

# Staff Report

Community Services Department



www.kitchener.ca

---

**REPORT TO:** Community & Infrastructure Services Committee

**DATE OF MEETING:** October 4, 2021

**SUBMITTED BY:** Fire Chief Bob Gilmore, ext. 5501

**PREPARED BY:** Helena Foulds, Manager, Service Coordination & Improvement, Community Services Department, ext. 7193

**WARD(S) INVOLVED:** All Wards

**DATE OF REPORT:** September 24, 2021

**REPORT NO.:** CSD-2021-17

**SUBJECT:** Fire Department Suppression Response Time & Staffing Review

---

## RECOMMENDATIONS:

That City Council approve the plan to increase suppression staff by 20 new firefighters over the next four years and open a new fire station in 2026, as outlined in CSD-2021-17; and that the financial implications of these additions be referred to the City's annual budget process.

That staff be directed to complete a fire station location study in 2022 to determine the optimal location for a new fire station, and subsequent impacts on the response zones for other Kitchener fire stations.

## REPORT HIGHLIGHTS:

- Over the past several years Kitchener has experienced significant growth in its population; and, in the number of tall buildings within the community, especially in the downtown. That growth is projected to continue for many years to come. As a result of this growth, the Kitchener Fire Department (KFD) is finding it difficult to respond to emergency calls within an acceptable time.
- On average, between 2016 and 2019, the KFD's response times to medical or fire rescue calls took longer than the industry standard almost half of the time (43%).
- An independent review of the KFD, conducted by the Fire Underwriters Survey, found that KFD's current suppression staffing levels could negatively impact fire insurance classifications within the city if not addressed. This has the potential to increase the cost of fire insurance within the community.
- In 2017, as part of the City's Fire Master plan, a review conducted by a third-party consultant found that with current suppression staffing levels, there is no area of the city where 24 firefighters can respond to a fire in a high-rise building within the industry standard response time.

\*\*\* This information is available in accessible formats upon request. \*\*\*  
Please call 519-741-2345 or TTY 1-866-969-9994 for assistance.

- Despite the significant growth in the community, the KFD has fewer suppression firefighters today than it did in 2011 (5 fewer). In 1991 the KFD had 34 firefighters on duty at one time, today it has 35.
- Kitchener has the 2<sup>nd</sup> lowest number of suppression firefighters per 1,000 residents, and the 4<sup>th</sup> lowest number of fire stations when compared to 12 other Ontario municipalities.
- Four of the City’s current fire stations are projected to respond to more than 2,500 calls each this year, which is considered a “high volume” by the Fire Underwriters Survey. In 2019, Fire Station 2 (Guelph Street), which is the station primarily responsible for responding to emergency calls within the downtown, was already responding to over 3,800 calls – well above the threshold of a “high volume” station.

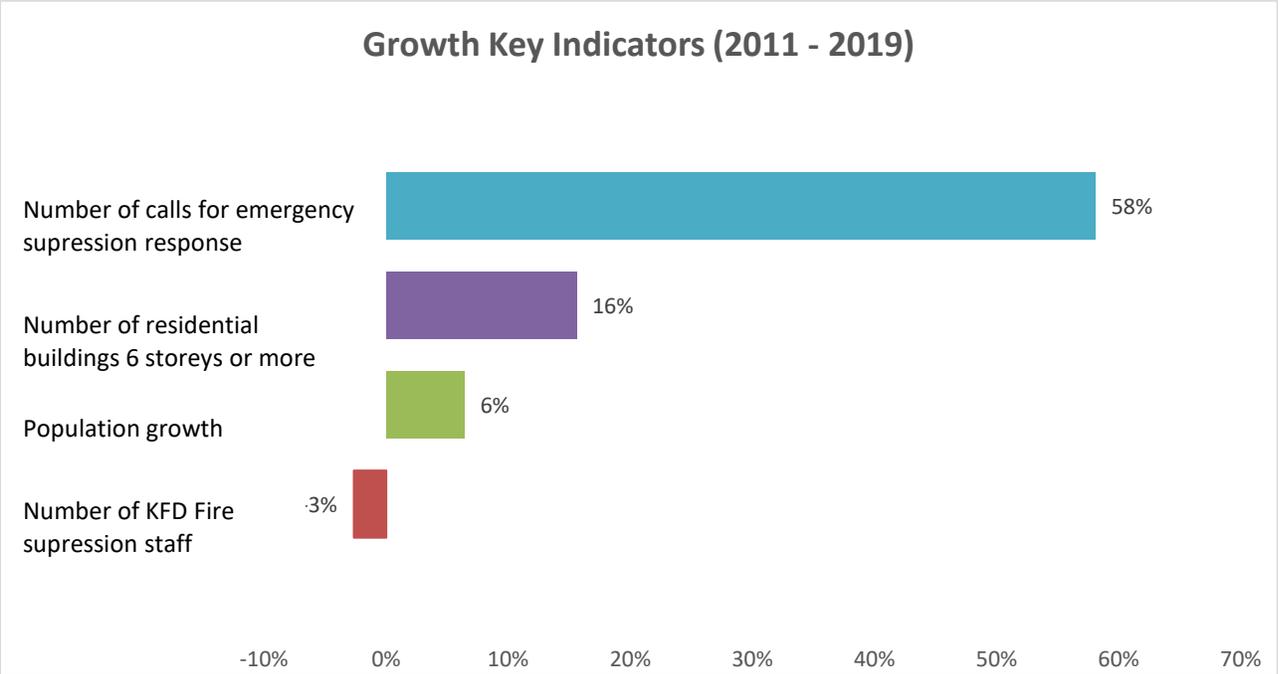


Figure 1: Change in key growth indicators, 2011 - 2019

**BACKGROUND:**

The KFD provides City of Kitchener residents, visitors and businesses with protection against loss of life, property and environmental damages caused by fires, accidents, and all other hazards. KFD delivers fire and emergency protection services through three strategic lines of defence: public fire safety and education; fire safety standards and enforcement; and emergency response. This report, and staff’s recommendations contained within it, are focused on the third line of defence, emergency response, which is provided primarily by KFD’s Suppression Division.

Over the past 40 years, several studies have been conducted to ensure adequate emergency response and protection services across the City of Kitchener. Further, in formulating the recommendations within this report staff have reviewed industry best practices like the National Fire Protection Association (NFPA) 1710 standard, the Fire Underwriters Survey review of KFD, the City Council approved Fire Master Plan and accompanying Community Risk Profile, and data from comparator municipalities within Ontario.

The following provides a brief summary of the key findings from previous studies and supporting data:

**1. Fire Location Study (1981):**

A fire station location study completed in 1981 found that, “existing fire protection coverage was inadequate.”<sup>1</sup> The report also revealed that the Kitchener Fire Department was meeting its response time objective for 80.4% of the city using its five existing fire stations.<sup>2</sup> An eight station model was recommended at that time in order to achieve effective fire protection coverage.<sup>3</sup> Currently, the City of Kitchener operates seven fire stations and has not yet completed the eight station model originally proposed in 1981.

**2. Fire Location Study (1990):**

In 1990, another fire location study was completed to evaluate existing service levels, including response times, and to make a recommendation on a 10-year fire station location/relocation strategy.

The 1990 study concluded that the Kitchener Fire Department was meeting the first truck response time objective for 66.5% (one-third) of the City,<sup>4</sup> which is a 13.9% decrease from the previous 1981 study. The 1990 study estimated that by the year 2000 approximately 35% of the City would not receive adequate fire protection.<sup>5</sup>

A seven-station model was analyzed; however, this configuration also revealed that only 79% of the city would receive adequate coverage within the first truck response time objective.<sup>6</sup> More importantly, the seven station model did not account for the high levels of urban growth and intensification that Kitchener is currently experiencing.

Like the study conducted in 1980, this study referenced the creation of an eight-station model to serve the entire community.

**3. Fire Master Plan (2017)**

In 2017, City Council approved the Fire Master Plan as the guiding strategic document for the Fire Department. The master plan included a response analysis report conducted by Dillon Consulting. The findings in the Dillon Consulting report are based on historical data from 2011 to 2015.

The report states that with current staffing levels, the KFD can only cover 27% of calls with 14 firefighters on scene<sup>7</sup> within the NFPA 1710 standard response time which demonstrates a further decrease from the 1990 Fire Location Study. More importantly, fire suppression response in a high-rise building requires 24 staff to execute a safe emergency response. The report found that *“there is no area of the city where 24 firefighters can respond to a call within the NFPA 1710 standard.”*<sup>8</sup>

---

<sup>1</sup> 1991 Fire Station Location Study, page 1

<sup>2</sup> 1991 Fire Station Location Study, page 10

<sup>3</sup> 1991 Fire station Location Study, page 12

<sup>4</sup> 1991 Fire Station Location Study, page 12

<sup>5</sup> 1991 Fire station Location Study, page 13

<sup>6</sup> 1991 Fire Station Location Study, page 13

<sup>7</sup> City of Kitchener 2017 Fire Master Plan, Appendix E, page 27

<sup>8</sup> City of Kitchener 2017 Fire Master Plan, Appendix E, page 27

#### **4. Fire Underwriters Survey (2019)**

The Fire Underwriters Survey (FUS) represents approximately 90% of Canada's private sector property and casualty insurers. They provide data on public fire protection for fire insurance statistical and underwriting evaluation.

In 2019, FUS assessed Kitchener's fire defense for fire insurance grading and classification purposes. The review identified several areas for improvement including available suppression resources.<sup>9</sup> The report stated, *"improving response capabilities across the City, along with staffing in both suppression and prevention would ideally result in the largest impact to current fire insurance classifications."*<sup>10</sup>

As the City of Kitchener grows in population, high rise development and call volume for emergency response, the need for fire protection also increases. If no action is taken to address current suppression staffing, the FUS score could be negatively impacted, which has the potential of increasing the insurance rates for property owners.

#### **REPORT:**

##### **Suppression Division Overview**

KFD's Suppression Division provides critical fire suppression services as well as first response to fire emergencies, medical emergencies, hazardous materials, and other disasters. In addition, this division responds to incidents that require specialized rescues (i.e. vehicle extrications, confined space rescue, ice and water rescue, trench and structural collapse and more). Further, this division also supports the provision of some fire prevention and fire public education programming to the community.

Currently, the Suppression Division consists of 183 firefighters divided into four platoons located at seven fire stations across the city.

Over the years, as the community has grown, the KFD has made several operational changes to find efficiencies and alleviate the growing demand for service on the Suppression Division, without adding additional staff. Those changes include:

- removing an aerial truck from service resulting in a reduction of two firefighters from the minimum staffing level, and capital savings associated with maintenance and operation of the aerial truck;
- removing a permanent staff member on the tanker truck resulting in a reduction of one firefighter from the minimum staffing level;
- reducing Station 3 response to the downtown core from five to four firefighters resulting in a reduction of one firefighter from the minimum staffing level;
- reducing each platoon by one firefighter through attrition (four firefighters in total);
- funding a new full-time position in the Fire Prevention division by reducing one platoon in Fire Suppression by one firefighter;
- upgrading technology in the Communications division to improve the EMS notification systems to allow call data to interface directly with the Kitchener Fire dispatch system;

---

<sup>9</sup> 2019 Fire Underwriters Survey – City of Kitchener, page 2

<sup>10</sup> 2019 Fire Underwriters Survey – City of Kitchener, page 6

- installing mobile data terminals (MDT's) in the cabs of fire apparatus allowing fire dispatch to communicate electronically with all apparatus; and,
- integrating Direct Detect with fire dispatch.

The combined result of these operational changes is that **today the Suppression Division of KFD is operating with a total of five fewer firefighters than it was in 2011**, despite the growth pressures experienced in the community.

In addition to these operational changes and efficiencies, over many years KFD has sought to find creative opportunities to generate revenue to help offset operational costs through programs such as the Fire Marquee program of charging insurance companies for certain operational costs and the expansion of Direct Detect where possible.

## 1. Growth and Intensification

### **Population Growth**

Population growth is an important consideration in fire suppression because call volume and total number of emergency incidents increases as population increases. The City of Kitchener has been growing at a steady rate. The population increased by approximately 51,468 residents between 2006 and 2021 and this trend is expected to continue, bringing the total population to 322,000 residents by 2041.<sup>11</sup> Overall, Kitchener can expect approximately 117,332 new residents between 2006 and 2041.

The population forecast in Figure 2 (below) does not account for new construction and development. An increase in residential development will have an even greater impact on overall population growth.

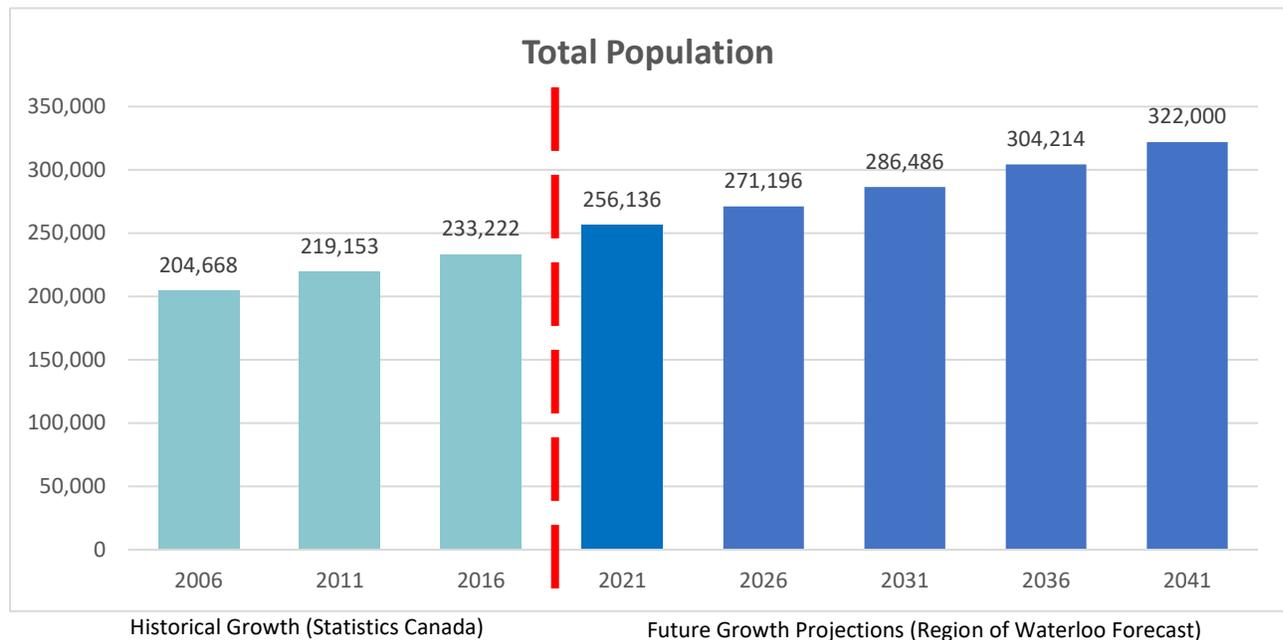


Figure 2: total population, 2006 - 2041  
**Tall building Development**

<sup>11</sup> Region of Waterloo population forecast for the City of Kitchener, 2021

Building height is an important consideration in fire suppression because the number of firefighters increases from 15 to 24 when responding to a fire in a tall building (e.g. high-rise). Figure 3 shows that the City of Kitchener is projected to more than double the number of buildings greater than six storeys by 2030. This projection only includes future developments staff are aware of at various phases (i.e. pending approval, approved, under construction, built, occupied) – which means the growth in these types of building is likely to be much more than shown in Figure 3.

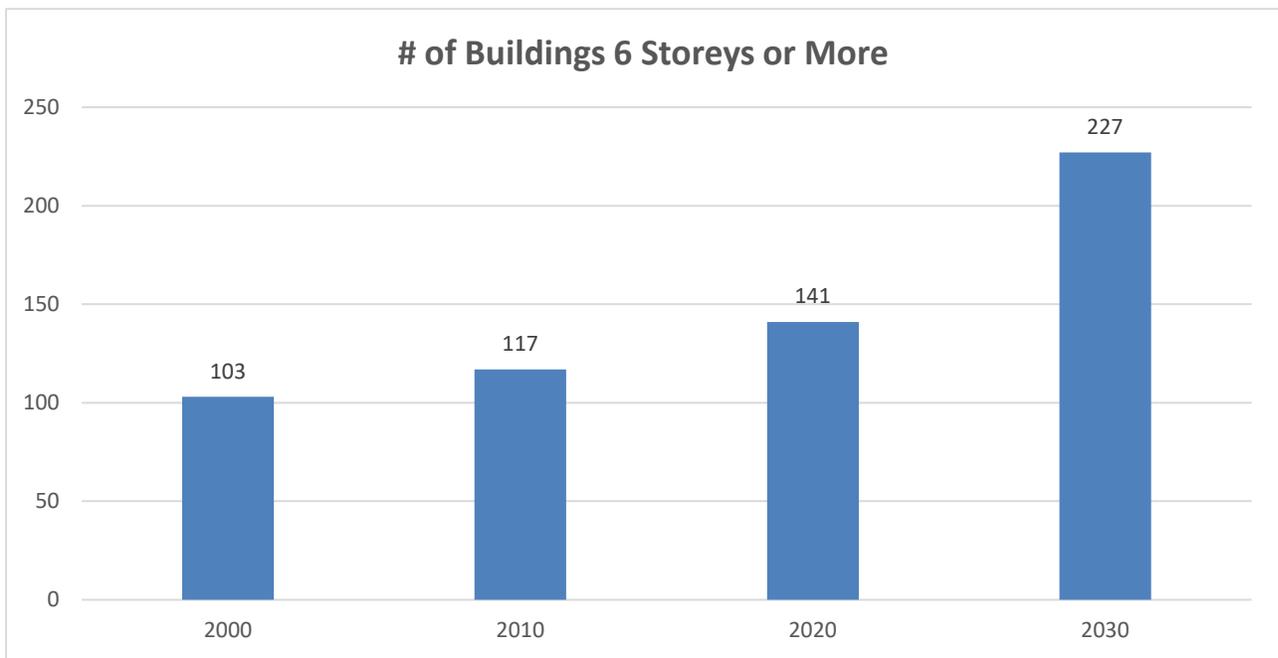


Figure 3: increase in number of buildings more than 6 storeys

### **Emergency Response Call Volume Growth**

Call volume for an emergency response from KFD has increased 14.51% between 2016 and 2019. Fire Station 1 (Headquarters), Station 2 (Guelph Street) and Station 5 (Queen's Blvd) already receive more than 2,500 calls per year which is considered "high volume" by the Fire Underwriters Survey. Station 4 (Fairway Road) is also expected to reach the 2,500 calls/year benchmark within the next year.

It is important to note that the Suppression Division responds to every fire response call with the same level of urgency and staffing regardless of incident type because they do not know the severity of the emergency until they arrive on scene. When the KFD receives a Fire or Fire-Alarm call they send the same number of staff and apparatus because they do not know what kind of response is required until they arrive. Once the KFD assess the situation, they can send resources back (if the call is a false alarm) or request for additional support if necessary.

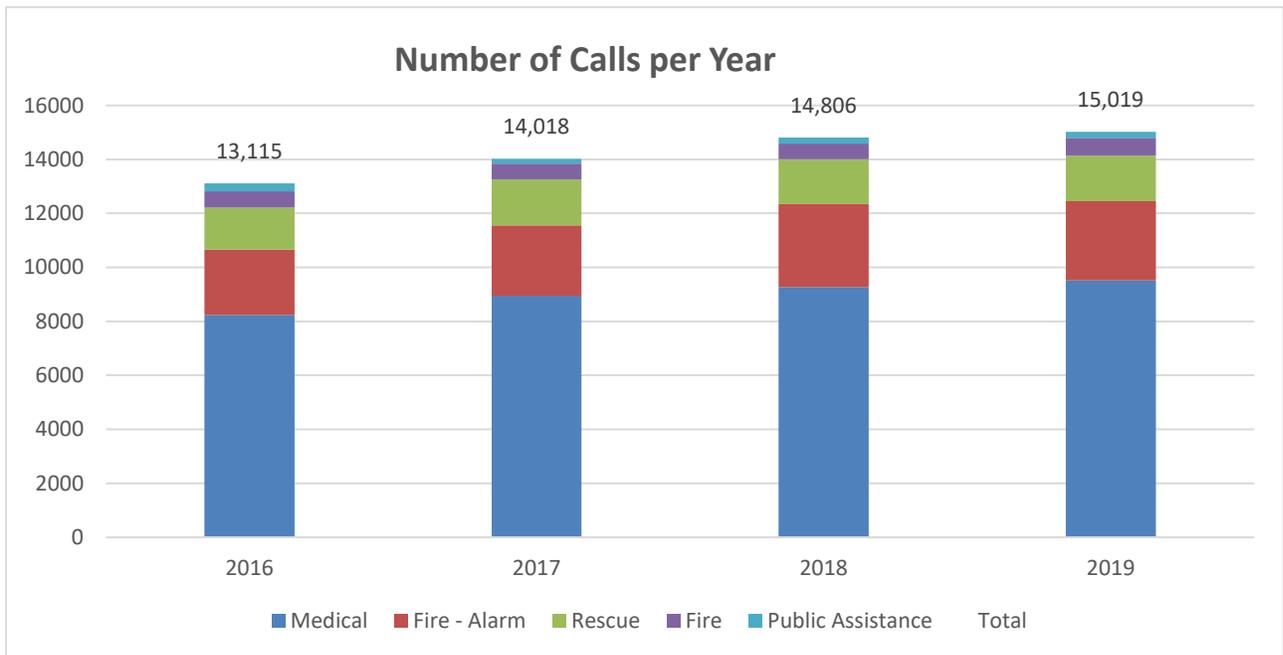


Figure 4: number of calls per year, 2016 – 2019

As shown in Figure 4 (above), KFD plays a critical role in partnering with paramedic services to respond to medical emergencies within the community. Suppression staff are trained to the red cross first responder (RCFR) level and deliver cardiopulmonary resuscitation (CPR) and automated defibrillator procedures. Fire apparatus are also supplied with life saving equipment that allows firefighters to begin lifesaving efforts before paramedics can arrive on scene. KFD is often the first to arrive on a medical emergency call and can perform necessary life-saving procedures until paramedics are able to arrive and take over care for the patient.

**Call Volume Growth – Station #2 (Guelph Street)**

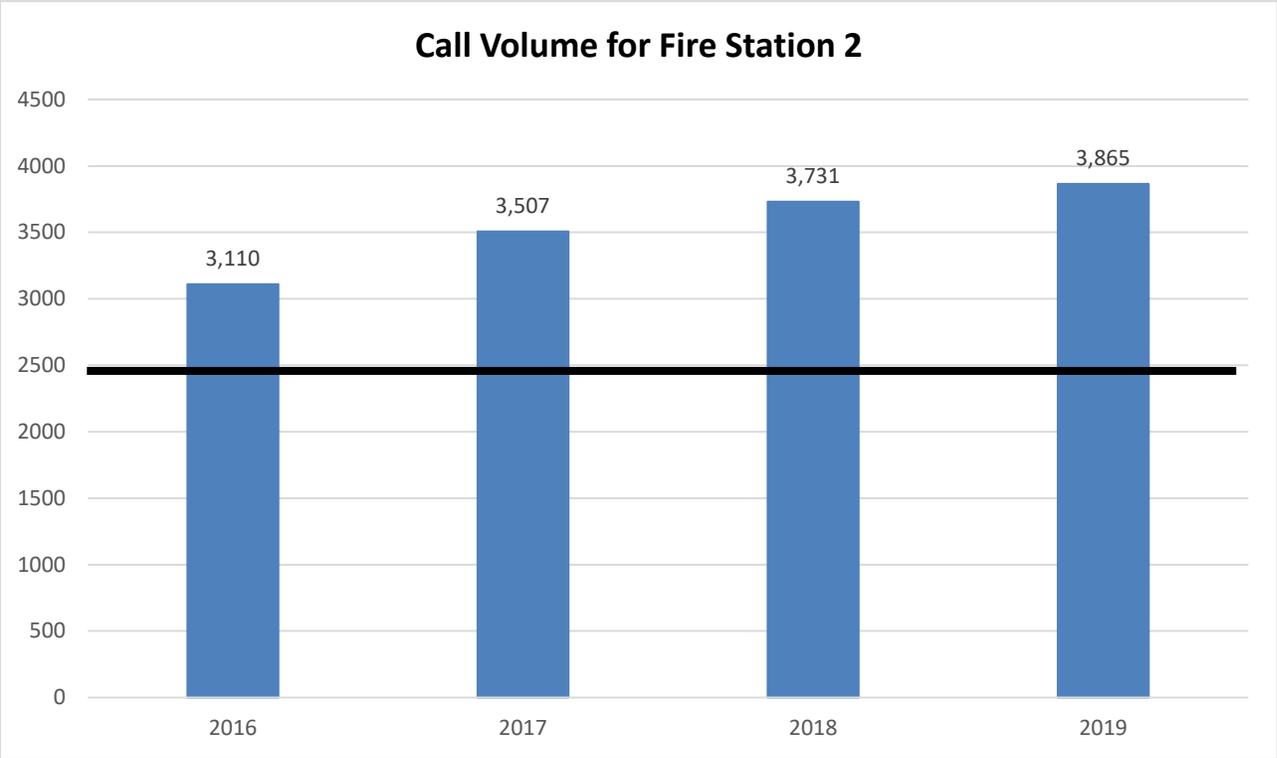


Figure 5: call volume for Station 2

Fire Station 2 is located on Guelph Street and provides service to a wide geographic area, including communities as far as North Bridgeport all the way to Cherry Hill and Mill-Courtland. Station 2 also serves the downtown core which continues to grow and intensify (including the addition of many new tall buildings). Station 2 is Kitchener’s busiest fire station and already receives a high volume of calls. The black line in Figure 5 (above) represents the FUS benchmark for high-volume and Station 2 has been operating above this benchmark (2,500 calls/year) since 2016. Station 2 is significantly impacted by high-rise response and intensification within the downtown core.

The opening of a new Fire Station (as recommended in this report) to support the growth in the downtown will allow the response areas for other stations to be adjusted, which will help reduce response times to emergency calls in many parts of the City. Staff are recommending that a location study be completed in 2022 to determine the most strategic location for a new fire station to help alleviate the pressure on Station 2 and the other fire stations.

**2. Response Times**

**NFPA 1710 Response Time Standard**

The NFPA (National Fire Protection Association) is the most highly recognized fire service association North America. The NFPA is an international non-profit organization that was established in 1896. The organization’s mission is to reduce the burden of fire and other hazards on quality of life by providing and advocating consensus codes and standards, research, training and education. NFPA is recognized as one of the world’s leading advocates for fire prevention and an authoritative source on public safety.

Over the past decade, many fire departments across Ontario have been moving towards using the standards established by the National Fire Protection Association to help to set their response times. While there is no legislated requirement for City to meet NFPA standards, the province of Ontario adopted NFPA as the standard in 2013.

One of the recommendations contained within the City Council approved Fire Master Plan (2017), was to conduct a review of KFD’s emergency response capabilities against the NFPA 1710 standard. That standard specifies requirements to deploy fire suppression resources in order to protect residents and firefighter safety.

NFPA 1710 states that 90% of the time:

- an initial response of four firefighters should arrive on scene within five minutes and 20 seconds for a fire/rescue call and five minutes for a medical call.
- a full response of 15 firefighters should arrive on scene within eight minutes for a single detached home; and,
- a full response of 43 firefighters should arrive on scene within 10 minutes for a building more than six storeys tall<sup>12</sup>.

### ***Fire Responses in Tall Buildings***

Responding to a fire rescue or other emergency call within a tall building requires additional staff to be on scene in order to ensure firefighter and resident safety. It also requires additional time in order to reach the scene (vertical response).

The NFPA 1710 standard also lays out the number of firefighters that should be deployed to respond to different types of fire rescue emergencies. The following chart demonstrates the increased number of fire suppression staff required to respond to fires within a building of six storeys or more versus fires within a single detached dwelling.

Type	# of Firefighters	Time	Industry Standard
Initial response (all fire/rescue calls)	4	5 minutes 20 seconds	NFPA 1710
Full response for a detached single dwelling home	15	8 minutes	NFPA 1710
Full response for buildings more than 6 storeys	24	10 minutes	KFD Fire Master Plan <sup>13</sup>

The Dillon report in the 2017 Fire Master Plan concluded that, with current staffing levels, the KFD can only respond to 27% of calls with 14 firefighters on scene within the NFPA standard response time and there is no area of the City where 24 firefighters can respond

<sup>12</sup> The NFPA 1710 indicates 43 firefighters required for emergency response in a building more than six storeys; however, the Kitchener Fire Master Plan amended this number to 24, which was approved by Council in 2017.

<sup>13</sup> City of Kitchener 2017 Fire Master Plan, Appendix E, page 27

to a fire in a high-rise building within the NFPA 1710 standard which is a concern given the significant growth in high rise developments, especially in the downtown area.

Further, the NFPA 1710 standard indicates that 43 firefighters are required for a high-rise response<sup>14</sup>. However, the 2017 Fire Master Plan recognizes 24 firefighters as a more reasonable response. This approach aligns with other Ontario municipalities who are also unable to assemble 43 firefighters on scene for a high-rise emergency response.

Figure 6 shows that, on average between 2016 – 2019, Kitchener met the NFPA 1710 response time standard for initial response 57% of the time. In 1990, the KFD met the City's first due response time for 66.5% of the city<sup>15</sup>. This downward trend is likely to continue if the appropriate resources are not allocated to reflect the City's growth.

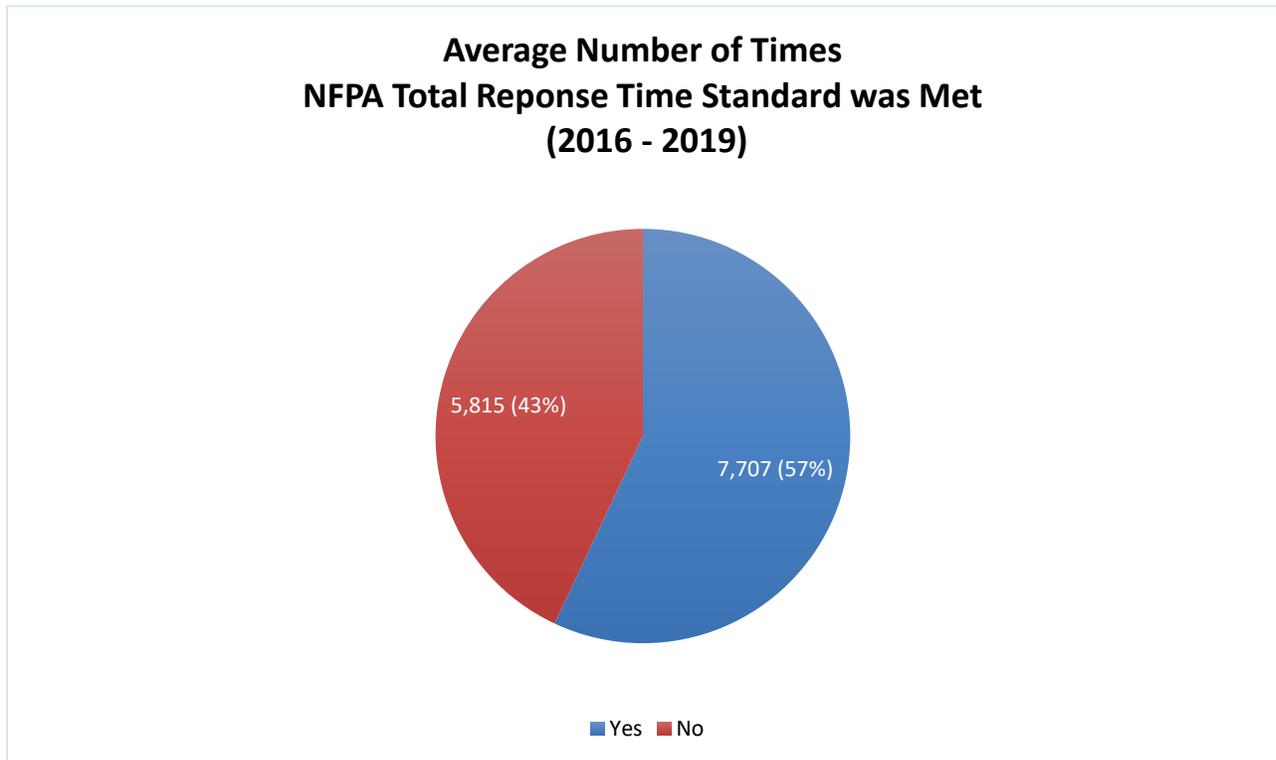


Figure 6: NFPA 1710 response time met (yes/no)

\*Total response time includes the time from which a call is received in the station to when the first truck arrives on scene

Figure 7 and 8 (below) show that, for example, of the 43% of calls that **did not** meet the NFPA 1710 standard in 2019, the response time was an average of 2 minutes 20 seconds longer than the standard for fire/rescue calls and 1 minute 26 seconds longer than the standard for medical calls in 2019.

Response time and depth of response (number of personnel on scene) are critical factors when responding to an emergency (medical, fire or rescue). Adhering to these standards for both response time and number of personnel on scene can have a life-saving effect. For example, a house fire can double in size every minute and the survivability of a heart attack

<sup>14</sup> See Appendix A, section 5.2.4.3 for full details on full response for high-rise buildings.

<sup>15</sup> The City did not use NFPA 1710 standard in 1990. At that time, response times were measured against a Council approved standard.

reduces significantly after four minutes. It is essential that the Kitchener Fire Department make every effort to adhere to the NFPA standard to ensure the safety of all citizens.

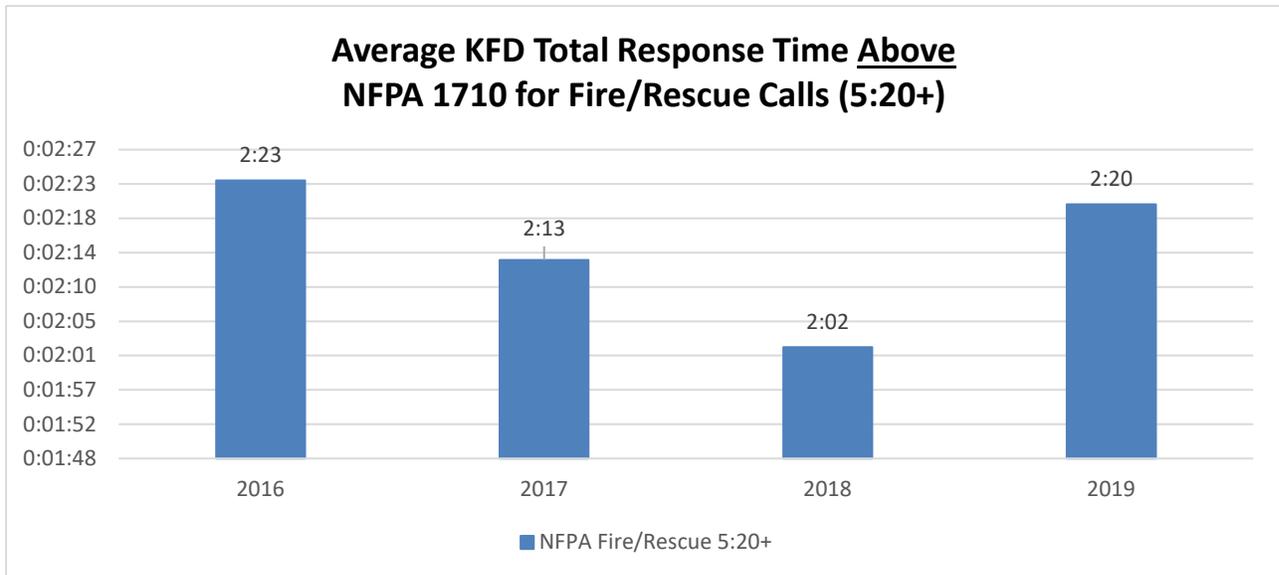


Figure 7: average time above the NFPA standard for fire/rescue calls

Across all of Kitchener response times are frequently impacted by apparatus responding outside their own designated station area. For example, if Station 2 is busy responding to a call in the downtown, and it receives a second call to respond to an emergency in the Kiwanis area (which is also within their response zone), another station will need to travel from across the City (e.g. Stanley Park, Forest Heights) in order to respond to the call in Kiwanis. This need to respond outside of a station’s assigned response zone adds a significant amount of time to a response and causes a ripple effect when stations are consistently travelling further from their response zones.

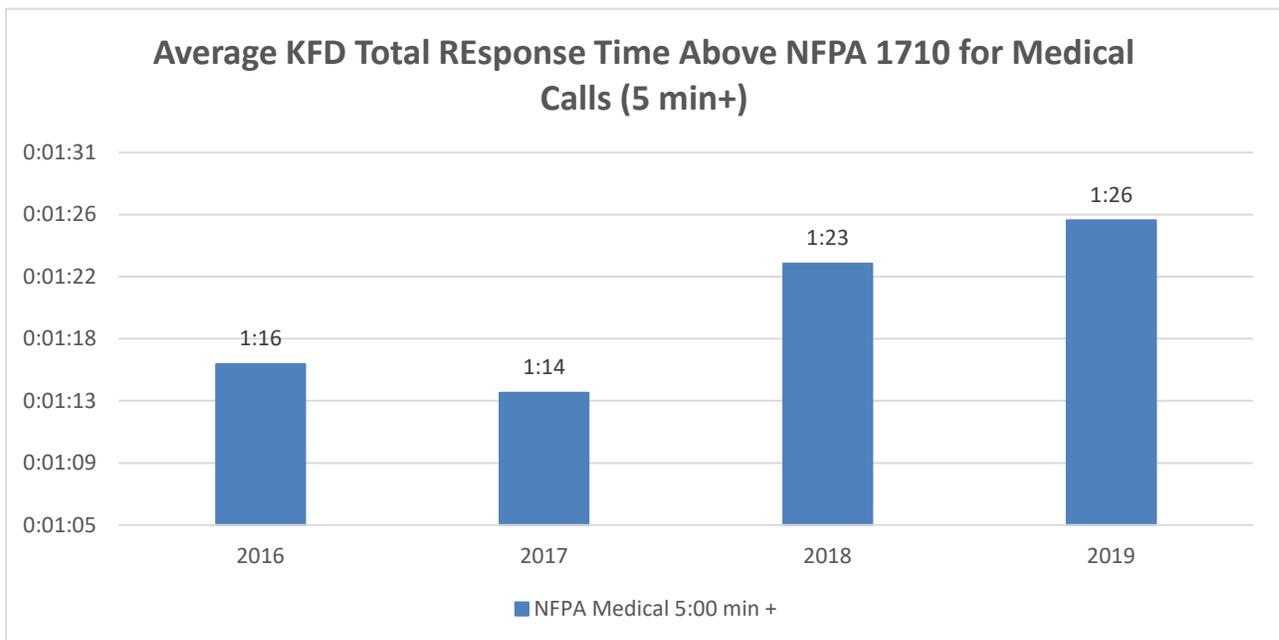


Figure 8: average time above the NFPA standard for medical calls

### 3. Comparison of Ontario Fire Departments (2021)

Information from 12 Ontario municipalities was collected to better understand how the KFD ranks compared to fire departments serving similar communities. Comparator municipalities were selected based on total population, population density, and assessment value most like the City of Kitchener. Waterloo, Cambridge and Guelph were also included as Regional comparators although they are smaller in population and geographic size.

Compared to other cities, **Kitchener has the second lowest number of firefighters per 1,000 people** and is the lowest among regional comparators.

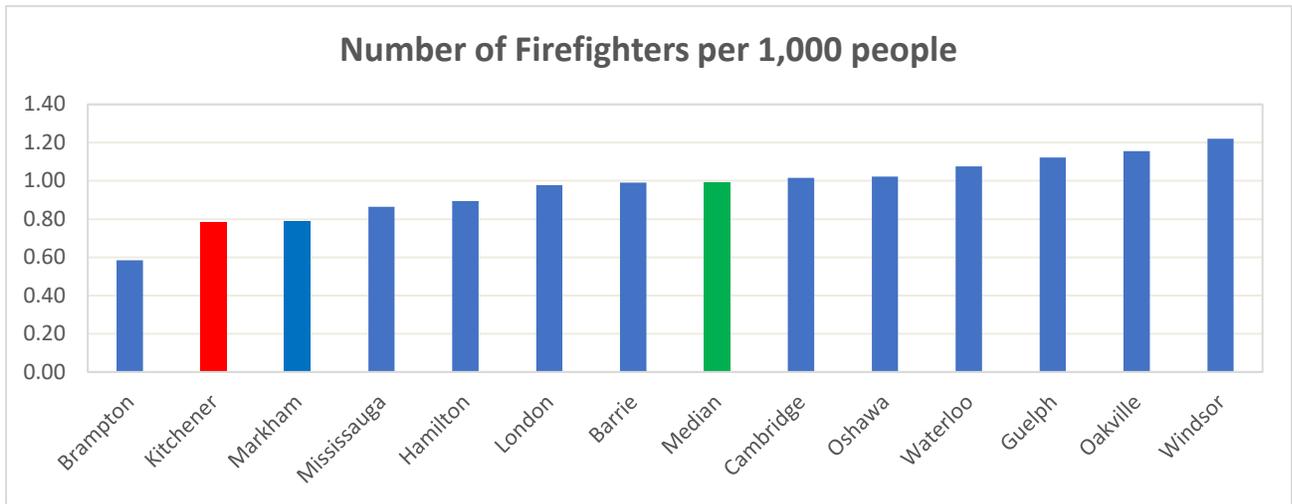


Figure 7: number of firefighters per 1,000 people

Compared to other cities, **Kitchener is the fourth lowest when comparing the total number of fire stations per 1,000 people** and is the lowest among regional comparators.

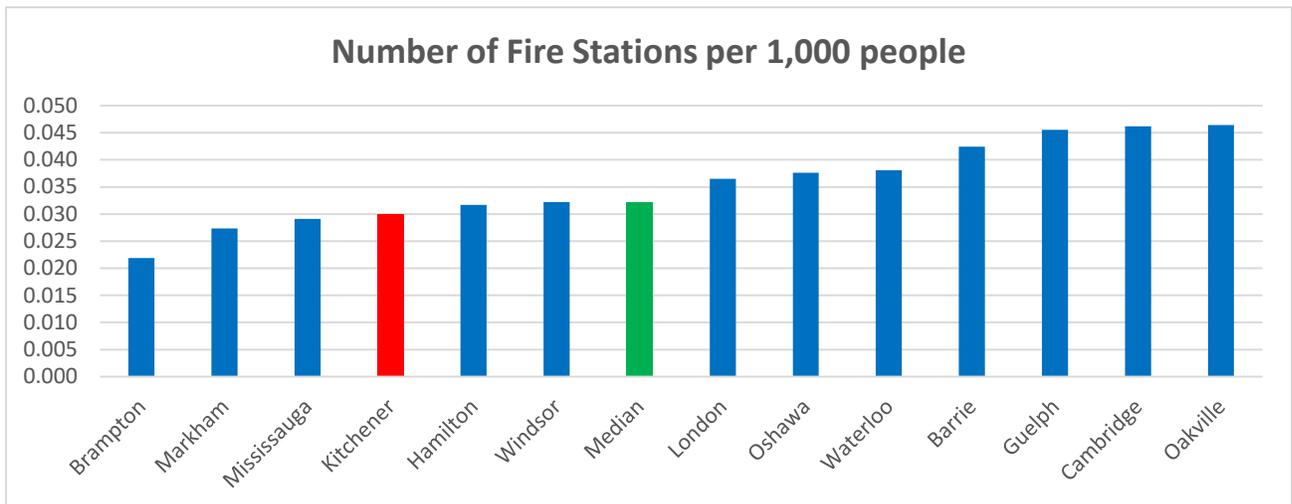


Figure 8: number of fire stations per 1,000 people

## RECOMMENDATIONS:

In order to respond to the significant growth occurring within the City (population, tall buildings and calls for emergency service), and to help improve response times to fire rescue and medical calls, staff recommend hiring 20 new firefighters over the next four years and opening a new fire station in 2026. Adding a new fire station would help the KFD respond to the significant population and tall building growth (particularly in the downtown), and to improve suppression response times from stations across the city.

The recommendation to hire 20 new staff over four years and then relocate 20 firefighters to the new station in 2026 (once it opens) will allow the department to spread the operating costs over a four-year period rather than incur those costs all at once. Further, the department will be able to focus on talent attraction, recruitment and service delivery over a four-year period as oppose to attempting to hire all those staff within one year.

The recommendation to open a new fire station in 2026 will complete the eight-station model which was recommended in the 1990 Fire Station Location Study. Staff recommend a comprehensive location study be completed in 2022 to identify a specific location for Station 8 as well as make recommendations for potential land acquisition (e.g. purchase, development, partnership, utilization of existing city property, or expansion of an existing station).

## STRATEGIC PLAN ALIGNMENT:

This report supports the delivery of core fire suppression and emergency response services.

## FINANCIAL IMPLICATIONS:

The financial implications of staff's recommendation to increase suppression staff by 20 new firefighters over the next four years are outlined below. Staff are recommending these financial impacts be referred to the City's annual budget process.

	2022	2023	2024	2025	2026	Total
Operating budget increase required	289,818	580,058	662,173	653,118	435,493	2,620,659
Tax Levy Impact	0.22%	0.44%	0.50%	0.49%	0.33%	1.98%

Each new firefighter hired requires outfitting in personal protective equipment. The capital cost of these items' averages \$23,000/year and will also be referred to the 2022 budget process for tax supported funding.

The capital costs of the new fire station and related truck(s) are eligible for development charge (DC) funding. The City is currently conducting a DC background study and will bring an updated DC by-law to Council for approval in 2022. The new fire station and related truck(s) will be included in a future capital budget once the DC by-law is updated.

**COMMUNITY ENGAGEMENT:**

This report has been posted to the City's website with the agenda in advance of the council committee meeting and will be subject to the 2022 budget engagement process should Council approve of staff's recommendations.

**APPROVED BY:** MICHAEL MAY, DEPUTY CHIEF ADMINISTRATIVE OFFICER

**APPENDICIES**

[Appendix A - NFPA 1710 Standard Summary](#)

## Appendix A – NFPA 1710 Standard Summary

The following terms and standards are directly from the NFPA 1710 Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Career Fire Departments 2020.

### Important Terms

**Alarm Answering Time:** The time interval that begins when the alarm is received at the communication center and ends when the alarm is acknowledged at the communication center.

**Alarm Processing Time:** The time interval from when the alarm is acknowledged at the communication center until response information begins to be transmitted via voice or electronic means to emergency response facilities (ERFs) and emergency response units (ERUs).

**First-Due Response Zone:** The geographic area surrounding a fire station in which a company from that station is projected to be the first to arrive on the scene of an incident.

**Turnout Time:** The time interval that begins when the emergency response facilities and emergency response unit's notification process begins by either an audible alarm or visual annunciation or both and ends at the beginning point of travel time.

**Total Response Time:** The time interval from the receipt of the alarm at the primary emergency response facility to when the first emergency response unit is initiating action or intervening to control the incident.

**Travel Time:** The time interval that begins when a unit is en route to the emergency incident and ends when the unit arrives at the scene.

**High-Hazard Occupancy:** These occupancies include schools, hospitals, and other special medical facilities, nursing homes, high-risk residential occupancies, neighborhoods with structures near one another, high-rise buildings, explosives plants, refineries, and hazardous materials occupancies.

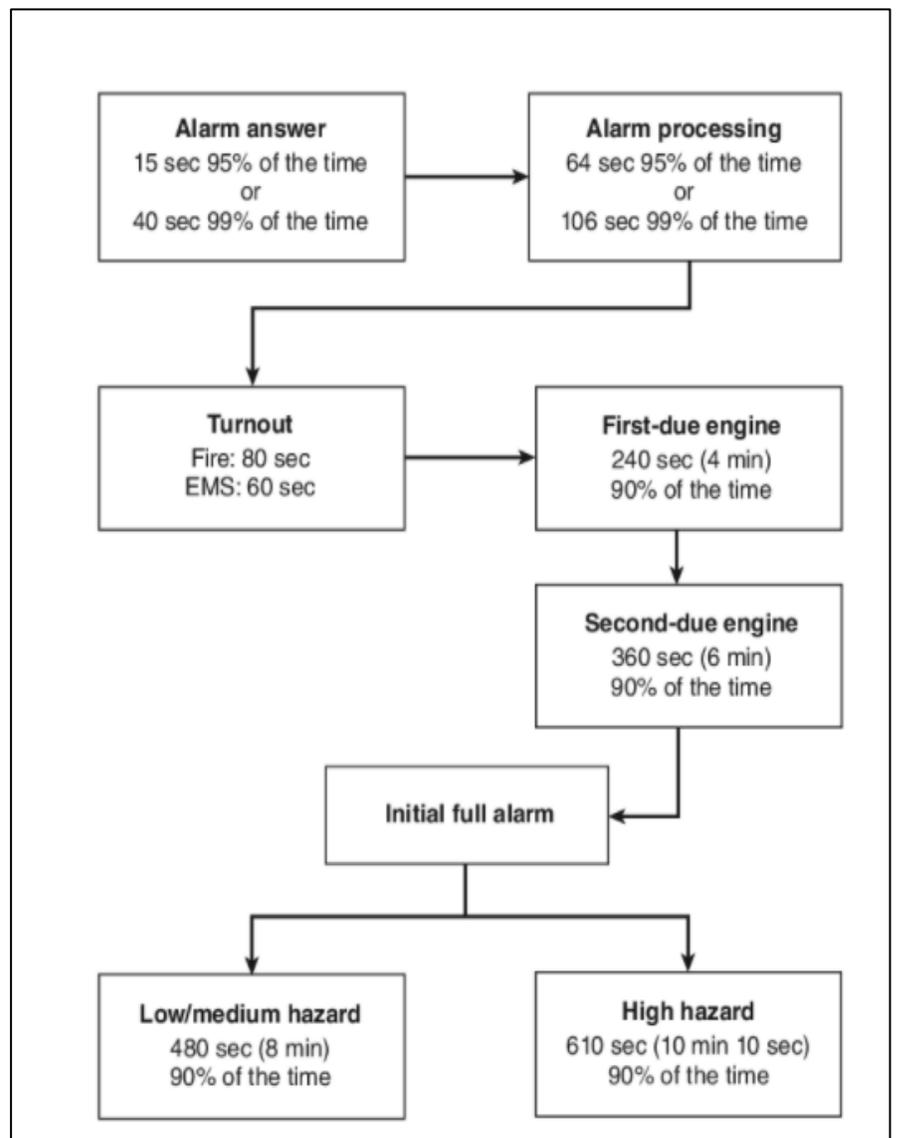


Figure 9: NFPA 1710 Response Objectives

### ***NFPA 1710 Standard for Apartment Initial Full Alarm Assignment Capability (5.2.4.3)***

The initial full alarm assignment to a structure fire in a typical 1200 ft<sup>2</sup> apartment within a three-story, garden-style apartment building shall provide for the following:

1. Establishment of incident command outside the hazard area for the overall coordination, direction, and safety of the initial full alarm assignment with a minimum of two members dedicated to managing this task (2).
2. Establishment of two uninterrupted water supplies at a minimum of 400 gpm (1520 L/min), with each supply line maintained by an operator.
3. Establishment of an effective water flow application rate of 300 gpm (1140 L/min) from three handlines, each of which has a minimum flow rate of 100 gpm (380 L/min), with each handline operated by a minimum of two members to effectively and safely maintain each hand-line (6).
4. Provision of one support member for each attack, backup, and exposure line deployed to provide hydrant hookup and to assist in laying of hose lines, utility control, and forcible entry (3).
5. Provision of at least two victim search-and-rescue teams, each team consisting of a minimum of two members (4).
6. Provision of at least two teams, each team consisting of a minimum of two members, to raise ground ladders and perform ventilation (4).
7. If an aerial device is used in operations, one member to function as an aerial operator and always maintain primary control of the aerial device (1).
8. At a minimum, an initial rapid intervention crew (IRIC) assembled from the initial attack crew and, as the initial alarm response arrives, a full and sustained rapid intervention crew (RIC) established (4).
9. The establishment of an initial medical care component consisting of at least two members capable of providing immediate on-scene emergency medical support, and transport that provides rapid access to civilians or members potentially needing medical treatment (2).
10. Total effective response force is a minimum of 27 (28 if an aerial device is used).

### ***NFPA 1710 Standard for High-Rise Initial Full Alarm Assignment Capability (5.2.4.4)***

The initial full alarm assignment to a fire in a building with the highest floor greater than 75 ft (23 m) above the lowest level of fire department vehicle access shall provide for the following:

1. Establishment of a stationary incident command post outside the hazard area for overall coordination and direction of the initial full alarm assignment with a minimum of one officer with an aide dedicated to these tasks and all operations are to be conducted in compliance with the incident command system (2).
2. Establishment of an uninterrupted water supply to the building standpipe/sprinkler connection sufficient to support fire attack operations maintained by an operator and if the building is equipped with a fire pump, one additional member with a radio to be sent to the fire pump location to monitor and maintain operation (1/1).
3. Establishment of an effective water flow application rate on the fire floor at a minimum of 500 gpm (1892 L/m) from two handlines, each operated by a minimum of two members to safely and effectively handle the line (4).
4. Establishment of an effective water flow application rate on the floor above the fire floor at a minimum of 250 gpm (946 L/m) from at least one handline, with each deployed handline operated by a minimum of two members to safely and effectively handle the line (2).
5. At a minimum, an initial rapid intervention crew (IRIC) assembled from the initial attack crew and, as the initial alarm response arrives, a full and sustained rapid intervention crew (RIC) established (4).
6. Provision of two or more search-and-rescue teams consisting of a minimum of two members each (4).
7. Provision of one officer, with an aide, dedicated to establishing an oversight at or near the entry point on the fire floor(s) (2).
8. Provision of one officer, with an aide, dedicated to establishing an oversight at or near the point of entry on the floor above the fire (2).
9. Provision of two or more evacuation management teams to assist and direct building occupants with evacuation or sheltering actions, with each team consisting of a minimum of two members (4).

10. Provision of one or more members to account for and manage elevator operations (1).
11. Provision of a minimum of one trained incident safety officer (1).
12. Provision of a minimum of one officer two floors below the fire floor to manage the interior staging area (1).
13. Provision of a minimum of two members to manage member rehabilitation and at least one of the members to be trained to the ALS level (2).
14. Provision of an officer and a minimum of three members to conduct vertical ventilation operations (4).
15. Provision of a minimum of one officer to manage the building lobby operations (1).
16. Provision of a minimum of two members to transport equipment to a location below the fire floor (2).
17. Provision of one officer to manage external base operations (1).
18. The establishment of an initial medical care component consisting of a minimum of two crews with a minimum of two members each with one member trained to the ALS level capable of providing immediate on-scene emergency medical support, and transport that provides rapid access to civilians or members potentially needing medical treatment (4).
19. Total effective response force is a minimum of 42 (43 if the building is equipped with a fire pump).