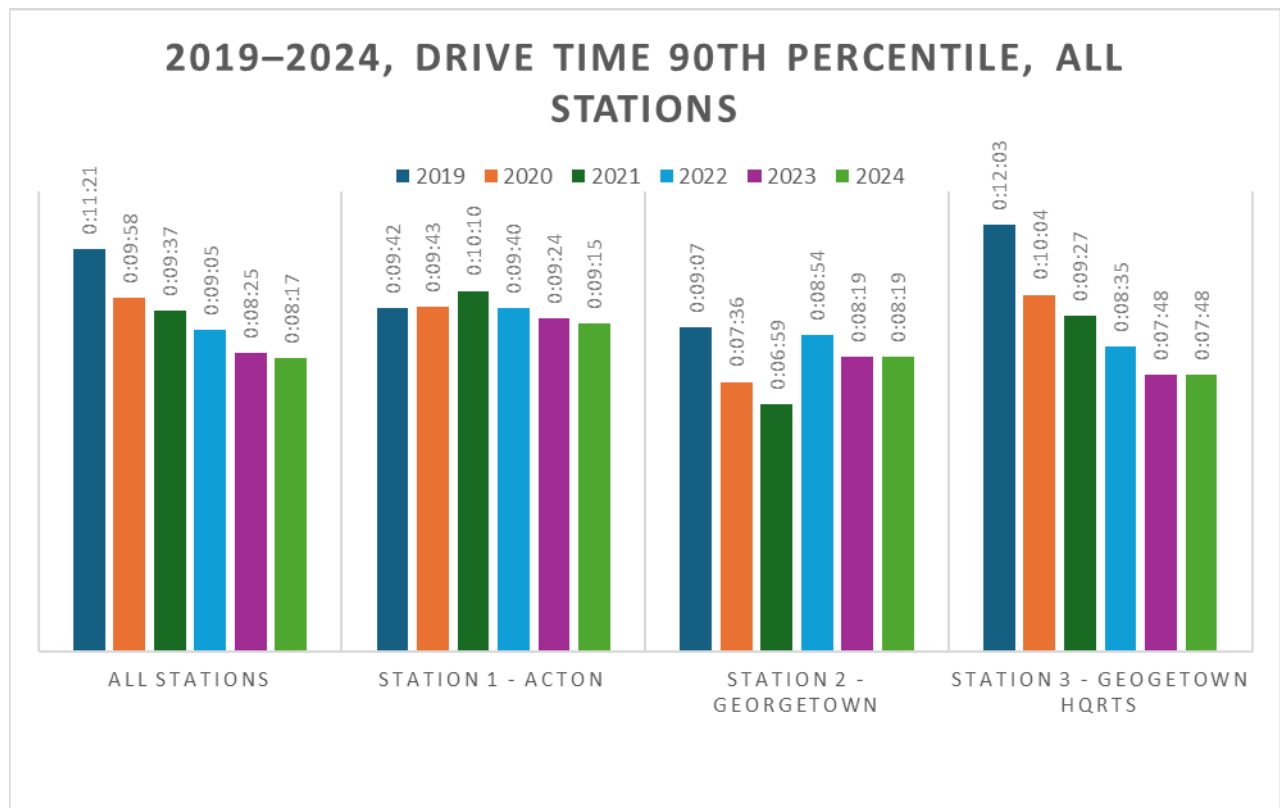


Exhibit 20: Response Percentiles Station 1 – Acton, All Incident Types

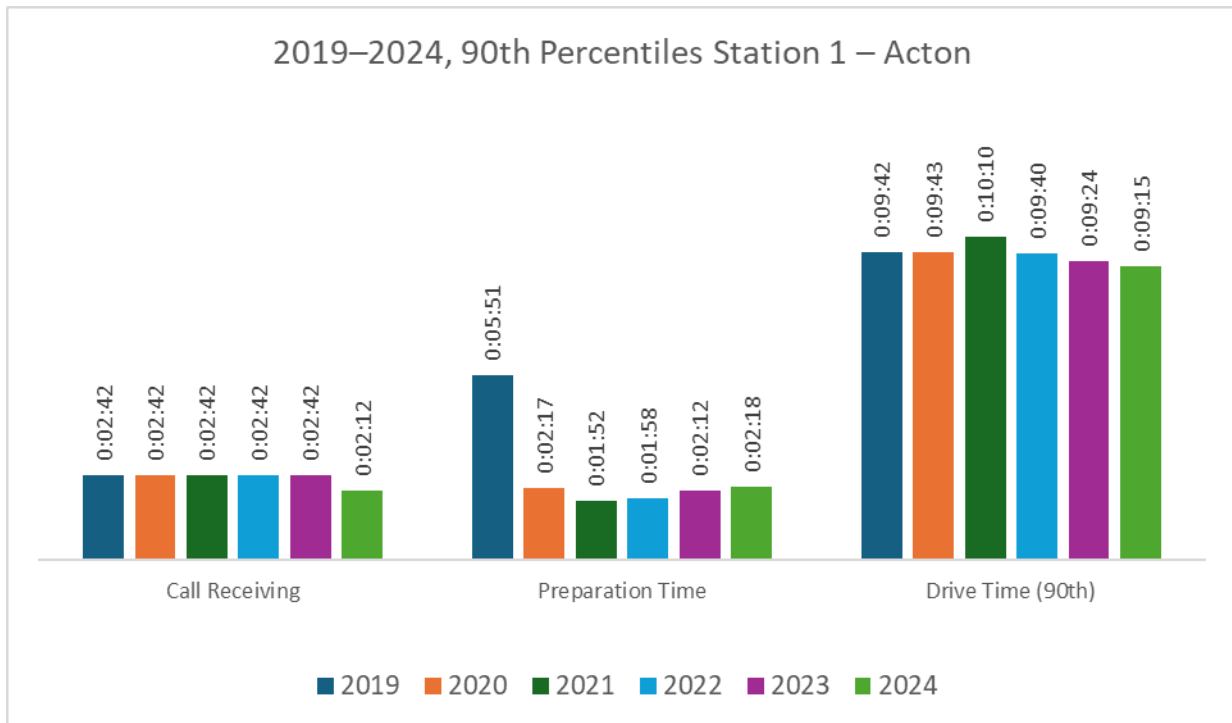


Exhibit 21: Response Percentiles Station 2 – Georgetown, All Incident Types

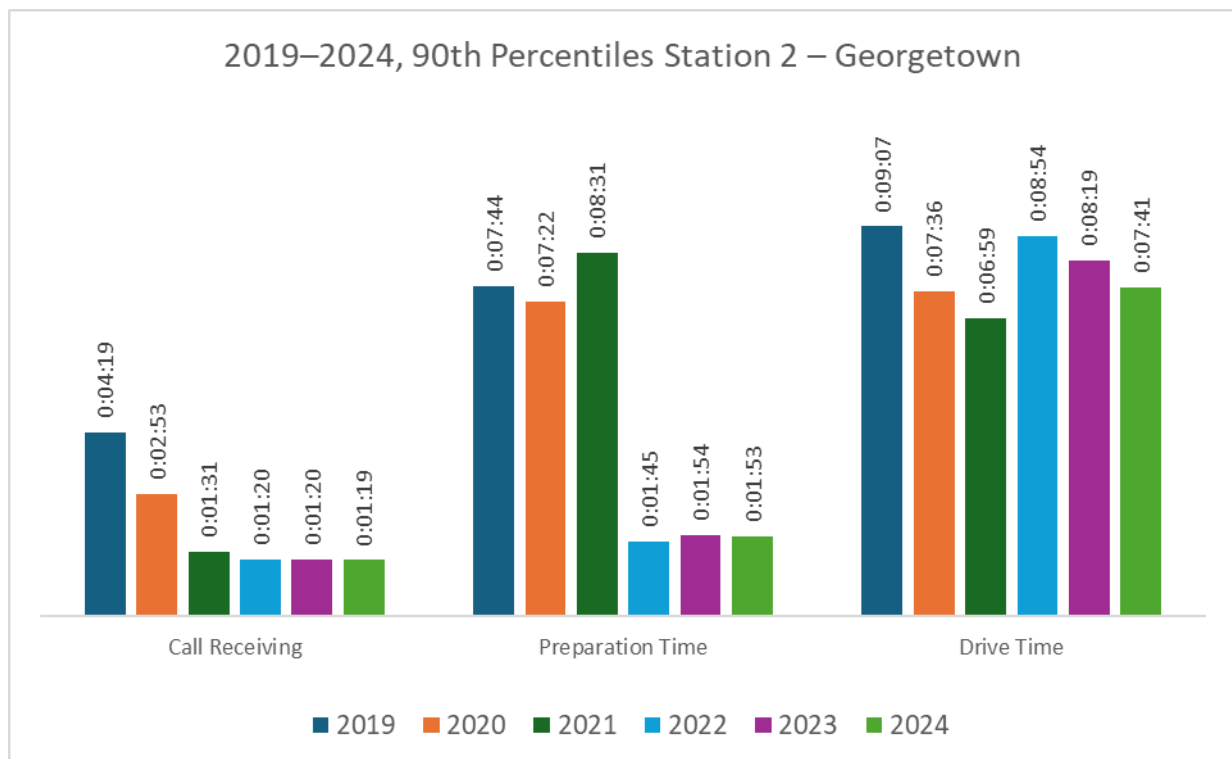
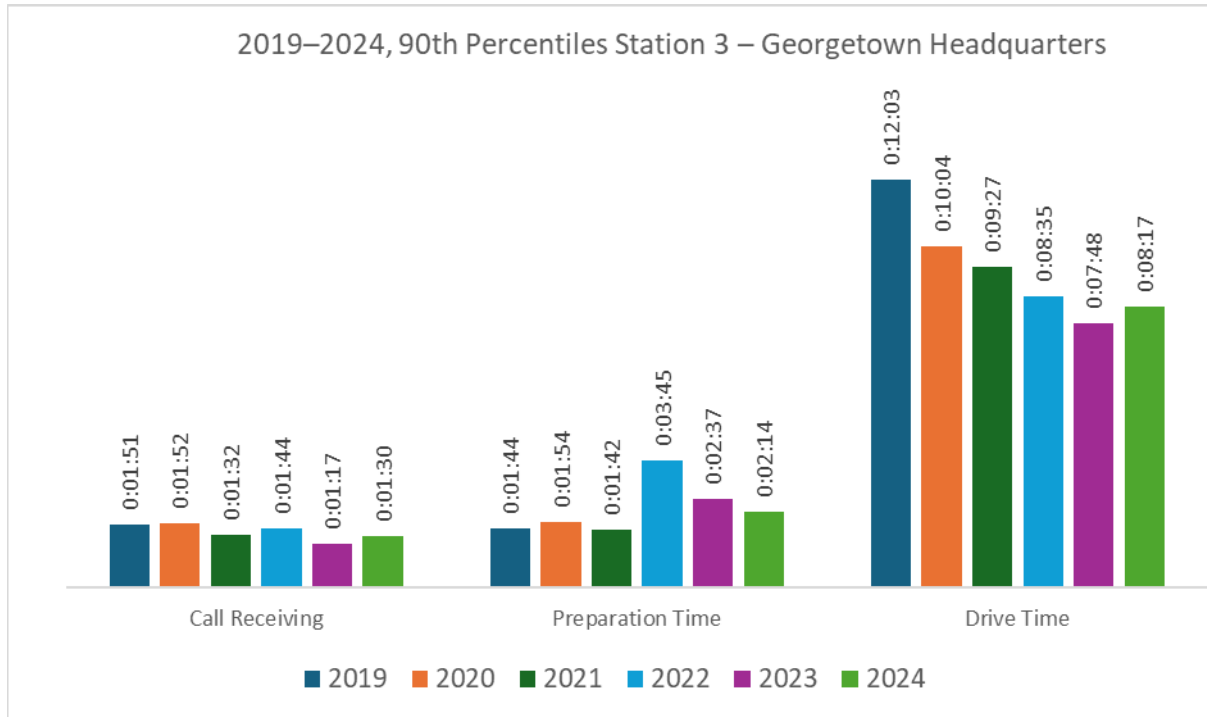


Exhibit 22: Response Percentiles Station 3 – Georgetown Headquarters, All Incident Types



The previous five exhibits indicated response times for all incidents. Exhibits 23 to 27, below, are specific to structure fires.

Exhibit 23: Structure Fire 90th Percentile, All Stations

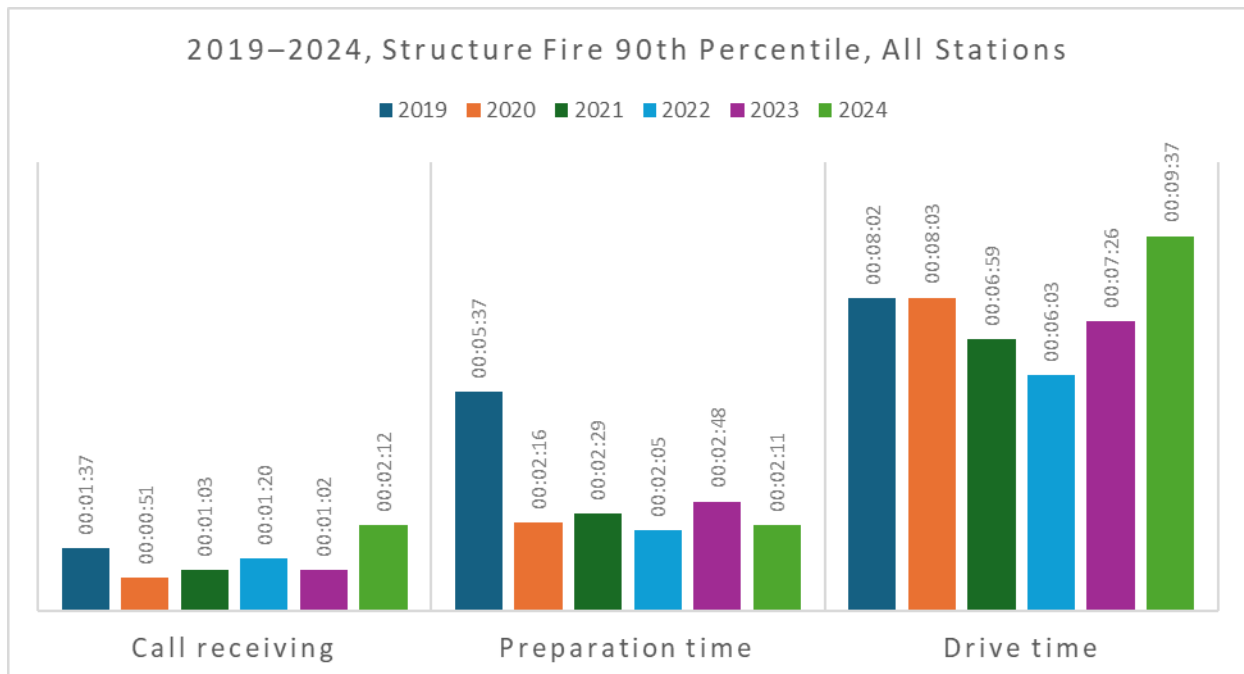


Exhibit 24: Structure Fire 90th Percentile Drive Time, All Stations

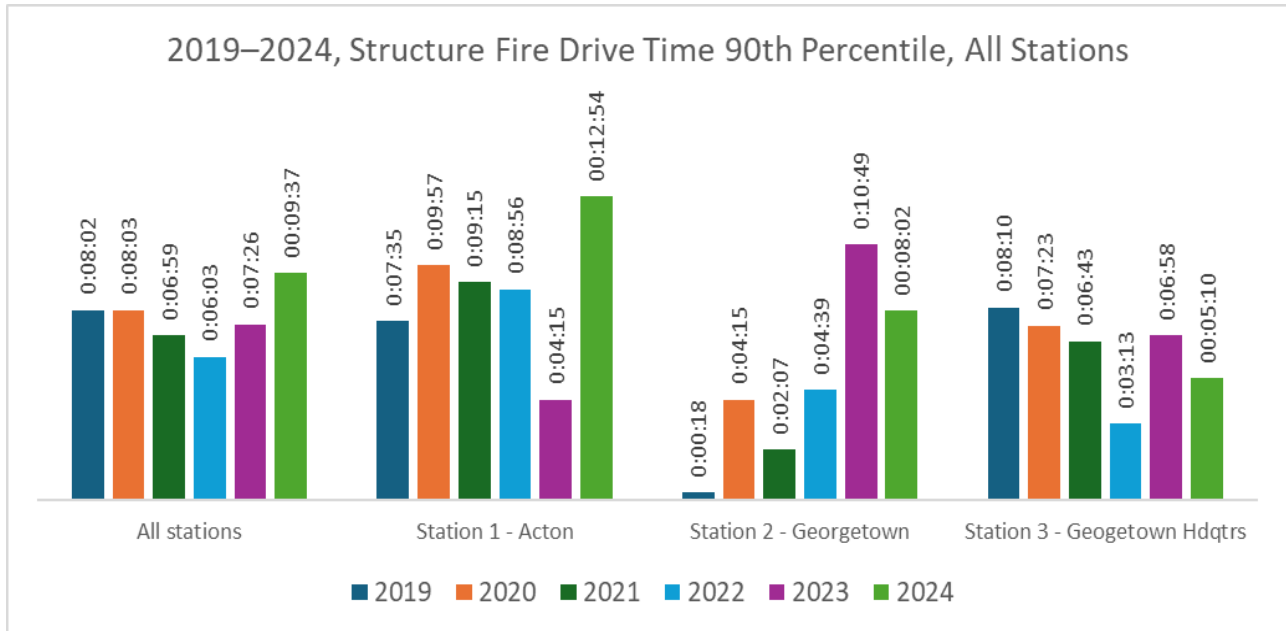


Exhibit 25: Structure Fire 90th Percentiles, Station 1 – Acton

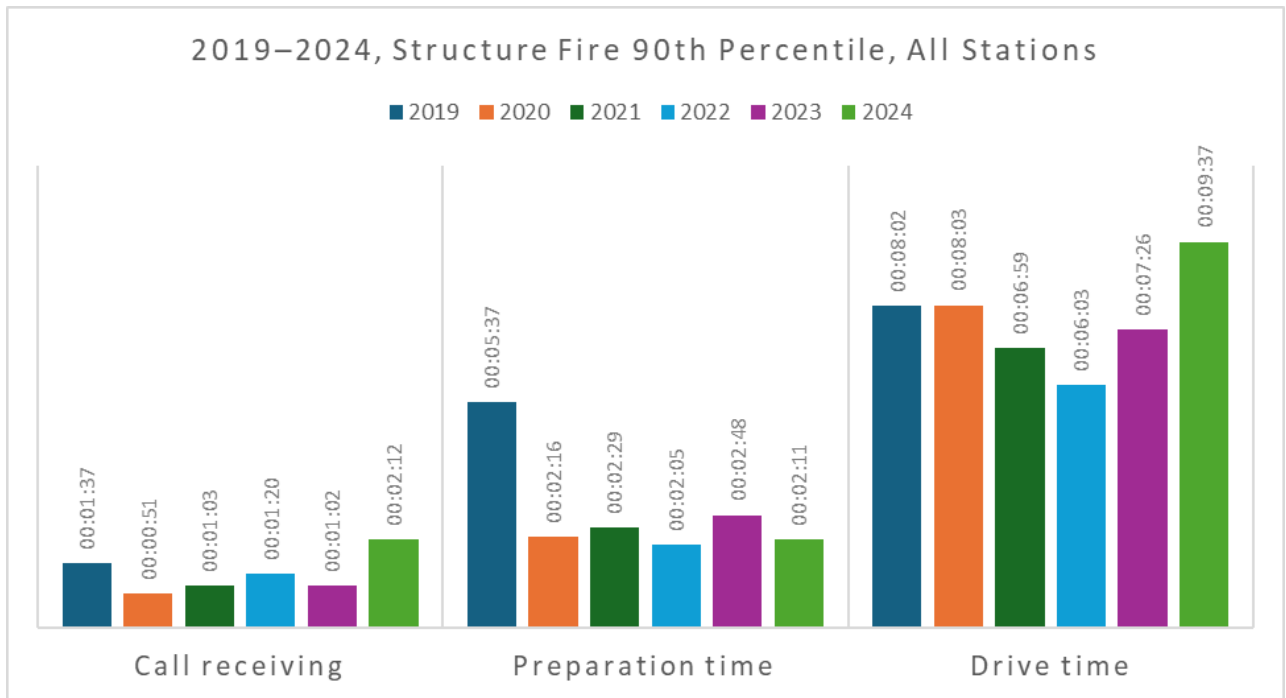


Exhibit 26: Structure Fire 90th Percentiles, Station 2 – Georgetown

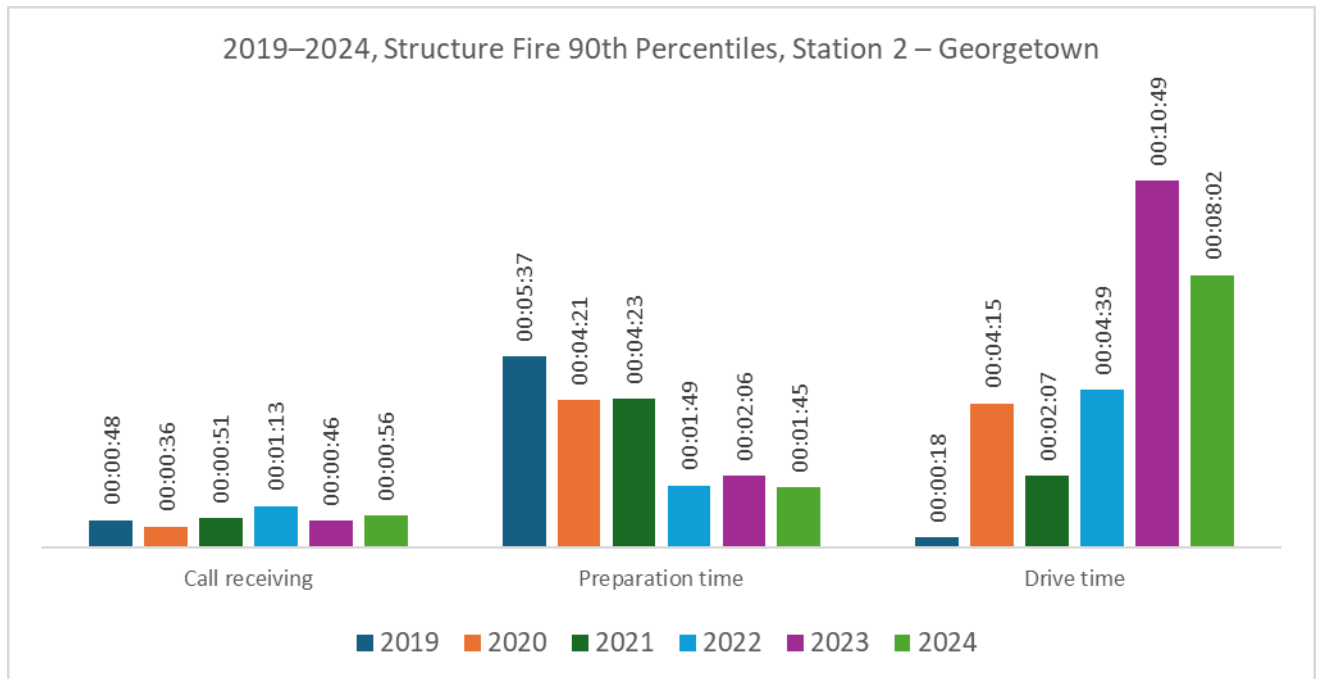
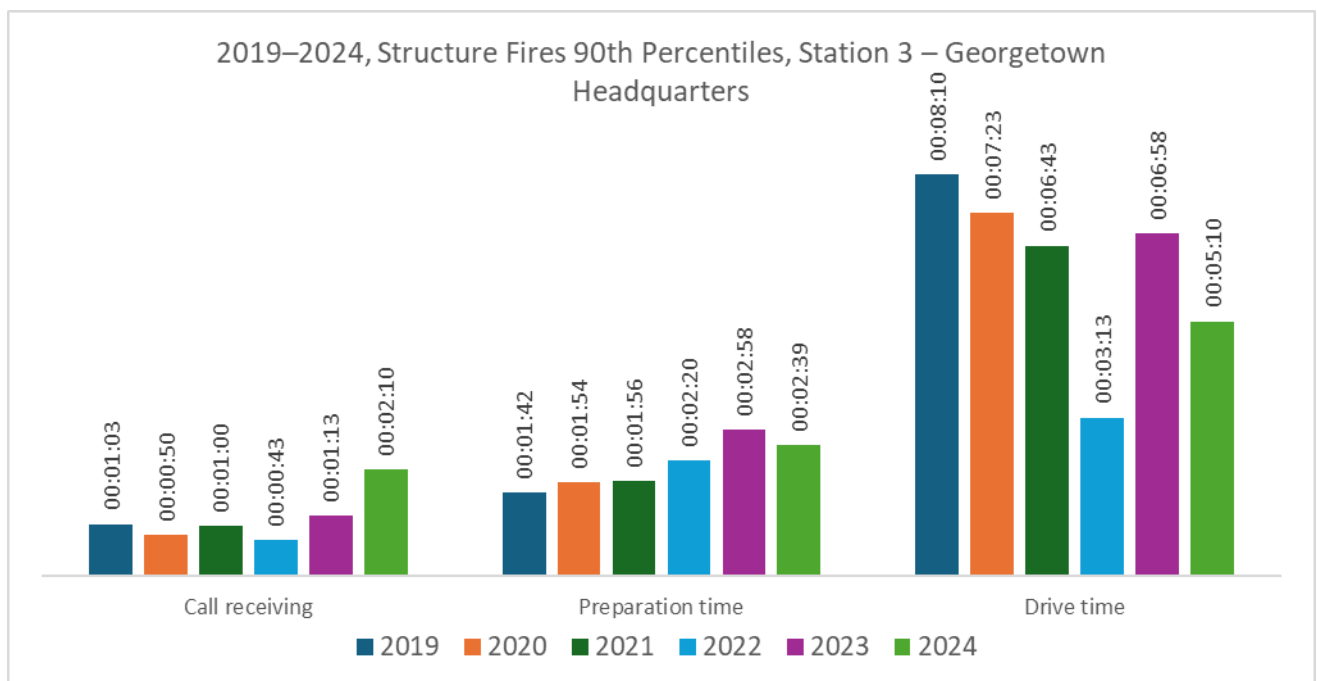


Exhibit 27: Structure Fire 90th Percentiles, Station 3 – Georgetown Headquarters



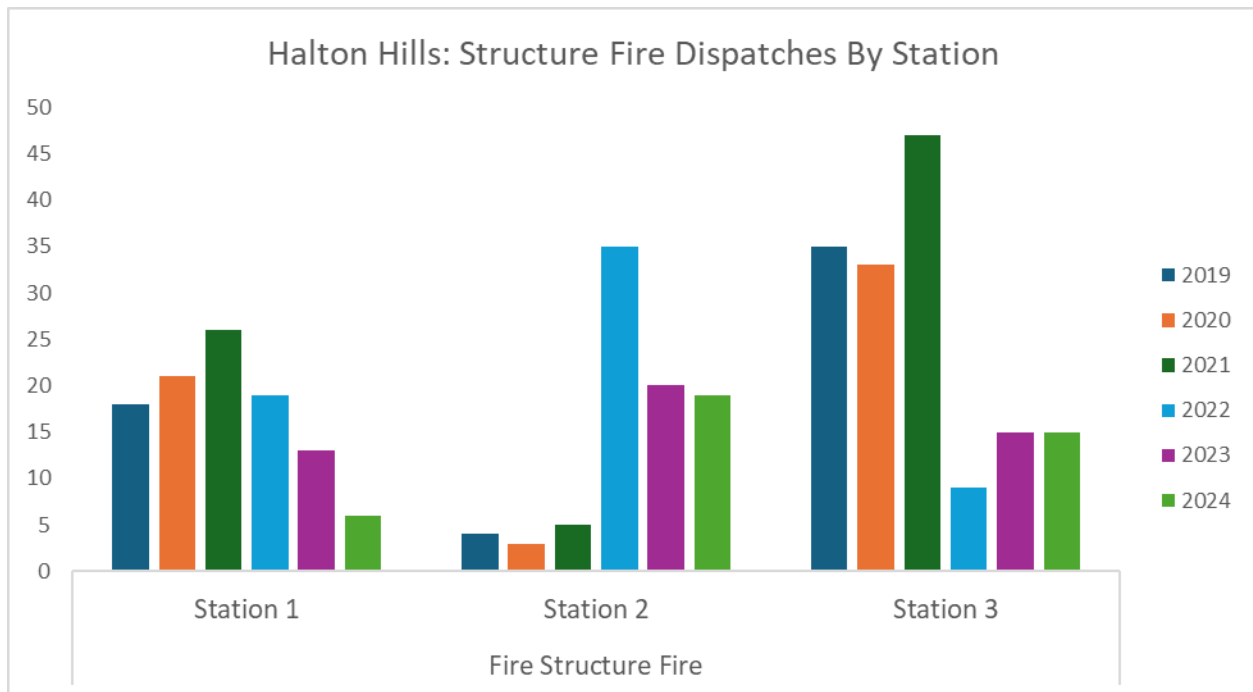
[Exhibit 23](#) to [Exhibit 27](#) indicate that the Halton Hills fire stations, individually or from a town perspective, rarely achieve the response targets laid out in the National Fire Protection Association standards.

Incident Responses by Type

[Exhibit 28](#) and [Exhibit 29](#) indicate the number of fires and type of fires to which Halton Hills stations have been dispatched since the beginning of 2019. Some of these dispatches turned out to be different than what responders found upon arrival (for example, what was dispatched as a structure fire may have turned out to be a non-structure fire upon responder arrival).

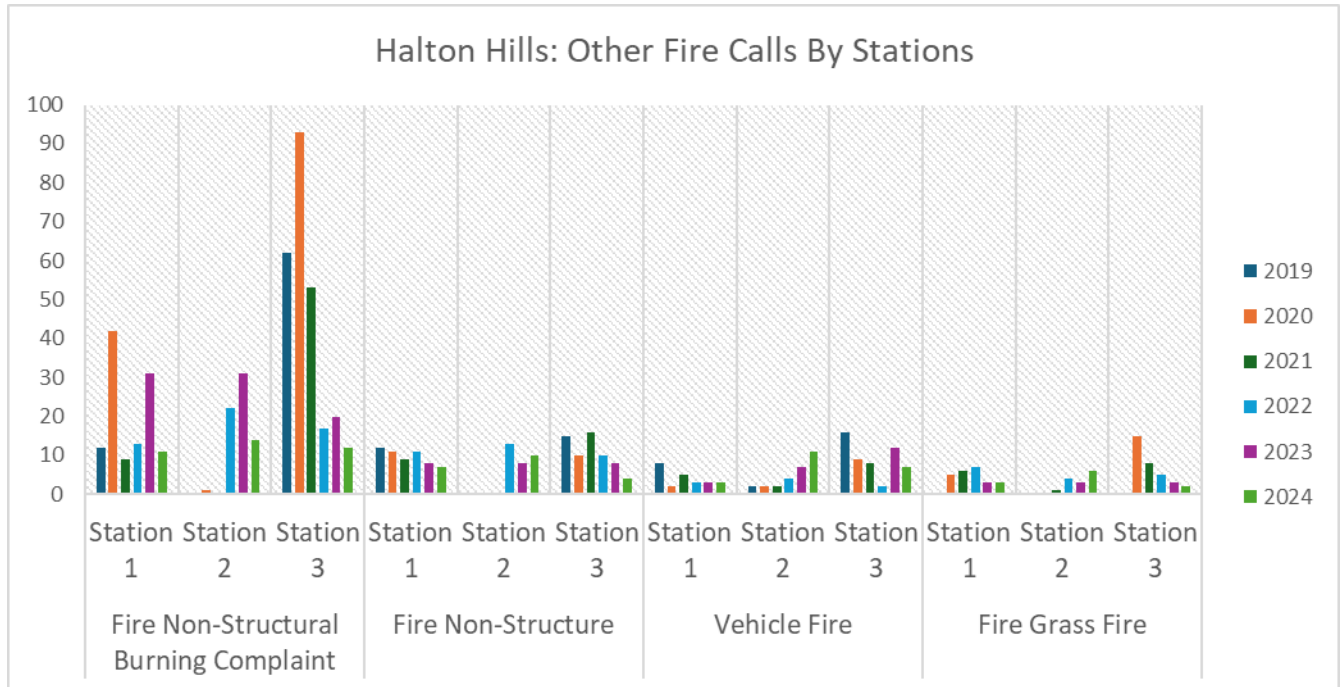
There are noticeable differences in the number of structure fires from year to year.

Exhibit 28: Structure Fire Dispatches by Station



[Exhibit 29](#) indicates the number of other fire calls (non-structure) to which Halton Hills Fire Department has been dispatched since 2019. The greatest number of these were burning complaints.

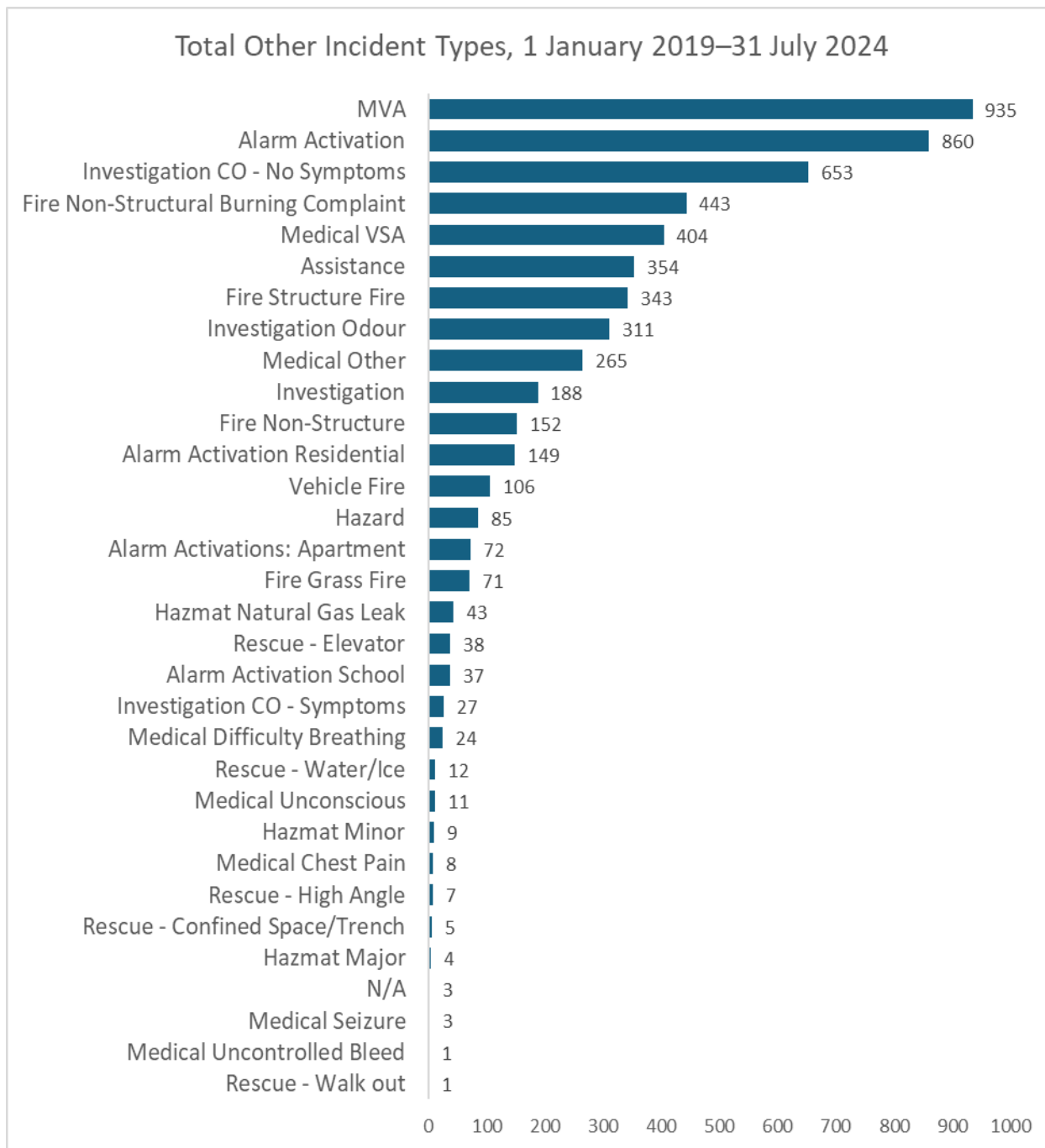
Exhibit 29: Other Fire Dispatches by Station



[Exhibit 30](#) charts the number of fire and non-fire incident types that Halton Hills fire was dispatched to from 2019 to the end of July 2024. This chart indicates “as dispatched” rather than “as found”. Incidents that required the greatest number of responses from the fire department were

- motor vehicle collisions – 935 responses;
- alarm activation – 860 responses; and
- medical vital signs absent and medical other incidents – a combined 715 responses.

Exhibit 30: Other Incident Types



Total Incidents by Year

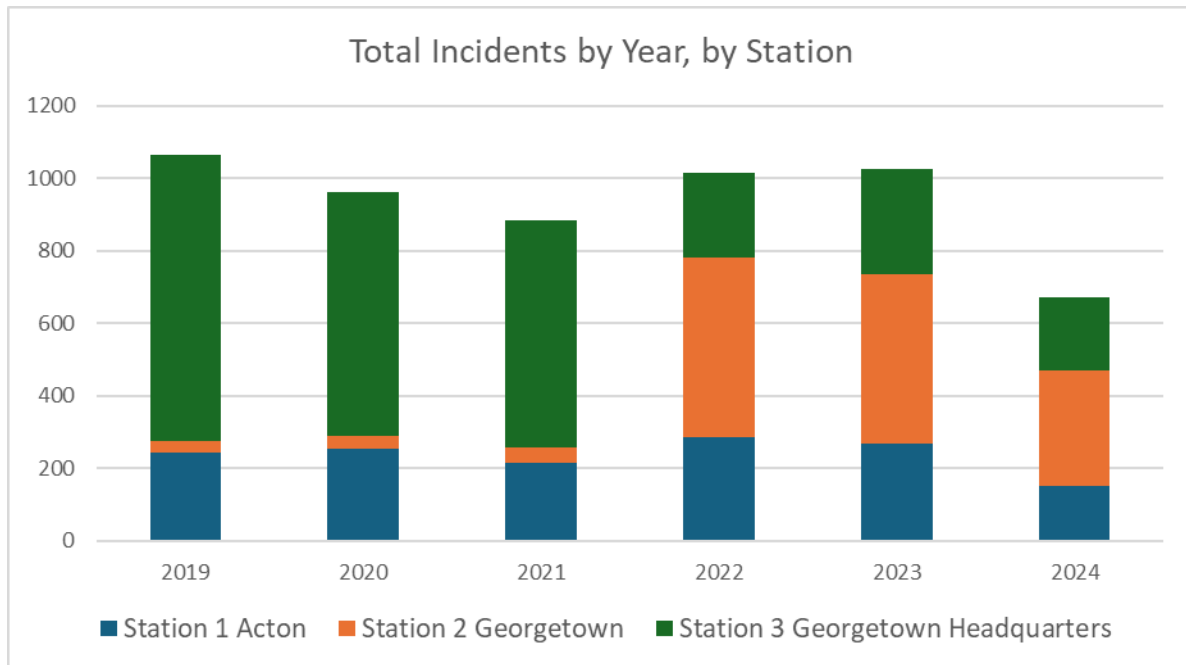
Table 16 and Exhibit 31 indicate the total number of incidents, by year and station, to which Halton Hills Fire Department has responded.

Significant changes in call volumes in 2022 between the headquarters and Maple Avenue stations in Georgetown are attributable to the relocation of staff between the two stations and truck deployment methods. Note that data for 2024 covers incidents to July 31st only.

Table 16: Total Incidents by Year, by Station

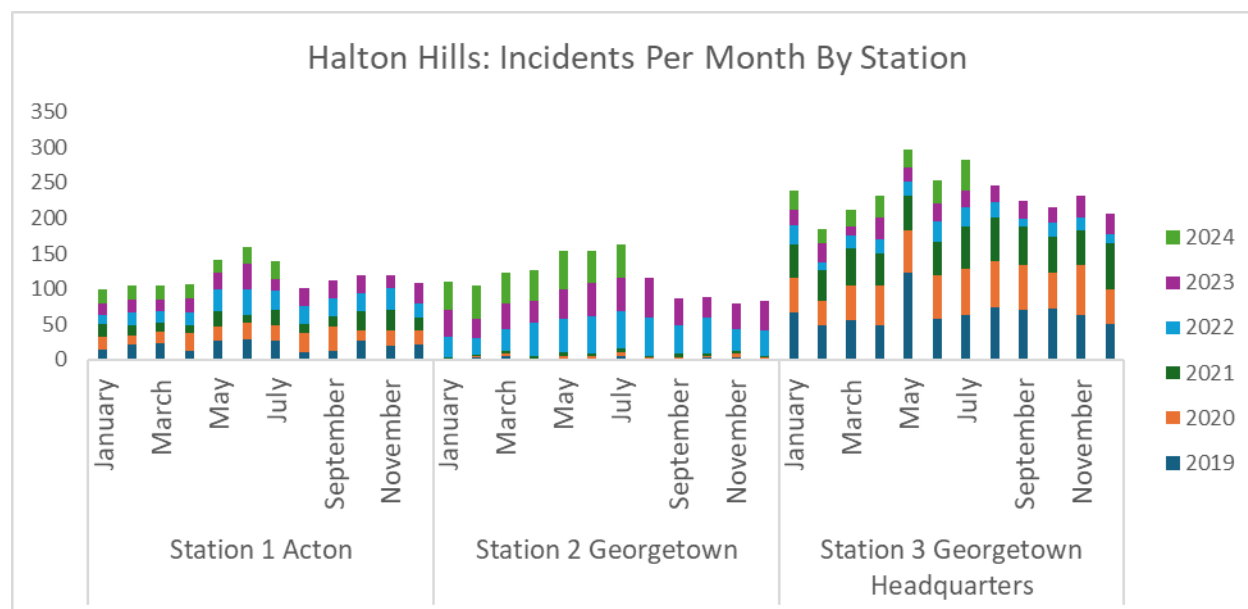
	2019	2020	2021	2022	2023	2024	Total
Station 1 – Acton	244	255	215	285	268	150	1,417
Station 2 – Georgetown	30	33	41	496	466	321	1,387
Station 3 – Georgetown Headquarters	792	673	628	235	292	200	2,820
Annual Totals	1,066	961	884	1,016	1,026	671	5,624

Exhibit 31: Total Incidents by Year, by Station



[Exhibit 32](#) shows the distribution of incidents by month and by station. The busiest period is during the summer months, but we were not able to determine the reason other than speculating that greater public activity in the summer leads to more incidents.

Exhibit 32: Incidents by Month, by Station



Total Vehicles Dispatched

Fire departments often send multiple vehicles to an incident. In some cases – fires, for example – multiple vehicles and firefighters are required for suppression. For other incident types, such as automatic alarms, the practice is to dispatch two or sometimes more vehicles to err on the side of caution. In other cases – motor vehicle collisions, for instance – two vehicles are sometimes dispatched, enabling one to act as a traffic blocker while the other truck and firefighters attend to the incident.

Table 17 indicates the historical average of trucks dispatched to incidents. In 2020, 2021, and 2022, the incidence of trucks per event rose to 2.5 and 2.8,⁹ although this figure has declined in 2024. The decline is primarily due to a change in practice of no longer calling in part-time staff for motor vehicle collisions. We are not aware that this change in policy has been detrimental to public safety. We contend that skilled data gathering and outcome analysis could reduce the average number of trucks sent per incident to 1.7–2.0.

Table 17: Ratio of Vehicles Dispatched per Incident

	2019	2020	2021	2022	2023	2024
Total Incidents	1,066	961	884	1,016	1,026	671
Total Vehicles Dispatched	2,595	2,152	2,172	2,812	2,893	1,495
Ratio of Vehicles Dispatched by Incident	2.4	2.2	2.5	2.8	2.8	2.2

⁹ This is an average of trucks dispatched divided by the number of incidents. It does not mean that .5 or .8 of a truck was dispatched.

Appendix B Statistical Process Flow Charts

Statistical Process Control Charts

The following process control charts (also known as scatter charts) indicate the travel time of each vehicle to a fire, for each structure fire between 1 January 2019 and 31 July 2024.

- [Exhibit 33: Time of First Apparatus Arrival at Structure Fires 2019–31 July 2024](#), indicates the travel time (driving time) of the first arriving fire truck to each incident.
- [Exhibit 34](#) and [Exhibit 35](#) indicate the arrival times of subsequent trucks after the arrival of the first truck.
- Not taken into account in the scatter charts is the approximately six minutes that elapse prior to a part-time fire truck becoming mobile, or the three to five minutes of setup time after arriving at a scene, assuming there are four firefighters on the first arriving truck; setup time is longer if there are two firefighters.

The scatter charts, although presented in static form in this report, can be very useful when set up dynamically from a record management system. Halton Hills Fire Department could quickly query each incident, or series of incidents, to find out if there are trends related to time of year or day, location, and incident type without having to apply functions and formulas.

Exhibit 33: Time of First Apparatus Arrival at Structure Fires 2019–31 July 2024

The green horizontal line represents the four-minute travel time demarcation for the first arriving truck. The blue horizontal line represents the five-minute travel time demarcation.

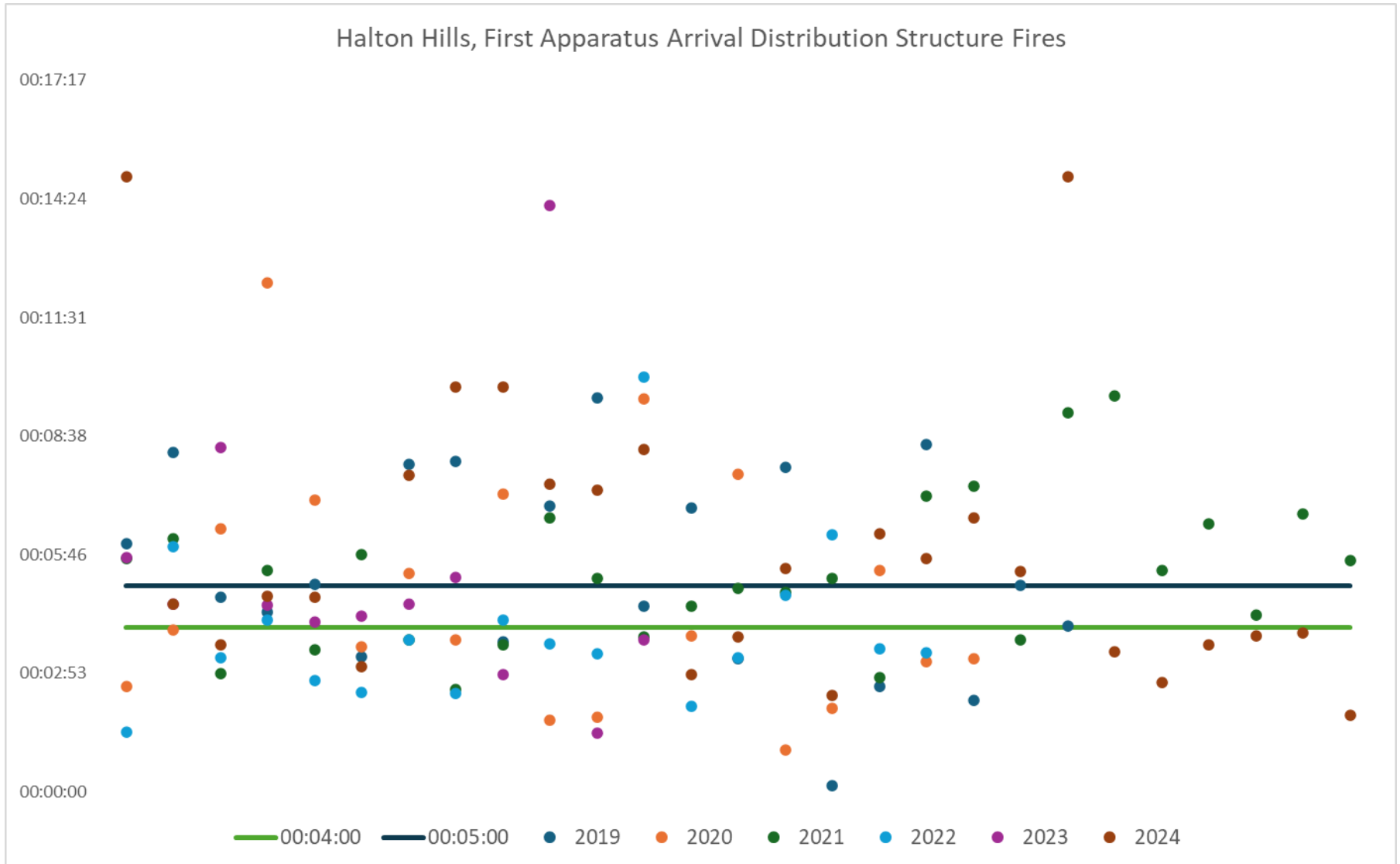
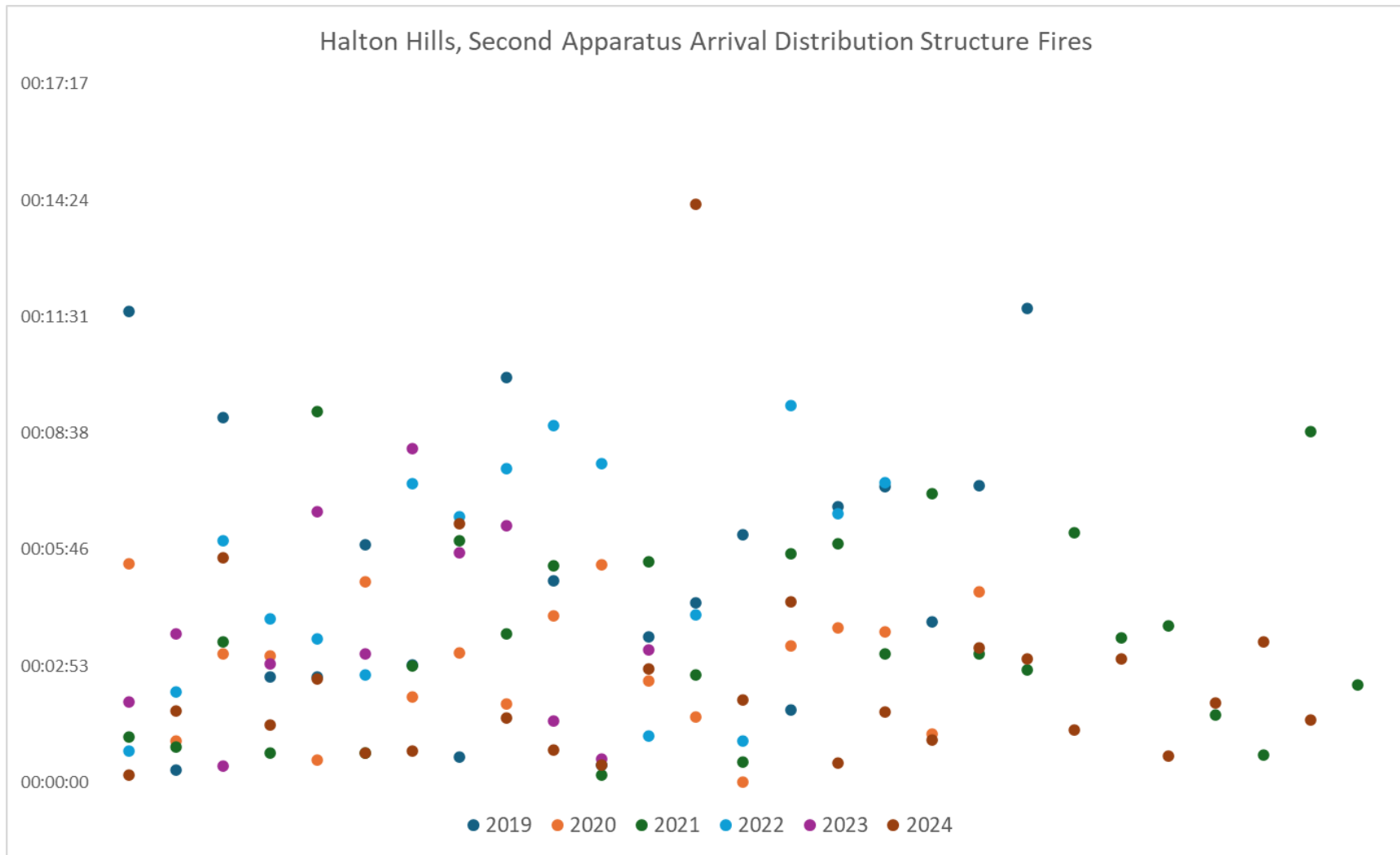


Exhibit 34: Time of Second Apparatus Arrival at Structure Fires 2019–31 July 2024



The data points shown in Exhibit 34 indicate the time of arrival of the second truck after the time the first truck arrived. The time shown as 00:00:00 on the vertical axis represents the baseline arrival of the first truck. This chart shows that in some cases the second truck arrived on scene within seconds of the first truck but that many arrived in excess of five minutes of the first truck.

Exhibit 35: Time of Third Apparatus Arrival at Structure Fires 2019–31 July 2024

The data points shown in Exhibit 35 indicate the time of arrival of the third truck after the time the first truck arrived. The time shown as 00:00:00 on the vertical axis represents the baseline arrival of the first truck. This chart shows that in some cases the third truck arrived on scene within seconds of the first truck but that many arrived in excess of five to eight minutes of the first truck.

