2024

Ottawa Fire Services

Community Risk Assesment/Standards of Cover (CRA/SOC)

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Introduction

This document represents the Ottawa Fire Services (OFS) “Integrated Risk Management Plan: “Community Risk assessment/Standards of Cover”. The Commission on Fire Accreditation International (CFAI) defines the process, known as “deployment analysis,” as a written procedure which determines the distribution and concentration of fixed and mobile resources of an organization. The purpose for completing this document is to assist the OFS in ensuring a safe and effective response force for fire suppression, emergency medical services, and specialty response situations. The contents of this document adhere to the guidelines outlined in the 10th edition of the CFAI Standards of Cover.

The development of the current “Community Risk Assessment/Standards of Cover” required several key areas be researched, studied, and evaluated. The report will begin with an overview of both the community served and the fire service. Following this overview, the agency explores areas such as risk assessment, critical task analysis, agency service level objectives, and distribution and concentration measures. The agency will provide documentation of reliability studies and five years analysis of historical performance through charts, graphs and maps. This report concludes with policy recommendations.

Ottawa Fire Services, operating under the City of Ottawa’s Emergency and Protective Services Department, offers a comprehensive range of services including fire suppression, search and rescue, emergency medical response, technical rescue, hazardous materials response, fire inspections, public education, investigation, and community-based training. Committed to upholding exemplary standards of professionalism and effectiveness, OFS serves both residents and visitors with dedication.

Acknowledgements

Land Acknowledgement

Ottawa is built on un-ceded Anishinabe Algonquin territory.

The peoples of the Anishinabe Algonquin Nation have lived on this territory for millennia. Their culture and presence have nurtured and continue to nurture this land.

The City of Ottawa honours the peoples and land of the Anishinabe Algonquin Nation.

The City of Ottawa honours all First Nations, Inuit and Métis peoples and their valuable past and present contributions to this land.

The Ottawa Fire Service Leadership Team

Fire Chief (Chair) – Paul Hutt
Deputy Fire Chief, Urban Operations – Dave Matschke
Deputy Fire Chief, Community Standards & Communications – Nathan Adams
Deputy Fire Chief, Training & Safety – Louise Hine-Schmidt
Deputy Fire Chief, Rural Operations & Fleet – Todd Horricks
Manager, Operational Support Services – Victoria Calladine
Chief Special Operations – Jim Andrews / Dan Kirvan
Executive Officer – Colleen Woolsey
Specialist Strategic Programs and Project – Dean Johnson

Standards of Cover Development Team

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CFAI Accreditation Managers – Victoria Calladine / Kendra Shaw
Standards of Cover Branch:
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Captain Thom Fuller
Safety Officer Peter Barton

Cover Photo Credit – Scott Stilborn
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Executive Summary

In 2012, Ottawa Fire Services (OFS) initiated the goal of becoming an accredited Fire Service agency through the Commission on Fire Accreditation International (CFAI). Now in its 14th year of accreditation, the commitment of OFS to service excellence and operational efficiency is superior.

OFS has remained in good standing through the first and second accreditation processes. The Community Risk Assessment/Standards of Cover (CRA/SOC), the Self Assessment Manual (FESSAM 10th Edition), and the OFS Strategic plan (2024-2026) make up the three components required for accreditation.

Ottawa Fire Services provides emergency and non-emergency services for an area of 2,790 square kilometers. This represents the largest geographical service area of any major city within Canada. As a result of a 2001 municipal amalgamation of 9 communities, the OFS operates as a “composite” department, comprised of both career and volunteer firefighters.

Ottawa’s unique geography includes a significant greenbelt surrounding the core and urban areas of the original City of Ottawa. The massive size of the “greenbelt” does create challenges for service with respect to the distribution and concentration of resources. The greenbelt’s existence, maintenance, and development control fall under the responsibility of the highest tier of government, the Canadian Federal government.

OFS is continuously working to meet and exceed industry standards, ensuring the safety and well-being of the community it serves. The inclusion of both career and volunteer firefighters translates to a

collaborative and community-focused approach. The challenges posed by the unique geography of Ottawa, especially the “greenbelt”, demonstrate the service’s adaptability and commitment to overcoming obstacles for effective service.

Ottawa Fire Services has established performance objectives based on a review of international standards, industry best practice, current capabilities, and available resources. Internal targets for improved performance have been set for each type of emergency service provided by the agency.

Section A:
Community Served & Area Characteristics

Governing Legislation

The Ottawa Fire Service (OFS) was established under the City of Ottawa Act in 2001. The Service exercises legal authority as ascribed by the Ontario Fire Prevention and Protection Act (FPPA), 1997. City of Ottawa By-law No. 2009-319 establishes the delegated authority under the FPPA which fall to the Fire Chief. The bylaw authorizes the Fire Chief to take appropriate actions to protect and preserve life and property and authorizes the OFS to leave the limits of the municipality with respect to a fire or emergency under specific circumstances including mutual/automatic aid and cost recovery (Bylaw 2021-303) agreements.

The FPPA mandates all municipalities complete a community risk assessment; utilizing the findings to establish appropriate fire protection capabilities in three domains.

- Fire Prevention
- Fire Safety Standards
- Emergency Response

Figure 1. Ontario Fire Marshall Crest

City of Ottawa Structure/Council

The governance of the City of Ottawa operates through a 25-member City Council, which consists of the Mayor representing the city as a whole, and 24 Councillors who represent individual wards. The Mayor and Councillors are elected to serve four-year terms, with the current term starting on November 15, 2022, and ending on November 14, 2026. City Council establishes standing committees composed of Councillors to examine issues before presenting them to a full Council meeting. These standing committees provide a platform for residents to offer five-minute presentations, express opinions, and provide

feedback on city matters under consideration before recommendations are forwarded to Council.

The decisions made by City Council directly impact Ottawa residents, influencing the range, quality, and variety of municipal services provided, including those by Ottawa Fire Services. Council serves as the decision-making authority responsible for the administration of the City of Ottawa, converting community needs into municipal services, including fire services.

The Emergency Preparedness and Protective Services Committee is responsible for overseeing the City of Ottawa's Emergency and Protective Services, including services delivered by Ottawa Fire Services. This committee receives staff reports, listens to public delegations, and evaluates matters concerning OFS, making recommendations to the City Council.

Ottawa Fire Services has developed an extensive Strategic Plan, which articulates the organization's mission, vision, and values, while also detailing strategic initiatives and objectives for the plan's duration. The specified activities within the Strategic Plan are clearly outlined and practical, considering budgetary constraints through collaboration with the City of Ottawa's Financial Services Department. The OFS Strategic Plan focuses on Continuous Improvement, Community Engagement, Supporting our People, and Critical Investments. OFS provides input into the Emergency and Protective Services Departmental Strategic Plan. Both the Ottawa Fire Services Strategic Plan and the Emergency and Protective Services Department Strategic Plan are guided by the City of Ottawa Strategic Plan and are subsequently submitted for consideration and approval to the Emergency Preparedness and Protective Services Committee (EPPSC) and Ottawa City Council as part of the OFS Annual Report.

The City of Ottawa has adopted the continuity planning definition provided by Public Safety Canada: “is a tool that allows institutions to not only moderate risk, but also continuously deliver products and services despite disruption”. Service disruptions can be natural, technological, or human caused. With that, the City of Ottawa has an Emergency Management Program Continuity of Operations Plan (EMP COOP) and Ottawa Fire Services has a Continuity of Operations Plan (OFS COOP).
(Exhibit E.1 Continuity of Operations Plans)

New FPPA Requirements

The Province of Ontario introduced mandatory certification requirements for fire services with Ont. Reg. 343/22 - Firefighter Certification (April 2022). This regulation will be fully implemented over six (6) years in two phases and impact all aspects of fire protection.

- July 1, 2026
  - OFM or IFSAC/Proboard (NFPA 1001, 1002, 1072, 1021, 1041, 1031, 1033, 1035, 1061, 1521)
- July 1, 2028
  - OFM or IFSAC/Proboard (NFPA 1006, 2021 Edition Chapter 5, 6, 7, 12, 17, 18, 20)

Building Code Amendments

The Ontario building code governs the design and construction of all structures to the point of occupancy approval. The Ontario Fire Code governs the protection of structures for their usable life cycle. Recent changes to the building code will have long term fire protection and code enforcement impacts, both positive and challenging.

- Bill 23, the More Homes Build Faster Act, (November 2022)
  - Eliminated site plan review/control for residential developments of 10 units or less
    - > No requirement to identify impact of new (infill) development on existing water infrastructure capacity (fire flow).

- Ont. Reg 451/22
  - Allow mass timber buildings to twelve (12) stories.

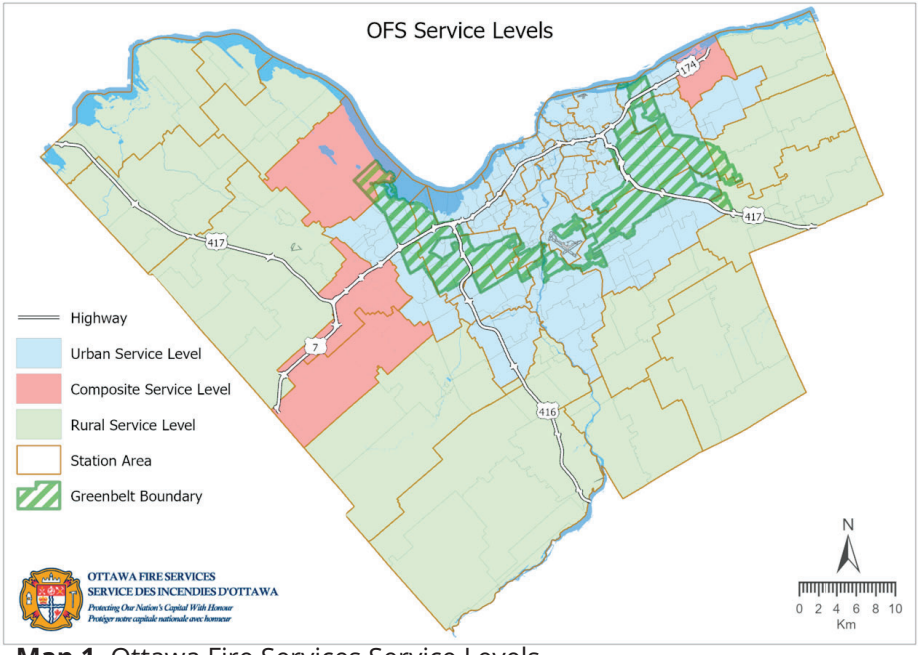
- Ont. Reg 217/22
  - Requirement to provide notification to fire services if trusses and lightweight systems are utilized in building construction or renovation, other than a house.

Service Delivery Levels

Ottawa Fire Services is the largest composite fire service in Canada protecting the lives, property and environment of residents, businesses, and visitors to the City of Ottawa. The city is the fourth largest metropolitan area in Canada with a 2021 population of just over 1 million: a 9% increase since just 2016. It covers a vast geographical area of approximately 2700 square kilometers, 80% of which is considered rural. Service to the urban areas is provided by full-time career firefighters while service to the rural areas is provided by volunteer firefighters who are on call to respond on an as required basis, augmented by the career staff. The difference between areas protected by career and volunteer firefighters is accounted for by two separate tax rates paid by the residents of each of the defined urban and rural

areas. These tax rates reflecting the service level were established under section 326 of the Ontario Municipal Act in 2001 when the new amalgamated City of Ottawa was formed. These two service levels and their geographic boundaries are established, approved and enacted by city council in the form of two separate by-laws. (Map 1)

As the city grows and demand for service increases, Ottawa Fire Services must continually evaluate and assess service level provision to ensure it aligns with city policy and council direction. Accordingly, the bylaws regulating fire service delivery may be amended to ensure adequate service is being delivered to all areas of the city. This may include expansion of the urban area and career staffing



Map 1. Ottawa Fire Services Service Levels

Funding Sources & Restrictions

The primary source of funding for Ottawa Fire Services is municipal property taxes. However, specialized services such as CBRNE, and USAR receive funding through provincial grants or Memorandums of Understanding with government agencies. Ottawa Fire Services generates some revenue through training and fire burn permits. OFS also recovers costs related to various activities, including enforcement activities, letters of compliance, hazardous materials responses to commercial enterprises, and reimbursements from the Ontario Ministry of Transportation (MTO) for responses to provincial highways. Any funds collected are reflected in the OFS budget on an annualized basis.

The Fire Service administration has established a performance measurement group, tasked with monitoring monthly expenses such as overtime costs and equipment expenditures. Council directives on staffing pauses and budget constraints are conveyed to the fire administration through the general manager of the Emergency Protective Services (EPS) department, both on an annual basis and as the need arises. The Office of the Auditor General also plays an important role in assessing the effectiveness of expenditure controls through service delivery reviews.

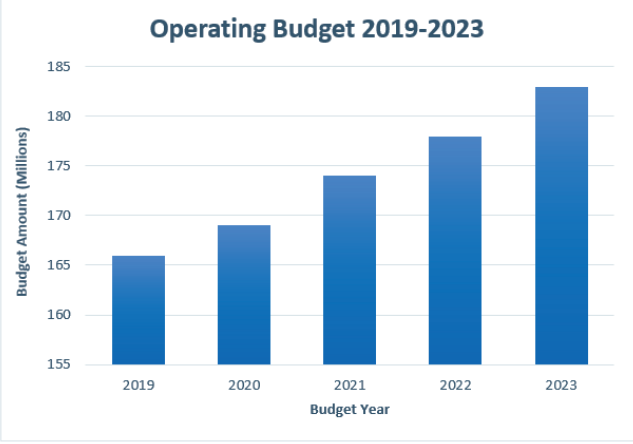


Figure 2. Ottawa Fire Services Operating Budget 2019-2023

The Fire Service Management Team (FSMT) at Ottawa Fire Services collaborates with the agency's designated finance staff to formulate the preliminary agency budget, aligning it with the approved budgetary increases authorized by Ottawa City Council. Following the finalization of the agency budget, it is integrated into the EPS departmental budget. The EPS departmental management team subsequently reviews and makes any necessary amendments to the budget.

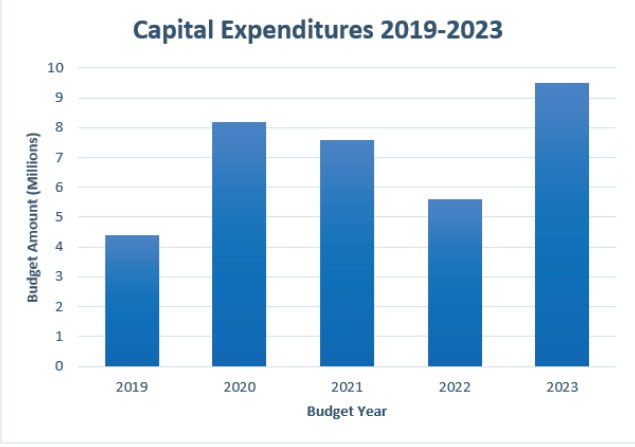


Figure 3. Ottawa Fire Services Capital Expenditures 2019-2023

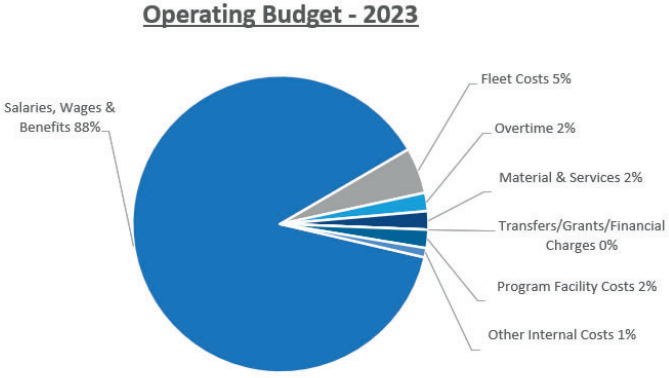


Figure 4. Ottawa Fire Services Budget Breakdown 2023

The proposed departmental budget undergoes review and approval at the Emergency Preparedness and Protective Services Committee (EPPSC). Following a vote and consensus at the committee level, the proposed budget is sent to Council for final approval. The operating budget for the agency is broken down into distinct expenditure and revenue items, facilitating an examination of the key areas contributing to changes in costs and revenues in the budget.

Figure 4 illustrates the breakdown of the operating budget for the year 2023, with a significant portion allocated to salaries, wages and benefits. Another substantial portion of the operating budget is allocated to fleet and facilities.

In Figure 3, illustrates a five-year overview of the Ottawa Fire Services capital budget. Capital budgets exhibit variation from year to year. Notably, the substantial capital budget in 2023 was directed towards the construction of the new Kanata North Fire Station 45.

Service Area Description

“The Nation’s Capital”. Ottawa is located at the confluence of the Ottawa, Rideau, and Gatineau rivers on the traditional territory of the Anishinaabe Algonquin Nation whose presence here reaches back to time immemorial. The Algonquin People inhabited and cared for these lands long before today and will continue to do so in the future. The first non-indigenous settlement in the area was founded in 1800 on the north side of the Ottawa river by Philemon Wright who pioneered the timber trade which spurred others to establish lumber mills and began what would become the principal industry in Upper and Lower Canada. Founded in 1826, Bytown was named after British Colonel John By who was tasked with the construction of the Rideau Canal which was built to secure safe travel from Kingston to Montreal without having to navigate the St. Lawrence River during the tumultuous period when the United States threatened to invade Upper Canada.

Figure 5. View of the Parliament Buildings and the Ottawa River

Bytown was renamed Ottawa in 1855 when it was incorporated as a city and on December 31, 1857, Queen Victoria chose Ottawa as the capital for the Province of Canada based on its size and prime location. The new capital enjoyed consistent growth with the developing lumber business, expanded railroads and construction of important landmarks including the Parliament Buildings, Chateau Laurier and Union Station. The city surpassed a population of 100,000 by 1914. During World War II, the industrial area in Lebreton Flats became home to manufacturing concerns for rail cars, parts for aircraft and other crucial machinery. On the grounds of the experimental farm a team worked day and night to intercept and decode German messages and at Lansdowne Park a temporary depot was set up to prepare soldiers for training. Pre-occupied with the war effort and subjected to rationing, the city was not able to grow its infrastructure during this time, but in 1946 the federal government began work on a plan for future growth and hired French architect and urban planner Jacques Greber to develop a suitable urban plan for the National Capital Region. The intent of the plan was to contain development and expansion to the inside of the “Greenbelt” a band of green space forming a perimeter around the urban core of the city. In 1959 the National Capital Commission (NCC) was created to administer federal lands and buildings in both Ottawa and Gatineau. The NCC’s limits on land use

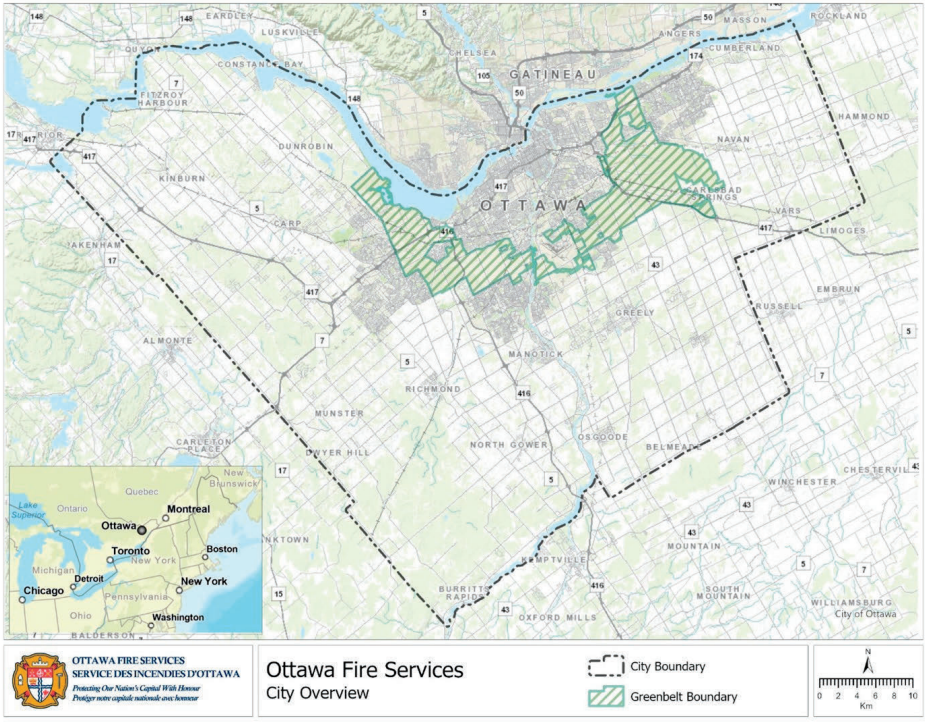
combined with the Greber plan had a significant impact on Ottawa's evolution as a city and caused significant growth of the suburbs of Kanata, Nepean, Gloucester, and Cumberland outside the Greenbelt. In 1968 the rural townships of Osgoode, Rideau, Goulburn, and West Carleton were included with Ottawa and its suburbs in the Regional Municipality of Ottawa-Carleton and in 2001 all these municipalities were amalgamated into a new single tier City of Ottawa.

Today, Ottawa is one of the most beautiful G7 cities in the world and ranks 7th out of 100 cities on the 2022 Work-Life Balance Index prepared by office security firm KISI. The federal government is the major employer along with a thriving business and high-tech sector as well as highly trained health care professionals working at world class medical facilities. With a highly educated workforce and one of the highest median incomes in Canada, Ottawa is home to two large universities, several colleges and is recognized for both academics and professional training. The city has a rich history, culture and heritage as displayed by its many national institutions, parks, waterways, and historic architecture and is considered a world class tourist destination.

The City of Ottawa boasts an expansive area spanning 2,790 square kilometers, making it the largest major city in Canada. Situated in eastern Ontario, it resides at the confluence of three significant rivers—the Ottawa, Gatineau, and Rideau—alongside a constructed canal system. The Ottawa River acts as a natural boundary, separating the provinces of Ontario and Quebec to the north, shared with Quebec's municipalities of Pontiac and Gatineau. To the west lie Renfrew and Lanark counties, to the south Leeds, Grenville, Stormont, Dundas, and Glengarry, and to the east Prescott and Russell counties.

Ottawa is intricately woven with an extensive network of rivers and streams, encompassing portions of four rivers,

four major tributaries, and numerous smaller creeks, totaling over 4,500 km in length. These watercourses, integral to Ottawa's identity, place the region within the Great Lakes watershed and stand as invaluable natural resources.



Map 2. City of Ottawa Fire Service Area with location diagram

The city's topography is predominantly flat, featuring notable valley lands and escarpment features. Elevation peaks in the southwest and gradually decreases northeastward along the Ottawa River Valley. Ottawa is situated on an ancient fault line, visible between Bronson Ave and Carling Ave's agricultural buildings, with several minor faults scattered throughout, occasionally leading to minor earthquakes.

Ottawa experiences a humid continental climate with distinct seasons. Summers are warm and humid, often

reaching daytime temperatures of 27°C (86°F) or higher. Winters are characterized by dominant snow and ice, with an annual snowfall of approximately 224 cm (88 in). Depending on wind direction, the city may encounter extremely cold days, with temperatures plummeting below -40 degrees Celsius when factoring in wind chill.

Table 1. Climate Data for the City of Ottawa (1991-2020)

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
Average Daily Maximum (°C)	-5.5	-3.6	2.4	11.3	19.6	24.4	27	25.8	21	13	5.8	-1.9	11.6
Daily Average (°C)	-10	-8.5	-2.4	5.9	13.6	18.7	21.2	20.1	15.3	8.2	1.7	-5.8	6.5
Average Daily Minimum (°C)	-14.3	-13.2	-7.1	0.5	7.5	12.9	15.4	14.3	9.6	3.4	-2.4	-9.6	1.4
Extreme Humidex	13.9	12.7	27.2	35.1	41.8	44	47.2	47	42.5	35.2	26.1	18.4	
Extreme Wind Chill	-47.8	-47.6	-42.7	-26.3	-10.9	0	0	0	-6.4	-13.3	-29.5	-44.6	
Rainfall (mm)	29.3	14.5	34.6	69.6	74.5	96.8	88.5	79	90.6	84.7	60.5	34.7	757.2
Snowfall (cm)	59.2	48.5	38.8	12.2	0.2	0	0	0	0	2.7	20.7	49.6	231.9
Day with Freezing Rain or Freezing Drizzle	3.8	2.6	2	0.6	0	0	0	0	0	0.03	1.4	3.6	14

Average Date of Last Spring Frost	29-Apr
Average Date of First Fall Frost	07-Oct
Average Length of Frost-Free Period	160 Days

Source: Environment Canada. Retrieved 22 Nov 2023

Population

Presently, Ottawa's population is 1,077,900 and is anticipated to reach 1,400,000 in 2045, solidifying its position as the fifth-largest city and the sixth-largest Census Metropolitan Area (CMA) in Canada, with a metropolitan population of 1,498,610. Exhibiting rapid growth, between 2018 and 2022, Ottawa experienced a 6.7% increase, outpacing both the province of Ontario (5.6%) and the entire Canadian growth rate (5.0%) during the same period.

The city's population is concentrated in the urban core within the greenbelt, while more suburban type areas are characterized by residential housing developments. The rural zones, sparsely populated, primarily embrace an agrarian lifestyle.

Ottawa's population is projected to continue growing, anticipated to reach 1,400,000 in 2045. Immigration plays a pivotal role in this growth, as Ottawa serves as a significant entry point for immigrants worldwide. Operating as a single-tier municipality, Ottawa assumes responsibility for all municipal services, encompassing fire, emergency medical services, police, parks, roads, sidewalks, public transit, drinking water, stormwater, sanitary sewage, and solid waste. Governed by a 25-member council, including 24 ward councillors and the mayor, currently Mark Sutcliffe.

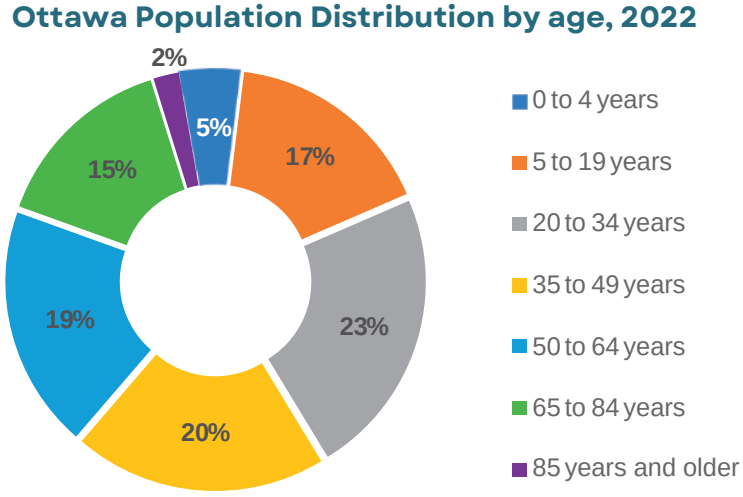


Figure 6. City of Ottawa Population Distribution by age, 2022
Source: Table 17-10-0139-01 Population estimates, July 1, by census division, 2016 boundaries

From 2016 to May 2021, Ottawa embraced nearly 47,415 immigrants from diverse corners of the globe. Recent immigrants currently constitute 4.4% of the population,

establishing the eighth-highest concentration nationwide. In total, Ottawa hosts 259,215 immigrants, constituting almost 24% of the metropolitan population.

Ottawa boasts the most highly educated populace among Canadian cities and serves as the residence for various post-secondary, research, and cultural institutions. Notable establishments include the National Arts Centre, the National Gallery, and several national museums.

Land Use / Future Development

Being the Nation's Capital, Ottawa accommodates over one hundred and forty federal government agencies, departments, and crown corporations, encompassing structures and agencies that embody Canada's political symbols and cultural heritage. Additionally, the city is host to more than one hundred thirty-three foreign embassies, consulates, and permanent representations. The downtown core is a focal point for numerous federal government offices, serving as the seat of government.

Ottawa's Official Plan contains the City's goals, objectives, and policies to guide growth and manage physical change to 2046. Aligned with matters of provincial interest defined by the Provincial Policy Statement under the Ontario Planning Act, the plan encompasses comprehensive zoning bylaws, community design plans, the planning of public works (including fire stations), and the review and approval of development applications.

General Description of Occupancies

The city encompasses diverse occupancies spread across all regions, with each population density zone exhibiting distinct designs that give rise to specific risk considerations.

Rural Areas: The outskirts of the city feature scattered small villages, estate lot subdivisions, and agricultural properties. Villages typically house older, smaller residences ranging from 1000 to 2000 square feet representing legacy homes

situated on compact lots. Additionally, newly constructed, more spacious homes on larger lots can be found. Some villages also include low-rise apartment buildings. Estate lot subdivisions, often situated apart from villages, comprise expansive lots, ranging from several acres, hosting large, modern single-family homes. Many of these structures, ranging from 3000 to 5000 square feet, have extensive open areas and are constructed using lightweight wood techniques, posing increased risks of fire spread and collapse.

Moreover, the vast agricultural expanses contain farmhouse structures, often aged and passed down through multiple family generations. While these structures can be challenging to manage in terms of fire spread and extinguishment, they typically exhibit resilience against fire conditions for longer durations. Additionally, there are smaller commercial properties, often featuring apartment units above, serving as local convenience stores. Industrial areas are also present, housing large manufacturing, trucking, and storage facilities.

Suburban Areas: The suburban regions comprise densely populated communities located beyond the Greenbelt. Within these areas, there are older legacy subdivisions featuring smaller single-family homes, alongside newer sections with more expansive single-family residences. The landscape also includes townhomes, row housing, and multi-unit walk-up structures. Notably, there has been a recent trend towards the construction of three and four-story garden homes, featuring common stairwells and entrances, aligning with the city's focus on intensification rather than urban sprawl. The construction of these larger structures introduces notable fire spread hazards, particularly during the construction phase.

Moreover, suburban zones host numerous open-air malls featuring substantial anchor stores, a variety of big and small box stores, standalone restaurants, and fast-food outlets.

Urban Areas: The city's urban sector stands as the most densely populated region and showcases a diverse array of structures. The downtown core primarily features residential and commercial high-rise buildings, alongside iconic Canadian government structures on Parliament Hill. Additionally, the core incorporates older residential neighborhoods, encompassing single-family homes, low-rise apartment buildings, and townhouse complexes. These areas are currently undergoing infill development, introducing new wood construction single, duplex, and triplex homes with minimal setbacks and elevated assessed values.

Furthermore, the urban landscape encompasses covered malls, open-air malls, a mix of large and small retail stores, commercial and industrial parks, and professional office buildings. The urban areas also host six hospital facilities and related structures, along with six post-secondary educational institutions featuring dormitories and residences.

A breakdown of the approximately 288,000 properties in the City of Ottawa is detailed in Table 2. Analysis reveals that residential properties constitute over ninety-one percent (91%) of the city's total property count and over sixty-seven (67%) of the total assessment value. In contrast, commercial properties make up less than two percent (2%) of the total property count but contribute to twenty-three percent (23%) of the city's property assessment value.

Table 2. City of Ottawa property and structure counts

Property Group	Property Count	Property Percentage	Fire Incident Count	Percentage of Fire Incident
Assembly	963	0.33%	68	2.03%
Care and Detention	227	0.08%	42	1.26%
Commercial	3,199	1.11%	362	10.83%
Commercial Lodging	106	0.04%	18	0.54%
Educational	443	0.15%	56	1.68%
Industrial	2,277	0.79%	157	4.70%
Mercantile	774	0.27%	53	1.59%
Residential - High Rise	2,373	0.82%	689	20.61%
Residential - Multi Unit/Low Rise	4,094	1.42%	334	9.99%
Residential - Single Family	256,773	89.18%	1367	40.89%
Rooming/Boarding	91	0.03%	18	0.54%
Wildland	16,604	5.77%	179	5.35%
Grand Total	**287,924**	**100.00%**	**3343**	**100.00%**

Source: Fire Prevention Division

In broad terms, the assets situated in the urban area generally have a more aged character, encompassing heritage buildings, in contrast to those in suburban areas. The city core is characterized by a diverse mix of structures, including office towers, residential and commercial high-rises, low-rise apartment buildings, hotels, convention centers, large retail spaces, and institutional buildings.

The City of Ottawa exhibits a diverse range of land uses and building types, with developed areas constituting approximately twenty percent (20%) of the total land area. For the purposes of this report, 'developed areas' encompass residential, commercial, industrial, institutional, recreational, transport/utility/communication zones, streets, and vacant lands zoned for development. These areas are predominantly concentrated within a dense central core, featuring a high concentration of high-rise buildings, surrounded by both urban and suburban neighborhoods. Additionally, hamlets, small towns, and villages are scattered throughout the rural parts of the city.

Forests and wetlands make up thirty-seven percent (37%) of

the city's area, while agricultural lands account for thirty-three percent (33%). Ottawa stands out globally as one of the few cities with an operational farm within its urban boundaries. The Experimental Farm, initially situated on the outskirts of the urban boundary, is now enveloped by urban neighborhoods.

The City of Ottawa's "Official Plan" outlines the vision for future growth and serves as a policy framework guiding physical development until 2046. As a legal document addressing matters of provincial interest under the Ontario Planning Act, it includes comprehensive zoning bylaws, community design plans, planning of public works (including fire stations), and the review and approval of development applications.

This new plan is poised to significantly impact Ottawa Fire Services as the city encourages the development of high-density communities within walking distance of the new light rail transit stations. The construction of taller buildings and high-density housing is anticipated to lead to an increase in population and heightened service requirements along the LRT and specifically around stations.

Economy / Employment / Tourism

Ottawa's strong economy revolves around two key sectors: the federal government and the high technology industry. Tourism and healthcare also make significant contributions to the city's economic landscape.

The federal government stands as the largest employer in the city, with a workforce exceeding 114,000 individuals. Serving as the nation's capital, Ottawa attracts seven million tourists annually, injecting approximately 1.4 billion dollars into the local economy. Ongoing activities carried out by businesses that serve tourists in Ottawa directly employs over 30,600 jobs. Moreover, Ottawa has emerged as a crucial technology hub, hosting over 1,800 companies employing over 80,000 people. This concentration has

earned the city the moniker "Silicon Valley North," with a focus on telecommunications, software development, and environmental technology. Notable technology companies such as Nortel, Corel, Mitel, Cognos, and JDS Uniphase were founded in the city, and regional offices for companies like 3M, Adobe Systems, CISCO, Ciena, Shopify, Huawei, Bell Canada, IBM, Alcatel-Lucent, and Hewlett-Packard are established, particularly in the western part of the city (formerly Kanata). Additionally, Amazon built a new fulfillment centre in Ottawa's east end (1 million square feet) and one in Barrhaven, (2.5 million square feet), both centre employed respectively 600 and 1,800 full-time workers.

A distinctive feature that sets Ottawa apart from other North American cities is Ottawa has one of the largest rural areas of any city in Canada.The rural area makes up eighty percent (80%) of the City, is home to over 86,000 residents and over 2,000 businesses which includes approximately 1000 farming operations, providing employment for approximately 10,000 people and contributing over $1.96 billion in annual revenues.

Although Ottawa's economy has shown consistent growth, the impact of decisions made by the federal government can significantly influence the city's economy, given its status as the largest employer. For instance, the late gradual return to work for federal employees after the pandemic has had an impact on downtown restaurants, coffee shops and transit. However, major infrastructure projects are poised to bolster the economy, including the construction of phase 1 & 2 light rail train system.

Transportation Network

Ottawa's transportation infrastructure operates under three government jurisdictions. The City manages and maintains the majority of the road, transit, and pathway networks, while major intercity highways (specifically Highways 416, 417, and 7) fall under provincial government responsibility. Federal jurisdiction covers the five interprovincial road bridges, as well as roads and multi-use pathways managed

by the National Capital Commission. Reimbursement for fire responses on provincial highways is regulated by a fixed rate set by the Ministry of Transportation of Ontario (MTO).

The City oversees a comprehensive multimodal transportation system, catering to walking, cycling, public transit, roads, and parking. Key features include:

- 6,000 km of freeways, arterials, collector and local roads
- 1,575 km of sidewalks and 340 km of on-road bicycle lanes
- 2,800 parking spaces at City-operated off-street lots
- 3,773 on-street parking meters
- Transit services comprise 990 standard, articulated, and hi-capacity double-decker buses, the O-Train light rail line covering an 8 km track with five stations, and a bus transit way spanning 31 km with 34 stations, 40 km of arterial road and freeway shoulder bus lanes, and 11 Park & Ride lots. Additionally, 160 vehicles cater to specialized transit for persons with disabilities.

Anticipating demographic growth, Ottawa has designed and constructed a new electric underground light rail system. The project, estimated to cost 2.1 billion dollars and was completed in August 2019.The ongoing extension of the rail transit system in the East, West, and South (Phase 2) is currently underway, with a tentative completion date set for May 2025 with a budget of 4.66 billion. The project is a strategic initiative to enhance transportation connectivity within the city, especially to and from the downtown core.

Recognizing the importance of this new infrastructure, the Ottawa Fire Service has prioritized training and equipping personnel to handle emergencies related to the project.

Ottawa also features passenger and freight rail lines within city limits. ViaRail, mandated by the Government of Canada,

operates the inter-city passenger rail service. The central terminal, situated 4 km from downtown Ottawa, facilitates rapid inter-city services, cross-Canada services, and connections to remote communities. Although Canadian National Railway owns the freight railway, rail traffic through Ottawa is minimal, with a freight storage yard in the southeast part of the metropolitan core temporarily holding several freight cars with minimal cargo.

The city is served by three airports accommodating various air traffic daily. Macdonald-Cartier International Airport, located 10 km south of the downtown core, stands as Canada's eight busiest airport by passenger traffic [DP1] and sixteenth busiest by aircraft movements. It is an airport of entry staffed by the Canada Border Services Agency. Two smaller aerodromes handle private aircraft for passengers and freight with daytime flights only: Rockcliffe Airport, a former military base 7.4 km northeast of the downtown core, and Carp Airport, situated 35 km southwest of downtown Ottawa.

Established in 1995, the Ottawa Airport Emergency Rescue Service (ERS) assumed rescue and fire protection responsibilities from the Department of National Defence for the Ottawa International Airport. It operates in accordance with the highest standards outlined by the Canadian Aviation Regulation (CAR) as an operational and regulatory requirement. The Ottawa Fire Service provides backup and support to ERS objectives as required, based on aid agreements and Standard Operating Procedures. Dispatched to airside incidents, the OFS responds with priority levels – low, moderate, and high – based on the severity of the impending emergency or incident. Additionally, the Ottawa Fire Service offers initial fire suppression and rescue services for the smaller two airports within the city limits and responds to all initial emergency incidents at the Macdonald-Cartier Airport.

Overall, Ottawa's evolving demographics, land use policies, economic drivers, and transportation networks collectively shape its dynamic and multifaceted urban landscape.

History of the Ottawa Fire Service

As is the case with many towns, Ottawa has suffered many significant fires during its early history. A wildland fire made its way in from the west in 1870, the same city block in the Byward Market was consumed by fires in April 1874 and January 1957 but the two most well-known events were the Great Fire of 1900 and the Parliament Center Block Fire of 1916.

Figure 7. 1916 Fire at the Parliament Buildings Center Block

Photo and content credit: History of the Ottawa Fire Department- 150 Years of Firefighting- J. Bernard Matheson and David R. Fitzsimons

On April 26, 1900, the Great Hull-Ottawa fire began on the north side of the river and grew to such an extent that it jumped the river and destroyed about one fifth of the city from Lebreton Flats down to Dow's Lake. Sadly, seven people were killed, about fifteen thousand were left homeless and $6.2 million in losses were sustained.

It is thought that a carelessly placed cigar may have started the fire which destroyed the center block of the Parliament Building on February 3, 1916. Fortunately, the library of parliament was saved when a security guard thought to close the heavy steel doors at the entrance to the library

from the center block. As World War I raged, there were some “conspiracy theories” circulated that the fire was deliberately set by German spies. In 1922 reconstruction work was completed on the new Center Block and Peace Tower which stands as a memorial to all those who perished in the First World War.

The Ottawa Fire Service dates back to 1838 when the first volunteer fire brigade was formed. It was temporarily housed in the first city hall donated by businessman Nicholas Sparks. The first fire stations date from 1853 when Bytown Council established three engine houses each equipped with hand drawn equipment. Prior to this, fires were handled by a British army regiment stationed at Barracks Hill, now Parliament Hill.

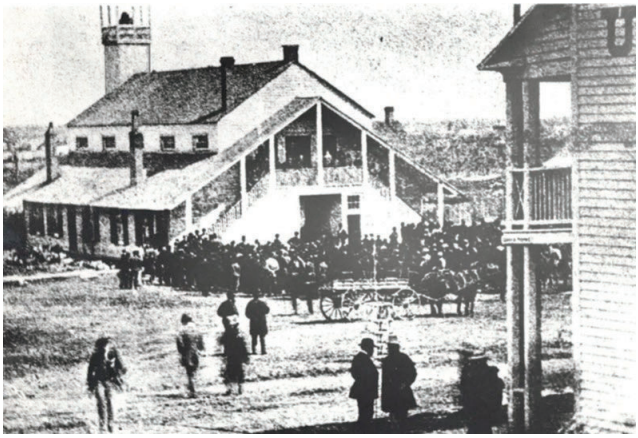


Figure 8. Ottawa’s First City Hall built in 1848. The main floor was used as the fire station for 4 years.

Ottawa’s volunteer fire department was replaced by a full-time professional force in 1874 when the first fire horses arrived to pull a new steam boiler purchased from the Merryweather Company of England. In these early years, the city owned 46 horses whose feed costs were the second largest expense after firefighter's salaries. To improve efficiency and effectiveness, the city purchased its first motorized fire engine in 1911 and by 1928, the entire fleet was motorized.

In the 1940's, advancements were made in telephone communications and dispatching, and a new headquarters facility was built. At this time 24-hour staffing was accomplished with three platoons of firefighters working 48 hours per week. This changed in 1963 to 42 hours per week when a fourth platoon was added, which is still the present-day staffing model.

Technological advancements in the 1980's and 90's brought improvements to personal protective equipment, rescue tools, medical equipment, and hazardous materials instrumentation. These advancements combined with relevant training provided more advanced methods of mitigating emergencies in a safe manner leading to better outcomes including fewer lives lost and more property preserved.

Today's amalgamated Ottawa Fire Service was formed in 2001 and is a combination of rich histories from all the former municipalities; the mid-sized full-time departments from Gloucester and Nepean, composite departments from Cumberland and Kanata and the volunteer departments from Osgoode, Rideau, Goulburn and West Carleton. Ottawa Fire Services is today, Canada's largest composite fire service delivering effective, modern protective services to the community.

Recent Key Milestones

Automatic Vehicle Routing and Response (AVRR)

The Service continues to implement AVRR as part of a dynamic response model, taking full advantage of vehicle geolocation to determine "best" vehicle/s for emergency response. This approach ensures the appropriate and closest resources are dispatched in a timely manner, optimizing both first due and ERF assembly to specific incident addresses. Following an arbitrator's direction, the Service is working with labor representatives to implement a single AVRR solution which will see the closest appropriate resources respond to any call for service, regardless of service level.

Green Initiatives

Ottawa City Council has identified green fleet initiatives as a priority for all City services. Ottawa Fire has put into service several hybrid light fleet vehicles (Chief Officers). Ottawa Fire has begun to replace many rescue tools currently powered by combustion engines (pumps, generators etc) through regular life cycle replacement. This includes heavy hydraulic rescue tools, portable lights, hand tools and ventilation fans. These tools do not represent a compromise as they are more portable and of equal of better performance than traditional corded/powered tools. OFS is exploring options for the addition of all electric heavy fleet (Pump) as this technology continues to evolve at a very fast pace.

Hazmat Response Redundancy

OFS put into service a replacement hazardous materials response vehicle (HM21) in early 2024. This vehicle provides needed response redundancy well above that possible with the previous vehicle. As one of three provincial Hazmat/CBRNE teams, Ottawa Fire needs the immediate availability of a fully staffed and functional team at a moment's notice while maintaining appropriate coverage for the National Capital of Canada. The new vehicle carries a full compliment of research, detection, identification and mitigation equipment along with remote monitoring and satellite communications capabilities.

Increased Reserve Vehicle Fleet

Ottawa Fire fleet vehicles are owned and managed by City of Ottawa Fleet Services. The OFS Fleet Coordinator works with fleet services to schedule and plan vehicle maintenance, service and replacement. Part of the service program includes maintaining a selection of reserve vehicles for short term replacement of primary vehicles. The reserve fleet was increased in number to better manage the increased out of service intervals experienced during and continuing after the pandemic; do to supply chain challenges impacting vehicle turnaround timelines.

Health and Safety Milestones

Prevention GPS

In response to concerns raised by fire prevention and inspection staff, GPS tracking was installed on all division light fleet vehicles. This technology provides real time location data for staff conducting inspection, education, and enforcement functions in the community. Supervisory staff can quickly compare each officer's daily schedule against current position. Anomalies may trigger a wellness check to verify if an officer requires assistance or support from the supervisor.

Preliminary Exposure Reduction

Anytime PPE is exposed to contaminants at an incident or during training, preliminary exposure reduction (PER) shall be carried out on scene before sending PPE to maintenance for decontamination. Incidents requiring PER and decontamination include, but are not limited to vehicle fires, pot-on-a-stove incidents, working fires and contact with bodily fluids on scene. All contaminated PPE shall be mitigated and contained on scene, then sent for decontamination. Personnel shall remain out of service until PPE is replaced by their second set or spare PPE. Officers shall ensure that post incident/training all members use Fire Wipes to clean any areas of exposed skin and are wearing unexposed uniforms or Tyvek coveralls prior to entering any OFS vehicles or private vehicles. Contaminated gear must not be worn or transported inside passenger/crew area of any vehicle.

Staff Phycologist

In 2024 City Council approved a full-time staff psychologist position for the Ottawa Fire Service. This role will bring much needed trauma informed resources to the overall employee health and wellness programs.

Operations Milestones

New Station 45

With new urban density development in Kanata North, the need to relocate and upstaff the existing Station 45 was first identified to council in the 2015 fire service station location study. Construction was captured during the planning phase of the community development process, funding and lands were secured. The timeline for the community development was affected by the pandemic, resulting a push back of the project by approximately one year. The station will be completed, and addition staffing will be in place for occupancy in Q2 of 2024. New Pump to accommodate the upstaffing was received in 2023, in line with the initial occupancy time frame. The addition of two firefighters per platoon brings the vehicle response in line with initial response requirements for urban density risk and augments the ERF assembly in this growing community.

The station design was the result of consultation with frontline staff by means of surveys and focus groups who looked at specific design features which could be incorporated into the available footprint. The result is a safe welcoming design which provides the privacy and utility required for a more diverse work force to be appropriately housed, trained and deployed.

Conversion of Stittsville from Volunteer to Composite Service

Designs for the renovations to Station 81 in Stittsville are being developed which will allow for the staffing of the Pump with four career firefighter 24/7. Request to council for funding of these new FTE's in 2024, will be supported by the community risk assessment and standards of cover documentation.

Self Contained Breathing Apparatus

The OFS is nearing completion of the procurement process for new SCBA. This purchase with support the services continued compliance with NFPA 1981 through 2034; while enhancing communications and accountability functionalities.

Personal Protective Equipment

The deployment of a second set of bunker gear for all frontline suppression personnel was completed in 2024 as scheduled. New lighter weight NFPA compliant helmets are being issued on an as need basis with full replacement expected by 2028. The services comprehensive exposure reduction strategy included replacement of single layer flash hoods with barrier hoods in 2023.

Digital Roster Solution

The service introduced a digital rostering system for Communications and Urban Suppression divisions. This solution has resulted in better coordination of personnel and greater transparency for staff and efficiencies during callback. This has allowed the overall staffing process to be streamlined end to end.

Public Education/Prevention

- Filling of long-term vacancies
- Transition to virtual pub ed during pandemic
    - > Station tours, safety
- Rationalized offices to improve service delivery
- Web based preplan software and tablets deployed to all frontline apparatus
- Opening of an East-end Fire Prevention Office

Communication Milestones

New Paging System

In January 2024 OFS launched a new paging system. This program represents an end-to-end replacement of the previous paging solution with all new hardware, infrastructure and cutting-edge network functionality and redundancy. Primary and back-up systems running through City infrastructure can now be completely bypassed in the event these systems fail or fall victim to cyber-attack, giving a triple redundancy not previously possible.

Full Encryption of All Talk Groups

Following the successfully launch of the P25 digital radio system in 2018, OFS moved all radio channels to full encryption in 2022. Encryption of all voice messages has increased information security for confidential and sensitive communications. Removing open-source availability (scanners) has potential physical security benefits by limiting real time monitoring of apparatus and personnel by members of the public who may use such information for undesirable outcomes.

Mirroring of Back-up Dispatch Center

The OFS back-up communications center has been updated to mirror the primary site in hardware, software and workstation ergonomics. This provides for seamless transition of personnel and functionality during all site usage scenarios.

Update Tiered Response Agreement

In response to the changing emergency response landscape of the City of Ottawa, the Tiered Response agreement was updated in 2023. Changes were made to ensure primary and tiered response agencies have the information required to respond to emergent threats and incidents in a timely and coordinated manner.

Dispatch services for several surrounding communities

Ottawa Fire has signed updated formal dispatch service agreements with several surrounding communities.

Training Milestones

The Ottawa Fire Service has been pursuing options for a new comprehensive training/research centre. Community partners have been identified to ensure the new facility can be utilized by a broad range of end user groups. The process has moved to securing a financially viable construction, commissioning, use and maintenance structure. A public/private venture is one option given the current surplus in commercial lands within the City of Ottawa.

In the interim OFS has undertaken several initiatives to support ongoing training and development including:

Barnsdale Site Improvements

- Use of 7.2 Hectares (17.8 Acres) Solid Waste owned site in the south west end of the city
- Extensive work to improve the site (fill and grading)
- Set up of fire dynamics live burn props, heavy vehicle extrication props and plans for a driver training circuit are under review
- Many response partners also utilize the site including DND/CAF, RCMP and Ottawa Police

Industrial Rd Training Center Site Challenges

- The primary training site located at 899 Industrial Ave has reached end of life and will require significant capital investment to keep it viable in the short term. Encroachment in adjacent properties will cause the loss of functionality to what was once an isolated training yard. Smoke and noise will become a critical issue to residence of new high-rise on the southern lot line. (picture)

- With this encroachment capital investment for live burn and general fire service training props has been focused on modular systems capable of being relocated to another site in the future (new TC). These include a Drager propane roll over and car fire simulators along with a modular structural firefighting live fire unit.

Disaster Readiness Milestones

The City of Ottawa has experienced an increase in significant events with community wide impacts as a result of changing climate/weather, geopolitical agendas and public health emergencies. Add to these the human caused emergencies and the service requires nimble, scalable response capable of intense as well sustained operations.

Recent Examples:

- Covid 19 Pandemic (2020)
- Derecho (2022 - City Wide)
- Tornadoes (Dunrobin 2018, Orleans 2019, Barrhaven 2023)
- Flash and spring flooding
- Merivale Rd Industrial Explosion (2022)
- Orleans Gas Explosion (2023)
- Westboro Bus Crash (2019)
- Civil Unrest/Demonstrations
  - Shift from single day events as norm to more ongoing and multi-week actions.
  - 2022 occupations and invocation of the Emergencies Act
  - Over 50 deployments of Fire Support Unit (FSU) in 2023
    - > Grew FSU by 30% following months long occupation in 2022
- General Hospital Fire and Total Power Loss (2023)

Events such as these have impact on power supplies, ability of residence to reoccupy their homes for days to months and exposed some local infrastructure vulnerabilities, loss of all elevators and or potable water in older high-rise buildings. Persons at risk during normal times are that much more vulnerable when support systems are stretched or lost all together. Fire services are a first point of contact during the incipient phase of large-scale events. Ensuring community support information is made available to residence in a timely manner can reduce the impact on frontline service delivery and readiness.

Organizational Resilience Milestones

Pandemic Response

- In anticipation of staffing drawdowns as a result of Covid 19, the service developed a comprehensive staffing continuity plan to ensure first due coverage would be maintained in reduced staffing scenario. The plan needed to be utilized only once public health restrictions were eased, resulting in higher positive rates and illness amongst staff.
- Internally the service introduced exposure reduction measures along with both PPE and decon processes that were adopted by many other fire services across Ontario as “best practice”. This included the use of SCBA for patient contact when quality PPE became a challenge due to supply chain and demand issues.
- A dedicated decon team was deployed 24/7 to assist crews with post incident on scene decon as well as station gross decon when a positive case was confirmed in the stations.
- Challenges for the provisions of supplies such as PPE, created by supply chain issues identified the need for coordinated sourcing and purchasing amongst all city branches to ensure supplies are available by relying on bulk purchasing and purchasing power.

The result of this challenge was the creation of a new corporate supply division which OFS now utilizes for purchasing of disposable supplies.

Power Disruptions

- The increased storm related responses have resulted in a similar rise in large scale/duration power outages in the City. The department has an ongoing emergency generator retro fit program with 8 stations (# 31, 51, 57, 61, 63, 64, 66 and 84) still to receive full back up power solution. OFS has secured three trailer mounted generators for Provincial and local response (1-80kW, 1-100kW, 1-120kW) The service has the capacity to provide temporary power distribution at several sites simultaneously.

Accompanying power disruptions are cellular data system failures and overload. The department has purchased three satellite systems which can be deployed during network disruption and large-scale events.

Service Command Center (SCC)

All City departments must have a SCC plan to manage escalating single and multi-service/department responses. The OFS SCC is in the administration board room at fire headquarters (1445 Carling Ave) This room has been completely updated with multiple screens and smart board technology to enhance leaderships situational awareness and incident documentation. In concert with the system upgrade the command structure has been updated to address the full spectrum of incident management challenges including upstaffing, equipment needs and documentation.

Equity Diversity and Inclusion

Program/Legislative

- Mandatory certification readiness
- Provincial site plan review changes
- Redundancy plans for out of City technical rescue responses
- Succession Planning

Program Milestones

Ottawa Fire Services has maintained many other significant investments to improve community protection and public safety. The continuation of all Specialty response teams has continued a more comprehensive response model with enhanced service provisions, including:

- Provincial Level 3 Hazmat/CBRNE Team
- Confined Space Rescue Team
- Structural Collapse / Trench Rescue Teams
- Heavy Equipment Rescue Capability
- Rope Rescue Team
- Water Rescue Team
- CBRNE (Chemical/ Biological/ Radioactive/ Nuclear/ Explosives) HAZMAT
    - The addition of the Fire Support Unit has created a more integrated approach to working with the other emergency agencies in Ottawa.
- Fire Support Unit, FSU - 2017
    - The reinstatement of the funding for the Ottawa USAR team, of which OFS is the lead organization will reinstate similar cross service work and coordination. (ONT-TF4)
    - Provincial Medium Urban Search and Rescue (USAR), Reinstated 2019

Several other major milestones have been achieved over the past decade, with regards to service provision enhancement, including:

- Elevator Rescue Technician Program (TSSA)
- Wake up Program (Community Fire Prevention Initiative)
- Monthly Training Program (On-line training)
- Fire Services Emergency Plan
- Officer Training Program
- Fire Protection Engineer Position – Plans Review
- Fire Service Audit
- Female Cadet Program (Camp FITT)
- Creation of a Public Information Officer position
- Fire Station Location Study
- Successful CFAI Accreditation – 2013 & 2018
- Completion of the "From Knowledge to Practice", FKTP, Training program - 2018
- Development of the new suppression officer promotional system – 2018

City Infrastructure:

LRT

In February 2019, the plans for Stage 2 were approved by the AHJ. The Confederation Line will extend further east to Trim Road and further west to Moodie Drive. The O-Train Trillium Line will also extend to reach areas of Riverside South and also be able to reach the Ottawa Macdonald-Cartier International Airport.

Some key numbers and figures of Stage 2:

- It will add more than 40 km of new rail.
- It will add 23 new LRT stations.
- It will bring 70 per cent of Ottawa residents within 5 kilometres of rail.
- It will move 24,000 customers per direction per hour during peak periods.

- It will relieve traffic congestion by removing up to 14,000 cars off the road during rush hour.

Stage 2 of the LRT continue to be designed and constructed at three distinct project sites located across the length and breadth of the City. The result of this work will bring response to rail incidents within the scope of every career station.

The constructor is required to provide training materials for all emergency response agencies as well as both tabletop and full-scale emergency exercises prior to revenue service commencing.

These elements have been delivered as part of the Trillium Line Project which is a diesel electric train running North-South. Awareness training on all Trillium Line systems and procedures will be provided to all OFS suppression staff in Q1 of 2024 ahead of the expected start of revenue service in Q2 2024.

Confederation Line extensions East to Orleans and West to Moodie will continue to be developed over the next few years. OFS will be engaged at the design/build process through a dedicated Fire Protection engineer position responsible for ensuring compliance of all systems and structures under NFPA 130.

LRT Stage 1 Exercise and Inspection Program
OC Transpo is the City Owner of the LRT system. OFS has been actively engaged with them to run live exercises to test emergency response procedures and ensure annual inspections and relevant fire safety plans are up to date. These procedures will be transferable to the extensions both East and West.

Structures

The City of Ottawa has long maintained a structure height policy which limited the height of all buildings to not being taller that the Parliament Hill Peace Tower standing at 92.2

metres or 28 stories. A shift has occurred in that policy and new high-rise structures are beginning to be developed.

In the year 2023 the Planning, Real Estate & Economic Development Department via City Council reviewed and approved 60 new developments 6 storeys or greater. These developments range from 6 storeys to 65 storeys and represent an additional 18,551 units that will be serviced by Ottawa Fire Services. As the city continues to experience intensification inside the greenbelt, the next OFS station location study will have a focus on adding resources to existing stations and looking at opportunities for new stations in the bottom of new mixed-use high-rises. The OFS Fire Protection Engineer is consulted during the city review process on all new proposed developments to ensure that access and fire life safety systems are adequate for the projects. OFS will have to continue to closely monitor the densification in the city as it will begin to vertically impact response times. Fire services in larger cities across North America have been dealing with the need to improve unit response times versus street level response times and OFS to-date has not yet seen this impact but is preparing for it and it will be an integral part of the next station location study.

Figure 9. Highrise rendition proposed for Baseline & Clyde

Section B:
Agency Programs & Services and Consultation

Service Delivery Programs

The Ottawa Fire Service maintains an all-risk response for residents and visitors to the City of Ottawa. This includes service to international consulates and embassies, and Provincial and Federal roadways and buildings found within the city. The OFS maintains capabilities for response to fires, extrications, medical events, hazmat situations, and technical specialties including water, trench, collapse, confined space, and high angle. We also provide services in fire prevention, education and investigations and more. The organization is broken down into multiple divisions to provide these services and more.

The following is a synopsis of those divisions and the many facets within them.

Training Division

Ottawa Fire Services Training Division delivers in-house training to personnel across all OFS Divisions. OFS Training Division also provides training opportunities to other City branches, along with industry and responding partners.

- OFS Training Division is a Provincially recognized training provider under the Office of the Ontario Fire Marshall's Academic Standards and Evaluations (OFM AS&E) branch. Training Division now provides courses and accreditation for almost all agency relevant NFPA Standards using in-house instructors. To support the programming, a new testing lab was built to enable theoretical evaluation for Provincial and internal testing.

- In the past two years, OFS Training Division has expanded to provide training and certification to response partners within the City of Ottawa and Eastern Ontario. This broadened service delivery has been key to increasing collaborative training for all agencies.

Covid 19 was a seriously challenging situation for OFS Training Division. Training Division supported management with significant and ongoing protocol and procedural changes, along with communications and training to deploy new equipment. Overall, only eight courses were cancelled due to work-from-home requirements, which were all captured before the end 2020.

The OFS Training Division plays an integral role in helping the service live up to its mission. Operating out of the Training Center on Industrial Avenue, the division coordinates training across the organization. Training Division oversees five practical training sites across the City and supports remote training and temporary training sites.

Certified instructors are responsible for researching and providing the most up to date training for all of OFS. Suppression staff receive the bulk of training, in the form of monthly or in-station training. Weeklong courses are also provided for qualification and certification as part of professional development, and for the promotion process for Company and Chief Officers.

The Training Division helped transition all OFS content from the iLearn/uLearn platform to an updated and more capable single platform dubbed Learn. The Learn platform continues to provide tracking for training progress for certification processes. Alongside, the Learn transition, Training Division has been building out a communications SharePoint site providing training and resources to OFS members and instructor support for programs.

The Fire Dynamics program has been migrated to being a training program under Training Division. This program is

focused on the development of materials for the recognition of and tactics to combat the fire dynamics of new construction and materials. It is now an integral part of Ottawa Fire Services training, with tailored programs for recruits, on-shift firefighters, and Suppression Officers. It is also being integrated into other programs, where appropriate.

The Training Division also manages, recruitment and training of new fire fighters. In 2021, a new recruitment and hiring process was implemented that eliminated preliminary interviews and required all candidates to meet Provincial standards for suppression firefighters prior to application.

Currently, Training Division is working to qualify all OFS members to meet new legislated requirements for qualification in the Province of Ontario. This requirement touches all areas of OFS and has resulted in a full re-evaluation of our training delivery and training managements systems. This endeavour is under the authority of the Ontario Office of the Fire Marshall, but the significant work to qualify all members will be administered and managed through Training Division, with training officers and para trainers delivering standardized courses to meet the deadline by mid-2026.

Communications Division

The Ottawa Fire Services Communications Division serves as the link to the public, all partner agencies, and other departmental divisions. The Communications Division operates out of our main dispatch center at 1423 Randall Ave. Our back up dispatch center is located at 500 Charlemagne Blvd. This secondary location is completely redundant to Randall with the exception of ANI/ALI information upon receipt of 911 callers and only 5 consoles.

The Communications Division uses a Computer Aided Dispatch system both live and training environments called Versaterm, with backup servers available (servers at OPS, Randall and Charlemagne). Communications operates an

IMCMS with a 700mHz digital trunked radio system. Our main "talkgroups" are encrypted and we utilize 24 towers and 25 channels split into 2 cells (East/West). This system provides for interoperability with other City departments including Bylaw, OC Transpo, Ottawa Police Services, and Public Works. Emergency services are prioritized on the network.

We have conventional channels available on the Zetron console that we utilize to provide services outside of the City in North Dundas, Clarence Rockland, Gatineau, Kemptville, and for Mutual Aid responses, as well as the Ottawa Macdonald-Cartier Airport.

The IMCMS system includes portables, mobiles, repeaters, and infrastructure to support communication. The OFS also operates a redundant network (fibre optic/microwave) on electrical service with battery backup, and generators to assist with business continuity. This includes Zetron radio consoles with backup mobile radios and portables and wireless and backup wired headsets. Calls come into Dispatch through our main (Centrex) and backup (Avaya) phone systems and are dispatched through the Versaterm CAD. We also utilize an Exacom recording system to assist with communications.

Once a call is received, responders are alerted via station alerting, paging and the IMCMS radio. A new paging system is expected to go live in 2024. Our backup paging system is Air Messenger Pro. We also utilize "Who's Responding" software to assist with paging responsibility in Ottawa, North Dundas, and Clarence-Rockland. The communications systems are supported by the City's internet that is provided by Rogers, with a backup provided by Telus.

Phone systems and main/backup center redundancy will change with the advent of NG911 (deadline for all Canadian PSAPs is March 4, 2025). OFS has begun work on this and expects to switch over to NG911 telephony technology in 2024, in conjunction with OPS.

The OFS Communications Division utilizes a number of managed services. Bell manages paging, phones, recording

system, and radio consoles. Bell and the City Public Service Group manage the radio system. Versaterm manages CAD and interfaces to paging system and radio. Ottawa Police Services manage inter-departmental CAD connections as OFS and OPS share the CAD system. IMS Fluent manages the "Who's Responding" system. Bell, the City and OFS manage Air Messenger.

OFS Communications has agreements in place to provide dispatch services for the Communities of Clarence-Rockland and North Dundas.

The Communications Division accomplishes their mission utilizing 37 Staff members in total. 28 of these are full time shift positions, and they are supported by 5 part-time shift positions, and 4 daytime positions. These daytime positions include 1 CAD technician, 2 Assistant Division Chiefs, whose responsibilities are Training and Operations respectively, and 1 Division Chief. This is further broken down into 4 platoons of 7 members and they work on a 28 day rotation, working 10-hr days and 14-hr nights.

Communications has developed a new process for training which includes the APCO material which will assist with the certification of OFS communicators by July 1st, 2026, as mandated by the OFM. Communications has adopted NFPA 1225 (chapters 4 & 5) standards as baseline for their training.

Operational Support Services

The Operational Support Services Branch within the fire department plays a crucial role in facilitating and enhancing various operational aspects. The branch encompasses several key functions, ensuring the seamless functioning of the fire department.

- Records Management: The branch is responsible for efficient records management, ensuring accurate documentation of incidents, resources, and operational data. This includes maintaining comprehensive records for analysis, reporting, and compliance purposes.

- Scheduling Activities for Suppression: Handling the intricate task of scheduling activities related to fire suppression. This involves managing shifts, rotations, and on-call schedules to maintain effective response capabilities.
- IT Administration: Managing the fire department's IT infrastructure, the branch oversees the administration and maintenance of technology systems. This includes ensuring the reliability and security of networks, databases, and other IT resources.
- Performance Measurement: Implementing performance measurement metrics, the branch evaluates the effectiveness and efficiency of firefighting operations. This involves continuous assessment and improvement to enhance overall performance and response capabilities.
- GIS (Geographic Information System): Leveraging GIS technology, the branch utilizes spatial data to enhance decision-making processes. This includes mapping incident locations, resource distribution, and identifying potential areas for improvement in fire department operations.
- Procurement and Contract Management: Responsible for procuring necessary equipment, supplies, and services, the branch ensures that the fire department has access to high-quality resources.
- Operating and Capital Budget Oversight: The branch oversees the allocation and management of both operating and capital budgets. This involves strategic financial planning, monitoring expenditures, and ensuring fiscal responsibility to support ongoing operations and infrastructure development.
- Fire Facility Management: From overseeing new fire station builds to managing renovations and repairs, the branch is involved in all aspects of fire facility management. This ensures that fire stations are well-

maintained, equipped, and strategically located to optimize emergency response.
- CFAI Accreditation Management: The branch oversees the processes involved in maintaining accreditation from the Commission on Fire Accreditation International (CFAI). This involves adhering to established standards, continuous improvement initiatives, and compliance with industry best practices.
- Corporate Asks: Addressing corporate requests and coordinating with other departments, the branch acts as a liaison to ensure effective communication and collaboration. This includes responding to inquiries, providing necessary data, and supporting interdepartmental initiatives.
- Uniforms Contract and oversight of Uniform Committee: The branch ensures that fire personnel are equipped with standardized and appropriate uniforms.

In summary, the Operational Support Services Branch is a multifaceted component of the fire department, focusing on administrative, logistical, and technological functions to enhance overall operational efficiency and effectiveness.

Safety Division

OFS Safety Division provides multiple roles in the Ottawa fire service. The primary function is response to emergency scenes where the Safety Officer serves as an advisor to incident command and monitors the tasks and conditions as part of operational risk management to protect the workers.

The secondary function of Safety Division is facilitating the Occupational Health and Safety Management System and its associated administrative requirements.

The OHSMS system is based on directed programs that are broken into three key areas: supervisor competency, operational risk management and targeted programs.

The identification criteria for program development are (but are not limited to):

- injury rates and associated costs,
- compliance,
- hazards inherent to the work,
- novel operations,
- corporate or operational requests,
- specific events or incidents (e.g., critical injuries), and
- the presence of new and/or vulnerable workers.

All programs are systematically developed using a standardized program format.

Completed programs are then to be subjected, where applicable, to third party review prior to implementation. All programs are vetted with the latest best practice standards, evidence-based research, and industry standards (e.g., NFPA, PIDAC).

Currently, there are 28 targeted programs in use with associated training modules and the information is reflected in the OFS Policy and Procedure manual.

The goal is to meet the intent of the Occupational Health and Safety Act of Ontario (the Act and Section 21 Guidance Notes), its associated regulations and related fire service standards (e.g., CSA and/or NFPA). Meeting the intent of the Act is best illustrated through our capacity to establish a “Due Diligence” defense.

Prevention & Education Division

Recognized as the first line of defence, Ottawa Fire Services provides fire prevention services with regards to:

- Public education
- Fire code inspection and enforcement
- Fire investigation
- Training on fire safety

Further details of the services provided by the division include:

Public Education

- Educational programs have been initiated to assist the public in understanding the importance of fire safety.
- The distribution of public fire safety education materials, which includes information on escape planning for residential occupancies and encourages the mandatory installation and maintenance of residential smoke and carbon monoxide alarms.
- Administration of a youth fire setters' program which is mandated to educate families and youth about the dangers and behaviours associated with being a fire setter
- Participation in community activities, which provide a significant fire safety educational opportunity and children's educational programs in elementary schools
- "Wake Up Ottawa", a fire prevention initiative which focuses on informing residents of the importance of having a working smoke and carbon monoxide alarm and how they need to be installed, maintained and have a limited life span of 10 years.
- After a fire that has significant impact on a community, Fire Education offers an "After the Fire" education program to residents in the area which can be in the form of a community event or a door-to-door program.
- Doors Open Ottawa – Fire Education has displays at fire stations, educating our residents on how to prevention, what to do in case of a fire and the importance of smoke and carbon monoxide alarms.
- Fire extinguisher training is offered to groups of individuals who wish to learn how to safely operate a fire extinguisher. This fulfills provincial legislated requirements under the Ministry of Community and Social Services.

- Education seminars to building owners, property managers of the requirements of the Ontario Fire Code.

Figure 10. Public education in schools

Inspections

- Fire prevention inspections - upon receiving a complaint or a request to inspect.
- Review and Approval of Fire Safety Plans.
- Proactive inspections of vulnerable occupancies identified in a community risk assessment.
- Review and approval of Display Fireworks applications and approval of Pyrotechnics at concerts and other events.
- Review and approval of the emergency plan in special event permit applications.
- Legislated inspection and fire drills of Care and Treatment occupancies

Fire Investigations

Determination of cause, origin and circumstances of all fires that occur in the City and the reporting of all fires to the provincial authority (Ontario Fire Marshal)

The On Duty Fire Investigators are available through Fire Dispatch and are deployed by pager to consult with Command prior to or during a response to assist Command. A fire investigation is conducted after fire control and salvage activities are completed, but before overhaul actions, which could hinder the investigation.

A Fire Investigator who is deployed or called by the Officer in Charge, will respond to the scene to perform a cause and origin investigation.

Figure 11. Fire Investigations

Operations

The Ottawa Fire Service operates (45) Fire Stations across its Urban and Rural areas. Of these, 29 are located throughout the urban region and are staffed by full-time, career firefighters. These 29 stations are strategically located in densely populated areas with higher incident rates. Meanwhile, 16 stations are in rural areas, staffed by volunteer firefighters, and service the less dense areas of the city and

generally have lower incident volumes. Four (4) out of the 29 stations located in urban regions are composite stations, which accommodate both career and volunteer staff along with apparatus. Positioned strategically in the growing sectors of the city, these composite stations extend coverage to both urban and rural areas. These composite stations are in place to enable the transition of growth areas from Volunteer to Career when the transition triggers identified by OFS are met. All Stations are located to service their respective communities based on population density and the available road network.

OFS fire stations generally house at least one (1) pumper truck carrying 1,890 liters (500 imperial gallons) of water as a minimum. Many Rural stations as well as a couple urban and composite stations have pumper tankers which carry 11,350 liters (2500 imperial gallons). Many of the stations front line pumpers are also equipped with rescue tools and classified as rescue pumpers for OFS. These rescue pumpers are strategically placed to provide fast rescue responses throughout the city. A combination of the other pieces of apparatus are also located in many of the stations. These include aerial trucks – both platform and ladders, tankers, heavy rescues, and other specialty vehicles fulfilling a variety of specialized response requirements across the city and when required on aid calls Staffing for all pumper apparatus carry as a minimum 1 officer and three firefighters.

All other apparatus have a minimum complement of 1 officer and 2 firefighters.

The City is divided into 9 response districts which are broken down into 45 station response zones and then further broken down into 425 separate response grids. The grids have a station line up recommendation developed to allow for the best response to that grid in an effort to fulfill the running assignment as established by the critical task analysis. This grid response running assignment is augmented by GPS in the vehicles that provides Automatic Vehicle Routing Recommendation (AVRR) allowing for the

closest vehicle response. As of 2020, phase 3 of the AVRR project was completed which ensures that all OFS frontline vehicles with a mobile data terminal are captured by AVRR.

Medical Aid Services

The chain of survival (multi-agency tiered response with paramedics, fire and police) is dependent upon rapid response. Ottawa Fire Services response to medical emergencies is determined through a tiered response agreement and only responds upon request from Ottawa Paramedic Services. Ottawa Fire Services primary goal in medical emergencies is to provide initial medical aid, including airway management, oxygen administration, defibrillation, CPR, patient stabilization, opioid antagonist administration, lift assists, patient monitoring and incident stabilization until the arrival of Paramedics at which time OFS will switch to a support role as required. Patient care and documentation requirements are undertaken by the attending Paramedics upon arrival. The Ottawa Fire Service meets the service delivery requirement to increase victim survival rates including:

First Responder medical care to VSA and unconscious victims as well as treatment of injuries consistent with trauma, such as laceration, abrasions, punctures and gunshot wounds (GSW), hemorrhage control in addition to splinting of fractures and dislocation, cervical collar application among other treatments to such injuries as required.

Emergency medical situations, encompassing fundamental care for shock, low blood sugar levels (hypoglycemia), seizures, chest discomfort, heart attacks, Reactive Airway Disease (asthma), chronic obstructive pulmonary disease (COPD), and server allergic reactions such as anaphylaxis, alongside various other urgent medical scenarios.

All Ottawa Fire Services personnel are trained as First Responders and assist the Ottawa Paramedic Services (OPS)

on a daily basis in providing emergency medical aid to the citizens of Ottawa.

The Ottawa Paramedic Service responds to medical emergencies based upon their deployment plan that is reviewed regularly.

Rescue Services (Special Operations)

Ottawa Fire Services provides the community with an effective level of specialized rescue services enabling the agency to respond to and mitigate technical, CBRNE and complex emergencies.

Figure 12. Tiered Medical Response

Extrication

All Ottawa fire personnel have been trained to Operations Level in Common Passenger (NFPA Ch 8) auto extrication. Personnel who work on a heavy rescue are trained to the Technician Level as well as Heavy Vehicle (Ch 9) and Machinery Rescue (Ch 13) to mitigate complex incidents

involving serious entanglements, farm equipment and heavy vehicles. Response to motor vehicle collisions also involves control and extinguishments of fires, controlled removal of materials, and freeing persons from the entrapment.

The Ottawa Fire Services provides basic hand operated extrication tools and cribbing on every Pumper in the city which can be used for a variety of minor patient extrications found at home accidents, and minor vehicle collisions. The agency has rescue pumpers, which carry hydraulic extrication equipment located on twelve (12) units throughout the urban and suburban parts of the City as well as all sixteen (16) rural stations. Three (3) heavy rescue apparatus in the urban area and three (3) in rural areas ensure adequate response for more complex vehicle and machinery rescues and carry heavy hydraulic extrication equipment as well as stabilization and lifting equipment.

Specialized rescue stations include:

A total of ten (10) stations, eight (8) urban and two (2) rural are designated as specialized rescue stations with advanced equipment and trained personnel. (Over 600 suppression personnel are trained to operations or technician level competency (NFPA 1006) in at least one specialized rescue disciplines. In March of 2025, one more urban specialized rescue station will be coming online to better serve the east end.

Water Rescue

Ottawa Fire Services is the primary municipal provider of water and ice rescue services and is frequently first on the scene with the capability to execute static, swift water and ice rescues. In a City such as Ottawa that has prominent waterways running throughout, creating flat and swift water hazards, this service is invaluable to ensuring public safety to citizens and visitors. The[SK1] [KD2] [SK3] water rescue program consists of four urban and two rural stations providing certified Water Rescue specialists, rescue vessels,

appropriate PPE and equipment for Ice, Swift water, and vessel based rescues. The department receives approximately 50 - 60water rescue emergencies per year. Ottawa Fire Service has also been leading the province in the development of curriculum and certification through a coordinated effort with the Ontario Fire Marshal's office. Our members are trained to technician level in the appropriate NFPA 1006 Standard Disciplines.

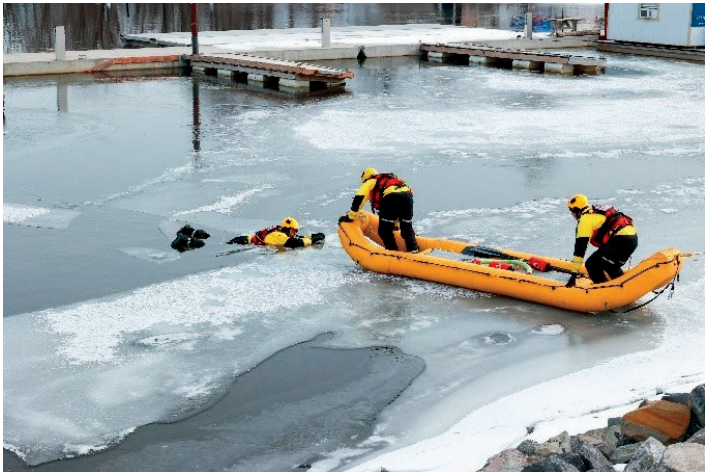


Figure 13. Ice Water Rescue

Technical Rescue

Technical Rescue activities include but are not limited to: confined space entry, building collapse, trench rescue and rescues involving the use of ropes from high and low angles. Ottawa Fire Services technical rope rescue program is one of the most advanced in North America with many personnel trained to the highest industry standard.

This low frequency, high risk type of rescue requires considerable and continuous training as the skills learnedmust be regularly maintained. OFS personnel have attended a training through third party institutions as well as developing a robust in-house instruction program that exceeds industry standards.

This program prepares our firefighters for evaluation for certification through the province. There are four career stations with equipment and certified technicians capable of dealing with structural collapse, confined space, trench emergencies and high angle rescue. We are currently preparing to add another technical station in the east end to better serve our residents. Many of these technicians are also members of the agency Medium USAR Task Force which provides coordinated multi-hazard response to exceptional events province wide. We are currently working with municipalities in Quebec to provide rope rescue services in and around Gatineau Park through an MOU that is currently in the final stages of completion. This area has had many rescues that OFS has helped with informally and this MOU will formalize that relationship.

Figure 14. Rope Rescue

HAZMAT and CBRNE Services

Ottawa has established itself as one of North America's most capable and advanced Hazardous Materials (Hazmat) teams. There are two dedicated Hazmat stations with personnel trained to NFPA 472/1072 technician level. It is the only full-time hazmat team in eastern Ontario and Western Quebec. OFS Hazmat also responds for hazmat emergencies on request to the city of Gatineau, Quebec under an MOU when requested.

Figure 15. New Hazmat21

Ottawa Fire Services provides one of only three Chemical, Biological, Radiological, Nuclear, and Explosive (CBRNE) teams in the province of Ontario (along with Toronto and Windsor Fire Services). This includes responses to incidents involving Chemical, Biological, Radiological, or Nuclear substances which threaten the lives and property within the City of Ottawa, and includes weapons of mass destruction.

The province of Ontario has clearly established guidelines related to equipment, staffing, and response procedures for Hazmat emergencies– declared by the provincial operation centre on declaration of emergency by the local mayor/designate. The Ottawa Fire Service has the ability to respond to the community's needs and mitigate hazardous materials situations, large or small, with its advanced

resources, equipment and staffing. Multiple agencies (both public and private) coordinate efforts in the confinement, containment, and recovery of hazardous material releases. OFS has a vehicle designated IHAT (Initial Hazard Assessment Team) as part of the Hazmat team. This vehicle carries: four people, their PPE, and a suite of instrumentation and communications devices that allow for fewer resources to respond, while still safely and effectively mitigating the incident. The vehicle is smaller, does not employ the standard OFS marking scheme and is designed to minimize disruption to business/government/community services while on location. IHAT is also deployable in a preplanning context for events such as Canada Day, large concerts, sporting events, or other high visibility activities where specialized responders may provide an enhanced capability at the outset of a Hazmat/CBRNE release.

Figure 16. Hazmat Response

Emergency Preparedness and Urban Search and Rescue (USAR)

Ottawa Fire Services plays an integral role within the City of Ottawa's Emergency Plan and is the lead agency for over twenty (20) functional responsibilities with regards to emergency service provision which include:

- Fire Suppression
- Search and Rescue
- Specialized Rescues
- Hazardous Material
- Wildland Firefighting

The City of Ottawa trains and maintains an eighty-member Medium USAR Task Force (ONT TF-4) capable of full deployment within 4 hours in the event of a natural disaster or unplanned catastrophic event which threatens the lives of the public. Over the past five years, we have continued to build on our capabilities going from signing an MOU with the province to having a fully deployable team that can lead a variety of emergency and disaster responses. Some of these capabilities include:

- Co-ordinating, organizing and implementing a rescue strategy.
- Locating, extricating and providing immediate medical treatment to victims trapped in collapsed structures.
- Conducting other life-saving operations
- Providing integrated, skilled urban and technical search and rescue units in situations where local emergency resources desire assistance
- Co-operating and assisting federal USAR resources, when these are deployed to the same incident.
- Providing logistical or command support where that is the sole ask from the receiving AHJ.
- Capable of continuous operations (24hr) for seven consecutive days

Fire Support Unit

The FSU team is a component of the Ottawa Police Service's Emergency Services Unit (ESU). The ESU has expanded its capabilities by integrating FSU to its rank. FSU provides ESU support for large crowd events, mobile exterior fire suppression capabilities, fire and environmental risk

assessment. FSU also plays a role as Object Removal Team (ORT) Operators trained to the same level as their police counterparts. FSU works hand in hand with ESU/Paramedic Support Unit (PSU) as first aid providers and as a force multiplier in the case of a Multiple Casualty Incident (MCI) through integration in Rescue Task Force (RTF) comprised of Police Officers, Firefighters and Paramedics. The FSU team also initiates actions in case of CBRNe events and is responsible for emergency decontamination support.

Over the past five years, The FSU team has grown considerably during and after the pandemic to assist ESU in a growing number of protests after the 2022 Trucker Convoy in Ottawa. The team has gone from an average of 5-10 deployments/year to over 50 deployments in 2023. The expectation from our partners in the ESU is that this number will grow in the coming years. We are currently putting plans in place to grow the team while maintaining the same high standards of training and collaboration with our city partners.

Automatic & Mutual Aid

The Ottawa Fire Service participates with several of the surrounding Municipalities in the region providing service as required. OFS is part of the Provincial mutual aid agreement which establishes rules and obligations to provide aid upon request. OFS has also agreements in place with the City of Gatineau in Western Quebec to provide Mutual aid when required.

Automatic aid is provided to our city in two specific areas at the southern and western tips of the city to ensure coverage. This service is established through written agreements for emergency incident coverage and is activated through OFS Communications.

OFS also has an agreement in place with the Ottawa International Airport to respond and provide assistance when requested by the airport. This falls under an Automatic aid agreement that is established with the Ottawa Airport Authority.

Operational Staffing Levels, Equipment and Station Locations

The Ottawa Fire Service organizational structure is made up of five branches reporting to the Fire Chief, including:

1. Urban & Special Operations
2. Rural Operations
3. Training & Safety
4. Communications & Community Standards
5. Operational Support Services

A Deputy Chief oversees each Branch of the agency and a Manager is responsible for the Operational Support Services Branch.

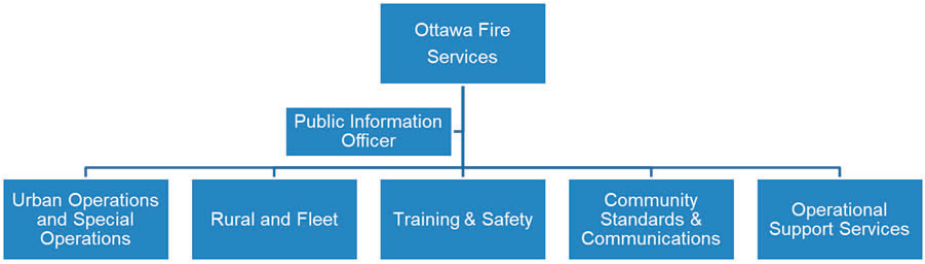


Figure 17. Ottawa Fire Services organizational chart - management

Table 3. 2023 Ottawa Fire Services personnel by division

ORGANIZATIONAL SECTIONS	PERSONNEL	
Fire Chiefs Office		8
Operations (Urban & Rural) and Special Operations Branch		1,382
Career Firefighters	865	
Volunteer Firefighters	483	
Community Standards & Communications Branch		76
Training and Safety Branch		28
Operational Support Services Branch		7
TOTAL		**1,501**

Succession planning is crucial to the organization to ensure the best possible services are provided to the community.

Ottawa Fire Services strategically plans and maintains a fair and equitable recruitment process to attract, select and retain qualified personnel.

The training division manages the career firefighter hiring process in partnership with the City of Ottawa's Human Resources department. Ottawa Fire Services receives approximately seven hundred career applications per recruitment campaign which typically occurs twice a year.

Ottawa Fire Services accepts applications for volunteer firefighters throughout the year. Hiring is based on current and projected needs. Applications are screened and short listed by the appropriate Sector Chief. Ottawa Fire Services receives an approximately 200 volunteer applications annually.

The City of Ottawa strives to be a welcoming and diverse workplace that reflects the community we serve and creates an environment where everyone is treated fairly, respectfully and with dignity. Ottawa Fire Services has made great strides in reaching out to all communities to further diversify the workforce. As part of this ongoing effort, Ottawa Fire Services has two programs in place to help achieve this goal, Camp FFIT (Female Firefighters in Training) and the Ottawa Fire Services Ambassadors Working Group. Camp FFIT is run by female fire personnel and presents a unique opportunity for diverse groups of young women, non-binary, and trans youth from all social background to learn what it takes to be a firefighter and experience a potential career path. The purpose of the Ambassadors Working Group is to continue to foster an inclusive and respectful work environment and work with all communities to identify Ottawa Fire Services, and the fire service in general, as a career and desirable place to work.

Ottawa Fire Services maintains a minimum staffing compliment of one hundred and sixty-one (161) career suppression personnel on duty. stationed across twenty-nine (29) fire stations, including four (4) composite stations comprised of career and volunteer personnel. The career

service operates through four platoons (A, B, C and D) that are each managed by a Platoon Chief and five (5) District Chiefs. One Safety Officer is assigned per platoon citywide. Each platoon follows a 42-hour work week, structured in staggered 24-hour shifts. All apparatus are staffed in accordance with the minimum staffing clause within the collective agreement between the City of Ottawa and the OPFFA (Ontario Professional Fire Fighters Association). The clause states that each pump shall be staffed with a minimum of one (1) officer and three (3) firefighters while ladders and rescues shall have one (1) officer and two (2) firefighters. All apparatus are deployed only when adequately staffed as per these specifications.

All firefighters have been trained to the minimum Ontario Standard Curriculum which meets or exceeds NFPA 1001/1002, including awareness training in special operations. There has been a recent shift provincially to enact provincial legislation that requires NFPA level training for all firefighters in the province. Ottawa Fire Services is shifting its training to ensure that NFPA standards are being met or exceeded. Over 400 suppression personnel are trained to operations or technician level (NFPA 1006) in one of the specialty areas. The Ottawa Fire Service meets and exceeds the Red Cross First Responder protocols for its certified level of care.

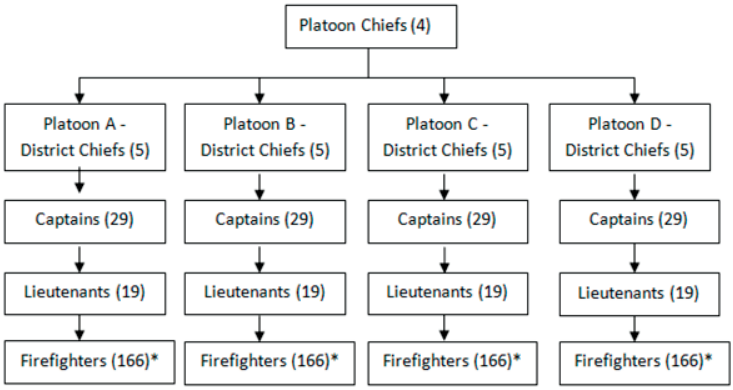


Figure 18. Ottawa Fire Services platoon staffing structure (career service)

**The number of firefighters on duty at any one time fluctuates due to retirement, sick leave, detailing to other divisions, vacation, etc. Overtime is activated when staffing falls below a minimum threshold (161).*

In addition to career suppression personnel, Ottawa Fire Services has four (4) volunteer districts. Each district is led by a career Sector Chief who collectively oversee a total of four hundred and eighty-three (483) volunteer firefighters (2023 figure). Firefighters are assigned to specific stations based on their primary residence. In order to serve at a rural fire station, you must live or work within the response grids of that station. Ottawa Fire Services ensures 24-7 coverage for sixteen (16) and four (4) composite fire stations.

Upon receiving a page that is activated by the Communications Division; volunteer firefighters either respond to their primary station or directly to the scene of the incident in their personal vehicles.Rural Operations Division utilizes the “Who’s Responding” a web-based application for smartphones, to provide status updates on the number of volunteer firefighter responding. Rural fire stations and the Dispatch Centre have support hardware consisting of a computer and a strategically mounted fifty-inch monitor.

The system offers several advantages: Chief Officers and the Dispatch Centre can promptly track the number of firefighters available and responding. Volunteer firefighters responding to their primary station can determine who else is responding in order to efficiently distribute crews amongst responding apparatus. The pager notification system serves various functions, including aiding Ottawa Fire Services with managing the rural component of emergency responses.

Volunteer staffing levels at stations fluctuate yearly due to turnover, with some personnel transitioning to career firefighters or personnel relocating out of the rural response area. Volunteer firefighter recruitment ensures each station maintains a minimum of twenty (20) personnel up to a

maximum of twenty-five (25). Each station has a captain and four (4) lieutenants as part of its compliment.

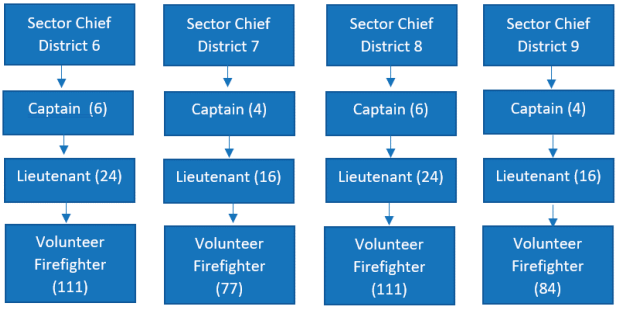
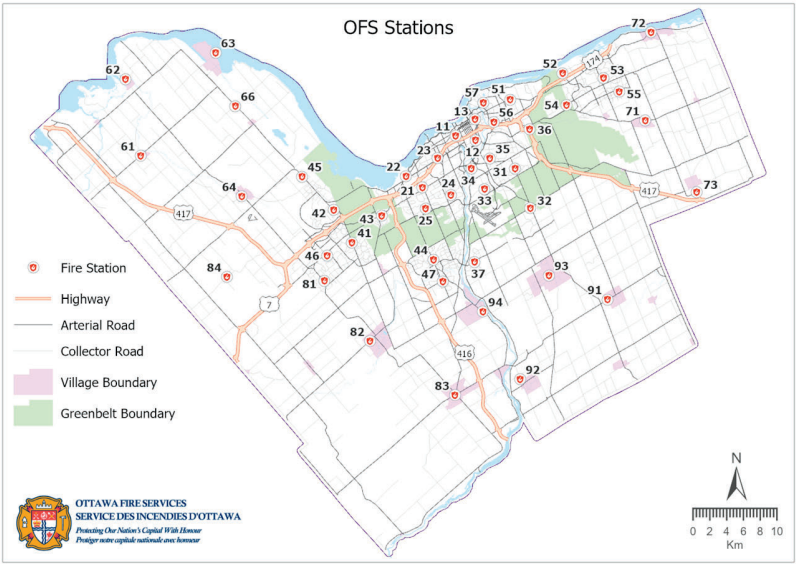


Figure 19. Ottawa Fire Services staffing structure (volunteer service)

**The number of rural personnel at any one time fluctuates due to ongoing volunteer recruitment processes, personnel movements, etc.*

Volunteer firefighters staff all Pumps, Tankers, Aerials, Rescues, Brush Trucks and Water Rescue apparatus, responding to the station. As a result, response numbers may vary depending on the availability of the firefighter.



Map 3. Ottawa Fire Services station distribution

The points of service delivery (stations) and distribution of operational resources across the City are outlined in the tables below. Apparatus marked in red signify those that could be taken out of service when necessary due to staffing levels. Highlighted stations are composite stations, equipped with both career and volunteer firefighters staffing the apparatus where needed.

Table 4. Career Fire station age with staffing and apparatus

District/ Station	Age	Min / Max Staff	Pumper / Staff	Ladder / Tower	Rescue	Pump Tanker	Specialty Apparatus
Central #1							
11	1985	8 / 12	A-4 B-4	3			District Chief, Water Rescue Unit, Boat
12	1974	7	4		3		Technical Rescue Unit (Rope, Confined Space)
13	1985	7 / 11	A-4 B-4	3			
Western #2							
21	1986	4	4				Hazmat Unit
22	1989	7	4	3			Water Rescue Unit with Boat
23	1985	7 / 10	4	3			Platoon & District Chief, Safety Officer
24	1989	7	4	3			Hazmat Unit
25	1990	4	4				Foam Truck
Southern #3							
31	1988	5	4				District Chief
32	1996	4				4	
33	1983	4 / 7	4	3			
34	1987	4	4				
35	1992	7	4	3			
36	2018	4	4				
37	2005	7		3		4	Water Rescue Unit with Boat
Deep-West #4							
41	1981	5	4				District Chief
42	1971	7	4	3			
43	1990	7	4		3		Technical Rescue Unit (Rope, Confined Space)
44	1979	4	4				Technical Rescue unit (Trench, Collapse), USAR Unit
45	1980	2					Tanker and Support Unit
46	2011	4	4				Command Vehicle
47	2012	7	4	3			Technical Rescue unit (Trench, Collapse)
Eastern #5							
51	1988	8	4	3			District Chief
52	1972	4	4				
53	1991	10	4	3	3		Water Rescue Unit with Boat
54	1991	5 / 8	4	3			Rehab Unit and Air Management
55	2018	4	4				
56	1986	4	4				
57	1987	4 / 7	4	3			
TOTAL STAFFING		161/181					

Table 5. Volunteer Fire station age with staffing and apparatus

Station / District	Location / Age	On-Call Staffing	Pump	Pump Tanker	Ladder / Tower	Rescue	Command SC	Tanker	Water Rescue	Brush Truck	Support Unit	Specialty apparatus
Western #6												
61	1983	17	X				X	X				
62	2007	23	X					X	X		X	Boat
63	1984	27		X				X		X		
64	1999	27	X			X		X				
66	1987	31		X	X							
Eastern #7												
71	1984	26	X				X	X		X		
72	1997	22	X					X			X	
73	2007	26		X				X				
South-West #8												
81	2000	25	X		X		X	X				
82	1994	27	X			X		X				
83	1949	26	X					X		X		
84	1986	22		X						X	X	
South-East #9												
91	1989	27		X	X						X	
92	2001	26	X					X	X			Boat
93	1998	26		X		X				X		
94	1993	25	X				X	X			X	
Composite Station staffing												
41	1972	21		X							X	
45	1980	16						X			X	
46	2011	20		X							X	
53	1991	23		X							X	

Consultation

The City of Ottawa and OFS have conducted several surveys recently and have more planned for the near future. These surveys are designed to garner feedback from staff to identify areas for improvement and areas where satisfaction and performance are high. These surveys were conducted both internally to OFS and within the entire city staff.

The following surveys were conducted in 2023:

- Resource Location Survey – Internal to OFS membership – This survey was used to gain feedback from OFS staff regarding the placement and use of response resources. This was also conducted to identify new ideas and potential ways of conducting operations for responses within the city.
- High Risk Building Survey – Internal to OFS suppression division members – This was to generate feedback to identify high risk structures within the city that were previously unidentified as such. This information was used to help inform OFS' risk assessment and profile.
- OFS Staff Survey – Internal to OFS membership – Designed to generate feedback and allow fire services management to make informed decisions, address challenges and create a more positive and supportive environment. regarding the OFS Strategic Plan
- iPad/APX Preplan Survey – Internal to OFS suppression division members – This survey was to generate feedback on the iPads usage and preplanning software that has been in use for 3 full years in each career station. This was to assist with decisions required to continue with rolling out units to the rural stations.
- · Employee Survey – Conducted for all City Employees – This survey was conducted by the city corporately for all city staff with opportunity for all FS staff but was also conducted for all city employees Results provided via a dashboard to management and broken down by Portfolios within OFS. This survey provided an opportunity for employees and leaders to give feedback on their experiences at work. It contained questions on important issues, such as

civility and respect in the workplace, employee engagement, recognition, leadership, social support, work life balance, employee' inclusion, and physical safety in the workplace.

Section C:
Program Goals & Community Expectations

Ottawa Fire Services
Mission
Vision
Values

Mission

Ottawa Fire Services protects the lives, property, and environment for the residents of and visitors to the City of Ottawa.

Vision

- To progressively advance our emergency responses, training, education, prevention and safety standards to meet the ever-evolving needs of our community.
- To be a caring, healthy, and diverse workplace that is committed to change.
- To be a service that leads with new technology, techniques and equipment.
- To be professional, accountable, customer-centric and safety oriented.

Values

We stand together, work together, and serve together, through teamwork, honour, integrity, commitment and pride.

The timelines for the current OFS Strategic Plan have been affected by the pandemic dating back to 2020. The previous OFS Strategic Plan was developed for 2017-2020, and due to the pandemic response and the impact on operational processes, the 2017-2020 Strategic[SK1] [SK2] Plan was extended to 2021. Subsequently, the Strategic Plan for 2022 and 2023 were individual plans that were also an extension from the 2017-2020 plan. Strategic Priorities were individually developed for 2021, 2022, and 2023 which accompanied the extended Strategic Plans for the respective years. OFS has been developing a modified 2024-2026 Strategic Plan to cover the remaining timeline that aligns with the current term of council, therefore constituting a 3-year Strategic Plan rather than the regular 4-year plan. **(Exhibit E.2 – Strategic Plan)**

The four main pillars of the Strategic Plan are:

Continuous Improvement: Continuous improvement in Ottawa Fire Services involves an ongoing and systematic effort to enhance the effectiveness, efficiency, and safety of firefighting and emergency response operations. This approach recognizes that the nature of emergency services is dynamic, with new challenges and technologies constantly emerging. Continuous improvement aims to adapt to these changes, optimize processes, and deliver the highest level of service to the community. It can be applied to various aspects of the service, including manufacturing processes, service delivery, project management, and more. Embracing continuous improvement leads to increased resident satisfaction, higher quality outputs, streamlined procedures, and a more adaptable and resilient service overall.

Community Engagement: Community engagement in Ottawa Fire Service refers to the collaborative efforts undertaken by our divisions to connect with and involve the local community in various initiatives, programs, and safety-awareness campaigns. The goal is to establish positive relationships, enhance public safety, and build mutual trust

between the services we provide and the residents we serve. Community engagement is a proactive approach that goes beyond emergency response to involve the community in the broader aspects of fire safety, prevention, and preparedness; Fire Services three lines of defense.

Supporting our People: By actively supporting our people, Ottawa Fire Service aims to create a resilient, skilled, and well-equipped team capable of effectively responding to emergencies while maintaining a healthy and fulfilling professional life. This commitment not only enhances the individual well-being of our staff but also contributes to the overall strength and effectiveness of the entire Ottawa Fire organization.

Critical Investments: Strategic and well-planned critical investments are essential for maintaining the high standards of service expected from Ottawa Fire Services. By allocating resources to key areas, fire departments can ensure we are well-equipped, technologically advanced, and adequately trained to protect and serve their communities effectively.

Program Goals

In addition to the goals and objectives outlined in the Strategic Plan, formal appraisals of programs are also critical to the agency's commitment to continuous improvement.

Annually, the following programs are appraised:

- Community Risk Reduction
- Public Education
- Fire Investigation
- Fire Suppression
- Technical Rescue
- Water Rescue
- Hazmat
- Wildland
- Emergency Communications System

The results from these appraisals guide decision making processes for change to help with continuing to meet community needs and circumstances.

(Exhibit E.3 Program Appraisal Template)

Community Service Expectations

Public expectation is that fire services will be available when required. Ottawa Fire Services must maintain a sense of what is expected from them by the community and elected officials and inform the community of its continuing advancement of capabilities. These expectations of service could range from an aggressive interior fire attack in high-risk urban centres to confining a fire to its building of origin in rural areas or to the greater number of non-fire emergencies now associated with fire services. Expectations may also include the delivery of risk reduction strategies through public education programs and the instant access to safety information through a user-friendly website.It is the responsibility of the OFS to inform the public it serves with regards to the services it provides. As the capital city of an advanced industrialized country, Ottawa must ensure it is at the forefront of fire service provision and protection.

More that 90% of incident responses occur within the urban and suburban service areas of the city. Almost two thirds of the calls occur within the urban service areas, almost one third of the calls occur in the suburban service areas and less than 10% of emergency incident responses occur in the rural service areas.

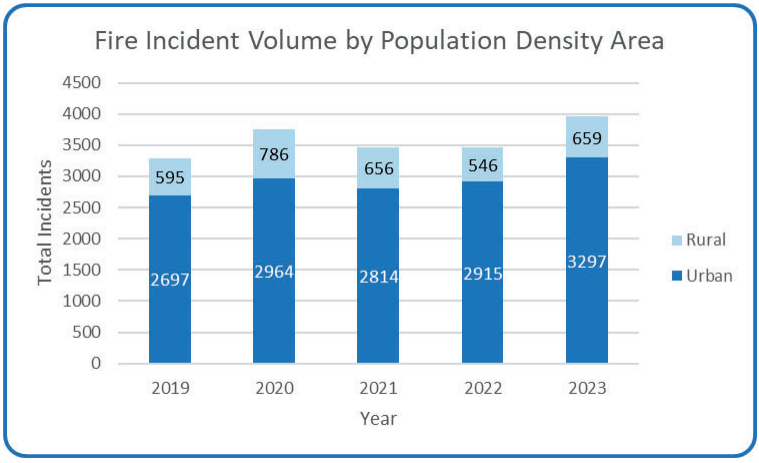


Figure 20. Five-year fire incident volume for urban and rural service area classifications

The primary goal of Ottawa Fire Services is to provide effective and timely emergency service (staffing and equipment) to minimize the adverse affects of an emergency on the community. Understanding and incorporating the expectations of residents and policy makers with recommended standards is critical when the organization reviews station locations, equipment, resources, and prevention and educational strategies.

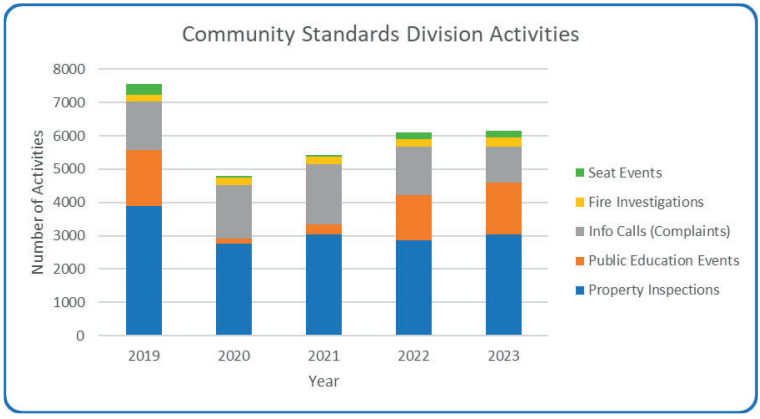


Figure 21. Community standards division activities 2019 to 2023

Ottawa Fire Services through its prevention, education and outreach initiatives, investigate a number of options to quantify community expectations. The introduction of the After the Fire program has been a successful approach to reaching out to residents in buildings and communities that recently had a fire to share important fire safety messaging. Additionally proactive inspections in all buildings that have experienced a fire are proving to ensure that fire safety measures are present and if not, that fines are issued and/or orders are issued to ensure fire safety compliance. During the pandemic a much greater focus was placed on public education through social media platforms. Ottawa Fire services introduced a virtual station tour for residents since in-person visits were not permitted. A continued stream of fire safety messaging and community outreach via social media has grown a following and provided key fire safety messaging more exposure.

Though it is difficult to attribute as the sole element, increased public awareness through preventative fire education programs, and enhanced fire safety standards should all play a significant role in decreasing the number of fires in the city. The decreasing number of individual fire prevention activities; does not appear to show a direct correlation to the number of structural fires in the city, although the trend in 2018 was increasing. Further attention and investigation of this data set over time will be required.

Community Feedback

In December of 2023, OFS conducted a public engagement survey via Engage Ottawa, the City of Ottawa's public engagement portal, to solicit feedback and information regarding the agency's level of service. The survey was available to the public for one month and promoted via various City of Ottawa and OFS social media platforms to maximize participation.

The survey gathered feedback about the type of event or service that prompted the interaction between the resident

and OFS, the level of service from OFS Communications for emergency calls, the level of service from firefighters on scene, resources and information provided to assist their immediate needs, the conditions of their local fire stations, and the opportunity to provide any additional comments and suggestions with regards to Ottawa Fire Services. Overall, the responses reflected satisfactory results from the respondent's interaction with OFS's level of service. OFS received responses from a variety of event types including fire response, medical response, community events, and public education/Fire Prevention Program, which highlights OFS's wide range of engagement types with the public. The feedback and survey results are reviewed and considered throughout the development and implementation of OFS's strategic planning of programs, projects, and operations.

Section D:
Community Risk Assessment & Risk Levels

The community risk analysis provides an assessment of the risks which may affect persons or property within the community including exposure to natural and man-made emergency events. Identification of community risk provides a basis for determining effective resource allocation and service provision. (The greater the risk, the greater the resources required). An analysis of Ottawa's community risk was undertaken to assess the community risk level and match the appropriate initial and effective responses to the emergency incident.

Community Risk Input Factors

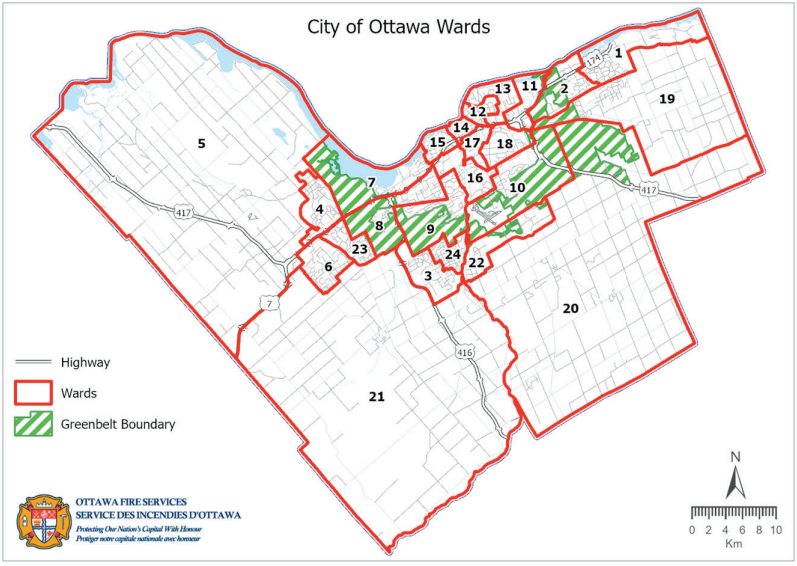
In building upon "Community Served" (Section A) it is important to review the potential risks and understand some of the adverse factors which may limit response, increase probability of an emergency, or increase the consequence of life safety and/or economic impact.

The City of Ottawa's large service area is a risk factor to take into consideration when analysing other risk factors such as its geospatial features. The City of Ottawa has twenty-four (24) political wards representing urban, suburban, and rural communities (Map 5). Urban wards of the City are contained within a greenbelt. While the urban wards are smaller in physical size, they encompass the commercial and economic hub of the City.

The urban areas contain many of Canada's federal government complexes, museums, art galleries and buildings of national significance. The urban core also houses most of the city's vacant structures although the number of vacant structures is minimal. The communities outside the greenbelt that are not considered rural are primarily residential in nature apart from high technology nodes and business parks in the communities of Orleans,

Kanata and Barrhaven. Suburban areas extend considerable distances east, west and south of the City core.The City of Ottawa has attempted to contain 'urban sprawl' through undertaking an intensification approach to development. This approach increases density and height limits for residential housing inside the green belt however challenges by developers for developmental land outside the greenbelt have proven successful, thus tempering the cities attempt to limit the loss of green space for suburban expansion.

The rural wards are vast areas of agricultural and wilderness lands dotted with small communities. As discussed in the first chapter, there is a different level of fire service provided for the urban and rural service areas. Mutual aid and automatic aid agreements exist with bordering municipalities providing some support to these remote rural boundaries.



Map 4. City of Ottawa wards

The downtown core of the city was developed in a grid pattern and within the area between the Ottawa River and Provincial Highway 417 (Queensway). However, the street

planning network has been influenced by path flow of the rivers and consequently some streets end at the rivers while others run parallel to them resulting in long winding street courses. Beyond the Queensway, which transects the urban core, development has taken on a curvilinear pattern which represents the development style post World War II. In many newer areas, specifically the suburbs, curved street patterns are a planning norm to calm traffic and reduce speeding on residential streets.

Significant rural/agricultural areas, to the west, east and south, are found to occupy greater than 80% of the City's land mass. The creation of the Greenbelt by the National Capital Commission resulted in a large track of land between the inner-city and the suburbs. This mostly greenspace ring of land has created a barrier for emergency response but has also created two distinct parts of the city. This has also meant that the operations of the Ottawa Fire Service have had to bridge the greenbelt in order to deliver backup fire services from urban areas to or from the suburban and rural areas.

The Ottawa River to the north creates a natural boundary between Ottawa and Gatineau, Quebec. Five vehicular bridges link the Cities of Gatineau and Ottawa, across the Ottawa River, near their respective core areas and two ferries provide access in the western and eastern edges of the communities. The Rideau River and the Rideau Canal are barriers for developing connected road transportation systems. There are 19 crossings along the Rideau River and 9 crossings along the Rideau Canal.

Another factor with relation to risk and road safety is traffic congestion. Efficient transit is critical to the reduction in traffic congestion which in turn improves the ability of responding apparatus to reach the scene of an emergency. Maps of the O-Train, a north south commuter train, routes are available in fire stations that cover the areas where the tracks pass through, and safety information is provided to the crews staffing those areas. Preplanning of the trains and

access routes is done frequently to prepare for emergencies occurring on the railway. Fire personnel have access to transit routes, maps and other relevant information for the purpose of emergency response. The transit authority has also granted permission for the Ottawa Fire Service to use the transit way for emergency response when required.

Climatic Risk Factors

Ottawa's geographic location results in weather extremes which affect almost every aspect of fire response.

In the winter months, heavy snowfall and freezing rain create treacherous driving conditions which increase incident volume due to Motor Vehicle Collisions (MVC's), trauma related medical incidents, and fire incidents due to improper use of heating appliances and materials. At the same time this decreases response times due to road conditions.

Freezing temperatures are common in winter months resulting in a more dangerous firefighting and emergency response environment. Sub- zero temperatures in windy conditions can freeze skin in minutes, consequently fire personnel must layer extra clothing to protect themselves from frostbite and hypothermia. The cold weather makes using hand tools difficult as dexterity is reduced.Firefighting in frigid temperatures becomes inherently more dangerous due to ice build up on ladders, vehicles and hose lines which makes simply walking a challenge. Pump operators must be vigilant in their efforts to reduce ice build-up by tightening hose coupling and to ensure hose lines do not freeze in place. Post fires, it is not uncommon for frozen hose lines to be removed from a fire scene using steam hoses.

Emergency fire incidents in rural areas, during the winter months, increase driving hazards as large apparatus are difficult to drive on snow and ice covered roads. Snowstorms can create white out conditions and snow drifts, on rural roads, which add to the response difficulties experienced by both volunteer and career firefighters. Volunteer fire personnel are equipped with a green

'courtesy' light for emergency response however this does not allow for the same exemptions under the Highway Traffic Act as for a designated emergency vehicle, consequently effective response can be hampered by poor weather and road conditions.

When significant snowfalls occur (>5 cm), roads become clogged with traffic. Analysis of motor vehicle collision responses indicates that MVC's increase in those months when the weather changes most drastically from fall to winter. Anecdotally this suggests that drivers take time to adjust to the change in driving conditions. Notwithstanding snowstorms adversely affect traffic patterns and increase traffic congestion, due to collisions and slower driver response at light regulated intersections.

Ottawa Fire Services is not immune to adverse driving conditions, driver operators must adjust their driving to ensure safe responses. The pump and ladder operator courses touch on safe driving and all drivers are required to complete the City of Ottawa drivers' course.

The City of Ottawa and the Province of Ontario use road salt, sand and fine gravel, on roadways in an effort to reduce ice build up and improve traction. While these efforts prove successful from a road safety standpoint the use of salt is hard on emergency vehicles and equipment. Salt, from salt spray, often results in reduced function of roll up compartment doors and corrosion. From hydraulic extrication tools and generators to vent master saws cold weather can adversely affect their operation and use. Fire personnel are acutely aware of the need for increased vigilance in maintaining their equipment and protect it from becoming incapacitated by the cold temperatures.

Conversely Ottawa's extremely hot and humid summer months challenge firefighters and adversely affect fire ground operations as personnel need to be cycled through rehabilitation more frequently to prevent dehydration and heat related illness. When the humidex is over 30 firefighters must be wary of the metabolic heat build-up and health risk

associated. Firefighters are challenged with these weather extremes and are provided the best personal protective equipment possible to perform under the varying conditions.

Disaster Exposure Risk Factors

Ottawa Fire Services categorizes disasters as low frequency, high consequence risk emergencies and are classified as Special Risk events. Defined as calamitous events resulting in the potential for significant loss of life or physical damage to property, disaster planning is an important part of the services risk response analysis.

The City of Ottawa, through the Office of Emergency Management (OEM) provides education to the public with regards to disaster planning. The OEM also coordinates with lead agencies such as the Ottawa Fire Service in planning and preparing for the possibility of a major disaster.

The City OEM conducts annually, following the Provincial Office of the Fire Marshal/Office of Emergency Management's template, a Hazard Identification Risk Assessment, HIRA. This HIRA is a process designed to assist municipalities in defining the disaster risks for their community. The HIRA process develops a list of the top potential disaster events that could befall the city. These ten hazards are developed using a Frequency/Consequence matrix process. In addition, mitigation plans are identified and utilized to reduce the consequences of the hazard.Additionally The Government of Canada – Hazards and Emergencies and Province of Ontario – Emergency preparedness provide information on the most common hazards that can occur. The City of Ottawa has identified the hazards that are most likely to happen in our city which could have significant impacts.

1. These include:

- Active Threat
- Cyber-attack
- Civil disobedience
- Drinking water advisory
- Earthquake
- Extreme heat, cold, smog
- Flooding
- Power disruption
- Public Health emergency
- Tornado
- Transportation incident
- Winter weather

Active Threat - Terrorism and Public Safety

As the Capital City of an influential middle power, NATO member, and a member of the Five Eyes intelligence gathering group, Ottawa has been the target of several terrorism acts and disrupted plots.

Approximately 150 embassies, ambassadorial residences and foreign consulates are, primarily, located within the core of the city. Ottawa is home to the Department of Foreign Affairs, The Department of National Defence Headquarters, The Communications Security Establishment and the Canadian Security and Intelligence Service amongst other federal government agencies.

History shows that Ottawa is not immune from terrorist attack, or from the effects of international political discord, as evidenced in the March 12, 1985, attack on the Turkish embassy by self proclaimed Armenian dissidents. More recently Ottawa was the target of a foiled plan to bomb the Parliament buildings and take hostage several members of parliament by a Toronto based Muslim extremists group labelled, by the media, as the 'Toronto 18'. The 2014 active shooter event on Parliament Hill and the downtown core activated the emergency management function of the city and engaged all emergency services. Ottawa Fire Services

has two designated Terrorism Information Liaison Officers who are part of the First Responder Terrorism Awareness Program (FRTAP) led by the RCMP Liaison Officers receive monthly FRTAP updates on the latest threats to national security. The sharing of this type of information allows OFS to be prepared on a 24/7 basis for any suspected terrorist attack or public order events. The Operations Division is also included in all meetings involving the RCMP or Ottawa Police pertaining to protests and demonstrations. This enables Special Operations personnel to plan and forecast resource allocation in a timely fashion. OFS benefits from a strong relationship with regards to cooperation on security related issues as they pertain to the CBRNE, Haz-Mat and other specialty team response (Fire Support Unit FSU, Rescue Task Force RTF). RTF is the latest addition of the FSU which embeds into a police, fire, and paramedic response team for active shooter/hostile events. Continuing example of interagency cooperation. Currently, there is legislation with the Provincial Government at Queens Park mandating a coordinated response from Police, Fire and Paramedics to these incidents and Ottawa is already well prepared for it.

Cyber-Attack

The frequency and risk of cyber-attacks has been increasing daily since the pandemic. Like other risks, Ottawa is the Capital of Canada and that brings with it a target level that cannot be denied.

An RSA Fraud Report released, showed that Canada attracts 66% of all cybercriminal fraud phishing attacks worldwide. The next most targeted country at 7%, is the United States. According to The Canadian Internet Registration Authority (CIRA), Ottawa was at the top of the list for most hit cities in Canada.

Ottawa has a lot of sensitive information from governments, crown corporations and national associations. CIRA found 1/3 of Canadian organizations reported cyberattacks and 1/3 had workers using personal devices for work. The pandemic

created a widely acceptable, work-from-home, work-from-the-kitchen-counter era. IT organizations must continually adapt to daily threats and continue to educate users on strong computer practices.

Civil Disobedience

Ottawa being the Capital of Canada brings with it the focus of all groups for their discontent and unrest for the policies set out by the ruling government of the time. In 2022 the "Convoy" protest seized the downtown core of the city and blockaded the roads with large vehicles for three weeks. This brought the downtown core to a standstill. They also utilized other sites across the city to stage their supplies and protests. This created many issues for the city from a public safety standpoint as well as from an emergency response perspective. Recent protests such as those regarding the Israel/Hamas war are frequent and result in OFS FSU deployments on a regular basis as well as disrupting the downtown core for responses.

Since 2022, the number of FSU deployments with ESU (Ottawa Police Service's Emergency Services Unit) and Public Order, has risen from an average of 5-10/year to over 50 deployments in 2023. Ottawa's ESU has been deploying to other jurisdictions to assist since 2022 and FSU deploys with them.

In discussions with our partners in ESU, this number is expected to rise in the coming years and our team is planning for expansion to continue to fulfil our agreements with partner agencies.

Drinking Water Advisory

The Ottawa River is a primary source for much of the potable water in the city system. Contamination caused by human or natural factors can cause loss of this supply. Additionally, the infrastructure, water filtration plants are located along the riverway and are at risk of damage and loss during severe flooding events.

Earthquakes

The City of Ottawa is located within the West Quebec seismic zone which can produce earthquakes of magnitude 7.0. Several notable earthquakes have occurred in recent years including a magnitude 5.2 on January 1, 2000, just north of the City, a magnitude 4.5 earthquake on February 24, 2006 and a magnitude 5.2 earthquake on May 17, 2011.
The most recent earthquakes registered in the area were on March 13, 2021, 60km south of Ottawa at 3.2-magnitude. Then on December 30, 2023, 68km northeast of Ottawa with a depth of 18km at a 3.6-magnitude.

Extreme Heat, Cold, Smog

As described in the Climatic Risk Factors, temperature extremes are becoming more and more frequent, and the geography of Ottawa tends to exacerbate these abnormal temperatures. The first weekend in July 2019, the temperature soared with a humidex over 40o Celsius. This heat event lasted several days and is becoming more common each year. This event created increased medical responses, electrical system overloads and increased risks for fire response crews for heat exhaustion.

January 2022 had 5 sets of extreme cold warnings over a 15-day period. The city had a daily low around -30 o Celsius with the windchill effect giving it a range of -35 to -40 o Celsius. This was the coldest period Ottawa had endured since 1996. Early February of the following year Ottawa had a repeat of extreme cold weather warnings and included cancellations of events at the annual Winterlude.

Air quality was greatly affected in Ottawa over the summer months of 2023 due to severe, unprecedented wildfires in Quebec and Nova Scotia. Several special air quality warnings were issued and forced the cancellation of many outdoor sporting events, festivals as well as area beaches and pools. The air quality index was frequently rated a “very high risk” or “high risk” to people’s health during this period.

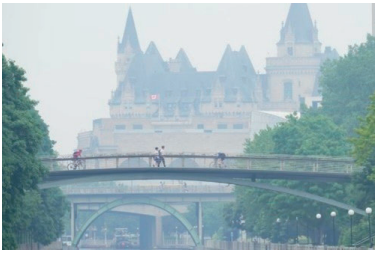


Figure 22. Poor Air Quality

Flooding

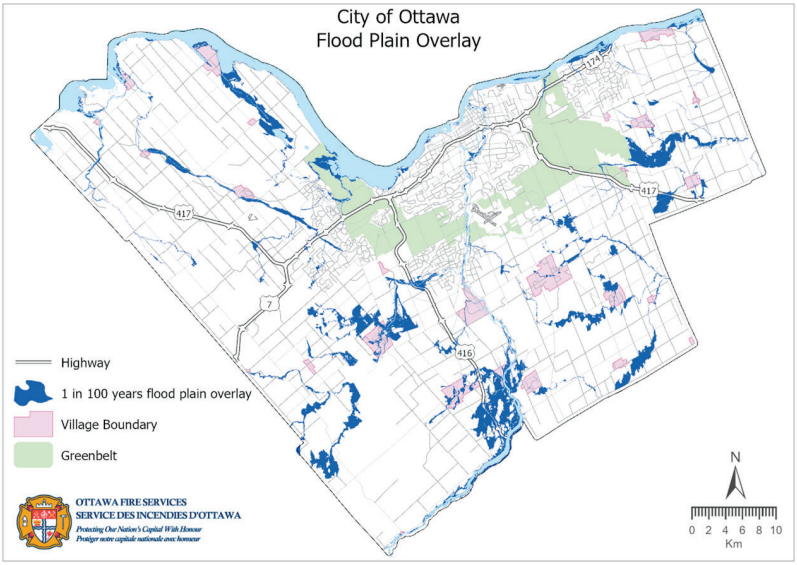
With the City of Ottawa having three major waterways and many smaller tributaries running throughout, the frequency of significant flooding has increased with global warming.

Flooding created by the severe downpours of summer storms overloading the storm water management systems of the city has also caused damage to many neighbourhoods. Results from these events precipitated the creation of the city Wet Weather Infrastructure Management Plan and the Extreme Weather Plan for mitigation planning.

Figure 23. Flood

A flood in August 2023, caused by heavy rain, impacted many roads, turning them into canals and many properties being severely flooded. Ottawa recorded 77.4 millimetres of rainfall within only a few short hours. Surrounding regions received between 80-110 millimetres.

As mentioned above, flooding in this region has significant impacts on our drinking water system.



Map 5. City of Ottawa flood plain overlay

Power Disruption

Ottawa has two main suppliers for power: Hydro Ottawa and Hydro One. Generally, Hydro One services rural areas and Hydro Ottawa services the urban areas.

A storm that broke all the records and had a huge impact on power, whipped through Ottawa the afternoon of Saturday May 21, 2022. It was a derecho storm and left a trail of destruction like nothing Ottawa had ever seen or experienced. Sever property damage, devastation to Ottawa's urban forest and severe harm to the electrical infrastructure made it worse than the historical ice storm of 1998 and the tornadoes of 2018.

Over 54% of customers were without power at some point during the major event. A Hydro One transmission tower was toppled causing a loss of supply from the provincial grid. More than 400 power poles were damaged along with kilometres of power lines. Power was restored to approximately 50% of the affected customers within 48hrs, but many were out for nearly a week and a few dozen

customers were out nearly 2 weeks.

The undertaking of restoration work has been compared to the equivalent of doing 4 years' worth of construction work and emergency repairs in 2 weeks. The labour-intensive work required to replace every damaged hydro pole across 1,100sq/km was enormous.

Public Health Emergency

Events such as the SARS outbreak in 2003, are of concern for all first responders. Ottawa was affected significantly by the SARS outbreak and many verified cases of SARS were found in the community. That outbreak caused changes in the operations of Ottawa Fire Services, Paramedic Service and Police Service as well as health care personnel.

With the pandemic of 2019 - 2022 many ways of doing business have changed forever. Supply chain issues immediately came into play during this time as they have for all services within the city and across the country. Obtaining PPE and supplies for response became a significant challenge and resulted in the city creating a supply division to create efficiencies and buying power to ensure that City responses are maintained, and staff are protected. Maintaining response personnel was also a challenge for OFS during the pandemic and contingency planning was required to ensure that our response capabilities were maintained to the best level possible.

There continues to be an increasing concern about drug overdoses, specifically due to the presence of potent and contaminated street drugs. The presence of Fentanyl and Carfentanil in street drug supplies, has caused an increase in the numbers of overdoses across the city. This is adding to the pressures of normal medical responses. Although the numbers of overdoses have increased significantly in the city over the last 5 years; numbers have not reached the epidemic proportion found on the West Coast of Canada. There is continued expectations of these responses to increase.

Tornadoes

Prior to 2018 there had been only two confirmed tornadoes over the past 20 years, both of which were minor in nature (F1). On Sept 21, 2018, six (6) tornadoes ripped through the City of Ottawa and neighbouring Gatineau creating mass destruction. The major damage to the city however was not the damage to structures but the destruction of the City's electricity grid throughout the western portion of rural and suburban neighbourhoods. These tornadoes caused severe strain on the ability of the fire services to manage requests for service. With many neighbourhoods being hit by the skipping tornadoes, fire crews were pulled from across the city to conduct rescues and provide emergency services including fire prevention activities such as power and gas isolation.

Figure 24. Tornado damage

Less than a year after the devastating tornadoes of 2018, a tornado tracked for more than 25km through neighbourhoods at the dinner-time hour in Orleans on June 2, 2019. Thankfully, this tornado was weaker, classified as an EF1, however, it still caused considerable damage. It snapped and uprooted trees and tore roofs off homes.

The afternoon of July 13, 2023, saw a tornado event strike the Barhhaven area of Ottawa, damaging 125 homes. It was miraculous there were no deaths and only 1 minor injury

sustained. Emergency notifications were successful in notifying residents, many who took shelter in their basements.

Figure 25. Tornado damage

Transportation Incidents

Ottawa has had some tragic transportation incidents that will likely never be forgotten. Only 5 ½ years following a catastrophic double-decker bus collision with a VIA train that killed 6 people and injured many, another double-deck bus collision occurred at a transit station on January 11, 2019. This event claimed the lives of 3 transit riders and injured at least 20.

Vehicle collisions are frequent on Ottawa roadways, including the main 417 Highway that runs east west through the entire city. In the year 2023, Ottawa roads had 3,278 vehicle collisions, 367 of those on the 417. Having significant rural roadways also sees significant motor vehicle collisions on these roads. Of the 3,278 MVC's, 832 occurred on rural roads. That same year had 76 vehicle extrication responses across the city.

It is common for the Ottawa International Airport to have planes make emergency landings. With an automatic aid agreement in place, OFS responds to these events to back

up and assist the Ottawa International Airport Authority Security, Emergency Management and Customer Transportation Team should it be required.

OFS has two private airfields, Rockcliffe and Carp. These airports are either the point of destination or the point of origin for many small planes. Over the 2019-2023 period, OFS responded to 16 small plane crash incidents. Four of these occurred at the Rockcliffe airfield and four were at the Carp airport. The remainder of these 16 occurred off airport grounds.

The city's light rail system has experienced various mechanical and weather-related challenges. There has been a couple of incidents of train derailments and/or colliding with a signal box next to the tracks that has required OFS to respond to assist in evacuating passengers and ensuring the safety and stabilization of the trains.

Winter Weather

Ottawa endures frequent freezing rain events, some lasting days, which can cause large, localized power outages and significant traffic disruption.

Heavy snowfall amounts in short periods of time can occur frequently and most winter seasons experience at least one heavy snowfall event that may last several days. These events can cause traffic standstills, transit shutdowns, residential side streets become impassable, hydro outages due to laden power lines, resident's inability to provide for themselves due to their lack of travel options, and the potential for structural collapses due to the excessive snow loads. The city maintains a significant fleet of snow removal equipment but due severe events even these resources become overwhelmed.

A 'once-in-a-decade' winter storm as Environment Canada called it, hit the Ottawa region on December 22, 2022, and left its impact through to Christmas Day. The storm had significant effects on power across the region, highways

were closed, motorists were stranded, and thousands of flights were cancelled.

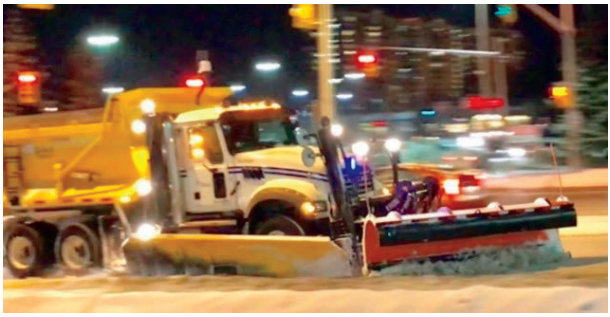


Figure 26. Snowplow Operations

Emerging Risks of Electric Vehicles and Charging Equipment

As adoption of electric vehicles trends upward in Ontario, so do hazards associated with them and with improper charging practises. A defective or damaged lithium-ion battery can become quite volatile with a condition called thermal runaway that can cause a vehicle fire. Fires involving EV's require four times (4x) more water to extinguish than for a regular gasoline engine vehicle due to the higher temperatures involved, difficulty in fully extinguishing and the tendency to reignite. For OFS, this means more resources and time required for each incident. A typical gasoline engine vehicle fire requires one pumper with four (4) personnel to respond and usually takes less than thirty (30) minutes to resolve. An EV fire will require the pumper to connect to a hydrant and possibly require an additional pumper with four (4) personnel for more than one hour to ensure the fire is completely extinguished. In a non-hydrant area, an additional water supply apparatus with one to four (1-4) personnel may be required as well. In other jurisdictions there have been reports of electric vehicles reigniting on a tow truck or in an impound yard hours after it was thought that the fire had been extinguished. This poses a further risk to lives and property and use of fire service resources.

With the increased popularity of E-bikes, E-scooters and similar devices, OFS has recently seen an increase in responses to fires involving these small vehicles. The lithium-ion batteries are vulnerable when charging and can overheat causing a fire. These incidents often occur inside a structure and extend beyond the area of origin due to the intensity of the battery fire causing significant property damage and risk of injury to occupants. Many times, an investigation has determined that the charging equipment was improperly used, or larger EV charging equipment installations had been completed without a permit and may not comply with all local codes.

OFS safety and training division has issued Safety Alerts and developed training resources on the subject to ensure that suppression members are aware of the hazards and have the knowledge and skills required to effectively extinguish these fires and be prepared for reignition. Data from the incident reports is being collected to develop statistics on this emerging risk and will guide any needed policy adjustment and enhancements to apparatus and personnel response required to effectively mitigate these incidents.

In 2022, OC Transpo embarked on a pilot project to introduce four (4) New Flyer XE40 electric zero-emissions buses into the fleet. Twenty-six (26) more were approved for purchase in 2023 and the transit authority intends to order 420 more through 2027 as it works towards a fully zero-emissions fleet by 2036. These 40 ft. buses have a monitored Battery Management System as well as automatic fire detection and on-board fire suppression system all intended to reduce the possibility of fires, other malfunctions and loss of service. Even with these safety measures, OFS remains aware of the possibility of a battery fire extending to a bus fire which would require additional apparatus and personnel than for a fire involving a single EV passenger car. At this time, the charging infrastructure is limited to the one OC Transpo facility at 1500 St. Laurent Blvd. Suppression crews have consulted with staff and conducted pre-fire planning at this location in order to understand the charging facilities

in terms of its specific location, safety features and main disconnects. Pre-fire planning has also identified appropriate tactics required for rescue, fire suppression, ventilation and evacuation.

Physical Assets & Critical Infrastructure Protected

The types of properties and structures involved in incident responses were analyzed based on specific property group categories for the last 5 years.

Examinations indicate that residential properties constitute the predominant share of the city's real estate, comprising 92%. Notably, these properties also witness the majority of fire responses, accounting for 72%. Among residential categories, Single-Family homes make up 89% of total properties but contribute only 41% to fire response compared to high-rise and multi-unit residential properties, which collectively constitute 2.25% of the properties but contribute to over 30% of fire incidents.

In contrast, commercial properties make up less than two percent (2%) of the city's total, yet they are the location where thirteen percent (13%) of fire incident responses occur.

The breakdown of fire incidents by property type group over a five-year period is provided in Table 6.

Table 6. Property Groups with Structure Incident Counts 2019 – 2023

Fires by Property Type Classification						
Occupancy Classification	Number of Fires					
	2019	2020	2021	2022	2023	2019-2023
Assembly	9	15	15	13	16	68
Care and Detention	12	6	7	4	13	42
Commercial	67	57	59	76	103	362
Commercial Lodging	1	1	6	4	6	18
Educational	17	6	8	10	15	56
Industrial	36	32	37	23	29	157
Mercantile	5	7	12	15	14	53
Residential - High Rise	109	149	136	152	143	689
Residential - Multi Unit/Low Rise	45	63	71	62	93	334
Residential - Single Family	246	261	285	284	291	1,367
Rooming/Boarding	3	3	5		7	18
Wildland	46	33	28	35	37	179
Grand Total	**596**	**633**	**669**	**678**	**767**	**3,343**

Table 7. Property loss by occupancy type 2019 to 2023

Property Dollar Loss						
Occupancy Classification	**2019**	**2020**	**2021**	**2022**	**2023**	**% of Total Dollar Loss**
Assembly	$39,400	$358,761	$242,514	$3,041,501	$118,355	0.96%
Educational	$1,317,500	$501	$55,500	$20,610	$17,000	0.36%
Care / Detention	$43,776	$7,643,201	$59,956	$386,050	$963,325	2.31%
Residential-Single Family	$24,403,742	$17,236,048	$51,663,428	$34,104,843	$47,324,509	44.30%
Residential-Multi Unit/Low Rise	$12,462,405	$4,874,541	$2,442,625	$4,604,065	$9,946,915	8.70%
Residential-High Rise	$3,209,585	$4,017,160	$2,035,349	$4,213,728	$38,465,171	13.17%
Commercial	$814,200	$2,373,906	$212,205	$1,641,599	$774,103	1.47%
Commercial Lodging	$100,000	$51,000	$141,000	$1,500	$822,000	0.28%
Industrial	$5,388,111	$8,272,711	$24,329,602	$7,281,790	$8,530,945	13.64%
Mercantile	$9,708,302	$533,251	$2,978,451	$743,650	$1,207,915	3.85%
Wildland	$11	$69,006	$32,908	$16,012	$1,971	0.03%
Vehicles	$10,035,055	$4,463,301	$8,898,400	$6,536,900	$7,373,110	9.46%
Miscellaneous	$1,776,389	$805,869	$1,108,411	$943,405	$1,174,358	1.47%
Total Dollar Loss	**$69,298,476**	**$50,699,256**	**$94,200,349**	**$63,535,653**	**$116,719,677**	**$394,453,411**

As a percentage, residential units accounted for 92% of the total residential properties and almost three quarters (72%) of the residential fire incidents in a five year period. The value lost across the city due to fires is also highest in the residential units at with commercial and industrial properties also accounting for a large percentage of fire loss.

Critical Infrastructure

Critical infrastructure refers to systems, facilities, technologies, networks, assets and services essential to the health, safety, security or economic well-being of Canadians and the effective functioning of government. Canadians count on local governments for good roads and bridges, efficient public transit, reliable water and waste systems, quality recreational facilities and so much more. In fact, municipalities build and maintain 60 percent of the core public infrastructure that supports our economy and quality of life.

City of Ottawa Critical Infrastructure

Utilities

- Hydro Ottawa and Hydro One distribution network, substations and maintenance facilities.
- Six Hydro Ottawa hydroelectric generating stations at Chaudiere Falls
- Britannia and Lemieux Island water purifications plants, 32 pumping stations, 14 reservoirs and over 3000 km of distribution pipe.
- Robert O. Pickard Environmental Center wastewater treatment plant, 71 pumping stations and over 2800 km of wastewater collection pipe.
- Stormwater collection, storage and management system.
- Enbridge Gas natural gas distribution network.
- Trans Canada Pipeline natural gas pipeline and metering/regulation stations.
- Trans Northern Pipeline refined petroleum products pipeline and storage facilities.
- Telecommunication network and associated facilities
- Cellphone network towers and associated facilities

Transportation

- Provincial highways (417, 416, 7) interchanges, overpasses, bridges and culverts.
- City maintained highways, roads, streets, bridges and culverts.
- National Capital Commission maintained streets, bridges and culverts.
- Inter-provincial bridges.
- Ottawa Light Rail Transit – Confederation Line right of way, tunnel, electric overhead catenary system, sub-stations and maintenance and storage facility

- Ottawa Light Rail Transit – Trillium Line right of way and maintenance and storage facility
- OC Transpo public transit bus fleet and maintenance and storage facilities
- VIA Rail passenger train corridor, Tremblay & Fallowfield terminals
- Ottawa International Airport
- Ottawa/Rockcliffe Airport
- Carp Airport

Buildings and Facilities – Health Care

- The Ottawa Hospital Campuses – General, Civic, Riverside
- Childrens Hospital of Eastern Ontario
- Queensway Carleton Hospital
- Montfort Hospital
- Royal Ottawa Mental Health Center
- Elisabeth Bruyere Hospital
- Saint Vincent Hospital

Buildings and Facilities – Areas of Refuge / Temporary Shelters

- Community Centers
- Arenas
- Libraries
- Fire Stations

Buildings and Facilities – Government Administration

- Police, Fire, EMS stations
- 9-1-1 center and emergency services communications centers
- Emergency Operations Center
- City Hall & Courthouse
- Social Services

- Community Housing
- Detention and Correctional Facilities
- Solid Waste and Recycling Facilities
- Parliament of Canada House of Commons
- Supreme Court
- Parliamentary Precinct - Cliff Central Heating and Cooling Plant
- Federal Government Offices
- Embassies and Consulates

Buildings and Facilities – Private Sector

- Food production, distribution facilities
- Grocery stores
- Pharmacies and drug stores
- Banking and financial services
- Personal care and nursing homes

Firefighting Water Supply

Providing water to the responding fire department is a crucial aspect of the overall fire protection and life safety strategy of the entire community. The Ontario Building Code (OBC) and National Fire Protection Association (NFPA) requires a minimum quantity of water be provided for municipal structural firefighting. Fire flow is defined as the flow rate of a water supply, measured at 20 psi (137.9 kPa) residual pressure, that is available for the responding fire department for manual firefighting. Fire flow for a building is determined considering many variables such as construction type, occupancy, gross area, exposure to surrounding buildings and whether it is required to have a sprinkler and or standpipe system as required by the building code. Typically, this is water available at the surrounding fire hydrants, but it can be supplied with another approved source such as a static water supply like a tank or pond, or even a fire department tanker shuttle service. OFS maintains a suite of operational policies

regarding water supply with which all personnel are familiar. These provide guidance on the use and maintenance of both pressurized and non-pressurized water sources.

Pressurized Water Supply Areas

The City of Ottawa, through its Drinking Water Services, is responsible for producing and distributing water to approximately 845,000 residents and businesses and supplies what is considered an unlimited pressurized water supply with flows more than adequate to meet the needs of fire suppression for all fire risks. In most cases the City of Ottawa will provide pressure and flow that exceeds the OBC and NFPA requirements. Where the fire flow requirement for an exceptionally large industrial warehouse exceeds the capacity of the municipal water system, the building code requires that the property owner install a dedicated on-site firefighting water reservoir and remote hydrant system to supplement the pressurized municipal system.

Ottawa's expanding grid system consists of 23,000 municipally maintained fire hydrants and 2900 km of watermains in twelve pressure zones throughout the city's urban portion. There are also at least 4000 privately maintained hydrants. There are fifteen pumping stations, five ground level reservoirs and four elevated reservoirs to maintain a minimum 40-psi water pressure with a 20-psi residual pressure maintained during a fire. In the event of a 3rd alarm fire or greater, OFS dispatch is required to contact Drinking Water Services to ensure that pressure is maintained for firefighting and water supply remains safe for consumption. Fewer than 40 of the 23,000 hydrants, typically located on dead-end mains, fall into a low flow category of less than 1900 lpm (500 gpm) and the city is continually working to improve reliability and redundancy in the system. The location and flow of all hydrants is shown on a map on the Mobile Data Terminals in each front-line suppression apparatus.

Pre-fire planning by suppression crews plays a critical role in

ensuring that fire personnel are aware of these water supply challenges so that adjustments may be made to firefighting tactics if necessary. Pre-fire planning also provides the opportunity for suppression crews to become familiar with the location of private hydrants, sprinkler and standpipe connections for buildings in their districts.

Table 8. Typical fire flow values for Ottawa Fire Services

TYPE OF DWELLING	Minimum Area		Average Area		Maximum Area	
	Area (m^2)	Fire Flow (l/min)	Area (m^2)	Fire Flow (l/min)	Area (m^2)	Fire Flow (l/min)
RESIDENTIAL	112	2,500	284	3,500	442	4,500
COMMERCIAL	338	3,500	734	6,000	1,566	9,000
INDUSTRIAL	700	4,500	1,534	8,000	3,146	14,500
INSTITUTIONAL	710	2,500	2,319	4,500	3,291	6,000

Non-Pressurized Water Supply Areas

Almost 80% of Ottawa's land area is designated as rural, agricultural or wilderness. These areas are not serviced by water mains or fire hydrants and thus require the use of approved static water sources and tanker trucks to deliver water to the fire scene. Ottawa Fire Services (OFS) maintains a fleet of twenty-four (24) water supply apparatus designated as either a tanker or pumper/tanker strategically located across the city to serve these rural areas. These trucks carry a minimum of 11 340 litres of water and are all equipped with pumps and quick dump devices to provide a means to deliver a continuous water supply to the fire scene.

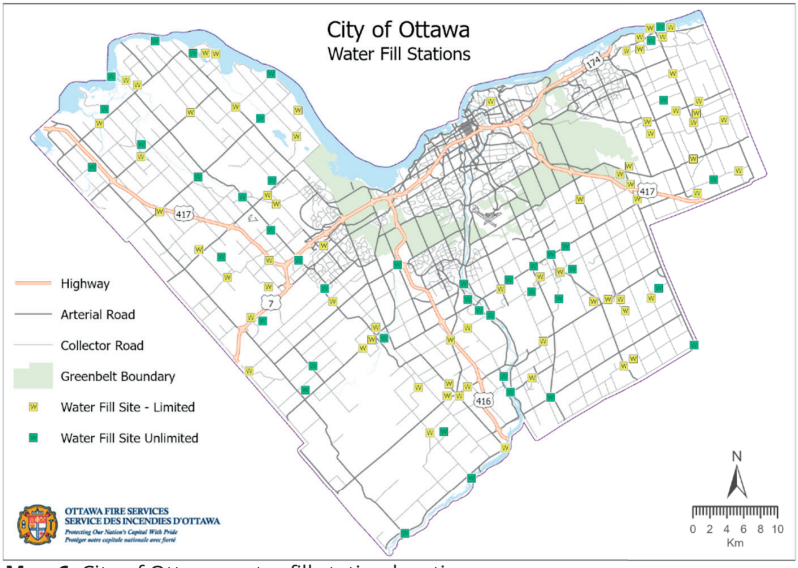
As per OFS Running Assignments policy, when a reported structure fire in a non-hydrant area becomes a confirmed working fire, in addition to the initial apparatus assignment, the following apparatus and personnel are dispatched.

Pumper # 1 with four (4) personnel as "Water Supply" pump dispatched to the fire scene. This crew assumes responsibility for "Water Supply Sector" and manages portable water tanks set up at the scene, incoming water supply apparatus and maintains continuous water supply to the fire attack pumper with a high-volume supply hose line.

Pumper # 2 with four (4) personnel as “Water Fill” pump dispatched to the nearest hydrant or static water source. This crew assumes responsibility for “Water Fill Sector” and manages incoming apparatus traffic, hose lines and refills water supply apparatus returning to the fire scene.

Two (2) additional water supply apparatus with one (1) personnel each are dispatched to join the “tanker shuttle” operation, transporting water from the water fill source to the fire scene. This ensures a minimum of five (5) water supply apparatus available for a declared working fire.

Additional water supply and other types of apparatus are dispatched for subsequent second and third alarms assignments.



Map 6. City of Ottawa water fill station location

There are one hundred and nine (109) designated water static sources that are reliable, accessible, and strategically located to provide water supplies for firefighting throughout the non-serviced areas. These sites include underground storage reservoirs ranging from 10,000 to 40,000 gallons, dry or drafting hydrants that provide access to an unlimited

water supply, remote hydrant heads and private pressurized systems. The location and quantity available of all water sources is shown on a map on the Mobile Data Terminals in each front-line suppression apparatus. OFS central communications center is also aware of these sites and keeps an up-to-date record on file. OFS, through its training division, has created a comprehensive training package, including a water fill site reference manual, an instructional video and policy and procedure for non-pressurized water supply areas.

Fire Underwriters Survey (FUS) Accredited Superior Tanker Shuttle Service

The City of Ottawa has been recognized as a Fire Underwriter's Survey Accredited Superior Tanker Shuttle Service. This designation means that the Ottawa Fire Services' non-pressurized water supply system is recognized as having the equivalency to pressurized fire hydrant protection thus exceeding the requirements of NFPA 1142 Standard on Water Supplies for Suburban and Rural Firefighting. This accreditation provides taxpayers who reside outside the municipal water distribution system area with reduced insurance premiums.

To obtain accreditation as a Superior Tanker Shuttle Service, fire departments must commit to maintaining a fleet of appropriate apparatus, a roster of approved static water sources and have a high standard of organization and practice delivering the service regularly. The water supply system must meet the evaluation criteria and demonstrate through testing and documentation that it can continuously provide a reliable water supply that meets the minimum required for pressurized hydrant water supplies. In its last evaluation, OFS improved its rating in several categories and will strive to do so again in the upcoming 2024 FUS tanker shuttle evaluation.

(Exhibit E.4 FUS Evaluation Criteria)

Transitory Risk

Through its community risk assessment, OFS has identified situations that pose a fluctuating or variable risk based on time of day, day of the week, geographic location, temporary large crowds, and the recent challenges surrounding the unhoused population.

Commuting Workers

Until recently the population of the city's urban core could see an increase of up to 30% during a weekday due to the influx of commuting workers travelling to their offices and conducting regular business activities. Since 2020 when the "work from home" model became widely accepted, this trend has changed causing the daily workforce to be more evenly distributed across the city's suburban and rural areas, meaning fewer people in the downtown and urban core and more people remaining in their suburban residences for work. This trend is even more evident in Ottawa over other cities due to its reliance on the federal government as a major employer. Consequently, OFS has seen an increase in calls for service to the outlying suburban areas during weekdays. Other sectors have adopted a "hybrid model" where most employees work from home on Mondays and Fridays but are required to attend their workplaces Tuesday though Thursday. This has caused a noticeable pattern of more commuters and higher traffic volumes causing congestion and delays through those days of the week. This midweek traffic affects the travel time of emergency vehicles and thus an undesirable delay and increase in total response times.

Transportation of Dangerous Goods

A concern for risk, with regards to the bulk transportation of dangerous goods, is the high volume of truck traffic that is routed daily through downtown Ottawa.

Every day, transport truckloads of dangerous goods and hazardous materials make their way through the city of

Ottawa, primarily on highways 7, 417, 416, 174 and the King Edward, Rideau, Waller, Nicolas (KERWaN) corridor through downtown as it is the only route from the 417 to the MacDonald Cartier Interprovincial bridge to Quebec and Autoroutes 5 and 50. The KERWaN corridor allows the movement of large transport trucks along King Edward Ave., Rideau St., Waller St. and Nicholas St. This is a densely populated urban area consisting of mixed use residential and commercial high rises, Ottawa University and where the route passes directly in front of National Defense Headquarters, Global Affairs Canada, embassies and alongside UNESCO World Heritage Site, the Rideau Canal. A significant event involving a large fuel tanker of chemical bulk vehicle in this area could result in a serious emergency incident.

There have been numerous discussions at the City and Provincial level including a feasibility study regarding a tunnel and the realignment of this route. There has been no progress to date.

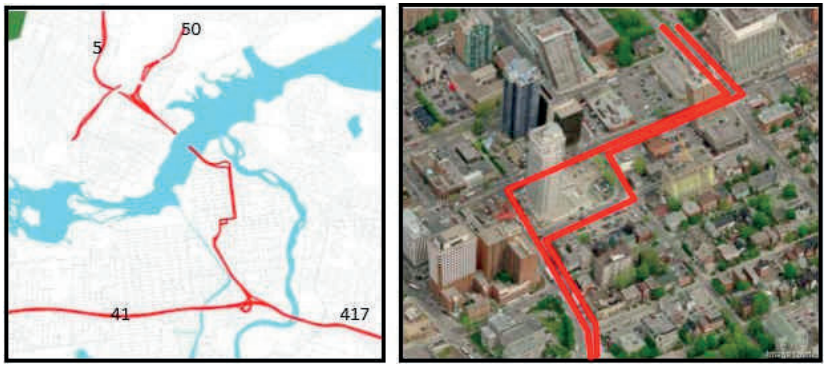
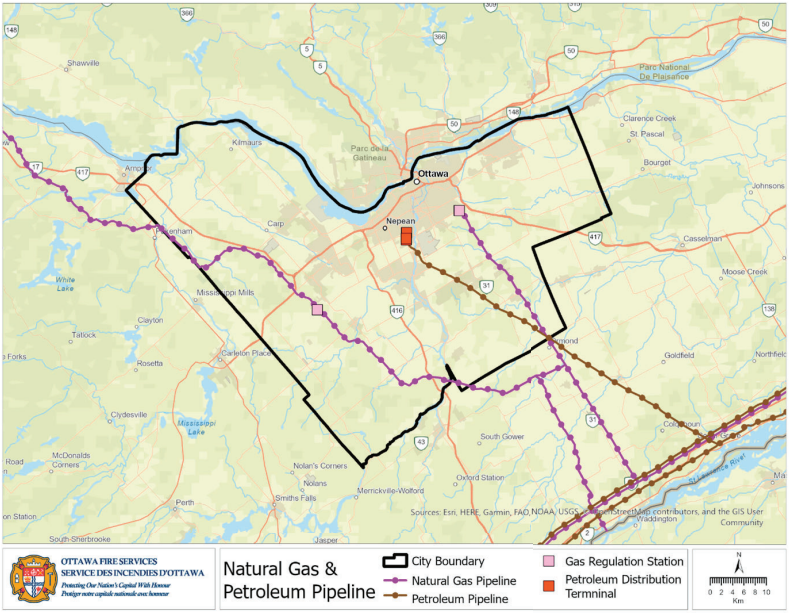


Figure 27. KERWAN Corridor

Besides the transportation of hazardous materials by trucks, pipelines and rail lines pose additional concerns. While their risk levels are comparatively low, the potential consequences are significant. Notably, a significant petroleum gas pipeline extends from Montreal to Ottawa. Although passenger trains primarily traverse Ottawa's rail

lines, occasional freight deliveries carry minimal quantities of hazardous substances.



Map 7. City of Ottawa Natural Gas and petroleum pipeline

Temporary Large Crowds

As Canada's festival capital, the city hosts several cultural events and festivals, conventions, government meetings such as G20 and sporting events throughout the year. These events provide social and economic benefits and contribute to a high quality of life in Ottawa. Along with the many positive aspects, OFS and its partners are aware of the potential negative impacts associated with the gathering of large crowds of people and associated traffic. Ottawa Fire has a process in place for planning and coordinating with other agencies for these events. This includes pre-inspections of event sites to confirm maximum occupant capacity, fire resistance of tent structures, ingress and egress routes and ensure emergency vehicle access. OFS will liaise with the Ottawa Police, RCMP, EMS and other

public safety partners to ensure that plans are in place to effectively mitigate the risks associated with the gathering of large crowds. In fact, Ottawa fire maintains a written operational plan for July 1st Canada Day celebrations on Parliament Hill and in the downtown area. This plan allows for overtime personnel to upstaff additional response capabilities at various strategic locations in the area where streets are closed and filled with crowds of people.

The Unhoused Population

In recent years, Ottawa's unhoused population has risen dramatically due to complications from the COVID pandemic and many other factors including mental health challenges, drug addiction and lack of affordable housing. The city estimates there are at least 1350 unhoused people staying in transitional housing, shelters, a friend's place or in a vehicle. In September 2023 it was estimated that at least 260 people were sleeping outside on a regular basis and the city had responded to 375 tent encampments since the beginning of the year. Crowding, theft and drug abuse cause many unhoused people to leave the shelters in favor of a tent encampment where they can also stay as a couple or with a pet which is not allowed in the shelters. These people often stand on street corners and medians asking for money making them vulnerable to being struck by vehicles. Tent encampments are often located off the beaten track in obscure areas not visible to the majority. In this situation the unhoused face the risk of dying alone, undetected from drug overdose or illness, succumbing to the elements or fires involving multiple tents. OFS has started keeping statistics on responses to tent encampments and is sharing this information with social services and other partners.

Using the plans for these types of events/days, Ottawa Fire Services utilizes road network/speed modeling and historical data to identify areas that can and cannot be reached in the benchmark and baseline times. Additionally, the determination as to whether OFS can provide an effective response force, in the benchmarks and baseline

times, for the projected risks for the area are proactively done using the GIS tools.

Growth and Development

The projected growth of Ottawa's population from 2021 to 2046 is estimated at 24.5 percent, reaching over 1.4 million people. A substantial 93 percent of this growth is anticipated in urban and suburban areas, with 47 percent within the built-up or developed area and 46 percent in the greenfield portion of the urban area. The remaining household growth is planned for villages (5 percent) and outside villages in rural areas (2 percent). These projections indicate an increase in urban density, heightened infrastructure needs, and a corresponding demand for emergency response, necessitating careful planning.

Ottawa's population is also expected to become more diverse and older. A significant portion (79 percent) of the projected growth is attributed to international and national immigration. Over the next decade, the immigrant population is expected to grow from 275,000 to 350,000. Looking ahead twenty-five years, a notable demographic shift is anticipated as the older population group (75+) is expected to increase from 7 percent to 12.2 percent of the total population, with the elderly more than doubling from 72,700 to 172,600.

Demographic Risk

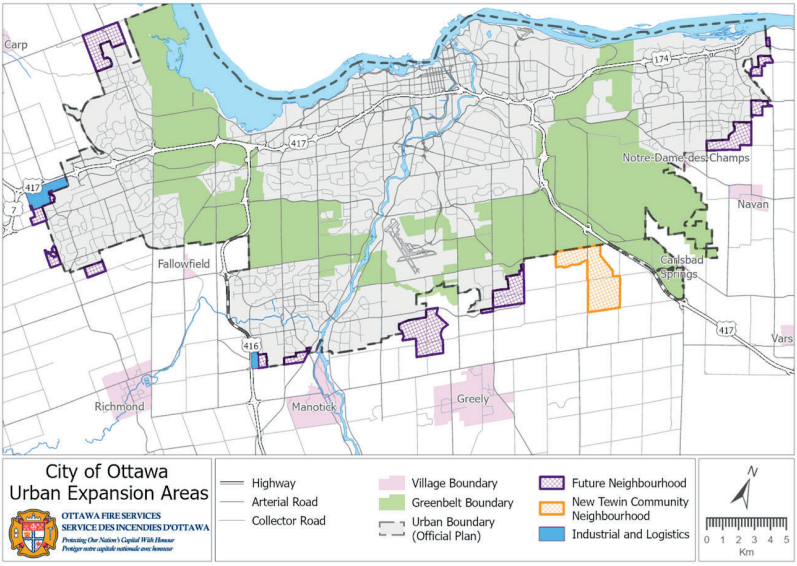
Ottawa Fire Services must ensure new immigrants to the community understand the fire hazards and emergency response system within the City. New citizens should be involved in fire safety programs to remove any language or cultural barrier with regards to public service provisions. There are buildings re-designed for multiple families living in one residence and the importance of smoke/carbon monoxide detectors and building escape plans should be emphasized as crucial to a prevention strategy. Some cultures may be reluctant to approach fire officials and it is

incumbent upon the City and OFS to build trust and rapport within these communities through safety and inspection programs. Although there are immigrant populations scattered throughout the urban and suburban areas statistics have not shown an increase in fire or emergency related incidents within any specific cultural group or community.

Growth Areas: East, West, South

The zoning bylaws of the City govern construction restrictions, aiming to oversee land usage and the placement of buildings or structures. Notable instances include regulations prohibiting development in flood plains and areas where the presence of Leda clay would compromise foundational stability. Of particular concern to the Ottawa Fire Services are proposed projects involving high-risk buildings in regions with sparse concentrations of fire resources, such as rural communities. All municipal bylaws and regulations are accessible to citizens and developers via the City of Ottawa website **(www.ottawa.ca)**.

Urban expansion has continued, notably in Kanata West, Orleans, Barrhaven, and Finlay Creek as depicted on Map 6. Growth in rural communities has also persisted, primarily with single-family residences and small-scale agricultural enterprises. A significant development area in the Southeast of Ottawa is in the planning stages and has the potential to house up to 45,000 residents. The addition of 445 hectares of land into the urban boundary was adopted by City Councill to support the project called “Tewin”. Touted to be a nature-based, sustainable community, the first homes in this development are expected to be ready in 2029/2030. This growth will be a key element in the 2025 Station Location Study.



Map 8. Urban expansion and community development areas

Station Location Development & Resource Allocation

The evolution of identifying optimal station locations has advanced from forecasting future population expansion to a complex evaluation integrating various data elements alongside current and emerging mapping technologies. Appreciating the historical context and reasoning behind the City of Ottawa's fire station studies is vital.

In 2005 and again in 2008, successive studies were conducted to determine optimal station locations. The 2005 study aligned with the Ontario Office of the Fire Marshal's Public Fire Safety Guideline, recommending on-site staffing of 10 firefighters within 10 minutes, achieving a 90 percent success rate when the approved standards of 5, 7, and 14 minutes could not be met. Consequently, in 2007, the Barrhaven Fire Station 44 was staffed with 10 firefighters. The study from 2008 suggested establishing two new fire stations in the south and east ends of the City. In 2011, Station 46 in Stittsville opened to cater to the western city's growth, while Station 47 opened to serve the south end,

particularly the growing Barrhaven community. In 2018, the relocated Station 36 and the newly established Station 55 were instated to enhance coverage in a specified area in the eastern suburbs.

Since the completion of the 2008 Station Location Study, there has been an evolution in the industry as to how fire services deploy their assets. More specifically, a new best practice is for fire services to have deployment models that consider the specific risks of a community. Several industry leading organizations have endorsed this risk-based deployment model as the most effective way to protect lives and property. Such organizations include: the Ontario Fire Marshal (OFM), the Metro Fire Chiefs Association and the Commission on Fire Accreditation International (CFAI).

Ottawa Fire Services now works with GIS tools and response modeling to identify areas requiring evaluation and to strategize for the optimal development model of new and relocated resources. OFS plans to conduct a new Station Location Study in 2025 which will inform decisions on future resource allocation and deployments.

Station Development Triggers

The following development triggers (the action that results in a change in resource deployment) have been selected by Ottawa Fire Services. These triggers are used to identify the deployment of resources within the City of Ottawa. There is an expectation that more than one trigger would be used in evaluating resource deployment.

Trigger # 1 - Growth
When new growth and/or development causes a response time to exceed the current standard response time, a change is necessary to address the deficiency and appropriate resources would be deployed to provide the appropriate level of service.

Trigger # 2 - Response Level
When response performance falls below, or is forecasted to

fall below, the acceptable standard level of response over 15 % of the time due to incident volume, the appropriate resources would be deployed to achieve the approved level of service.

Trigger # 3 - Risk
When the risk value of future development identifies a change in service level, an adjustment to the response level would be made to ensure that approved level of response is maintained.

Trigger #4 - Land Use
When a significant area of the City of Ottawa experiences a major permanent change to land use that results in significant change to the risk level, a change in service level will be made to ensure the appropriate level of response is provided.

Service Demands

Five years of emergency response data (2019-2023) was used to produce an overview of the agency's historic service demands. From this data an analysis for each response type, response location and frequency of response was created.

The analysis of response types was completed for the entire city for the 1st due overall response demand. Response types were broken down and the following categories were used in the analysis.

Table 9. Career incident response type distribution 2019 – 2023

Career Service Demands							
		Year					
	Call Sub-Group	2019	2020	2021	2022	2023	Grand Total
Fire	Fire: Maximum-Risk	17	7	10	9	20	63
	Fire: High-Risk	37	35	51	38	50	211
	Fire: Moderate-Risk	348	366	391	380	393	1,878
	Fire: Low-Risk	445	293	324	469	542	2,073
Wildland Fire	Wildland Fire: Moderate-Risk	1	19	19	21	28	88
	Wildland Fire: Low-Risk	3	179	156	102	118	558
Hazmat	Hazmat: High-Risk	86	100	101	83	112	482
	Hazmat: Moderate-Risk	411	362	336	375	340	1,824
	Hazmat: Low-Risk	741	640	651	1,152	1,179	4,363

Rescue	Rescue: Maximum-Risk	3	2	5	6	6	22
	Rescue: High-Risk (Extrication)	46	44	39	42	57	228
	Rescue: High-Risk (Industrial)	4	2	6	4	4	20
	Rescue: High-Risk (Water/Ice)	28	46	53	38	59	224
	Rescue: Moderate-Risk (Collision)	3,159	2,080	2,178	2,686	2,908	13,011
	Rescue: Moderate-Risk (Rope)	10	6	15	19	10	60
	Rescue: Low-Risk	615	441	535	670	756	3,017
Medical	Medical: All	4,378	3,240	4,047	5,356	6,738	23,759
Fire Related	Fire Related: All	2,034	2,283	2,075	2,074	2,362	10,828
False Alarm	False Alarm: All	9,005	8,136	8,506	9,983	11,346	46,976
Miscellaneous	Miscellaneous: All	2,855	2,612	2,591	3,041	3,898	14,997
Aid Agreements	Aid Agreements: All	9	4	4	1	1	19
Grand Total		24,235	20,897	22,093	26,549	30,927	124,701

Table 10. Volunteer incident response type distribution 2019 - 2023

Volunteer Service Demands							
		Year					
	Call Sub-Group	2019	2020	2021	2022	2023	Grand Total
Fire	Fire: Maximum-Risk		1	1	1		3
	Fire: High-Risk	2	1	2	1	4	10
	Fire: Moderate-Risk	59	52	58	61	63	293
	Fire: Low-Risk	93	76	59	71	58	357
Wildland Fire	Wildland Fire: Moderate-Risk		11	5	3	2	21
	Wildland Fire: Low-Risk	3	46	57	23	21	150
Hazmat	Hazmat: High-Risk	4	11	4	9	9	37
	Hazmat: Moderate-Risk	13	33	32	35	23	136
	Hazmat: Low-Risk	93	69	130	245	258	795
Rescue	Rescue: Maximum-Risk		1		5		6
	Rescue: High-Risk (Extrication)	17	24	12	14	19	86
	Rescue: High-Risk (Industrial)		1	1		1	3
	Rescue: High-Risk (Water/Ice)	8	10	9	9	3	39
	Rescue: Moderate-Risk (Collision)	355	247	295	390	369	1,656
	Rescue: Moderate-Risk (Rope)		1				1
	Rescue: Low-Risk	24	22	23	41	32	142
Medical	Medical: All	241	170	226	295	273	1,205
Fire Related	Fire Related: All	250	381	262	208	295	1,396
False Alarm	False Alarm: All	458	397	460	511	596	2,422
Miscellaneous	Miscellaneous: All	163	125	141	151	157	737
Aid Agreements	Aid Agreements: All	8	6	5	9	4	32
Grand Total		1,791	1,685	1,782	2,082	2,187	9,527

Tables 11 & 12 break these emergency incident responses down to the station response zones which display the service demands of individual stations. The results show that almost 93% of Ottawa Fire Services total emergency incident responses occur in the urban service areas. More than twenty six percent (26.6%) of the total incident volume occurs within the downtown core covered by District 1, sixty three percent (63%) of the total incident volume occurs within the four urban/suburban Districts 2, 3, 4 and 5. The rural service area accounts for seven percent (7%) of the overall incident volume. Districts 8 and 9, situated in the southern region of the city, receive nearly twice the number of emergency requests compared to the Eastern (7) and Western (6) Districts. This surge in emergency incidents could be attributed to the rise in development occurring in the southern part of the city.

Table 11. Career incident response types by station response area 2019 - 2023

Career Service Demands by District/Station 2019 - 2023										
Station	Fire	Hazmat	Medical	Rescue	Fire Related	False Alarm	Other	Aid Agreements	Grand Total	Overall Total
District 1									35,765	26.6%
11	482	533	2,370	995	936	4,299	1,601		11,216	8.4%
12	170	375	1,097	626	461	2,365	816		5,910	4.4%
13	562	431	5,763	1,106	1,070	6,460	3,245	2	18,639	13.9%
District 2									20,816	15.5%
21	144	226	641	620	342	1,311	335	1	3,620	2.7%
22	195	288	1,241	731	537	1,699	595	1	5,287	3.9%
23	217	436	1,095	1,090	647	2,773	812		7,070	5.3%
24	147	241	558	593	289	1,256	318	1	3,403	2.5%
25	49	102	279	276	166	439	125		1,436	1.1%
District 3									22,938	17.1%
31	197	255	588	592	327	1,278	464		3,701	2.8%
32	144	197	264	548	272	892	172		2,489	1.9%
33	146	200	541	555	301	1,110	344	13	3,210	2.4%
34	94	159	367	453	301	1,037	248		2,659	2.0%
35	227	328	858	680	554	2,202	580		5,429	4.0%
36	172	142	374	857	168	936	456		3,105	2.3%
37	114	138	286	433	228	969	177		2,345	1.7%
District 4									18,581	13.8%
41	99	181	512	471	320	1,119	281		2,983	2.2%
42	105	134	438	447	284	1,127	267		2,802	2.1%

43	79	122	349	478	180	859	265		2,332	1.7%
44	170	264	761	747	403	1,677	357		4,379	3.3%
45	41	64	94	118	111	185	65		678	0.5%
46	143	209	479	555	337	1,585	361		3,669	2.7%
47	76	85	213	293	178	808	85		1,738	1.3%
District 5									26,601	19.8%
51	214	273	1,003	490	504	2,281	608	1	5,374	4.0%
52	78	165	477	406	240	899	253		2,518	1.9%
53	133	204	531	494	313	1,159	303		3,137	2.3%
54	118	196	377	288	236	1,038	194		2,447	1.8%
55	90	128	298	254	203	1,104	196		2,273	1.7%
56	297	314	1,113	1,128	558	2,683	1,050		7,143	5.3%
57	168	279	792	258	362	1,426	424		3,709	2.8%
Grand Total	4,871	6,669	23,759	16,582	10,828	46,976	14,997	19	124,701	92.9%
City Total Incident Count 2019 - 2023										134,228

Table 12. Volunteer response types by station response area 2019 – 2023

Volunteer Service Demands by District/Station 2019 - 2023										
Station	**Fire**	**Hazmat**	**Medical**	**Rescue**	**Fire Related**	**False Alarm**	**Other**	**Aid Agreements**	**Grand Total**	**Overall Total**
District 6									1,845	1.37%
61	43	20	19	78	34	29	22	2	247	0.18%
62	50	36	44	52	44	34	33	1	294	0.22%
63	29	62	67	39	88	55	38		378	0.28%
64	38	37	51	115	92	189	50		572	0.43%
66	25	49	58	65	49	83	25		354	0.26%
District 7									1,730	1.29%
71	47	44	31	85	57	121	37	3	425	0.32%
72	50	55	53	129	80	143	67	9	586	0.44%
73	76	52	62	239	95	120	70	5	719	0.54%
District 8									3,005	2.24%
81	48	110	138	140	131	363	64	2	996	0.74%
82	58	90	142	188	126	230	36		870	0.65%
83	84	74	85	202	152	134	59	2	792	0.59%
84	42	28	32	65	59	75	43	3	347	0.26%
District 9									2,947	2.20%
91	89	58	92	138	114	132	38	1	662	0.49%
92	55	81	86	125	84	174	37	4	646	0.48%
93	71	103	164	211	122	301	58		1,030	0.77%
94	29	69	81	62	69	239	60		609	0.45%
Grand Total	834	968	1,205	1,933	1,396	2,422	737	32	9,527	7.10%
City Total Incident Count 2019 - 2023										134,228

To determine the frequency of incidents, the analysis focused on various temporal parameters including time of day, month, and year. The time-of-day chart (Figure 29) depicted a consistent rise in incident volume from 5 am to 8 pm across the entire five-year observation period. Incidents related to fires remained relatively steady throughout the day, with a slight surge noted during the late afternoon and evening hours, particularly from 4 pm to 9 pm. Among fire-related incidents, those associated with cooking predominated. The busiest periods for rescue operations typically occur between 6 am and 8 am, gradually intensifying throughout the day and reaching their peak between 3 pm and 5 pm. This trend is mainly driven by an increase in motor vehicle collisions (MVCs) during morning rush hours and end-of-day commuting times. Fire and Hazmat incidents exhibit consistency throughout the day, with a slight increase observed during daytime hours.

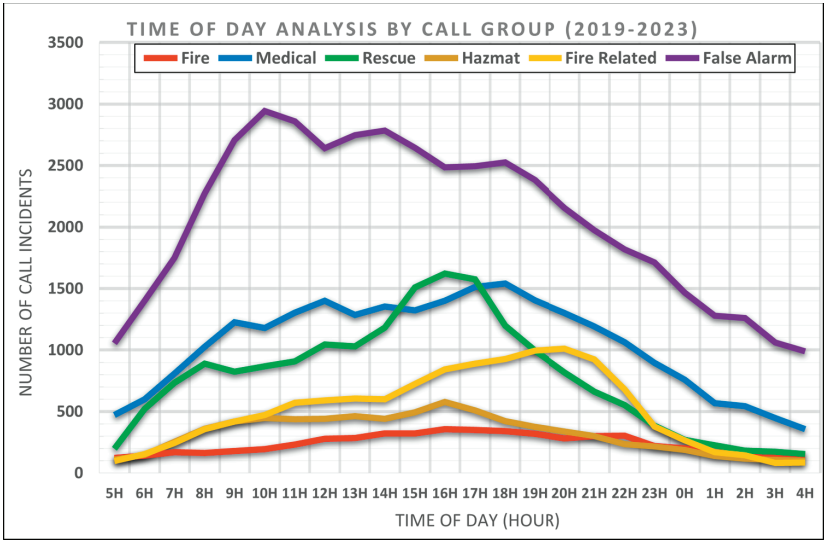


Figure 28. Time of day analysis showing total incidents by group (2019 – 2023)

The time of year analysis (Figure 30) offers the agency an overview of incidents over the course of a year. Particularly noteworthy is the rise in fire and fire-related incidents

between April and June, which corresponds to the heightened occurrence of grass fires and burning permit complaint the agency typically addresses during this period. From November to March, rescue incidents frequently surge due to icy road conditions and adverse weather.

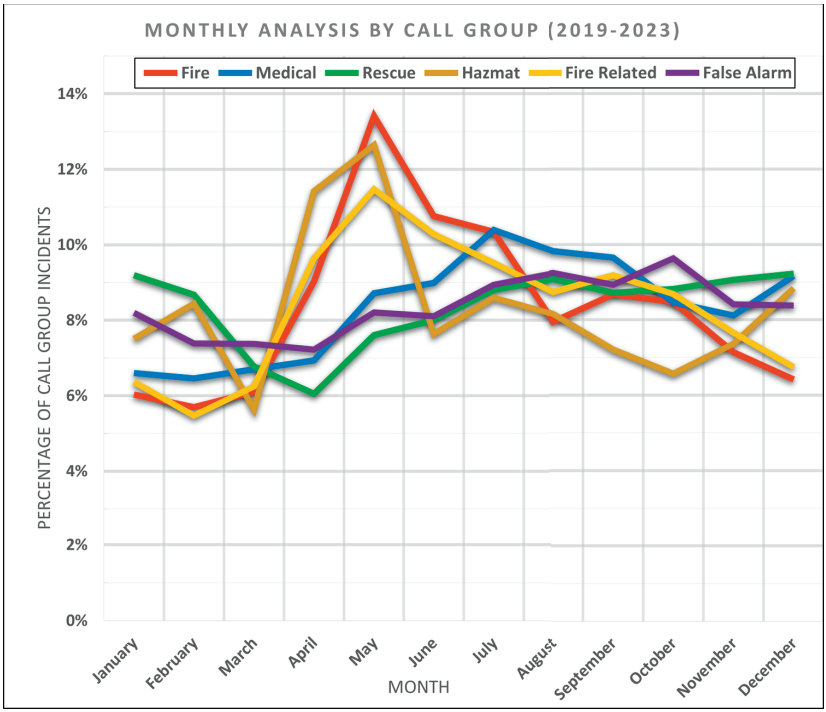


Figure 29. Time of year analysis as total incidents by group (2019 – 2023)

The chart depicting the time-of-day analysis by year (Figure 31) illustrates the distribution of all incident types according to the time of day for each individual year. As anticipated, call volumes for all incident types rise steadily from 5 am until 6 pm, reaching their peaks between 3 pm and 5 pm, before gradually declining overnight until the following morning. This pattern aligns with expectations, corresponding to periods when people are awake and active during their work hours. Additionally, there was a decrease in the volume of incidents for the years 2020 and 2021

compared to 2019. This decline in incidents is likely attributable to the slowdown in economic activity and the imposition of curfews due to the COVID-19 pandemic. However, in 2021, call volume surpassed the pre-pandemic levels of 2019, and by 2023, it exceeded all records of call volume for the past decade. This unprecedented increase in call volume could be attributed to the continuous growth in the population of Ottawa.

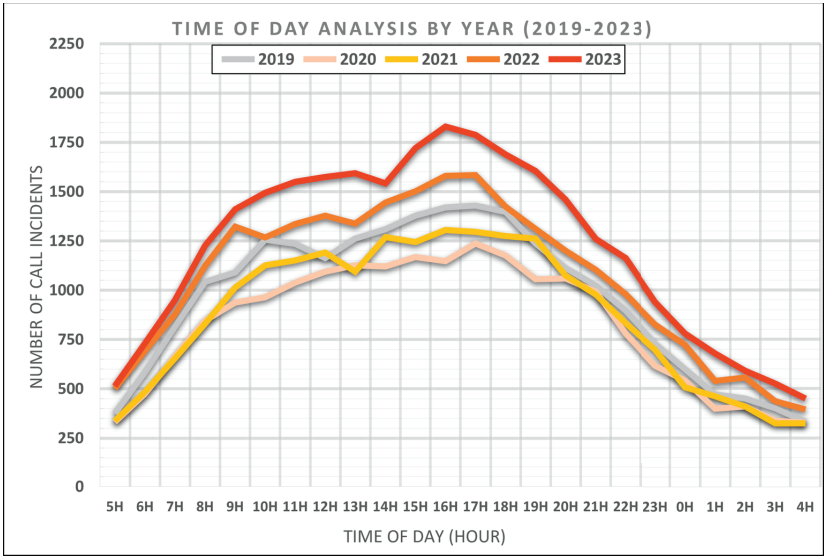


Figure 30. Time of day analysis as total incidents by year (2019 – 2023)

Automatic & Mutual Aid

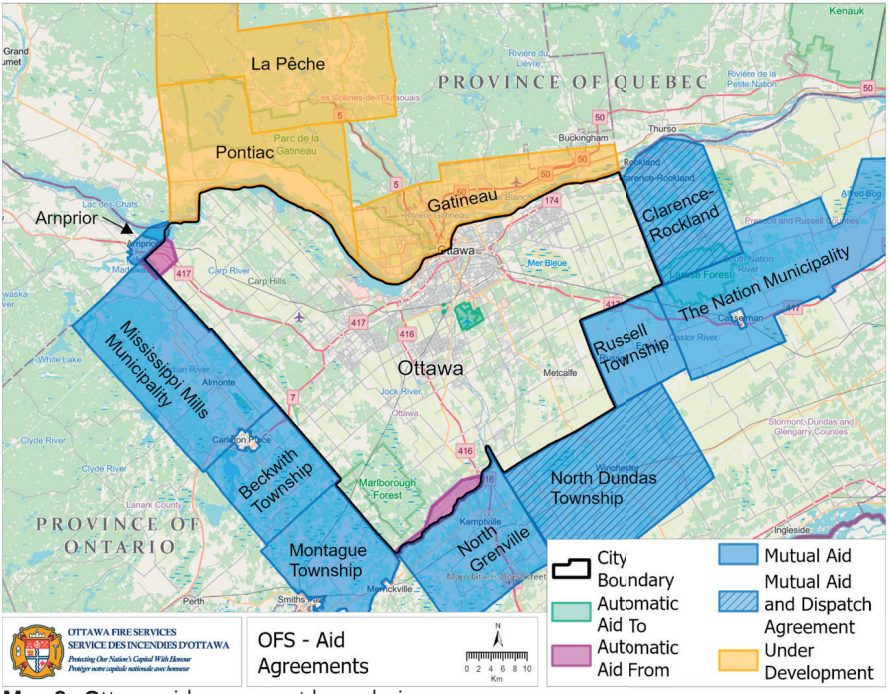
The Ottawa Fire Service participates with all its surrounding Municipalities in the region providing service as required. OFS is part of the Provincial mutual aid agreement which establishes rules and obligations to provide aid upon request when able. OFS also has agreements in place with the City of Gatineau and other agencies in the Western Quebec area to provide aid when required on a fee for services required basis.

Automatic aid is provided to our city in two specific areas at the southern and western tips of the city to ensure

coverage. This service is established through written agreements for emergency incident coverage and is activated through OFS Communications. In exchange for these services providing fire protection in these remote areas OFS provides special operations services on an as required basis.

OFS also has an agreement in place with the Ottawa International Airport to respond and aid when requested by the airport. This falls under an Automatic aid agreement that is established with the Ottawa Airport Authority.

OFS continues to foster and develop new agreements and review and modify existing agreements as required. This enables the agency to receive or provide aid as required and remain within its legal and jurisdictional rights and boundaries as well as being protected when outside of those boundaries. OFS also works to ensure redundancy in its operations to ensure that appropriate coverage is available within the city when our services are required outside of the city. In addition to offering suppression and rescue support, the agency is prepared to respond to hazardous material (HAZMAT), Urban Search and Rescue (USAR), Chemical, Biological, Radiological, Nuclear, and explosives (CBRNe) events and special operations rescues such as Trench & Collapse and Rope rescue both within the city and province upon request from the Provincial Operations Centre (POC) following these signed agreements.



Map 9. Ottawa aid agreement boundaries

Probability vs. Consequences

The development of a risk value for various types of hazards or incidents depends upon the probability that an event will occur and, on the results, or consequences that could potentially happen as a result of an event.

The Office of the Fire Marshal and Emergency Management, which the agency is legislated under, developed the Comprehensive Fire Safety Effectiveness Model to assist provincial Fire Services to develop a Fire Risk Sub Model. This model contains seven parts, one of them being:

The types of fire risks that a community may be expected to encounter are influenced by its defining characteristics. For example, a "bedroom community" presents a different set of circumstances over one that is characterized as an "industrial town". Communities that are distinguished by older buildings will pose a different set of concerns over those that are comprised of newer buildings constructed to modern building codes. Communities populated by a high percentage of senior citizens present a different challenge over ones with a younger population base.

Through analysis of the Provincial risk model it was determined that OFS would employ the same risk analysis methodology as the previous SOC. Ottawa Fire Service referenced incident types outlined in the OFM Standard Incident Reports along with historical data to assess the probability of various incidents. A risk value was then assigned to each type of incident category, which in turn aided in classifying structures, areas, and incident types into the risk hazard classifications. **(Exhibit E.5 OFM SIR Code List)**

The risk calculation was determined by utilizing probability data (Table 13) and consequence rating matrices (Table 14) to establish values for each incident type, a risk assessment was formulated using the Risk Rating Matrix (Figure 32). These tables drew significant inspiration from the OFM community risk assessment but were tailored to reflect the specific characteristics of the City of Ottawa. Breakpoints to delineate the risks into different categories were internally developed based on historical data. A comprehensive breakdown of all response and property types categorized into risk levels is available in **(Exhibit E.6 Risk Matrix Development)**.

The risk categories used in this process were internally approved as: Low, Moderate, High, and Maximum.

Table 13. Probability rating descriptions

Level	Descriptor	Description
1	Rare	May occur only in exceptional circumstances; may occur once every 5 - 10 years.
2	Unlikely	Is not expected to occur; may occur once every year.
3	Possible	Might occur at some time; and/or few, infrequent, random incidents; may occur once every month.
4	Probable	Likely to or may occur/recur several times per month; regular recorded incidents.
5	Highly Probable	Likely to occur or may occur/recur daily; high level of recorded incidents.

Table 14. Consequence rating descriptions

Level	Descriptor	Impact Categories	Description of Consequence
1	Insignificant	Life	No fatalities, injuries or impact on health.
			No persons displaced and no personal support required.
		Property	Minimal damage to properties.
			No disruption to community services or infrastructure.
		Environment	No impact on environment.
2	Minor	Life	Small number of people affected, no fatalities, small number of minor injuries with first aid treatment.
			Minor displacement of people for <6 hours and minor personal support required.
		Property	Minor localized disruption to community services or infrastructure <6 hours.
		Environment	Minor impact on environment with no lasting effects.
3	Moderate	Life	Limited number of people affected, possible hospitalization and medical treatment required. Possible fatalities.
			Localized displacement of small number of people. Personal support satisfied through local arrangements.
		Property	Localized damage that is rectified by routine arrangements.
			Normal community functioning with some inconvenience.
		Environment	Some impact on environment with short-term effects
4	Significant	Life	Significant number of people in affected area impacted with possibility of multiple fatalities, multiple serious or extensive injuries, and significant hospitalization. Large number of people displaced at least 6-24 hrs or possibly beyond. External resources required for personal support.
		Property	Significant damage requiring major renovation or demolition.
			Community and infrastructure effected with major inconvenience, some services unavailable.
		Environment	Significant impact on environment with medium to long-term effects.
5	Maximum	Life	Very large number of people (>100) in affected area(s) impacted with significant numbers of fatalities, large number of people injuries with long term effects. requiring hospitalization with serious injuries
			General and widespread displacement for prolonged duration and extensive personal support required.
			Extensive damage to properties in affected area requiring demolition.
			Serious damage to infrastructure causing significant disruption to, or loss of, key services for prolonged period.
		Property	Community unable to function without significant support.
		Environment	Significant long-term impact on environment and/or permanent damage.

Risk Hazard Classifications

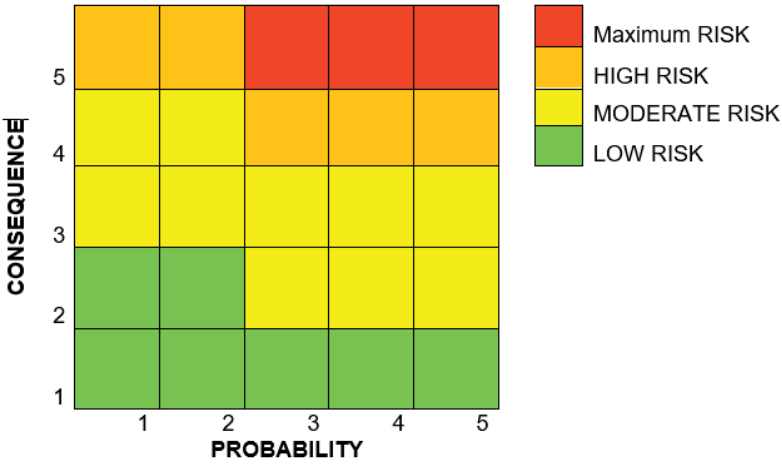


Figure 31. Risk rating matrix

Low Risk: These risks have minimal impact on life and property loss. They typically require only a small initial resource commitment and do not necessitate extensive monitoring and control unless subsequent assessments indicate a significant change, prompting a shift to another risk category. Examples include grass or bush fires with no exposure, vehicle fires without exposure, small non-commercial structures isolated from other buildings (such as sheds, dumpsters, or mobile properties), and incidents like downed wires, elevator rescues, and carbon monoxide alarms.

Moderate Risk: This category encompasses built-up areas of average size where the risk of life loss or property damage due to fire is usually confined to occupants or small commercial properties. Property concentrations may vary but are generally limited. Incidents in this category may cause localized damage and displacement of residents, along with some inconvenience to community functions such as road closures. The economic impact is usually restricted to small businesses or industries, with localized environmental effects. Examples include detached single-

family residences, semi-detached multi-occupancy buildings, smaller multi-story dwellings, offices, mercantile, and industrial properties that do not typically require extensive rescue or firefighting efforts. Non-structural risks in this category include motor vehicle collisions, fluid spills, and natural gas leaks.

High Risk: Risks in this category are characterized by medium to high probability and high consequences, affecting large numbers of people and properties. They include built-up areas with a high concentration of property posing substantial risks of life loss, severe financial impact, or unusual damage potential in the event of a fire. Strategies should be developed to reduce or eliminate these risks, and mitigation measures such as multi-agency planning, exercises, and training should be implemented and regularly monitored. Responding to these events requires a significant initial resource commitment. Examples include high-rise buildings, schools, hospitals, high-risk commercial properties, and entertainment venues like cinemas and nightclubs. Non-structural risks in this category include special operations incidents such as high-angle rescues, trench rescues, confined space incidents, large vehicle collisions, and below-grade Light Rail Transit incidents.

Maximum Risk: Risks in this category are characterized by low probability but high consequences, which may result from natural or manmade events. They have the potential to affect significant numbers of people, cause large economic losses, displace residents or workers, and have serious effects on the community and environment. Significant "special or technical rescue" intervention is often required. Examples include residential premises of substantial size presenting abnormal risks, such as hospitals or prisons where individuals have restricted mobility or require 24-hour care. Non-structural risks and special circumstances in this category may involve incidents like large aircraft accidents, major building collapses, or major hazardous materials incidents. In Ottawa, this category also encompasses major structures and agencies representing political symbols and

cultural heritage, such as parliament and the supreme court.

Fire Risk Tools and Assessment

When assessing risks to life, the Ottawa Fire Service considered two significant factors: population density and property/building types. Population density analysis, as the primary factor, involved examining various characteristics. By accurately mapping census data onto fire grids, the agency could assign life risks according to population density. It's recognized that areas with higher population density pose an elevated risk to life due to the greater concentration of individuals and increased potential for fire spread between buildings. These breakpoints are determined by the population categories outlined in Table 15.

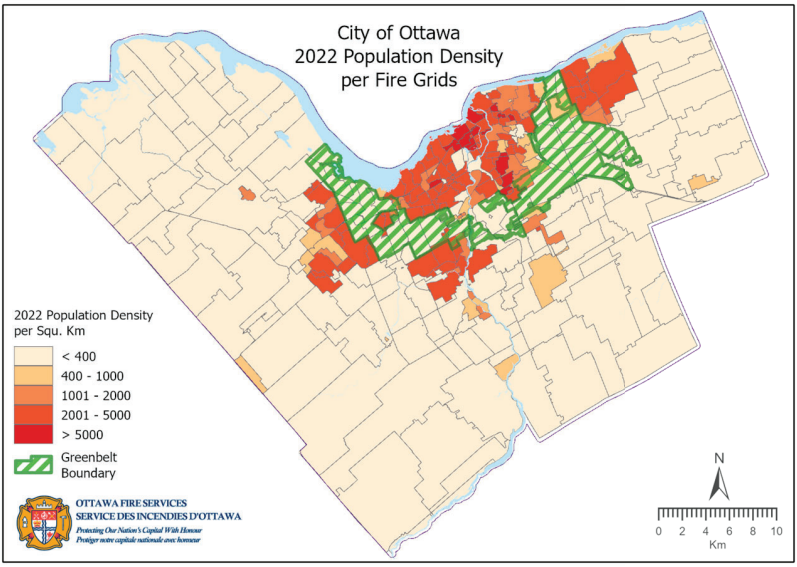
Table 15. Population density by population category

Population Category	Population Density
Urban	> 400 people/km² (2000 mi²)
Rural	< 400 people/km² (<1000 mi²)

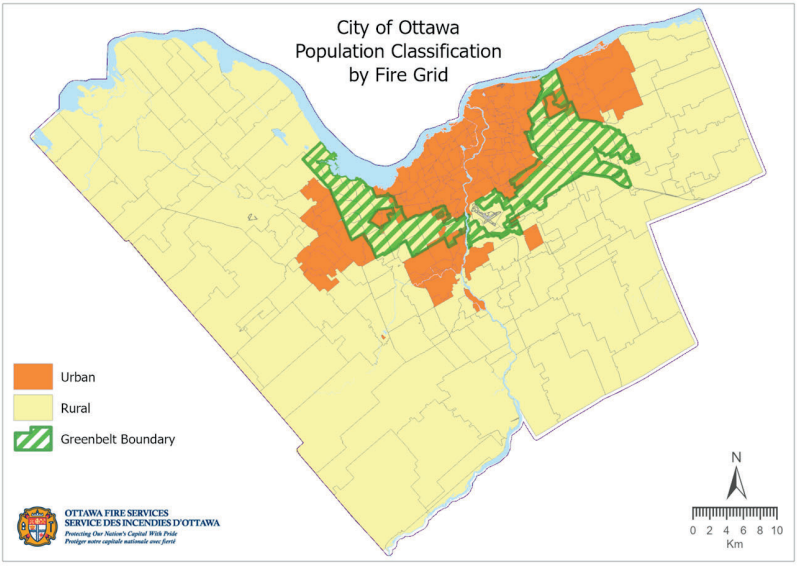
The method of categorizing population areas within this range has been formulated by the agency and sanctioned by the Authority Having Jurisdiction. This assessment provides a suitable framework for Ottawa and its demographic composition. All population data was obtained from Statistics Canada.

Map 8 represents the population density distribution by fire response zones within the City of Ottawa.

Map 9 represents the population density classifications by fire grids.



Map 10. Population density within fire grids



Map 11. Population classification by fire grid

Property / Building Type

The second factor considered by the Ottawa Fire Services in categorizing risk to life pertained to property and building type. Utilizing GIS technology to pinpoint all properties within the City of Ottawa, risk ratings were allocated based on type and usage. This facilitated an assessment of all city areas according to both population density and building risk levels, classified as Low, Moderate, High, and Maximum. To rank individual structures within the City of Ottawa based on their fire risk, the following methodology was employed:

Property Classifications

Probability and consequence values for the various property types within the city are determined for each classification group, considering the qualifiers outlined in Tables 13 & 14. These groupings are loosely structured around the classifications found in the Ontario Fire Code, which in turn are derived from the Ontario Building Code property classifications. The ensuing property type groupings were utilized for this risk assessment.

1. Educational
2. Care & Detention
3. Assembly
4. Residential - Single Family
5. Residential – Multi Unit / Low Rise
6. Rooming / Boarding
7. Commercial Lodging
8. Commercial
9. Mercantile
10. Industrial

Modifiers

Before applying the risk matrix to determine their risk ratings, probability and consequence values were first applied to all property parcels across the city based on their classification groups. Once these values were assigned to

each parcel, property modifiers were then applied.

Property modifiers are attributes of individual properties that either enhance their fire consequences or alter their probability of experiencing an event. Negative modifiers are those that decrease a parcel's risk rating, while positive modifiers increase it. Modifiers are rated from +1 to -1, depending on their impact. Adjusting a probability or consequence is permissible only if it shifts a parcel's overall probability or consequence rating by one level.

Probability Modifiers:

- Inspected – If the property parcel has been inspected over the past 5 year period the probability of an incident occurring there is reduced
- Low Income – These subsidized properties can be assisted living and/or independent living, a vulnerable occupancy and the probability of an incident occurring there is increased

Consequence Modifiers:

- Hazardous Materials Storage – If a property is identified as having hazardous materials storage on site through a preplan and/or inspection data a consequence modifier of +1 is added
- Fire Protection System – If a property is identified as having protection system on site a consequence modifier of -1 is added.

Once all propeties have gone through the modifier process the new assigned probability and consequence values are then utilized to develop a risk rating using the risk matrix.
A risk scenario table has been developed to verify and demonstrate the final risk ratings of the properties throughout the city.

Once all risk ratings were assigned to the City's properties using the probability and consequence fire risk model,

results were summarized and broken down by risk category in Table 16.

The results showed 5.79% (16,678) of the total properties classified with low risk ratings. These properties tend to be open land, forest, farm land, or smaller structures.

Results further showed that moderate risk properties account for 93.29% (268,613) of the total properties. The majority of properties in this group are residential properties with a smaller concentration of commercial properties.

High risk rating properties came in at 0.83% (2,401) of the total properties. This group accounts for schools, larger commercial or industrial buildings, hospitals, nursing homes. Maximum risk properties represent a very small fraction of the overall property numbers.

Table 16. Property counts by risk category data

Risk Category Property Count		
Risk Category	**Properties #**	**Properties %**
Low	16,678	5.79%
Moderate	268,613	93.29%
High	2,401	0.83%
Max	228	0.08%

Detailed fire risk rating results of the City of Ottawa are shown in Table 17 and Table 18 Results were tabulated by risk category within each Fire Response Zone providing an excellent outline of the demand placed upon the department as a result of the risk that exists within the community.

Low risk properties are scattered throughout the city across all response areas, ranging from open land to small structures like dumpsters, sheds, and mailboxes.

Moderate risk properties are mainly located outside the greenbelt, primarily in urban response zones characterized by residential subdivisions. While many urban station response zones host the majority of these structures, some urban neighborhoods also feature small pockets of these

property types. With new housing developments emerging in growing areas, such as new growth zones, the number of moderate-risk properties is anticipated to increase, including smaller commercial spaces surrounding these developments.
Rural areas encompass small villages or clustered communities, resulting in larger concentrations of residential and smaller commercial structures.

High risk properties are notably concentrated in urban fire response zones, particularly in high-density housing areas, which also accounted for the highest percentage of the total fire incident volume. The downtown core serves as the commercial and economic hub of the city, housing numerous large residential and commercial structures falling into this category.

While fire response zones surrounding the downtown core exhibit a relatively even distribution of low, moderate, and high-risk properties, they feature distinct high-risk features, including large, industrialized buildings and high-technology nodes with significant business parks and concentrations of schools adjacent to expanding housing developments. Additionally, the four major post-secondary institutions contain many such structures, particularly residential dormitories.

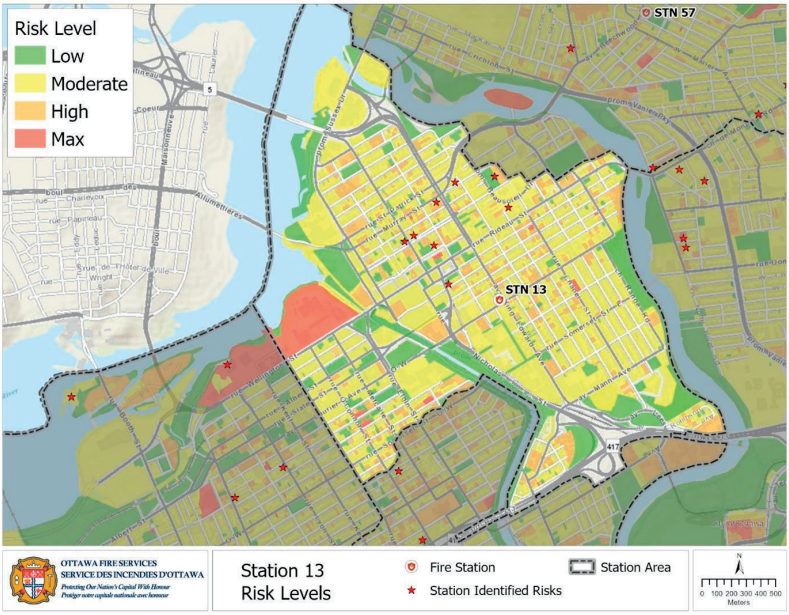
Rural fire response zones have the lowest percentages of high-risk properties, given the minimal need for such property types in these more remote areas. Most high-risk structures in rural areas are multi-story seniors' residences and care homes.

Maximum risk there are a small number of properties and are primarily located within the urban area inside the greenbelt. Many culturally significant structures, such as the Parliament Buildings, Canadian national museums, and hospitals, fall into this category.

The following map demonstrates the results of the fire risk model and the distribution of the risks within a response

area. The stars indicate structures or locations that the response crews from that area have identified as being high risk as defined in the building risk survey conducted.

(Exhibit E.10 Urban Expansion)



Map 12. Sample risk assessment for station response area 13

Table 17. Fire risk breakdown by response zone (Career area)

Career Response Area Risk Chart									
Station Response Area	Low Risk	Percent of Total	Moderate Risk	Percent of Total	High Risk	Percent of Total	Max Risk	Percent of Total	Grand Total
11	397	4.18%	7,506	3.22%	252	10.71%	12	5.63%	8,167
12	180	1.90%	7,692	3.30%	195	8.29%	10	4.69%	8,077
13	250	2.63%	3,257	1.40%	338	14.37%	12	5.63%	3,857
21	137	1.44%	8,605	3.69%	63	2.68%	12	5.63%	8,817
22	195	2.05%	6,083	2.61%	83	3.53%	14	6.57%	6,375
23	280	2.95%	11,269	4.83%	140	5.95%	27	12.68%	11,716
24	168	1.77%	5,559	2.38%	63	2.68%	10	4.69%	5,800
25	75	0.79%	4,302	1.84%	31	1.32%	1	0.47%	4,409
31	194	2.04%	7,969	3.42%	68	2.89%	6	2.82%	8,237
32	1,256	13.22%	7,817	3.35%	33	1.40%	3	1.41%	9,109
33	118	1.24%	4,433	1.90%	55	2.34%	6	2.82%	4,612

34	153	1.61%	3,049	1.31%	26	1.11%	4	1.88%	3,232
35	165	1.74%	7,584	3.25%	78	3.32%	17	7.98%	7,844
36	144	1.52%	1,837	0.79%	38	1.62%	5	2.35%	2,024
37	544	5.73%	11,659	5.00%	47	2.00%	1	0.47%	12,251
41	331	3.48%	13,859	5.94%	43	1.83%	0	0	14,233
42	448	4.72%	10,113	4.34%	65	2.76%	7	3.29%	10,633
43	89	0.94%	3,828	1.64%	35	1.49%	6	2.82%	3,958
44	503	5.30%	18,794	8.06%	88	3.74%	6	2.82%	19,391
45	349	3.67%	3,203	1.37%	0	0	1	0.47%	3,553
46	1,133	11.93%	14,361	6.16%	54	2.30%	4	1.88%	15,552
47	310	3.26%	10,488	4.50%	17	0.72%	0	0	10,815
51	198	2.08%	7,193	3.08%	89	3.78%	14	6.57%	7,494
52	172	1.81%	6,218	2.67%	41	1.74%	6	2.82%	6,437
53	485	5.11%	13,762	5.90%	47	2.00%	5	2.35%	14,299
54	448	4.72%	11,261	4.83%	61	2.59%	4	1.88%	11,774
55	432	4.55%	11,909	5.11%	38	1.62%	3	1.41%	12,382
56	203	2.14%	4,496	1.93%	134	5.70%	8	3.76%	4,841
57	141	1.48%	5,128	2.20%	130	5.53%	9	4.23%	5,408
Grand Total	9,498	100%	233,234	100%	2,352	100%	213	100%	245,297

Table 18. Risk breakdown by response zone (Volunteer area)

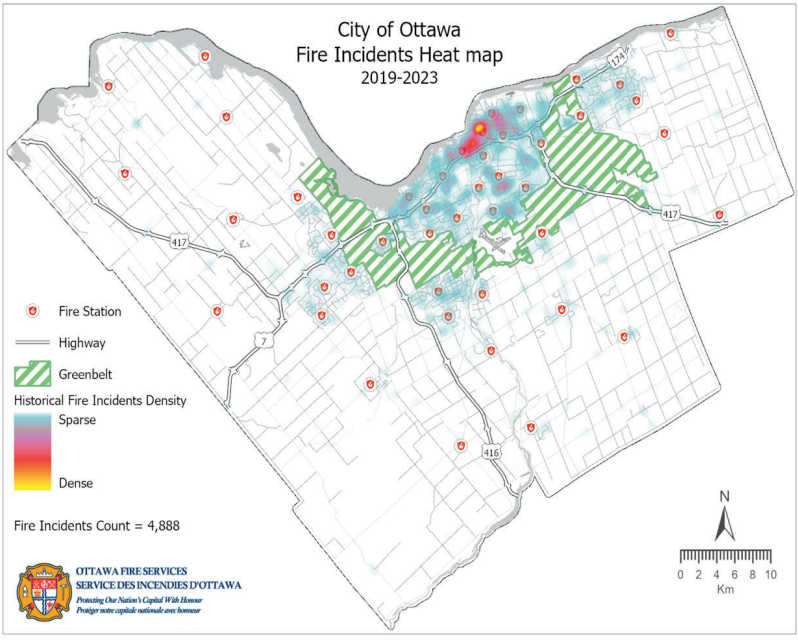
Volunteer Response Area Risk Chart									
Station Response Area	Low Risk	Percent of Total	Moderate Risk	Percent of Total	High Risk	Percent of Total	Max Risk	Percent of Total	Grand Total
61	305	4.25%	910	2.57%	0	0%	0	0%	1,215
62	456	6.35%	1,342	3.79%	2	4.08%	0	0%	1,800
63	202	2.81%	1,498	4.23%	1	1.96%	0	0%	1,701
64	608	8.47%	1,800	5.09%	2	3.92%	0	0%	2,410
66	316	4.40%	1,422	4.02%	0	0%	0	0%	1,738
71	267	3.72%	1,143	3.23%	2	3.92%	2	13.33%	1,414
72	253	3.52%	1,632	4.61%	0	0.00%	5	33.33%	1,890
73	361	5.03%	1,371	3.88%	2	3.92%	2	13.33%	1,736
81	522	7.27%	5,652	15.98%	8	16.33%	0	0%	6,182
82	791	11.02%	3,478	9.83%	6	11.76%	3	20.00%	4,278
83	788	10.97%	2,329	6.58%	1	1.96%	0	0%	3,118
84	336	4.68%	1,495	4.23%	1	1.96%	0	0%	1,832
91	549	7.64%	2,366	6.69%	8	15.69%	1	6.67%	2,924
92	322	4.48%	2,499	7.06%	4	7.84%	0	0%	2,825
93	753	10.48%	3,747	10.59%	2	3.92%	1	6.67%	4,503
94	351	4.89%	2,695	7.62%	10	19.61%	1	6.67%	3,057
Grand Total	7,180	100%	35,379	100%	49	100%	15	100%	42,623

Ottawa Fire Services is continuing to gather data through a labour intensive pre-fire planning of structures within every

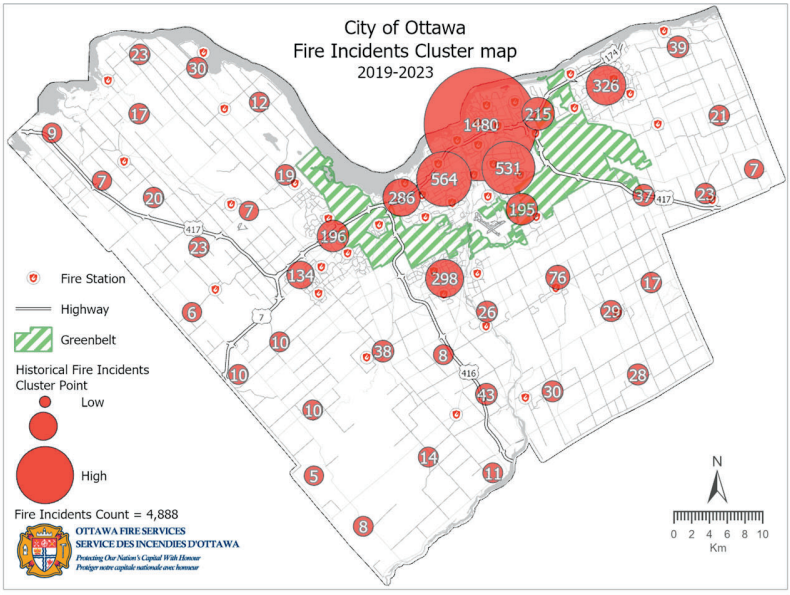
district in order to identify risk by individual building. This includes but is not limited to information pertaining to the buildings; occupancy type, fire load, age and fire protection systems. Due to the large number of structures and the requirement for accurate information gathering, this process is expected to take a significant period of time and will never truly be complete as data will become out of date due to changes in ownership, use and renovations, in a relatively short period of time. The pre-fire planning will provide an extensive overview of structural risks and a closer identification of low, moderate, high, and maximum risk hazards.

Historical Data

Another crucial element in the development of effective fire risk tools involved the utilization of historical data, focusing on both probability and consequence, as detailed earlier. By analyzing historical data, density hotspots by incident type were identified. This analysis was integral in assessing the likelihood of incident occurrences and identifying the types of structures most susceptible to incidents. These probabilities, coupled with projected consequences, were instrumental in determining risk levels for structures and fire incidents within the matrix described previously.



Map 13. Fire incidents density hot spots (2019 – 2023)



Map 14. Cluster fire incidents (2019 – 2023)

HEMS Risk Tools and Assessment

The assessment of risk for emergency medical incidents was completed by analyzing historical data and comparing that data to the City's demographics and density. Deployment of the Ottawa Fire Services' personnel remains a part of a much larger tiered medical response with lead partners from the Ottawa Paramedic Services.

The Tiered Response Activation Agreement signed July 2023 developed a service requirement matrix to determine Tier Agency and which services are required to respond to the most common incidents. The Tiered Response De-escalation Agreement signed April 2013 developed an incident information Sharing Matrix that addresses the systematic and safe release of resources and emergency vehicles from calls for service based on the on-scene information and the updated dispatch call information.

Based on direction from the General Manager of Emergency and Protective Services a meeting with the Director of Public Safety Services and the Chiefs of Police, Fire and Paramedics was held in April 2022 to reinstate engagement to determine if any service enhancements could be made. From this meeting a Terms of Reference (TOR) was developed and signed January 2023. The TOR is the new governance model for tiered response and it highlights the City's commitment to ensuring the tiered response model is kept up to date.

The Tiered Response Working Group held meetings to review the previously signed Tiered Response Activation Agreement and Tiered Response De-escalation Agreement and recommendations were forwarded to the Committee Level for approval. In October 2023 a revised Tiered Response Agreement was signed and the changes to the agreement were implemented December 4, 2023. Below highlights some of the changes.

- Language added to the agreement to confirm each incident in Appendix A: Service Requirement Matrix can fall under multiple categories depending on the

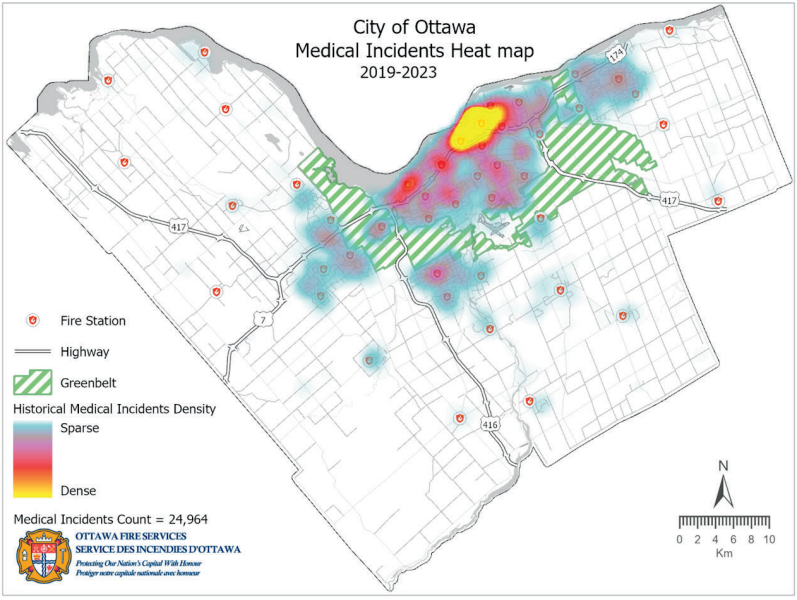
circumstance. For example, a medical call where there is violence or criminal circumstance, Paramedics must tier Police, but if the call includes reported VSA or unconscious person, then Fire must also be tiered. Prior to the language change Paramedics were not tiering Fire to medicals involving violence or criminal circumstance.

- Fire now tiered to non-emergency lifts assist calls as patients were experiencing Paramedic delays and Ottawa Fire Services has the capacity to offer assistance and where applicable can provide patient status update to allow Paramedics to accurately prioritize the call. From December 4, 2023 to January 28, 2024 Ottawa Fire Services responded to 437 lift assist calls which represents an average of 7.8 calls per day.
- As Ottawa Fire Services is trained and equipped to manage active bleeding, they are now tiered to calls involving injuries due to stabbings and shootings, regardless of whether the patient is VSA or unconscious.
- Hostile Events matrix added to the Tiered Response Agreement to ensure consistent activation by all emergency services.
- Prior to the updated Tiered Response Agreement implementation Ottawa Fire Services was tiered to Paramedic Code 4 Responses when their dispatch activation exceeded 5 minutes regardless of the estimated Paramedic response time. New language was added to ensure Ottawa Fire Services is also tiered Paramedic Code 4 Responses when a Paramedic response time delay of 20 minutes or greater is identified.

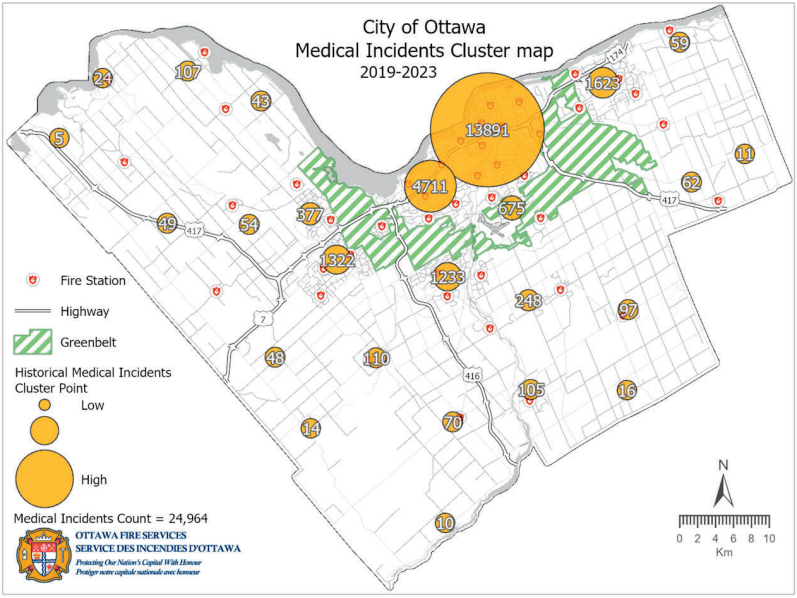
Based on the TOR the Tiered Response Steering Committee will meet at least once annually to establish guidelines and priorities that will improve the Tiered Response and to approve proposals put forth by the Tiered Response Working Group. **(Exhibit E.8 Tiered Response.)**

Historical call data undergoes analysis to identify density hotspots where incidents have occurred. Additionally, the city is evaluated based on specific property types and locations associated with heightened levels of medical incidents, such as local homeless shelters, missions, and low-income housing sites.

The hotspot density mapping reveals that the majority of medical incidents occur in the urban core of the city.



Map 15. Medical incidents density hot spots (2019 – 2023)

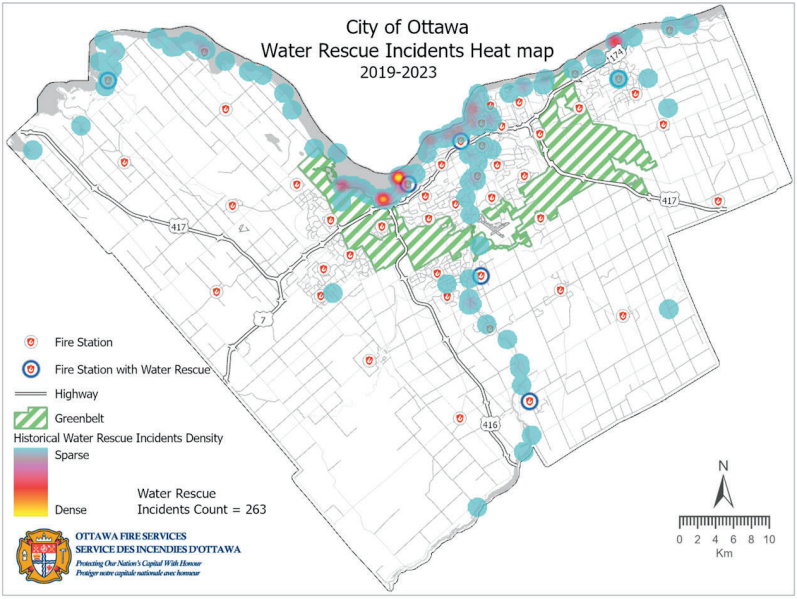


Map 16. Cluster medical incidents (2019 – 2023)

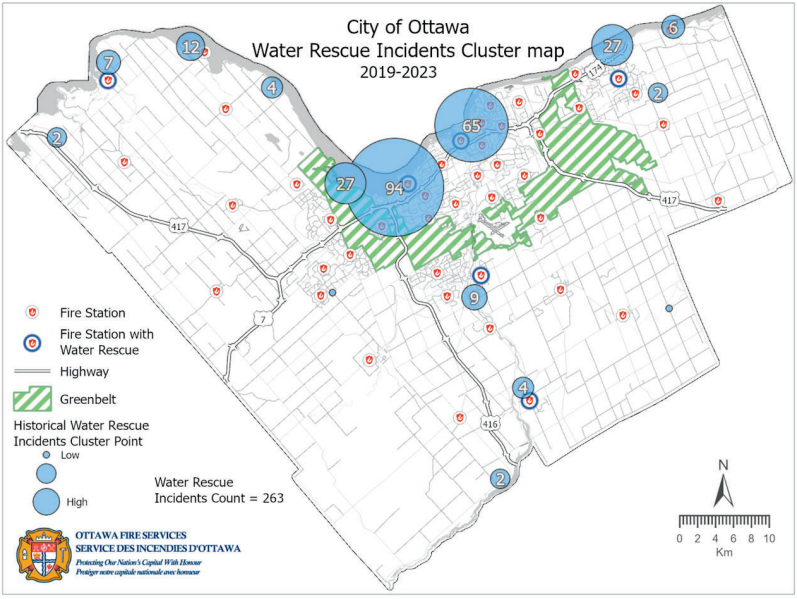
Rescue Risk Tools and Assessment

Vehicle rescues represent the most common type of rescue operations conducted by Ottawa Fire Services. Conversely, technical rescues such as collapse, high-angle, and water rescues fall into a category characterized by low frequency but high consequences. Historical mapping has been employed for each type of rescue to discern any concentration patterns within the city.

A water rescue hotspot map driven by density focuses on locations where water rescue incidents have occurred and their frequency. The provided example (Map 13) illustrates a concentration of water rescue hotspots, notably indicating an increased occurrence within the city's core. This hotspot corresponds to the area where swift water is prevalent and where the largest population resides.

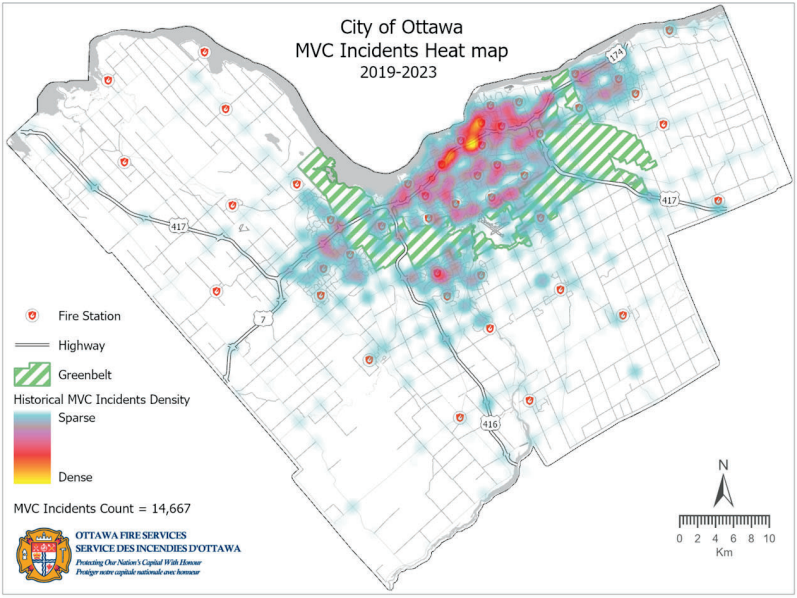


Map 17. Water rescue incidents density hot spots (2019 – 2023)

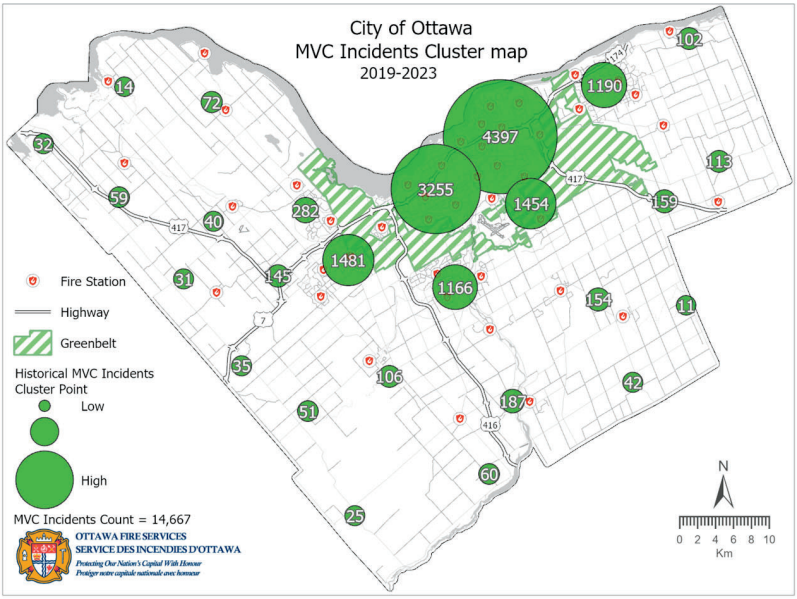


Map 18. Cluster water rescue incidents (2019 – 2023)

Motor vehicle collision (MVC) incidents predominantly occur on high-speed and high-volume roadways, as evidenced by the density hotspot mapping. This mapping reveals substantial incident volumes on major provincial highways and primary feeder routes facilitating traffic flow to and from the urban core, encompassing both rural areas and suburbs, in addition to the downtown core.



Map 19. Motor vehicle collisions density hot spots (2019 – 2023)

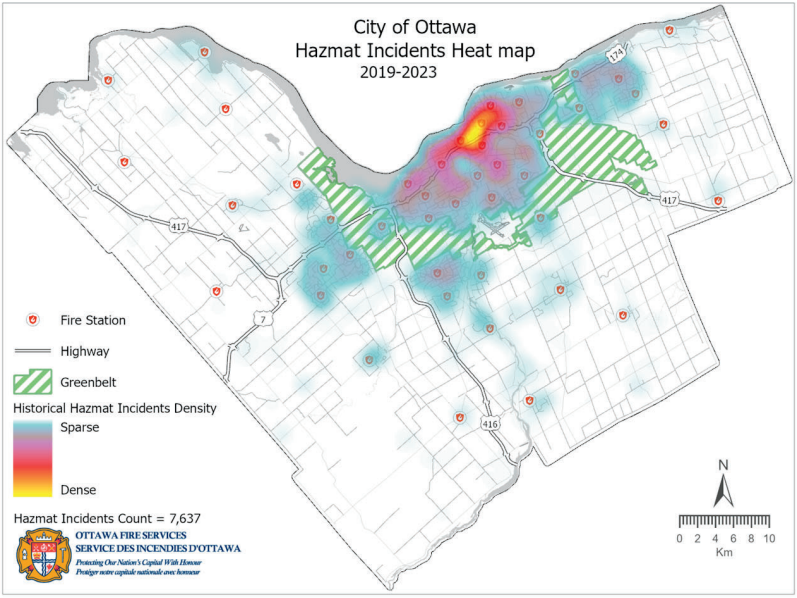


Map 20. Cluster motor vehicle collisions (2019 – 2023)

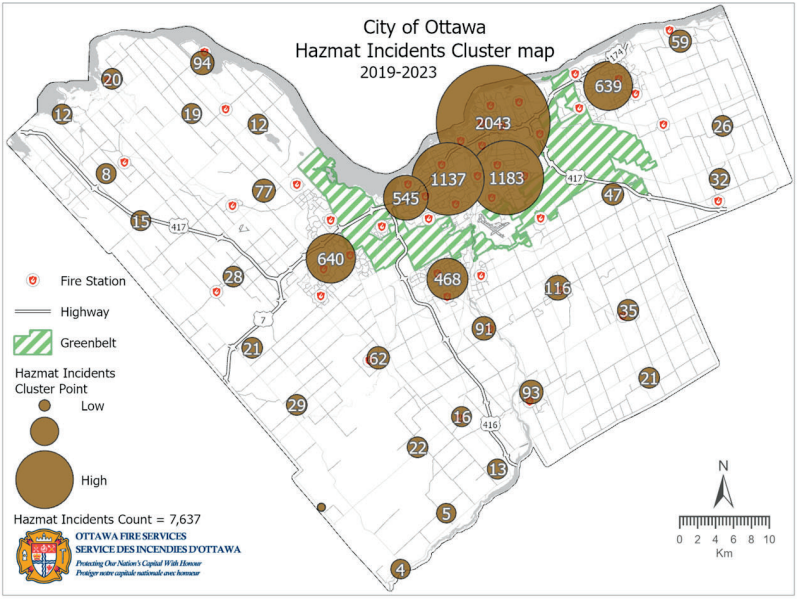
Hazardous Materials Risk Tools and Assessment

Hazardous materials are located throughout the City of Ottawa and are often in transport, although bulk shipments usually remain on certain routes. Ottawa is not a relatively large industrial community, regarding chemical use, but there are several sites with bulk chemical storage. There is also a large research base, where generally smaller amounts of chemicals are used, but in great variety, which includes two universities, two colleges, the National Research Council (NRC) and a life sciences research institute. Ottawa is not unique in that several smaller commercial enterprises utilize chemicals as part of service they provide, such as dry cleaners, service stations, pool suppliers and pharmacies.
Buildings that are susceptible to possible CBRNE attacks, such as Federal Government office buildings, complexes and infrastructure including but not limited to: embassies, national monuments, museums and galleries are identified and included in this assessment.

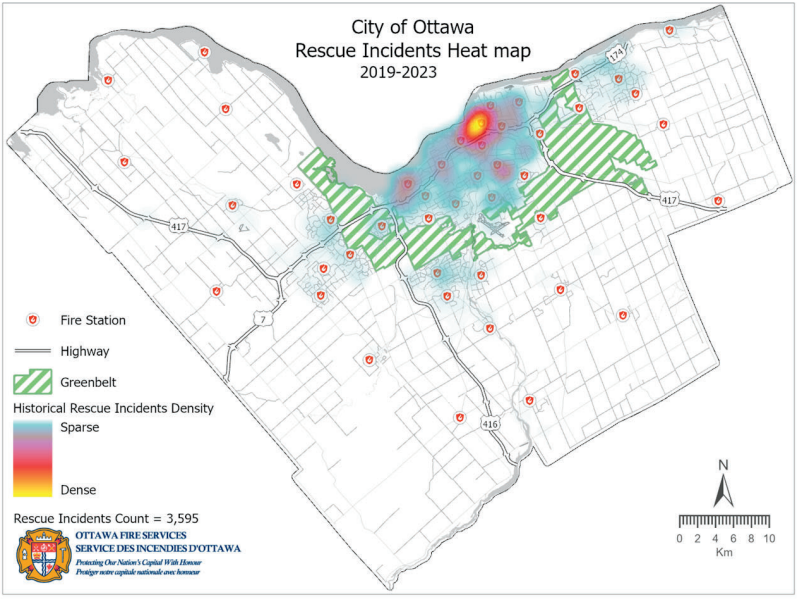
Historical data is analyzed to pinpoint density hotspots or areas with concentrated hazmat incident types. This analysis is crucial for assessing the likelihood of incident type occurrences and identifying the locations or areas most susceptible to hazmat incidents. This mapping clearly illustrates that hazmat incidents occur in the more densely populated areas of the city.



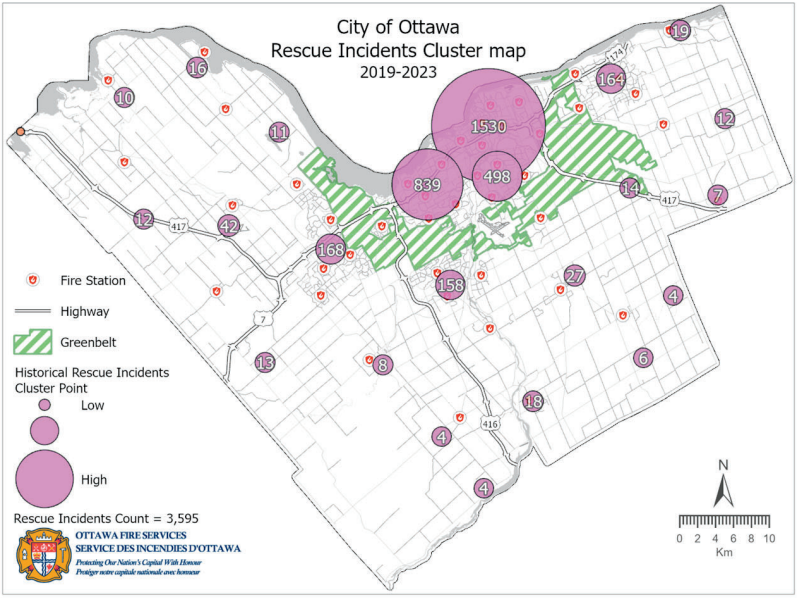
Map 21. Hazmat incidents density hot spots (2019 – 2023)



Map 22. Cluster Hazmat density hot spots (2019 – 2023)



Map 23. Rescue incidents density hot spots (2019 – 2023)



Map 24. Cluster rescue incidents (2019 – 2023)

Critical Tasking

To effectively respond to any emergency, it is important to understand the number and type of resources required for each particular event. A critical task analysis assists in providing a deeper understanding of resource requirements by identifying what specific or "critical" tasks must be done to perform initial rescue and incident mitigation for any emergency.

To standardize the response to various incident types, and to ensure that a minimum effective response force is dispatched, the Ottawa Fire Service uses a running assignments chart based on the information received by communications and resources available. This is a standard operating procedure which guides communications to dispatch the required units. **(Exhibit E.12 Running Assignments)**

The number of persons/resources required to complete the identified critical tasks is known as the "Effective Response

Force" (ERF).

The following section provides an overview of the critical tasks, levels of risk and associated Effective Response Force (ERF) measured by the Ottawa Fire Service for Fire, Medical, Rescue, and Hazmat emergencies.

Fire Suppression Responses

Critical tasks for fire suppression are determined with respect to three priorities: Life Safety, Fire Control, and Property/Environment Conservation. The Ottawa Fire Service Standard Operating Procedure for the Incident Management System reflects the priorities of an emergency and the Strategies and Tactics Manual reinforces this concept.

Prior to the arrival of firefighters, company officers receive information from dispatch with regards to the incident address, the type of emergency, building type, occupancy and situational updates. Information is provided on a printout (station printers), Mobile Data Terminal now in all apparatus, and dispatchers commonly update responding units verbally and via Mobile data terminals (MDT), as the situation requires. Average response to a fire varies depending on the location of the incident; as was explained in the risk assessment.

There is no scientifically based protocol which provides guidance for determining what resources are required for each fire situation. However, studies undertaken by NIST, NFPA (1710), and the Office of the Fire Marshal provide general guidelines for initial critical fire ground tasks required for each level of risk (Low, Moderate, High, and Maximum) for structure fires. When matching deployment to risk the Ottawa Fire Service reviewed several current practices including the Office of the Fire Marshals' guidelines, the NFPA Fire protection Handbook, and other similar CFAI accredited agencies to ensure the departments ERF is in line with best practice.

Structure Fire Performance Analysis

To validate the ERF numbers and response model the Ottawa Fire Service undertook a review of all structure fire incidents (SIR 01) over the last 5 years.

Four (4) metrics were identified to assess the departments performance during fire incidents.

1. First due performance in relation to the identified Performance Benchmark
   - Is the deployment model achieving expected performance
2. Under Control* declaration in relation to ERF Benchmark performance goal
   - Validate the effectiveness of initial responding units to limit incident growth
   - Identify percentile of fire events to which a full ERF was not required (cleared)
3. Average dollar loss
   - Determine the relative consequence of fire incidents brought under control prior to ERF assembly benchmark
4. Total staff on scene
   - Determine the reliability of assets to respond to subsequent events based on level of staffing/apparatus committed to incidents

**Under Control is a mandatory benchmark which is reported by command for all fire incidents. It is defined as "The growth of the incident scope/scale has been stopped and the on-scene resources are sufficient to manage the rest of the operations.*

Data Analysis

1. Urban first on scene performance was consistently better (92 to 98 percentile) than the prescribed 90th percentile benchmarks.
2. Early notification of fire service by occupants or alarm systems had the expected impact on reduction of incident consequences with average dollar loss being less than $8.5K across all risk types.
3. A varied percentile of incidents were brought under control before the identified ERF benchmark times. This raged from 20Pk for urban moderate risk to 88Pk for urban high risk.

> *This could impact ERF performance analysis as the ERF may not have been achieved but may not have been required to effectively manage the incident. Consideration should be given to including these incidents in the ERF performance analysis to better reflect service performance achievement.*

4. Urban High Risk Alarm calls where fire suppression operations were needed, resulted in the least consequence ($) and resource commitment in both time on scene and total numbers of personnel.
5. Broad geographic distribution of rural fire incidents in relation to the concentration of incident responses (villages/hamlets); has the net effect of skewing first due and ERF performance relative to benchmark performance by twenty to thirty percentiles as compared to urban response areas. This is consistent with the current service level for rural operations established by the AHJ.

6. Rural high-risk properties are generally unprotected (barns, light processing and industrial), contributing to average dollar loss ($77K to $183K)
7. The service achieves under control 90Pk between 00:24 min. to 00:76 min. across all risk types.

Conclusions

1. The initial alarm assignments for potential fire incidents bring resources to scene in a timely manner resulted in early interventions and a significant number of incidents being brought under control quickly. Resources can be cleared quickly, ensuring availability for concurrent/subsequent incidents.
2. For incidents not immediately suppressed by first on scene crews, needed resources arrive in a timely manner and in appropriate numbers for safe and effective fire suppression activities.

(Urban and Rural Incident Performance Tables)
(Exhibit E.9 Critical Tasking)

Critical Tasks: The following is an Overview of Requirements for a Structure Fire – Moderate Risk

The Incident Commander (IC) is responsible for the safety and overall direction and management of the emergency response at the incident. This function is the responsibility of the first officer arriving on scene until relieved of command and shall:

- Assume, confirm, and announce Command and take an effective exterior operating position
- Evaluate the situation rapidly - size-up
- Initiate, maintain, and control the communications process at the scene
- Identify the overall strategy, develop an incident action plan, and assign personnel as required in accordance

with risk assessment and management principles
- Request additional resources to match the current and predicted needs of the incident
- Develop an effective emergency scene organization
- Provide tactical objectives to personnel
- Review, evaluate, and revise as needed, the incident action plan
- Provide for the continuity, transfer, and termination of Command
- Provide for the support of victims and public as required;
- Provide spokesperson / communication services to the media when appropriate.

The first six functions must be addressed as soon as possible from initial assumption of Command.

Pump Operator for the first arriving pump company has the following duties:

- Position the pump past the building in order to leave the front of the building open for ladder operations
- Supply the initial attack line in accordance with the OFS SOP's and pump operators' training program
- Ensure that a reliable water supply is secured
- Lay a dry 65 millimetre fire attack backup line to side one and make it accessible for use by flaking it out in close proximity to the original entry point
- Supply any other hose that will be required by command and sector companies
- When time permits, stretch additional dry hose lines equipped with piercing applicator nozzles and Bresnan nozzles
- When the additional lines have been stretched, advise command that they are available for use
- Supply building fire protection system when present

Fire Attack sector is generally under the control of the first arriving company officer and directs companies to control and extinguish the fire. The fire attack company may e comprised of 2 or 3 firefighters including the officer. This crew will be responsible for the initial hose stretch and advance hose line into the structure, perform an initial search; perform rescue as is required; find and extinguish the fire and commence salvage and overhaul operations.

Search & Rescue company personnel for the second arriving pump company work under the company officer to perform the following duties:

- Stretch and advance a secondary line of either 45 mm or 65 mm
- Provide search & rescue operations, as required
- If living units are located above the fire compartment, complete a primary search of the units and evacuate them with a hose-line
- Conduct a primary search in conjunction with the fire attack crew
- Begin overhaul of all void spaces above and adjacent to the fire compartment
- Coordinate efforts with incoming fire companies

Support & Backup provide assistance to the pump operator to establish water supply, provide support for attack hose lines, utility control, and assist with forcible entry.

Ladder Crew company personnel for the first arriving ladder company work under the company officer to perform the following duties:

- Assist with rescue using ground ladders and other equipment, as required
- Ventilate in accordance with needs of the incident, which may include tactical ventilation (see Section 1.3.5); horizontal ventilation or vertical ventilation

- Position positive pressure fans for a positive pressure ventilation
- Perform pressurization, as required
- Ladder the building, starting with providing a secondary means of egress for fire attack
- Ventilate the roof, as required
- Depending on the circumstance perform vent–enter–isolate-search (VEIS) operations

Ladder driver-operator of the first arriving ladder company performs the following duties:

- Place the ladder truck in a location deemed most appropriate to the situation or in accordance with the officer's preference
- Place the aerial ladder-elevating platform in operation, as required
- Supply the ladder's pump mechanism for exposure or defensive operations, as required
- Assist with raising ground ladders
- Ensure that a positive pressure fan is brought to the designated front of the fire building

Rapid Intervention Team (RIT) don equipment, assemble equipment cache, size up structure and hazards, gather information from IC and accountability, and prepare to advance into structure to aid in the removal of downed or trapped firefighters.

Critical set-up times begin when the apparatus comes to a stop and the officer assumes command. Personnel are trained to identify and complete the critical tasks within appropriate time elements, which combined with effective incident management reduces overall life loss and property damage due to fire.

Definition of critical tasks for other risk levels are defined in Ottawa Fire Services Standard Operating Guidelines. Ottawa Fire Services critical tasks, including the apparatus, tasks

and total personnel essential for low, moderate, high and maximum risk response scenarios are shown in the following Table 19. The Effective Response Force (ERF) of each risk level is shown.

Table 19. Critical tasks and ERF for fire incidents

Low Risk - Fire		
Detached Sheds, Passenger Vehicles no Exposures, Dumpsters no Exposures, Hydro Transformer no Exposures		
Apparatus	**Critical Tasks**	**Personnel**
Pumper #1	Size Up, Fire Attack, Water Supply, Safety	4
	Total	4

Moderate Risk - Structure Fire		
Residential: Detached; Multi Unit: Attached with Separate Entrances: Row, Town, Semi-detached, Duplex; Low Rise with Separate Entrances		
Apparatus	**Critical Tasks**	**Personnel**
Pumper #1	Size Up, Fire Attack, Water Supply, Search and Rescue	4
Aerial #1	Aerial Operations as Required, Ground Ladders, VEIS, Forcible Entry, Utilities Control	3
Pumper #2	Assist with Water Supply, Dry Protection line to Point of Entry, Assist Fire Attack with Second Attack Line on floor above, Search and Rescue	4
Pumper #3	Assist with 3rd Attack Line on Floors required, Search & Rescue, Exposure Protection, Salvage operations	4
Chief Officer	Establish Stationary Exterior Command, Develop Incident Action Plan, Assign Tasks, Initial Accountability & Incident Safety duties	1
	Total	16

High Risk- Structure Fire		
Commercial, Industrial **Three and Four Storey Gardens Homes, Big box Stores, Manufacturing/Processing Facilities, Strip Malls, Stand Alone Restaurants, Gas Stations, Mixed Use Low Rise <4 Storey**		
Apparatus	**Critical Tasks**	**Personnel**
Pumper #1	Size Up, Fire Attack with Handline, Water Supply, Search and Rescue, Exposures	4
Aerial #1	Aerial Operations as Required, Ground Ladders, Master Streams, Forcible Entry, Ventilation,	3
Pumper #2	Ensure Secondary Water Supply, Large Diameter attack line to Point of Entry for Ceiling Protection, Assist Fire Attack with Second Attack Line, Search and Rescue	4
Pumper #3	Assist with 3rd Attack Line, Search & Rescue, Exposure Protection, Supply Building Connections if not already complete	4
Chief Officer	Establish Stationary Exterior Command, Develop Incident Action Plan, Assign Tasks, Initial Accountability & Incident Safety duties	1
Aerial #2	Aerial Operations as required, Raise Ground Ladders, Ventilation, Master Stream application	3
Pumper #4	Accountability/Entry Control	4
Pumper #5	Rapid Intervention Team	4
	Total	27

Maximum Risk- Structure Fire		
High Rise; Large Footprint; High Buildings		
High Rise: Residential and Commercial; Large Footprint: Educational Facilities, Care Homes, Retirement Homes, Hospitals, Shopping malls, Hotels, Airports; High Buildings: 4 - 6 Storeys, LRT Underground Station		
Apparatus	**Critical Tasks**	**Personnel**
Pumper #1	Size Up, proceed to fire floor for Fire Attack with Handline, Assume Fire Attack Sector, Water Supply, Search and Rescue	4
Aerial #1	Aerial Operations - Exterior Rescue, Join Fire Attack if No Aerial Operations Required	3
Pumper #2	Assume Lobby Control Sector - Elevators, Fire Alarm Control, Voice Evacuation, Clear Occupants, Assist with Water Supply and Connections	4
Pumper #3	Assume Stairwell Sector - Check Stairwells, other floors for Conditions and Victims, Assist with Coordinated Ventilation (Roof Hatch)	4
Aerial #2	Assume Ventilation Sector - Provide coordinated mechanical and natural ventilation	3
Pumper #4/Rescue	Assist Fire Attack with Second Handline	4
Pumper #5	Search and Rescue Teams	4
Chief Officer #1	Establish Stationary Exterior Command, Develop Incident Action Plan, Assign Tasks, Initial Accountability & Incident Safety duties	1
Pumper #6	Accountability/Entry Control	4
Pumper #7	Rapid Intervention Team - Stage Floor Below	4
Chief Officer #2	Proceed to Floor Below Fire and Assume Fire Control Sector	1
	Total	36

Wildland Fire Responses

Ottawa has significant wildland areas with its large agricultural areas, forests and the Greenbelt encircling the urban core of the city. Ottawa Fire Services has a robust wildland fire protection service with highly trained personnel. Table 20 defines the Wildland Fire critical tasking.

(Exhibit E.13 FireSmart Community Wildland Planning)

Table 20. Critical tasks and ERF for brush and wildland fire incidents

Low Risk - Brush/Wildland Fire[1]		
Brush/Grass, No exposures		
Apparatus	**Critical Tasks**	**Personnel**
Pumper #1	Size Up, Initial Incident Command, Fire Attack, Water Supply, Safety	4
	Total	4

Moderate Risk - Brush/Wildland Fire[2]		
Brush/Grass, With exposures		
Apparatus	**Critical Tasks**	**Personnel**
Pumper #1	Size Up, Initial Incident Command, Fire Attack, Water Supply, Safety	4
Pumper #2	2nd Fire Attack Hose line, Additional Water Supply	4
Aerial #1	Additional personnel	3
Chief Officer	Establish Stationary Command, Develop Incident Action Plan, Assign Tasks, Initial Accountability & Incident Safety Duties	1
	Total	12

1When the incident location is in an area with no hydrants, mobile water supply is required: 1 tanker, 1 Brush Truck with a UTV is to be added to the response, personnel as listed below

2When the moderate risk incident location is in an area with no hydrants, additional mobile water supply is required: 2 tankers, 1 Brush Truck with a UTV is to be added to the response, personnel as listed below

Notes: 2 When any Wildland incident is changed from Brush/Grass to a structure fire, an additional structure fire response is required based upon the structures risk level. The Rehab unit is sent as well.

Medical Responses

Ottawa Fire Services provides Initial Emergency Medical Services for the City of Ottawa that is separate yet supportive of the Ottawa Paramedic Service. As part of a tiered response agreement the agency has identified that the first responding unit meets the minimum resource requirement or ERF for medical emergencies.

The Ottawa Fire Service critical task progression for medical scenarios is shown in Table 21. The Effective Response Force of each risk level is shown with the progression.

Table 21. Critical tasks and ERF for medical incidents

Low Risk - EMS		
Unconscious Patient		
Apparatus	**Critical Tasks**	**Personnel**
Pumper #1	Size Up, Command, Communications; Airway Management; Oxygen; Assist with Equipment	4
	Total	4

Moderate Risk - EMS		
Cardiac Arrest Patient		
Apparatus	**Critical Tasks**	**Personnel**
Pumper #1	Size Up, Command, Communications; Airway Management & Defibrillator; Oxygen; Assist with Equipment	4
	Total	4

Ottawa Fire Service may continue to provide assistance to Paramedic crews upon request after their arrival at the patient. Additionally, they may be required to accompany paramedic crews to hospital and provide CPR, Ventilation or other duties as required.

This will take the OFS apparatus out of service in career areas until the member(s) is retrieved or replaced.

When Multiple Casualty Incidents occur, OFS responds with an appropriate amount of resources for the number of patients, but still only provides patient care in a stabilization and support role. Large scale active incidents will require the deployment of the OFS FSU unit to integrate and work with police and paramedics on scene.

Rescue Operations

Ottawa Fire Services provides the community with an effective level of specialized rescue services enabling the agency to respond to, and mitigate, special and complex rescues and emergencies. Critical tasking and required ERF is specific for each area of technical or specialized rescue and has been established based on historic incidents, technology and technician standards.

The majority of rescue incidents in the city of Ottawa are for vehicle collisions and extrications. For this reason the rescue critical tasking has been broken into two segments: Rescue and Technical Rescue.

Ottawa Fire Services critical tasks for rescue scenarios are shown in Table 22 through Table 24.

Currently only the technical rescue and low and moderate

risk rescue incidents are tracked. Changes to the reporting structure and codes are required to begin the analysis of the high risk rescue incidents.

Table 22. Critical tasks and ERF for rescue incidents

Low Risk - Rescue		
Low Angle, Animal, Elevator, Home Accident		
Apparatus	**Critical Tasks**	**Personnel**
Pumper #1	Size Up, Safety, Communications; Scene Stabilization; Patient Care;	4
	Total	4

Moderate - Rescue		
Vehicle Collisions/Extrications		
Apparatus	**Critical Tasks**	**Personnel**
Pumper #1	Size Up, Safety, Communications; Scene Stabilization; Patient Care; Fire Control Handline	4
Pumper #2	Patient Care; Hazard Isolation; Extrication Operations	4
Rescue	Extrication Operations	3
District Chief	Incident Command, Safety, Communications, Agency Coordination	1
	Total	12

High Risk - Rescue		
Large Vehicle Collisions: Buses, Tankers, LRT Vehicles; Large Number of Extrications		
Apparatus	**Critical Tasks**	**Personnel**
Pumper #1	Size Up, Safety, Communications; Scene Stabilization; Patient Care; Fire Control Handline	4
Rescue Pumper #2	Patient Care; Hazard Isolation; Extrication Operations	4
Rescue #1	Extrication Operations	3
Rescue #2	Extrication Operations	3
Pumper #2	Assist with Patient Care, Extrication, Hazard Control, Equipment movement	4
District Chief	Incident Command, Safety, Communications, Agency Coordination	1
	Total	19

Table 23. Critical tasks and ERF for technical rescue incidents

High Risk - Technical Rescue		
High Angle		
Apparatus	**Critical Tasks**	**Personnel**
Pumper #1	Size Up, Safety, Communications; Scene Stabilization	4
Aerial #1	Assist with Patient Care, Hazard Control, Equipment movement	3
Rescue #1	Rescue Team Leader (RTL), Go Rescuer, Rigger	3
Rescue Pump #1	Sector Officer, Rescue Safety Leader (RTL), Mainline Tender, Belay Tender	4
Rescue #2	Riggers	3
Rescue Pump #2	Staging, Go Rescuer, Riggers	4
Chief Officer	Incident Command, Safety, Communications, Agency Coordination	1
	Total	22

Maximum Risk - Technical Rescue*		
Trench, Confined Space, Structural Collapse		
Apparatus	**Critical Tasks**	**Personnel**
Pumper #1	Size Up, Safety, Communications; Scene Stabilization, Utilities control,	4
Pumper #2	Hazard Zone Deployment, Rescue & Patient Care surface victims	4
Rescue #1	Hazard Isolation; Rescue and Patient Care	3
Tech Rescue #1	Deploy and Operate Shoring, Paneling, Rigging Systems, Air Systems	4
Tech Rescue #2	Deploy and Operate Shoring, Paneling, Rigging System, Air Systems	7
Aerial #1	Assist with Patient Care, Air monitoring, Hazard Control, Equipment movement	3
Chief Officer #1	Incident Command, Safety, Communications, Agency Coordination, Incident Action Plan	1
Chief Officer #2	IC Support, Communications, Sector Control	1
Safety Officer	Overall Incident Safety	1
	Total	28

Table 24. Critical tasks and ERF for water and ice rescue incidents

High Risk - Water/Ice Rescue		
Swift water, Water, Ice		
Apparatus	Critical Tasks	Personnel
Pumper #1	Size Up, Safety, Communications; Scene Stabilization; Exclusion Zone; Shore Based Rescue	4
Aerial #1	Assist Shore Based Rescue	3
Water Rescue #1 (Boat)	Launch or proceed to victim, Rescue Operations, Rigging Systems	4
Water Rescue #2 (Boat)	Launch or proceed to backup primary boat, Rescue Operations, Rigging Systems	4
Safety Officer	Overall Scene Safety	1
Chief Officer	Incident Command, Safety, Communications, Agency Coordination	1
	Total	15

Hazardous Materials Responses

The Ottawa Fire Service works in conjunction with other service providers (such as Ottawa Police, Ottawa Paramedics, RCMP, Public Health, the Ottawa Hospital, and the Office of Emergency Management) provide rescue, agent detection, agent identification, person decontamination, forensic decontamination, and incident mitigation in the event of a large scale CBRNE incident – a capability that is extremely resource intensive.

Based upon the past five years of data the majority of Hazardous materials incidents are for Carbon monoxide, natural gas leaks and small spills. For this reason the HAZMAT critical tasking has been broken into HAZMAT and Specialized HAZMAT responses.

The Ottawa Fire Service critical tasks for Hazardous Material scenarios are shown in Tables 25 & 26

Table 25. Critical tasks and ERF hazardous materials

Low Risk - HAZMAT		
Carbon Monoxide; Small Fuel Spills;		
Apparatus	**Critical Tasks**	**Personnel**
Pumper #1	Size Up, Safety, Communications; Scene Stabilization; Exclusion Zone; Air Monitoring	4
	Total	4

Moderate Risk - HAZMAT		
Natural Gas Leak		
Apparatus	**Critical Tasks**	**Personnel**
Pumper #1	Size Up, Safety, Communications; Scene Stabilization; Exclusion Zone; Air Monitoring	4
Pumper #2	Scene Stabilization, Exclusion Zone, Air Monitoring, Evacuation	4
Ladder #1	Scene Stabilization, Exclusion Zone, Air Monitoring, Evacuation	3
Chief Officer #1	Incident Command, Safety, Communications, Agency Coordination	1
	Total	12

Table 26. Critical tasks and ERF progression technical hazardous materials incidents

Moderate Risk - HAZMAT		
Suspicious Powder, Outside Agency Support; Discreet Response Required		
Apparatus	**Critical Tasks**	**Personnel**
IHAT #1	Size Up, Safety, Communications; Scene Stabilization; Exclusion Zone;	4
	Total	4

High Risk - HAZMAT		
Hazardous Materials Spills, Gas Releases, Plume Release		
Apparatus	**Critical Tasks**	**Personnel**
Pumper #1	Size Up, Safety, Communications; Scene Stabilization; Exclusion Zones; Evacuation	4
Aerial #1		3
HAZMAT #1	Setup Hazard Zones; Control Access/Egress; Air Monitoring; Decontamination Setup; Sampling; Evidence Collection; Rescue Operations; Protective Equipment Preparation and Use	4
HAZMAT #2		4
IHAT #1		3
Safety Officer	Overall Scene Safety	1
Chief Officer	Incident Command, Safety, Communications, Agency Coordination	1
	Total	19

Evacuation, Patient Care will be supported by outside agencies such as police and paramedics.
Currently only the technical hazmat incidents are tracked. Changes to the reporting structure and codes are required to begin the analysis of the nontechnical hazardous materials incidents.

Note: At the discretion of Hazmat command additional OFS resources may be dispatched for staffing as required. EMS for patient care and OPS for crowd and traffic control will be dispatched accordingly.

Identifying, understanding and analysing community risk factors are the focal point around which the risk assessment component of the Standards of Cover revolves. Risk hazard classifications are defined through analysis of historical data and GIS mapping.

Probability and consequence provides a realistic perspective of what the risks are within the community, how often they occur, and the resulting effects of those incidents. Hot spot mapping has pinpointed specific risks within geographic locations.

The 5-year historical data charts for critical tasking within this document reflects a response model that matches these critical tasking. Through the Standards of Cover process, best practice and current standards, working group analysis of past practices and responses the Ottawa Fire Service has identified initial critical tasks and the appropriate number of personnel to accomplish them. The adoption of sending an effective response force based on historic data and new deployment initiatives has been identified as a priority within the service.

As the department continues to collect building information data including; built in protection systems, contents and hazards, construction type through pre-planning efforts and ongoing inspections, the community risk assessment will continue to improve on its core building risk profile.

Table 27 summarizes the Effective Response Force (ERF) numbers for Fire, Medical, Rescue and Hazmat incident responses.

Table 27. Effective response force summary

	LOW	MODERATE	HIGH	MAXIMUM
FIRE	4	16	27	36
WILDLAND FIRE	4	12		
MEDICAL	4	4		
RESCUE	4	8	12	19
TECHNICAL RESCUE		22	28	
WATER/ICE RESCUE		15		
HAZMAT	4	12	19	
TECHNICAL HAZMAT	4		19	

Additional responders may arrive on scene within the Effective Response force timelines due to apparatus compliments of personnel.

Section E:
Historical Perspective & System Performance

The review of historical performance and measurement is essential in identifying the capabilities of the service provision and service delivery system. Measured components include distribution, concentration, reliability, and comparability. All these factors help determine the most efficient manner to provide emergency response provision. Modeling and statistical analysis are applied to verify that the Ottawa Fire Service resources are utilized efficiently and effectively.

To understand the agencies service performance, historical response data is compiled and analysed and used for the basis of several recommendations in this report. Five years of response data is used to determine a Baseline measure for incident response. Baseline is a metric that provides a foundation for understanding the agencies current system performance. Once the Baseline measure is established, a “Benchmark” is also established for each response categories. “Benchmarks” are goals the organization seeks to obtain to optimize service provision.

The following stages of a response are measured as part of the system performance evaluation. Benchmarks and Baselines are established for each interval of the emergency response.

PSAP Call Processing Time1 – The time interval between receiving an alarm (phone call) at the PSAP (911) call center and the time when the OFS dispatch center answers the transferred call by phone from the 911 center. This can also be the time interval from when the PSAP (911) center receives an alarm (phone call) and transfers it to the SPSAP at EMS who then classifies the incident type and tiers OFS by calling the OFS dispatch center and relays the information.

SPSAP (OFS) Alarm Processing Time - The time interval between receiving an alarm by the OFS dispatch center (OFS

Incident begin) and the time the computer-aided dispatch (CAD) operator activates the station and/or company alerting devices (Mobile Data Terminals) (Dispatch time).

Turnout Time2 - The time interval between the activation of either the station alerting system (career) and/or personal alerting devices, pagers, (volunteer) (Dispatch time) and the time when the responding apparatus begins its response as noted by the mobile computer terminal or notification to dispatch by voice over the service digital radio system that the apparatus or unit is responding (Enroute Time).

Travel Time (1st unit) - The time interval between the responding apparatus initial acknowledgement that they are responding, via the mobile data terminal button press or radio confirmation by the responding company, (Enroute time) and the time when the responding apparatus notifies the dispatcher of its arrival on scene (On Scene time) via the mobile data terminal button press or radio confirmation by the responding company.

Total Response Time (1st unit) – The time interval between the receipt of the alarm by OFS dispatch center (OFS Incident begin) and the first emergency response apparatus arrival on scene (On scene time).
Alarm processing + Turnout + Travel = OFS Total Response Time

Effective Response Force Time - The time interval between the receipt of the alarm by OFS dispatch center (OFS Incident Begin) and the arrival on scene of the unit which makes up the ERF.

Notes:
1 The 911 call processing time 90th percentile has only been recently made available, by the responsible agency, and only for a short period of time (approximately six (6) months). For this reason it is not included in OFS total response time numbers at this time.
2 Volunteer turnout time allows for up to an additional 5 minutes (5:00) based on the average difference in turnout time between the career and volunteer sectors. This accounts for the turn out time leaving a home residence and responding to the station to pick up the emergency vehicle

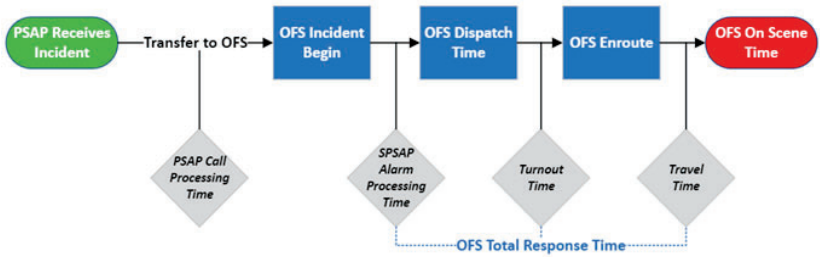


Figure 32. Total response time breakdown

It is now widely accepted by agencies to use a simple average metric to see it cancan achieve its goals as compared to 100 percent of the time.

If an agency states it can respond to an emergency with a 6-minute total response time at 90% efficiency, (9 out of 10 responses) it assumes 10% of the incidents will not meet the 6 minute objective. It is the identification of issues within this 10% which may help the agency plan and target protection and prevention strategies.

The following performance tables (Tables 28 to 31) measure the 5-year (2019 to 2023) Baseline performance of the Ottawa Fire Service for the first due response to Fire, Medical, Rescue and Hazmat incident types within the City.

The Public Safety Answering Point (911 Call Center) for the City of Ottawa is a division of the Ottawa Police; therefore, Ottawa Fire Services has minimal interaction with the administration of this service. An issue that was identified during OFS' 2013 accreditation process was the inability to demonstrate the performance of this service. Through discussions with the Ottawa Police, OFS has been able to gather data for 2020 to 2023 to demonstrate a baseline performance at the 90th percentile.

For all emergency calls that flow through the PSAP the baseline performance at the 90th percentile is 51 seconds.

The following tables show performance levels for the four major call groups. Exhibit Tables for the individual risk

classifications are also created and can be found in the Appendix.

Table 28. Fire incidents 90th percentile baseline performance (2019 to 2023)

OTTAWA FIRE SERVICES
SERVICE DES INCENDIES D'OTTAWA
Protecting Our Nation's Capital With Pride
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Fire - Call Group
Performance Levels at 90th Percentile

Career			2019-2023	2023	2022	2021	2020	2019
Alarm Processing Time	Pick-up to Dispatch	*Urban*	1:02	0:57	1:05	1:00	1:00	1:03
		Rural	1:07	1:01	0:55	1:07	1:21	1:14
Turnout Time	1st Unit	*Urban*	1:56	1:52	1:57	1:54	1:59	2:00
		Rural	2:13	1:56	2:12	2:10	2:44	2:19
Travel Time	1st Unit Distribution	*Urban*	5:04	4:56	4:49	5:02	4:58	5:19
		Rural	8:12	10:43	7:52	7:27	8:08	8:02
	ERF Concentration	*Urban*	7:38	7:30	7:19	7:48	7:31	7:50
		Rural	10:13	11:57	9:07	9:19	9:33	9:31
Total Response Time	1st Unit On Scene Distribution	*Urban*	7:13	7:06	7:13	7:09	7:00	7:32
			n=3657	n=866	n=782	n=685	n=615	n=709
		Rural	11:08	12:43	10:59	10:14	10:49	11:20
			n=324	n=78	n=52	n=54	n=54	n=86
	ERF Concentration	*Urban*	11:29	10:46	11:42	11:46	11:54	11:44
			n=2919	n=701	n=637	n=537	n=470	n=574
		Rural	14:25	14:32	13:58	12:14	14:43	15:44
			n=272	n=70	n=43	n=38	n=45	n=76

Volunteer			2019-2023	2023	2022	2021	2020	2019
Alarm Processing Time	Pick-up to Dispatch	*Urban*	1:02	0:54	1:02	0:48	0:30	0:57
		Rural	1:11	0:57	1:19	1:13	1:04	1:22
Turnout Time	1st Unit	*Urban*	7:39	5:35	7:41	5:16	1:51	6:54
		Rural	8:25	8:19	9:02	7:54	8:23	9:01
Travel Time	1st Unit Distribution	*Urban*	6:12	5:53	5:44	5:37	7:35	5:51
		Rural	11:25	11:55	10:38	11:08	10:54	13:53
	ERF Concentration	*Urban*	8:57	11:40	6:01	7:04	8:27	5:35
		Rural	15:56	16:03	13:59	14:36	12:24	19:36
Total Response Time	1st Unit On Scene Distribution	*Urban*	10:46	10:00	10:46	10:19	9:33	10:23
			n=35	n=13	n=10	n=4	n=3	n=5
		Rural	18:33	18:42	18:15	17:39	18:00	19:57
			n=603	n=109	n=119	n=116	n=121	n=138
	ERF Concentration	*Urban*	16:01	17:17	12:02	11:19	17:43	13:20
			n=28	n=11	n=7	n=4	n=2	n=4
		Rural	23:57	23:36	24:01	22:33	23:33	28:11
			n=507	n=88	n=98	n=94	n=104	n=123

Table 29. Medical incidents 90th percentile baseline performances (2019 to 2023)

OTTAWA FIRE SERVICES
SERVICE DES INCENDIES D'OTTAWA
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Medical - Call Group
Performance Levels at 90th Percentile

Career			2019-2023	2023	2022	2021	2020	2019
Alarm Processing Time	Pick-up to Dispatch	*Urban*	0:52	0:47	0:54	0:52	0:52	0:50
		Rural	0:52	0:46	0:52	1:06	0:53	0:42
Turnout Time	1st Unit	*Urban*	1:49	1:46	1:50	1:48	1:51	1:48
		Rural	2:01	1:57	2:03	2:05	2:07	1:57
Travel Time	1st Unit Distribution	*Urban*	4:53	4:41	4:58	4:57	5:02	4:56
		Rural	8:02	8:06	7:30	7:43	7:18	8:14
	ERF Concentration	*Urban*	4:53	4:41	4:58	4:57	5:02	4:56
		Rural	8:02	8:06	7:30	7:43	7:18	8:14
Total Response Time	1st Unit On Scene Distribution	*Urban*	6:52	6:39	7:01	6:54	7:04	6:44
			n=10489	n=2694	n=2696	n=1869	n=1353	n=1877
		Rural	10:19	10:24	10:18	10:27	9:22	9:42
			n=481	n=136	n=123	n=99	n=57	n=66
	ERF Concentration	*Urban*	6:52	6:39	7:01	6:54	7:04	6:44
			n=10047	n=2521	n=2547	n=1818	n=1332	n=1829
		Rural	10:19	10:24	10:18	10:27	9:22	9:42
			n=457	n=126	n=117	n=95	n=55	n=64

Volunteer			2019-2023	2023	2022	2021	2020	2019
Alarm Processing Time	Pick-up to Dispatch	*Urban*	3:31	8:07	2:33	3:23	1:16	0:51
		Rural	3:44	2:34	5:46	1:06	3:55	4:33
Turnout Time	1st Unit	*Urban*	5:50	5:28	5:39	6:46	4:58	6:22
		Rural	7:29	8:08	7:16	7:46	6:37	7:03
Travel Time	1st Unit Distribution	*Urban*	6:38	6:38	4:22	10:47	6:58	4:34
		Rural	9:13	8:46	9:55	9:19	7:55	8:42
	ERF Concentration	*Urban*	6:38	6:38	4:22	10:47	6:58	4:34
		Rural	9:13	8:46	9:55	9:19	7:55	8:42
Total Response Time	1st Unit On Scene Distribution	*Urban*	10:45	10:27	9:44	15:52	10:53	11:41
			n=108	n=30	n=26	n=15	n=15	n=22
		Rural	16:05	15:41	17:47	16:28	15:21	14:19
			n=705	n=143	n=177	n=132	n=101	n=152
	ERF Concentration	*Urban*	10:45	10:27	9:44	15:52	10:53	11:41
			n=87	n=23	n=24	n=13	n=13	n=14
		Rural	16:05	15:41	17:47	16:28	15:21	14:19
			n=596	n=124	n=157	n=122	n=82	n=111

Table 30. Rescue incidents 90th percentile baseline performances (2019 to 2023)

OTTAWA FIRE SERVICES
SERVICE DES INCENDIES D'OTTAWA
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Rescue - Call Group
Performance Levels at 90th Percentile

Career			2019-2023	2023	2022	2021	2020	2019
Alarm Processing Time	Pick-up to Dispatch	*Urban*	0:54	0:52	0:57	0:56	0:55	0:52
		Rural	1:01	0:49	1:06	1:03	1:00	1:05
Turnout Time	1st Unit	*Urban*	1:44	1:43	1:44	1:43	1:45	1:46
		Rural	1:56	1:54	1:48	1:54	1:56	2:05
Travel Time	1st Unit Distribution	*Urban*	5:26	5:26	5:23	5:24	5:31	5:25
		Rural	8:11	8:30	8:09	7:43	8:05	8:19
	ERF Concentration	*Urban*	7:24	7:41	7:20	7:35	7:22	7:13
		Rural	10:29	10:15	9:52	11:13	9:38	10:33
Total Response Time	1st Unit On Scene Distribution	*Urban*	7:24	7:25	7:19	7:23	7:28	7:19
			n=11228	n=2395	n=2300	n=1968	n=1805	n=2760
		Rural	10:37	11:06	10:20	10:00	10:21	10:58
			n=1558	n=374	n=294	n=246	n=268	n=376
	ERF Concentration	*Urban*	9:47	9:59	9:38	9:53	9:28	9:41
			n=3971	n=901	n=823	n=727	n=635	n=885
		Rural	13:53	12:49	13:30	15:47	13:21	15:52
			n=519	n=129	n=105	n=92	n=84	n=109

Volunteer			2019-2023	2023	2022	2021	2020	2019
Alarm Processing Time	Pick-up to Dispatch	*Urban*	0:43	0:35	1:24	0:39	0:58	0:43
		Rural	1:43	1:12	1:33	2:10	2:35	1:24
Turnout Time	1st Unit	*Urban*	6:55	5:39	6:10	6:32	5:46	8:32
		Rural	7:51	7:43	7:57	7:57	7:27	7:50
Travel Time	1st Unit Distribution	*Urban*	5:51	5:10	3:27	6:58	7:57	3:34
		Rural	11:38	11:16	10:52	10:27	11:07	12:34
	ERF Concentration	*Urban*	15:49	10:24	20:31	9:04	12:59	7:12
		Rural	13:30	12:41	12:20	13:42	13:44	13:24
Total Response Time	1st Unit On Scene Distribution	*Urban*	12:06	10:45	9:23	13:00	12:57	12:10
			n=70	n=15	n=11	n=17	n=8	n=19
		Rural	17:29	16:48	16:48	17:17	17:04	18:45
			n=1416	n=279	n=313	n=260	n=243	n=321
	ERF Concentration	*Urban*	23:16	12:29	27:26	10:55	16:12	19:22
			n=8	n=1	n=2	n=2	n=1	n=2
		Rural	21:04	21:04	18:29	23:41	20:54	21:58
			n=463	n=87	n=91	n=105	n=94	n=86

Table 31. Hazmat incidents 90th percentile baseline performances (2019 to 2023)

OTTAWA FIRE SERVICES
SERVICE DES INCENDIES D'OTTAWA
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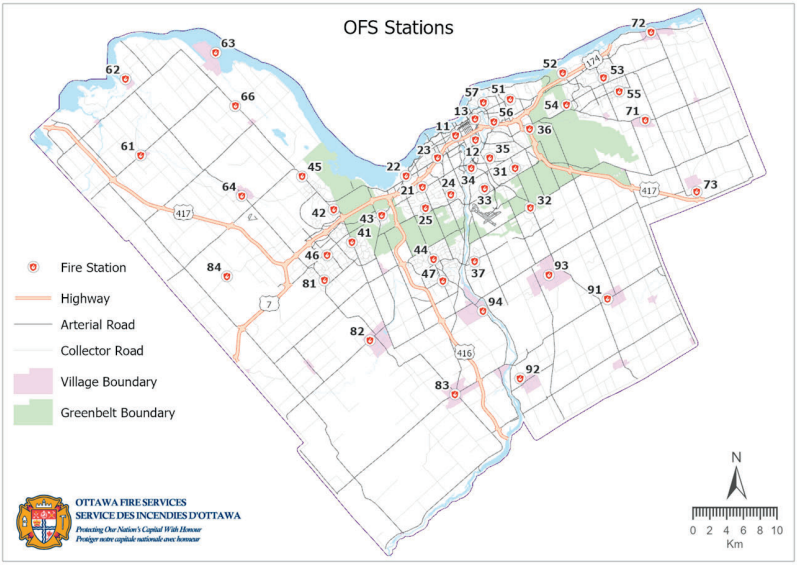
Hazmat - Call Group
Performance Levels at 90th Percentile

Career			2019-2023	2023	2022	2021	2020	2019
Alarm Processing Time	Pick-up to Dispatch	*Urban*	1:18	1:11	1:29	1:13	1:13	1:21
		Rural	1:31	2:07	1:32	1:56	1:25	1:30
Turnout Time	1st Unit	*Urban*	1:54	1:51	2:04	1:49	1:51	1:53
		Rural	2:03	6:16	1:58	1:41	1:59	1:48
Travel Time	1st Unit Distribution	*Urban*	5:49	5:49	6:13	5:29	5:39	5:37
		Rural	8:51	10:50	8:53	8:10	9:10	8:34
	ERF Concentration	*Urban*	8:37	7:24	9:59	8:59	7:43	7:57
		Rural	10:27	11:51	13:02	12:02	9:07	9:02
Total Response Time	1st Unit On Scene Distribution	*Urban*	8:19	7:57	9:05	8:00	7:59	8:12
			n=1488	n=286	n=309	n=304	n=308	n=281
		Rural	12:27	15:11	11:45	10:33	11:02	10:51
			n=172	n=28	n=51	n=24	n=36	n=33
	ERF Concentration	*Urban*	12:27	10:00	13:01	12:45	13:38	11:48
			n=915	n=184	n=204	n=196	n=178	n=153
		Rural	15:03	16:00	16:26	14:52	12:43	11:54
			n=101	n=19	n=30	n=14	n=17	n=21

Volunteer			2019-2023	2023	2022	2021	2020	2019
Alarm Processing Time	Pick-up to Dispatch	*Urban*	2:15	3:06	5:15	1:38	1:21	0:40
		Rural	2:37	3:04	2:59	3:04	1:24	2:09
Turnout Time	1st Unit	*Urban*	6:07	5:59	4:40	6:26	4:56	5:37
		Rural	8:06	7:02	8:24	8:14	6:20	7:15
Travel Time	1st Unit Distribution	*Urban*	7:50	7:24	6:00	8:11	5:51	4:27
		Rural	11:45	11:10	11:52	11:34	10:12	11:58
	ERF Concentration	*Urban*	8:19	7:50	5:36	8:24	3:09	2:20
		Rural	12:42	12:11	13:36	12:00	12:24	14:31
Total Response Time	1st Unit On Scene Distribution	*Urban*	11:47	11:52	11:41	11:37	8:03	8:52
			n=36	n=6	n=12	n=11	n=5	n=2
		Rural	18:42	20:15	19:08	16:25	15:46	18:52
			n=286	n=73	n=81	n=56	n=35	n=41
	ERF Concentration	*Urban*	11:22	12:15	11:50	10:42	7:30	9:06
			n=18	n=5	n=5	n=6	n=1	n=1
		Rural	19:21	20:26	21:14	17:11	16:38	18:59
			n=189	n=56	n=51	n=40	n=19	n=23

Distribution

"Distribution" is defined as the geographic location of the first due fire service resources available to provide the initial all risk response to emergencies. Distribution measures the "first due units' arrival" at the scene of an emergency within that particular apparatus designated response area. This is displayed as a measure of travel time between a fire station and arrival at the emergency event. The location of each station is critical to assure initial rapid deployment to minimize and terminate the consequences of the emergency.



Map 25. Station distribution

Fire stations within the City of Ottawa are distributed strategically to provide the largest area of coverage to meet the objectives defined by the department's benchmarks.

Ottawa Fire Services has divided the City into five career districts (Districts 1-5) and four rural districts (District 6-9 are volunteer), each district is further broken down into station response zones. Station 1 in district 10 is numbered

Station 11; Station 3 in district 20 is Station 23; Station 2 in sector 8 is Station 82...etc.

Table 33. OFS distribution stats by district and response zone (volunteer districts 6-9)

Station Response Area	Road Length (Km)	Response Area (Km²)	Population 2021	Population Change from 2016 (%)	Dwellings 2021	Dwelling Change from 2016 (%)
District #1						
11	135.4	13.1	43,943	8.5%	26,769	7.1%
12	102.3	6.3	34,010	4.9%	18,583	5.2%
13	85.6	5.8	31,092	8.8%	21,370	4.7%
District #2						
21	137.6	11.9	36,250	3.7%	15,188	1.4%
22	123.5	20.2	40,331	2.4%	19,113	0.4%
23	179.8	16.0	44,778	4.7%	20,811	4.9%
24	116.1	17.6	21,945	7.0%	9,108	3.6%
25	89.1	22.0	17,603	2.4%	6,781	1.1%
District #3						
31	125.9	19.9	35,432	-0.3%	13,854	0.7%
32	227.1	113.4	23,346	30.8%	7,791	27.4%
33	110.0	22.7	26,328	5.1%	10,526	1.8%
34	82.4	10.0	16,785	7.3%	7,576	0.3%
35	131.7	13.0	37,207	3.4%	16,638	4.5%
36	126.0	45.0	12,995	8.3%	5,324	2.7%
37	228.5	66.8	34,163	20.6%	11,636	21.2%
District #4						
41	190.0	35.7	44,469	6.3%	16,136	7.8%
42	190.7	49.9	33,290	5.6%	12,537	7.5%
43	126.7	38.5	14,562	0.6%	6,107	1.7%
44	261.1	33.9	61,338	5.7%	21,339	8.1%
45	137.9	98.8	9,267	-0.2%	2,979	2.1%
46	289.4	59.2	41,743	40.1%	15,269	43.7%
47	178.9	40.1	27,876	49.3%	9,165	45.1%
District #5						
51	137.5	19.4	39,922	6.6%	18,059	5.4%
52	111.3	18.0	22,831	1.2%	8,957	0.9%
53	185.8	27.2	44,902	3.0%	17,062	7.0%
54	163.0	37.1	37,117	9.4%	13,558	10.0%
55	157.0	30.9	33,859	18.2%	11,548	20.4%
56	108.3	10.1	30,658	10.7%	15,077	5.8%
57	92.7	9.2	25,089	4.4%	13,394	3.1%
District #6						
61	173.6	147.8	2,126	3.4%	811	3.3%
62	157.2	136.0	2,691	5.9%	1,160	1.5%
63	52.0	37.5	3,252	-0.8%	1,545	-1.0%
64	119.9	89.5	4,688	11.1%	1,697	11.0%
66	113.8	90.4	3,591	1.5%	1,394	3.7%

District #7						
71	109.3	96.7	3,084	-1.5%	1,134	0.8%
72	116.3	63.8	5,276	22.8%	1,955	23.9%
73	167.9	132.8	3,519	1.1%	1,339	3.2%
District #8						
81	183.2	97.8	15,865	23.3%	5,388	25.5%
82	222.8	204.9	9,300	11.3%	3,504	12.2%
83	275.9	333.7	6,490	8.7%	2,425	5.7%
84	201.8	169.7	4,723	6.5%	1,688	5.2%
District #9						
91	217.6	193.4	6,848	2.4%	2,490	3.2%
92	155.9	101.4	6,148	2.0%	2,324	2.5%
93	170.6	84.5	10,831	5.6%	3,728	5.6%
94	99.5	35.6	5,886	19.0%	2,269	21.2%

Fire Grids

Fire station response zones are further divided into several response grids. These response grids allow for the identification of the closest additional units to respond in order to identify the effective response force stations. Every station is equipped with a first due pumper apparatus which is the first to respond on all incidents within their designated response area1. Up to as many as seven neighbouring station's response zones are grouped together to form response districts. Each response district is directly administered by a District Chief in the urban (career) districts 1-5 and a Sector Chief in the rural (volunteer) districts 6-9.

The baseline response times measured for the arrival of the first apparatus are based upon the baseline response times drawn from summing the actual 90th percentile call processing, turnout, and travel times for each population density area and each service level area. The benchmark times are calculated from a performance goal of summing the actual 88th percentile. The goal of OFS is to continue to reach the same areas of the city but in the benchmark timeline.

Table 34 contains the baseline and benchmark standards for OFS for all calls.

Table 34. First on Scene response time benchmark and baseline by population category

Career			
Population Category	**Population Density (Persons/km²)**	**Benchmark Response Time**	**Baseline Response Time**
Urban	> 400 people/km²	6:58	7:13
Rural	< 400 people/km²	10:20	10:42
Volunteer			
Population Category	**Population Density (Persons/km²)**	**Benchmark Response Time**	**Baseline Response Time**
Urban	> 400 people/km²	10:49	11:38
Rural	< 400 people/km²	17:03	17:40

Using ESRI Arc GIS solutions, all station response zones and districts have been analyzed using historical data and the GIS tool to display the travel response capabilities based on the standards above. **(Exhibit E.7 Grid Classification Criteria)**

Note: 1 The current exception to the rule of each station having a pumper apparatus is Station 45. This station has a mini pumper apparatus and is staffed by only 2 personnel.

Distribution Methodology

Ottawa Fire services employs a distribution strategy, methodology, based upon its historical fire grids and the Station Location Study of 2012. These grids were developed during the amalgamation of the eleven 11 municipalities in 2001 and have been refined over the past two decades to better identify correct first due and effective response force responses.

The refinement of the fire grids has been done with anecdotal evidence provided from response crews combined with reviews of historical incident data, timelines, recreations of vehicle drive timelines, and identification of response travel obstacles. Additionally With this evidence the fire grid changes and adaptations are validated with a formal review and approval process conducted by a management committee. There is no recognized timeframe

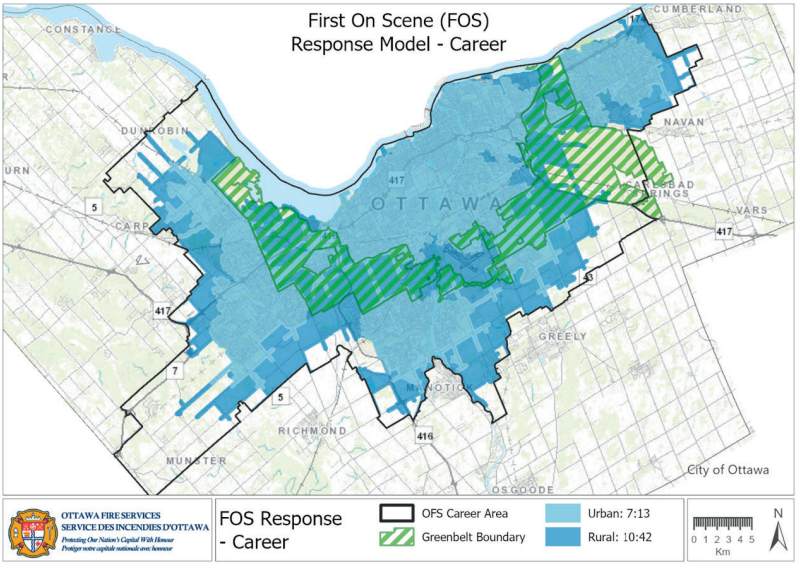
for regular adaptations to these grids but they are conducted on an as required basis.

Specific changes to fire grids that are required due to significant alterations to the city road network such as the addition of the Earl Armstrong Bridge across the Rideau River, are conducted as required and prepared prior to the actual completion of the projects.

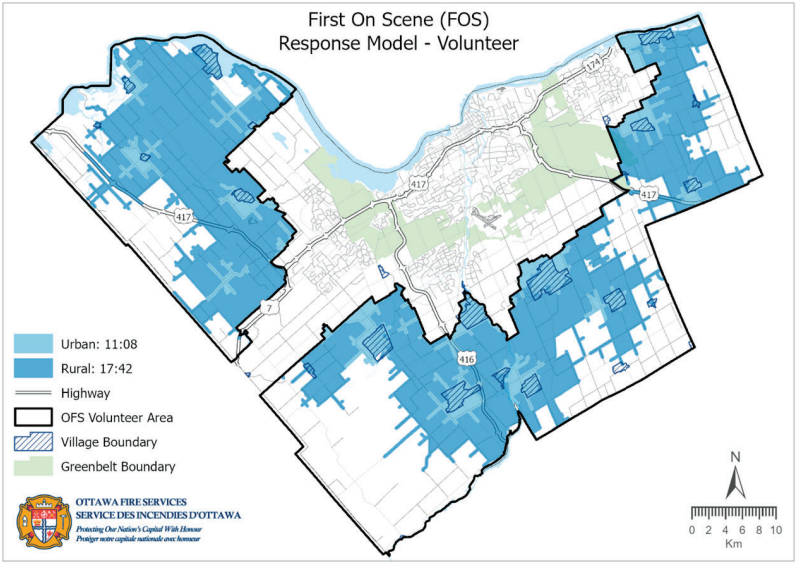
These fire grids are then activated in the Computer Aided Dispatching system when required.

GIS Modelling

The first on scene modelling for the city and its station response areas is conducted by utilizing historical data to produce response baseline times for the city for all aspects of the OFS response timeline. The 90th percentile baseline times for call processing and turnout time are developed for the city and these times are utilized with a road network and road speeds model to produce a mapping output through ESRI Arc GIS. This mapping then displays the coverage areas for the baseline total response times for each population density area. The following maps provide examples of this modeling and demonstrates the capabilities of OFS to meet its baseline response timelines.



Map 26. First on scene baseline response model city wide response (career)



Map 27. First on scene baseline response model city wide (volunteer)

These maps indicate the areas that OFS is currently covering within the baseline response times for each population density area.

Concentration

The concentration of resources is different from distribution in that it reflects the spacing of multiple resources throughout the community. It is important that sufficient resources can be assembled on the scene of an emergency to complete the critical tasks required to mitigate an incident.

Although concentration is similar to distribution, concentration deals with the **Effective Response Force** (ERF). The agency has identified an ERF that defines the necessary resources required for any given response; this force must be on scene to prevent the emergency from growing larger or victim's injuries from becoming worse.

ERF, for firefighting, is defined in the NFPA Fire Protection Handbook as the **initial attack response** capabilities for interior attack and operations plus command, based upon the hazard level of the occupancy. ERF numbers for non-fire emergencies are defined by the AHJ and the needs of the community.

Additional personnel, required to meet the ERF standard, come from neighbouring stations which are similarly staffed. Frontline personnel are trained to the awareness level in all specialized disciplines and therefore can begin initial operations when arriving first on scene prior to the special operations technicians' arrival. In addition, many firefighters have operations level and technician level training in the special operations fields but are stationed in non special operations stations. This allows for trained personnel to arrive at incidents early and provide increased levels of operations prior to the arrival of the special operations teams.

To meet these standards, Ottawa Fire Services equips many of its stations with multiple apparatus and personnel. The most common configuration is a pumper and a ladder apparatus which allows for a minimum compliment of seven to eight personnel in each station's response zone (Table 4

and 5 Station staffing and apparatus levels). In addition, aerial apparatus are strategically positioned to provide the best coverage across the city, rescue pumper are positioned so a rescue pumper can be sent to every motor vehicle collision as a first due apparatus to provide the required ERF for all motor vehicle collisions. Similarly, the agency's 6 heavy rescue units are positioned across the city 3 in the career areas and 3 in the volunteer areas to provide the best ERF coverage for rescue incidents. These career rescue units also provide the Tech Rescue response for the city. The Hazmat Units are in the urban core, where most of the hazardous materials incidents occur. It is not economically feasible to equip all stations to the technical rescue level, subsequently travel times for some incidents may be longer than for others.

The total response times shown for the arrival of the Effective Response Force (ERF) for fire responses, are based upon the baselines developed from 90th percentile times calculated from incident data over the 5-year span of 2019 to 2023. Benchmark times are calculated at the 88th percentile.

Table 35. Fire incident effective response force baseline and benchmark response times

Service Area	Population Category	Risk Level	Baseline ERF Response Time	Benchmark ERF Response Time
Career	Urban	Low	07:33	07:21
		Moderate	13:14	12:38
		High	27:13	24:32
		Maximum	27:32	26:22
	Rural	Low	11:03	10:49
		Moderate	18:04	16:53
		High	44:02	37:10
		Maximum	N/A	32:23
Volunteer	Urban	Low	11:04	11:00
		Moderate	17:56	17:33
		High	N/A	22:39
		Maximum	N/A	25:19
	Rural	Low	19:11	18:26
		Moderate	29:32	27:48
		High	28:01	27:49
		Maximum	N/A	32:23
	Risk and ERF numbers: Low – 4, Moderate – 16, High – 27, Maximum – 36			

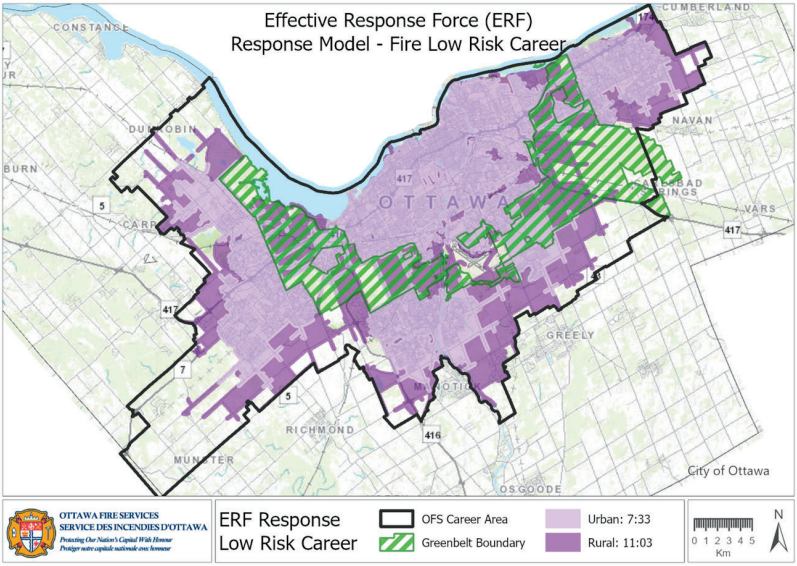
Combining historical data with the GIS mapping tool, a theoretical mapping of the ERF in specified baseline timeframes was developed for the entire city where an effective response force was required. The validity of this model is ensured by utilizing actual incident data for the level of risk of the emergency and verifying that the ERF force was on scene in the baseline timeframe.

Concentration Methodology

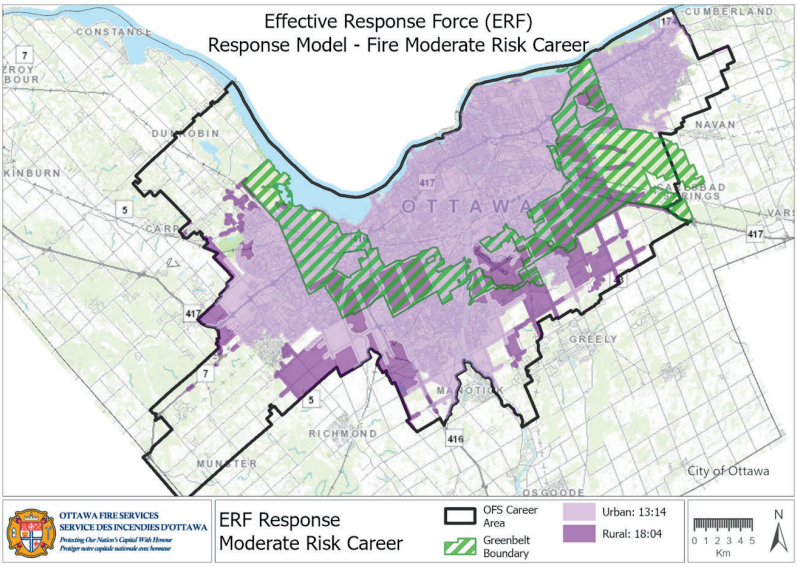
Concentration mapping illustrates the number of firefighters able to reach the City of Ottawa's Urban and Rural areas within a prescribed baseline.GIS mapping software was used to clean and build a reliable road network based on historical travel times recorded by Ottawa Fire Services throughout the City. This model allows OFS to take

into consideration future conditions such as population growth and development to determine future station locations as well as predict future staffing needs and response capabilities.

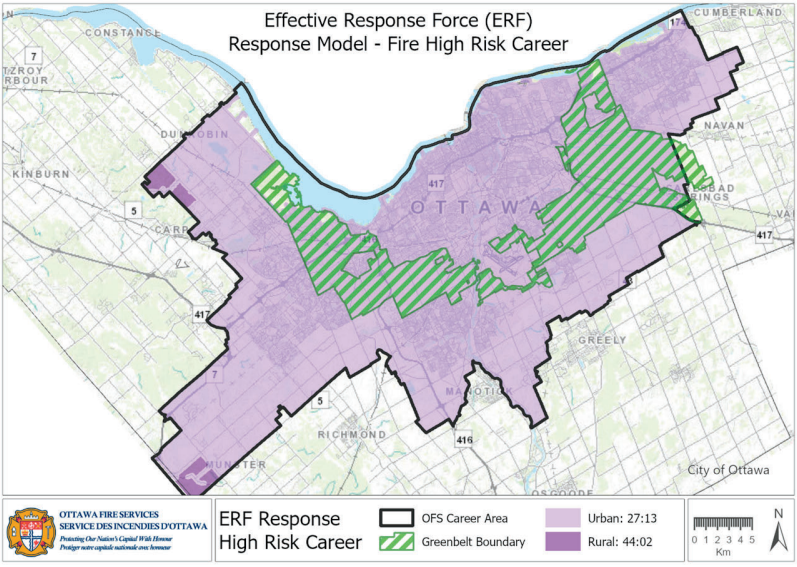
Concentration mapping illustrates the number of firefighters able to reach the City of Ottawa's Urban and Rural areas within a prescribed baseline. GIS mapping software was used to clean and build a reliable road network based on historical travel times recorded by Ottawa Fire Services throughout the City. This model allows OFS to take into consideration future conditions such as population growth and development to determine future station locations as well as predict future staffing needs and response capabilities. The following maps show baseline response time, OFS 90th percentile total response time coverage. All portions of the response timeline were used to identify the 90th percentile baseline response times for the models for all stations. These models reflect the baseline coverage possible throughout the city for the service areas depicted.



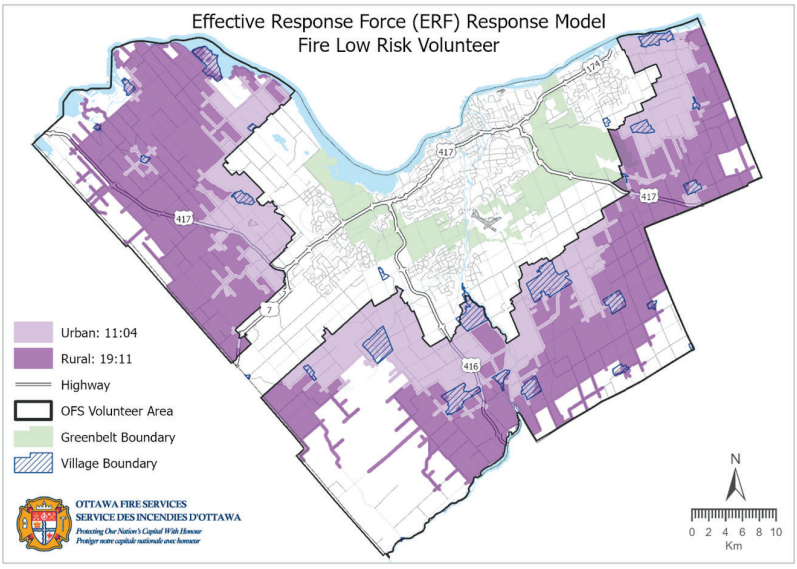
Map 28. Career fire incident low risk ERF baseline response time coverage



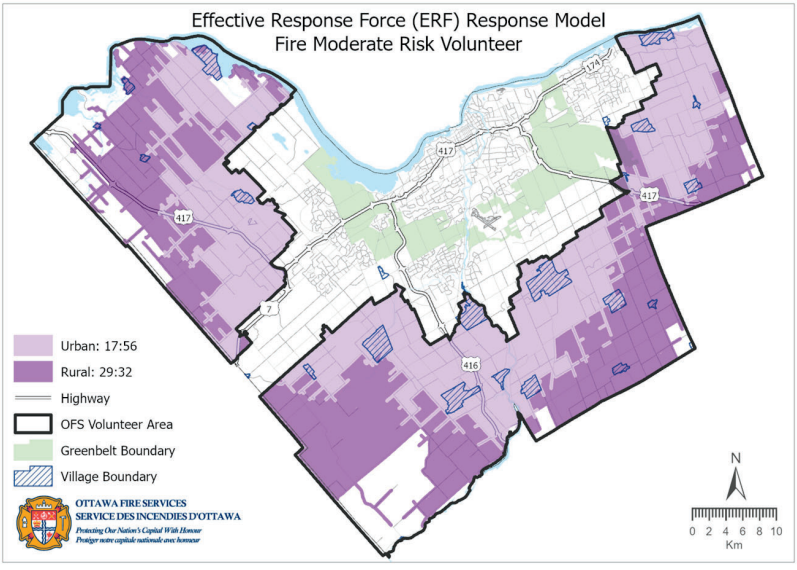
Map 29. Career fire incident moderate risk ERF baseline response time coverage



Map 30. Career fire incident high risk ERF baseline response time coverage



Map 31. Volunteer fire incident low risk ERF baseline response time coverage



Map 32. Volunteer fire incident moderate risk ERF baseline response time coverage

Ottawa has several factors effecting the concentration of resources within the City, with the greatest being the physical factor of the greenbelt. This essentially delays the arrival of a large concentration of urban resources to the suburban areas outside of the greenbelt.

The ERF baseline performance response maps above show the capability of the agency to concentrate resources in an effective amount of time within the urban core containing the greatest number of “high risk” buildings. The suburban areas outside the greenbelt show adequate coverage to predominantly single family residences but gaps exist with higher risk building coverage. Rural areas show adequate coverage based on travel times to rural residential dwellings.

Reliability

Reliability, with regards to this document, relates to the agency’s ability to perform and maintain emergency service provision under both routine and extraordinary circumstances.

Reliability Measurement issues includes but is not limited to, the affects of the following:

- Concurrent demand (incidents which occur at the same time requiring committed resources
- ‘Priority II’ (non emergency) responses
- On duty personnel required for training i.e. medical recertification etc.
- On duty personnel required to shuttle vehicles and or equipment for repair
- Out of district responses or incidents requiring on station to cover off for another due to training and or a working fire
- Fire prevention or educational activities which require a first response vehicle to be removed from service
- Infrequently, when apparatus is removed from service due to the injury of a member

- When the vehicle is removed from service due to a mechanical breakdown
- When a vehicle is removed from service after being involved in an MVC
- When a vehicle is removed from service to transfer equipment from it to a reserve pump, ladder or rescue
- When an OFS vehicle is booked out of commission because a member of that specific apparatus is required to accompany paramedics to the hospital

Determination of system reliability involved analysis of response data which measured historical performance of key factors including: time, travel distance, and the percentage of time that the 'first due unit' was not available for response, in its designated response district. See Figure 34 & Table 36 (career), or Figure 35 and Table 37 (volunteer) for response reliability statistics.

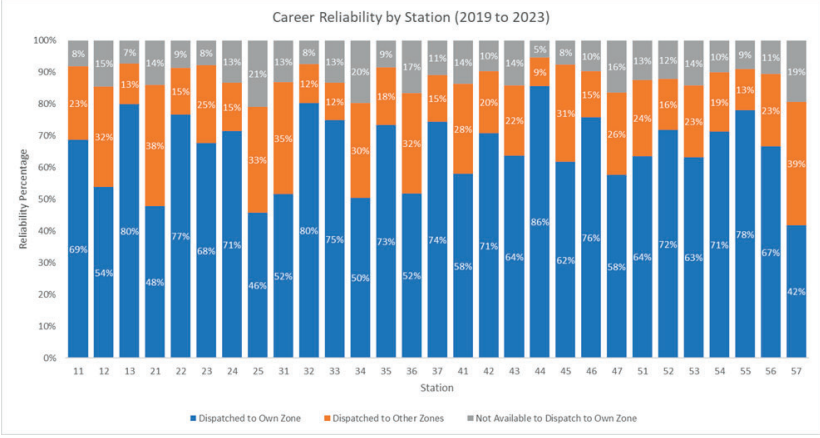


Figure 33. Career station reliability baseline (2019 – 2023)

Table 36. Career percentage of time not available for responses in their own district

	Percentage Unavailable in Respective Zone				
STATION	2019	2020	2021	2022	2023
11	5.54%	7.44%	8.41%	8.79%	10.15%
12	9.44%	12.80%	12.40%	16.40%	19.53%
13	4.21%	8.27%	8.88%	8.59%	7.00%
21	11.14%	10.24%	14.73%	17.97%	17.12%
22	7.46%	7.16%	8.52%	9.02%	10.57%
23	6.43%	7.39%	7.77%	7.73%	9.50%
24	11.62%	15.12%	11.89%	12.81%	15.29%
25	18.13%	15.72%	22.10%	23.34%	23.36%
31	8.57%	16.05%	12.32%	15.64%	13.63%
32	4.46%	8.78%	8.51%	8.90%	7.32%
33	7.21%	14.18%	14.31%	15.89%	14.66%
34	13.04%	22.02%	17.42%	23.00%	21.49%
35	7.69%	6.65%	8.01%	10.66%	9.09%
36	13.94%	14.23%	15.73%	20.13%	17.85%
37	7.00%	7.95%	9.04%	15.17%	13.07%
41	12.81%	9.70%	12.09%	17.71%	15.36%
42	7.08%	8.00%	8.60%	10.60%	13.01%
43	12.84%	14.23%	13.52%	13.56%	16.05%
44	5.37%	5.26%	4.40%	6.28%	5.74%
45	12.02%	6.47%	4.05%	10.27%	5.49%
46	8.19%	10.03%	11.88%	10.07%	8.87%
47	17.09%	15.14%	13.85%	21.42%	14.29%
51	9.52%	10.40%	11.58%	15.36%	14.32%
52	9.36%	9.76%	14.31%	13.62%	13.66%
53	9.13%	14.82%	14.71%	15.85%	16.68%
54	9.61%	10.76%	7.80%	10.08%	11.91%
55	8.74%	6.59%	7.38%	13.00%	8.86%
56	7.08%	10.84%	11.95%	10.24%	12.71%
57	16.18%	17.39%	18.43%	20.93%	22.38%

The analysis of reliability data revealed that OFS reliability has been generally trending downwards in career stations over the past five (5) years. This trend can be explained by several smaller items such as traffic congestion. The largest reason for this trending is due to the initiation of the AVRR, Automatic Vehicle Routing Recommendation, dispatching system for career responses. This system overrides the selection of a station strictly based upon the incident location and selects the closest apparatus instead. This for the most part still selects the apparatus from the response zone but if another apparatus from a neighbouring station is closer then it is selected instead.

Some other reasons for individual station low reliability can

be explained by a few factors. Reviewing the data from Table 36 above the following stations indicate that they were below 85% reliability.

Stations #25, 34 & 36 are shown at approximately 80% reliability which means they are not responding to incidents in their own response area. These stations are utilized frequently to cover off other stations that are out of services for a variety of reasons as indicated previously. The previous use of second pumper apparatus from stations #11 & #13 to provide this coverage is no longer possible on a regular basis due to staffing limitations. This activity removes them from their primary response area and requires neighbouring stations to attend their district for responses. These stations typically have lower response volumes and are surrounded by other stations who can effectively cover their area for short periods. For these reasons they are used for these tasks. This does however have a cascading effect on the neighbouring stations who are now responding outside their own areas more frequently and less reliable in their own response area. The OFS has reviewed this practice and response data and have accepted the level of risk associated with this practice.

Stations #21 &#24 have shown consistently higher percentages of low reliability. This reason for this can be quickly identified. These stations provide the hazardous materials response for the entire city. This activity pulls these stations outside their primary response areas frequently for approximately 5-7% of their responses.

Stations 12, 43, 47 are all specialty stations and are out of their area on special operations incidents or committed to special operations trainings which would explain their reduced reliability. Additionally, Station 43 contains one of the only career area tankers and due to contractual requirements, it must respond within the career areas for water supply. This frequently takes them out of district and across the city.

With regards to Station 57 having lower percentage of

reliability the implementation of AVRR is suspected of sending station #13 to #57 incidents strictly based upon apparatus location. It is suspected that even though both apparatuses may be in station, #13 may be selected just due its to geographic location being closer. A further analysis of this data must be undertaken once sufficient data has amassed from the use of AVRR. An analysis of historical data and road network model indicates that Station 57 is usually first to arrive in the northern part of Station 56 response zone. This suggests that the boundary for Station 57 could be adjusted to include this small area thus increasing the overall reliability of Station 56. An analysis of Station 57 incident data and their response area is planned for the future. Also, Station 57 is regularly out of its response zone due to being the primary support unit for the busiest city's Station, #13. This proximity also causes them to be utilized to cover off at Station 13 to cover their area due to them being committed on other incidents for long durations and the probability other incidents in their area while they are out.

Station 53 percentages can be explained by the new location of Station 55 which has provided further coverage for this area. This allows for AVRR to divert responses for 53 to resources from 55 if they are in closer proximity. Specialities at Station 53 also attribute to a heavy training requirement which frequently takes station out of service. The move of RE53 to Station 52 in 2024 will alleviate some of this training pressure.

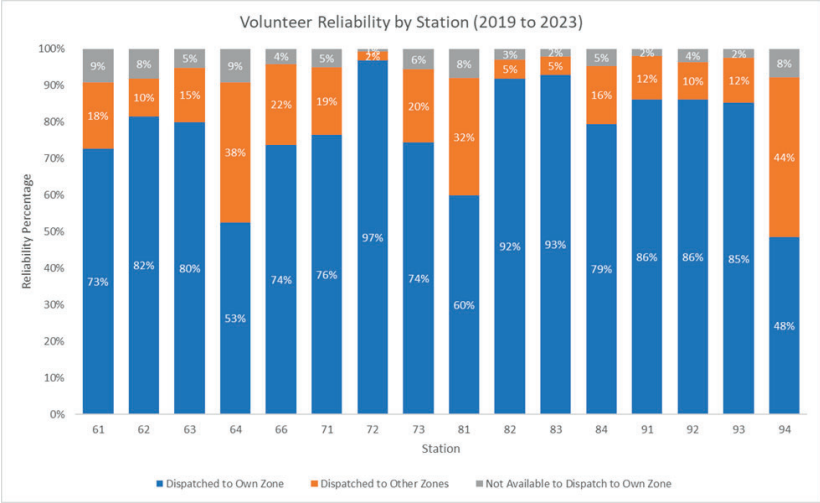


Figure 34. Volunteer station reliability baseline (2019 – 2023)

Table 37. Volunteer percentage of time not available for responses in their own district

	Percentage Unavailable in Respective Zone				
STATION	**2019**	**2020**	**2021**	**2022**	**2023**
61	9.38%	9.80%	9.84%	10.81%	5.97%
62	16.22%	16.13%	2.50%	5.36%	1.33%
63	3.33%	3.30%	3.45%	10.00%	4.60%
64	7.04%	12.66%	7.22%	8.21%	11.21%
66	1.35%	3.26%	5.63%	5.68%	4.69%
71	3.90%	6.15%	11.54%	2.78%	2.17%
72	1.00%	1.03%	2.22%	0.00%	0.00%
73	5.71%	3.26%	2.99%	9.42%	5.50%
81	9.57%	7.09%	7.38%	7.28%	8.79%
82	2.12%	2.67%	2.01%	2.87%	4.50%
83	0.00%	3.29%	1.95%	1.88%	2.72%
84	2.30%	3.03%	4.69%	12.50%	1.32%
91	4.62%	2.07%	0.68%	0.69%	2.22%
92	4.65%	3.28%	2.68%	1.63%	5.37%
93	1.51%	2.93%	3.85%	2.06%	2.07%
94	7.92%	8.85%	4.55%	8.65%	8.62%

A number of factors can affect the reliability of rural response including: distance of travel for volunteers to rural fire stations, daytime availability (volunteers unavailable during working hours), construction of limited rural arteries, inclement weather and vast areas of response coverage. The data analysis shows a relatively high overall reliability for first

due volunteer responses. This can be explained by the low incident response numbers in each area and the fact that volunteer apparatus are in their home stations majority of the time.

Vehicles that are placed “out of service” due to vehicles enroute to Swansea for repairs, pump testing, undercoating, trips to the maintenance and supply division may require an out of district vehicle to respond into another area. In such cases a reserve pump may not be available to place in the station for a short period and hence the next closest rig is sent into the neighboring response zone.

Resistance

The agency through response policies and procedures attempts to limit the number of apparatus required for different types of incidents to only those required for successful mitigation of the incident. The agency maintains a sequencing of escalation of requirements for incidents of all types. The initiation of working fires, additional alarms, and the request for specialized apparatus can all be completed. This allows for minimal initial responses to meet the critical tasking requirements but quick additions of further required apparatus.

The agency sends apparatus and staffing to meet the critical tasking requirements when there is sufficient evidence through received information that an actual emergency event is taking place. This limits the apparatus responding to false alarms and lesser incidents to only that which is required.

Absorption

The agency is a member of the provincial Mutual Aid program which would allow the request for assistance to all the City of Ottawa’s neighbours when required. There is also an agreement with the City of Gatineau in Quebec across the Ottawa River for assistance upon request.

As a standard procedure the agency repositions apparatus regularly to maintain best coverage for the city when apparatus are out of service/committed for many reasons. Events such as prolonged incidents, training, or mechanical service can cause apparatus to be unavailable and when this occurs the agency communications center will request station apparatus movements into vacated areas to provide optimal coverage.

The agency maintains a spare fleet of vehicles to ensure that all frontline apparatus are in service and prepared to respond to emergency incidents. Fleet services maintain eleven (11) spare pumper apparatus, seven (7) in the urban/career area/stations and four (4) in the rural/volunteer areas, six (6) spare aerial apparatus positioned in the urban/career stations for use in all areas, 4 spare tankers, 2 spare rescues and 1 spare pumper tanker and an assortment of small fleet vehicles including district chief vehicles. These vehicles are available when required, but do require the transfer of equipment, other than hose and ladders, to enable them to be response ready.

In addition to the apparatus repositioning and the mutual aid program the agency has the ability to call back off duty staff to staff reserve/spare apparatus to maintain coverage. With our new rostering solution, we have the capability to do a mass-call-out to career staff to upstaff reserve apparatus if required.

During the fire at the Ottawa General Hospital in October 2023, several apparatus were relocated to provide the best coverage within the urban area and volunteer stations surrounding the urban area were also up-staffed to ensure coverage. The new rostering system was not required for this event.

Restoration

The agency has multiple established protocols to facilitate rapid restoration of response teams to full operational capacity following emergency situations. These measures

streamline the process of replenishing supplies, restoring equipment to optimal condition, and ensuring the well-being of the crew. Furthermore, the agency has standardized all its vehicles, ensuring uniformity in equipment and supply allocations based on the vehicle type, such as Pump, Rescue Pump, Pumper/Tanker, Ladder, Tanker, Heavy Rescue, and others.

Through this standardization, the agency can determine the necessary quantities of standard equipment and supplies needed to classify a vehicle as 'In Service'. By extrapolating this across the fleet, the agency was able to ascertain the total quantity of equipment and supplies in service. From this analysis, it was determined that an average additional inventory of 10% was necessary to maintain service levels, enabling vehicles to return to service promptly despite factors such as parts availability, repairs, restocking, and delivery times. This increase accounts for turnover, damage, manufacturing and delivery schedules, storage capacity, and budget limitations. These adjustments are periodically reviewed to ensure they effectively support the operational requirements.

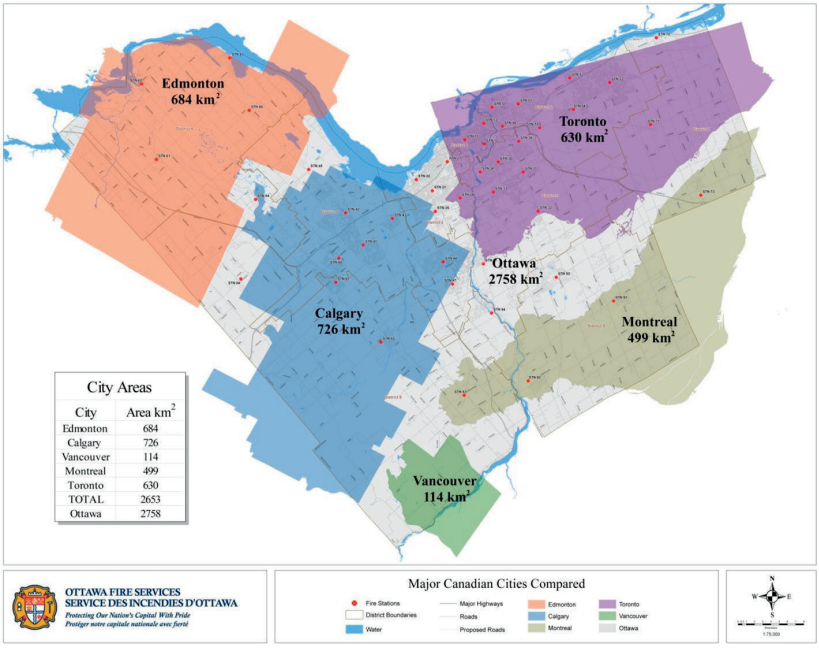
The agency maintains a supply and maintenance division which ensures sufficient supplies are on hand for restocking of equipment and disposable supplies when required. Policies and procedures have been developed to ensure that these supplies are accessible at all times to ensure that the restoration of apparatus, crews and equipment occurs in a timely fashion. This supply inventory includes power and manual tools, ladders, firefighting gear like nozzles and hoses, and hydraulic rescue equipment. Significant efforts have been made by the agency to acquire an additional set of turnout gear for all responders, facilitating swift access to clean personal protective equipment (PPE) and ensuring readiness for redeployment. This division is also available to provide on scene support and the supply of non-typical equipment, such as lighting and power generation when required.

Additionally, the agency has an Air Management division, which ensures the availability of replacement SCBA and air cylinders on-site through dedicated vehicles that are accessible at all times. Furthermore, replacements are delivered to stations when faulty equipment is identified.
Ottawa Fire Service's with the assistance of corporate fleet services maintain a quantity of reserve apparatus. These spare apparatus are positioned strategically throughout the city and are available for the replacement of out of service vehicles quickly.

Comparability

Similar Agency Comparison

External agencies of similar size often face similar issues. By comparing statistics, major emergencies (severe fires, floods, special operations etc.), and organizational policies, agencies can build a network of support for comparison studies and can benefit one another through best practice. In the case of accredited agencies, data, procedures, and methodology have been through a peer review process providing continuity and validity to the comparisons. Map 26 illustrates the size of the City in comparison to other major Canadian cities. When compared the total combined areas served by Vancouver, Montreal, Toronto, Edmonton and Calgary Fire services; the enormity of the area and composite nature of the Ottawa Fire Service are unlike any other major jurisdiction.



Map 33. Major Canadian cities comparison

Table 38. Canadian cities statistics comparison 2022

City	Ottawa **	Hamilton	Mississauga	Vancouver
Population	*1.1 million*	*776,000*	*772,000*	*637,000*
*Geographic area served (km²) ** *	*910 urban*	*1138*	*288.4*	*115*
	1886 rural			
Number of Stations	*29 career*	*17 career*	*21*	*20*
	16 volunteer	*9 volunteer*		
*Staffing * *	*858 career*	*482 career*	*634*	*800*
	489 volunteer	*270 volunteer*		
Total Incident Volume	*28,634*	*14,593*	*27,376*	*65,000*
Total Fire Budget ($000)	*$178,481*	*$96,124*	*$137,943*	*$153,511*

** Staffing figures based on career positions*
*** Ottawa is a composite department with 16 stations, 483 volunteer personnel, and 1,886 km2 of rural territory as part of its response territory*

Fire Related Injuries and Deaths (Firefighters/Civilians)

Another statistic that is an assessment of performance is the number of injuries and fatalities over the assessment period. Table 39 shows the number of fires with dollar loss as well as civilian and firefighter injuries over a five-year period from 2018 – 2022. (2023 data is not available from the Ontario Fire Marshal's Office) Comparing this data to other provincial cities provides perspective on performance.

Table 39. Ontario Fire Marshal statistics - fire injuries and fatalities

Location	Response	Property	Years	Resp Code "01-Fire"	Resp Code "02-Explosions including Fire"	FF injuries	FF fatalities	Civilian Fire Injuries	Civilian Fire Fatalities	Estimated $ Loss Damage	Resp Code "03-NOLoss Outdoor Fire"	Total Fires (resp. codes 1, 2, & 3)
Barrie	Property fires/explosions	ALL (structure, vehicle, outdoor)	2018-2022	600	2	9	0	15	6	$36,814,045	290	892
Greater Sudbury	Property fires/explosions	ALL (structure, vehicle, outdoor)	2018-2022	713	5	12	0	44	15	$53,757,644	534	1252
Hamilton	Property fires/explosions	ALL (structure, vehicle, outdoor)	2018-2022	2371	7	86	0	127	21	$130,155,235	2258	4636
London	Property fires/explosions	ALL (structure, vehicle, outdoor)	2018-2022	1902	12	52	0	154	10	$88,968,400	1939	3853
Ottawa	Property fires/explosions	ALL (structure, vehicle, outdoor)	2018-2022	3704	7	71	0	350	35	$310,090,084	1787	5498
Thunder Bay	Property fires/explosions	ALL (structure, vehicle, outdoor)	2018-2022	805	0	13	0	40	6	$40,907,908	395	1200
Toronto	Property fires/explosions	ALL (structure, vehicle, outdoor)	2018-2022	9817	55	117	0	639	80	$530,448,851	7196	17068
Windsor	Property fires/explosions	ALL (structure, vehicle, outdoor)	2018-2022	1222	4	40	0	64	13	$86,755,322	1297	2523

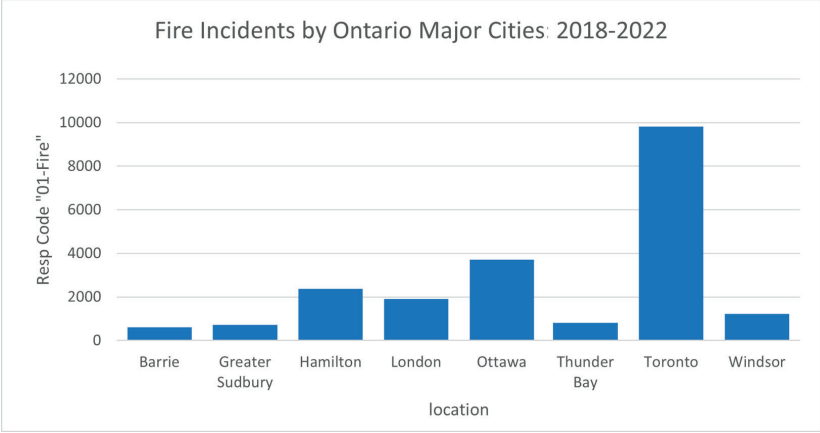


Figure 35. Fire Incidents by Ontario Major Cities: 2018-2022

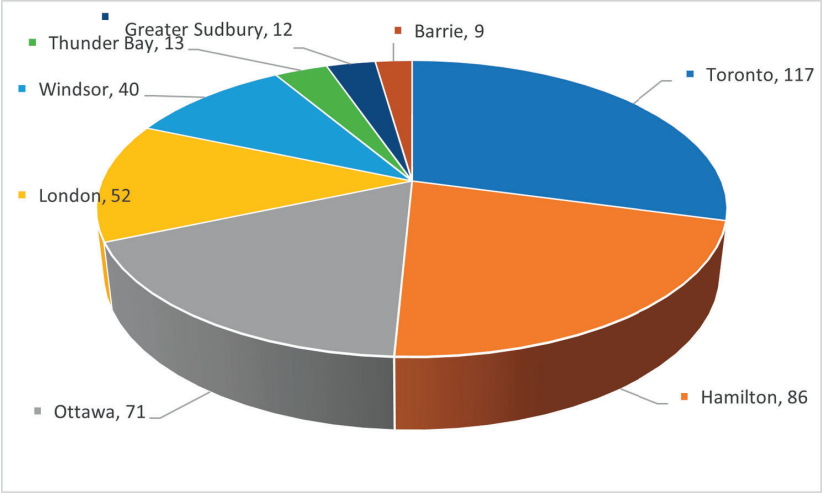


Figure 36. Ontario Firefighter injuries by city (2018 – 2022)

In addition to firefighter injuries, it is important to review civilian injuries and fatalities for all fire incidents. Figure 38 &39 depict the number of civilian injuries and fatalities over the period 2018 – 2022.

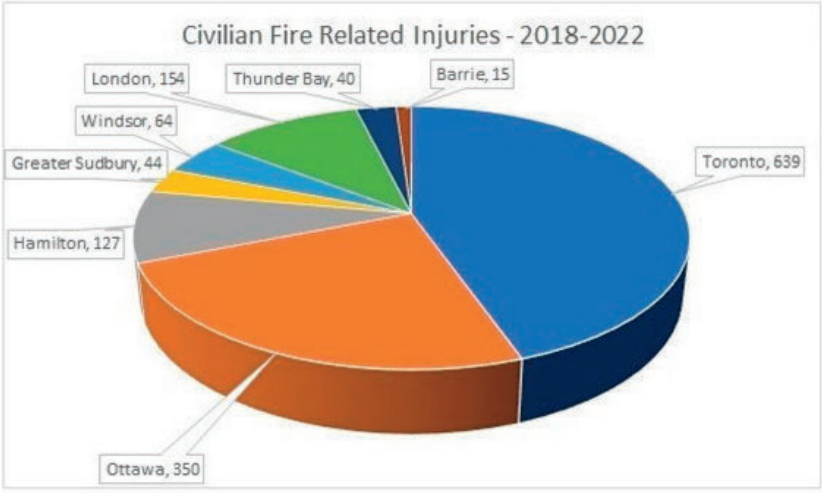


Figure 38. Ontario civilian related injuries by city (2018-2022)

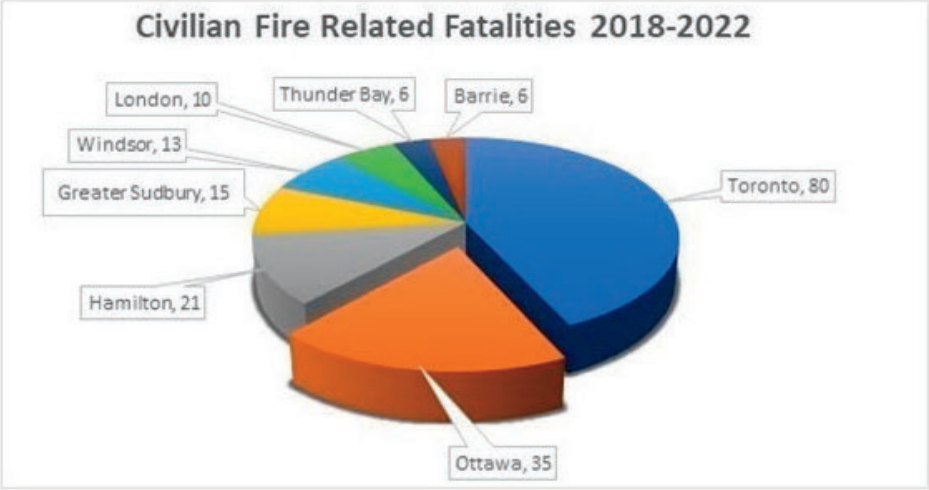


Figure 39. Ontario civilian related fatalities by city (2018-2022)

Comparison to Industry Standards

Industry recognized standards such as NFPA 1221 1710, and 1720 provide guidelines for the Ottawa Fire Service emergency response benchmarking and provide the basis for many Standard Operating Procedures. Other legislation and standards such as Ontario Guidance notes, Health and Safety are inherently incorporated into operational and training programs. Ottawa Fire will continue to monitor and compare its performance to accepted industry standards.

Comparison of Internal Performance

An internal comparison of system performance provides the workloads and response data for each station. The department has used 5 years (2019-2023) of performance data in this analysis. A report of statistics to the agency on a monthly basis is run for comparison analysis. Figures 44 & 45 show a sample these statistics.

Ottawa Fire Services continues to set its turnout time benchmark in line with the NFPA standard of 1 minute and 30 seconds. Continued reporting to the response officers is necessary to create engagement and identify to the crews

what their performance is and how it can be improved. Statistics continue to show that turnout times are an area for improvement and plans are being developed to improve those. Dashboard reporting will be one method to assist this area and the installation of clock timers in the apparatus bays is another potential assisting technique.

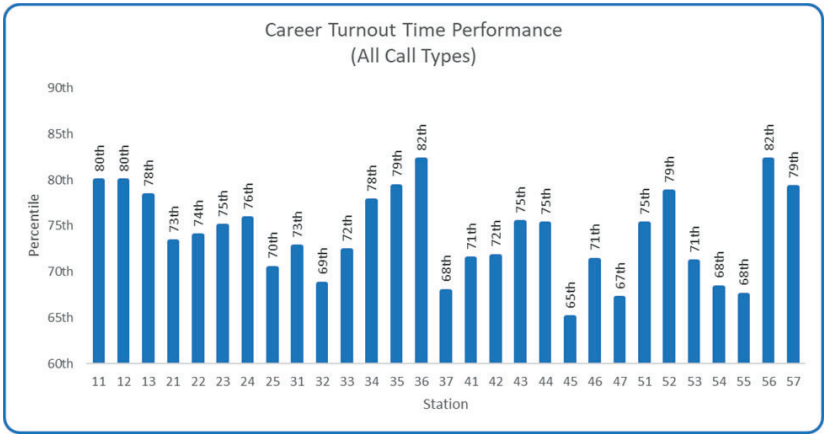


Figure 40. Career station turnout time performance by all call types (2019 – 2023)

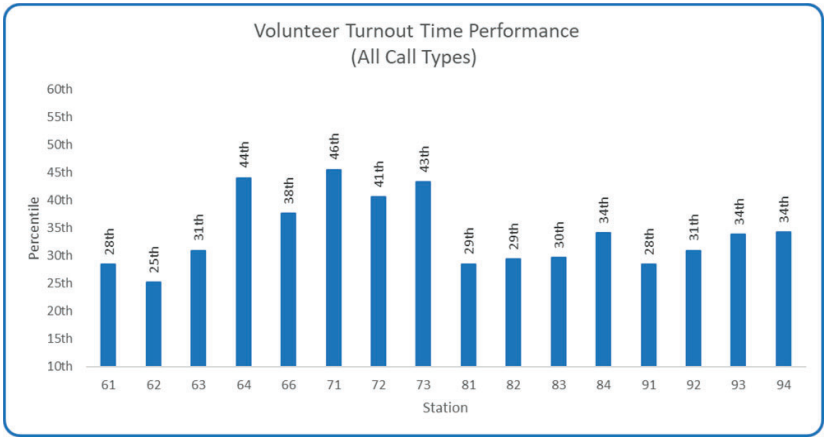


Figure 41. Volunteer station turnout time performance by all call types (2019 – 2023)

Section F:
Performance Objectives and Measurements

In developing appropriate response benchmarks for municipal fire services, it is understood that within the Province of Ontario, municipalities have obligations as set out in the Fire Protection and Prevention Act (1997)[1], to provide fire protection services in accordance with its local needs and circumstances. The Ottawa Fire Service complies with Provincial legislation and has adopted the National Fire Protection Association standards global performance benchmarks for fire, medical and rescue incident responses, NFPA 1710, 1720, and NFPA 1221 for call processing.

Incident response times for 2019 to 2023 are used to determine the Ottawa Fire Service baselines and provide a foundation upon which future decisions can be based. OFS has adopted internal baselines for response data components. It has further adopted the 88th percentile of the OFS baseline data gathered over the 5 years to establish local performance benchmarks (“OFS targets”) as part of a continuous quality improvement process.When OFS baselines reach the improvement target during quarterly or annual reviews a new target will be set. If these baseline targets have reached the industry standards such as NFPA, the standards target will be adopted as the target. New targets for improvement beyond these will not be set but the standards target will remain and maintained. Resources will then be shifted to other areas that require improvement.

Call processing time from 2020 to 2022 has been:

- 2020: 00.00.32
- 2021: 00:00:46
- 2022: 00:01:14

[1] Fire Protection And Prevention Act, 1997, S.O. 1997, chapter 4 – Part II, Responsibility for the Fire Protection Services

The standard of 1:00 minute will remain as the benchmark. Call processing times will continue to be monitored. Resources – financial, human, technology, data analysis, will shift to assist the resources already working on improving turnout times.

2022 saw a substantial increase to the PSAP call processing time. This is attributed to call volume increases and staffing level challenges post-pandemic. OFS continues to work with the PSAP provider to work towards improvements in this piece of our overall response time.
(Exhibit E.11 PSAP Call Processing Time Data)

Departmental strategies and action plans aim to improve the gap that separates the Baseline and Benchmarks times. There are sub call groups where no times are available because there is no historical data (e.g. Moderate Risk Rope Rescue, Maximum Risk Rescue, High Risk Hazmat). Therefore, the Baseline benchmark statements will be established using the first due times from the Performance Tables for call groups in Section E (Table 28 to 31). The ERF benchmarks for sub call groups that have no data will be established based on statistical data and GIS modelling.

Performance Objective Benchmarks

Fire Suppression Services

For all fire incidents, Ottawa Fire Services shall arrive in a timely manner with sufficient resources to provide fire protection and suppression services to the community. These operations shall be done in accordance with the Ottawa Fire Service's standard operating procedures while providing for the safety of responders and the public.
Benchmark statements are still provided for individual risk classifications that report insufficient data for baseline statements (less than 10 responses is considered insignificant as per the Commission).

Distribution

The first-due unit for all risk levels is capable of providing 1890 litres (500 gallons) of water and 6000 litres per minute (lpm) / (1,500 gpm) pumping capacity; initiating command; requesting additional resources; advancing an attack line and establishing a back-up line, each flowing a minimum of 570 lpm (150 gpm); establishing an uninterrupted water supply; containing the fire; rescuing at-risk victims; and performing salvage operations.

For 90 percent of all **Low Risk Fires** within the **Career** districts of the City, the total response time for the arrival of the first-due unit, staffed with 3 firefighters and 1 officer, shall be: 7 minutes and 21 seconds to urban areas; and 10 minutes and 49 seconds to rural areas.

For 90 percent of all **Low Risk Fires** within the **Volunteer** districts of the City, the total response time for the arrival of the first-due unit, staffed with 3 firefighters and 1 officer, shall be: 11 minutes and 00 seconds to urban areas; and 18 minutes and 26 seconds to rural areas.

For 90 percent of all **Moderate Risk Fires** within the **Career** districts of the City, the total response time for the arrival of the first-due unit, staffed with 3 firefighters and 1 officer, shall be: 6 minutes and 41 seconds to urban areas; and 11 minutes and 01 seconds to rural areas.

For 90 percent of all **Moderate Risk Fires** within the **Volunteer** districts of the City, the total response time for the arrival of the first-due unit, staffed with 3 firefighters and 1 officer, shall be: 9 minutes and 22 seconds to urban areas; and 16 minutes and 42 seconds to rural areas.

For 90 percent of all **High Risk Fires** within the **Career** districts of the City, the total response time for the arrival of the first-due unit, staffed with 3 firefighters and 1 officer, shall be: 6 minutes and 55 seconds to urban areas; and 11 minutes and 36 seconds to rural areas.

For 90 percent of all **High Risk Fires** within the **Volunteer** districts of the City, the total response time for the arrival of the first-due unit, staffed with 3 firefighters and 1 officer, shall be: 11 minutes and 43 seconds to urban areas; and 17 minutes and 32 seconds to rural areas.

For 90 percent of all **Maximum Risk Fires** within the **Career** districts of the City, the total response time for the arrival of the first-due unit, staffed with 3 firefighters and 1 officer, shall be: 5 minutes and 33 seconds to urban areas; and 11 minutes and 08 seconds to rural areas.

For 90 percent of all **Maximum Risk Fires** within the **Volunteer** districts of the City, the total response time for the arrival of the first-due unit, staffed with 3 firefighters and 1 officer, shall be: 9 minutes and 56 seconds to urban areas; and 15 minutes and 29 seconds to rural areas.

Concentration

For 90 percent of all **Low Risk Fires** within the **Career** districts of the City, the total response time for the arrival of the effective response force (ERF), shall be identical to the distribution timelines for urban and rural areas because the response personnel numbers are the same.

For 90 percent of all **Low Risk Fires** within the **Volunteer** districts of the City, the total response time for the arrival of the effective response force (ERF), shall be identical to the distribution timelines for urban and rural areas because the response personnel numbers are the same.

For 90 percent of all **Moderate Risk Fires** within the **Career** districts of the City, the total response time for the arrival of the effective response force (ERF), staffed with 16 firefighters and officers, shall be: 12 minutes and 38 seconds to urban areas; and 16 minutes and 53 seconds to rural areas.

For 90 percent of all **Moderate Risk Fires** within the **Volunteer** districts of the City, the total response time for the arrival of the effective response force (ERF), staffed with 16 firefighters and officers, shall be: 17 minutes and 33

seconds to urban areas; and 27 minutes and 48 seconds to rural areas.

For 90 percent of all **High Risk Fires** within the **Career** districts of the City, the total response time for the arrival of the effective response force (ERF), staffed with 27 firefighters and officers, shall be: 24 minutes and 32 seconds to urban areas; and 37 minutes and 10 seconds to rural areas.

For 90 percent of all **High Risk Fires** within the **Volunteer** districts of the City, the total response time for the arrival of the effective response force (ERF), staffed with 27 firefighters and officers, shall be: 22 minutes and 39 seconds to urban areas; and 27 minutes and 49 seconds to rural areas.

For 90 percent of all **Maximum Risk Fires** within the **Career** districts of the City, the total response time for the arrival of the effective response force (ERF), staffed with 36 firefighters and officers, shall be: 26 minutes and 22 seconds to urban areas; and 19 minutes and 44 seconds to rural areas.

For 90 percent of all **Maximum Risk Fires** within the **Volunteer** districts of the City, the total response time for the arrival of the effective response force (ERF), staffed with 36 firefighters and officers, shall be: 25 minutes and 19 seconds to urban areas; and 32 minutes and 23 seconds to rural areas.

The ERF for *moderate risk* shall be capable of establishing command; providing an uninterrupted water supply; advancing an attack line and a backup line for fire control; complying with the Occupational Safety and Health Administration (OSHA) requirements of two-in and two-out; completing forcible entry; searching and rescuing at-risk victims; ventilating the structure; controlling utilities; and performing salvage and overhaul. The ERF for *high-risk* structure fires shall also be capable of placing elevated streams into service from aerial ladders. These operations

shall be done in accordance Ottawa Fire Services standard operating procedures while providing for the safety of responders and the public. **(Exhibit E.9 Critical Tasking)**

Emergency Medical Services

For all Emergency Medical incidents, Ottawa Fire Services shall arrive in a timely manner with trained and equipped personnel to provide medical care and support to the victim/s and reduce or eliminate the conditions that caused the emergency while providing for the safety of the responders. **(Exhibit E.6 Tiered Response)**

Distribution

For 90 percent of all **EMS** responses within the **Career** districts of the City, the total response time for the arrival of the first-due unit, staffed with 3 firefighters and 1 officer, shall be: 6 minutes and 39 seconds to urban areas; and 9 minutes and 48 seconds to rural areas.

For 90 percent of all **EMS** responses within the **Volunteer** districts of the City, the total response time for the arrival of the first-due unit shall be: 10 minutes and 10 seconds to urban areas; and 15 minutes and 44 seconds to rural areas.

This unit shall be capable of providing incident command, completing a patient assessment, providing appropriate treatment including AED and CPR protocols Additional resources responding to these incidents are available upon request as the Ottawa Fire Service is only a partner with EMS and Police in the tiered response medical system provided to the people of the City, therefore initial distribution and concentration values are the same.

Concentration

The OFS relies upon the City of Ottawa Paramedic service to complete the effective response force (ERF) component of its EMS program. The initial arriving fire department unit has the capabilities of providing first responder medical aid

including AED, until the Paramedic Service arrives on scene. If the Paramedic Service unit arrives first on scene, its personnel initiates care and the staff from the initial fire department unit provides support as needed.

For 90 percent of all **EMS** responses within the **Career** districts of the City, the total response time for the arrival of the effective response force (ERF), shall be identical to the distribution timelines for urban and rural areas because the response personnel numbers are the same.

For 90 percent of all **EMS** responses within the **Volunteer** districts of the City, the total response time for the arrival of the effective response force (ERF), shall be identical to the distribution timelines for urban and rural areas because the response personnel numbers are the same.

Rescue Services

For all Rescue Incidents, the Ottawa Fire Service arrives in a timely manner with trained and equipped personnel to provide rescue services to victims and reduce or eliminate the conditions that caused the emergency while providing for the safety of the responders.

Distribution

This unit will be capable of initiating command, size-up, scene safety, stabilization, and initial patient assessment in accordance with the Ottawa Fire Service's Standard Operating Procedures.

For 90 percent of all **Low Risk Rescues** within the **Career** districts of the City, the total response time for the arrival of the first-due unit, staffed with 3 firefighters and 1 officer, shall be: 7 minutes and 41 seconds to urban areas; and 9 minutes and 56 seconds to rural areas.

For 90 percent of all **Low Risk Rescues** within the **Volunteer** districts of the City, the total response time for the arrival of the first-due unit, staffed with 3 firefighters and 1 officer,

shall be: 12 minutes and 06 seconds to urban areas; and 16 minutes and 52 seconds to rural areas.

For 90 percent of all **Moderate Risk Collision Rescues** within the **Career** districts of the City, the total response time for the arrival of the first-due unit, staffed with 3 firefighters and 1 officer, shall be: 6 minutes and 55 seconds to urban areas; and 10 minutes and 07 seconds to rural areas.

For 90 percent of all **Moderate Risk Collision Rescues** within the **Volunteer** districts of the City, the total response time for the arrival of the first-due unit, staffed with 3 firefighters and 1 officer, shall be: 11 minutes and 26 seconds to urban areas; and 16 minutes and 42 seconds to rural areas.

For 90 percent of all **Moderate Risk Rope Rescues** within the **Career** districts of the City, the total response time for the arrival of the first-due unit, staffed with 3 firefighters and 1 officer, shall be: 9 minutes and 25 seconds to urban areas; and 7 minutes and 44 seconds to rural areas.

For 90 percent of all **Moderate Risk Rope Rescues** within the **Volunteer** districts of the City, the total response time for the arrival of the first-due unit, staffed with 3 firefighters and 1 officer, shall be: 12 minutes and 06 seconds to urban areas; and 13 minutes and 06 seconds to rural areas.

For 90 percent of all **High Risk Extrication Rescues** within the **Career** districts of the City, the total response time for the arrival of the first-due unit, staffed with 3 firefighters and 1 officer, shall be: 6 minutes and 38 seconds to urban areas; and 9 minutes and 02 seconds to rural areas.

For 90 percent of all **High Risk Extrication Rescues** within the **Volunteer** districts of the City, the total response time for the arrival of the first-due unit, staffed with 3 firefighters and 1 officer, shall be: 12 minutes and 06 seconds to urban areas; and 17 minutes and 50 seconds to rural areas.

For 90 percent of all **High Risk Industrial Rescues** within the **Career** districts of the City, the total response time for the arrival of the first-due unit, staffed with 3 firefighters and 1 officer, shall be: 9 minutes and 29 seconds to urban areas;

and 10 minutes and 37 seconds to rural areas.

For 90 percent of all **High Risk Industrial Rescues** within the **Volunteer** districts of the City, the total response time for the arrival of the first-due unit, staffed with 3 firefighters and 1 officer, shall be: 12 minutes and 06 seconds to urban areas; and 15 minutes and 09 seconds to rural areas.

For 90 percent of all **High Risk Water/Ice Rescues** within the **Career** districts of the City, the total response time for the arrival of the first-due unit, staffed with 3 firefighters and 1 officer, shall be: 11 minutes and 01 seconds to urban areas; and 12 minutes and 20 seconds to rural areas.

For 90 percent of all **High Risk Water/Ice Rescues** within the **Volunteer** districts of the City, the total response time for the arrival of the first-due unit, staffed with 3 firefighters and 1 officer, shall be: 10 minutes and 12 seconds to urban areas; and 22 minutes and 00 seconds to rural areas.

For 90 percent of all **Maximum Risk Rescues** within the **Career** districts of the City, the total response time for the arrival of the first-due unit, staffed with 3 firefighters and 1 officer, shall be: 7 minutes and 23 seconds to urban areas; and 10 minutes and 37 seconds to rural areas.

For 90 percent of all **Maximum Risk Rescues** within the **Volunteer** districts of the City, the total response time for the arrival of the first-due unit, staffed with 3 firefighters and 1 officer, shall be: 12 minutes and 06 seconds to urban areas; and 14 minutes and 38 seconds to rural areas.

Concentration

The ERF for moderate risk and high risk is capable of establishing command; sizing-up, establishing a hazard protection zone, advanced searching and rescue, triage, utility control, atmospheric monitoring, shoring, rigging and technical knowledge and expertise These operations are done in accordance with the Ottawa Fire Service's standard operating procedures while providing for the safety of responders and the general public.

The ERF for High Risk Extrication Rescues is capable of advanced extrication procedures, stabilization, victim removal, providing technical expertise, knowledge, skills and abilities during extrication incidents. These operations are done in accordance with the Ottawa Fire Service's standard operating procedures while providing for the safety of responders and the public.

The ERF for High Risk Water/Ice Rescues is equipped and capable of vessel rescue, advancing to the patient over ice, or in flood/swift water situations, stabilization of victim, hypothermia protection, providing technical expertise, knowledge, skills and abilities during extrication incidents. These operations are done in accordance with the Ottawa Fire Service's standard operating procedures while providing for the safety of responders and the public.

For 90 percent of all **Low Risk Rescues** within the **Career** districts of the City, the total response time for the arrival of the effective response force (ERF), shall be identical to the distribution timelines for urban and rural areas because the response personnel numbers are the same.

For 90 percent of all **Low Risk Rescues** within the **Volunteer** districts of the City, the total response time for the arrival of the effective response force (ERF), shall be identical to the distribution timelines for urban and rural areas because the response personnel numbers are the same.

For 90 percent of all **Moderate Risk Collision Rescues** within the **Career** districts of the City, the total response time for the arrival of the effective response force (ERF), staffed with 8 firefighters and officers, shall be: 8 minutes and 38 seconds to urban areas; and 11 minutes and 50 seconds to rural areas.

For 90 percent of all **Moderate Risk Collision Rescues** within the **Volunteer** districts of the City, the total response time for the arrival of the effective response force (ERF), staffed with 8 firefighters and officers, shall be: 17 minutes and 25 seconds to urban areas; and 19 minutes and 20 seconds to rural areas.

For 90 percent of all **Moderate Risk Rope Rescues** within the **Career** districts of the City, the total response time for the arrival of the effective response force (ERF), staffed with 22 firefighters and officers, shall be: 32 minutes and 37 seconds to urban areas; and 18 minutes and 35 seconds to rural areas.

For 90 percent of all **Moderate Risk Rope Rescues** within the **Volunteer** districts of the City, the total response time for the arrival of the effective response force (ERF), staffed with 22 firefighters and officers, shall be: 52 minutes and 06 seconds to urban areas; and 54 minutes and 56 seconds to rural areas.

For 90 percent of all **High Risk Extrication Rescues** within the **Career** districts of the City, the total response time for the arrival of the effective response force (ERF), staffed with 12 firefighters and officers, shall be: 30 minutes and 02 seconds to urban areas; and 6 minutes and 55 seconds to rural areas.

For 90 percent of all **High Risk Extrication Rescues** within the **Volunteer** districts of the City, the total response time for the arrival of the effective response force (ERF), staffed with 12 firefighters and officers, shall be: 41 minutes and 22 seconds to urban areas; and 45 minutes and 12 seconds to rural areas.

For 90 percent of all **High Risk Industrial Rescues** within the **Career** districts of the City, the total response time for the arrival of the effective response force (ERF), staffed with 19 firefighters and officers, shall be: 21 minutes and 13 seconds to urban areas; and 41 minutes and 15 seconds to rural areas.

For 90 percent of all **High Risk Industrial Rescues** within the **Volunteer** districts of the City, the total response time for the arrival of the effective response force (ERF), staffed with 19 firefighters and officers, shall be: 41 minutes and 22 seconds to urban areas; and 48 minutes and 49 seconds to rural areas.

For 90 percent of all **High Risk Water/Ice Rescues** within the **Career** districts of the City, the total response time for the

arrival of the effective response force (ERF), staffed with 15 firefighters and officers, shall be: 20 minutes and 54 seconds to urban areas; and 28 minutes and 16 seconds to rural areas.

For 90 percent of all **High Risk Water/Ice Rescues** within the **Volunteer** districts of the City, the total response time for the arrival of the effective response force (ERF), staffed with 15 firefighters and officers, shall be: 29 minutes and 30 seconds to urban areas; and 75 minutes and 23 seconds to rural areas.

For 90 percent of all **Maximum Risk Rescues** within the **Career** districts of the City, the total response time for the arrival of the effective response force (ERF), staffed with 28 firefighters and officers, shall be: 53 minutes and 03 seconds to urban areas; and 49 minutes and 06 seconds to rural areas.

For 90 percent of all **Maximum Risk Rescues** within the **Volunteer** districts of the City, the total response time for the arrival of the effective response force (ERF), staffed with 28 firefighters and officers, shall be: 52 minutes and 06 seconds to urban areas; and 55 minutes and 41 seconds to rural areas.

Hazardous Materials Services

Distribution

This unit shall be capable of initiating command, size-up, scene safety, stabilization, and initial patient assessment in accordance with the Ottawa Fire Service's Standard Operating Procedures. For all hazardous material incidents, the Ottawa Fire Service shall arrive in a timely manner with professionally trained personnel and equipment to identify the hazard, contain the hazard and mitigate the situation while providing for the safety of responders and citizens.

For 90 percent of all **Low Risk Hazardous Material** incidents within the **Career** districts of the City, the total response time for the arrival of the first-due unit, staffed with a minimum of 3 firefighters and 1 officer, shall be: 8 minutes

and 39 seconds to urban areas; and 13 minutes and 40 seconds to rural areas.

For 90 percent of all **Low Risk Hazardous Material** incidents occurring within the **Volunteer** districts of the City, the total response time for the arrival of the first-due unit, staffed with a minimum of 3 firefighters and 1 officer, shall be: 11 minutes and 24 seconds to urban areas; and 18 minutes and 46 seconds to rural areas.

For 90 percent of all **Moderate Risk Hazardous Material** incidents within the **Career** districts of the City, the total response time for the arrival of the first-due unit, staffed with a minimum of 3 firefighters and 1 officer, shall be: 7 minutes and 32 seconds to urban areas; and 10 minutes and 19 seconds to rural areas.

For 90 percent of all **Moderate Risk Hazardous Material** incidents within the **Volunteer** districts of the City, the total response time for the arrival of the first-due unit, staffed with a minimum of 3 firefighters and 1 officer, shall be: 9 minutes and 43 seconds to urban areas; and 14 minutes and 37 seconds to rural areas.

For 90 percent of all **High Risk Hazardous Material** incidents within the **Career** districts of the City, the total response time for the arrival of the first-due unit, staffed with a minimum of 3 firefighters and 1 officer, shall be: 13 minutes and 41 seconds to urban areas; and 11 minutes and 12 seconds to rural areas.

For 90 percent of all **High Risk Hazardous Material** incidents within the **Volunteer** districts of the City, the total response time for the arrival of the first-due unit, staffed with a minimum of 3 firefighters and 1 officer, shall be: 11 minutes and 37 seconds to urban areas; and 14 minutes and 06 seconds to rural areas.

Concentration

The ERF shall be capable of: establishing command, size-up, establishing hazard zone levels, perimeter monitoring,

decontamination, evidence preservation, technical advice.

For 90 percent of all **Low Risk Hazardous Material** incidents within the **Career** districts of the City, the total response time for the arrival of the effective response force (ERF), shall be identical to the distribution timelines for urban and rural areas because the response personnel numbers are the same.

For 90 percent of all **Low Risk Hazardous Material** incidents within the **Volunteer** districts of the City, the total response time for the arrival of the effective response force (ERF), shall be identical to the distribution timelines for urban and rural areas because the response personnel numbers are the same.

For 90 percent of all **Moderate Risk Hazardous Material** incidents within the **Career** districts of the City, the total response time for the arrival of the effective response force (ERF), staffed with 12 firefighters and officers, shall be: 14 minutes and 23 seconds to urban areas; and 18 minutes and 43 seconds to rural areas.

For 90 percent of all **Moderate Risk Hazardous Material** incidents within the **Volunteer** districts of the City, the total response time for the arrival of the effective response force (ERF), staffed with 12 firefighters and officers, shall be: 10 minutes and 09 seconds to urban areas; and 20 minutes and 06 seconds to rural areas.

For 90 percent of all **High Risk Hazardous Material** incidents within the **Career** districts of the City, the total response time for the arrival of the effective response force (ERF), staffed with 19 firefighters and officers, shall be: 40 minutes and 28 seconds to urban areas; and 38 minutes and 58 seconds to rural areas.

For 90 percent of all **High Risk Hazardous Material** incidents within the **Volunteer** districts of the City, the total response time for the arrival of the effective response force (ERF), staffed with 19 firefighters and officers, shall be: 47 minutes and 26 seconds to urban areas; and 56 minutes and 44 seconds to rural areas.

Baseline Performance Levels

Based on (5) five years of historical data, the following baselines have been established for the following services within the Ottawa Fire Service.

Baseline statement timelines are not reported for individual risk classifications with insufficient data (less than 10 responses is considered insignificant as per the Commission).

Fire Suppression Services

Distribution

The first-due unit for all risk levels is capable of: providing 1890 litres (500 gallons) of water and 5670 litres per minute (lpm) (1,500 gpm) pumping capacity; initiating command; requesting additional resources; establishing a back-up line and advancing an attack line, each flowing a minimum of 570 lpm (150 gpm); establishing an uninterrupted water supply; containing the fire; rescuing at-risk victims; and performing salvage operations. These operations shall be done in accordance with the Ottawa Fire Service's standard operating procedures while providing for the safety of responders and the public.

For 90 percent of all **Low Risk Fires** within the **Career** districts of the City, the total response time for the arrival of the first-due unit, staffed with 3 firefighters and 1 officer, is: 7 minutes and 33 seconds to urban areas; and 11 minutes and 03 seconds to rural areas.

For 90 percent of all **Low Risk Fires** within the **Volunteer** districts of the City, the total response time for the arrival of the first-due unit, staffed with 3 firefighters and 1 officer, is: 11 minutes 04 seconds to urban areas; and 19 minutes and 11 seconds to rural areas.

For 90 percent of all **Moderate Risk Fires** within the **Career** districts of the City, the total response time for the arrival of the first-due unit, staffed with 3 firefighters and 1 officer, is:

6 minutes and 53 seconds to urban areas; and 11 minutes 31 seconds to rural areas.

For 90 percent of all **Moderate Risk Fires** within the **Volunteer** districts of the City, the total response time for the arrival of the first-due unit, staffed with 3 firefighters and 1 officer, is: 9 minutes and 57 seconds to urban areas; and 17 minutes and 16 seconds to rural areas.

For 90 percent of all **High Risk Fires** within the **Career** districts of the City, the total response time for the arrival of the first-due unit, staffed with 3 firefighters and 1 officer, is: 7 minutes and 02 seconds to urban areas; and 11 minutes and 54 seconds to rural areas.

For 90 percent of all **High Risk Fires** within the **Volunteer** districts of the City, the total response time for the arrival of the first-due unit, staffed with 3 firefighters and 1 officer, is: not available for urban and rural areas because there are insufficient response numbers.

For 90 percent of all **Maximum Risk Fires** within the **Career** districts of the City, the total response time for the arrival of the first-due unit, staffed with 3 firefighters and 1 officer, is: 5 minutes and 34 seconds to urban areas; and is not available for rural areas due to insufficient response numbers.

For 90 percent of all **Maximum Risk Fires** within the **Volunteer** districts of the City, the total response time for the arrival of the first-due unit, staffed with 3 firefighters and 1 officer, is: not available for urban and rural areas because there are insufficient response numbers.

Concentration

The ERF for moderate risk fires is capable of: establishing command; providing an uninterrupted water supply; advancing an attack line and a backup line for fire control; complying with the Occupational Safety and Health Administration (OSHA) requirements of two-in and two-out; completing forcible entry; searching and rescuing at-risk

victims; ventilating the structure; controlling utilities; and performing salvage and overhaul.

The ERF for high risk fires is, in addition to the moderate risk capabilities, also capable of placing elevated streams into service from aerial ladders, advancing a third attack line, providing dedicated accountability and entry control and RIT, and ensuring a secondary water supply. All operations are executed in accordance with Ottawa Fire Services standard operating procedures while providing for the safety of responders and the public.

For 90 percent of all **Low Risk Fires** within the **Career** districts of the City, the total response time for the arrival of the effective response force (ERF), is identical to the distribution timelines for urban and rural areas because the response personnel numbers are the same.

For 90 percent of all **Low Risk Fires** within the **Volunteer** districts of the City, the total response time for the arrival of the effective response force (ERF), is identical to the distribution timelines for urban and rural areas because the response personnel numbers are the same.

For 90 percent of all **Moderate Risk Fires** within the **Career** districts of the City, the total response time for the arrival of the effective response force (ERF), staffed with 16 firefighters and officers, is: 13 minutes and 14 seconds to urban areas; and 18 minutes and 04 seconds to rural areas.

For 90 percent of all **Moderate Risk Fires** within the **Volunteer** districts of the City, the total response time for the arrival of the effective response force (ERF), staffed with 16 firefighters and officers, is: 17 minutes and 56 seconds to urban areas; and 29 minutes and 32 seconds to rural areas.

For 90 percent of all **High Risk Fires** within the **Career** districts of the City, the total response time for the arrival of the effective response force (ERF), staffed with 27 firefighters and officers, is: 27 minutes and 13 seconds to urban areas; and is not available for rural areas due to insufficient response numbers.

For 90 percent of all **High Risk Fires** within the **Volunteer** districts of the City, the total response time for the arrival of the effective response force (ERF), staffed with 27 firefighters and officers, is: not available for urban and rural areas because there are insufficient response numbers.

For 90 percent of all **Maximum Risk Fires** within the **Career** districts of the City, the total response time for the arrival of the effective response force (ERF), staffed with 36 firefighters and officers, is: 27 minutes and 32 seconds to urban areas; and is not available for rural areas due to insufficient response numbers.

For 90 percent of all **Maximum Risk Fires** within the **Volunteer** districts of the City, the total response time for the arrival of the effective response force (ERF), staffed with 36 firefighters and officers, is: not available for urban and rural areas because there are insufficient response numbers.

Emergency Medical Services

Distribution

This unit is capable of: providing incident command, completing a patient assessment, providing appropriate treatment including AED and CPR protocols. Additional resources responding to these Emergency Medical Services incidents are available upon request as the Ottawa Fire Service is only a partner with EMS and Police in the tiered response medical system provided to the people of the City; therefore, initial distribution and concentration values are the same.

For 90 percent of all **EMS** responses within the **Career** districts of the City, the total response time for the arrival of the first-due unit, staffed with 3 firefighters and 1 officer, is: 6 minutes and 52 seconds to urban areas; and 10 minutes and 19 seconds to rural areas.

For 90 percent of all **EMS** responses within the **Volunteer** districts of the City, the total response time for the arrival of

the first-due unit is: 10 minutes and 45 seconds to urban areas; and 16 minutes and 05 seconds to rural areas.

Concentration

The OFS relies upon the City of Ottawa Paramedic service to complete the effective response force (ERF) component of its EMS program. The initial arriving fire department unit has the capabilities of providing first responder medical aid including AED, until the Paramedic Service arrives on scene. If the Paramedic Service unit arrives first on scene, its personnel initiates care and the staff from the initial fire department unit provides support as needed.

For 90 percent of all **EMS** responses within the **Career** districts of the City, the total response time for the arrival of the effective response force (ERF), is identical to the distribution timelines for urban and rural areas because the response personnel numbers are the same.

For 90 percent of all **EMS** responses within the **Volunteer** districts of the City, the total response time for the arrival of the effective response force (ERF), is identical to the distribution timelines for urban and rural areas because the response personnel numbers are the same.

Rescue Services

For all Rescue Incidents, the Ottawa Fire Service arrives in a timely manner with trained and equipped personnel to provide rescue services to victims and reduce or eliminate the conditions that caused the emergency while providing for the safety of the responders.

Distribution

The first-due unit is capable of initiating command, size-up, scene safety, stabilization, and initial patient assessment in accordance with the Ottawa Fire Service's Standard Operating Procedures.

For 90 percent of all **Low Risk Rescues** within the **Career**

districts of the City, the total response time for the arrival of the first-due unit, staffed with 3 firefighters and 1 officer, is: 7 minutes and 59 seconds to urban areas; and 10 minutes and 11 seconds to rural areas.

For 90 percent of all **Low Risk Rescues** within the **Volunteer** districts of the City, the total response time for the arrival of the first-due unit, staffed with 3 firefighters and 1 officer, is: not available for urban areas due to insufficient response numbers; and 16 minutes and 57 seconds to rural areas.

For 90 percent of all **Moderate Risk Collision Rescues** within the **Career** districts of the City, the total response time for the arrival of the first-due unit, staffed with 3 firefighters and 1 officer, is: 7 minutes and 11 seconds to urban areas; and 10 minutes and 31 seconds to rural areas.

For 90 percent of all **Moderate Risk Collision Rescues** within the **Volunteer** districts of the City, the total response time for the arrival of the first-due unit, staffed with 3 firefighters and 1 officer, is: 12 minutes and 14 seconds to urban areas; and 17 minutes and 18 seconds to rural areas.

For 90 percent of all **Moderate Risk Rope Rescues** within the **Career** districts of the City, the total response time for the arrival of the first-due unit, staffed with 3 firefighters and 1 officer, is: 10 minutes and 12 seconds to urban areas; and is not available for rural areas due to insufficient response numbers.

For 90 percent of all **Moderate Risk Rope Rescues** within the **Volunteer** districts of the City, the total response time for the arrival of the first-due unit, staffed with 3 firefighters and 1 officer, is: not available for urban and rural areas because there are insufficient response numbers.

For 90 percent of all **High Risk Extrication Rescues** within the **Career** districts of the City, the total response time for the arrival of the first-due unit, staffed with 3 firefighters and 1 officer, is: 6 minutes and 47 seconds to urban areas; and is not available for rural areas due to insufficient response numbers.

For 90 percent of all **High Risk Extrication Rescues** within the **Volunteer** districts of the City, the total response time for the arrival of the first-due unit, staffed with 3 firefighters and 1 officer, is: not available for urban and rural areas because there are insufficient response numbers.

For 90 percent of all **High Risk Industrial Rescues** within the **Career** districts of the City, the total response time for the arrival of the first-due unit, staffed with 3 firefighters and 1 officer, is: 9 minutes and 36 seconds to urban areas; and is not available for rural areas due to insufficient response numbers.

For 90 percent of all **High Risk Industrial Rescues** within the **Volunteer** districts of the City, the total response time for the arrival of the first-due unit, staffed with 3 firefighters and 1 officer, is: not available for urban and rural areas because there are insufficient response numbers.

For 90 percent of all **High Risk Water/Ice Rescues** within the **Career** districts of the City, the total response time for the arrival of the first-due unit, staffed with 3 firefighters and 1 officer, is: 11 minutes and 20 seconds to urban areas; and 13 minutes and 17 seconds to rural areas.

For 90 percent of all **High Risk Water/Ice Rescues** within the **Volunteer** districts of the City, the total response time for the arrival of the first-due unit, staffed with 3 firefighters and 1 officer, is: not available for urban areas due to insufficient response numbers; and 22 minutes and 56 seconds to rural areas.

For 90 percent of all **Maximum Risk Rescue** within the **Career** districts of the City, the total response time for the arrival of the first-due unit, staffed with 3 firefighters and 1 officer, is: 7 minutes and 32 seconds to urban areas; and is not available for rural areas due to insufficient response numbers.

For 90 percent of all **Maximum Risk Rescues** within the Volunteer districts of the City, the total response time for the arrival of the first-due unit, staffed with 3 firefighters

and 1 officer, is: not available for urban and rural areas because there are insufficient response numbers.

Concentration

The ERF for moderate risk and high risk is capable of establishing command; sizing-up, establishing a hazard protection zone, advanced searching and rescue, triage, utility control, atmospheric monitoring, shoring, rigging and technical knowledge and expertise These operations are done in accordance with the Ottawa Fire Service's standard operating procedures while providing for the safety of responders and the general public.

The ERF for High Risk Extrication Rescues is capable of advanced extrication procedures, stabilization, victim removal, providing technical expertise, knowledge, skills and abilities during extrication incidents. These operations are done in accordance with the Ottawa Fire Service's standard operating procedures while providing for the safety of responders and the public.

The ERF for High Risk Water/Ice Rescues is equipped and capable of vessel rescue, advancing to the patient over ice, or in flood/swift water situations, stabilization of victim, hypothermia protection, providing technical expertise, knowledge, skills and abilities during extrication incidents. These operations are done in accordance with the Ottawa Fire Service's standard operating procedures while providing for the safety of responders and the public.

For 90 percent of all **Low Risk Rescues** within the **Career** districts of the City, the total response time for the arrival of the effective response force (ERF), is identical to the distribution timelines for urban and rural areas because the response personnel numbers are the same.

For 90 percent of all **Low Risk Rescues** within the **Volunteer** districts of the City, the total response time for the arrival of the effective response force (ERF), is identical to the distribution timelines for urban and rural areas because the response personnel numbers are the same.

For 90 percent of all **Moderate Risk Collision Rescues** within the **Career** districts of the City, the total response time for the arrival of the effective response force (ERF), staffed with 8 firefighters and officers, is: 8 minutes and 58 seconds to urban areas; and 12 minutes and 09 seconds to rural areas.

For 90 percent of all **Moderate Risk Collision Rescues** within the **Volunteer** districts of the City, the total response time for the arrival of the effective response force (ERF), staffed with 8 firefighters and officers, is: 17 minutes and 57 seconds to urban areas; and 20 minutes and 24 seconds to rural areas.

For 90 percent of all **Moderate Risk Rope Rescues** within the **Career** districts of the City, the total response time for the arrival of the effective response force (ERF), staffed with 22 firefighters and officers, is: 33 minutes and 00 seconds to urban areas; and is not available for rural areas due to insufficient response numbers.

For 90 percent of all **Moderate Risk Rope Rescues** within the **Volunteer** districts of the City, the total response time for the arrival of the effective response force (ERF), staffed with 22 firefighters and officers, is: not available for urban and rural areas because there are insufficient response numbers.

For 90 percent of all **High Risk Extrication Rescues** within the **Career** districts of the City, the total response time for the arrival of the effective response force (ERF), staffed with 12 firefighters and officers, is: not available for urban and rural areas because there are insufficient response numbers.

For 90 percent of all **High Risk Extrication Rescues** within the **Volunteer** districts of the City, the total response time for the arrival of the effective response force (ERF), staffed with 12 firefighters and officers, is: not available for urban and rural areas because there are insufficient response numbers.

For 90 percent of all **High Risk Industrial Rescues** within the

Career districts of the City, the total response time for the arrival of the effective response force (ERF), staffed with 19 firefighters and officers, is: not available for urban and rural areas because there are insufficient response numbers.

For 90 percent of all **High Risk Industrial Rescues** within the **Volunteer** districts of the City, the total response time for the arrival of the effective response force (ERF), staffed with 19 firefighters and officers, is: not available for urban and rural areas because there are insufficient response numbers.

For 90 percent of all **High Risk Water/Ice Rescues** within the **Career** districts of the City, the total response time for the arrival of the effective response force (ERF), staffed with 15 firefighters and officers, is: 21 minutes and 04 seconds to urban areas; and 28 minutes and 19 seconds to rural areas.

For 90 percent of all **High Risk Water/Ice Rescues** within the **Volunteer** districts of the City, the total response time for the arrival of the effective response force (ERF), staffed with 15 firefighters and officers, is: not available for urban and rural areas because there are insufficient response numbers.

For 90 percent of all **Maximum Risk Rescues** within the **Career** districts of the City, the total response time for the arrival of the effective response force (ERF), staffed with 28 firefighters and officers, is: not available for urban and rural areas because there are insufficient response numbers.

For 90 percent of all **Maximum Risk Rescues** within the **Volunteer** districts of the City, the total response time for the arrival of the effective response force (ERF), staffed with 28 firefighters and officers, is: not available for urban and rural areas because there are insufficient response numbers.

Hazardous Materials Services

Distribution

This unit is capable of initiating command, size-up, scene

safety, stabilization, and initial patient assessment in accordance with the Ottawa Fire Services Standard Operating Procedures.

For 90 percent of all **Low Risk Hazardous Material** incidents within the **Career** districts of the City, the total response time for the arrival of the first-due unit, staffed with a minimum of 3 firefighters and 1 officer, is: 8 minutes and 58 seconds to urban areas; and 14 minutes and 20 seconds to rural areas.

For 90 percent of all **Low Risk Hazardous Material** incidents occurring within the **Volunteer** districts of the City, the total response time for the arrival of the first-due unit is: 11 minutes and 50 seconds to urban areas; and 19 minutes and 08 seconds to rural areas.

For 90 percent of all **Moderate Risk Hazardous Material** incidents within the **Career** districts of the City, the total response time for the arrival of the first-due unit, staffed with a minimum of 3 firefighters and 1 officer, is: 7 minutes and 43 seconds to urban areas; and 10 minutes and 36 seconds to rural areas.

For 90 percent of all **Moderate Risk Hazardous Material** incidents within the **Volunteer** districts of the City, the total response time for the arrival of the first-due unit is: not available for urban areas due to insufficient response numbers; and 21 minutes and 08 seconds to rural areas.

For 90 percent of all **High Risk Hazardous Material** incidents within the **Career** districts of the City, the total response time for the arrival of the first-due unit, staffed with 3 firefighters and 1 officer, is: 14 minutes and 16 seconds to urban areas; and is not available for rural areas due to insufficient response numbers.

For 90 percent of all **High Risk Hazardous Material** incidents within the **Volunteer** districts of the City, the total response time for the arrival of the first-due unit, staffed with 3 firefighters and 1 officer, is: not available for urban and rural areas because there are insufficient response numbers.

Concentration

The ERF is capable of establishing command, size-up, establishing hazard zone levels, perimeter monitoring, decontamination, evidence preservation, and technical advice.

For 90 percent of all **Low Risk Hazardous Material** incidents within the **Career** districts of the City, the total response time for the arrival of the effective response force (ERF), is identical to the distribution timelines for urban and rural areas because the response personnel numbers are the same.

For 90 percent of all **Low Risk Hazardous Material** incidents within the **Volunteer** districts of the City, the total response time for the arrival of the effective response force (ERF), is identical to the distribution timelines for urban and rural areas because the response personnel numbers are the same.

For 90 percent of all **Moderate Risk Hazardous Material** incidents within the **Career** districts of the City, the total response time for the arrival of the effective response force (ERF), staffed with 12 firefighters and officers, is: 14 minutes and 46 seconds to urban areas; and 19 minutes and 34 seconds to rural areas.

For 90 percent of all **Moderate Risk Hazardous Material** incidents within the **Volunteer** districts of the City, the total response time for the arrival of the effective response force (ERF), staffed with 12 firefighters and officers, is: not available for urban areas due to insufficient response numbers; and 21 minutes and 08 seconds to rural areas.

For 90 percent of all **High Risk Hazardous Material** incidents within the **Career** districts of the City, the total response time for the arrival of the effective response force (ERF), staffed with 19 firefighters and officers, is: 71 minutes and 08 seconds to urban areas; and is not available for rural areas due to insufficient response numbers.

For 90 percent of all **High Risk Hazardous Material** incidents

within the **Volunteer** districts of the City, the total response time for the arrival of the effective response force (ERF), staffed with 19 firefighters and officers, is: not available for urban and rural areas because there are insufficient response numbers.

Section G:
Compliance Methodology

The purpose of a compliance methodology is to determine the how, when and what will be measured to ensure the CRA/Standards of Cover for Ottawa remains valid and continues to provide appropriate direction for strategic planning purposes.

OFS Fire Senior Management Team performs the responsibilities of the Compliance Committee. The FSMT consists of the Fire Chief, the 4 Deputy Chiefs, the Special Operations Chief, the Executive Chief, and the Operational Support Manager. They review the response data and analyze performance on an annual basis. The goal of this being to continually identify response challenged areas and identify appropriate resource allocation. This process will inform the strategic planning process as well as the budget planning process of the service.

Performance is measured across the entire service, encompassing goals and objectives for all divisions.

The Senior Management Team's commitment to Compliance Review includes:

- Ensure the compliance model outlined below is executed
- Review potential issues, risks and key decisions with the Broader Management Team (BMT), which currently consists of the Senior Management Team (FSMT), 4 Sector Chiefs, and the 3 Division Chiefs.
- Meet on a quarterly basis or as required
- Conduct annual program review and analysis
- Ensure the project is meeting requirements and continuously enhancing service delivery

The compliance model will be performed as follows:

1.Evaluation

The Operational Support Services Branch manager is responsible for reviewing performance measurements within the performance dashboard including baseline response times on a quarterly basis. The performance dashboard will be tabled to the FSMT for review and approval on a quarterly basis. FSMT will also review the response demands for each station response zone including workload, reliability, service demands, time of day analysis, and identification of any major risk change within the zone and will report these findings on a semi-annual basis.

It is the responsibility of the Operational Support Services manager to flag any issues to FSMT.

2.Develop Compliance Strategies

Compliance strategies are developed by FSMT members specific to the subject area involved. Solutions to any issues that may arise will be tabled to FSMT for feedback and adjustment, and then once agreed upon, signed off before the strategy is implemented.

3.Communicate Expectations and Validate Compliance (Monitor)

The FSMT member responsible for each functional area of the service will ensure that appropriate communications are developed and disseminated to confirm receipt and compliance with the identified changes. i.e., Tiered response agreement changes and implementation.

In addition, the agency shall submit an annual compliance report to CFAI due on the anniversary of accreditation (commencing July 2025).

4.Revise Operations & Planning

FSMT will coordinate a yearly review and evaluation of the Ottawa Fire Services' overall performance compliance. This

is to be completed in adequate time for the OFS to make amendments to the work plan of the upcoming year. The evaluation will inform on planning and development for changes in the upcoming year. These changes will include reviews of policies, procedures, strategic planning documentation, as well as budgeting.

Section H:
Plan for Maintaining & Improving Response Capabilities

Areas of focus for enhancing the Agency's baseline performance:

- Continue to evaluate, share, and improve turnout times for all response types
- Continue to work with the agency's PSAP provider to improve call handling time
- Continue to improve response capabilities in growth areas with the 2025 Station Location Study including identifying existing stations that require additional resources over the next 10 years as well as potential new locations. This includes Station 81 which will become composite in 2025
- Continue to utilize AVRR in the career response areas. The agency's intent is to implement AVRR across the entire organization, subject to a ruling with the arbitrator

The agency commits to sustaining and enhancing response capabilities with the following activities:

- Communicate the findings of the CRA/SOC with internal staff and external stakeholders
- Leverage the annual program appraisals and the OFS Strategic Plan to develop action items for the following year
- Implement strategic goals and objectives, regularly communicating progress reports and updates to agency staff
- Uphold the Provincial mandate for NFPA Certifications which will ensure qualifications and staffing levels are met
- Continue investing in technology advancements, including NextGen911, new Station Alerting, real-time dashboard reporting, countdown clocks, and radio headsets in the trucks

- Introducing a False Alarm Fee in 2024 to decrease the frequency of false alarm responses, ensuring resources are allocated effectively for genuine emergencies
- Continue to work with Fleet Services to ensure sufficient funding and resources are available to continue to meet the operational needs of the service
- Continue to work with the appropriate AHJ's to ensure sustainable funding and required training to meet our obligations and response goals municipally and provincially

Section I:
Correlation of CRA/SOC Document to CFAI Accreditation Model

To be uploaded upon page number completion.

Section J: Appendices/Exhibits

Exhibits

E.1 Continuity of Operations Plans

E.2 Strategic Plan

E.3 Annual Program Appraisal Template

E.4 Fire Underwriters Survey Evaluation Criteria

E.5 OFM Standard Incident Reporting Codes List

E.6 Risk Matrix Development – Probability and Consequence Breakdown

E.7 Grid Classification Criteria

E.8 Tiered Response

E.9 Critical Tasking

E.10 Urban Expansion

E.11 PSAP Call Processing Time Data

E.12 Ottawa Fire Service Running Assignments

E.13 FireSmart Community Wildland Planning

Exhibits Tables

Table 40. Low risk fire call group

OTTAWA FIRE SERVICES
SERVICE DES INCENDIES D'OTTAWA
Protecting Our Nation's Capital With Pride
Protéger notre capitale nationale avec fierté

Fire: Low-Risk - Call Sub-Group
Performance Levels at 90th Percentile

Career			2019-2023	2023	2022	2021	2020	2019
Alarm Processing Time	Pick-up to Dispatch	Urban	1:06	0:59	1:10	1:03	1:05	1:08
		Rural	1:10	1:01	1:00	1:11	1:37	1:23
Turnout Time	1st Unit	Urban	1:54	1:52	1:54	1:50	2:01	1:53
		Rural	2:08	1:48	2:32	2:37	2:41	2:16
Travel Time	1st Unit Distribution	Urban	5:23	5:05	5:07	5:31	5:15	5:32
		Rural	8:10	10:08	7:02	8:01	8:07	7:34
	ERF Concentration	Urban	5:23	5:05	5:07	5:31	5:15	5:32
		Rural	8:10	10:08	7:02	8:01	8:07	7:34
Total Response Time	1st Unit On Scene Distribution	Urban	7:33	7:23	7:38	7:34	7:21	8:00
			n=1746	n=469	n=401	n=284	n=243	n=349
		Rural	11:03	12:41	11:16	10:34	10:43	10:55
			n=209	n=52	n=30	n=28	n=36	n=63
	ERF Concentration	Urban	7:33	7:23	7:38	7:34	7:21	8:00
			n=1730	n=461	n=397	n=282	n=242	n=348
		Rural	11:03	12:41	11:16	10:34	10:43	10:55
			n=206	n=51	n=30	n=28	n=35	n=62

Volunteer			2019-2023	2023	2022	2021	2020	2019
Alarm Processing Time	Pick-up to Dispatch	Urban	1:02	0:31	1:02	0:47	-	0:57
		Rural	1:25	0:58	1:32	2:07	1:02	1:36
Turnout Time	1st Unit	Urban	7:41	6:27	7:41	5:16	-	4:59
		Rural	8:38	8:12	9:17	8:35	8:23	8:55
Travel Time	1st Unit Distribution	Urban	5:22	3:59	4:24	4:42	-	5:42
		Rural	11:56	11:10	11:11	12:12	11:22	13:19
	ERF Concentration	Urban	5:22	3:59	4:24	4:42	-	5:42
		Rural	11:56	11:10	11:11	12:12	11:22	13:19
Total Response Time	1st Unit On Scene Distribution	Urban	11:04	10:35	10:46	10:47	-	8:04
			n=12	n=3	n=4	n=2	n=0	n=3
		Rural	19:11	19:31	18:53	18:14	18:15	19:23
			n=325	n=53	n=63	n=57	n=72	n=80
	ERF Concentration	Urban	11:04	10:35	10:46	10:47	-	8:04
			n=12	n=3	n=4	n=2	n=0	n=3
		Rural	19:11	19:31	18:53	18:14	18:15	19:23
			n=306	n=51	n=60	n=51	n=71	n=73

Table 41. Moderate risk fire call group

OTTAWA FIRE SERVICES
SERVICE DES INCENDIES D'OTTAWA
Protecting Our Nation's Capital With Pride
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Fire: Moderate-Risk - Call Sub-Group
Performance Levels at 90th Percentile

Career			2019-2023	2023	2022	2021	2020	2019
Alarm Processing Time	Pick-up to Dispatch	Urban	0:55	0:53	0:52	0:51	1:00	0:55
		Rural	0:57	1:03	0:36	0:42	0:48	1:01
Turnout Time	1st Unit	Urban	1:59	1:52	2:03	1:59	1:59	2:08
		Rural	2:14	2:05	2:12	1:57	2:31	3:56
Travel Time	1st Unit Distribution	Urban	4:48	4:54	4:36	4:39	4:49	5:06
		Rural	8:36	11:05	8:05	5:34	8:34	7:03
	ERF Concentration	Urban	9:18	9:31	9:29	8:28	8:43	9:23
		Rural	13:11	14:56	9:41	9:52	10:46	13:30
Total Response Time	1st Unit On Scene Distribution	Urban	6:53	6:49	6:41	6:41	6:47	7:18
			n=1 684	n=344	n=339	n=349	n=335	n=317
		Rural	11:31	12:36	10:09	7:48	12:36	11:08
			n= 104	n=25	n=21	n=24	n=16	n= 18
	ERF Concentration	Urban	13:14	12:39	13:08	12:26	13:16	14:09
			n=1 124	n=229	n=226	n=239	n=217	n=213
		Rural	18:04	17:21	14:24	12:59	33:55	17:57
			n=59	n=18	n=13	n=9	n=8	n=11

Volunteer			2019-2023	2023	2022	2021	2020	2019
Alarm Processing Time	Pick-up to Dispatch	Urban	1:02	1:00	1:02	0:46	0:22	0:28
		Rural	1:01	0:52	0:46	0:58	1:10	1:03
Turnout Time	1st Unit	Urban	5:24	5:17	6:33	1:38	1:52	1:32
		Rural	7:56	8:25	7:48	7:08	7:09	8:51
Travel Time	1st Unit Distribution	Urban	6:22	6:05	6:01	5:42	6:17	5:42
		Rural	10:48	10:55	9:15	10:16	10:48	14:26
	ERF Concentration	Urban	10:20	11:46	6:28	7:33	8:27	3:28
		Rural	18:35	18:08	16:12	15:04	15:44	22:38
Total Response Time	1st Unit On Scene Distribution	Urban	9:57	8:26	10:22	8:07	7:59	7:43
			n=21	n=10	n=6	n=2	n=2	n=1
		Rural	17:16	17:04	15:50	15:38	16:16	23:20
			n=270	n=52	n=55	n=56	n=49	n=58
	ERF Concentration	Urban	17:56	17:45	13:07	11:17	17:43	15:28
			n=16	n=8	n=3	n=2	n=2	n=1
		Rural	29:32	25:53	26:53	23:21	30:07	33:00
			n=197	n=36	n=37	n=41	n=33	n=50

Table 42. High risk fire call group

OTTAWA FIRE SERVICES
SERVICE DES INCENDIES D'OTTAWA
Protecting Our Nation's Capital With Pride
Protéger notre capitale nationale avec fierté

Fire: High-Risk - Call Sub-Group
Performance Levels at 90th Percentile

Career			2019-2023	2023	2022	2021	2020	2019
Alarm Processing Time	Pick-up to Dispatch	Urban	1:04	0:59	1:02	1:05	0:46	1:16
		Rural	1:40	0:11	0:25	1:34	0:37	1:20
Turnout Time	1st Unit	Urban	1:54	1:48	1:50	1:48	1:48	2:17
		Rural	2:36	1:35	1:22	1:13	2:26	2:50
Travel Time	1st Unit Distribution	Urban	5:00	3:56	4:09	5:19	5:34	4:58
		Rural	8:02	4:03	3:15	2:41	7:19	9:04
	ERF Concentration	Urban	9:00	8:30	8:46	8:53	8:15	8:52
		Rural	26:29	11:08	-	4:35:59	13:45	9:15
Total Response Time	1st Unit On Scene Distribution	Urban	7:02	5:35	6:04	7:08	6:47	7:31
			n= 180	n=43	n=34	n=43	n=31	n=29
		Rural	11:54	5:50	5:04	4:25	10:10	11:54
			n=11	n=1	n=1	n=2	n=2	n=5
	ERF Concentration	Urban	27:13	19:47	39:30	24:07	40:14	29:54
			n=55	n=9	n=10	n=15	n=9	n= 12
		Rural	44:02	16:46	-	78:19	19:36	20:19
			n=7	n=1	n=0	n=1	n=2	n=3

Volunteer			2019-2023	2023	2022	2021	2020	2019
Alarm Processing Time	Pick-up to Dispatch	Urban	0:31	-	-	-	-	0:31
		Rural	3:33	5:46	0:22	0:28	-	-
Turnout Time	1st Unit	Urban	7:35	-	-	-	-	7:35
		Rural	6:58	5:28	7:34	6:32	-	-
Travel Time	1st Unit Distribution	Urban	3:36	-	-	-	-	3:36
		Rural	11:23	12:20	4:37	4:14	-	-
	ERF Concentration	Urban	-	-	-	-	-	-
		Rural	19:29	15:59	10:58	20:10	-	-
Total Response Time	1st Unit On Scene Distribution	Urban	11:43	-	-	-	-	11:43
			n=1	n=0	n=0	n=0	n=0	n=1
		Rural	18:09	19:43	12:33	11:15	-	-
			n=7	n=4	n=1	n=2	n=0	n=0
	ERF Concentration	Urban	-	-	-	-	-	-
			n=0	n=0	n=0	n=0	n=0	n=0
		Rural	28:01	25:34	18:35	28:42	-	-
			n=3	n=1	n=1	n=2	n=0	n=0

Table 43. Maximum risk fire call group

OTTAWA FIRE SERVICES
SERVICE DES INCENDIES D'OTTAWA
Protecting Our Nation's Capital With Pride
Protéger notre capitale nationale avec fierté

Fire: Maximum-Risk - Call Sub-Group
Performance Levels at 90th Percentile

Career			2019-2023	2023	2022	2021	2020	2019
Alarm Processing Time	Pick-up to Dispatch	Urban	0:52	0:51	0:42	0:45	1:43	1:09
		Rural	-	-	-	-	-	-
Turnout Time	1st Unit	Urban	1:49	1:40	2:28	1:42	1:55	1:39
		Rural	-	-	-	-	-	-
Travel Time	1st Unit Distribution	Urban	4:02	4:12	3:05	3:48	3:28	4:09
		Rural	-	-	-	-	-	-
	ERF Concentration	Urban	14:39	13:35	11:30	15:38	10:50	12:37
		Rural	-	-	-	-	-	-
Total Response Time	1st Unit On Scene Distribution	Urban	5:34	5:40	4:26	5:41	4:40	5:57
			n=47	n=10	n=8	n=9	n=6	n=14
		Rural	-	-	-	-	-	-
			n=0	n=0	n=0	n=0	n=0	n=0
	ERF Concentration	Urban	27:32	32:58	21:53	21:53	20:15	26:43
			n=10	n=2	n=4	n=1	n=2	n=1
		Rural	-	-	-	-	-	-
			n=0	n=0	n=0	n=0	n=0	n=0

Volunteer			2019-2023	2023	2022	2021	2020	2019
Alarm Processing Time	Pick-up to Dispatch	Urban	0:33	-	-	-	0:33	-
		Rural	0:41	-	-	0:41	-	-
Turnout Time	1st Unit	Urban	1:30	-	-	-	1:30	-
		Rural	7:51	-	-	7:51	-	-
Travel Time	1st Unit Distribution	Urban	7:53	-	-	-	7:53	-
		Rural	6:57	-	-	6:57	-	-
	ERF Concentration	Urban	-	-	-	-	-	-
		Rural	-	-	-	-	-	-
Total Response Time	1st Unit On Scene Distribution	Urban	9:56	-	-	-	9:56	-
			n=1	n=0	n=0	n=0	n=1	n=0
		Rural	15:29	-	-	15:29	-	-
			n=1	n=0	n=0	n=1	n=0	n=0
	ERF Concentration	Urban	-	-	-	-	-	-
			n=0	n=0	n=0	n=0	n=0	n=0
		Rural	-	-	-	-	-	-
			n=0	n=0	n=0	n=0	n=0	n=0

Table 44. Low risk rescue call group

OTTAWA FIRE SERVICES
SERVICE DES INCENDIES D'OTTAWA
Protecting Our Nation's Capital With Pride
Protéger notre capitale nationale avec fierté

Rescue: Low-Risk - Call Sub-Group
Performance Levels at 90th Percentile

Career			2019-2023	2023	2022	2021	2020	2019
Alarm Processing Time	Pick-up to Dispatch	Urban	1:40	1:55	1:25	1:44	1:07	1:35
		Rural	1:58	0:19	1:34	1:56	0:27	1:24
Turnout Time	1st Unit	Urban	1:54	1:53	1:56	1:54	1:43	1:45
		Rural	2:08	1:14	2:08	1:20	1:27	3:11
Travel Time	1st Unit Distribution	Urban	5:44	5:18	5:24	5:19	5:59	5:48
		Rural	6:47	2:20	7:16	5:54	4:55	5:10
	ERF Concentration	Urban	5:44	5:18	5:24	5:19	5:59	5:48
		Rural	6:47	2:20	7:16	5:54	4:55	5:10
Total Response Time	1st Unit On Scene Distribution	Urban	7:59	7:56	7:46	7:39	8:09	7:41
			n= 157	n=42	n=32	n=29	n=19	n=35
		Rural	10:11	3:54	10:41	7:58	6:31	9:46
			n=17	n=1	n=6	n=6	n=3	n=1
	ERF Concentration	Urban	7:59	7:56	7:46	7:39	8:09	7:41
			n= 146	n=38	n=29	n=29	n=19	n=31
		Rural	10:11	3:54	10:41	7:58	6:31	9:46
			n=16	n=1	n=6	n=6	n=2	n=1

Volunteer			2019-2023	2023	2022	2021	2020	2019
Alarm Processing Time	Pick-up to Dispatch	Urban	-	-	-	-	-	-
		Rural	4:16	0:52	4:11	5:13	2:14	3:28
Turnout Time	1st Unit	Urban	-	-	-	-	-	-
		Rural	6:59	0:09	1:05	6:48	8:12	4:18
Travel Time	1st Unit Distribution	Urban	-	-	-	-	-	-
		Rural	12:08	12:53	14:49	2:33	10:00	7:02
	ERF Concentration	Urban	-	-	-	-	-	-
		Rural	12:08	12:53	14:49	2:33	10:00	7:02
Total Response Time	1st Unit On Scene Distribution	Urban	-	-	-	-	-	-
			n=0	n=0	n=0	n=0	n=0	n=0
		Rural	16:57	13:55	20:06	10:49	16:55	9:54
			n=17	n=2	n=3	n=4	n=5	n=3
	ERF Concentration	Urban	-	-	-	-	-	-
			n=0	n=0	n=0	n=0	n=0	n=0
		Rural	16:57	13:55	20:06	10:49	16:55	9:54
			n=14	n=1	n=2	n=3	n=5	n=3

Table 45. Moderate risk (collision) rescue call group

OTTAWA FIRE SERVICES
SERVICE DES INCENDIES D'OTTAWA
Protecting Our Nation's Capital With Pride
Protéger notre capitale nationale avec fierté

Rescue: Moderate-Risk (Collision) - Call Sub-Group
Performance Levels at 90th Percentile

Career			2019-2023	2023	2022	2021	2020	2019
Alarm Processing Time	Pick-up to Dispatch	Urban	0:50	0:46	0:50	0:50	0:52	0:51
		Rural	0:58	0:49	0:58	0:59	0:58	1:04
Turnout Time	1st Unit	Urban	1:43	1:41	1:43	1:40	1:43	1:45
		Rural	1:55	1:53	1:45	1:53	1:58	2:04
Travel Time	1st Unit Distribution	Urban	5:21	5:23	5:18	5:16	5:23	5:21
		Rural	8:10	8:26	8:03	7:49	8:10	8:17
	ERF Concentration	Urban	6:50	6:53	6:45	6:53	6:47	6:55
		Rural	9:40	9:47	9:03	9:20	8:57	10:09
Total Response Time	1st Unit On Scene Distribution	Urban	7:11	7:09	7:08	7:05	7:18	7:15
			n=10771	n=2277	n=2209	n=1871	n=1736	n=2678
		Rural	10:31	11:00	10:04	10:03	10:26	10:57
			n=1499	n=367	n=280	n=228	n=254	n=370
	ERF Concentration	Urban	8:58	9:12	8:55	9:01	8:46	9:03
			n=3685	n=829	n=764	n=668	n=594	n=830
		Rural	12:09	12:05	11:56	11:28	12:14	15:40
			n=476	n=124	n=94	n=76	n=77	n=105

Volunteer			2019-2023	2023	2022	2021	2020	2019
Alarm Processing Time	Pick-up to Dispatch	Urban	0:43	0:35	0:14	0:39	0:58	0:43
		Rural	1:25	1:10	1:22	1:58	2:07	1:18
Turnout Time	1st Unit	Urban	7:03	5:39	6:26	6:32	5:46	8:32
		Rural	7:49	7:42	7:56	8:02	7:21	7:49
Travel Time	1st Unit Distribution	Urban	6:01	5:10	3:03	6:58	7:57	3:34
		Rural	11:30	11:08	10:23	10:14	10:40	12:34
	ERF Concentration	Urban	11:26	10:24	3:03	9:04	12:59	7:12
		Rural	12:49	11:47	11:47	14:05	13:26	12:51
Total Response Time	1st Unit On Scene Distribution	Urban	12:14	10:45	8:51	13:00	12:57	12:10
			n=67	n=14	n=9	n=17	n=8	n=19
		Rural	17:18	16:58	16:45	17:17	16:39	18:42
			n=1350	n=274	n=300	n=244	n=223	n=309
	ERF Concentration	Urban	17:57	12:29	8:57	10:55	16:12	19:22
			n=7	n=113	n=1	n=2	n=1	n=2
		Rural	20:24	20:04	18:19	22:59	20:20	21:52
			n=439	n=85	n=87	n=100	n=85	n=82

Table 46. Moderate risk (rope) rescue call group

OTTAWA FIRE SERVICES
SERVICE DES INCENDIES D'OTTAWA
Protecting Our Nation's Capital With Pride
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Rescue: Moderate-Risk (Rope) - Call Sub-Group
Performance Levels at 90th Percentile

Career			2019-2023	2023	2022	2021	2020	2019
Alarm Processing Time	Pick-up to Dispatch	Urban	3:04	6:57	2:24	2:27	4:37	2:59
		Rural	0:36	-	0:36	-	-	-
Turnout Time	1st Unit	Urban	2:44	1:44	1:50	4:04	1:25	4:12
		Rural	2:37	-	2:37	-	-	-
Travel Time	1st Unit Distribution	Urban	7:13	12:13	5:35	5:20	5:43	12:04
		Rural	4:30	-	4:30	-	-	-
	ERF Concentration	Urban	17:54	-	18:45	17:59	15:25	17:38
		Rural	16:50	-	16:50	-	-	-
Total Response Time	1st Unit On Scene Distribution	Urban	10:12	19:51	8:42	10:42	9:48	15:08
			n=51	n=8	n=16	n=12	n=6	n=9
		Rural	7:44	-	7:44	-	-	-
			n=1	n=0	n=1	n=0	n=0	n=0
	ERF Concentration	Urban	33:00	-	36:40	28:32	30:13	30:51
			n=21	n=0	n=10	n=7	n=1	n=3
		Rural	18:35	-	18:35	-	-	-
			n=1	n=0	n=1	n=0	n=0	n=0

Volunteer			2019-2023	2023	2022	2021	2020	2019
Alarm Processing Time	Pick-up to Dispatch	Urban	-	-	-	-	-	-
		Rural	3:12	-	-	-	3:12	-
Turnout Time	1st Unit	Urban	-	-	-	-	-	-
		Rural	1:32	-	-	-	1:32	-
Travel Time	1st Unit Distribution	Urban	-	-	-	-	-	-
		Rural	8:21	-	-	-	8:21	-
	ERF Concentration	Urban	-	-	-	-	-	-
		Rural	-	-	-	-	-	-
Total Response Time	1st Unit On Scene Distribution	Urban	-	-	-	-	-	-
			n=0	n=0	n=0	n=0	n=0	n=0
		Rural	13:06	-	-	-	13:06	-
			n=1	n=0	n=0	n=0	n=1	n=0
	ERF Concentration	Urban	-	-	-	-	-	-
			n=0	n=0	n=0	n=0	n=0	n=0
		Rural	-	-	-	-	-	-
			n=0	n=0	n=0	n=0	n=0	n=0

Table 47. High risk (extrication) rescue call group

OTTAWA FIRE SERVICES
SERVICE DES INCENDIES D'OTTAWA
Protecting Our Nation's Capital With Pride
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Rescue: High-Risk (Extrication) - Call Sub-Group
Performance Levels at 90th Percentile

Career			2019-2023	2023	2022	2021	2020	2019
Alarm Processing Time	Pick-up to Dispatch	Urban	1:29	0:25	0:43	5:01	2:15	1:02
		Rural	0:50	0:22	0:14	0:24	1:17	0:35
Turnout Time	1st Unit	Urban	1:45	1:47	1:56	1:20	1:25	1:36
		Rural	1:56	2:29	1:24	1:46	1:28	1:29
Travel Time	1st Unit Distribution	Urban	5:04	4:28	5:23	2:45	4:54	4:32
		Rural	7:04	1:30	2:23	3:34	7:11	3:26
	ERF Concentration	Urban	14:13	-	5:29	7:49	3:21	19:48
		Rural	3:14	-	-	-	-	3:14
Total Response Time	1st Unit On Scene Distribution	Urban	6:47	5:49	6:39	8:06	6:38	6:37
			n=40	n=9	n=9	n=7	n=7	n=8
		Rural	9:10	4:22	4:01	5:36	9:43	5:17
			n=9	n=1	n=1	n=2	n=3	n=2
	ERF Concentration	Urban	32:03	-	11:22	9:22	7:15	38:46
			n=7	n=0	n=2	n=1	n=1	n=3
		Rural	6:55	-	-	-	-	6:55
			n=1	n=0	n=0	n=0	n=0	n=1

Volunteer			2019-2023	2023	2022	2021	2020	2019
Alarm Processing Time	Pick-up to Dispatch	Urban	-	-	-	-	-	-
		Rural	2:21	-	0:38	0:55	4:40	0:21
Turnout Time	1st Unit	Urban	-	-	-	-	-	-
		Rural	6:06	-	4:16	7:07	5:15	5:32
Travel Time	1st Unit Distribution	Urban	-	-	-	-	-	-
		Rural	10:16	-	4:02	8:48	12:11	7:33
	ERF Concentration	Urban	-	-	-	-	-	-
		Rural	28:02	-	11:17	-	29:00	-
Total Response Time	1st Unit On Scene Distribution	Urban	-	-	-	-	-	-
			n=0	n=0	n=0	n=0	n=0	n=0
		Rural	18:41	-	8:40	16:50	20:28	12:59
			n=9	n=0	n=2	n=2	n=3	n=2
	ERF Concentration	Urban	-	-	-	-	-	-
			n=0	n=0	n=0	n=0	n=0	n=0
		Rural	45:33	-	16:03	-	46:26	-
			n=3	n=0	n=1	n=0	n=2	n=0

Table 48. High risk (industrial) rescue call group

OTTAWA FIRE SERVICES
SERVICE DES INCENDIES D'OTTAWA
Protecting Our Nation's Capital With Pride
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Rescue: High-Risk (Industrial) - Call Sub-Group
Performance Levels at 90th Percentile

Career			2019-2023	2023	2022	2021	2020	2019
Alarm Processing Time	Pick-up to Dispatch	Urban	1:20	0:58	1:36	1:04	1:30	0:53
		Rural	-	-	-	-	-	-
Turnout Time	1st Unit	Urban	3:12	3:14	1:31	2:26	3:14	2:00
		Rural	-	-	-	-	-	-
Travel Time	1st Unit Distribution	Urban	6:21	5:29	6:00	5:20	6:14	4:31
		Rural	-	-	-	-	-	-
	ERF Concentration	Urban	18:04	14:23	18:00	-	-	-
		Rural	-	-	-	-	-	-
Total Response Time	1st Unit On Scene Distribution	Urban	9:36	9:09	9:09	8:38	8:56	7:02
			n=17	n=4	n=3	n=4	n=2	n=4
		Rural	-	-	-	-	-	-
			n=0	n=0	n=0	n=0	n=0	n=0
	ERF Concentration	Urban	21:22	18:26	21:15	-	-	-
			n=3	n=1	n=2	n=0	n=0	n=0
		Rural	-	-	-	-	-	-
			n=0	n=0	n=0	n=0	n=0	n=0

Volunteer			2019-2023	2023	2022	2021	2020	2019
Alarm Processing Time	Pick-up to Dispatch	Urban	-	-	-	-	-	-
		Rural	4:20	5:13	-	0:44	0:44	-
Turnout Time	1st Unit	Urban	-	-	-	-	-	-
		Rural	5:58	0:50	-	3:15	6:39	-
Travel Time	1st Unit Distribution	Urban	-	-	-	-	-	-
		Rural	8:06	7:45	-	7:51	8:10	-
	ERF Concentration	Urban	-	-	-	-	-	-
		Rural	-	-	-	-	-	-
Total Response Time	1st Unit On Scene Distribution	Urban	-	-	-	-	-	-
			n=0	n=0	n=0	n=0	n=0	n=0
		Rural	15:13	13:50	-	11:51	15:34	-
			n=3	n=1	n=0	n=1	n=1	n=0
	ERF Concentration	Urban	-	-	-	-	-	-
			n=0	n=0	n=0	n=0	n=0	n=0
		Rural	-	-	-	-	-	-
			n=0	n=0	n=0	n=0	n=0	n=0

Table 49. High risk (water/ice) rescue call group

OTTAWA FIRE SERVICES
SERVICE DES INCENDIES D'OTTAWA
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Rescue: High-Risk (Water/Ice) - Call Sub-Group
Performance Levels at 90th Percentile

Career			2019-2023	2023	2022	2021	2020	2019
Alarm Processing Time	Pick-up to Dispatch	Urban	2:40	2:33	2:36	3:38	2:17	2:26
		Rural	2:25	1:42	2:40	1:24	1:25	2:27
Turnout Time	1st Unit	Urban	3:43	3:11	3:44	3:52	3:21	3:59
		Rural	3:00	2:33	4:54	2:31	1:35	3:11
Travel Time	1st Unit Distribution	Urban	7:45	7:57	7:11	7:12	7:39	9:07
		Rural	9:27	10:55	9:31	6:56	5:55	8:46
	ERF Concentration	Urban	17:46	17:53	15:19	18:04	16:48	14:17
		Rural	19:42	13:52	17:47	19:29	23:45	18:44
Total Response Time	1st Unit On Scene Distribution	Urban	11:20	11:07	10:11	12:15	11:01	12:09
			n= 178	n=50	n=27	n=42	n=35	n=24
		Rural	13:17	14:15	16:07	9:21	8:37	12:58
			n=32	n=50	n=6	n=10	n=8	n=3
	ERF Concentration	Urban	21:04	20:47	19:56	23:24	21:17	19:39
			n= 107	n=32	n=15	n=22	n=20	n= 18
		Rural	28:19	24:31	26:42	29:03	28:19	27:33
			n=25	n=4	n=4	n=10	n=5	n=2

Volunteer			2019-2023	2023	2022	2021	2020	2019
Alarm Processing Time	Pick-up to Dispatch	Urban	4:33	-	4:33	-	-	-
		Rural	2:50	0:46	2:00	4:06	2:11	8:54
Turnout Time	1st Unit	Urban	4:15	-	4:15	-	-	-
		Rural	9:43	7:13	9:20	8:25	9:45	8:59
Travel Time	1st Unit Distribution	Urban	4:03	-	4:03	-	-	-
		Rural	13:37	5:41	12:42	9:51	17:10	12:43
	ERF Concentration	Urban	22:28	-	22:28	-	-	-
		Rural	23:54	26:03	22:28	9:38	18:47	21:53
Total Response Time	1st Unit On Scene Distribution	Urban	10:15	-	10:15	-	-	-
			n=2	n=0	n=2	n=0	n=0	n=0
		Rural	22:56	13:17	19:08	17:15	26:08	22:20
			n=34	n=2	n=7	n=9	n=9	n=7
	ERF Concentration	Urban	29:30	-	29:30	-	-	-
			n=1	n=0	n=1	n=0	n=0	n=0
		Rural	89:47	29:20	24:43	149:49	22:02	30:48
			n=7	n=1	n=1	n=2	n=2	n=1

Table 50. Maximum risk rescue call group

OTTAWA FIRE SERVICES
SERVICE DES INCENDIES D'OTTAWA
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Rescue: Maximum-Risk - Call Sub-Group
Performance Levels at 90th Percentile

Career			2019-2023	2023	2022	2021	2020	2019
Alarm Processing Time	Pick-up to Dispatch	Urban	2:17	1:50	2:16	2:20	-	1:19
		Rural	-	-	-	-	-	-
Turnout Time	1st Unit	Urban	2:18	2:03	1:53	2:39	-	1:26
		Rural	-	-	-	-	-	-
Travel Time	1st Unit Distribution	Urban	5:02	4:56	6:59	3:09	-	3:23
		Rural	-	-	-	-	-	-
	ERF Concentration	Urban	38:15	24:34	39:47	-	-	-
		Rural	-	-	-	-	-	-
Total Response Time	1st Unit On Scene Distribution	Urban	7:32	7:27	10:06	6:50	-	5:12
			n=14	n=5	n=4	n=3	n=0	n=2
		Rural	-	-	-	-	-	-
			n=0	n=0	n=0	n=0	n=0	n=0
	ERF Concentration	Urban	53:26	36:28	55:19	-	-	-
			n=2	n=1	n=1	n=0	n=0	n=0
		Rural	-	-	-	-	-	-
			n=0	n=0	n=0	n=0	n=0	n=0

Volunteer			2019-2023	2023	2022	2021	2020	2019
Alarm Processing Time	Pick-up to Dispatch	Urban	-	-	-	-	-	-
		Rural	1:08	-	-	-	1:08	-
Turnout Time	1st Unit	Urban	-	-	-	-	-	-
		Rural	4:08	-	-	-	4:08	-
Travel Time	1st Unit Distribution	Urban	-	-	-	-	-	-
		Rural	9:21	-	-	-	9:21	-
	ERF Concentration	Urban	-	-	-	-	-	-
		Rural	-	-	-	-	-	-
Total Response Time	1st Unit On Scene Distribution	Urban	-	-	-	-	-	-
			n=0	n=0	n=0	n=0	n=	n=0
		Rural	14:38	-	-	-	14:38	-
			n=1	n=0	n=0	n=0	n=1	n=0
	ERF Concentration	Urban	-	-	-	-	-	-
			n=0	n=0	n=0	n=0	n=0	n=0
		Rural	-	-	-	-	-	-
			n=0	n=0	n=0	n=0	n=0	n=0

Table 51. Low risk hazmat call group

OTTAWA FIRE SERVICES
SERVICE DES INCENDIES D'OTTAWA
Protecting Our Nation's Capital With Pride
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Hazmat: Low-Risk - Call Sub-Group
Performance Levels at 90th Percentile

Career			2019-2023	2023	2022	2021	2020	2019
Alarm Processing Time	Pick-up to Dispatch	Urban	1:22	1:13	1:39	1:16	1:22	1:27
		Rural	1:43	2:51	1:15	2:46	1:14	1:28
Turnout Time	1st Unit	Urban	2:00	1:56	2:08	1:48	1:50	2:03
		Rural	3:54	8:18	2:25	2:01	1:58	2:49
Travel Time	1st Unit Distribution	Urban	6:13	5:56	7:09	5:49	5:41	6:15
		Rural	10:03	12:05	10:04	6:35	9:41	8:28
	ERF Concentration	Urban	6:13	5:56	7:09	5:49	5:41	6:15
		Rural	10:03	12:05	10:04	6:35	9:41	8:28
Total Response Time	1st Unit On Scene Distribution	Urban	8:58	8:05	10:44	8:14	8:06	9:09
			n=572	n=118	n=135	n=113	n=109	n=97
		Rural	14:20	16:42	12:46	10:02	11:45	11:05
			n=98	n=17	n=32	n=11	n=17	n=21
	ERF Concentration	Urban	8:58	8:05	10:44	8:14	8:06	9:09
			n=565	n=116	n=133	n=113	n=108	n=95
		Rural	14:20	16:42	12:46	10:02	1:45	11:05
			n=87	n=17	n=28	n=10	n=14	n=18

Volunteer			2019-2023	2023	2022	2021	2020	2019
Alarm Processing Time	Pick-up to Dispatch	Urban	3:21	3:45	6:09	1:29	0:20	0:42
		Rural	3:06	3:37	3:54	3:06	1:08	2:10
Turnout Time	1st Unit	Urban	6:43	5:59	4:54	5:49	4:00	6:02
		Rural	8:06	6:45	8:23	8:24	6:28	7:50
Travel Time	1st Unit Distribution	Urban	8:27	8:14	5:36	8:27	3:09	2:20
		Rural	12:09	11:00	12:52	11:54	10:32	12:14
	ERF Concentration	Urban	8:27	8:14	5:36	8:27	3:09	2:20
		Rural	12:09	11:00	12:52	11:54	10:32	12:14
Total Response Time	1st Unit On Scene Distribution	Urban	11:50	13:01	11:50	10:31	7:30	9:06
			n=21	n=3	n=11	n=5	n=1	n=1
		Rural	19:08	20:34	20:47	17:04	16:07	19:00
			n=226	n=65	n=61	n=43	n=22	n=35
	ERF Concentration	Urban	11:50	13:01	11:50	10:31	7:30	9:06
			n=15	n=3	n=5	n=5	n=1	n=1
		Rural	19:08	20:34	20:47	17:04	16:07	19:00
			n=177	n=53	n=46	n=38	n=18	n=22

Table 52. Moderate risk hazmat call group

OTTAWA FIRE SERVICES
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Hazmat: Moderate-Risk - Call Sub-Group
Performance Levels at 90th Percentile

Career			2019-2023	2023	2022	2021	2020	2019
Alarm Processing Time	Pick-up to Dispatch	Urban	1:11	1:04	1:27	1:06	1:01	1:14
		Rural	1:27	0:56	2:00	1:00	1:26	1:26
Turnout Time	1st Unit	Urban	1:50	1:47	1:54	1:49	1:51	1:47
		Rural	1:51	2:02	1:46	1:40	2:07	1:41
Travel Time	1st Unit Distribution	Urban	5:31	5:42	5:35	5:20	5:33	5:21
		Rural	8:02	5:36	7:39	8:13	8:21	8:24
	ERF Concentration	Urban	11:01	9:16	11:55	11:17	11:46	10:29
		Rural	17:19	8:00	17:59	17:03	18:41	9:45
Total Response Time	1st Unit On Scene Distribution	Urban	7:43	7:41	8:05	7:43	7:42	7:26
			n=872	n=157	n=170	n=185	n=185	n=175
		Rural	10:36	7:48	11:15	10:00	10:33	10:03
			n=70	n=11	n=17	n=11	n=19	n=12
	ERF Concentration	Urban	14:46	13:02	16:29	14:44	16:55	13:46
			n=340	n=67	n=71	n=81	n=64	n=57
		Rural	19:34	11:06	21:56	18:42	8:50	11:29
			n=14	n=2	n=2	n=4	n=3	n=3

Volunteer			2019-2023	2023	2022	2021	2020	2019
Alarm Processing Time	Pick-up to Dispatch	Urban	1:35	3:30	0:38	1:17	1:27	0:17
		Rural	1:05	1:21	1:05	0:55	0:51	1:42
Turnout Time	1st Unit	Urban	5:13	4:05	1:27	5:16	4:30	1:54
		Rural	6:40	6:44	6:54	6:06	5:45	4:30
Travel Time	1st Unit Distribution	Urban	7:14	4:54	5:55	7:37	6:04	4:41
		Rural	9:36	10:31	10:00	8:10	8:37	10:37
	ERF Concentration	Urban	5:39	5:53	-	2:46	-	-
		Rural	15:04	12:34	15:54	11:21	15:00	15:04
Total Response Time	1st Unit On Scene Distribution	Urban	9:46	7:48	8:00	11:41	8:07	6:53
			n=14	n=3	n=1	n=5	n=4	n=1
		Rural	15:23	16:21	16:28	13:53	13:12	14:59
			n=55	n=8	n=17	n=12	n=12	n=6
	ERF Concentration	Urban	10:14	8:29	-	10:41	-	-
			n=3	n=2	n=0	n=1	n=0	n=0
		Rural	21:08	15:55	23:31	20:46	16:33	16:57
			n=12	n=3	n=5	n=2	n=1	n=1

Table 53. High risk hazmat call group

OTTAWA FIRE SERVICES
SERVICE DES INCENDIES D'OTTAWA
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Hazmat: High Risk - Call Sub-Group
Performance Levels at 90th Percentile

Career			2019-2023	2023	2022	2021	2020	2019
Alarm Processing Time	Pick-up to Dispatch	Urban	5:48	5:51	4:23	1554:00	2:11	4:11
		Rural	2:03	-	1:01	2:14	-	-
Turnout Time	1st Unit	Urban	1:53	1:41	2:06	1:46	2:01	1:47
		Rural	1:44	-	1:43	1:43	-	-
Travel Time	1st Unit Distribution	Urban	7:26	6:44	10:49	4:57	8:15	7:19
		Rural	7:47	-	5:53	7:56	-	-
	ERF Concentration	Urban	19:00	5:04	-	22:30	16:59	10:33
		Rural	-	-	-	-	-	-
Total Response Time	1st Unit On Scene Distribution	Urban	14:16	12:03	14:45	30:19	11:13	12:40
			n=46	n=11	n=4	n=6	n=14	n=9
		Rural	11:25	-	8:39	11:42	-	-
			n=4	n=0	n=2	n=2	n=0	n=0
	ERF Concentration	Urban	71:08	13:15	-	70:40	64:26	43:54
			n=10	n=1	n=0	n=2	n=6	n=1
		Rural	-	-	-	-	-	-
			n=0	n=0	n=0	n=0	n=0	n=0

Volunteer			2019-2023	2023	2022	2021	2020	2019
Alarm Processing Time	Pick-up to Dispatch	Urban	7:25	-	-	7:25	-	-
		Rural	2:32	-	2:35	-	1:47	-
Turnout Time	1st Unit	Urban	0:22	-	-	0:22	-	-
		Rural	7:41	-	8:04	-	4:43	-
Travel Time	1st Unit Distribution	Urban	3:49	-	-	3:49	-	-
		Rural	6:53	-	7:07	-	0:00	-
	ERF Concentration	Urban	-	-	-	-	-	-
		Rural	-	-	-	-	-	-
Total Response Time	1st Unit On Scene Distribution	Urban	11:37	-	-	11:37	-	-
			n=1	n=0	n=0	n=1	n=0	n=0
		Rural	14:10	-	14:15	-	6:30	-
			n=5	n=0	n=3	n=0	n=1	n=0
	ERF Concentration	Urban	-	-	-	-	-	-
			n=0	n=0	n=0	n=0	n=0	n=0
		Rural	-	-	-	-	-	-
			n=0	n=0	n=0	n=0	n=0	n=0

Table References

Table References

Table References

Figure References

Figure References

Map References

Map References