



Commission on
Fire Accreditation
International



OTTAWA FIRE SERVICES
SERVICE DES INCENDIES D'OTTAWA

*Protecting Our Nation's Capital With Pride
Protéger notre capitale nationale avec fierté*

OTTAWA FIRE SERVICES

COMMISSION ON FIRE ACCREDITATION INTERNATIONAL FIRE AND EMERGENCY SERVICES

STANDARDS OF COVER 2013



Page left blank



Introduction

This report serves as the Ottawa Fire Services (OFS) “Integrated Risk Management Plan: “Standards of Cover” document. 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. This document conforms to the 5th edition of the CFAI standards of Cover guidelines.

The creation of this “Standards of Cover” required that a number of key areas be researched, studied, and evaluated. The report will begin with an overview of both the community and the fire service. Following this overview, the agency will discuss 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 historical performance through charts and graphs. This report concludes with policy recommendations.

Ottawa Fire Services is a branch of the City of Ottawa’s Emergency and Protective Services Department providing fire suppression, search and rescue, emergency medical response, technical rescue, hazardous materials response, fire inspections, public education, investigation and community based training. The OFS strives to achieve a high level of professionalism and efficiency to the residents it serves, currently the OFS is pursuing accreditation through the Commission on Fire Accreditation International.

Acknowledgements

The Ottawa Fire Service Leadership Team

Fire Chief John deHooge

Deputy Chief Kim Ayotte

Deputy Chief Gerry Pingitore

Deputy Chief Dave Cranidge

Standards of Cover Development Team

CFAI Sponsor/ Deputy Chief - Kim Ayotte

CFAI Accreditation Manager / Captain - Jim Narraway

Standards of Cover Branch / Lieutenant - David Matschke

Standards of Cover Co-ordinator/ Perf. Meas. & Reporting Analyst - Anastasia Turner

Business Consultant - Andrew Bartlett

GIS Technician - Mark Cybulskie

Technical Support / Captain - Kevin Lambert

Application Administrator (FDM/RMS) - Kendra Shaw

Supervisor of Planning & Performance - Joseph Ting

Station Location Study Project Manager / Captain - John Burke

Cover photo credit - Scott Stilborn

Table of Contents

Executive Summary	7
Component A - Community Served	10
Governing Legislation	10
Service Delivery Levels.....	10
Service Area Description.....	18
Component B - Services Provided.....	26
Service Delivery Programs.....	27
Operational Staffing Levels, Equipment and Station Locations	34
Component C – Performance Goals and Community Expectations.....	41
Performance Goals	41
Community Service Expectations	42
Component D - Community Risk Assessment and Risk Levels	46
Community Risk Input Factors	46
Physical Assets Protected.....	55
Service Demands.....	67
Probability vs. Consequences.....	72
Critical Tasking	86
Component E - Historical Perspective and System Performance	100
Distribution.....	106
Concentration.....	116
Reliability.....	122
Comparability	126

Component F - Performance Objectives and Measurements..... 132
Performance Objective- Benchmarks 132
Baseline Performance Levels 138

Component G - Compliance Methodology 143

Component H - Overall Evaluation and Conclusion Recommendations..... 146
Recommendations 147
Summary..... 148

Component I – APPENDIX 149
Exhibits 149
Maps 152
Tables 167

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) as part of its commitment towards service excellence. The Standards of Cover (SOC) document, Self Assessment guide (FESSAM 8th edition), and the OFS Strategic plan 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, which represents the largest area of any major city within Canada. As a result of a municipal amalgamation of 9 communities, the OFS is a “composite” department, comprised of both career and volunteer firefighters.

One of the unique geographic aspects to Ottawa is the existence of a significant band of green space which surrounds the core and suburban areas of the original City of Ottawa. The massive size of the “greenbelt” creates challenges for service provision with respect to the distribution and concentration of resources. The existence, maintenance and control over development of the greenbelt are the responsibility of the federal government. Subsequently, the federal government has complete jurisdiction over this area and the municipal government has little say in its size, future or development.

The agency undertook a review of community risk from a number of factors including; physical factors, population growth, disaster potential and demand for service and resources. When combined with building density, historic response data, incident occurrence frequency and the consequences of incident occurrence, a risk classification system was established.

The department analyzed its resource distribution and running assignments for first unit response and effective response force times using historic data and travel time mapping based on international standards (NFPA) and modeling to identify any weaknesses within the system. A comprehensive analysis was conducted which included the identification of initial critical tasks required at an emergency incident, and the matching of those tasks to deployment.

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 identified for each of the following types of emergency service provided by the agency.

Fire Services

For 90 percent of all moderate and high risk structure 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 35 seconds in metro and urban areas; 8 minutes and 31 seconds in suburban areas; and 11 minutes 22 seconds in rural areas.

For 90 percent of all moderate and high risk structure fires within the **Volunteer sectors** of the City, the total response time for the arrival of the first-due apparatus shall be; 9 minutes and 9 seconds in suburban areas; and 16 minutes in rural areas.

Emergency Medical Services

For 90 percent of all Emergency Medical Service incidents within the **Career districts** of the City, the total response time for the arrival of the first-due unit, consisting of 3 firefighters and 1 officer (also recognized within the service as the effective response force), shall be; 6 minutes and 26 seconds for the Metro/Urban areas, 7 minutes 40 seconds for suburban areas, and 11 minutes and 46 seconds for the rural areas.

For 90 percent of all Emergency Medical Service incidents within the **Volunteer sectors** of the City, the total response time for the arrival of the first-due unit in suburban areas shall be; 9 minutes and 48 seconds, and 13 minutes and 38 seconds for the rural areas.

Rescues Services

For 90 percent of all Rescue 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; 6 minutes and 48 seconds within the Metro /Urban areas, 7 minutes and 27 seconds for suburban areas, and 10 minutes 47 seconds for rural areas.

For 90 percent of all Rescue incidents located within the **Volunteer sectors** of the City, the total response time for the arrival of the first-due unit shall be; 10 minutes 50 seconds for suburban areas and 16 minutes 21 seconds for rural areas.

Hazmat Services

For 90 percent of all 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 31 seconds within the Metro/Urban areas, 9 minutes and 22 seconds in the Suburban areas, and 13 minutes and 37 seconds in the rural areas.

For 90 percent of all Hazardous Material incidents occurring within the **Volunteer sectors** of the City, the total response time for the arrival of the first-due unit shall be; 12 minutes and 53 seconds suburban areas, 17 minutes and 16 seconds to rural areas.

Concentration of resources was measured in line with CFAI baselines as displayed in the Fire & Emergency Services Self- Assessment Manual (FESSAM)¹. Through analysis of performance data the Ottawa Fire Service recognizes the need to revise deployment strategies to improve effective response force objectives.

Along with the proposal to adopt and integrate the current Station Location Study recommendations, further recommendation have been made as a result of the analysis of the current system performance.

Recommendations include processes to; **improve response times and effective response force performance** by adopting service level objectives and revising current running assignments. **Improve data accuracy and risk hazard analysis** by developing a more accurate risk classification process, completing the mobile data terminal (MDT) implementation project and completing a performance measurement framework. **Improve fire prevention strategies**, inspection initiatives, and public education programming focused on residential properties. **Improve the process for the review and revision** of current Standard Operating Procedures (SOP's) and Guidelines.

The recommendations within the Standards of Cover document are both realistic and achievable and are meant to provide strategic direction to improve service delivery to the community.

Ottawa Fire Services has developed a compliance methodology based on the Standards of Cover guidelines to provide direction and accountability as to how performance will be measured and improved; and demonstrates the commitment to the accreditation process going forward.

This document along with the Self Assessment Manual provides transparency as to the performance of Ottawa Fire Services to the corporation of the City of Ottawa and the community it serves. It is processes such as this which reflect the integrity and professionalism of the organization in providing effective and fiscally responsible emergency services to the customers it serves.

¹ Fire & Emergency Services Self-Assessment Manual (FESSAM), 8th Edition, pg. 71

Component A - Community Served

Governing Legislation (Legal basis for existence of service)

The Ottawa Fire Services (OFS) is a legally established entity which is guided by provincial legislation in the form of the “Fire Protection and Prevention Act, 1997” and by the Ottawa Fire Services “Establishment By-law No. 2009-319”.

Provincial legislation outlines that every municipality, based on its needs, shall provide three areas of fire protection;

- Fire prevention
- Fire safety standards
- Emergency response.

The province of Ontario shares a partnership with regards to fire protection whereby the province supports municipal delivery through Ontario’s Office of the Fire Marshal (OFM).

Support from the province is provided in the following areas; fire safety guidelines, comprehensive fire safety effectiveness, public fire safety optimization and training.



The OFM only interferes in a municipality’s service delivery if there is a serious threat to public safety.

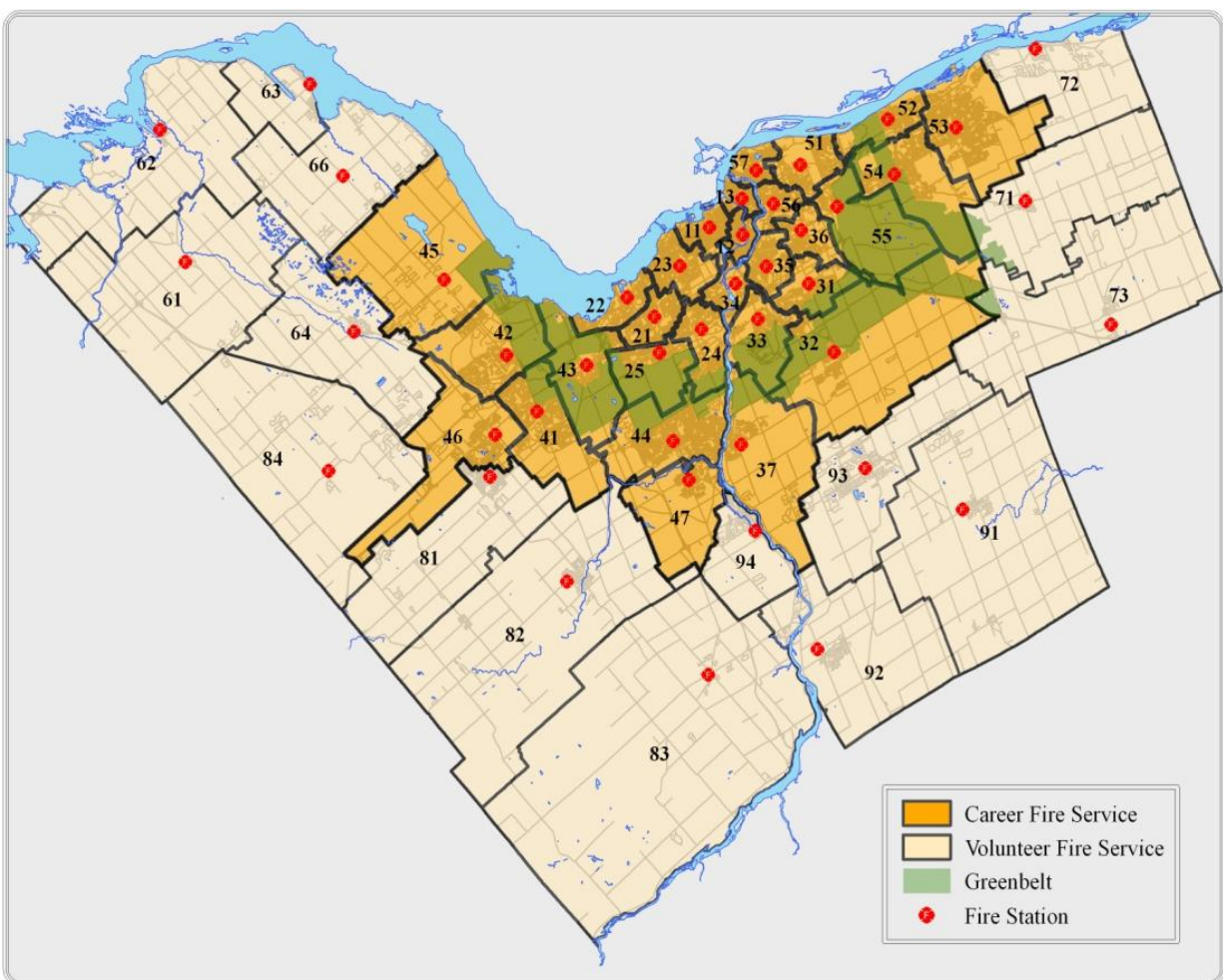
Municipal by-law No. 2009-319 defines the establishment of the branch which sets the policy framework and reporting mechanisms for Ottawa Fire Services. The bylaw authorizes the Fire Chief to take appropriate actions to protect and preserve life and property and authorizes the OFS to leave the limits of the municipality with respect to a fire or emergency under specific circumstances. The Fire Chief is the principal adviser to government on public fire protection policy and fire safety issues and is the person who is ultimately responsible to the council for the delivery of fire protection services.

Service Delivery Levels

Prior to amalgamation the Ottawa Carleton region was served by nine (9) fire departments offering different levels of service based on the needs of their respective communities. When the new City of Ottawa was formed these nine (9) departments were amalgamated into one composite service (career and volunteer fire protection). The creation of the new composite fire service required a rate adjustment that accounted for the difference between areas protected by career and volunteer firefighters. Section 326 of the Ontario Municipal Act allows municipalities to develop special area rates. In order to ensure the continuation of service to residents, two service levels were established under section 326. The first was an urban fire rate and

the second was a rural fire rate. Residents paying the urban fire rate are serviced by a career force that staff urban area on a 24 hr basis. Residents paying the rural fire rate are primarily served by a volunteer force who responds on an as required basis. These two rates and their geographic boundaries are established, approved and enacted by City Council in the form of two separate by-laws (Map 1).

Demographic changes require that Ottawa Fire Services continually evaluates and assesses service provision to ensure that it is congruent with the City's policies and council's direction. Accordingly, the bylaw regulating fire services may be amended to ensure adequate service is being provided to protect the life, safety and property of residents and businesses.



Map 1 - City of Ottawa Fire Service Levels and Fire Stations

Ottawa “The Nation’s Capital”

As Canada’s capital City, Ottawa is one of the most beautiful G8 cities in the world and ranked 18th on the list of best places to live based on quality of life. With a solid

economic base linked to the Federal Government it also has a thriving technology and business sector and is considered a world class tourist destination. The City has a rich history, culture, and heritage as displayed by its many national institutions, parklands, waterways and historic architecture. With the highest educated workforce and the highest median income in Canada, it is home to two large universities, several colleges, world class medical facilities and is recognized for both academics and professional training.

The name Ottawa is derived from an Algonquin Indian word meaning “to trade”, the Algonquin were the first recorded inhabitants of the area. The original settlement of ‘Bytown’ was founded in 1826 and was named after Colonel John By. Colonel By was responsible for the construction of the Rideau Canal system (currently a UNESCO World Heritage site) which was built to secure safe travel from Kingston to Montreal through Bytown. The early settlement of Bytown was located on a promontory on the south Bank of the Ottawa River near the confluence of the Ottawa, Gatineau and Rideau Rivers. Bytown was renamed *Ottawa* in 1855, when it was incorporated as a city. On December 31, 1857, Queen Victoria chose Ottawa as the capital for the “Province of Canada” based on its prime location and size. The new Capital experienced consistent demographic and physical growth; including, what was to become the world’s largest sawmill; transportation development, the construction of the Parliament buildings, Chateau Laurier, Union Station as well as other historic and important landmarks.



Figure 1 - View of the Parliament Buildings and the Ottawa River

In the 1940’s, work began on a National Capital plan for future growth. In 1946 the federal government asked French architect and urban planner Jacques Greber to create an urban plan suitable for a capital City. The result was the creation of an ‘emerald necklace’, a band of green space around Ottawa’s urban core. The intent of the green belt was to contain physical expansion of the urban core area. However, the plan did not achieve its goal and led to housing and business expansion outside the greenbelt

boundary. The breach in intended urban planning resulted in the creation of several suburban centres, including the former cities of Nepean, Gloucester and Kanata.

In 1959 the federal government created the National Capital Commission (NCC), a crown corporation with a mandate to administer federal govt. lands and buildings within the National Capital Region; which includes the cities of Ottawa and Gatineau. The creation of the NCC, combined with the Greber plan, had a significant impact on Ottawa's evolution as a city, limits on land use, and the significant growth of suburbs, outside of the greenbelt.

In 2001, the eleven municipalities, which comprised the Regional Municipality of Ottawa-Carleton, were amalgamated into a new incorporated City of Ottawa by the Province of Ontario.

Creation of the Ottawa Fire Services and Historical Milestones

During the early years as a lumber town and emerging Capital City, Ottawa suffered many spectacular fires and subsequently the fire department became a major part of the city's history. The first Ottawa firefighters were comprised of soldiers stationed in the Bytown area who would respond to fires threatening the growing lumber town. Insurance companies helped fund fire protection and donate equipment for the effort.

In 1838 the first organized volunteer fire brigade was established and in 1849 the first town hall which also housed the first fire station was donated to the town by Nicholas Sparks.

It was 1874 when the town council accepted the recommendation of Chief William Young to re-organize the existing service into Ottawa's 1st career fire department and 4 companies were created. In 1919, Ottawa firefighters formed an association to better represent the needs of career firefighters and their families. The resulting union became a member of the International Association of Firefighters identified as Local 162 and was the precursor to today's Ottawa Professional Firefighters Association.

In 1916 the Centre Block of the Parliament buildings was destroyed by fire. The only portion of the building to remain was the Library which was saved when a mindful security guard closed its large entrance doors preventing the fire from consuming the library and its priceless contents. A new Centre Block was

The 'Great Hull-Ottawa fire of 1900' was a fire that destroyed two thirds of Hull and spread across the Ottawa River and destroyed about one fifth of Ottawa. A call went out to five communities for assistance in fighting the blaze before it was finally contained.

constructed in 1922, the centrepiece of which is known as the Peace Tower which serves both as a visible timepiece and a memorial for those who perished in the First World War.



Figure 2 - 1916 Fire - 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

The 1900's brought with it an end to the horse and steamer era, the means to fight fires evolved to include mechanized fire apparatus. By 1914 the department had expanded to include its first drill instructor and two fire inspectors in recognition of the need for better training and fire code enforcement; by 1929 the force had a fully mechanized fleet.

A new fire alarm dispatch system and headquarters were opened in 1940 and the first telephones were in the stations by 1945, at this time there were three (3) platoon shifts working a 48 hr week - this was reduced to 42 hrs in 1963 adopting a fourth platoon in the process. In 1979 smoke detectors became mandatory through a municipal bylaw.

By the 1980's and 90's technology provided more advanced techniques for emergency mitigation and the fire service improved its level of equipment including; Personal protective gear, Rescue tools, (water, special ops, MVC), Hazmat and medical equipment (Defibrillators, sensors, and detectors)

The current amalgamated Ottawa Fire Service came into existence in 2001 and has grown into an industry leader. The Ottawa Fire Service is the largest composite fire service in the country and provides an effective modern emergency protective service to the community.

Recent Major Milestones

Since amalgamation, the City of Ottawa has experienced consistent and considerable growth. This steady growth has necessitated expansion of facilities and an increase in personnel for both Career and Volunteers firefighters. Three new stations have been

added over the last eight years providing the Ottawa Fire Services with the ability to maintain a high standard of coverage for residents located in these high growth communities.

Following amalgamation, \$3.4 M was invested in establishing a Self Contained Breathing Apparatus (SCBA) program which resulted in the purchase of five hundred and forty (540) sets of the SCBA. The OFS is currently in a new SCBA replacement cycle, started in May 2013 which will see all new SCBA apparatus in service by the end of 2015. All Personal Protective Clothing (PPE) including; helmets, boots, bunker gear and gloves have been standardized and meet NFPA standards for protection.

At the time of amalgamation it was recognized that the combined fleet of vehicles was ending its service life and an aggressive replacement program was initiated. The program replaced the following resources;

- Six (6) heavy rescues
- Thirty-six (36) rescue pumpers
- Twenty (20) aerials/platforms
- Twenty (20) tankers / pumper tankers
- Four (4) brush trucks
- One (1) brush tanker
- One (1) compressed foam unit
- Seventy eight (78) light response and support units,
- One(1) state-of-the-art Command Unit
- Five (5) water rescue units
- Four (4) ATVs were added to the forestry program
- Two (2) snowmobiles were added to complement the fleet for wilderness access.

By 2003, the 8 former communications centers had been merged into a single, modernized centre and a new paging/ station alerting system was installed for an investment cost of \$424,000. A new radio system, with far superior “in building” coverage, was acquired. In 2012, global positioning satellite / Automatic vehicle location (GPS/AVL), status messaging, and Mobile Data Terminals began to be installed to the apparatus which will contribute in future to more accurate data collection and improved response times.

Restructuring of the Administration division took place in 2010 when career and volunteer operations were placed under one Deputy Chief. Portfolios were combined

and the additions of six Assistant Deputy Chief positions were created for an effective management reporting strategy.

With the support of City Council, Ottawa Fire Services has made many other significant investments in an effort to improve community protection and public safety. One such investment pertained to improving responses in the high risk low frequency category has been the establishment of highly trained professional specialty teams. Specialty response teams have enabled a more comprehensive response model with enhanced service provisions, including;

- Provincial Level 3 Hazmat/CBRNE Team, 2002
- Confined Space Rescue Team, 2004
- Structural Collapse / Trench Rescue Teams, 2007
- Medium Urban Search and Rescue (USAR), 2007
- Heavy Equipment Rescue capability, 2010
- Rope Rescue Team
- Water Rescue Team
- CBRNE (Chemical/Biological/Radioactive/Nuclear/Explosives)

Perhaps no other area of service exemplifies the success of the post amalgamated fire service than does the Auto Extrication Competition Team. The team is comprised of both volunteer and career fire personnel and has won major competitions throughout North America. The team's success exemplifies the high standard to which fire service personnel can be trained with regards to auto extrication and rescue.

Several other major milestones have been achieved, with regards to service provision enhancement, including;

- Elevator Rescue Technician Program(TSSA) – 2007
- Wake up Program (Community Fire Prevention initiative)– 2005
- Monthly Training Program (on-line training)– 2003
- Fire Services Emergency Plan - 2004
- Officer Training Program – 2005
- Fire Protection Engineer position – Plans Review – 2005
- Fire Service Audit -2006
- Female Cadet Program (Camp FITT)- 2010
- Creation of a Public Information Officer position – 2011
- Fire Station Location Study in 2008/12
- Adoption of the CFAI Accreditation process - 2012

Funding Sources & Restrictions

Ottawa Fire Services is primarily funded through local municipal government. However, some funding for specialized services such as HAZMAT materials and CBRNE has been provided through provincial and federal grants or Memorandums of Understanding with government agencies. The service does generate some revenue through; enforcement, letters of compliance or hazardous materials response to commercial enterprises, reimbursements from the Ontario Ministry of Transportation (MTO) for responses to provincial highways, and some training and facility rentals. Any money collected becomes part of the general revenue stream for the City and is reflected in the OFS budget on an annualized basis.

Expenditure controls are maintained through the office of the auditor general, who consistently reviews service delivery. Additionally, fire service administration have established a performance measurement group which tracks overtime costs, equipment costs, etc on a monthly basis. All restrictions on staffing and budget are given to fire administration as directed by council through the general manager of Emergency and Protective Services (EPS) department on an annual and as needed basis.

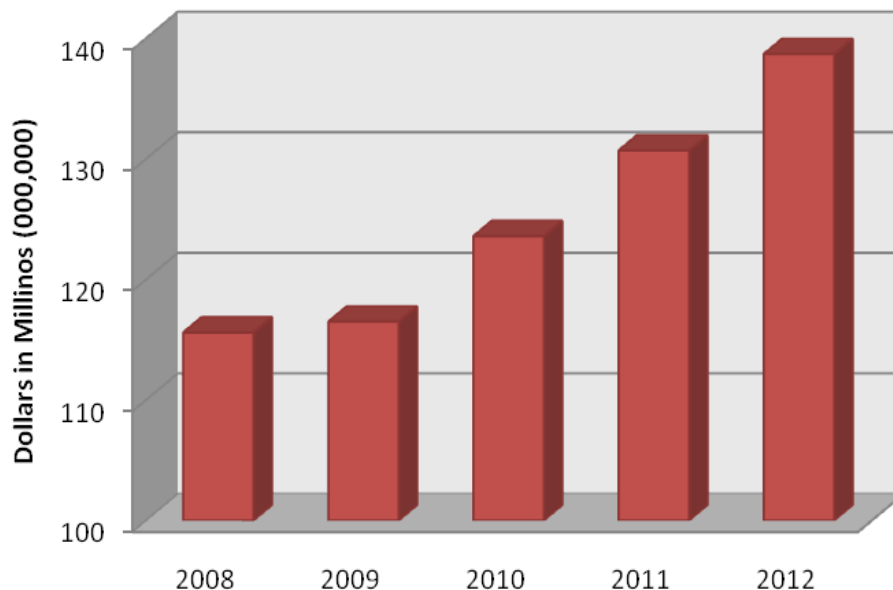
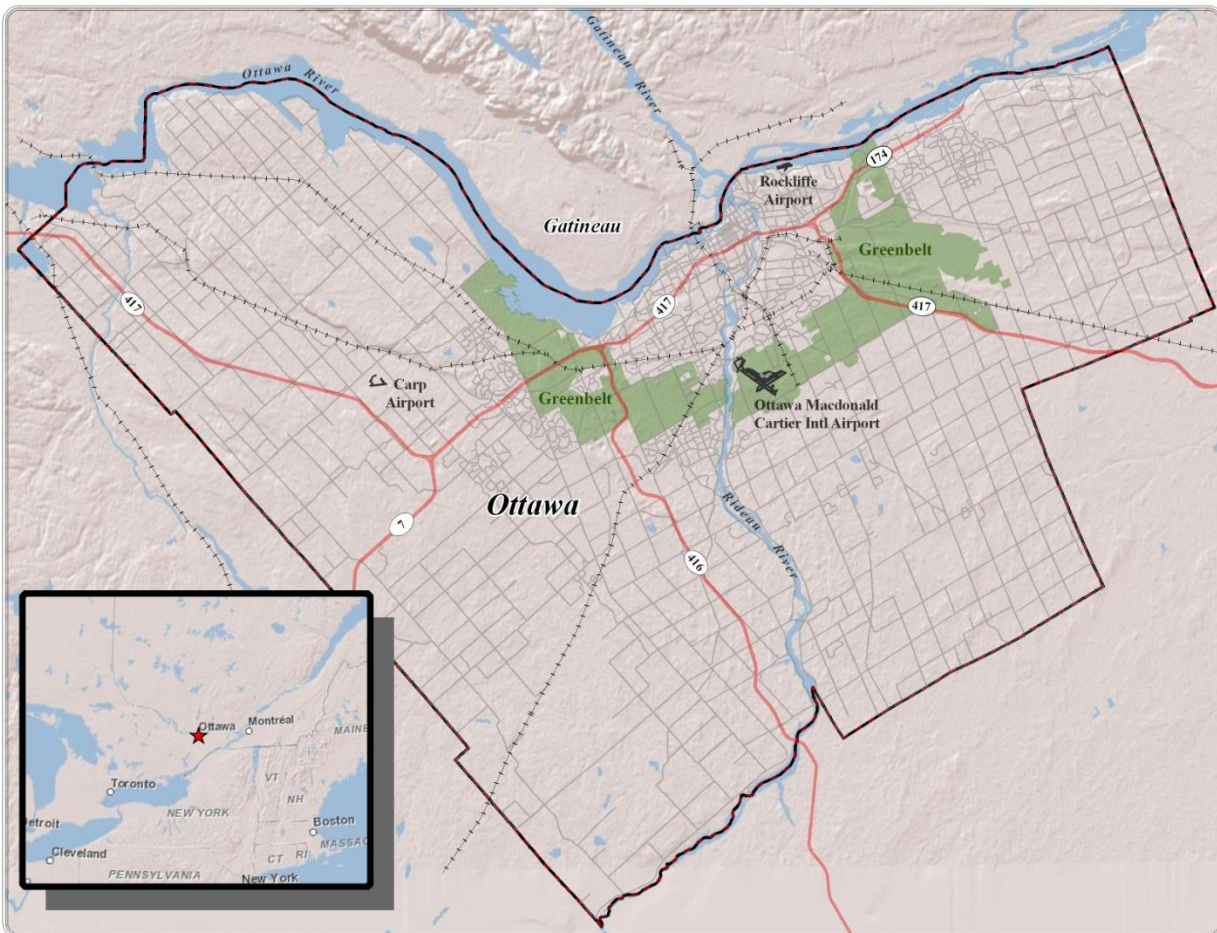


Figure 3 - The Ottawa Fire Service Budget 2008 - 2012

The Ottawa Fire Services leadership team (FLT) in conjunction with the agency assigned finance officers work to develop the draft agency budget based on the budgetary increases which are approved by Ottawa City Council. Once finalized the agency budget is rolled into the Emergency and Protective Services (EPS) departmental budget, is reviewed and alterations are made through the EPS departmental management team. The proposed budget is sent to the Community and

Protective Services Committee (CPSC) for another review and approval. Once agreement is voted on at the committee level, the proposed budget is sent to council where council will vote to approve the budget. Figure 3 is a 5 year look at the Ottawa Fire Services budget.

Service Area Description



Map 2 – City of Ottawa Fire Service Area, Ontario Inset

With a vast area of 2,790 square kilometres the City of Ottawa represents the largest area of any major city within Canada. It is located in eastern Ontario at the confluence of three major rivers; the Ottawa, Gatineau and Rideau as well as a man made canal system. The Ottawa River creates a natural border, between the provinces of Ontario and Quebec, on the North side of the City which it shares with the province of Quebec's municipalities of Pontiac and Gatineau. The City of Ottawa is bordered in the west by Renfrew and Lanark counties; in the south by Leeds, Grenville, Stormont, Dundas and Glengarry and in the east by Prescott and Russell counties.

Ottawa is traced with an extensive network of rivers and streams which includes; portions of four rivers, four major tributaries, and hundreds of smaller creeks and

streams. The total length of these watercourses is more than 4,500 km. Ottawa's rivers and streams help to define the region as part of the Great Lakes watershed and are some of its most valuable natural resources.

The City of Ottawa is relatively flat with a number of noted valley lands and escarpment features. The elevation is highest in the southwest part of the City and decreases as one moves in a northeast direction along the eastern portion of Ottawa River Valley. Ottawa sits on an ancient fault line which forms the valley seen between Bronson Ave and the agricultural buildings along Carling Ave. Several other minor faults are scattered throughout the region and minor earthquakes are not uncommon.

Ottawa has a humid continental climate with four distinct seasons. Summers are warm and humid with daytime temperatures of 27°C (86°F) or higher being commonplace. Snow and ice are dominant during the winter season, with the City receiving about 224 cm (88 in) of snowfall annually (Table 1). Depending on the wind direction, Ottawa can experience extremely cold winter days with the temperatures dipping below -20 degree Celsius when wind chill is factored.

Table 1 - Climate data for the City of Ottawa (1981–2010)

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
Record Humidex	14	13	27	35	42	44	46	47	43	34	26	18	47
Average high °C / °F	-6 22	-3 26	3 37	12 53	19 66	24 75	27 80	25 78	20 69	13 55	5 42	-2 28	11 52
Average low °C / °F	-15 5	-13 9	-7 19	1 34	8 46	13 55	16 60	14 58	10 49	3 38	-2 28	-10 14	1 35
Wind chill	-8	-48	-43	-26	-11	0	0	0	-6	-13	-30	-45	-48
Rainfall mm (inches)	25 1	19 1	31 1	63 3	80 3	93 4	92 4	86 3	90 4	82 3	65 3	34 1	758 30
Snowfall cm (inches)	54 21	43 17	38 15	11 5	0 0	0 0	0 0	0 0	0 0	4 2	20 8	53 21	224 88

Source: Environment Canada. 2 July 2013. Climate ID: 6106000. Retrieved 19 July 2013

Population and Demographics

In 2012, Ottawa Fire Services provided fire and emergency response coverage for a population of 935,073 representing a percentage growth of 5% from 2008, this compares to the national average growth rate of 5.3%. The household count increased by 6% from 2008 to 2012 (Figure 4). The overall population density was 334.2 persons per square kilometre (200 m²) and the average age was 37 years.

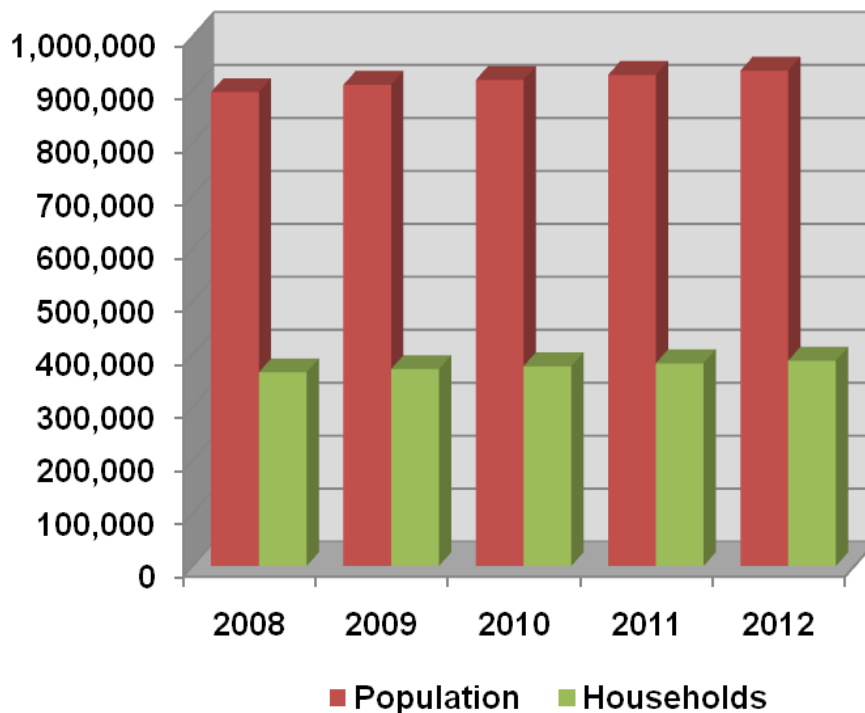


Figure 4 - Population and Households 2008- 2012

The City's population is concentrated within the urban/metro core which is located within the greenbelt; the suburban area is dominated by residential housing developments. The rural area is sparsely populated and is predominantly agrarian in nature.

Over the next 10 years the City of Ottawa's population is expected to exceed one million. This growth will be managed in ways that reinforce the qualities of the City most valued by its residents: its distinctly liveable communities, its green and open character, and its unique characteristics that distinguish Ottawa from all other places.

Between 1996 and 2001, Ottawa welcomed almost 25,000 immigrants from around the world. Recent immigrants - those who settled here in the past 10 years - make up 6.8% of the population, up from 4.2% in 1981. There are 70,500 recent immigrants now living in the City, representing the fourth highest concentration in the country. Overall, 185,000 people born outside Canada reside in Ottawa. They make up almost 18% of the metropolitan population. Ottawa receives the highest percentage of refugees and family-related immigration of any major Canadian centre.

Land Use and Development

As the Nation's Capital, Ottawa is home to more than one hundred and forty federal government agencies, departments, and crown corporations including the structures and agencies which represent the political symbols and cultural heritage of Canada.

It is also home to more than one hundred and fifty foreign embassies, consulates and permanent representations. Many of the federal government offices are concentrated in the downtown core where the seat of government resides.

The breakdown of the approximately 250,000 properties within the City of Ottawa is shown in Table 2. Analysis shows that residential properties account for over eighty seven percent (87%) of the City's total property count and over sixty two percent (62%) of the total assessment value. Commercial properties are only two percent (2%) of the City's total property count but account for over twenty percent (20%) of the City's property assessment value.

Table 2 – Property and Structure Counts with Assessment Value

Property Group (Code)	Property Count	Percent of Total	Structure Count	Percent of Total	Total Value (\$millions)	Percent of Total
Residential (300)	220,694	87.0%	445,314	94.5%	\$ 81,284	62.1%
Commercial (400)	5,185	2.0%	1,542	0.3%	\$ 26,446	20.2%
Vacant (100)	18,230	7.2%	668	0.1%	\$ 7,308	5.6%
Institutional (600)	725	0.3%	1,528	0.3%	\$ 6,672	5.1%
Industrial (500)	2,103	0.8%	149	0.0%	\$ 4,165	3.2%
Special (700)	968	0.4%	935	0.2%	\$ 2,958	2.3%
Farm (200)	5,604	2.2%	20,933	4.4%	\$ 1,906	1.5%
Government (800)	78	0.0%	134	0.0%	\$ 256	0.2%
Total	253,587	100.0%	471,203	100.0%	\$ 130,996	100.0%

*The figures above are based on MPAC property/structure types.

In general, the physical assets located in the metropolitan area are older (including heritage buildings) than within the suburban areas, the core of the City contains a significant mix of office towers, residential and commercial high rises, low-rise apartment buildings, hotels, convention centres, large retail spaces and institutional buildings.

The City of Ottawa includes a variety of land uses and building types; twenty percent (20%) of the City's total land area is 'Developed'. For the purposes of this report, 'developed areas' are defined as those areas which include residential, commercial, industrial, institutional, recreational, transport/utility/communication, streets, and vacant lands zoned for development (Table 3). These areas are predominantly located within a dense central core with a large concentration of high-rise buildings surrounded by urban and suburban neighbourhoods. Hamlets, small towns and villages are scattered throughout the rural parts of the City.

Forests and wetlands account for thirty-seven percent (37%) of the City's area, while agricultural lands account for thirty-two percent (32%) of the City's area (Table 3). Ottawa is one of the few Cities in the world with an actual working farm contained within

the boundaries of the urban area. The Experimental Farm once located on the edge of the urban boundary is now surrounded by urban neighbourhoods.

Table 3 - City of Ottawa Land Use

LAND USE GROUP	Area Square Metres (m ²)	Percent of Total Area
RESIDENTIAL	269,583,531	9.05%
Single detached	235,647,190	7.91%
Semi-detached	5,849,299	0.20%
Row and townhouse	19,108,463	0.64%
Duplex, triplex, single dwelling	1,929,599	0.06%
Apartment	6,197,646	0.21%
Mobile	851,334	0.03%
COMMERCIAL - OFFICE	27,709,843	0.93%
INDUSTRIAL	23,688,270	0.80%
INSTITUTIONAL	22,699,215	0.76%
RECREATION	89,753,931	3.01%
TRANSPORT, UTILITY, COMMUNICATION	18,349,729	0.62%
OTHER	2,527,310,095	84.83%
Agriculture	939,382,853	31.53%
Forest	615,313,666	20.65%
Pits and quarries	19,416,285	0.65%
Rural shrub land and open space	284,930,648	9.56%
Wetland	108,285,215	3.63%
Forested wetland	107,305,959	3.60%
Vacant land / buildings	123,097,017	4.13%
Water / Inland Water	198,389,900	6.66%
Street	131,188,552	4.40%
TOTALS	2,979,094,613	100%

The City of Ottawa “Official Plan” sets the vision for the City’s future growth and a policy framework to guide its physical development to the year 2031. It is a legal document that addresses matters of provincial interest defined by the Provincial Policy Statement under the Ontario Planning Act. It includes comprehensive zoning bylaws, community design plans, planning of public works (including fire stations) and review and approval of development applications.

This new plan will greatly impact Ottawa Fire Services as the City endeavours to encourage high-density communities within walking distance of the new light rail transit

stations. One area in particular near the Lees Ave and 417/Nicholas Street interchange is expected to accommodate multi-residential and commercial buildings of heights in excess of forty stories. Taller buildings and high density housing will lead to increases in population and service requirements.

Economy

Ottawa's robust economy centers on three major sectors; Federal government, tourism and the high technology sector.

The Federal government is the City's largest employer, employing over 110,000 workers. As the nation's Capital, Ottawa has become a destination for travelers from around the world, it is estimated the city attracts seven million tourists annually adding approximately 1.3 billion dollars to the local economy. Ottawa is also an important technology centre; its 1,800 companies employ approximately 80,000 people. The concentration of companies in this industry earned the City the nickname of "Silicon Valley North". Most of these companies specialize in telecommunications, software development and environmental technology. Large technology companies such as Nortel, Corel, Mitel, Cognos and JDS Uniphase were founded in the City. Ottawa also has regional locations for 3M, Adobe Systems, Bell Canada, IBM, Alcatel-Lucent and Hewlett-Packard. Many of the telecommunications and new technology businesses are located in the western part of the City (formerly Kanata).

Other major employers include research and development particularly in relation to the health sector, which employs over 18,000 people. Nordion, i-Stat as well as the National Research Council of Canada and Ottawa Hospital Research Institute (OHRI) are part of the growing bio- life sciences sector. Business, finance, administration sales and service occupations rank high among types of occupations. Approximately ten percent of Ottawa's GDP is derived from finance, insurance and real estate whereas employment in the goods-producing industries is only half the national average. Educational institutions and various levels of governments combine to employ tens of thousands of employees with well paying stable jobs.

Of the few features which make Ottawa unique amongst other North American cities is the abundance of rural land. The rural areas of Ottawa are home to over 1,300 agricultural operations employing approximately 10,000 people. These enterprises contribute over \$1 billion to the City's Gross Domestic Product (GDP).

While Ottawa's economy has consistently grown, over the past decade its growth relative to other cities is expected to slow as the effects of the federal governments budgetary reductions work their way through the local economy. However major infrastructure projects are expected to buoy the economy as hundreds of millions of

dollars are spent on the light rail tunnel, Lansdowne Park redevelopment and the widening of highway 417.

Transportation Network

Ottawa's transportation system lies within three government jurisdictions. Most of the road, transit and pathway networks are owned and maintained by the City, while major intercity highways (namely Highways 416, 417 and 7) are the responsibility of the provincial government. The five interprovincial road bridges as well as the National Capital Commission's roads and multi-use pathways fall under federal jurisdiction. Fire responses on provincial highways are reimbursed by the Ministry of Transportation of Ontario (MTO) at a fixed rate set by that provincial department.

The City is responsible for a truly multimodal transportation system with facilities and services for walking, cycling, public transit, roads and parking. Some of the 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 service includes 990 standard, articulated and hi-capacity double-decker buses. The O-Train light rail line (8 km track with five stations). The train and rapid bus transit way combine to provide an efficient transportation system. The bus transit way runs 31 km, has 34 stations, 40 km of arterial road and freeway shoulder bus lanes, and 11 Park & Ride lots. As well as 160 vehicles providing specialized transit for persons with disabilities.

Current and anticipated demographic growth has resulted in the design and construction of a new electric under-ground light rail system. The new light rail project is expected to take 5 years to complete and cost 2.1 billion dollars. This transit system will be a highly functional route alignment that will bring Ottawa together through faster, easier transportation to, from and across the City's downtown. The project has been identified as a priority to the Ottawa Fire Service to insure personnel are trained and equipped to handle emergencies regarding this new infrastructure.

Ottawa also has passenger and freight rail lines within city limits. The inter-city passenger rail service through ViaRail is mandated by the Government of Canada. The central terminal is located 4 km from downtown Ottawa and includes rapid inter-city services, cross-Canada services, and services to remote communities. Although the freight railway is owned by Canadian National Railway, CN has very little rail traffic

through Ottawa. A freight storage yard in the southeast part of the metropolitan core of the City temporarily holds several freight cars with minimal amounts of cargo.

The City of Ottawa contains three airports that accommodate all types of air traffic daily. The largest airport is the Macdonald-Cartier International Airport and is Canada's sixth busiest airport by airline passenger traffic and fifth busiest by aircraft movements. The airport is classified as an airport of entry by NAV CANADA and is staffed by the Canada Border Services Agency. It is located in the south end of the City, 10 km south of the downtown core.

The other two smaller airports handle private aircraft for both passengers and freight, and operate daytime flights only. The Rockcliffe Airport is a former military base and is a 'non-towered' airport located on the south shore of the Ottawa River, 7.4 km northeast of the downtown core. Carp Airport is located 35 km southwest of downtown Ottawa.

The Ottawa Airport Emergency Rescue Service (ERS) was founded in 1995, when it took over rescue and fire protection responsibilities from the Department of National Defence, it provides first due fire and rescue services for the Ottawa International Airport. Its services are provided to the highest standards as prescribed by Canadian Aviation Regulation (CAR) as an operational and regulatory requirement. The Ottawa Fire Service provides backup and support of ERS objectives on an as required basis based upon aid agreements and Standard Operating Procedures. The OFS is dispatched to airside incidents on a response priority level, low, moderate and high based upon the seriousness of impending emergency or incident that has occurred.

The Ottawa Fire Service provides initial fire suppression and rescue services for the smaller two airports within the limits and responds on all initial response for emergencies at the McDonald- Cartier Airport.

Component B - Services Provided

Ottawa Fire Services provides an “all risk” response to the residents of the City of Ottawa, as well as the buildings and highways covered under Provincial and Federal jurisdictions, and when requested, to the international embassies and consulates located within the Nation’s Capital. This response capability includes, but is not limited to; fires, auto extrication, medical services, hazmat response, technical rescues (water, trench, collapse, confined space, and high angle), fire prevention, education and investigations. Figure 5 shows a breakdown of the City of Ottawa’s 3 year emergency responses by incident response types.

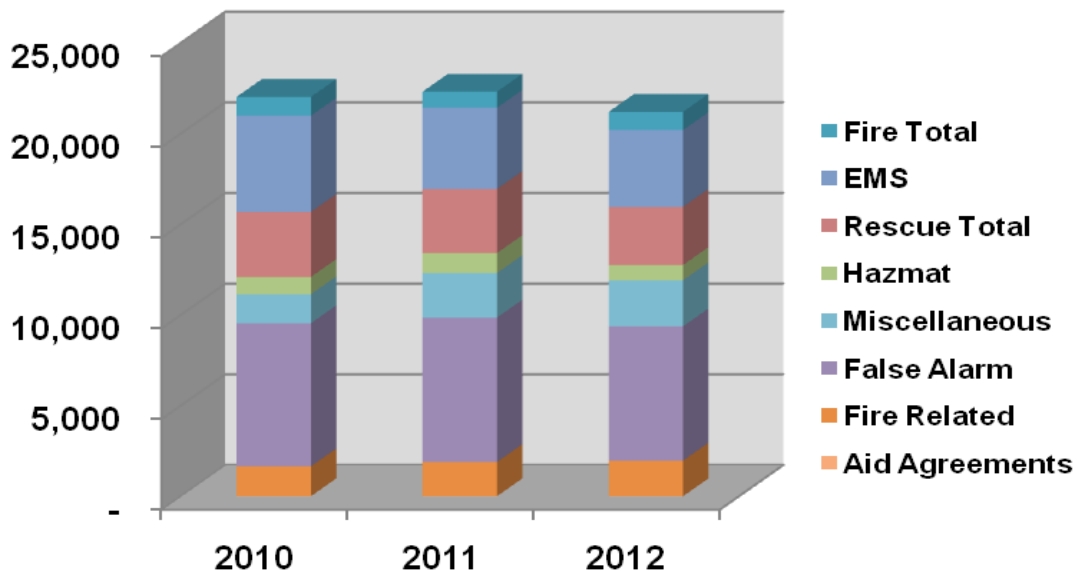


Figure 5 - Emergency Incident Response Type Distribution 2010-2012

Ottawa Fire Services consists of forty-five (45) fire stations strategically located within the City based on population density and road networks. Career firefighters staff twenty-nine (29) urban stations (5 of which are composite stations with a combination of career and volunteer resources). Volunteer firefighters service sixteen (16) rural stations. Together, this professionally trained emergency service responds to over 25,000 incidents annually.

Ottawa fire stations are equipped with a pumper truck capable of delivering, a minimum of 6000 Liters per minute (1500 gal), with 1890 liters (500 gal) of on board water supply, ground ladders and both hi-volume supply and fire attack hose lines. Each pump is staffed with a minimum of 3 firefighters and one officer in the urban stations² and several firefighters and officers in each rural station. Many stations are equipped with a combination of pumper trucks, ladder trucks, tankers, rescues and specialty vehicles

² With the exception of Station 45 which has a “support unit” with compressed air foam system, staffed with one officer and one firefighter with limited pumping capacity 500 gpm and no ladders.

according to the individual needs of the response areas. (See Table 5 & 6 for station staffing and resources)

Fire and rescue services are dispatched utilizing the best station response to the emergency. The City of Ottawa is divided into nine response districts which are broken down into 45 station response zones and further broken down into four hundred and thirteen (413) separate response grids.

Each grid has a station line-up recommendation based on best response to the grid. Grids are attached to modifiers which recommend the required resources in order to fulfill the established running assignments (see Appendix Exhibit E.1). Vehicle recommendations are provided by CAD based on this grid and modifier attached to the incident. Vehicle move-ups are manually performed in CAD when vehicles change response zones due to cover-offs, training, etc in order to ensure best vehicle response. The OFS presently has nineteen vehicles equipped with mobile data terminals (MDT's) and global positioning satellite / automatic vehicle location (GPS/AVL) capability. New vehicle purchases now include the installation of both MDT's & GPS/AVL systems. Some of Ottawa Fire Services vehicles also have traffic pre-emption capabilities; new architecture development is in place to increase and improve these abilities.

Service Delivery Programs

Fire Suppression Services

The Ottawa Fire Service is staffed and equipped to provide effective fire suppression services to the community. A typical first response includes two pumps, one ladder and a District Chief or Sector Chief (depending on service area).

In the urban districts when a working structure fire is declared an additional; two (2) urban pumps, Safety Officer, Urban RIT pump, Urban Accountability pump, Heavy Rescue, Rehab Unit and an additional District Chief are dispatched.

In the rural districts when a working structure fire is declared an additional; two (2) rural pumps, Safety Officer, Urban RIT pump, Heavy Rescue, Rehab Unit, and an additional Sector Chief are dispatched.



(photo credit Scott Stilborn)



Responses into urban areas by volunteer firefighters are governed by the Collective Bargaining agreement between the Ottawa Professional Firefighters Association (OPFFA) and the City of Ottawa.

Fire control strategies and suppression tactics involve a variety of response capabilities including but not limited to;

- Ability to properly size-up an emergency situation, control communications and establish command
- Assign tactical objectives in accordance with risk management principles
- Perform rescue operations, including, entering, conducting primary and secondary searches and the rapid removal of trapped, injured and distressed persons
- Offensive, defensive and transitional fire fighting strategies
- Tactics in residential, commercial, institutional, assembly and industrial structures and properties to control and extinguish fires
- Ventilation, overhaul and salvage operations to conserve contents and limit property damage
- Wildland firefighting as well as aircraft fire suppression assault, in areas without foam capabilities
- As part of an overall Health and Safety Management system, provide incident safety services at all “Fires and Activities” where “significant work” is performed

Administrative Chief Officers are “operations response capable” and respond to major incidents, as required, and are prepared to provide command functions to support the mitigation of an incident. These personnel include the Fire chief, 3 Deputy Chiefs and 6 Assistant Deputy Chiefs. For major incidents requiring the activation of the Emergency Operations Centre (EOC) located at Ottawa City Hall the Fire Chief or his designate is to respond to EOC and liaise with other departmental leaders. EOC is managed by the Office of Emergency Management (OEM) which oversees the integrated response to major incidents within the City of Ottawa.

Medical Aid Services

The chain of survival (multi-agency tiered response with paramedics, fire and police) is dependent upon rapid response. 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) in addition to splinting of fractures and

dislocation, Cervical Collar application and back boarding among other treatments to such injuries as required.

- Medical emergencies including basic medical aid for shock, hypoglycaemia, seizure, chest pain, cardiac arrest, Reactive Airway Disease (asthma), chronic obstructive pulmonary disease (COPD) and anaphylaxis among other medical emergencies.

All Ottawa Fire Services personnel are as Medical First Responders and assist the Ottawa Paramedic Services (OPS) on a daily basis in providing emergency medical aid to the citizens of Ottawa.



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 and complex emergencies.

The agency has twelve (12) first line rescue pumps located strategically throughout the City as well as rescue pumps in each rural station. Three heavy rescues in the urban area and three in rural sectors insure adequate response for vehicle and equipment extrications.

A total of twelve (12) stations, eight (8) urban and four (4) rural are designated as specialized rescue stations with advanced equipment and trained personnel. (Over 600 suppression personnel are trained to operations or technician (NFPA 1006 Technician 1 or Technician 2) level in at least one specialized rescue disciplines;

Specialized rescue stations include;

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 water and ice rescues. In a City such as Ottawa that has prominent waterways running throughout, this service is invaluable to ensuring public safety to citizens and visitors. The water



rescue program consists of four career and two volunteer stations providing certified Water Rescue specialists, rescue vessels, appropriate PPE and equipment for Ice, Swift water, and vessel based rescues. The department receives approximately 100 water rescue emergencies per year.



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 learned must be regularly maintained. OFS personnel have attended trench and collapse training through third party institutions. There are four career stations with equipment and certified technicians capable of dealing with structural collapse, confined space, trench emergencies and high angle rescue. Many of these technicians are also involved with the medium USAR program which provides consistent high level training.

Auto Extrication

All Ottawa fire personnel are trained with regards to basic auto extrication. Personnel who work on a heavy rescue are trained to a higher degree with regards to complex rescues involving 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.

Hazardous Materials and CBRNE Services (HAZMAT)

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 respond to NFPA 472 technician level. It is the only full time hazmat team in the area of eastern Ontario and responds provincially for hazmat emergencies when requested.

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 recently added a vehicle designated IHAT (Initial Hazard Assessment Team) to 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.

Fire Prevention and Public Fire Safety Education

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 – any fire greater than \$50,000 or any fire which results in injury or death will be investigated by Fire Prevention personnel and or the Ottawa Arson Unit or Ontario Fire Marshall.

Educational programs have been initiated to assist the public in understanding the importance of fire safety. Modern service delivery and deployment of resources has been adopted to streamline efficiencies through mobile office and the use of technology. The mobile office initiative encourages the use of technology to reduce waste and enhance field reporting through the use of electronic communication tools.

Further details of the services provided by the division include;

- Fire prevention inspections - upon receiving a complaint or a request to inspect

- Proactive inspections of vulnerable occupancies identified in a community risk assessment
- 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 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 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 all elementary schools
- "Wake up Ottawa", a fire prevention initiative which focuses on informing residents of the importance of having a working smoke alarm and how they need to be installed and maintained
- Participates in post-incident evaluations, which examine fire ground effectiveness, building performance, occupant behaviour and fire service program effectiveness to review comprehensive fire safety effectiveness in the community.



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 a sixty five (65) member medium USAR team 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. This Task Force is fully trained and capable of;

- 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
- Independently operating for a maximum of 24 hours
- It is important to recognize that the OFS personnel comprise over 60% of the USAR team members.

Communications Division

Ottawa Fire Services Communications Division is an integral part of emergency scene management from the onset of the incident to its completion.

Often viewed as the nerve centre of the fire department, the Communications Division directly impacts on the ability of OFS to provide effective fire protection and emergency response to the City. As the first point of contact in emergency or life threatening situations, this division is equipped with the technology and systems to receive calls from the public and from other emergency agencies. Overall, Communications encompasses a computer aided dispatch center, portable and fixed radios, pagers, station alerting systems including printers, mobile data terminals, as well as the antennas, towers and infrastructure to support the system. Staffed on a twenty four hour, seven days a week (24/7) basis, Communications' personnel are trained to handle all types of emergency and non-emergency calls.

The time line of an emergency event starts by the receipt of the first call for assistance that comes in directly to the Communications Centre or down streamed by the primary PSAP 9-1-1 Centre (Ottawa Police). After obtaining the information required and determining the nature of the situation, the appropriate fire apparatus are dispatched. The Communications Division is responsible for radio communications with on scene personnel, arranging for additional resources and equipment, and liaison with other agencies as needed notifying various internal and external agencies to assist with the emergency as required.

The Ottawa Fire Communications Division through its dispatch center is responsible for capturing the various time stamps that are essential for performance reviews of fire response times. All required data is recorded and stored as required for legal, system maintenance, and training purposes. The division also contributes to reduced intervention time, injuries, loss of life and property due to fires and other emergencies and creates a safer working environment for the for emergency responders.

Operational Staffing Levels, Equipment and Station Locations

The Ottawa Fire Service organizational structure is broken down into four sections under the Fire Chief's office. These sections are;

1. Operations and Special Operations
2. Community Standards, Education, Planning, Safety and Innovation
3. Communications and Asset Management
4. Business Continuity and Project Management

Each division, with the exception of Business Continuity and Project Management, has an Assistant Deputy or Division Chief assigned to oversee the daily operations. Table 4 reflects the total uniformed and non-uniformed personnel figures for 2012. See Appendix Exhibit E.2 for the Ottawa Fire Service divisional breakdown organizational chart.

Table 4 - 2012 Fire Personnel by Division

ORGANIZATIONAL SECTIONS	PERSONNEL	
Fire Chiefs Office		7
Operations and Special Operations Division		1,400
Career Firefighters	903	
Volunteer Firefighters	486	
Community Standards, Education, Planning, Safety and Innovation Division		72
Communications and Asset Management Division		42
Business Continuity and Project Management Division		3
TOTAL		1,524

Succession planning is critical to the organization to insure the best possible services are maintained for the community. Ottawa Fire Services plans and maintains a career recruitment process to attract, select and retain qualified personnel as necessary. The training division oversees this hiring process and coordinates the recruitment campaign with the City of Ottawa's department of human resources. The OFS received an average of two thousand career applications during each of the last several recruitment campaigns.

Ottawa Fire Services accepts applications from potential volunteer firefighters throughout the year. Hiring is based on current and projected needs. Applications are screened and short listed by the appropriate Sector Chief. OFS receives an average of 400 volunteer applications yearly.

As Ottawa's population becomes more diverse there is an expectation that the Ottawa Fire Service hiring processes maintain high standards for fairness, equality and impartiality. OFS has made great strides in reaching out to all communities in an effort to further diversify its workforce. As part of this ongoing effort the OFS created the Female Firefighters In Training (FFIT) program. The program is run by female fire personnel and is targeted at young women who may wish to become firefighters. The camp has proven to be quite successful and popular and stands as a progressive example of the efforts the OFS is making with regards to diversity outreach programming and service improvements.

Ottawa Fire Services maintains a minimum* of one hundred and sixty one (161) career suppression personnel on duty, staffing apparatus at twenty nine (29) urban/suburban stations. Within the career service, there are four platoons (A, B, C, D) each managed by a Platoon Chief and five District Chiefs (Figure 6). There is one Safety Officer per platoon for the entire city. Each platoon works a 42 hour work week in staggered 24 hour shifts. All apparatus are staffed according to the minimum staffing clause contained within the collective agreement between the City of Ottawa and the OPFFA (career firefighters). 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. The vehicles do not respond without the proper staffing.

All firefighters are trained to the minimum Ontario Standard Curriculum which meets or exceeds NFPA 1001/ 1002, including awareness training in special operations. Over 600 suppression personnel are trained to operations or technician level (NFPA 1006 Technician 1 or 2) in one of the specialty areas. The Ottawa Fire Service meets and exceeds the St. Johns Ambulance protocols for its certified level of care.

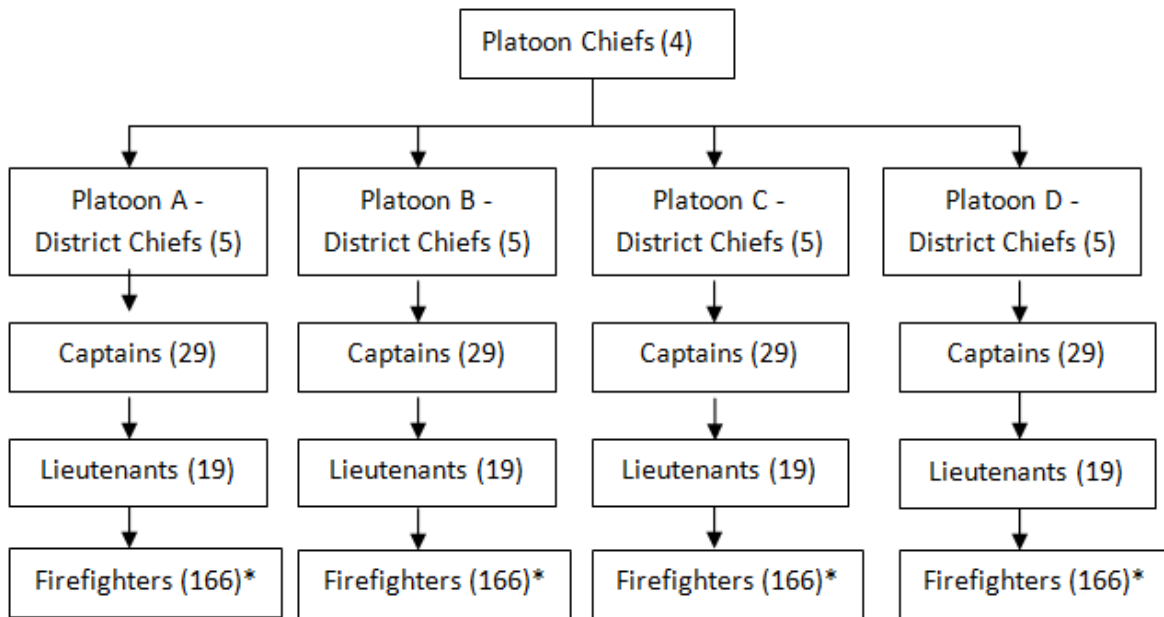


Figure 6 - Platoon Staffing Structure (Career service)

**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.*

In addition to the minimum career suppression personnel, the Ottawa Fire Service maintains four (4) volunteer districts, each with a career Sector Chief and a total of four hundred and eighty six (486) volunteer firefighters (2012 figure) for sixteen (16) fire stations (Figure 7). Firefighters are assigned to specific stations based on their primary residence. In order to serve at a rural station you must live or work within the response grids of that station. The agency maintains 16 rural stations 24 hours a day 7 days a week, on top of the five composite fire stations (Stations 41, 42, 45, 46 and 53) housing both career and volunteer suppression personnel.

Volunteer firefighters respond to their primary station through a paging system which is activated through the communications division. Or, they respond directly to the location of the alarm in their own private vehicles. As part of Rural Operations, the “I am Responding” system has been installed in twenty fire halls and at the Dispatch Centre. This system is Internet based and relies on firefighters having convenient access to a telephone. The installation hardware in a fire hall consists of a small computer and a strategically mounted fifty inch monitor.

Among the benefits of this system, Chief Officers and the Dispatch Centre are able to determine the number of firefighters available and responding within minutes. Furthermore, rural firefighters arriving at a station are able to determine who is responding in order to efficiently split crews efficiently among responding apparatus.

The pager notification system is capable of performing numerous functions and will assist OFS with managing the rural component of emergency responses.

Volunteer staffing levels per station fluctuate year over year, this is partially due to turnover as some become career firefighters or move away however an attempt is made to maintain a minimum of twenty (20) individuals per station to a maximum of twenty five (25). Each station has a captain and four (4) lieutenants as part of its compliment.

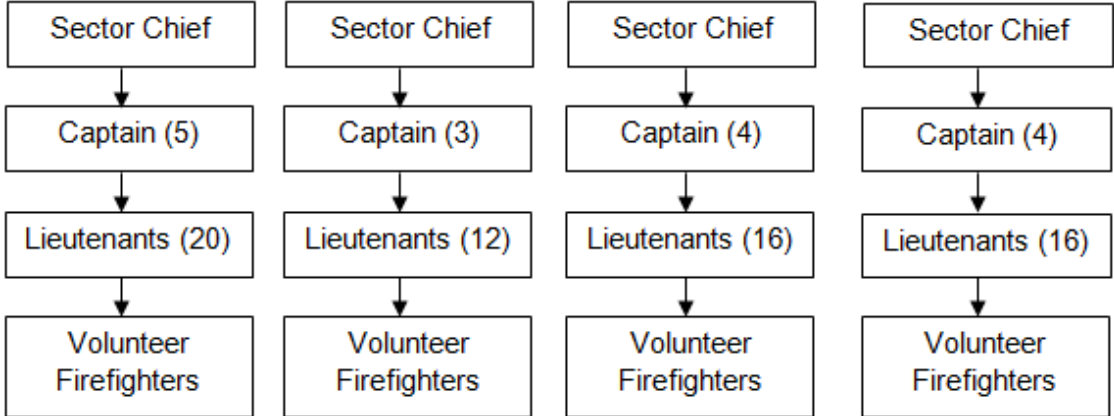
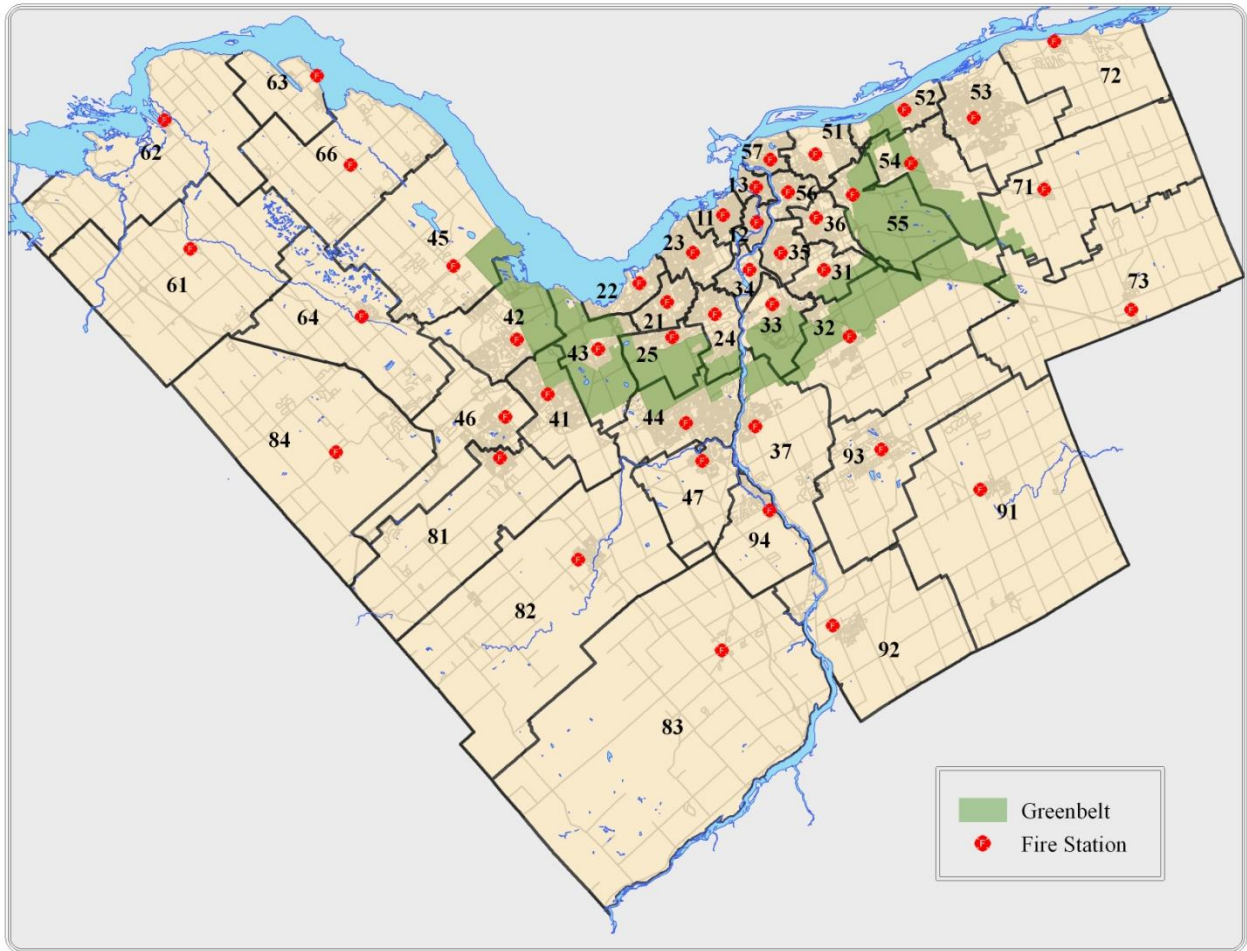


Figure 7 – Staffing Structure (Volunteer service)

All Pumps, Tankers, Ladders, Rescues, Brush Trucks and Water Rescue apparatus are staffed by volunteer firefighters responding to the station, consequently response numbers may vary depending on firefighter availability.



Map 3 – The Ottawa Fire Services Fire Station Distribution Map

The points of service delivery (stations) and distribution of operational resources across the City are summarized in the following tables (Table 5 & Table 6). The apparatus highlighted in red indicate ones that may go out of service if needed due to staffing levels. The highlighted stations are composite stations, and have both career and volunteer firefighters staffing the apparatus where needed.



Table 5 - Career Fire Station, Staffing and Apparatus

District/ Station	Age	Min / Max Staff	Pumper/ Staff	Ladder	Rescue	Pump Tanker	Other
Central #1							
11	1985	8 / 12	A-4 B-4	3			District Chief, Water Rescue Unit, Boat
12	1974	7	4		3		
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	6 / 9	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, Command Vehicle
32	1996	4				4	
33	1983	4 / 7	4	3			
34	1987	4	4				
35	1992	7	4	3			
36	1997	4	4				
37	2005	7		3		4	Water Rescue Unit with Boat
Deep-West #4							
41	unk	5	4			4	District Chief and Foam Truck
42	unk	7	4	3			
43	1990	7	4		3		Technical Rescue unit
44	1979	4	4				USAR Unit
45	unk	2					Tanker and Support unit
46	2011	4	4			4	
47	2012	7	4	3			Technical Rescue unit (CBRNE)
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	1972	4	4				
56	1986	4	4				
57	1987	4 / 7	4	3			Foam Truck
TOTAL STAFFING		160/180					



Table 6 - Volunteer (Fire Station, Staffing and Apparatus)

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



Component C – Performance Goals and Community Expectations

Performance Goals

Mission

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

Vision

Ottawa Fire Services will be a modern and integrated fire service that operates seamlessly, employs highly- productive and highly-motivated people, uses innovative practices and technology and strives to improve every day.

Values

Standing together, working together, and serving together, as reflected by;

- Teamwork
- Honour
- Integrity
- Commitment
- Pride



Ottawa Fire Services has begun implementing its Strategic Plan, taking into consideration the broader strategic priorities of the City of Ottawa and specifically the Department of Emergency and Protective Services (EPS). From the Strategic Plan Ottawa Fire Services' mission, vision and values statements were established. This, in turn, generated a blueprint on what the branch plans were to achieve and how results were to be measured.

The four main pillars of the Strategic Plan are;

Service Excellence: Delivery of quality services to the public and OFS' staff by measurably increasing the culture of service excellence by proactively identifying opportunities to improve technology, collaborate with other organizations and strengthen public education and prevention.

Governance, Planning and Decision-Making: Achieve measurable improvement and contribute to informed decision-making by focussing on increasing planning capacity and establishing useful and credible performance measures and reports.

Employee Engagement: Recognize, support and engage staff through recognition, recruitment, diversity training, health and wellness and succession planning.

Financial Responsibility: Be financially responsible to the residents of Ottawa by practising prudent fiscal management of existing resources and by making sound, long-term choices that allow services to be sustainable now and into the future.

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 also 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. Figure 8 shows that 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.

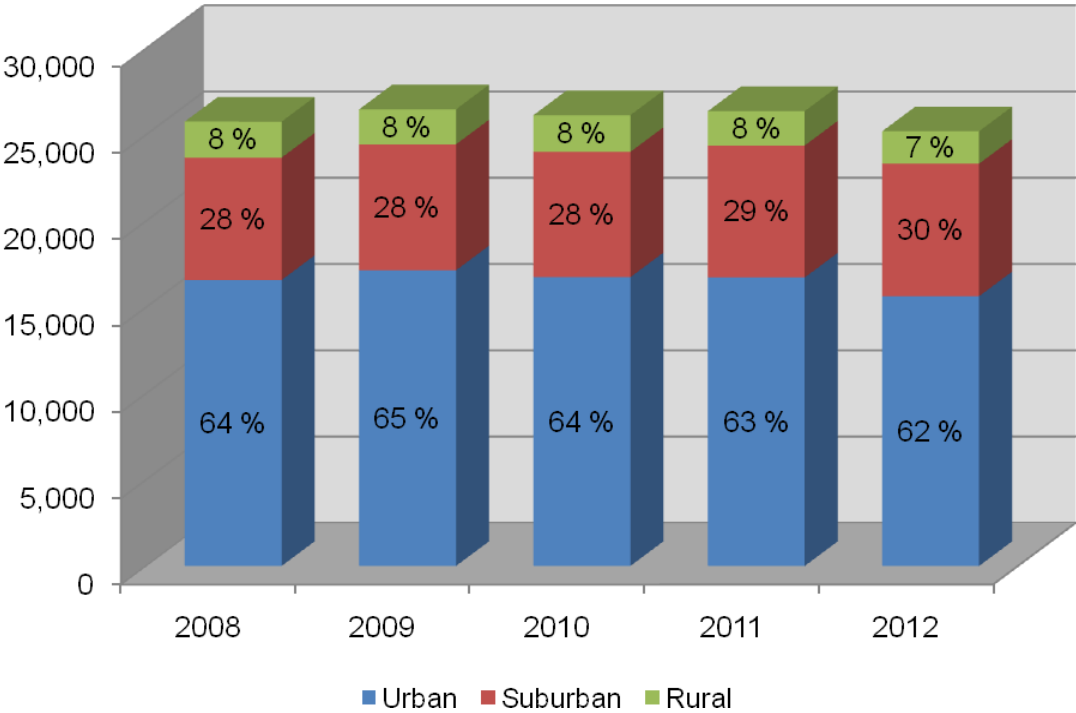


Figure 8 – 5 yr Incident Volume for Urban/Metro, Suburban and Rural Service Area Designations

The primary goal of Ottawa Fire Services is to provide effective and timely emergency services (staffing and equipment) in an effort 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. All OFS baseline performance for 2010-2012 has been reviewed and summarized; they are displayed in Tables Table 31 through Table 34

Ottawa Fire Services through its prevention, education and outreach initiatives, investigate a number of options to quantify community expectations. In the summer of 2013, the OFS contacted a number of accredited and non-accredited departments to gather information on their community surveys and the relative success of these. These surveys are currently being reviewed. A number of research and marketing companies in the Ottawa area are being contacted to determine costs and best methodologies to gather this information. OFS recognizes that any survey undertaken will be particularly challenging due to the diverse geographical and demographic composition of the City. Any survey must be weighted to include a representative sampling of urban, suburban, and rural populations.

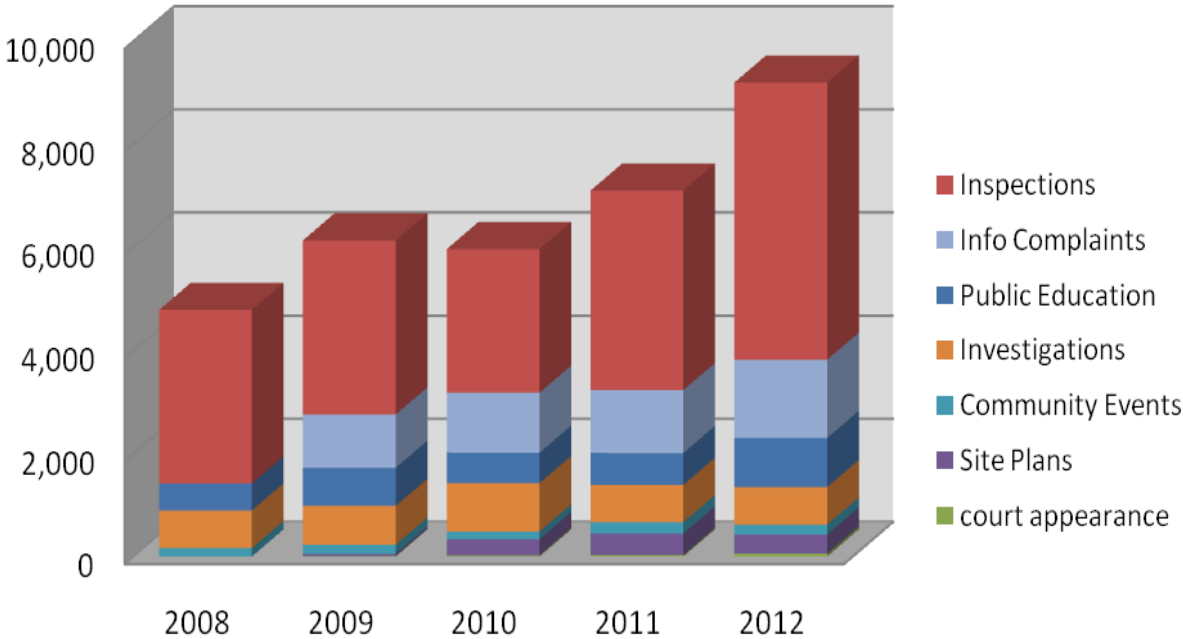


Figure 9 - Community Standards Activities 2008-2012

Figure 9 shows the increase in Community Standard activities over the past 5 years. Though it is difficult to attribute as the sole element, increased public awareness through preventative fire education programs, and enhanced fire safety standards all play a significant role in decreasing the number of fires in the city. This correlation

between increased community standards activities and decreasing trend in the number of fires in the City of Ottawa is shown in Figure 10.

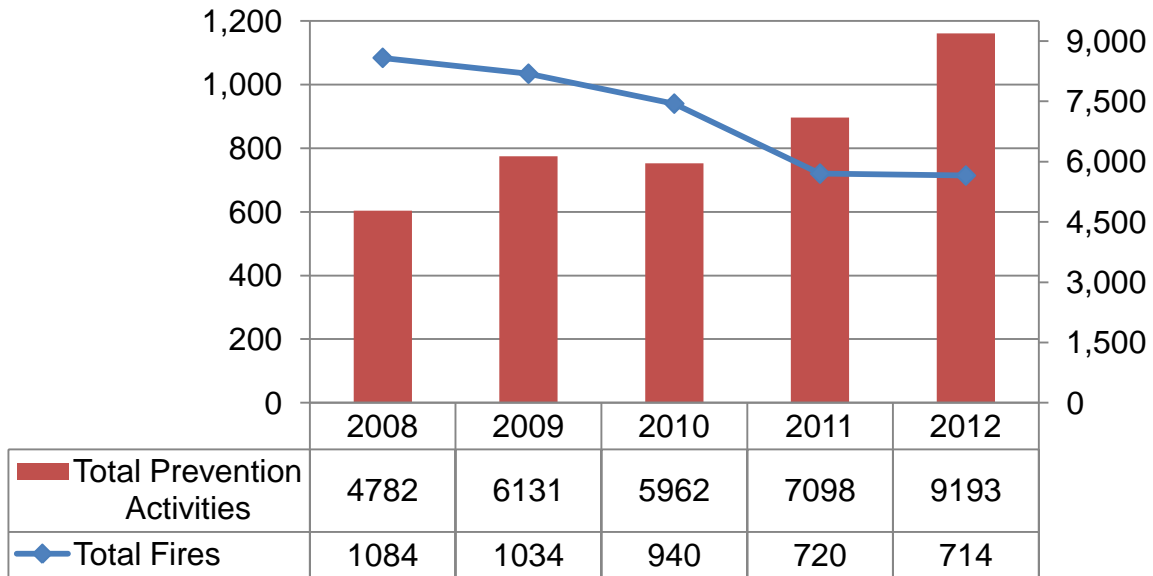


Figure 10 - Community Standards Activity Effectiveness 2008-2012
 Analysis shows that a large percentage of civilian and firefighter injuries, 89% and 70% respectively, occur at residential properties (Figure 11). Over time and with increased public education and safety regulations these figures are expected to show a decrease.

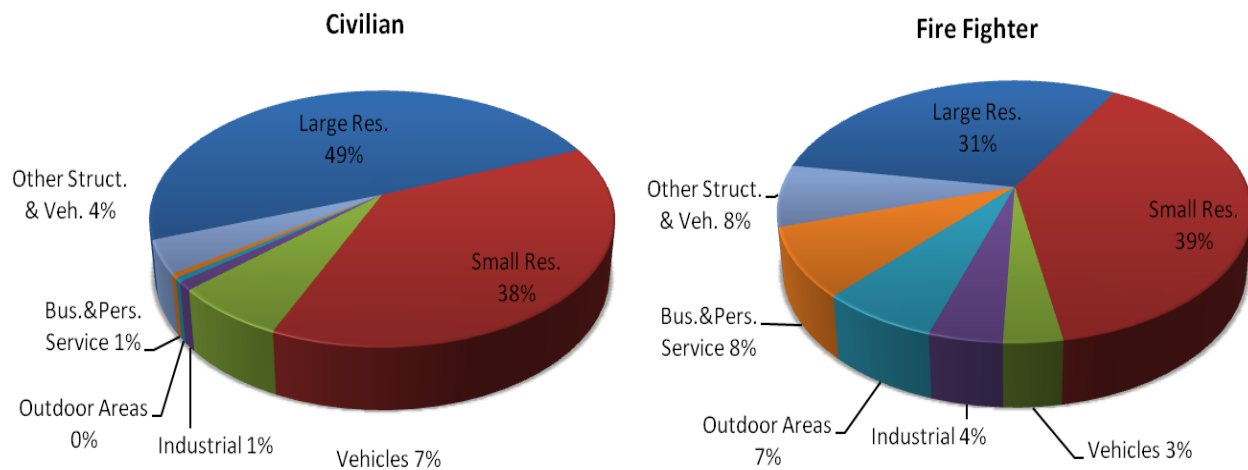


Figure 11 - Civilian and Firefighter Injuries 2009-2012

The City of Ottawa as conducted external client surveys to measure Ottawa citizen’s satisfaction with specific experiences with city services. Among the City services the Ottawa Fire Service has consistently led all other services with overall community satisfaction of programs and services provided. Harris/Decima³ was last commissioned in 2008 to conduct this tracking study (Figure 12) on behalf of the City of Ottawa.

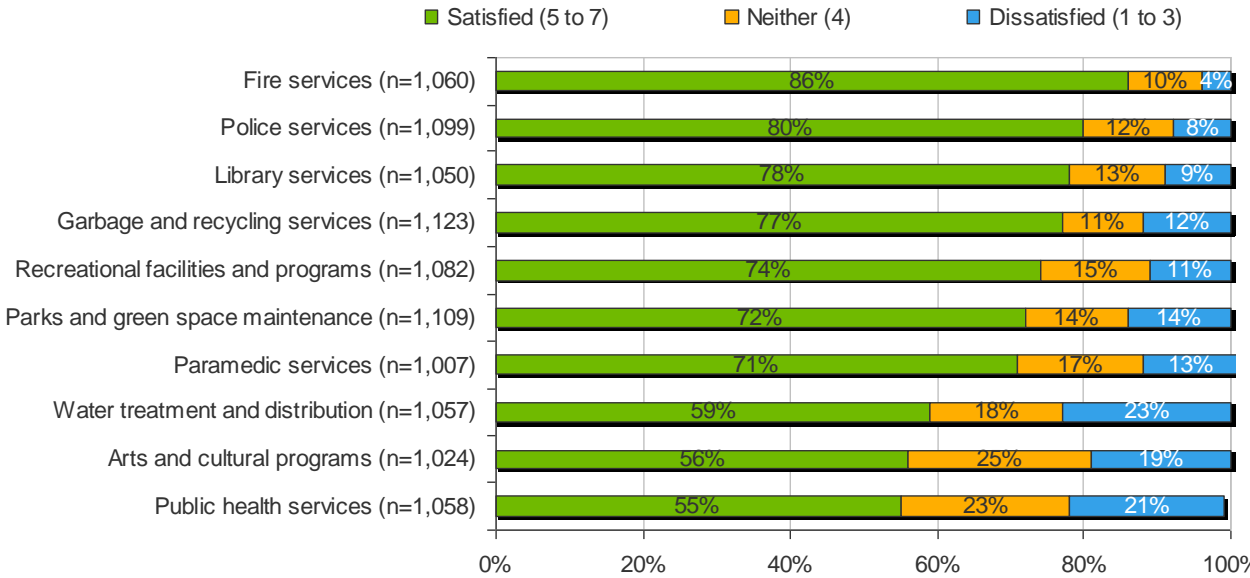


Figure 12 - Citizen Satisfaction Survey of City Services 2008

³ Source: Harris/Decima, 2008 Citizen Survey

Component D - Community Risk Assessment and 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 in an effort to assess the community risk level and match the appropriate initial and effective responses to the emergency incident.

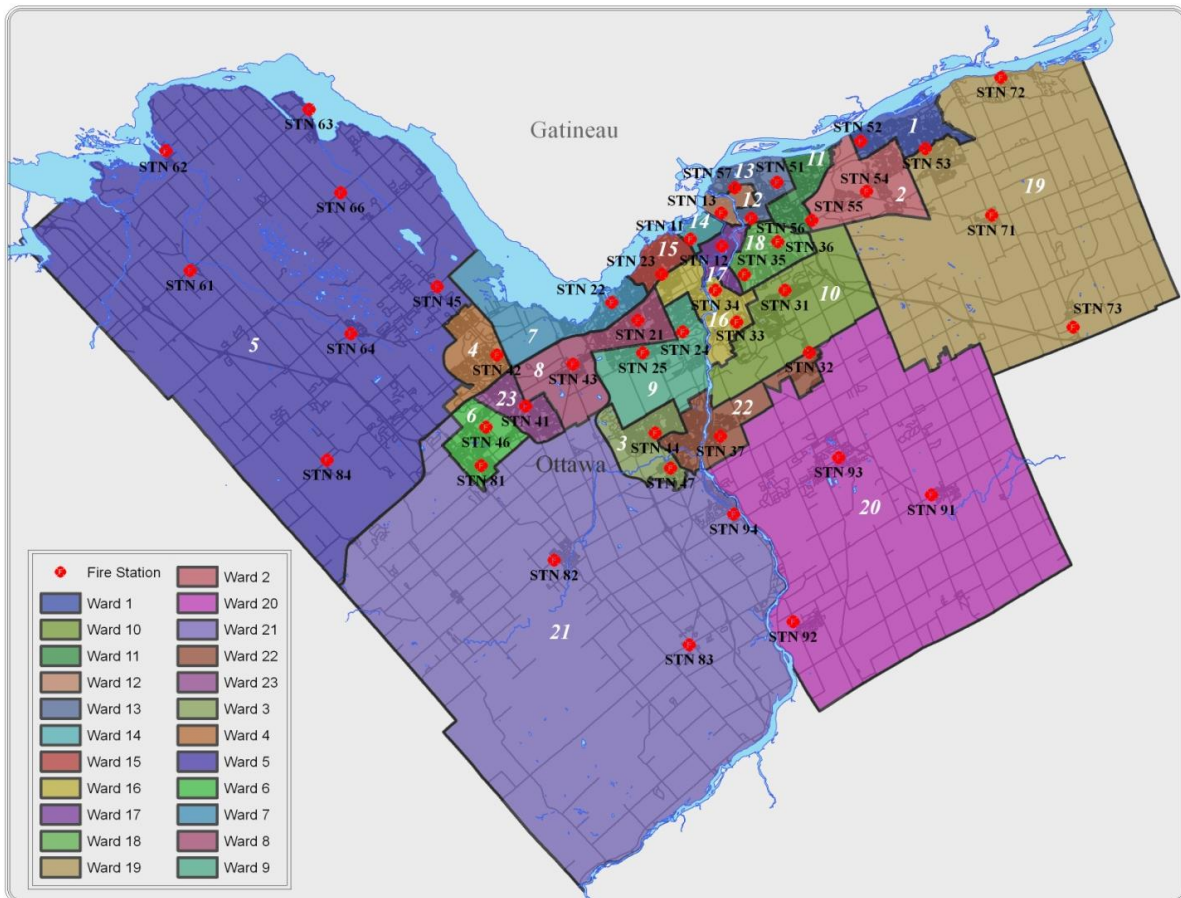
Community Risk Input Factors

In building upon "Community Served" (Component 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 three (23) political wards representing urban, suburban, and rural communities (Map 4). The urban/metro wards of the City are contained within a greenbelt. While the urban/metro wards are smaller in physical size, they encompass the commercial and economic hub of the City.

The urban/metro areas contain many of Canada's federal government complexes, museums, art galleries and buildings of national significance. The communities outside the greenbelt that are not considered rural are primarily residential in nature with the exception of high technology nodes and business parks in the western communities of 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 within 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 and Fire Stations

The City of Ottawa was developed in a grid pattern in the downtown core 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, development has taken on a curvilinear pattern which represents the development style post World War II. In many newer areas curved street patterns are a planning norm in an effort to calm traffic and reduce speeding on residential streets.

With the amalgamation in 2001, the City, like the regional government which preceded it, included significant rural areas, particularly to the west and south, which is approximately 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 has 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 into the suburban and rural areas.

The Rideau River and the Rideau Canal are barriers for developing connected road transportation systems. The Ottawa River to the north creates a natural boundary between Gatineau/Hull. There are 22 crossings along the Rideau River and 11 crossings along the Rideau Canal. Five vehicular bridges link the Cities of Gatineau and Ottawa near their respective core areas and two ferries provide access in the western and eastern edges of the communities.

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 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.

Transportation of Dangerous Goods Risk Factors

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.

Trucks transporting goods to and from the Province of Quebec routinely use the Rideau Street and King Edward Street corridors through the City's core. This is the only direct link between Highway 417 and the McDonald Cartier Interprovincial Bridge. This transportation route is one that flows through one of the more densely populated areas of the City; it is also an area that has been identified for more intensive residential development.

A significant event involving a large tanker or bulk chemical storage vehicle could result in the potential for a serious emergency incident.

After years of failed agreement, as to where a new bridge should be located between the federal, provincial, and municipal governments the City of Ottawa has commissioned a study into the feasibility of creating a tunnel linking Highway 417 to the Inter-provincial Bridge which would reduce the level of dangerous goods transported through high risk areas.

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 in an effort 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 poorly ploughed and ice covered roads. Snow storms 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 snow storms 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 in an effort 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 in an effort 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. 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 Emergency Measures Organization has defined the top rated disaster risks for Ottawa as follows;

- Earthquakes
- Critical Infrastructure Failure
- Summer/Winter Storms
- Wildland fires
- Hazardous Materials
- Terrorism/Public Safety
- Public Health

Earthquakes

The City of Ottawa is located within the Quebec seismic zone, and has had several earthquakes in the last several years. Examples include; 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. Earthquakes cause minor damage in the zone about once a decade. Smaller earthquakes are felt three or four times a year.

In the Ottawa-Gatineau, Que., region, the risk for seismic activity is the third highest in Canada, based on earthquake hazard and population, according to the Seismological Society of America.

Critical Infrastructure Failure

Infrastructure failure can refer to several different types of failure. For any city the failure of its water supply, electrical system, fuel supply and transportation systems could have a catastrophic impact on life safety and property.

In August 2006, a failure of the provinces electrical generation and distribution system plunged the City of Ottawa and much of the eastern North America into complete darkness. This failure resulted in an immediate and sustained demand for fire service response as people became trapped in elevators and several MVC's occurred due to the loss of traffic signals and poor street lighting.

The loss of all traffic control systems created increased response times and additional vehicle accident responses. The lack of backup power supply systems, in many of the fire stations, created problems for dispatching apparatus and responding personnel. The sudden spike in emergency incidents forced the Ottawa Fire Services' communications center to queue calls based on priority in an effort to organize scarce resources.

In recent history there have not been any failures in the supply of natural gas (NG) to the residents and businesses of the City. Failure of the NG supply, particularly during the winter months, would cause a significant problem for a majority of the urban residents who primarily heat their homes and water with natural gas.

There is an expectation that fire responses would rise dramatically due to the improper use of alternate heating sources. Historically the improper use of heating materials such as kerosene heaters, camp stoves, candles etc. may result in emergency responses for carbon monoxide poisoning, fires and medical assistance.

The City is currently reviewing a proposal for a trans-Canada oil pipeline passing through its southern sector to a refinery in eastern Canada. There is always a concern about the potential risk of spills, which can pollute ground and water supplies and pose an environmental and health risk. However approval of the pipeline falls under federal and provincial jurisdiction and the City of Ottawa has no control in its approval. Therefore Ottawa Fire Services will adapt accordingly.

The water supply of the City is very well planned and maintained but has had failures in the past several years. Failures usually occur in the form of water main leaks and breakage, the two main causes of these failures, are freezing temperatures which causes the ground to heave, or leaking pipes which washes away the support base.

The Woodroffe Avenue transmission main, in the west end, failed in January 2011. The failure created a large hole across three traffic lanes and caused serious traffic disruptions. The rupture of the 1200 mm pipeline caused a reduction in water availability for fire fighting and reduced water supplies for approx. 80,000 people. During this time the OFS's superior tanker shuttle service abilities became increasingly relied upon. It took four months to repair the pipe and resulted in the need for Ottawa Fire Services to work with various City agencies in the development of a water supply and protection plan for the Barrhaven area. The City of Ottawa has been extremely pro-active in ensuring water works personnel are available when large fires occur.

Summer/Winter storms

For six days in January 1998, freezing rain coated Ontario, Quebec and New Brunswick with 7-11 cm (3-4 in) of ice. Trees and hydro wires fell and utility poles and transmission towers collapsed, causing massive power outages, some lasting as long as a month. The Ottawa Fire Service was severely delayed in response due to wires and trees across the entire city road network. It was the most expensive natural disaster in Canada. According to Environment Canada, the ice storm of 1998 directly affected more people than any other previous weather event in Canadian history.

- 28 people died, many from hypothermia or CO poisoning
- 945 people were injured
- Over 4 million people in Ontario, Quebec and New Brunswick lost power
- About 600,000 people had to leave their homes
- 130 power transmission towers were destroyed and over 30,000 utility poles fell
- Millions of trees fell, and more continued to break and fall for the rest of the winter
- Estimated cost of the ice storm was \$5,410,184,000
- By June 1998; 600,000 insurance claims totalling more than \$1 billion were filed

Summer storm events happen regularly from May to September. These events can vary from mild to severe and frequently involve lightning, micro bursts and heavy downpours of rain and hail occasionally resulting in flooding. There have been two confirmed tornadoes over the past 20 years and both of which were mild in nature; F0's on the Fujita scale.

Wildland fires

In 2012 Ottawa dealt with a large wildfire in an area of the greenbelt which provided limited access for apparatus and equipment, this allowed the fire to intensify quickly and threaten some residential homes. April through August is typically when the City receives a number of grass/ brush fires. The greatest threat to the community is within the urban-wildland interface areas (built up areas surrounded by green space). The key is to mitigate these incidents quickly. The service has added brush trucks to the fleet within these locations for quick response and equipment distribution. Four mobile trailers have been outfitted with equipment and 500 sets of wildland PPE have been purchased (2013/14). Heavy water bombers are may be available from the Ministry of Natural Resources to assist with fire control and suppression activities.

Hazardous Materials

Hazardous materials travel through the City corridors, are stored in warehouses and laboratories and are part of the reality in any major city. However, as the city of Ottawa is not heavily industrialized, large stockpiles of chemicals for industrial manufacturing and processing is not a serious consideration for Ottawa Fire Services. A high concentration of laboratories is more a concern especially in relation to the possible improper storage of chemicals. Fires have occurred in laboratories at the National Research Council and Ottawa University in the past.

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 is a target for terrorism. On January 6, 2013 the National Post reported that Canada was on a list of terrorist targets found in a raid on Osama bin Laden's compound.

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

History shows that Ottawa is not immune from terrorist attack, or from the affects 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'.

In an effort to share information, pertaining to potential security threats, the Assistant Deputy Chief of Operations is an invitee to the Integrated National Security Enforcement Team (INSET) conferences held in Ottawa. Ottawa Fire Services administrative chiefs receive weekly updates from INSET about 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 civil disobedience. The Operations Division is also included in all meetings involving the RCMP or Ottawa Police pertaining to protests and demonstrations. This 'seat at the table' enables the Special Operations Chief to plan and forecast resource allocation in a timely fashion. OFS enjoys a strong relationship with regards to cooperation on security related issues as they pertain to the CBRNE, Haz-Mat and other specialty team response.

Public Health

Events such as the SARS outbreak in 2003, which killed approximately 775 people worldwide, 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. This outbreak caused changes in the operations of Ottawa Fire Services, Paramedic Service and Police Service as well as health care personnel. Health related incidents were drastically reduced to the OFS in 2003 to avoid the exposure of so many emergency health care providers. It was recognized that, by not limiting exposure, OFS could be rendered ineffectual within a short period of time.

Physical Assets Protected

The types of properties and structures involved in incident responses were analyzed based on specific property group categories.

Analyses showed that residential properties represent the largest percentage of the property breakdown (87%) and structure counts (95%) within the city and were also where incident responses (53%) were most likely to occur.

Commercial properties occupy two (2) percent of the City, yet are where fifteen (15) percent of incident responses occur. Vacant land is another large property type group, with seven (7) percent of the City total and twelve (12) percent of the total incident responses over a 3 year period.

The breakdown of incidents and the property type groups in which they most commonly occurred over a three year period are shown in Table 7. Further breakdown and analysis of property types and occurrence of incident responses are shown in Table 8, Table 9 and Table 10.

Table 7 - Property Groups with Structure and 3 yr Incident Counts

Property Group (Code)	Property Count	Percent of Total	Structure Count	Percent of Total	Incident Count	Percent of Total
Residential (300)	220,694	87.0%	445,314	94.5%	1,985	53.4%
Vacant (100)	18,230	7.2%	668	0.1%	437	11.7%
Farm (200)	5,604	2.2%	20,933	4.4%	245	6.6%
Commercial (400)	5,185	2.0%	1,542	0.3%	547	14.7%
Industrial (500)	2,103	0.8%	149	0.0%	167	4.5%
Special & Exempt (700)	968	0.4%	935	0.2%	116	3.1%
Institutional (600)	725	0.3%	1,528	0.3%	210	5.6%
Government (800)	78	0.0%	134	0.0%	13	0.3%
Total	253,587	100%	471,203	100%	3,720	100%

Table 8 - Residential Property and Fire Incident Statistics 2010-2012

Property Code Group - Residential				
Property Code Sub-Group	Property Count	Structure Count	Incident Count	% of Incidents
Single family detached	155,784	326,766	913	46.0%
Multi-residential, with 7 or more self-contained residential units	959	954	299	15.1%
Residential Condominium Unit	821	992	168	8.5%
Row housing, with seven or more units under single ownership	264	347	164	8.3%
Row housing, with two to six units	36,985	72,148	154	7.8%
Semi-detached residence	16,380	28,112	100	5.0%
Residential property with three to six five self-contained units	3,176	4,659	69	3.5%
Typically a Duplex – residential with two self-contained units	3,093	4,870	45	2.3%
Cooperative housing	97	111	18	0.9%
Group Home, Rooming, Boarding	187	301	16	0.8%
Mobile home / park	58	112	12	0.6%
Link home – at footing or foundation	1,947	3,962	9	0.5%
Residence with commercial	286	764	8	0.4%
House-keeping cottages	657	216	10	0.5%
TOTALS	220,694	444,314	1,985	100%

As a percentage, detached and semi-detached residential units accounted for more than three quarters of the total residential properties and over half (51%) of the residential fire incidents in a three year period. For the same reporting period, row housing and properties with two to six units account for twenty (20) percent of the residential properties and are where a large percentage (21.8%) of the residential incident responses occurs. Larger multi-unit and condominium units accounted for only one (1) percent of the residential properties however are where twenty four (24) percent of the incident responses.

Table 9 - Commercial Property and Fire Incident Statistics 2010-2012

Property Code Group - Commercial				
Property Code Sub-Group	Property Count	Structure Count	Incident Count	% of Incidents
Smaller Shopping centre	751	82	188	32.8%
Large office building	766	22	84	14.6%
Big box shopping / centers / department stores	745	142	79	13.8%
Automotive repair or dealership	709	80	77	13.4%
Retail or office with residential unit(s)	723	412	47	8.2%
Restaurant / tavern	295	11	26	4.5%
Small Office building	601	402	22	3.8%
Parking	155	0	21	3.7%
Hotel	83	32	10	1.7%
Banks	66	1	7	1.2%
Commercial condominium	50	2	5	0.9%
Marina	9	8	3	0.5%
Communication towers/buildings	73	6	3	0.5%
Driving range/golf centre or course	129	255	2	0.3%
Retail lumber yard	4	2	0	0.0%
Cinema/movie house/drive-in/concert hall	9	0	0	0.0%
Campground	17	91	0	0.0%
TOTALS	5185	1548	574	100%

Analysis of commercial property types and the number of incident responses that occurred shows that the largest percentage of incident responses occurs in smaller shopping centres (33%) and large office buildings (15%).

Interestingly, as a percentage of the total property of units, fire incidents do not seem to vary based on commercial building types.



Table 11 - Institutional Property and Fire Incident Statistics 2010-2012

Property Code Group - Institutional				
Property Code Sub-Group	Property Count	Structure Count	Incident Count	% of Incidents
Schools	447	1178	125	59.5%
Post secondary education	35	192	29	13.8%
Old age/retirement home	108	30	18	8.6%
Other institutional residence	26	20	10	4.8%
Hospital, private or public	12	54	10	4.8%
Nursing homes, senior care	40	3	7	3.3%
Day Care	50	30	5	2.4%
Multiple occupancy educational institutional residence	4	20	4	1.9%
Provincial correctional facility	3	1	2	1.0%
TOTALS	725	1528	210	1

Analysis of Institutional property types and the number of incident responses that occurred at them shows that the largest percentage of incident responses occurs in school (60%) and post secondary education (14%).

Interestingly, as a percentage of the total property of units, fire incidents do not seem to vary based on commercial building types.

Vacant Building Risk

A relatively small number of vacant buildings exist throughout the City. These properties may pose various risks depending on the areas in which they are located. Vacant buildings tend not to be equipped with active fire detection systems which may result in unchecked fire growth prior to notification fires.

These buildings are commonly used by the homeless as places of shelter in the winter months. This type of use can pose a significant danger to fire personnel as they may be required to search for occupants in an unstable structure under fire conditions.

Ottawa Fire Services works in conjunction with the By-law and Regulatory Services, Building Code Services, Legal Services and the City's Heritage Services in order to identify these structures and pre-fire plan them accordingly. By-Law has the lead on these categories of properties due to overriding greater concerns pertaining to property standards and the City's mandate to preserve certain heritage properties that are currently vacant. The City is implementing a long term strategy to address vacant buildings using existing regulatory mechanisms.

Bylaw Services provides periodic updates on vacant properties to Ottawa Fire Services. The entire list of properties is kept in an updated database through the fire prevention bureau (see Appendix Exhibit E.3). Inspections are performed on these properties by the OFS to ensure that the sites are secure from unauthorized entry and if need be, identifies any security issues to either by-law or others. Property addresses are entered in CAD and FDM systems as “vacant buildings”. Emergency response personnel are advised that the buildings are vacant understanding that the integrity of structural members, fire stopping, and detection and suppression systems are not maintained. OFS personnel will be advised that interior fire attack is not to be performed unless there is confirmed evidence of an occupant at risk.

Fire Flow and Water supply

As water is the primary extinguishing agent for fire services, an adequate supply is essential in ensuring public safety. In order to adequately protect building assets it is critical that a water source be available with appropriate flow. Ottawa has an established and comprehensive urban and suburban water supply system which provides adequate flows to meet the needs of fire suppression for all fire risks.

Over the next decade the City has planned \$1.6 billion in infrastructure spending on water and wastewater upgrades and expansion. This expenditure represents 25% of all capital spending for this time period.

The City of Ottawa through its drinking Water Services is responsible for managing, producing and distributing water to approx. 750,000 residents and businesses in Ottawa. It is one of the largest clean water distribution systems in Ontario under a single authority. The water distribution system in urban Ottawa is based on a grid system that supplies water mains and fire hydrants throughout the City.

This continually expanding network of over 18,000 maintained hydrants and 4,000 privately maintained hydrants meet the requirements for firefighting purposes (minimum spacing based on density). Only forty (40) hydrants of the 18,000 fall into the low flow category of less than 1,900 lpm (500 Gpm); most of these are located on dead end mains. These locations are identified to responding fire companies. Pre-fire planning plays an important role in ensuring that fire personnel are aware of any water supply issues, for any given area of the City and responses are adjusted accordingly to ensure tankers and tanker/pumpers are dispatched as required.

Residential and commercial areas are planned based on density, zoning and land use zoning. The City of Ottawa design guidelines state that the minimum pressure in the water distribution system should be 40 psi, with a 20 psi residual being maintained during a fire.

The methodology used to determine fire flows in Ottawa is based upon several methods developed from a study commissioned by the City (See Appendix Exhibit E.4 -Water Flow for Firefighting Calculation Methodology). The report was adopted by the authority having jurisdiction (AHJ) as the method of choice for determining required fire flows due to the fact that in most cases, the Ottawa method resulted in values that met or exceeded the values shown from the OBC and NFPA.

From this methodology the following values (Table 10) were determined for several common building classifications and sizes.

Table 10 - Typical Fire Flow Values (Ottawa Fire Flow Method)

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	2500	284	3500	442	4500
COMMERCIAL	338	3500	734	6000	1566	9000
INDUSTRIAL	700	4500	1534	8000	3146	14500
INSTITUTIONAL	710	2500	2319	4500	3291	6000

In terms of risk analysis, the City of Ottawa supplies what is considered to be an unlimited pressurized water supply. A series of pumping stations, reservoirs and elevated storage tanks are located throughout the distribution system to pump and store water at sufficient pressure to meet all of the cities requirements. These stations and reservoirs are operated so that peak water-consumption demands can be met while a sufficient supply of water is available to meet extraordinary demands, such as fire-fighting requirements. In the event of a 3rd alarm fire or greater, dispatch is required to contact the City's water division to ensure that adequate pressures are maintained for firefighting.

Non Pressurized Water Supply Areas

The City of Ottawa has approximately 78% of its land area designated as rural or wilderness. These areas in addition to other small pockets are not serviced by water mains or fire hydrants and as such require the use of water tankers to supply water for firefighting.

Ottawa Fire Services maintains a fleet of twenty-five (25) water supply apparatus strategically located across the City to cover these rural areas. All these apparatus are equipped with pumps and quick dump devices to provide a means to deliver water to the fire scene.

There are one hundred and five (105) designated water fill sites that are reliable, accessible and strategically placed to provide water supplies for firefighting throughout the non serviced areas. These sites include underground storage tanks, dry or drafting hydrants, remote hydrant heads private pressurized systems and ice box drafting ports.



Ottawa Fire Services, through its training division, has created a comprehensive training package, including a video and Standard Operating Procedures for non-hydrant water supply.

FUS Accredited Superior Tanker Shuttle Service

The City of Ottawa has been recognized as a Fire Underwriter's Survey (see Appendix Exhibit E.5) Accredited Superior Tanker Shuttle Service. Obtaining this designation means that the Ottawa Fire Services' non-hydrant water supply system is recognized as having the equivalency to hydrant protection. This accreditation provides taxpayers, who reside in these areas, with reduced insurance premiums. To obtain accreditation, as a Superior Tanker Shuttle Service, fire departments must commit to maintaining a high standard of organization, and practice delivering the service regularly. The fire department must be able to show, through testing and documentation, that it can continuously provide reliable water supplies in excess of the minimum required for hydrant urban water supplies.

Growth and Development

Within the greenbelt, growth is projected to reach 591,000 by 2031 which would represent a modest increase of 51,000. The suburban areas outside the greenbelt are projected to grow by 68%, an increase from 291,000 in 2011 to 432,000 in 2031. With these projections comes increase in urban density, infrastructure needs, along with an anticipated demand for emergency response and the need for proper planning.

Over the next twenty (25) years a significant change in demographic growths is expected as the "baby boomers" will continue to lead the most significant age group. This demographic will account for almost 50% of the population growth to 2031, the elderly will more than double from 29,000 to 59,000. This trend has created a larger increase in higher density retirement apartments and nursing homes. Of major concern from an emergency perspective is the extra assistance the elderly may require in regards to evacuation. Fires in these occupancies can quickly exhaust on scene

personnel resources. This group will also place a higher demand on medical resources and emergency medical response. Figure 13 shows the continued increase of the aging population (45 and over) occurring inside the greenbelt while this demographic group is decreasing in size outside the greenbelt.

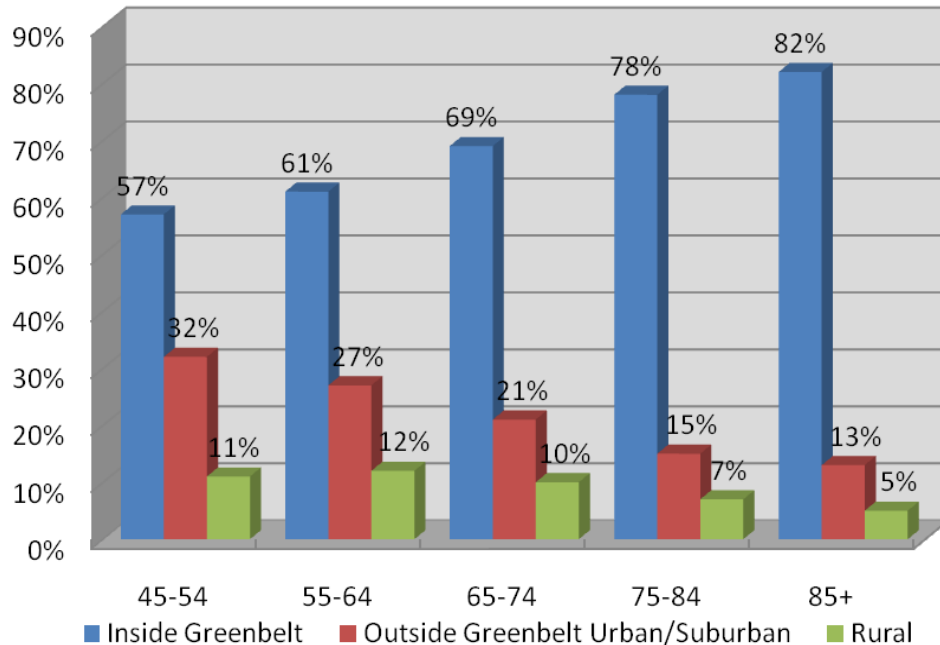


Figure 13 - Geographic Distributions for Population Aged 45 and Over (2006)

Demographic Risk

Ottawa Fire Services must ensure new immigrants to the community understand the fire hazards and emergency response system within the City. New citizen should be involved in fire safety programs in an effort to remove any language or cultural barrier with regards to public service provision. 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 report 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.

Transient Risk

By day the urban/metro population increases as a large percentage of this influx is suburban residents commuting to work into the core of the City increasing traffic congestion, and increases the likelihood of delayed emergency responses to MVC's.

Throughout the year the City hosts major events such as the G20 and other Government summits, conventions, large festivals and sporting events. Ottawa Fire has a process in place for planning and coordinating with other agencies for these events; this includes pre-inspections of sites, emergency access, and liaising with the Ottawa police, RCMP and the military when required. Large events such as "Canada Day" require a full staff compliment and "on site" units to insure prompt emergency services.

Table 11 shows the workday influx of population, Inside the Greenbelt (IGB) this becomes 27% larger during the average day.

Table 11 - Transient Population Movement (2011 estimates)

Place of Residence	Place of Work			Ottawa			Ottawa
	IGB	UC	Rural	Sub-Total	Quebec	CRR	Total All
IGB	198,000	17,500	2,700	218,200	11,500	175	229,875
UC	83,000	48,000	3,000	134,000	4,700	155	138,855
Rural	21,500	8,200	12,000	41,700	900	180	42,780
Ottawa Total	302,500	73,700	17,700	393,900	17,100	510	411,510
Quebec	53,900	2,600	750	57,250	87,650	30	144,930
CRR	9,450	1,575	800	11,825	600	4,200	16,625
Total	365,850	77,875	19,250	462,975	105,350	4,740	573,065

Abbreviations: IGB = Inside Greenbelt (inside the outer limit of the GB), UC = Urban Centres outside the Greenbelt, CRR = Clarence-Rockland and Russell

With a steadily increasing population, pressure is put on the City and Ottawa Fire Services to plan the infrastructure and services to meet the needs of tomorrow. Municipal growth is monitored by the planning department through the development of Community Design Plans. These plans identify the types of structures that will be allowed and the infrastructure, roads and utilities, which will be required to service them.

Using these plans, 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 tool.

Within the greenbelt, growth is primarily based on an intensification and revitalization policy initiative in an effort to concentrate population growth where infrastructure and transportation services exist.

Ottawa's skyline has been stunted due to building height restrictions on the height of the Peace Tower and its visibility from specific view corridors as established by the federal and municipal governments. The height ceiling was 92.2 metres (302 ft) for many downtown office and residential towers.

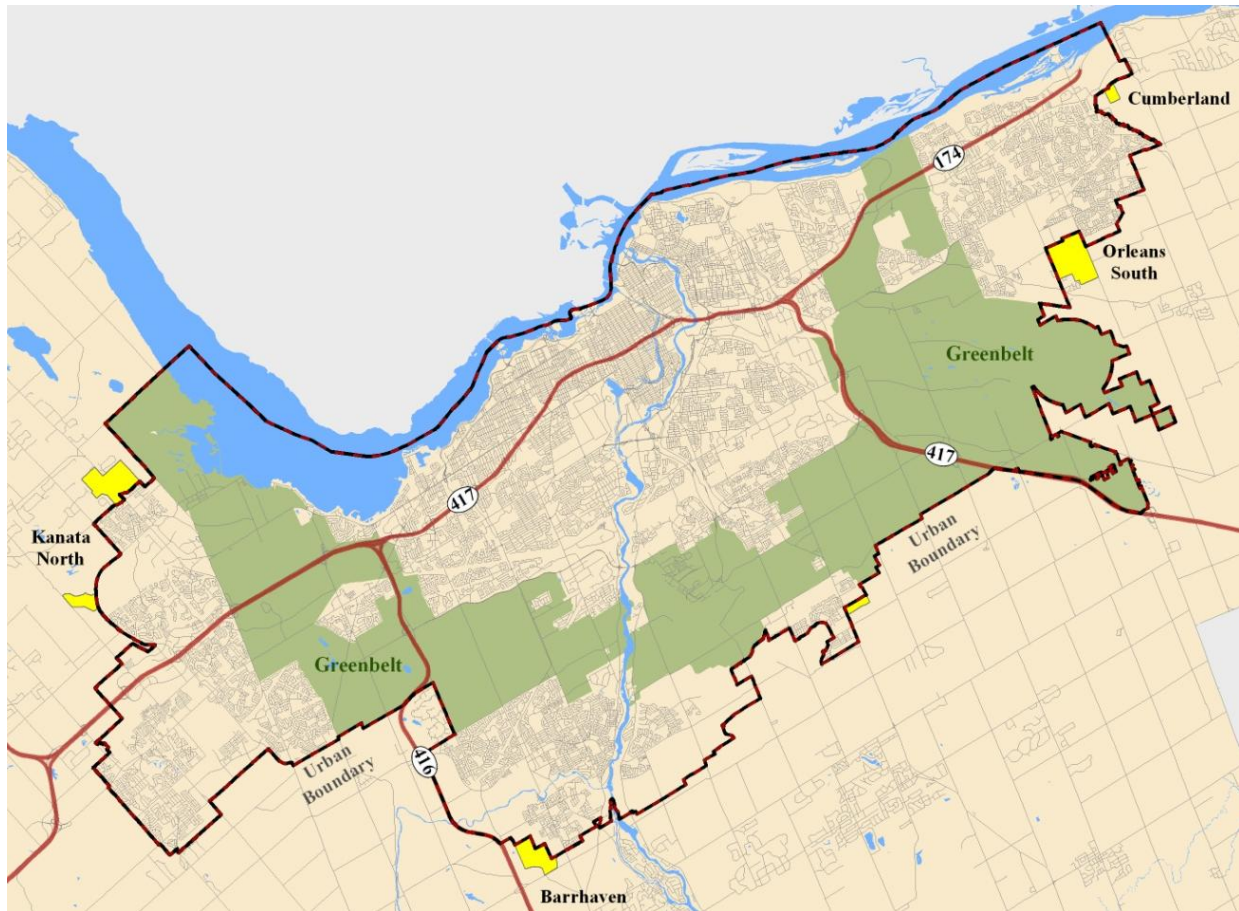
However, several buildings are slightly taller than the Peace Tower, with the tallest located on Albert Street being the twenty-nine storey Place de Ville (Tower C) at 112 metres (367 ft). The need for intensification has resulted in an easing of building height limits especially in the southern portion of Little Italy on Preston Street where residential condominium towers as high as 45 stories have been approved.

Large projects such as "Light Rail, "Lansdowne" redevelopment, and a number of high rise condominiums are currently in the final stages of construction. Fire station locations in the urban core adequately cover these areas (see distribution maps 12-22) but travel times may be adversely effected by the number and intensity of infrastructure and building construction projects.

Growth Areas: East, West, South

The City zoning bylaws control construction limitations within the City; the purpose of these by-laws is to regulate land use and the location of buildings or structures. Obvious examples would include restrictions on development in flood plains and in areas where Leda clay can pose problems for foundational stability. More importantly to Ottawa Fire Services, there are proposed developments of high risk buildings in areas such as rural communities where the concentration of fire resources is limited. All by-laws and City regulations are available to citizens and developers through the City of Ottawa website (www.ottawa.ca).

In the suburban areas of the City, growth continues to push development outwards, particularly in the areas of Kanata North, Cumberland, Orleans South, and Barrhaven which are represented in yellow on Map 5. Growth within rural communities is predominantly limited to single family residential homes or small agricultural businesses.



Map 5 - Urban Expansion and Community Development Areas 2012

Station Location Development

Determining the most efficient station locations has progressed from an estimation of future population growth to a sophisticated process of comparing multiple data sources with the latest mapping technologies. It is important to understand the history and the rationale behind fire station location procedures within the City of Ottawa.

Ottawa Fire Services, at the time of amalgamation in 2001, underwent a review of its deployment model for fire stations by “risk, rather than by artificial former municipal boundaries.”¹ To accomplish this task, OFS completed a “Best Station Response Model”. (A precursor to the current Station Location Study)

The information that formed the “Best Station Response Model” included an assessment of response time data, incident type/volume data, turnout time data, travel time data, development services, population and building densities, and future population projections.

In 2005, a Station Location Study was further refined and evaluated the following three factors;

- levels of risk throughout the city,
- desired response times to risk areas
- the speed at which fire resources could reach risk areas

The Ontario Office of the Fire Marshal and outside consultant “A Jump Beyond Inc.” participated in the development of the 2005 Station Location Study. Three years of historical fire response information, census building, projected growth and road network data was compiled and studied for the 2005 report. As a result, an in-depth Fire Station Location Study was completed.

The 2005 study supported the Ontario Office of the Fire Marshal’s Public Fire Safety Guideline for onsite staffing of 10 firefighters in 10 minutes, 90 percent of the time when the 5 min, 7 min and 14 min council approved standards could not be met it. This resulted in the 2007 staffing of the OFS Barrhaven fire station with 10 firefighters. Reports produced in 2008, recommended the creation of two new fire stations in the south and east ends of the City. In 2011, Station 46 in Stittsville was opened to provide service for the western growth of the City and Station 47 opened to provide coverage in the south end, specifically the community of Barrhaven.

The present Ottawa Fire Services 2013 Station Location Study has worked jointly with the CFAI Standards of Cover to ensure that OFS is providing the most efficient level of coverage possible based on potential and historic risk.

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 - Construction

When completed construction in a growth area meets or exceeds 50 % of its forecasted development and/or when the occupancy density is equivalent to or exceeds 50% of the

value forecasted, in an area zoned as residential, appropriate resources would be deployed to meet the approved level of service.

Trigger # 3 - 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 # 4 - 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 #5 - 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

Three years of emergency response data (2011-13) was used to produce an overview of the agency's historic service demands (Table 12). (2011 – 2013 Ottawa Fire Services Call data was used to comply with the requirements of updating performance indicators related to the CFAI Self Assessment Manual). 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 12 - Incident Response Type Distribution 2011-2013

Response Types Categories	2011	2012	2013	Grand Total	% of Total
Fire	1,117	1,277	1,009	3,403	4.6%
Medical	5,114	4,850	3,509	13,473	18.2%
Rescue	4,563	4,208	3,884	12,655	17.1%
Hazmat	1,326	1,030	1,166	3,522	4.7%
False Alarm	8,995	8,310	8,279	25,584	34.5%
Other	5,255	5,535	4,768	15,558	21.0%
Grand Total	26,370	25,210	25,210	74,195	100.0%

Table 13 and Table 14 further break these emergency incident responses down to the station response zones which display the service demands of individual stations. The results show that over 92% of Ottawa Fire Services total emergency incident responses occur in the urban service areas. Twenty four percent (24%) of the total incident volume occurs within the downtown core covered by District 1, sixty eight percent (68%) of the total incident volume occurs within the four urban/suburban Districts 2, 3, 4 and 5. The rural service area provides service for over seven percent (7%) of the total incident volume distributed fairly evenly over Districts 6, 7, 8 and 9.

Table 13 - Incident Response Types by Station Response Zones 2011-2013 (Volunteer Stations)

Response District / Station	Response Types						Grand Total	% of Total
	Fire	Medical	Rescue	Hazmat	False Alarm	Other		
District 6								1.4%
61	20	12	37	4	15	45	133	0.2%
62	17	24	28	17	20	63	169	0.2%
63	23	36	19	19	26	59	182	0.2%
64	26	36	88	24	86	77	337	0.5%
66	19	30	45	9	46	51	200	0.3%
District 7						0		1.4%
71	24	23	46	18	70	48	229	0.3%
72	21	57	90	25	119	108	420	0.6%
73	33	39	141	22	80	89	404	0.5%
District 8						0		2.3%
81	52	106	94	35	190	96	573	0.8%
82	33	71	102	46	116	106	474	0.6%
83	46	67	124	21	62	125	445	0.6%
84	28	28	55	24	41	64	240	0.3%
District 9						0		2.2%
91	28	61	80	22	102	87	380	0.5%
92	18	63	62	19	74	82	318	0.4%
93	26	79	116	40	135	142	538	0.7%
94	29	56	81	21	139	61	387	0.5%
out of jurisdiction							21	0.0%
Subtotal Volunteer	443	788	1,208	366	1,321	1,303	5,450	7.3%
Grand Total	3,403	13,473	12,655	3,522	25,584	15,541	74,195	100.0%

Table 14 - Response Types by Station Response Zones 2011-2013 (Career Stations)

Response District / Station	Response Types						Grand Total	% of Total
	Fire	Medical	Rescue	Hazmat	False Alarm	Other		
District 1								24.3%
11	217	982	705	265	2,122	1230	5,521	7.4%
12	101	539	415	183	1,229	713	3,180	4.3%
13	232	2,381	730	252	3,058	2686	9,339	12.6%
District 2								17.3%
21	103	500	510	139	779	479	2,510	3.4%
22	170	733	517	125	990	581	3,116	4.2%
23	137	681	719	217	1,526	798	4,078	5.5%
24	116	328	460	100	763	340	2,107	2.8%
25	60	213	242	63	253	194	1,025	1.4%
District 3								16.9%
31	73	309	254	82	531	245	1,494	2.0%
32	82	127	349	62	312	229	1,161	1.6%
33	96	300	361	77	647	404	1,885	2.5%
34	64	279	342	78	574	260	1,597	2.2%
35	126	513	546	160	1,419	696	3,460	4.7%
36	112	359	422	127	772	416	2,208	3.0%
37	33	100	126	48	316	120	743	1.0%
District 4								13.2%
41	96	369	329	93	624	365	1,876	2.5%
42	94	275	323	67	761	278	1,798	2.4%
43	64	233	323	69	459	238	1,386	1.9%
44	130	452	626	166	1,041	441	2,856	3.8%
45	33	48	60	31	128	97	397	0.5%
46	49	183	232	56	425	217	1,162	1.6%
47	21	45	69	19	156	43	353	0.5%
District 5								20.9%
51	104	545	333	97	1,035	501	2,615	3.5%
52	57	221	253	72	477	278	1,358	1.8%
53	182	510	536	155	1,146	485	3,014	4.1%
54	73	274	255	75	494	234	1,405	1.9%
55	67	188	542	55	314	231	1,397	1.9%
56	183	615	696	108	1,145	903	3,650	4.9%
57	84	383	172	113	766	536	2,054	2.8%
Subtotal Career	2,959	12,685	11,447	3,154	24,262	14,238	68,745	92.7%
Grand Total	3,402	13,473	12,655	3,520	25,583	15,541	74,195	100.0%

To determine the frequency of incidents the focus was on the time of day, month and year. The time of day chart below (Figure 14) shows a general increase in incident volume from 6 am to 5 pm and is consistent over the 3 year window of measurement. Fire related incidents are generally higher during the later part of the day with cooking related incidents leading the fire incident group. Peaks in rescues occur during the major commuting times of 8 am and 5 pm primarily as a result of Motor vehicle collisions (MVC's).

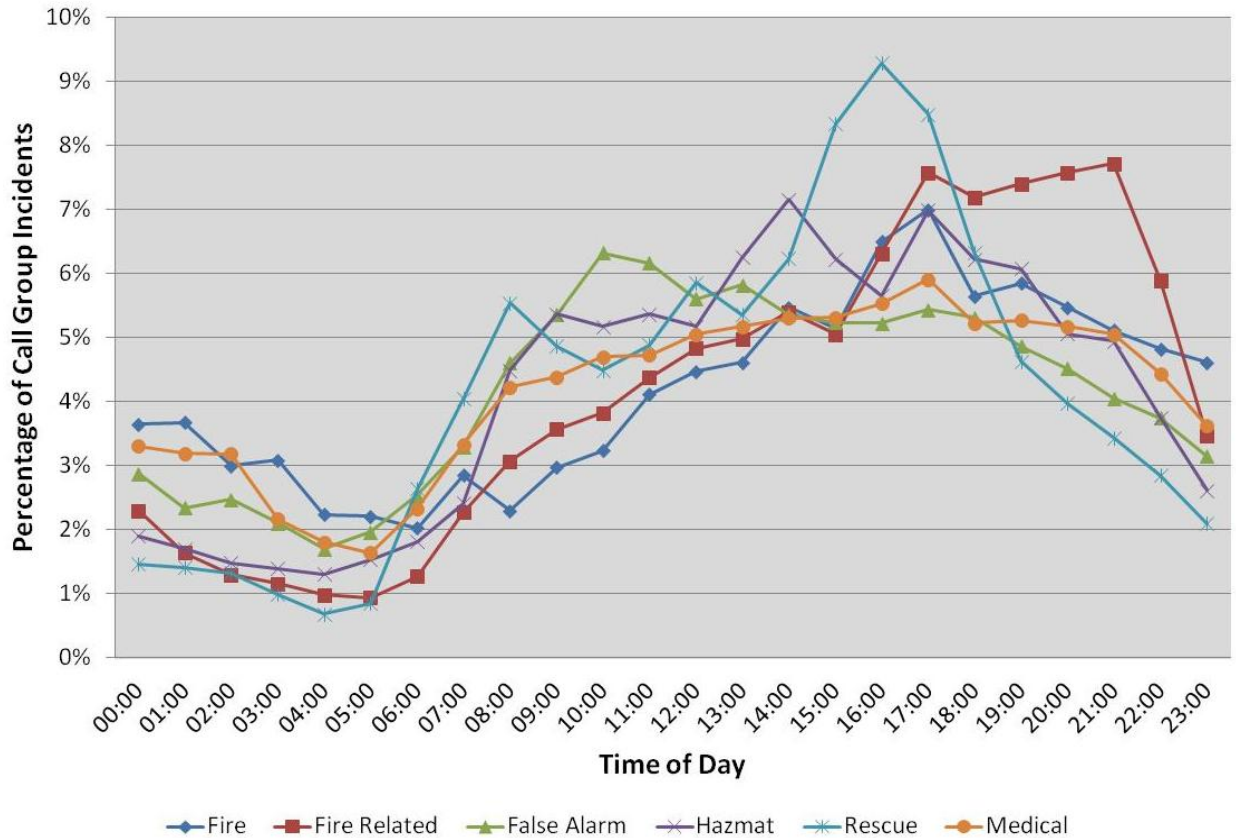


Figure 14 – Time of Day Analysis as a % of Incidents by Incident Group (2011-2013)

The time of year analysis (Figure 15) provides the agency a view of incidents throughout an annual cycle. Of note is the increase in fire related incidents between April and August, this increase reflects the additional grass fires the agency responds to during this time. December and January rescue incidents often increase due to the icy road conditions and inclement weather.

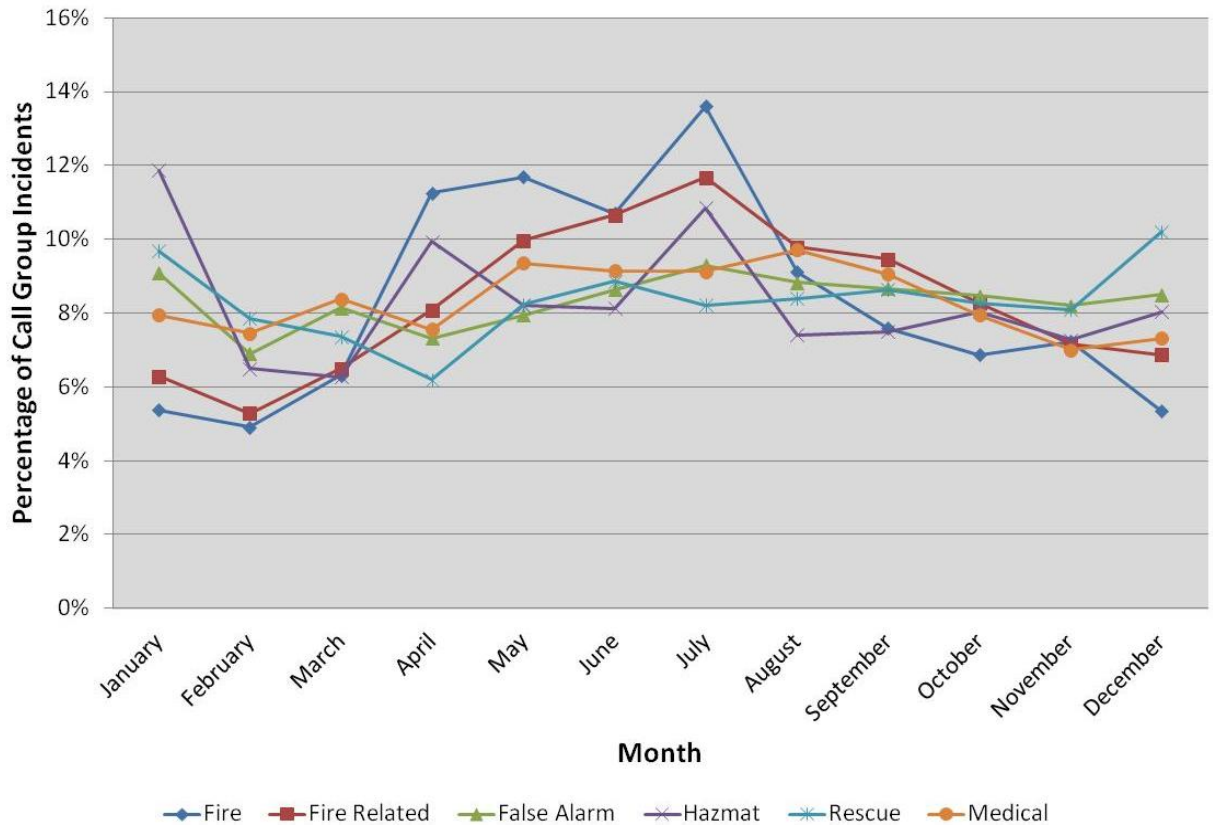


Figure 15 - Time of Year Analysis - % of Incidents by Incident Group (2011-2013)

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.

Investigation of industry standards

In 2008, the Fire Management Team requested that the process of developing risk values and assessment be recognized as an industry standard or approved by an outside agency. Additional work was undertaken to find a method that met a recognized standard. Of the several methods that were evaluated, a model known as the “Methods and Tools for Risk Assessment, Matrix Methods for Risk Estimation” by Dr. John Hicks of Ryerson University and Ms. Helle Tosine, Director of Inspections, Investigations and Enforcement (II&E) Secretariat was selected as a guide for the process.

This paper investigated and applied a matrix method as a tool for evaluating and prioritizing risks in the risk assessment step of a risk management framework. Matrix methods are usually semi-quantitative methods for risk assessment and as a preliminary analysis may lead to more quantitative methods.

For the Standards of Cover, the Ottawa Fire Service utilized the incident types from the OFM Standard Incident Reports⁴ (see Appendix Exhibit E.6) and historical data to help define probability and a risk value was determined for each type of incident category. This value was then used to place structures, areas, and incident types and hazards into the risk hazard classifications.

Risk = (probability of the incident occurring) x (expected loss or consequence)

Using probability (Table 15) and consequence rating matrices (Table 16) to define a value of probability and consequence for each type of incident that has historically occurred, a value for risk was developed using the Risk Rating Matrix (Figure 16). The break points to determine the separation of the risks into the categories were developed internally based on historical data. A detailed breakdown of all response types and property types categorized into risk levels can be referenced in Appendix Exhibit E.7 “Risk Matrix Development”.

The risk categories or values that were used for this process were approved internally as: Low, Moderate (level 1 and level 2), High and Special.

⁴ The Office of the Ontario Fire Marshal – Standard Incident Report Codes List January 2009

Table 15 - Probability Rating Matrix

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 16 - Consequence Rating Matrix

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.
		Property	Serious damage to infrastructure causing significant disruption to, or loss of, key services for prolonged period.
		Environment	Community unable to function without significant support.
		Environment	Significant long-term impact on environment and/or permanent damage.

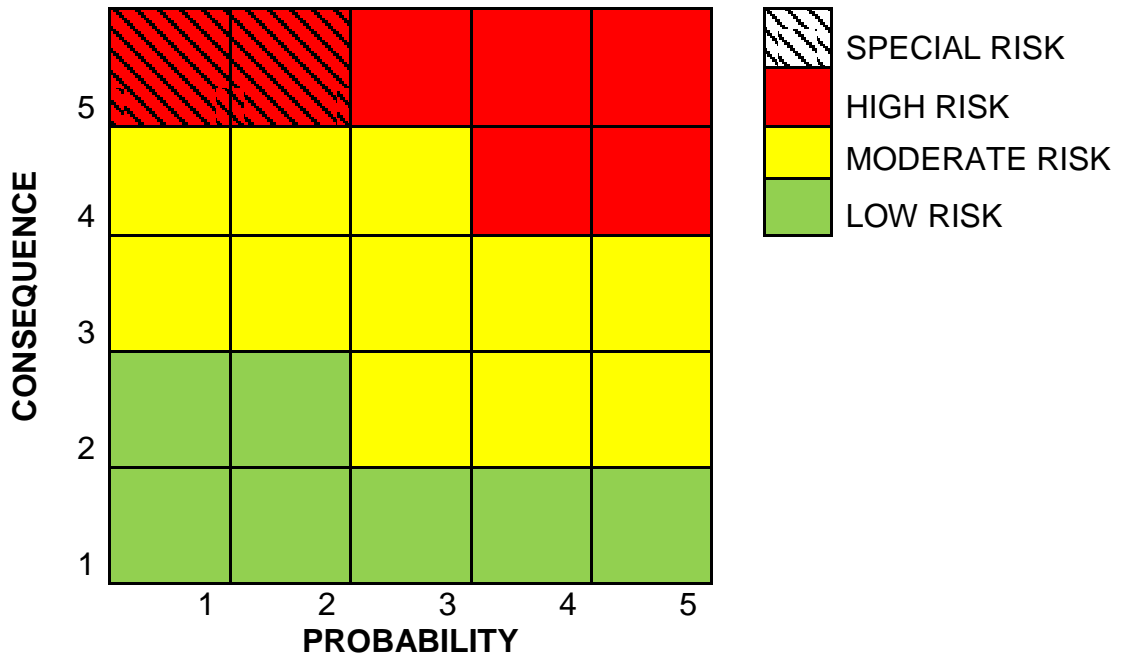


Figure 16 - Risk Matrix

Risk Hazard Classifications

(L) Low Risk... These risks are both unlikely to occur and/or are not significant in their impact (life, property loss). These are managed by a small or initial resource commitment. They require minimal monitoring and control unless subsequent risk assessments show a substantial change, prompting a move to another risk category.

Examples include; Grass/bush fire (no exposure), vehicle fire/w no exposure, small non-commercial structures remote from other buildings, i.e.; shed, dumpster, mobile properties, recreational parkland, downed wires, elevator rescues

(M) Moderate risk... This risk range includes built up areas of average size, where the risk of life loss or property damage due to fire in a single occupancy is usually limited to the occupants or small commercial or mercantile property. Concentrations of property may vary, but will generally be of limited extent. Localized damage and displacement of persons from residence, some inconvenience to community function- (road closures etc.) Effect on economy limited to small business/industry and localized impact on the environment.

Examples include; Detached single family residences; semi-detached multi occupancy, smaller multi-story dwellings, offices, mercantile and industrial occupancies not normally requiring an extensive rescue or firefighting force.

(H) High risk ... These risks have a high or probable likelihood of occurrence and their potential consequences are such that large numbers of people and property are affected. This includes built up areas of substantial size with a high concentration of property presenting a substantial risk of life loss, severe financial impact or unusual potential for damage in event of fire. This may mean that strategies should be developed to reduce or eliminate the risks and that mitigation in the form of (multi-agency) planning; exercising and training for these hazards should be put in place and monitored on a regular basis. These events require a large amount of initial resources for effective control.

Examples include; high rise buildings, schools, hospitals, high-risk commercial properties, entertainment venues such as cinemas, night clubs, theatres, nursing homes, Concentrations of older multi-storied properties offering substantial amounts of exposure and life loss potential.

Sp) Special risk ... Risks within this category are low probability with high consequences; this could include natural or manmade events. There is a potential for significant numbers of people to be affected (injury or fatality), large economic loss, displacement of residents or workers, and/or serious effect on community and environment. Often “special or technical rescue” intervention is required. The OFS does not have separate running assignments for special risk, as these emergencies currently fall under the “High Risk” classification.

Examples include; Residential premises of substantial size presenting abnormal risks where individuals are restricted in mobility or require 24 hr care such as hospitals or prisons, Special circumstances such as a large aircraft accident, large building collapse, or major hazmat incident. Within Ottawa this category also includes the major structures and agencies, which represent the political symbols and cultural heritage of Canada (e.g.; parliament, supreme court, etc).

Fire Risk Tools and Assessment

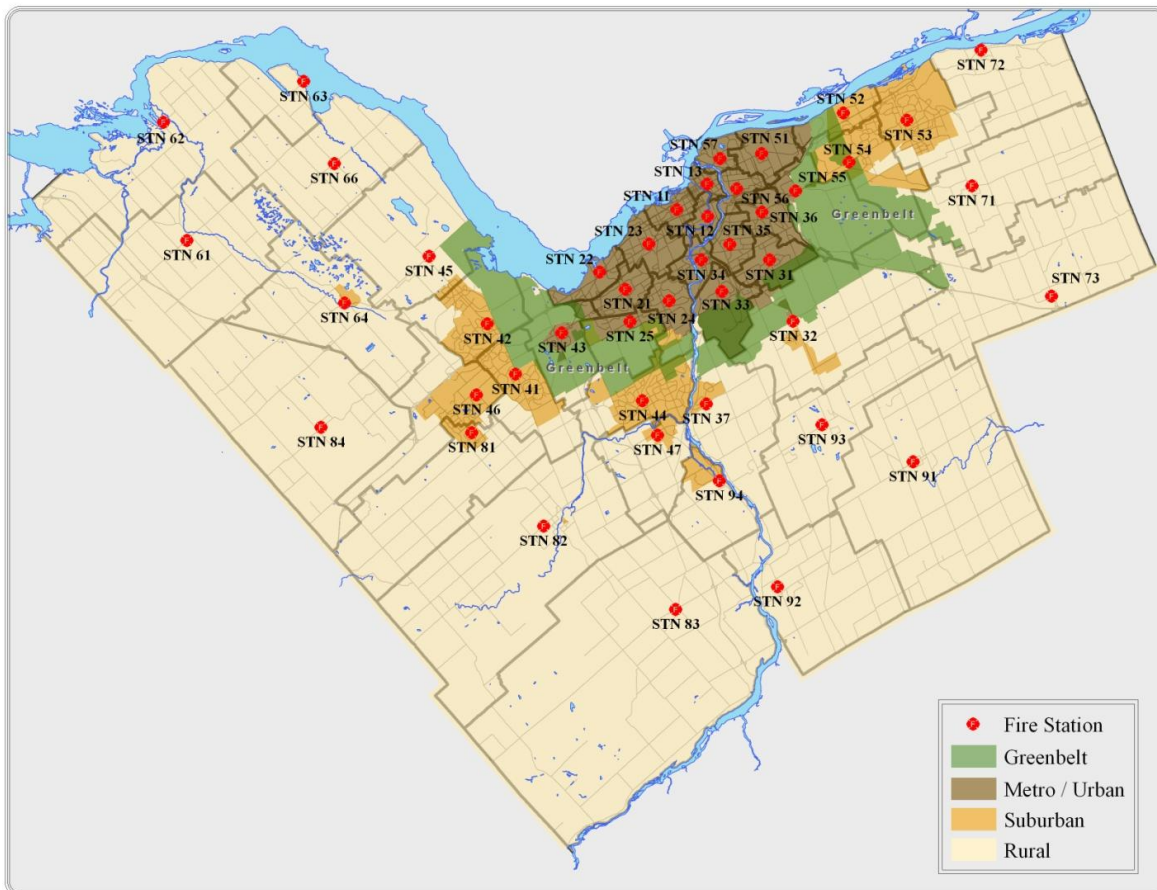
In categorizing the risk to life, the Ottawa Fire Service used two important factors, population density and property/building types. The first factor, being the largest component, population density analysis used several different characteristics. Census data can be accurately disseminated by fire grid and using this data the agency can assign life risks based on population density. It is understood that where population is denser there is an increase risk to life due to a greater concentration of individuals and more potential for building to building fire spread. These “break” points are based on the following population categories shown in Table 17.

Table 17 - Population Density by Population Category

Population Category	Population Density
Metropolitan	1160 + km ² (3000 mi ²)
Urban	772 to 1160 km ² (2000 mi ²)
Suburban	386 to 772 km ² (1000-2000 mi ²)
Rural	< 386 km ² (<1000 mi ²)
Wilderness	No appreciable population

NOTE: In conducting this review, OFS identified certain areas within a population density that may fall under a different population density category. OFS treated these concentrated areas as if they required the same response benchmark as the community it is a part of. For instance, there are small concentrations of population in some Suburban areas such as Orleans, Kanata/Stittsville and Barrhaven/Riverside South that would require an urban response time benchmark and are treated as “suburban”.

This range of categorizing areas of population follows the methodology used by both the Metropolitan Fire Chiefs Association (Metro Chiefs) and in the CFAI process. It is this evaluation that gives an appropriate range for Ottawa and its demographics. All population density figures were derived from current data the City has published as well as forecasted growth up to 2021 and most recently published growth figures up to 2031. Map 6 represents the population density distribution by fire response zones within the City of Ottawa (See Appendix E.8 Grid Classification Criteria for full classification list).



Map 6 - Fire Response Zones Population Density Classifications

The second factor Ottawa Fire Services used in categorization of risk to life was property/building type. Using GIS technology to identify all buildings in the City of Ottawa, risk ratings were assigned by type and use that match industry standards. This has allowed a review of all areas of the City by population density and building risk, (Low, Moderate, and High). For the purpose of ranking for structures within the City of Ottawa for their individual fire risk, the following methodology was used;

Prior to transferring risk ratings to properties, all MPAC property codes were assigned a risk rating of Low, Moderate or High. The risk rating was subsequently transferred to the corresponding property of the same code throughout the City, essentially establishing the risk for each individual property. The next step was to transfer the risk rating to the buildings within the property boundaries through a spatial join using GIS software. Upon completion of the spatial join, the results were checked for accuracy and consistency by checking individual buildings within each category against known risk, for example a high rise structure in the downtown core. The last and final step was to err on the side of caution by categorizing all buildings four stories or more as high risk category regardless of the established ranking through property code.

Once all risk ratings were assigned to the City's properties using the probability and consequence risk model, results were summarized and broken down by risk category in Table 18.

The results showed 2.9% (7,452) of the total properties classified with low risk ratings. These properties tend to be open land, forest, farm land, or smaller structures and accounted for approximately 18% of the total incidents over a three year period (2010-2012).

Results further showed that moderate risk properties account for 95.3% (241,609) of the total properties. The majority of properties in this group are residential properties with a smaller concentration of commercial properties with the three year incident response to these types being approximately 68% of the three year total incident response count.

High risk rating properties came in at 1.8% (4,516) of the total properties. This group accounts for schools, larger commercial or industrial buildings, hospitals, nursing homes and accounted for approximately 14% of the three year total incident response count.

Table 18 - Property Counts by Risk Category Data

RISK Category	Property Count	% Total
LOW	7,452	2.9 %
MODERATE	241,609	95.3 %
HIGH	4,516	1.8 %

Detailed fire risk rating results of the City of Ottawa are shown in Table 19 and Table 20. Results were tabulated by risk category within each Fire Response Zone (FRZ) 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 abundant in the rural fire response zones due to the larger forested, agricultural and less developed areas with small communities located within them. FRZ 53 has a large number of low risk properties because it has a large open space ready for expansion bordering the rural area.

The high number of low risk properties in FRZ 11, 12, 13 is partially due to the small size of these properties and the larger concentration of vacant land or parking space properties. FRZ 11 also contains the Experimental Farm which occupies a large area.

MODERATE risk properties are largely concentrated outside the greenbelt, in predominately suburban response zones (FRZ 41, 44, 53) which are primarily residential subdivisions. FRZ 37, 42, 45, 52 are identified as high growth suburban

areas and the number of moderate risk properties is expected to grow as they experience new housing developments, with that surrounding growth of smaller commercial spaces.

Rural FRZ's such as 81, 82, 83, 91, 93 contain small villages or cluster communities and therefore the residential and smaller commercial structure concentrations are larger.

HIGH risk rating results show a large concentration in the urban/metro fire response zones (FRZ11 and FRZ13). These areas are high density housing areas and had the highest percentage of the total fire incident volume. FRZ 11 and FRZ 13 encompass the commercial and economic hub of the City. FRZ 11 contains the Parliament buildings, Ottawa City Hall, while FRZ 13 contains the large property which encompasses the Ottawa University campus.

Other high risk properties to consider are the City's three airports; FRZ 33 (Ottawa International Airport), FRZ 64 (Carp Airport), FRZ 51 (Rockcliffe Airport). These zones have otherwise evenly distributed risk properties. The City's train stations are found within FRZ 44 and 56. FRZ 56, 36 contain the Ottawa train yards, post office, industrial area.

Although fire response zones like 23, 24, 33, 34, 42 contain a fairly even distribution of low, moderate and high risk properties it is worth noting that these FRZ's have distinct high risk features to consider. FRZ 23 and FRZ 24 contain a large area of industrialized buildings. FRZ 42 and 44 are high technology nodes of the city which contain large business parks and large concentration of schools surrounding their condensed and expanding housing developments.

Low concentrations of high risk properties are found in fire response zones with larger open land areas. FRZ 37, 45, 47 are large response zones experiencing residential development with large areas of open land around the developments and little high risk properties planned. Rural fire response zones have the lowest percentages of high risk properties as the need for such property types is minimal in these further areas.

To note is the size of the fire response zones and the size of the property parcels within them that change the weight of the property within its zone. For example response zones in the urban/metro downtown core (11, 12, and 13) show a large number of low risk properties (example parking lots) however the size of these properties is very small compared to those in the larger rural response zones (such as 71, 81, and 94). The larger rural response zones (61- 94) have a much larger area with smaller number of properties to categorize.

Table 19 – Fire Risk Breakdown by Response Zone (Career Area)

Response Zone	Low Risk	% of Total	Moderate Risk	% of Total	High Risk	% of Total	Incident Counts	% of Total
11	223	5.3%	7,485	3.7%	421	10.1%	122	9.4%
12	166	3.9%	7,567	3.7%	286	6.8%	60	4.6%
13	190	4.5%	3,214	1.6%	535	12.8%	118	9.0%
21	67	1.6%	8,802	4.3%	123	2.9%	49	3.8%
22	79	1.9%	6,133	3.0%	152	3.6%	84	6.4%
23	198	4.7%	11,249	5.5%	289	6.9%	63	4.8%
24	171	4.1%	5,580	2.7%	232	5.5%	46	3.5%
25	48	1.1%	4,507	2.2%	26	0.6%	23	1.8%
31	163	3.9%	6,636	3.2%	103	2.5%	30	2.3%
32	171	4.1%	4,582	2.2%	90	2.1%	24	1.8%
33	89	2.1%	4,661	2.3%	75	1.8%	29	2.2%
34	53	1.3%	3,163	1.5%	66	1.6%	21	1.6%
35	112	2.7%	6,649	3.2%	161	3.8%	67	5.1%
36	187	4.4%	4,224	2.1%	126	3.0%	45	3.5%
37	163	3.9%	5,251	2.6%	14	0.3%	11	0.8%
41	201	4.8%	13,636	6.7%	112	2.7%	61	4.7%
42	204	4.8%	9,342	4.6%	170	4.1%	33	2.5%
43	79	1.9%	3,804	1.9%	90	2.1%	23	1.8%
44	206	4.9%	19,879	9.7%	129	3.1%	34	2.6%
45	111	2.6%	3,434	1.7%	19	0.5%	12	0.9%
46	197	4.7%	6,265	3.1%	92	2.2%	22	1.7%
47	97	2.3%	4,221	2.1%	5	0.1%	13	1.0%
51	100	2.4%	6,938	3.4%	148	3.5%	53	4.1%
52	125	3.0%	5,700	2.8%	99	2.4%	23	1.8%
53	382	9.1%	20,813	10.2%	107	2.6%	55	4.2%
54	204	4.8%	10,662	5.2%	85	2.0%	32	2.5%
55	33	0.8%	1,331	0.6%	54	1.3%	22	1.7%
56	91	2.2%	3,813	1.9%	235	5.6%	82	6.3%
57	104	2.5%	5,391	2.6%	145	3.5%	47	3.6%
Total	4,214		204,932		4,189		1,304	



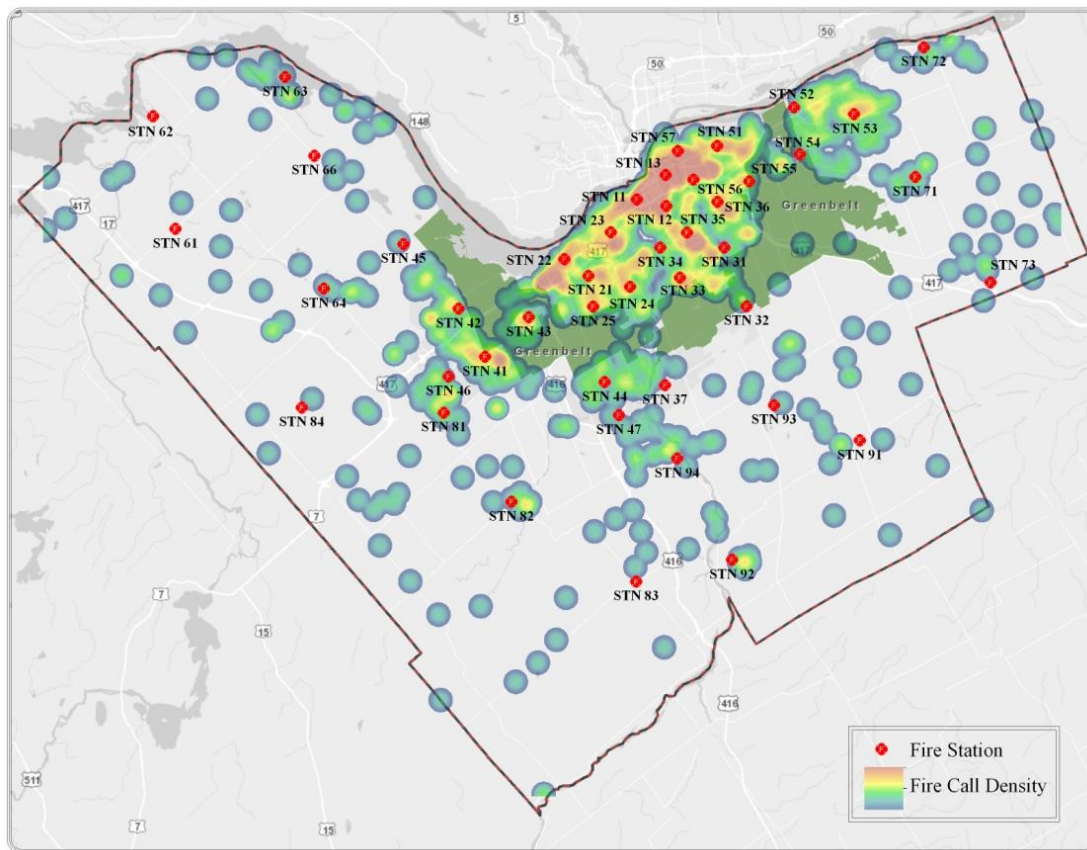
Table 20 - Risk Breakdown by Response Zone (Volunteer area)

Response Zone	Low Risk	% of Total	Moderate Risk	% of Total	High Risk	% of Total	Incident Counts	% of Total
61	189	5.8%	1,017	2.8%	8	2.4%	7	3.8%
62	356	11.0%	1,535	4.2%	12	3.7%	7	3.8%
63	289	8.9%	1,542	4.2%	8	2.4%	12	6.5%
64	180	5.6%	1,882	5.1%	37	11.3%	6	3.3%
66	136	4.2%	1,744	4.8%	9	2.8%	10	5.4%
71	175	5.4%	1,266	3.5%	19	5.8%	16	8.7%
72	104	3.2%	1,875	5.1%	9	2.8%	11	6.0%
73	150	4.6%	1,588	4.3%	17	5.2%	16	8.7%
81	171	5.3%	4,587	12.5%	27	8.3%	16	8.7%
82	269	8.3%	3,345	9.1%	43	13.1%	16	8.7%
83	352	10.9%	2,786	7.6%	21	6.4%	15	8.2%
84	122	3.8%	1,787	4.9%	5	1.5%	9	4.9%
91	258	8.0%	2,753	7.5%	35	10.7%	13	7.1%
92	208	6.4%	2,667	7.3%	24	7.3%	11	6.0%
93	180	5.6%	3,968	10.8%	29	8.9%	10	5.4%
94	99	3.1%	2,335	6.4%	24	7.3%	9	4.9%
Total	3,238		36,677		327		184	
Grand Total	7,452	2.9%	241,609	95.3%	4,516	1.8%	1,488	

Ottawa Fire Services is currently gathering 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 to conclude. However it will remain an ongoing process as buildings change ownership, use, and are renovated. The pre-fire planning initiative will provide an extensive overview of structural risks and a closer identification of low, moderate and high risk hazards.

The other key factor for developing useful fire risk tools was using historical data based on probability and consequence as previously described. Historical data was analyzed to identify hotspots or areas of concentration by incident type. These hotspot maps (Map 7 – Map 10) are used by station officers to concentrate fire prevention and education in areas of higher emergency incident volume. This analysis was essential in providing probability of incident type occurrences and the types of structures most likely to have incidents both fire and non fire. These probabilities along with projected

consequences were utilized to help determine the risk levels for structures and fire incidents within the previously described matrix.



Map 7 - Fire Hot Spots 2010-2012

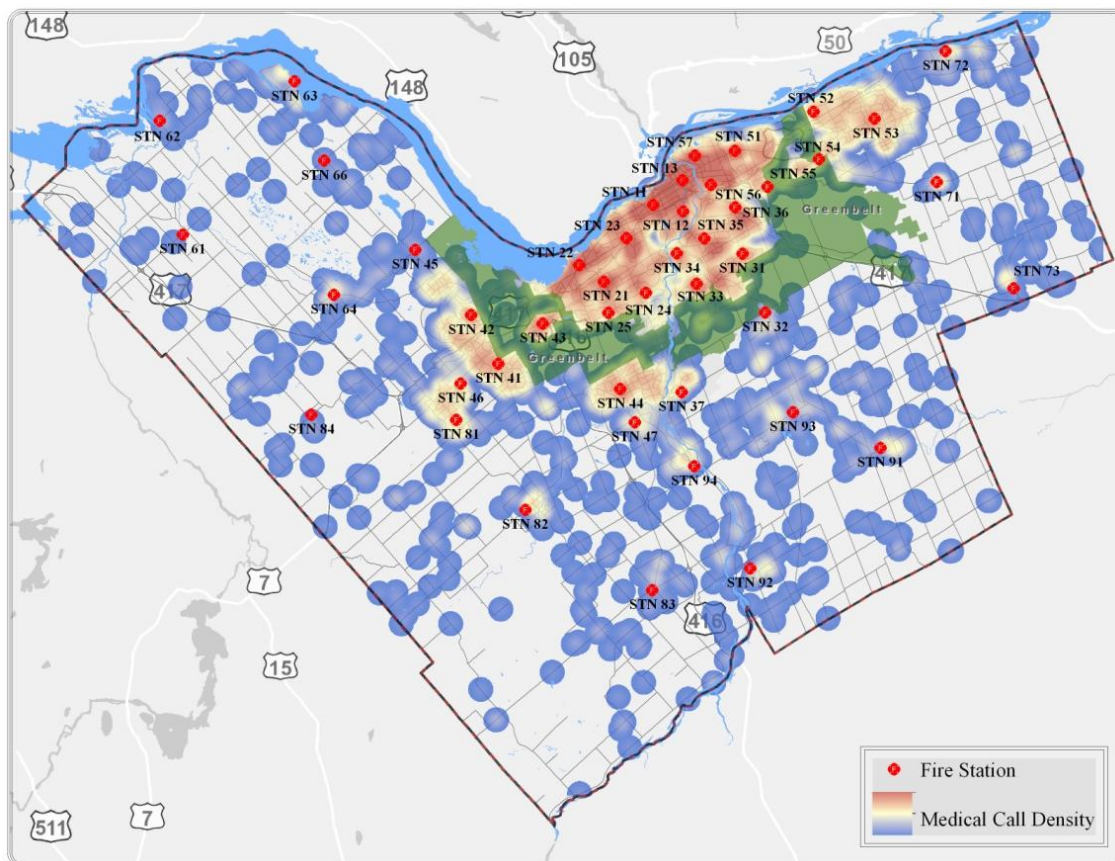
This methodology and the increased use of building data will be phased into the risk assessment process during future iterations of the Standards of Cover as the volume of data available through data collection initiatives increases.

EMS Risk Tools and Assessment

Ottawa Fire Services (OFS) is a member of a tiered response group of Fire, Police and Paramedics which respond to medical emergencies in the City of Ottawa as first responders. This response group operates under a tiered response agreement (see Appendix E.9 - Tiered Medical Response Breakdown for breakdown) that outlines the method used to dispatch different services for each medical related incident. For medical responses the Ottawa Paramedic Service (OPS) receives notification of a medical incident from the PSAP. Once this call is received OPS dispatches their required personnel and collects all the necessary call information. The information is compiled and reviewed to determine if the incident meets the criteria for activating a tiered response. If the conditions for a tiered response are met OFS is activated and dispatched in accordance with OFS running assignments. The response for a medical related incident from OFS is one pump and three firefighters and one officer. This allows

OFS to respond and provide emergency basic medical care until paramedic arrival and assumption of care. The Ottawa Fire Service does not provide transportation services for patients. This level of service is provided by the Ottawa Paramedic Service.

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.



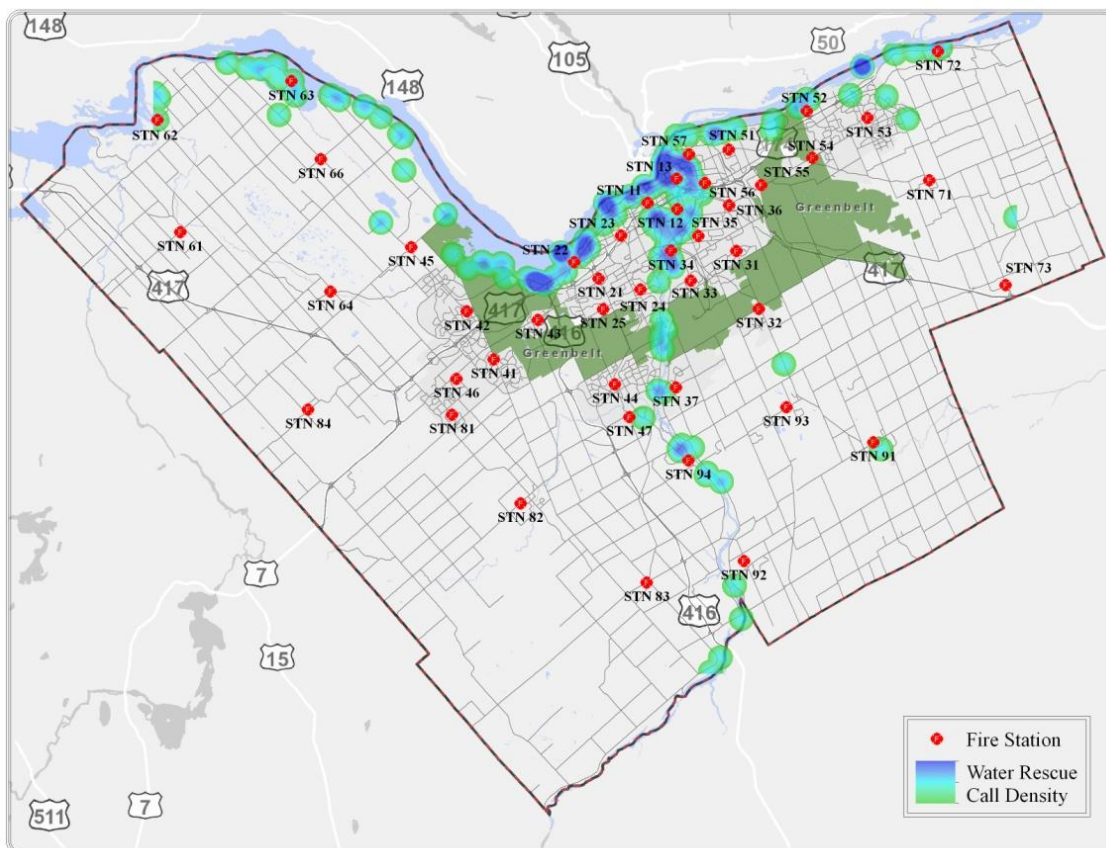
Map 8 - Medical Incidents Hot Spots 2010-2012

Rescue Risk Tools and Assessment

Vehicle rescues are the most prevalent rescues performed by Ottawa Fire Services. Technical rescues such as collapse, high angle and water rescues fall into a low



frequency high consequence risk category. Historical mapping of each rescue type has been created to identify any concentration patterns within the City. The example below (Map 9) displays water rescue incidents which noticeably follow the paths of the main waterways within the city. Additional response hotspot maps for MVC, extrication, wildland fires and specialized can be found in (Appendix Maps A.1 – A.7).



Map 9 - Water Rescue Hot Spot 2010-2012

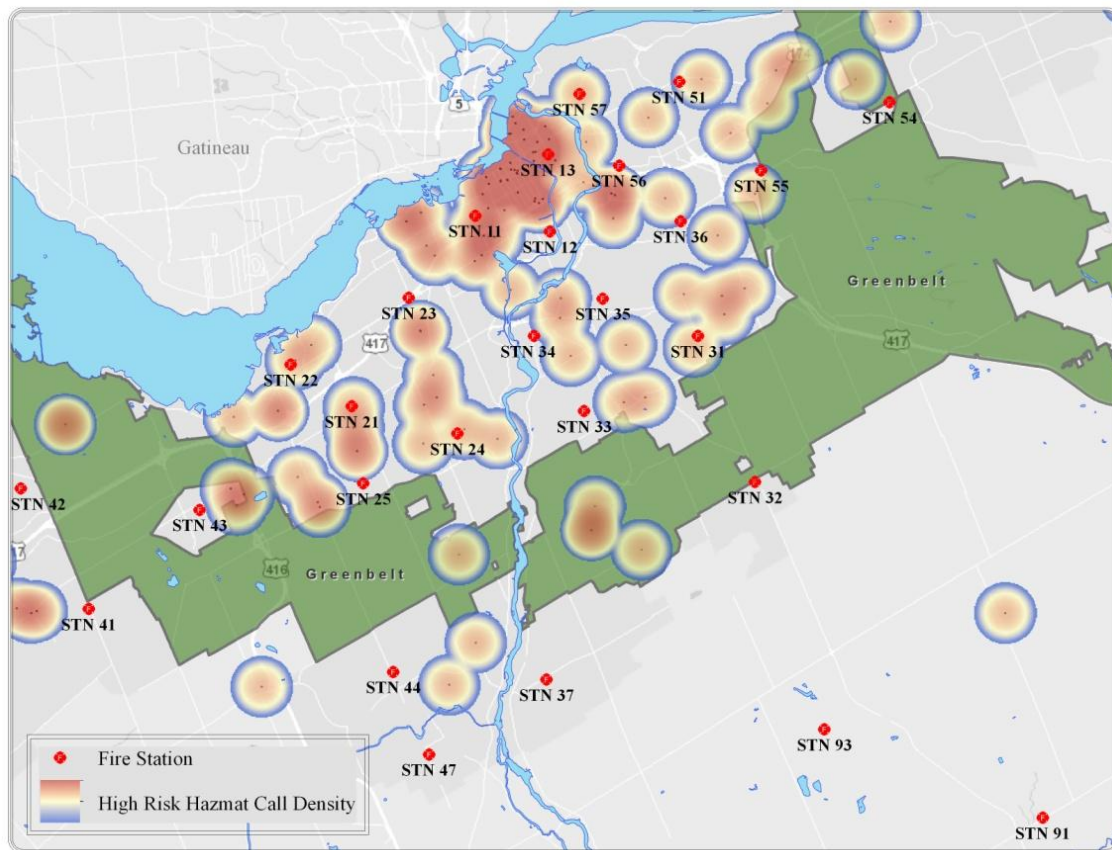
Hazardous Materials Risk Tools and Assessment

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 a number of 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 identify hotspots or areas of concentration of hazmat incident types. This analysis is essential in providing probability of incident type occurrences and the types of area or structure most likely to have hazmat incidents.



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 ERF is dispatched, the Ottawa Fire Service uses a “running assignments” chart (see Appendix Exhibit E.1) based on the information received by communications and resources available. This is a standard operating procedure which guides communications to dispatch the required units.

Within the chart a priority level is assigned to each type of incident, Priority 1 being “emergency response” and Priority 2 addressing “non emergency” service incidents. For the purposes of critical tasking, Priority 2 incidents which include; burn complaints, suspicious odours, lockouts, water leaks, and body retrievals to name a few will not be addressed, these responses are handled by the first unit as “investigative”/ service incidents.

The number of persons/resources required to complete the identified critical tasks is known as the “Effective Response Force” (ERF).

In 2005, the City of Ottawa adopted the Ontario Fire Marshal’s (public fire safety guideline) recommended “on-site” staffing of 10 firefighters arriving to the scene in 10 minutes, 90% of the time where the 5 min, 7 min and 14 min council approved standards could not be met.

The data gathered in the analysis years 2011-13 reflects the historic initial running assignments based on responding two pumps a ladder and District Chief to most fire incidents. Upon confirmation of a “working fire” additional resources are dispatched. However the delay, in the initial dispatch of an effective response force, is reflected in Ottawa’s historic ERF data based on adopted benchmarks within the SOC.

Ottawa Fire Services recognizes the need to transition to running assignments based on an initial Effective Response Force model. However due to the complex nature of the CAD system and the size of the City this transition is not expected to be completed until mid to end of 2014.

Matching resources to risk (2014) will lead to an increase in the initial response apparatus to those higher percentage incidents (outside of alarms ringing). This in turn is expected to significantly improve the ERF response times.

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. The “critical tasking” provides a detailed breakdown of initial tasks for further explanation of these tasks see Appendix Exhibit E.10.

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) 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.

Research into fire dynamics and fire growth suggest that if fire personnel can arrive at the scene of a fire prior to ‘flashover’ occurrence that there is a greater likelihood that they will be able to reduce life risk and property damage. Once flashover occurs the fire is likely to migrate beyond its room of origin and involve more of the structure. In the first few seconds on arrival, company members must size-up the incident. The commander, usually the first arriving officer, must accurately identify the nature of the problem, identify the need for rescue in accordance with risk management principles, locate the seat and the extent of the fire and formulate an initial mental incident action plan. It is a common practice, within the Ottawa Fire Service, to ensure that a 360 degree view of the structure is completed shortly after arrival. It is imperative to understand the essences of time and its association to the growth of the fire. Firefighters must be actively engaging the blaze quickly from detection time in order to mitigate all possible risks and deal with the fire efficiently. The distribution of the OFS resources throughout the community is an essential part of preventing flashovers from occurring through interrupting the growth of the fire by ensuring a rapid first response.

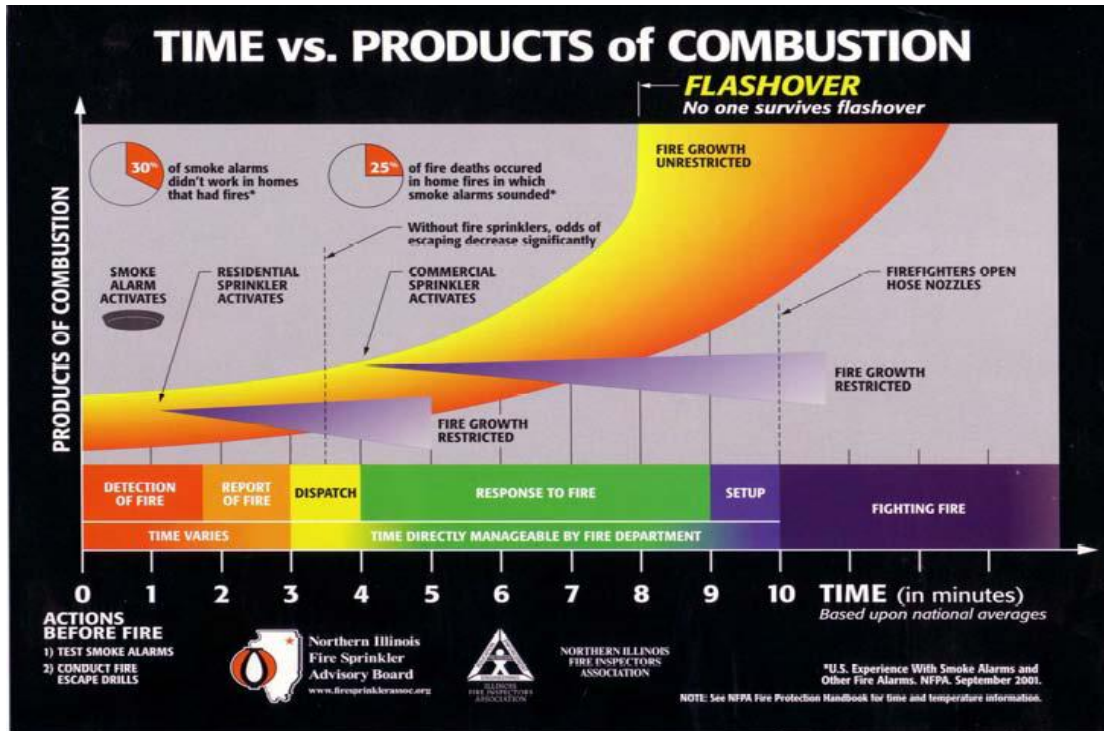


Figure 17 - Time vs. Products of Combustion

The “Flashover” stage is the critical point in the growth of a fire in which all the surfaces and objects within a compartment reach their ignition temperature (Figure 17). Once this stage is reached the need for greater resources to control the fire is likely.

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, and High) 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 insure the departments ERF is in line with best practice.

Critical Tasks: Structure Fire

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.

The 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

The 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 be 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–search (VES) 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.

Ottawa Fire Services critical task progression, including the apparatus, tasks and manpower essential for low, moderate (Level 1 and Level 2) and high risk fire scenarios within hydrant and non-hydrant water supply areas are shown in Table 21. The Effective Response Force (ERF) of each risk level is shown with the progression.



Note; Dwellings consisting of single family, duplexes or triplexes are identified “as Moderate Level 1”. This is due to the fact that collectively this risk has represented the greatest loss of life, firefighter injuries, and property content loss within the City of Ottawa.

Table 21 - Critical Tasks and ERF Progression Fire

Fires - Low, Moderate, High/Special Risk

Apparatus	Tasks	Staffing
	Size up, IC, Safety, Fire attack, Pump operation, water supply, rescue, forcible entry	
Low Risk Effective Response Force (Shed, Grass, vehicle no exposure)		ERF – 4
	Rescue, Ventilation,	
	Search & Rescue, 2 nd attack line Provide additional water supply	
	Incident Command (in accordance with IC responsibilities)	
	Rapid Intervention (RIT), support	
Moderate Risk (L1) (single family home, one, two, three unit dwelling)		ERF- 14 *
	Assist with Fire attack, Search, Exposures Accountability	
Moderate Risk (L2) (multi-dwelling, offices, small commercial, industrial, mercantile)		ERF- 17*
	Sector Crews – Stairwell, Ventilation, Lobby Fire attack, backup	
High/ Special Risk (high-rise, schools, hospitals, large assembly)		ERF- 25
	Additional support, backup	
 	IC support, IC (*transfer of command)(PC)	
	Safety	
	Rehab, Air Management	
OFS Current Running Assignment to a confirmed structure fire		34

Additional FF's for Non Hydrant Areas

	Water supply, additional support	
Additional OFS resources remain available for increased alarms, recycling of crews or extra staffing. Other resources from EMS for patient care, police and utilities are dispatched as required.		
OFS Current Running Assignment to a confirmed structure fire (non-Hydrant Areas)		42



Note;* (16 dispatched to meet 14 ERF). A first response to a 'reported' structure fire is 2 pumps, ladder, District Chief (12 personnel). New deployment model will add an additional pump for residential dwellings (ERF of 14). The first officer assumes Incident command and safety officer duties until the arrival of the District Chief.

MEDICAL RESPONSES

Ottawa Fire Services provides 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 22. The Effective Response Force of each risk level is shown with the progression.

Table 22 - Critical tasks and ERF progression Medical

Apparatus	Tasks	Staffing
	Command and control of overall incident Assess scene for hazards Gather all patient information Provide updates to communications Assess patient, administer medical aid as per protocols Provide clear pathway for access, assist with equipment transport Provide assistance to EMS crew as directed	
Low Risk Effective Response Force		ERF- 4
Moderate Risk Effective Response Force		ERF- 4
High Risk Effective Response Force		ERF- 4

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.

Ottawa Fire Services critical task progressions for rescue scenarios are shown in Table 23 through Table 27. The Effective Response Force of each risk level is shown with the progression.

Table 23 - Critical Tasks and ERF Progression Rescue

Low Risk – Low Angle, Animal Rescue, Elevator, Home Accident















Apparatus	Tasks	Staffing
	Size up, scene safety, stabilization, patient care,, communication	
Low Risk Effective Response Force		ERF- 4

Table 24 - Critical Tasks and ERF Progression Rescue

Apparatus	Tasks	Staffing
	Size up, scene safety, stabilization, patient care, communication	
	Operations – stabilization, extrication, support,	
	IC support and communications	
Moderate Risk Effective Response Force (MVC / Extrications)		ERF- 8
	Safety support	
OFS Initial Response		9
	Operations	
	Large scale extrication	
High Risk Effective Response Force (MVC large vehicle, transport, school bus, tankers etc)		ERF- 16
OFS Current Running Assignment		16*
*Additional OFS resources assigned to larger vehicle MVC or as confirmed onscene. Addition OFS resources remain available for recycling of crews or extra required staffing. Other resources from EMS for patient care, Police and utilities are dispatched as required.		

Additional FF's for Non Hydrant Areas



	Water supply, support	
OFS Current Running Assignment		20

Table 25 - Critical Tasks and ERF Progression Rescue

Trench, Confined Space, High Angle
















Apparatus	Tasks	Staffing
	Hazard/exclusion zone established	
	Action plan	
	Deploy and operate/shoring/panelling /rigging systems.	
	Atmospheric monitoring	
Tech Res	Rescue, patient care	
		
Tech Res		
	IC support and communications	
	Overall scene safety	
High Risk Effective Response force		ERF- 23
OFS Current Running Assignment		23
Additional support from EMS to coordinate patient care and OPS for traffic control		

Table 26 - Critical Tasks and ERF Progression Rescue

Building Collapse































Apparatus	Tasks	Staffing
	Hazard/exclusion zone established Action plan	
	Rescue, Triage, treatment of surface casualties Control of utilities	
	Identify for further collapse Advanced Search for potential victims	
	Rescue, Triage, treatment	
OFS Initial Response (small collapse)		12
	Deploy and operate/shoring/panelling /rigging systems. Rescue, patient care atmospheric monitoring	
	Tech Rescue	
		
	IC support and communications	
	Overall scene safety	
High/Special Risk - Effective Response force		ERF- 28
OFS Current Running Assignment		28
Other OFS personnel may be requested as required. Additional support from EMS to coordinate patient care and OPS for traffic/ crowd control		

Table 27 - Critical Tasks and ERF Progression Rescue

Water/Ice

Apparatus	Tasks	Staffing
	Hazard/exclusion zone Communicate with WR teams for access Initial rescue actions "shore based"	
		
	Launch and proceed to victim Launch and proceed as back-up vessel support	
	IC support and communications	
	Overall scene safety	
Moderate Risk - Effective Response Force		ERF- 15
OFS Current Running Assignment		17
Additional support from EMS to for patient care and OPS for exclusion zone support. OPS also has a dive recovery team		

Additional FF's for Non Hydrant Areas

Tankers 	Support	
OFS Current Running Assignment		21

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) to 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.

The Ottawa Fire Service critical task progression for Hazardous Material scenarios are shown in Table 28 - Table 29. The Effective Response Force of each risk level is shown with the progression.

Table 28 - Critical Tasks and ERF Progression

Hazmat Suspicious Powder (IHAT)











Apparatus	Tasks	Staffing
	Establish command, setup hazard zones, Initiate reconnaissance team, identify substance/confirm not dangerous.	
Effective Response Force		ERF- 4
OFS Current Running Assignment		4
Suspicious package with no persons displaying signs or symptoms of agent intoxication. Joint response with OPS and EMS – confirmation of a genuine hazard will activate full Hazmat response.		

Table 29 - Critical Tasks and ERF Progression

Hazmat Rescue

Apparatus	Tasks	Staffing
	Hazard/exclusion zone Communications	
	Setup hazard zones Control access and egress. Ensure command post is unobstructed. Perform monitoring of perimeter. Decon set up prior to entering hot zone Provide for evidence preservation, sampling, product control, rescue/recovery	
	IC support and communications	
	Overall scene safety	
High/Special Risk - Effective Response force		ERF- 19
OFS Current Running Assignment		20

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 3-year historical data charts for critical tasking within this document reflects a response model of 10 firefighters arriving to the scene in 10 minutes. However, through the Standards of Cover process, best practice and current standards, 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 30 summarizes the Effective Response Force (ERF) numbers for Fire, Medical, Rescue and Hazmat incident responses.

Table 30 - Effective Response Force Summary

	<u>LOW</u>	<u>MODERATE</u>	<u>HIGH</u>
FIRE	4	14-17	25
MEDICAL	4	4	4
RESCUE	4	8-15	16-28
HAZMAT	4	N/A	19

Component E - Historical Perspective and System Performance

The review of historical performance and measurement is an essential component in identifying the capabilities of the service provision and service delivery system. Components measured include; distribution, concentration, reliability and comparability. These components are all factors in determining the most efficient manner to provide emergency response provision. Modeling and statistical analysis have been utilized in an effort to verify that the Ottawa Fire Service resources are utilized efficiently and effectively.

In order to understand the agencies service performance, historical response data was compiled and analysed. Based on this information several recommendations are contained within this report. The results of the analysis of a three year sample of response data was used in determining a baseline measure for incident response. A baseline is a metric that provides a foundation for understanding the agencies current system performance.

Once the baseline measure was established a “Benchmark” or “Target” was established for various response categories. ‘Benchmarks’ are goals the organization seeks to obtain in an effort to optimize service provision. The following stages of a response were measured as part of the system performance evaluation. Benchmarks and baselines are established for each interval of the emergency response (Figure 18).

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 (Dispatch time).

Turnout Time - The time interval between the activation of either the station alerting system (urban career) and/or personal alerting devices (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 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 (Enroute time) and the time when the responding apparatus notifies the dispatcher of its arrival on scene (On Scene time).

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 (Onscene 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.

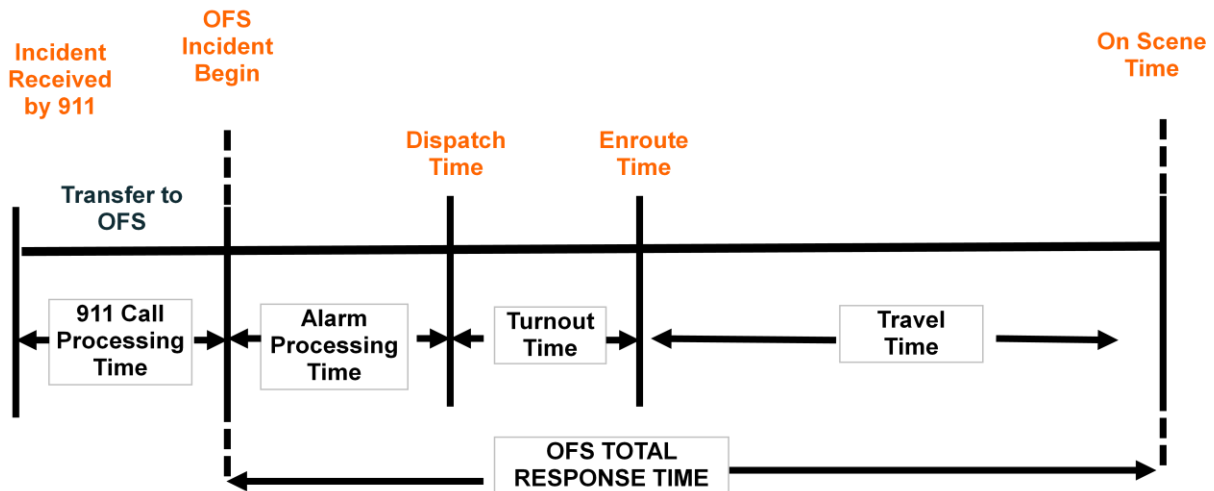


Figure 18 - Stages and Intervals of Emergency Incident Responses

Performance is better measured and now widely accepted by agencies in terms of how a department is able to achieve its goals as compared to 100 percent of the time based on a simple average metric.

If an agency states it can respond to an emergency within 6 minutes 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 (Table 31 - Table 34) measure the 3 year (2011-13) baseline performance of the Ottawa Fire Service for the “first in” initial response to; Fire, Medical, Rescue and Hazmat incident types within the City.

Note. *Volunteer turnout time allows for up to an additional 3 minutes and 30 seconds (3:30) 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.

Table 31 - Fire 2011-2013 90th Percentile Baseline Performances


 OTTAWA FIRE SERVICES SERVICE DES INCENDIES D'OTTAWA <i>Protecting Our Nation's Capital With Pride</i> <i>Protéger notre capitale nationale avec fierté</i>		Fire - Call Group Performance Levels at 90th Percentile			
Career		2011	2012	2013	Baseline 2011-2013
Call Count (ERF)	<i>Metro & Urban</i>	567 (388)	678 (483)	557 (369)	1802 (1240)
	<i>Suburban</i>	207 (160)	196 (149)	137 (100)	540 (409)
	<i>Rural</i>	50 (46)	59 (49)	54 (46)	163 (141)
Alarm Processing Time	<i>Metro & Urban</i>	01:22	01:36	01:16	01:25
	<i>Suburban</i>	01:22	01:31	01:18	01:24
	<i>Rural</i>	01:29	01:26	01:16	01:28
Turnout Time	<i>Metro & Urban</i>	02:15	02:17	02:04	02:12
	<i>Suburban</i>	02:30	02:38	02:26	02:31
	<i>Rural</i>	02:54	02:53	02:58	03:03
Travel Time	<i>Metro & Urban</i>	04:46	05:10	04:58	04:58
	<i>Suburban</i>	06:27	06:11	07:17	06:27
	<i>Rural</i>	09:57	08:51	08:57	09:06
Total Response Time	<i>Metro & Urban</i>	07:11	07:54	07:18	07:33
	<i>Suburban</i>	09:06	09:04	09:01	09:05
	<i>Rural</i>	12:02	12:21	13:03	12:37
Volunteer		2011	2012	2013	Baseline 2011-2013
Call Count (ERF)	<i>Suburban</i>	9 (5)	12 (11)	14 (11)	35 (27)
	<i>Rural</i>	97 (86)	121 (100)	93 (79)	311 (265)
Alarm Processing Time	<i>Suburban</i>	01:18	01:48	01:01	01:36
	<i>Rural</i>	01:25	01:51	01:27	01:31
Turnout Time	<i>Suburban</i>	05:54	05:44	05:29	05:53
	<i>Rural</i>	06:46	07:16	07:04	07:06
Travel Time	<i>Suburban</i>	04:02	06:12	06:54	06:16
	<i>Rural</i>	11:12	12:56	11:04	11:54
Total Response Time	<i>Suburban</i>	10:12	11:12	10:12	10:55
	<i>Rural</i>	17:45	19:36	17:35	18:07

Table 32 - Medical 2011-2013 90th Percentile Baseline Performances


 OTTAWA FIRE SERVICES SERVICE DES INCENDIES D'OTTAWA <i>Protecting Our Nation's Capital With Pride</i> <i>Protéger notre capitale nationale avec fierté</i>		Medical - Call Group Performance Levels at 90th Percentile			
Career		2011	2012	2013	Baseline 2011-2013
Call Count (ERF)	<i>Metro & Urban</i>	1861 (1861)	1762 (1762)	1152 (1152)	4775 (4775)
	<i>Suburban</i>	547 (547)	573 (573)	384 (384)	1504 (1504)
	<i>Rural</i>	46 (46)	48 (48)	44 (44)	138 (138)
Alarm Processing Time	<i>Metro & Urban</i>	00:57	00:55	00:50	00:54
	<i>Suburban</i>	00:52	00:52	00:45	00:51
	<i>Rural</i>	01:16	01:12	01:23	01:23
Turnout Time	<i>Metro & Urban</i>	02:00	01:59	01:52	01:58
	<i>Suburban</i>	02:17	02:15	02:10	02:15
	<i>Rural</i>	02:11	02:37	02:17	02:16
Travel Time	<i>Metro & Urban</i>	04:40	04:33	04:44	04:39
	<i>Suburban</i>	06:01	05:52	05:37	05:49
	<i>Rural</i>	08:35	08:22	09:11	08:48
Total Response Time	<i>Metro & Urban</i>	06:47	06:46	06:46	06:46
	<i>Suburban</i>	08:17	08:08	07:28	08:04
	<i>Rural</i>	12:28	11:20	13:17	12:23
Volunteer		2011	2012	2013	Baseline 2011-2013
Call Count (ERF)	<i>Suburban</i>	22 (22)	20 (20)	20 (20)	62 (62)
	<i>Rural</i>	97 (97)	101 (101)	45 (45)	243 (243)
Alarm Processing Time	<i>Suburban</i>	00:40	00:54	00:46	00:54
	<i>Rural</i>	01:02	01:04	00:56	01:03
Turnout Time	<i>Suburban</i>	05:01	04:54	07:12	06:12
	<i>Rural</i>	06:01	06:00	06:01	06:02
Travel Time	<i>Suburban</i>	04:51	04:34	04:31	04:44
	<i>Rural</i>	09:51	08:44	07:03	09:00
Total Response Time	<i>Suburban</i>	09:21	09:53	10:52	10:19
	<i>Rural</i>	14:23	14:34	12:45	14:21

Table 33 - Rescue 2011-2013 90th Percentile Baseline Performances


 OTTAWA FIRE SERVICES SERVICE DES INCENDIES D'OTTAWA <i>Protecting Our Nation's Capital With Pride</i> <i>Protéger notre capitale nationale avec fierté</i>		Rescue - Call Group Performance Levels at 90th Percentile			
Career		2011	2012	2013	Baseline 2011-2013
Call Count (ERF)	<i>Metro & Urban</i>	2087 (599)	1888 (506)	1787 (574)	5762 (1679)
	<i>Suburban</i>	679 (146)	655 (158)	538 (140)	1872 (444)
	<i>Rural</i>	355 (117)	370 (111)	327 (99)	1052 (327)
Alarm Processing Time	<i>Metro & Urban</i>	01:08	01:07	01:03	01:06
	<i>Suburban</i>	00:59	01:02	00:53	00:59
	<i>Rural</i>	01:16	01:22	01:16	01:18
Turnout Time	<i>Metro & Urban</i>	01:57	01:56	01:54	01:56
	<i>Suburban</i>	02:10	02:11	02:00	02:08
	<i>Rural</i>	02:17	02:19	02:12	02:17
Travel Time	<i>Metro & Urban</i>	04:54	05:05	05:28	05:06
	<i>Suburban</i>	05:53	05:36	05:38	05:41
	<i>Rural</i>	08:14	08:39	08:52	08:33
Total Response Time	<i>Metro & Urban</i>	07:05	07:04	07:23	07:10
	<i>Suburban</i>	08:04	07:50	07:39	07:51
	<i>Rural</i>	11:22	11:37	10:57	11:21
Volunteer		2011	2012	2013	Baseline 2011-2013
Call Count (ERF)	<i>Suburban</i>	13 (1)	8 (1)	12 (0)	33 (2)
	<i>Rural</i>	313 (49)	251 (64)	211 (51)	775 (164)
Alarm Processing Time	<i>Suburban</i>	01:05	01:14	00:26	01:10
	<i>Rural</i>	01:39	01:40	01:30	01:38
Turnout Time	<i>Suburban</i>	05:06	06:35	06:14	06:14
	<i>Rural</i>	06:42	06:54	07:15	06:51
Travel Time	<i>Suburban</i>	04:46	05:29	06:09	05:21
	<i>Rural</i>	10:51	11:54	11:09	11:14
Total Response Time	<i>Suburban</i>	09:36	11:40	11:50	11:24
	<i>Rural</i>	17:14	17:46	16:43	17:12

Table 34 - Hazmat 2011-2013 90th Percentile Baseline Performances

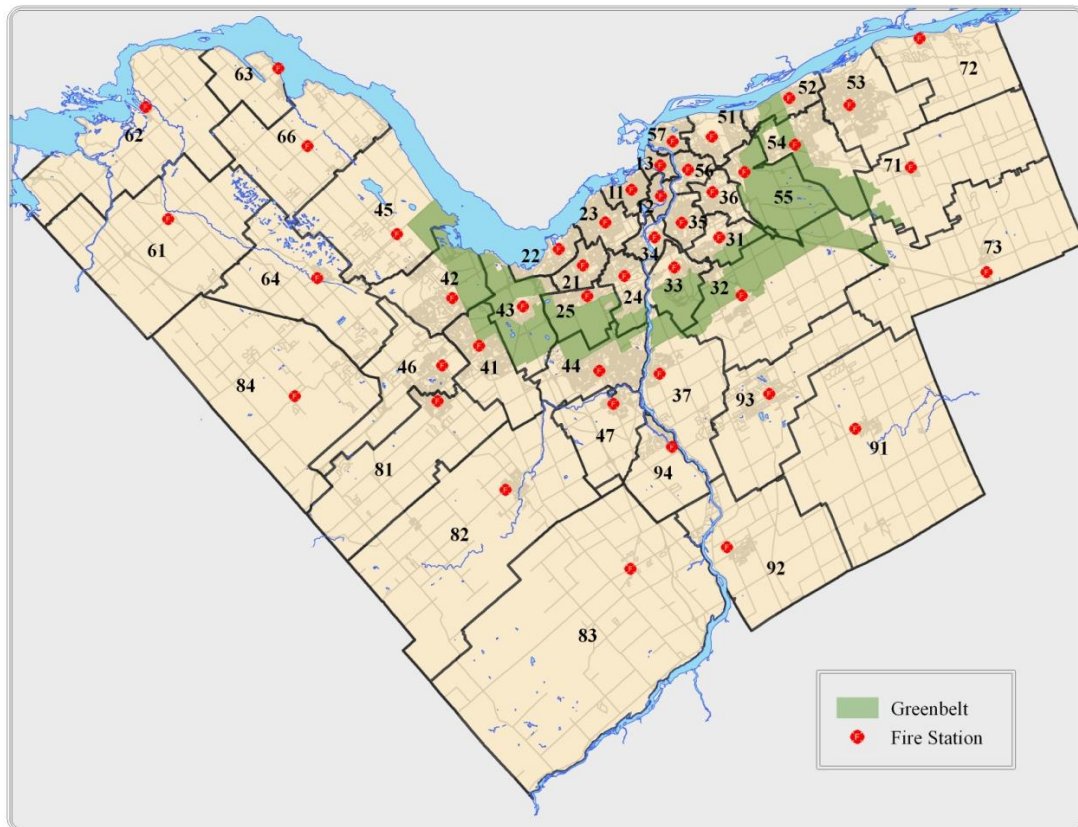
 OTTAWA FIRE SERVICES SERVICE DES INCENDIES D'OTTAWA <i>Protecting Our Nation's Capital With Pride</i> <i>Protéger notre capitale nationale avec fierté</i>	Hazmat - Call Group
	Performance Levels at 90th Percentile

Career		2011	2012	2013	Baseline 2011-2013
Call Count (ERF)	<i>Metro & Urban</i>	207 (194)	152 (147)	218 (211)	577 (552)
	<i>Suburban</i>	39 (38)	54 (53)	63 (63)	156 (154)
	<i>Rural</i>	16 (15)	16 (15)	19 (19)	51 (49)
Alarm Processing Time	<i>Metro & Urban</i>	02:01	01:44	01:43	01:50
	<i>Suburban</i>	02:12	01:53	01:22	01:50
	<i>Rural</i>	01:47	01:36	02:04	02:01
Turnout Time	<i>Metro & Urban</i>	02:21	02:17	01:56	02:12
	<i>Suburban</i>	02:09	02:14	02:10	02:14
	<i>Rural</i>	03:01	02:05	02:25	02:50
Travel Time	<i>Metro & Urban</i>	06:14	05:34	05:44	05:51
	<i>Suburban</i>	06:10	07:11	07:01	07:04
	<i>Rural</i>	12:28	10:41	08:44	10:41
Total Response Time	<i>Metro & Urban</i>	09:36	09:00	08:03	08:57
	<i>Suburban</i>	10:30	10:11	09:40	09:52
	<i>Rural</i>	16:12	15:09	11:43	14:20

Volunteer		2011	2012	2013	Baseline 2011-2013
Call Count (ERF)	<i>Suburban</i>	4 (4)	3 (3)	5 (5)	12 (12)
	<i>Rural</i>	32 (31)	36 (36)	27 (27)	95 (94)
Alarm Processing Time	<i>Suburban</i>	01:40	00:41	01:36	01:54
	<i>Rural</i>	02:06	01:41	01:36	01:46
Turnout Time	<i>Suburban</i>	06:19	05:03	06:29	06:20
	<i>Rural</i>	07:08	07:20	06:25	07:00
Travel Time	<i>Suburban</i>	10:21	02:46	05:25	06:12
	<i>Rural</i>	13:00	10:31	10:51	12:14
Total Response Time	<i>Suburban</i>	17:08	08:26	13:06	13:34
	<i>Rural</i>	20:26	17:35	16:12	18:10

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 11 - 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. See Map 11 for the Ottawa Fire Services station distribution map.

Ottawa Fire Services has divided the City into five urban districts (District 1-5 are career) 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 35 and Table 36 display the distribution measures provided by each Fire Station. Table 35 shows districts supplying career service, Table 36 shows districts classified as volunteer based on their response zone location and rural service level.

Table 35 - OFS Distribution Stats by District and Response Zone
(Career District 1-5)

Response Zone	Population	% Total Pop	Population Density (km ²)	Area/ km ²	% Total Area	Total Dwellings	% Total Dwellings	Road KM	% Total Road KM
DISTRICT 1									
11	39,692	4.49%	3,608	11	0.38%	24,969	5.78%	140	2.12%
12	31,617	3.58%	5,270	6	0.21%	19,217	4.45%	105	1.59%
13	26,957	3.05%	4,493	6	0.21%	21,988	5.09%	83	1.26%
DISTRICT 2									
21	35,131	3.98%	2,928	12	0.42%	17,987	4.17%	140	2.12%
22	39,287	4.45%	2,068	19	0.66%	20,744	4.80%	126	1.91%
23	42,251	4.78%	2,347	18	0.62%	21,443	4.97%	178	2.70%
24	19,634	2.22%	1,091	18	0.62%	10,595	2.45%	119	1.80%
25	17,698	2.00%	804	22	0.76%	7,849	1.82%	90	1.36%
DISTRICT 3									
31	28,848	3.27%	1,803	16	0.55%	13,095	3.03%	105	1.59%
32	13,748	1.56%	122	113	3.91%	6,107	1.41%	226	3.43%
33	25,147	2.85%	1,093	23	0.80%	11,833	2.74%	104	1.58%
34	15,677	1.78%	1,568	10	0.35%	9,907	2.29%	81	1.23%
35	34,189	3.87%	3,108	11	0.38%	17,171	3.98%	109	1.65%
36	17,441	1.98%	1,342	13	0.45%	9,736	2.25%	112	1.70%
37	13,482	1.53%	221	61	2.11%	5,833	1.35%	137	2.08%
DISTRICT 4									
41	43,055	4.88%	1,104	39	1.35%	15,431	3.57%	225	3.41%
42	29,037	3.29%	581	50	1.73%	11,190	2.59%	211	3.20%
43	14,338	1.62%	368	39	1.35%	8,397	1.94%	114	1.73%
44	63,538	7.20%	1,588	40	1.39%	21,796	5.05%	303	4.59%
45	9,242	1.05%	93	99	3.43%	4,673	1.08%	134	2.03%
46	17,657	2.00%	315	56	1.94%	8,140	1.89%	215	3.26%
47	9,952	1.13%	255	39	1.35%	4,087	0.95%	126	1.91%
DISTRICT 5									
51	34,889	3.95%	1,836	19	0.66%	18,735	4.34%	131	1.99%
52	20,128	2.28%	1,184	17	0.59%	11,137	2.58%	100	1.52%
53	64,304	7.28%	1,169	55	1.91%	24,085	5.58%	309	4.69%
54	35,679	4.04%	870	41	1.42%	13,871	3.21%	154	2.34%
55	8,973	1.02%	224	40	1.39%	4,700	1.09%	73	1.11%
56	25,211	2.85%	3,151	8	0.28%	16,266	3.77%	79	1.20%
57	22,505	2.55%	2,501	9	0.31%	14,098	3.26%	89	1.35%

Table 36 OFS Distribution Stats by District and Response Zone
(Volunteer –District 6-9)

Response Zone	Population	% Total Pop	Population Density (km2)	Area/ km2	%Total Area	Total Dwellings	% Total Dwellings	Road km	% Total Road km
DISTRICT 6									
61	2,168	0.25%	15	142	4.92%	1,259	0.29%	197	2.99%
62	2,612	0.30%	20	133	4.61%	1,513	0.35%	144	2.18%
63	3,295	0.37%	89	37	1.28%	1,708	0.40%	52	0.79%
64	3,680	0.42%	41	89	3.08%	1,589	0.37%	99	1.50%
66	3,360	0.38%	37	90	3.12%	1,958	0.45%	118	1.79%
DISTRICT 7									
71	3,198	0.36%	33	97	3.36%	1,644	0.38%	131	1.99%
72	4,317	0.49%	69	63	2.18%	1,823	0.42%	106	1.61%
73	3,452	0.39%	26	132	4.57%	1,621	0.38%	159	2.41%
DISTRICT 8									
81	12,566	1.42%	132	95	3.29%	4,614	1.07%	160	2.43%
82	7,910	0.90%	40	199	6.89%	3,251	0.75%	212	3.21%
83	5,637	0.64%	17	325	11.26%	2,312	0.54%	272	4.12%
84	3,855	0.44%	24	161	5.58%	1,592	0.37%	187	2.84%
DISTRICT 9									
91	6,512	0.74%	34	193	6.69%	2,553	0.59%	244	3.70%
92	6,206	0.70%	61	101	3.50%	2,840	0.66%	160	2.43%
93	9,668	1.09%	115	84	2.91%	4,024	0.93%	156	2.37%
94	5,326	0.60%	148	36	1.25%	2,447	0.57%	80	1.21%

An analysis of the information provided in Table 35 and Table 36 indicates that the urban/metro population density is greatest in the core of the City which is covered by response zones 11, 12 and 13. Interestingly these 3 stations account for nearly 25% of all incident volume and account for approximately 18% of the fire incidents.

In the rural response zones, Station 81 covers the largest population for an exclusively volunteer station and has experience the highest volume of emergency incidents, 14% of the volunteer 3 year total.

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 meet the effective response force benchmarks. Every station is equipped with a first due pumper apparatus which is the first to respond on all incidents within their designated response area (the exception to this would be Station 45 which has two career firefighters responding on a smaller pump vehicle). 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 travel times measured for the arrival of the first apparatus are based upon the CFAI benchmarks drawn from existing promulgated standards, mainly NFPA 1710 and 1720. An acceptable range in performance has been provided by an accompanying CFAI baseline (Table 37).

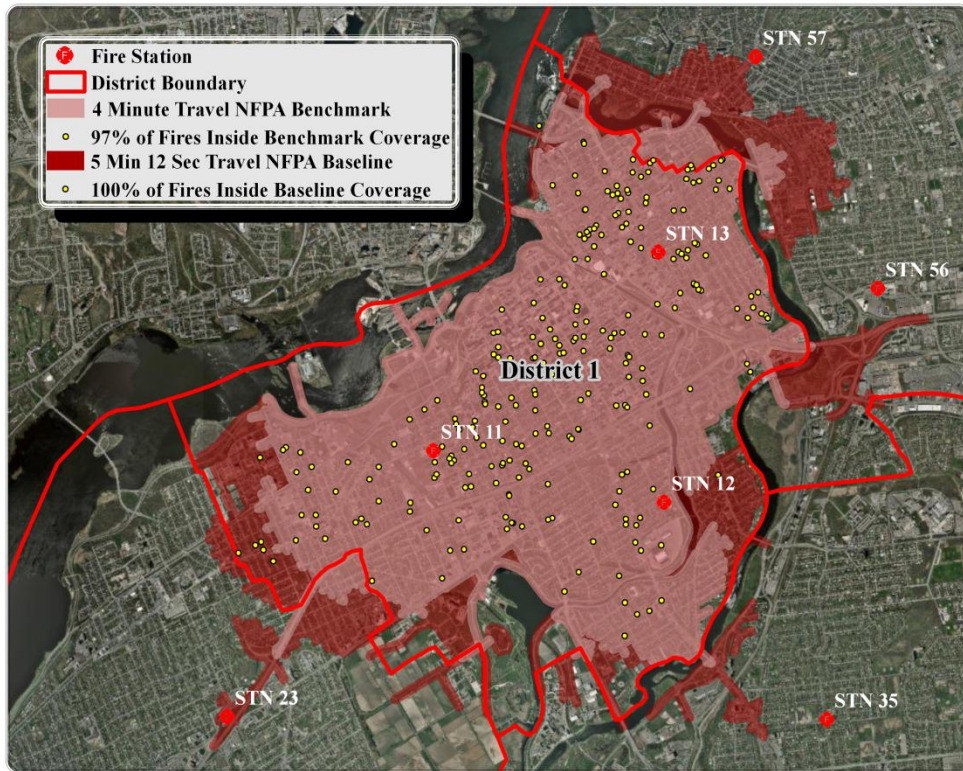
Table 37 – CFAI Travel Time Benchmark and Baselines by Category

Population Category	Population Density (CFAI)	CFAI Benchmark Travel time	CFAI Baseline Travel time
Metropolitan	1160 + km ²	4 minutes	5 min 12 sec
Urban	772 to 1160 km ²	4 minutes	5 min 12 sec
Suburban	386 to 772 km ²	5 minutes	6 min 30 sec
Rural	< 386 km ²	10 minutes	13 min
Wilderness	No appreciable population	n/a	n/a

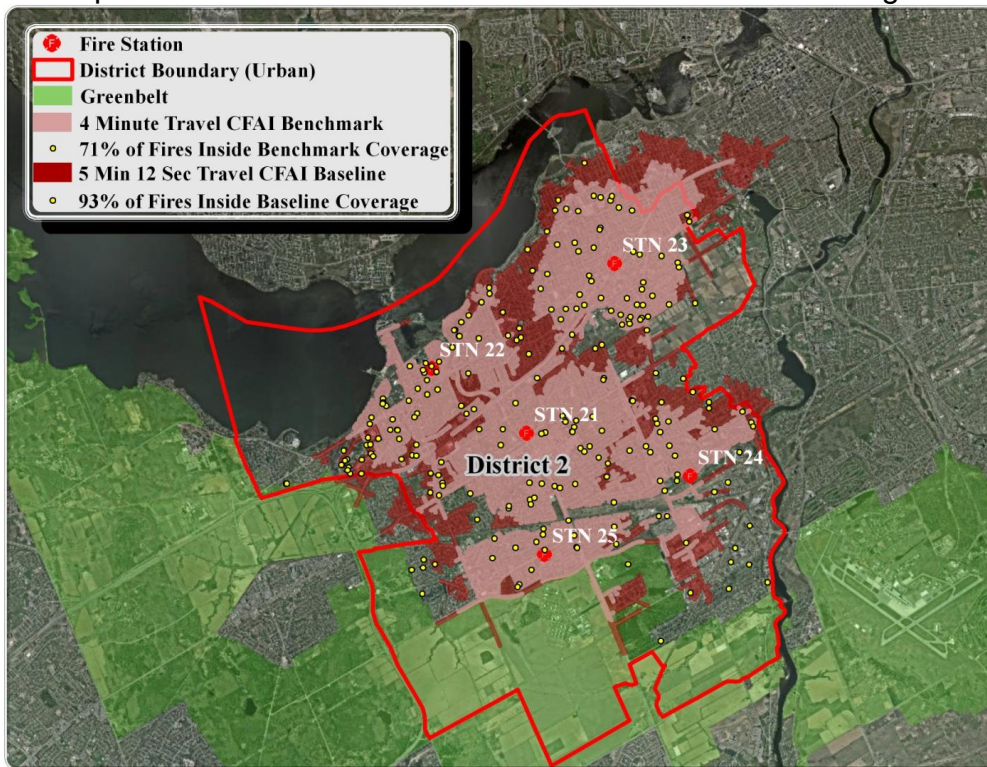
Using the Arc GIS system, all station response zones and districts have been analyzed using historical data and the GIS tool to display the travel response capabilities based on the standards above.

Distribution Methodology

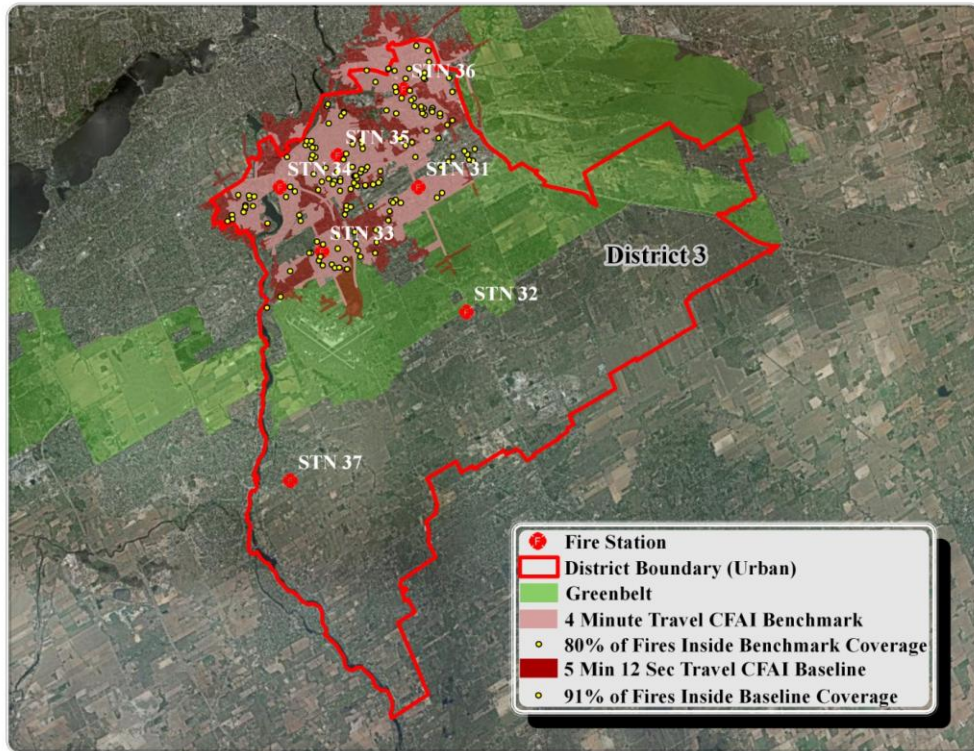
Distribution mapping (Map 12 - Map 22) illustrates the first in response coverage area of each station within the City of Ottawa's Urban, Suburban and Rural areas within a prescribed CFAI baseline or benchmark. ArcGIS and FME mapping software were used to clean and build a reliable road network based on historical travel times recorded by Ottawa Fire throughout the City. FDM GISA was then used to create coverage polygons based on a baseline or benchmark travel time depicting first in response. This model allows the Ottawa Fire Service 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. In the following maps, yellow dots identify actual fire events occurring within 2010-2012.



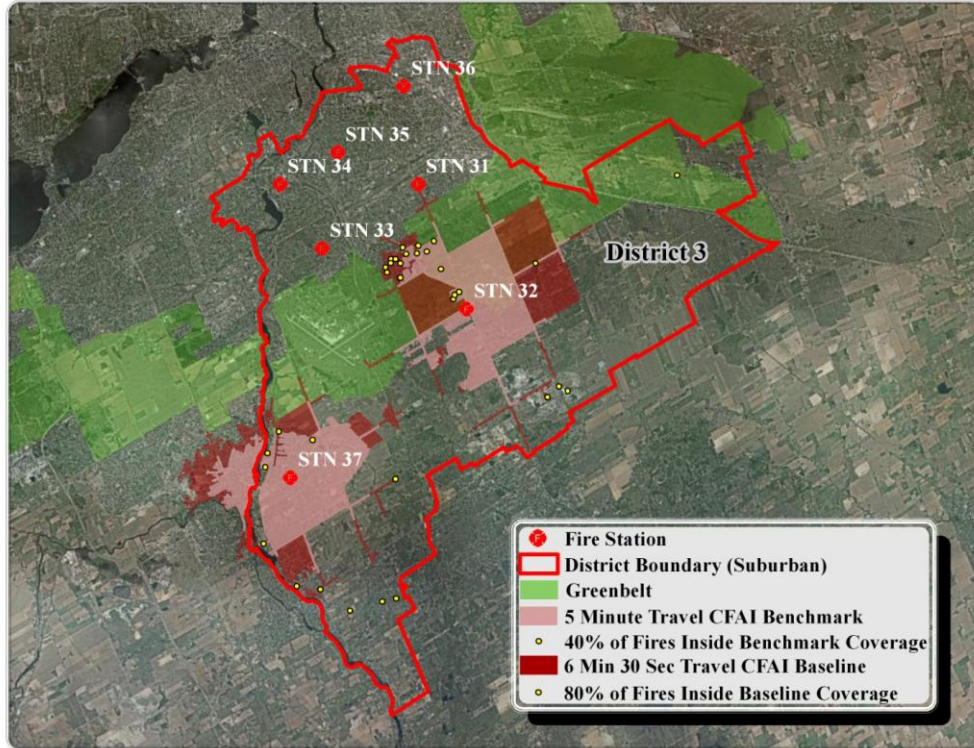
Map 12 - District 1 Urban Baseline and Benchmark Coverage



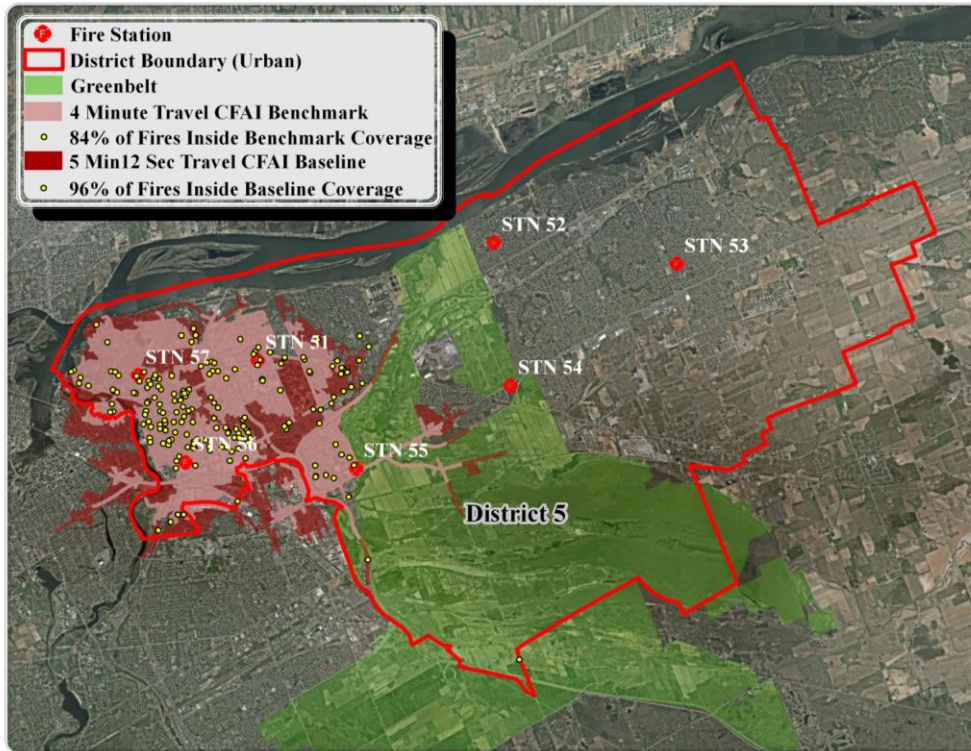
Map 13 - District 2 Urban Baseline and Benchmark Coverage



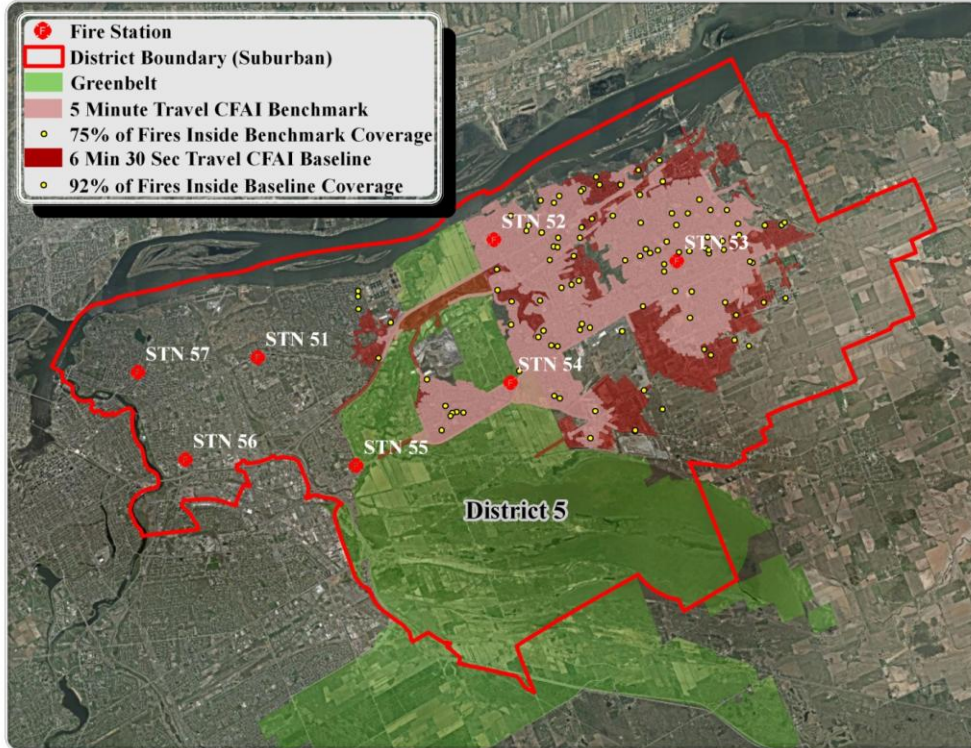
Map 14 - District 3 (Urban) Baseline Travel Time Coverage



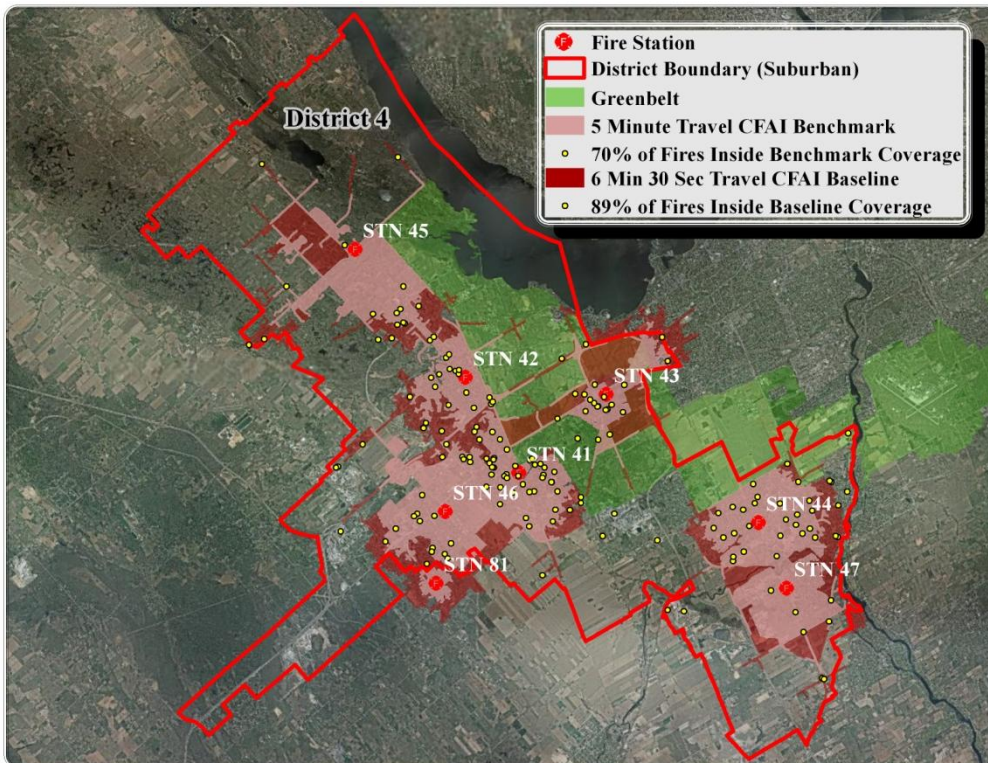
Map 15 - District 3 (Suburban) Baseline and Benchmark Coverage



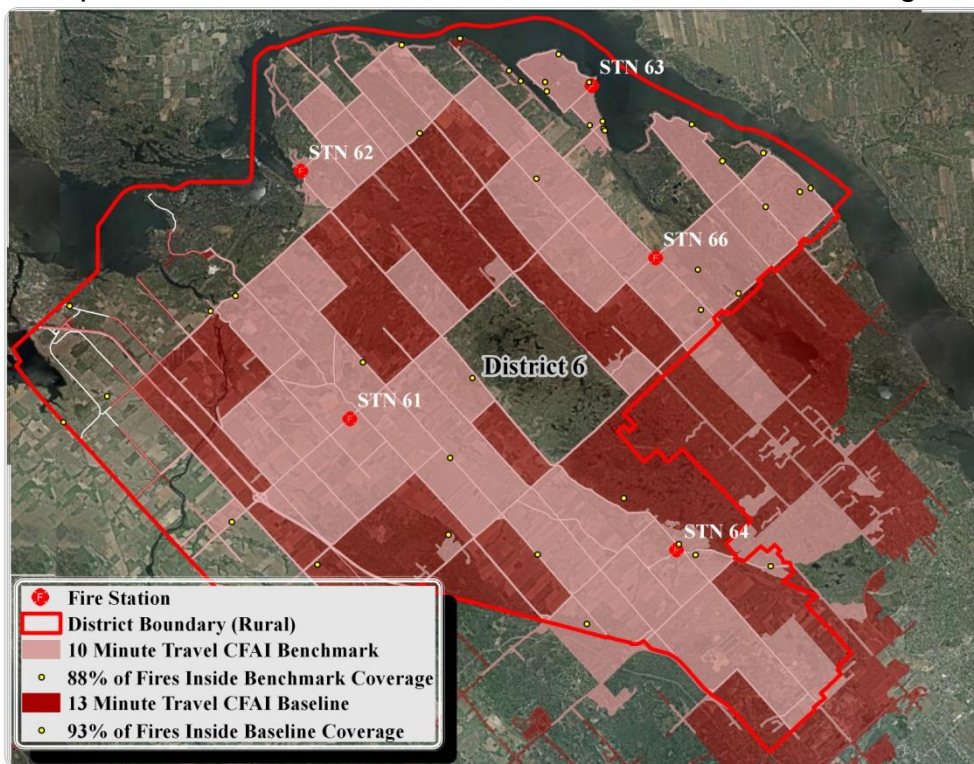
Map 16 - District 5 Urban Baseline and Benchmark Coverage



Map 17 District 5 Suburban Baseline and Benchmark Coverage

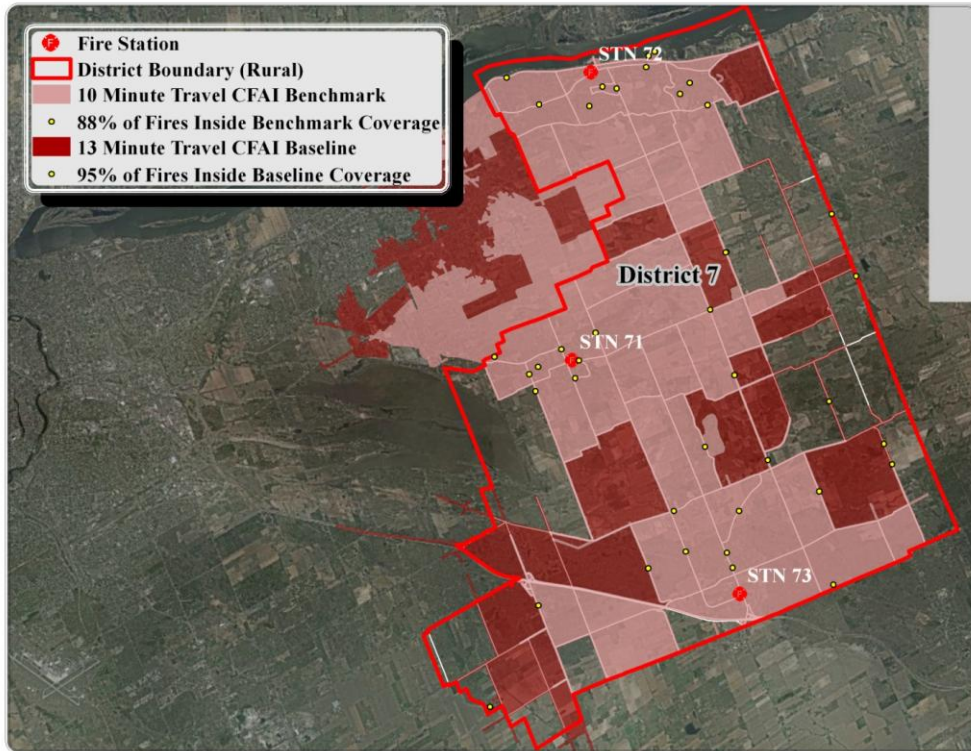


Map 18 District 4 Suburban Baseline and Benchmark Coverage

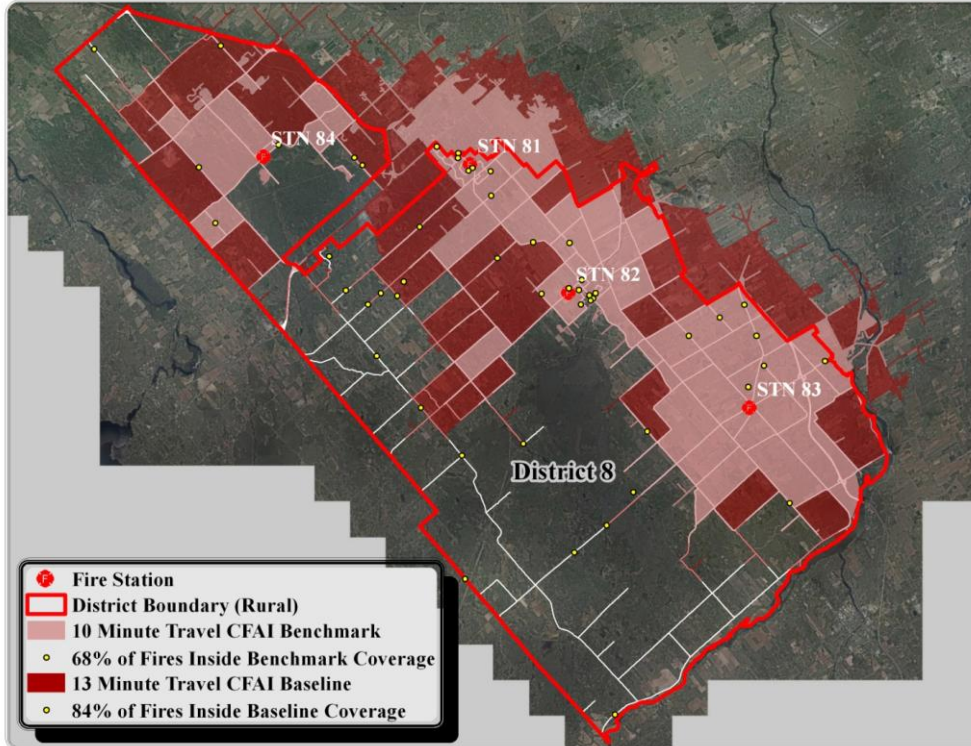


Map 19 - District 6 Rural Baseline and Benchmark Coverage

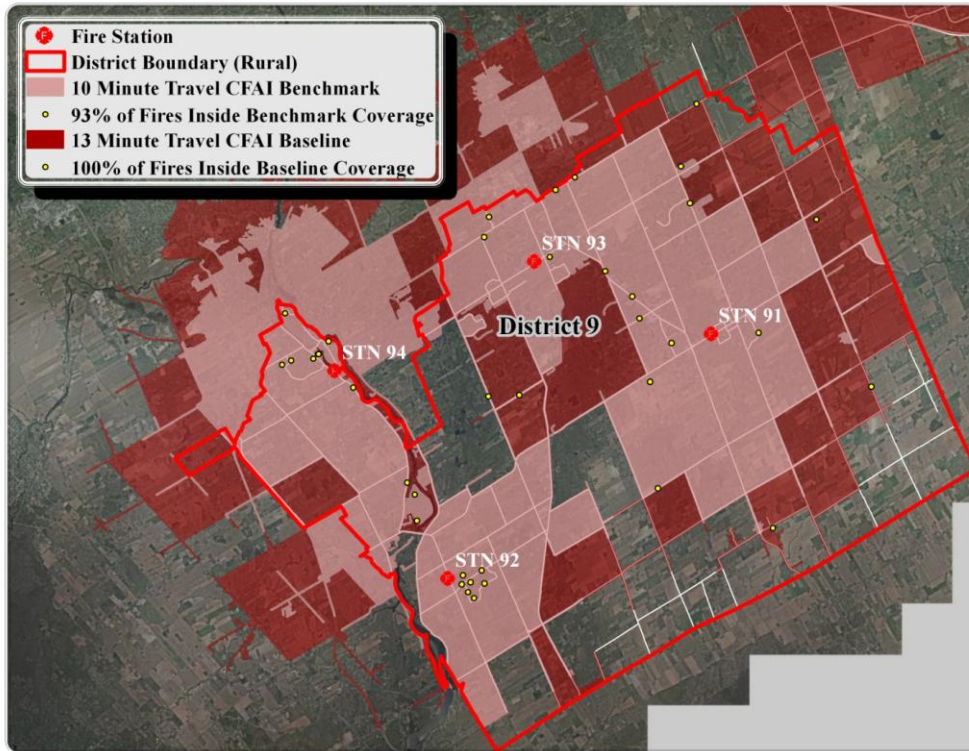




Map 20 - District 7 Rural Baseline and Benchmark Coverage



Map 21 - District 8 Rural Baseline and Benchmark Coverage



Map 22 - District 9 Rural Baseline and Benchmark Coverage

The historical fire data inlayed within the travel time maps show an effective range of coverage for 1st due apparatus for the urban areas of the City including 100% baseline coverage within the metro core. The suburban areas of district 3, 4 and 5 are the rapid growth areas of the City with expanding neighbourhoods and a minimum of 80% baseline coverage, these areas have been identified as requiring new deployment strategies. The rural sectors combined for 7% of the total fire incident volume within the greater city and had a baseline travel time of 84% or better. This data which is summarized in Table 38 and Table 39 provides a baseline of distribution performance from which delivery improvements can be based.

Table 38 - OFS Distribution Performance Summary (Career area)

District	Incidents Meeting CFAI Benchmark Travel Time/ Total	%	Incidents Meeting CFAI Baseline Travel Time/ Total	%
1	288/297	97 %	297/297	100 %
2	189/265	71%	231/265	87 %
3	Urban 153/192 Suburban 14/35	80% 40%	Urban 174/192 Suburban 28/35	91 % 80 %
4	137/196	70%	175/195	89 %
5	Urban 173/205 Suburban 82/110	84% 75%	196/205 101/110	96 % 92 %

Table 39 - Distribution Performance Summary (Volunteer area)

District	Incidents Meeting CFAI Benchmark Travel Time/ Total	%	Incidents Meeting CFAI Baseline Travel Time/ Total	%
6	37/42	88%	39/42	93%
7	38/43	88%	41/43	95 %
8	39/56	68%	47/56	84 %
9	40/43	93%	43/43	100 %

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 in order 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.

In order 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 & 5 Station staffing and apparatus levels).

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 including hazmat. As of 2011, once 2nd class firefighter status has been obtained all personnel in the career area are trained to the operations level for hazardous materials response. This is part of a succession plan in order to sustain the CBRNE and Hazmat programs.

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.

Recommendations for a thorough review of all technical program locations are contained within this report.

The travel times identified in Table 40 measured for the arrival of the Effective Response Force (ERF) for fire responses are based upon the CFAI benchmarks and baselines as defined on pg 71 of the FESSAM manual.

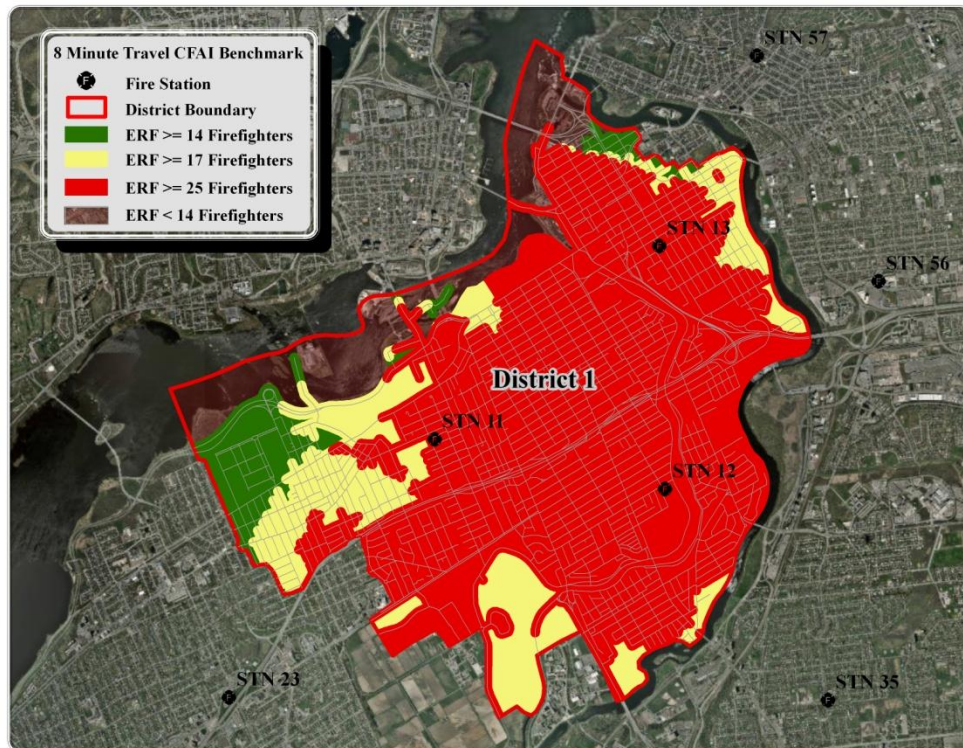
Table 40 - Effective Response Force Travel Time Benchmark and Baselines

Population Category	Population Density (CFAI) people/ km ²	CFAI Benchmark ERF Travel time	CFAI Baseline ERF Travel time
Metropolitan	> 1160 / km ²	8 minutes	10 min 24 sec
Urban	772 – 1160/ km ²	8 minutes	10 min 24 sec
Suburban	386 – 772/ km ²	10 minutes	13 min
Rural	< 386 / km ²	14 minutes	18 min 12 sec
Wilderness	No appreciable population	n/a	n/a
Risk and ERF numbers: Moderate (L1) - 14, Moderate (L2) - 17, High - 25 personnel			

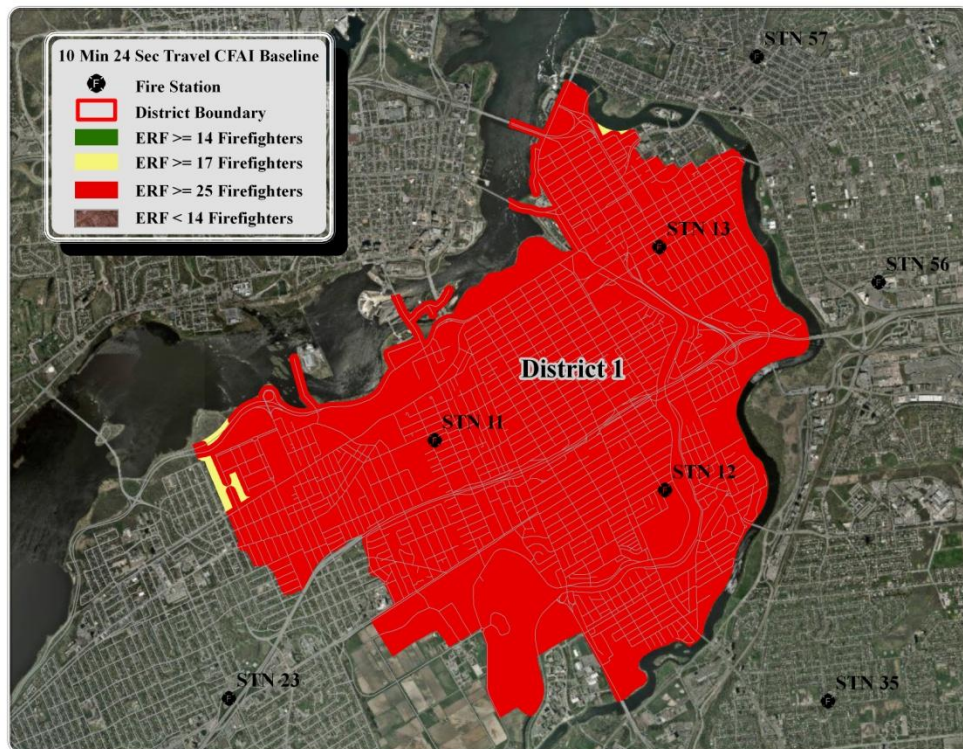
Combining historical data with the GIS mapping tool, a theoretical mapping of the ERF in specified timeframes was developed for the entire city where an effective response force was required. The validity of this model was tested by analyzing actual incident data for the type of emergency and verifying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

Concentration Methodology

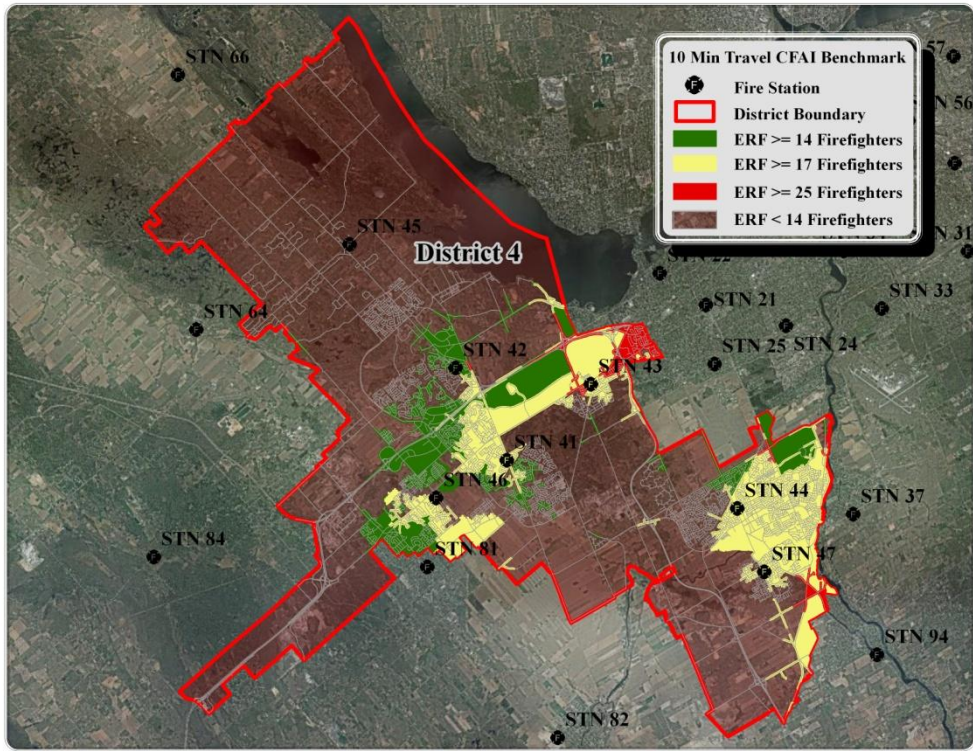
Concentration mapping illustrates the number of firefighters able to reach the City of Ottawa's Urban, Suburban and Rural areas within a prescribed CFAI benchmark or baseline. ArcGIS and FME mapping software were used to clean and build a reliable road network based on historical travel times recorded by Ottawa Fire throughout the City. FDM GISA was used to assign minimum staffing levels to each of the forty five (45) fire stations and subsequently run the road network through multiple concentration based scenarios counting and displaying the number of firefighters on scene within a baseline or benchmark travel time. This model allows Ottawa Fire 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. Benchmark and baseline travel time coverage is shown by district in Map 23 – Map 28. (All district concentration mapping can be found in Appendix Maps B.1 – B.22)



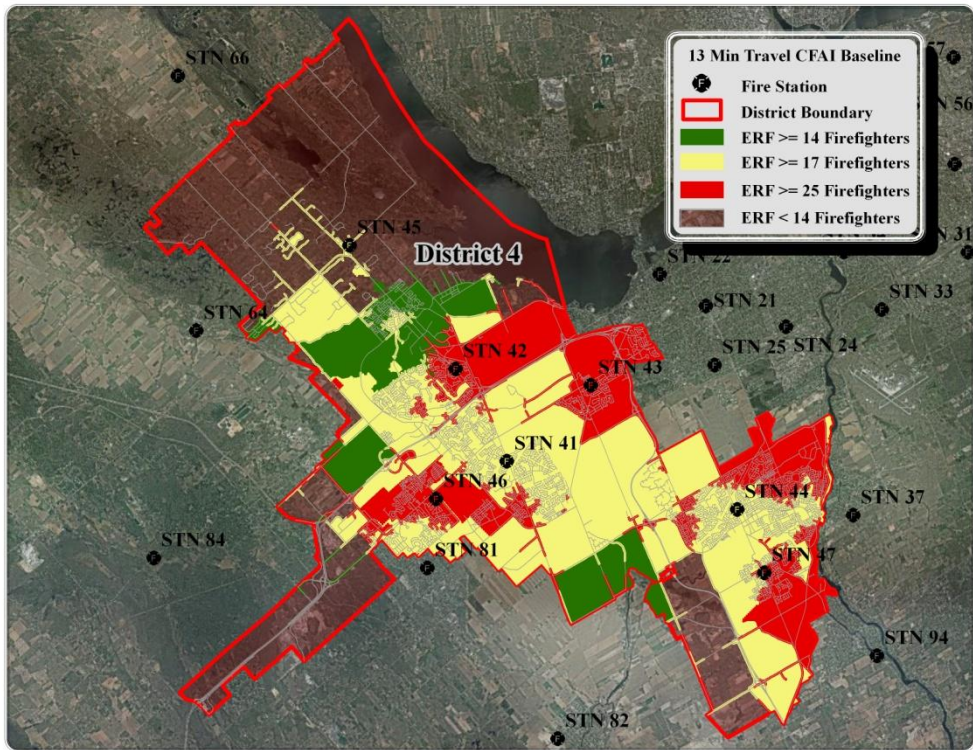
Map 23 - District 1 (Urban) Benchmark Travel Time Coverage



Map 24 - District 1 (Urban) Baseline Travel Time Coverage

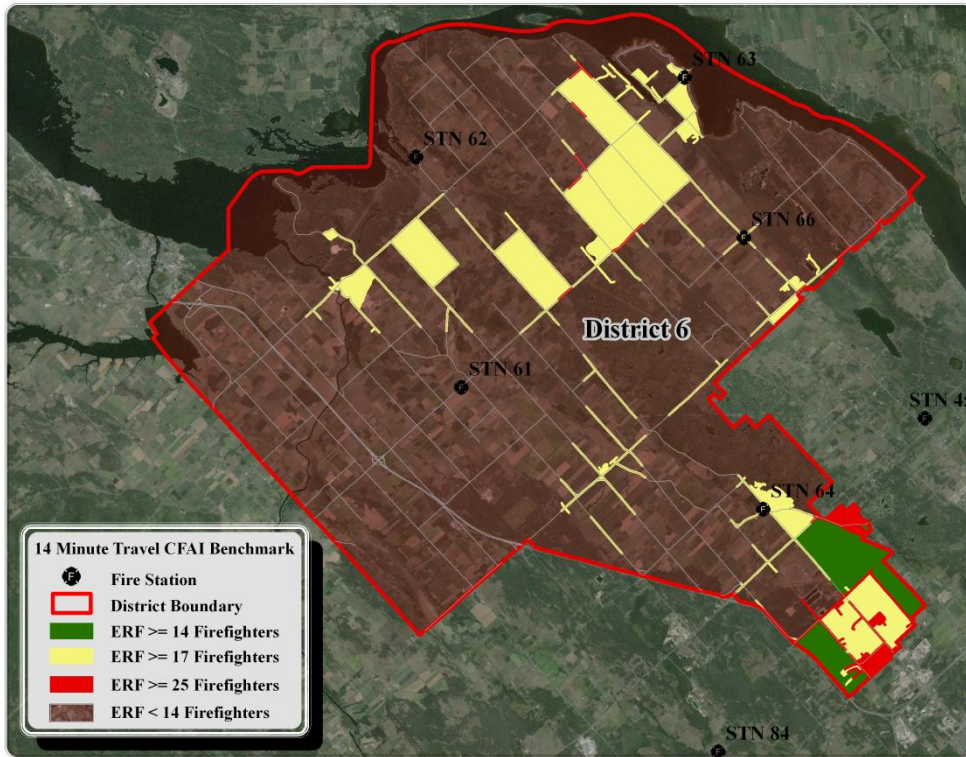


Map 25 - District 4 (Suburban) Benchmark Travel Time Coverage

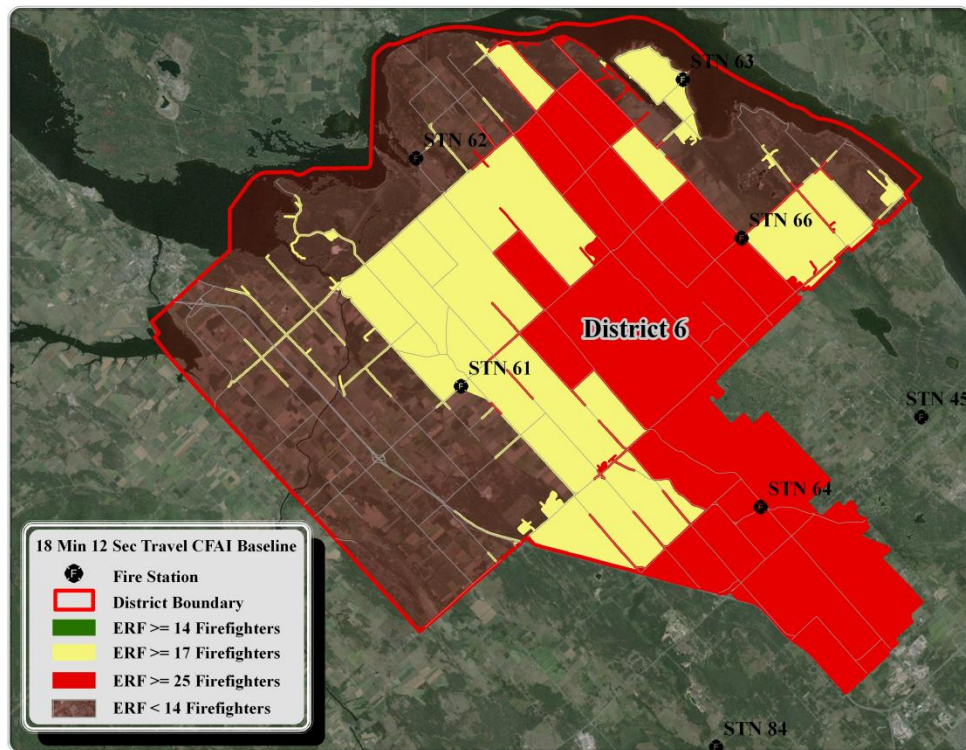


Map 26 - District 4 (Suburban) Baseline Travel Time Coverage





Map 27 - District 6 (Rural) Benchmark Travel Time Coverage



Map 28 - District 6 (Rural) Baseline Travel 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 performance travel maps above show the capability of the agency to concentrate resources in an effective amount of travel time within the downtown core containing the greatest number of “high risk” buildings. A further breakdown in map 29 shows the minimum concentration number of personnel who can reach the baseline time of 10:24. 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.



Map 29 - Concentration map # of Personnel within Baseline Target

Taking the risk assessment and concentration values into consideration demonstrate the percentage of properties in which resources are able to reach within the assessed amount of time. Table 41 below illustrates Ottawa Fire Services ability to reach 83% of its “High risk” properties with an Effective Response Force of 25 firefighters except the Suburban areas (see note below); At least 17 firefighters to 91% of its “Moderate Risk” properties using the upper moderate ERF number of 17, and 99 % of its “Low risk” properties.

Table 41 – Ability of Effective Response Force to Reach Categorized Risk Properties

	Urban 10 Min 24 Sec	Suburban 13 Min	Rural 18 Min 12 Sec
High Risk Prop	3,293	823	400
HR Prop	2,723	262	330
Percent Covered	83%	32%	83%
Moderate Risk Prop	102,681	101,752	37,174
MR Prop	97,223	92,170	34,934
Percent Covered	95%	91%	94%
Low Risk Prop	2,190	1,729	3,533
LR Prop	2,169	1,669	3,198
Percent Covered	99%	97%	91%

Note: The lack of coverage for high risk buildings in Suburban areas is directly related to the fact that Suburban response areas are isolated as a result of the Greenbelt delaying support from urban stations. Support from the volunteer force is also limited as volunteer stations do not respond within some of the “career” Suburban areas (collective agreement), specifically in hydrant areas where the majority of the high risk buildings are located. As such it is very difficult to obtain an effective response force of 25 firefighters or greater in a Suburban area, within the baseline standards as provided by CFAI (FESSAM pg. 71). It is important to note that high risk properties account for less than 1% of the total properties within the Suburban areas.

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 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 circumstances 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 19 (career) and Figure 20 (volunteer) for response reliability statistics.

The analysis in Figure 19 revealed that, with the exception of Stations 21, 34, 55 and 56; the vast majority of the initial response vehicles were either first on scene or arrived on scene in their own response area within 80-90% of the time.

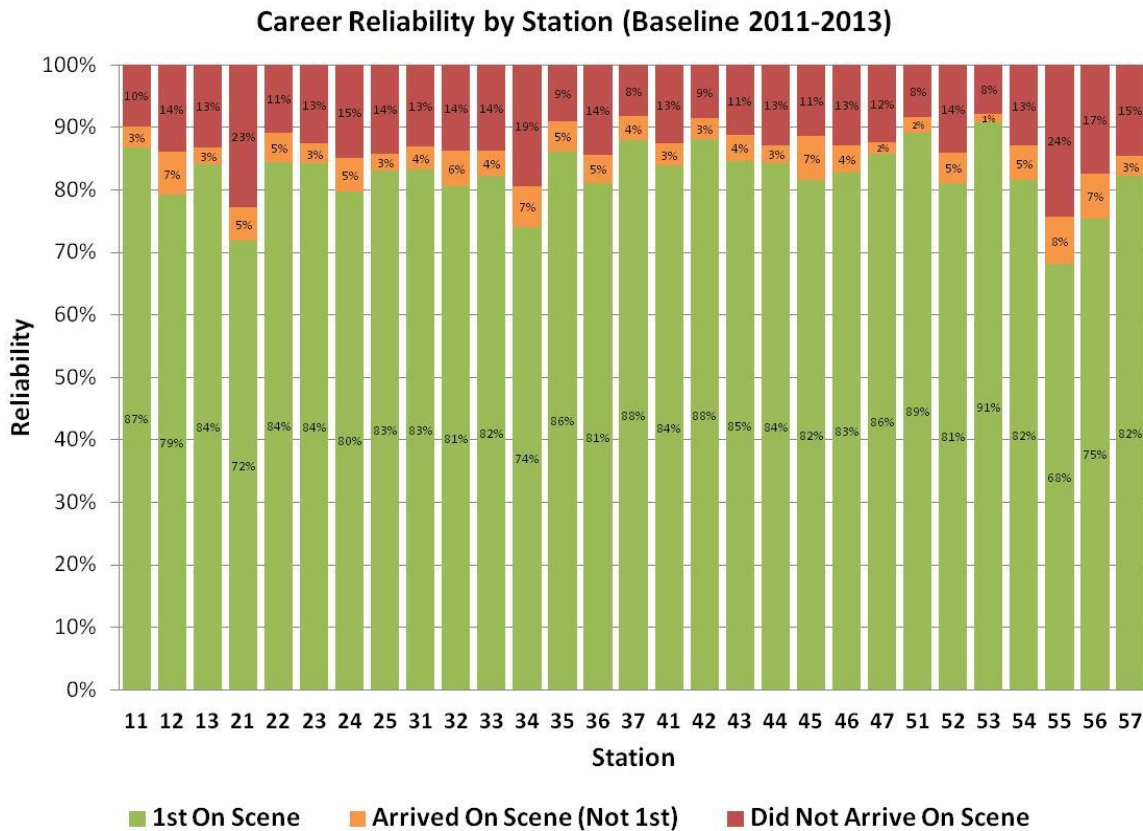


Figure 19 - Career Response Reliability for First on scene by station (2011-2013)

Research has revealed that it is conventional practice for dispatchers to use stations 55 and 34 to cover off at other stations for training, emergency events etc. The standard practice is to use Pumps 13B and 11B for covering off however, as a result of these pumps often being out of commission due to staffing limitations, the next pumps used for coverage in other districts are Pumps 55 and 34. The use of these pumps for frequent “cover offs” in other response zones is largely contributable to the fact that they are either; not first to arrive in their own zone or they are not available for response in their own zone.

With regards to Station 56 not attaining the minimum threshold of 80% 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.

A preliminary investigation was conducted into Station 21 “in-zone” responses and it was revealed that during 2 of the 3 years of data used, the main station access artery of Woodroffe Avenue was under heavy construction, this delayed response to a large part of the zone and access to Hwy 417. Station 21 is also periodically out of service or out

of its response zone due to hazmat training, hazmat incidents, or for servicing of technical equipment.

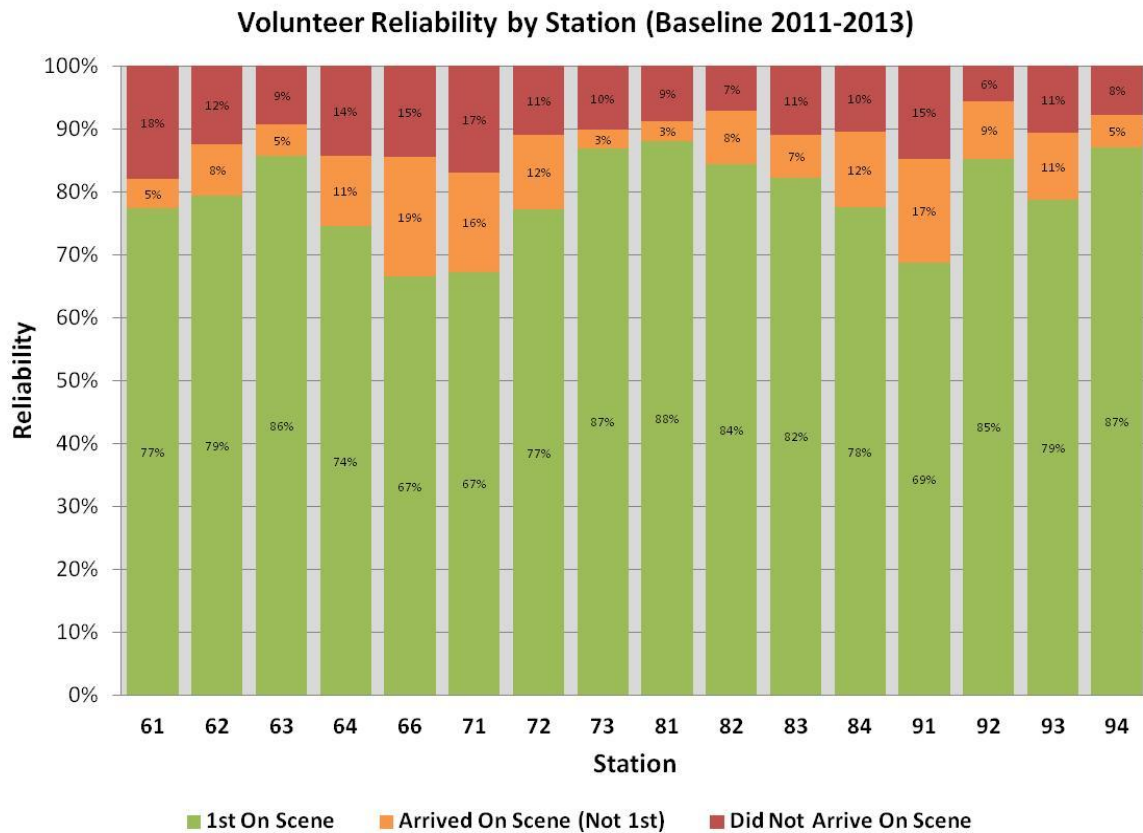


Figure 20 - Volunteer Response Reliability for First Onscene by Station (2011-2013)

A number of factors can affect the reliability of rural response including; distance of travel for volunteers to rural fire stations, daytime attrition (lack of volunteers during working hours), construction of limited rural arteries, inclement weather and vast areas of response coverage. The analysis in Figure 20 shows a relatively high overall reliability for first in volunteer responses with the exception of Stations 64, 66, 71 and 91 requiring further investigations.

Stations 66 and 91 are located outside of a suburban density area (Village); the residential population is very spread out in these Rural Communities which results in longer turn out times. As a consequence firefighters must travel further to reach the hall. In both cases however, the hall is in the right location for the community. The result is that (given the size and number of grids) these two stations may be the second in vehicle but still the first in pump.

Proximity to the suburban “career” boundary is a definite factor as these stations that border Stations 64, 66, 71 may in fact be on-scene first given the size of a specific grid

and the relative location in the grid to and from both suburban “career” and rural stations.

Vehicles that are placed “out of service” may require an out of district vehicle to respond into another area due to vehicles enroute to Swansea for repairs, pump testing, undercoating, maintenance (23) delivery. 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.

Analysis of the agencies reliability is vital in determining where service provision should be focussed. This measurement will be used to plan training, staffing levels and resource allocation. It will also be used to determine both response capacity and residual response capacity.

Reliability road network mapping for each station has been completed and can be accessed upon request electronically due to the large size of the information.

Comparability

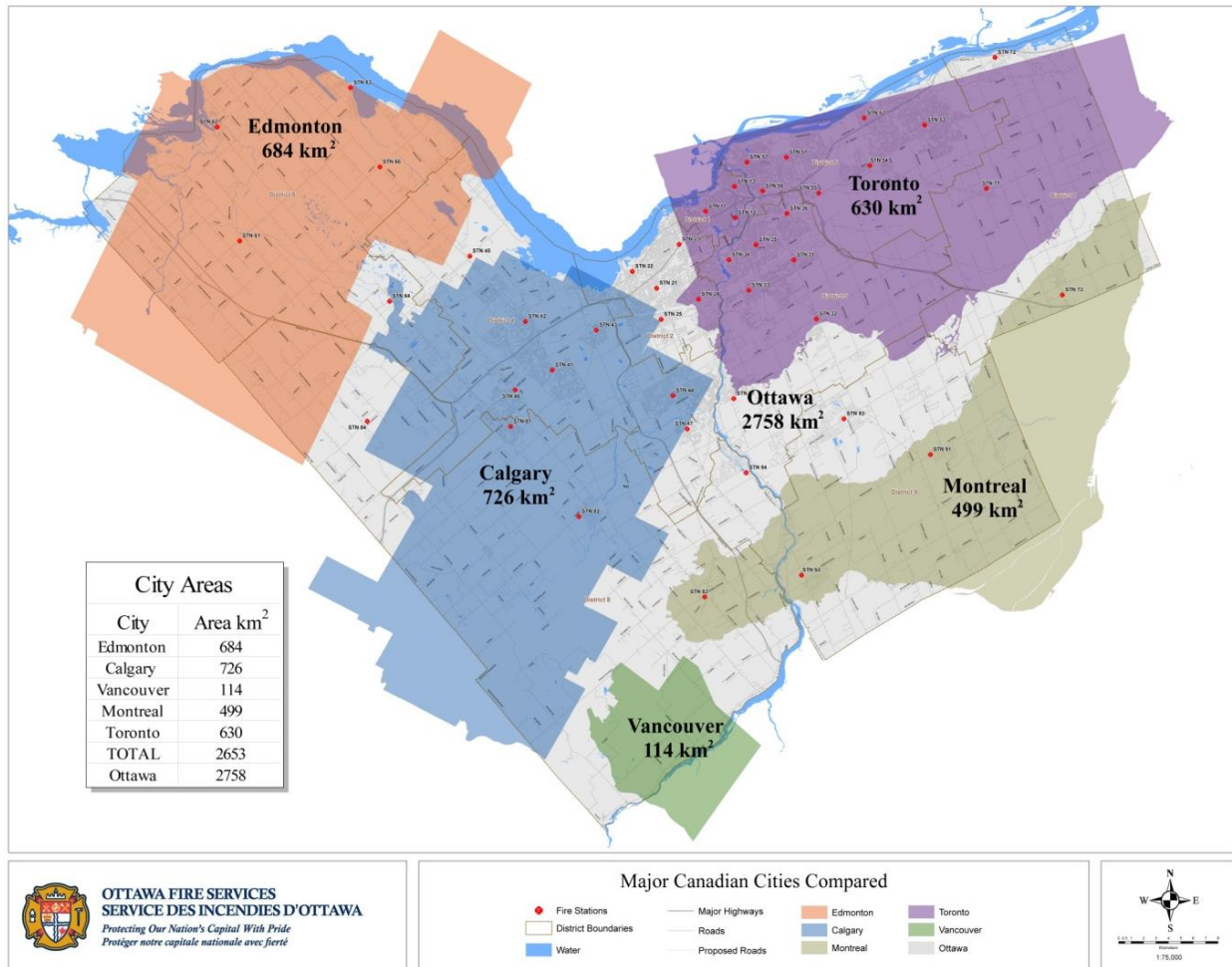
An important tool in measuring how an agencies system is performing can include a comparison analysis.

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 30 displays the size of the City in comparison to other major Canadian cities, the enormity of the area and composite nature of the Ottawa Fire Service are unlike any other major jurisdiction.

When compared to the largest metropolitan fire departments in Canada, Ottawa Fire Services serves a vast geographic area that exceeds the total combined areas served by Vancouver, Montreal, Toronto, Edmonton and Calgary Fire services (see Table 42). In fact, the OFS coverage is more than four times that of Toronto, Canada’s most populous city.



Map 30 - Major Canadian Cities Compared
Table 42

City	Ottawa **	Edmonton	Calgary	Mississauga	Vancouver
Population (000's)	936	818	1,120	738	609
Geographic area served (sq km) **	910 urban 1886 rural	701	848	288.4	128
Number of Stations	29 career 16 volunteer	26	38	20	20
Staffing *	903 career 486 volunteer	956	1,196	616	728
Total Incident Volume	25,210	37,210	52,918	25,506	46,856
Total Fire Budget (\$000)	\$138,692	\$166,251	\$187,109	\$86,647	\$90,000

Data collected courtesy of the City of Calgary

* staffing figures based on career positions

** Ottawa is a composite department with 16 stations, 486 volunteer personnel, and 1,886 sq km of rural territory as part of its response territory.

A notable comparison to the number of incidents is also the high percentage of false alarms the agency deals with as compared to overall incident volume. It appears Ottawa is considerably higher in the percentage of false alarms as compared to other major cities. Many comparable cities have a process for charging for a false alarm, currently Ottawa does not charge for this response service (see Table 43).

It has been identified that the number of medical incidents the agency responds to have dropped significantly over the last several years which inflates the percentage of false alarms as to overall incident data.

Ottawa Fire Services has identified false alarm reduction as a priority and mitigation plans have been tabled at the FLT level for approval.

Table 43 – Multiple City Fire Service Incident Type Comparison 2010-2012

City Year	Ottawa 2012	Edmonton 2012	Calgary 2012	Mississauga 2010
Incident Volume	25,210	37,210	52,918	25,506
# False Alarm (FA)	8310	6065	8328	4337
% False Alarm	33%	16.3%	15.7%	18%
% medical incidents	19.5%	49.8%	49.4%	45%

Ottawa Fire Services also compares its service performance to other similar fire services through being a member of the Ontario Municipal Benchmarking Initiative (OMBI).

OMBI is a partnership of municipalities all working together to provide credible municipal data to measure and compare how efficiently and effectively services are delivered. It is a potential method to maximize the efficiency and quality of services, by sharing successful techniques and best practices and assist municipalities to compete globally.

OMBI has an established and proven methodology, benchmarking framework and protocols for collecting and reporting information and the built in 'peer review' complements each municipality's examination of their own internal performance. Performance measures are noted and are greatly affected by influencing factors, some of which may be unique to each reporting Municipality. For instance, the two measures below (Table 44 and Figure 21) would be greatly influenced by the provision of fire prevention activities, public education programs and fire safety standards.

Table 44 - OMBI Measures Fire 105 and Fire 110 (Community Impact)

Municipality	Residential Fire Related Injuries per Population (Urban and Rural)			Residential Fire Related Fatalities per Population (Urban and Rural)		
	2010	2011	2012	2010	2011	2012
Barrie	6.57	10.1	6.49	0.71	0.71	0.7
Calgary	4.26	4.26	4.9	0.19	0.18	0.27
Hamilton	2.61	1.74	1.79	0.76	0.19	0.19
London	1.98	2.9	4.59	0.82	0	0.27
Ottawa	2.83	2.8	3.32	0.11	0.43	0.21
Sudbury (Greater)	9.17	11.99	5.54	0.63	0.62	0.62
Thunder Bay		20.82	21.99	0.00	1.85	2.77
Toronto	5.66	4.37	4.94	0.58	0.61	0.39
Windsor	7.76	6.97	7.85	0.46	1.9	0.95
Winnipeg	9.70	16.12	13.28		0.87	0.99
Median of Municipal Results	5.66	5.67	5.24	0.58	0.615	0.505

*source: OMBI 2012 report

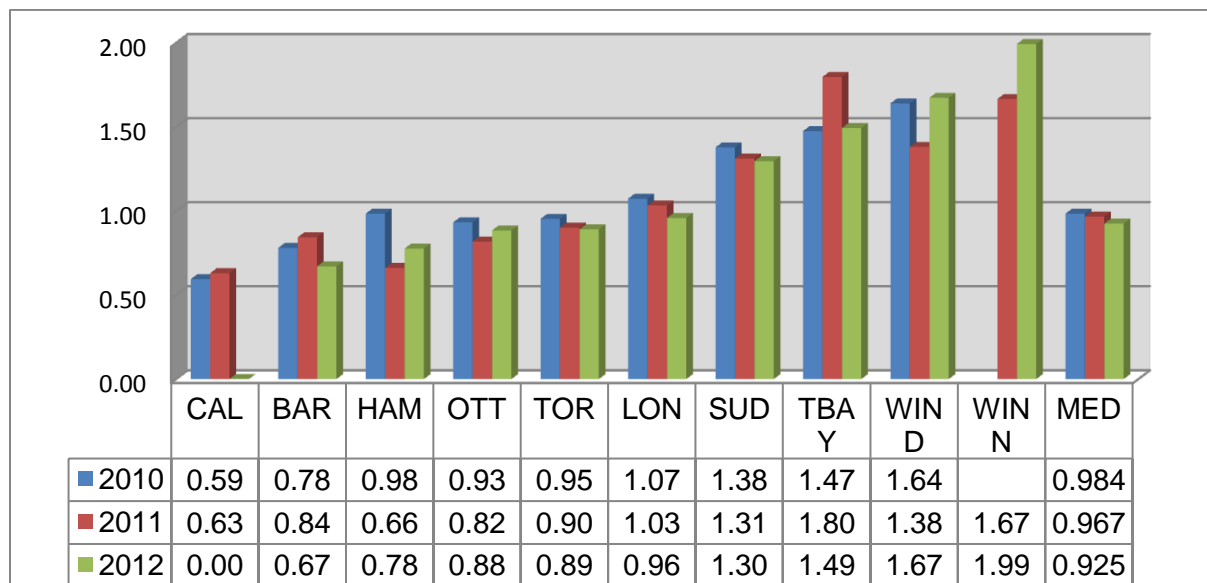


Figure 21 - OMBI Measure Fire 116 (Community impact) - Rate of Residential Structure Fires with Losses per 1,000 Households (Urban)

The figure below (Figure 22) shows the trend of Ottawa Fire Services incident volume by year (2011-2011) compared to that of the entire province of Ontario. Ottawa's incident volumes have followed the provincial trend and appear to be stable.

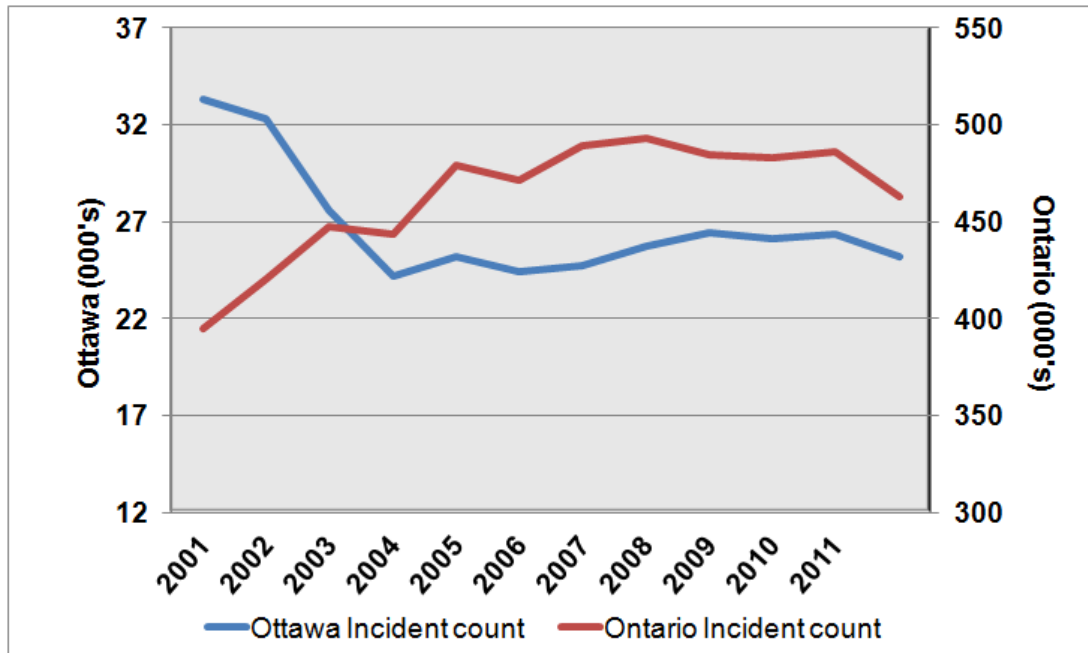


Figure 22 - Incident Count Comparison Ottawa vs. Ontario

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 3 years (2011-2013) of performance data in this analysis. A "dashboard" of statistics is available to the agency on a monthly basis for comparison analysis (Figure 23 and Figure 24 show an example statistic).

Ottawa Fire Services has set its turnout time target in line with the CFAI baseline of 1 minute and 30 seconds. The completion of installing MDT's and status messaging on all apparatus will improve the capturing of more accurate data. Information sharing and accountability from administration has been provided to the officers in 2013 with attention to the improvement of turnout times.

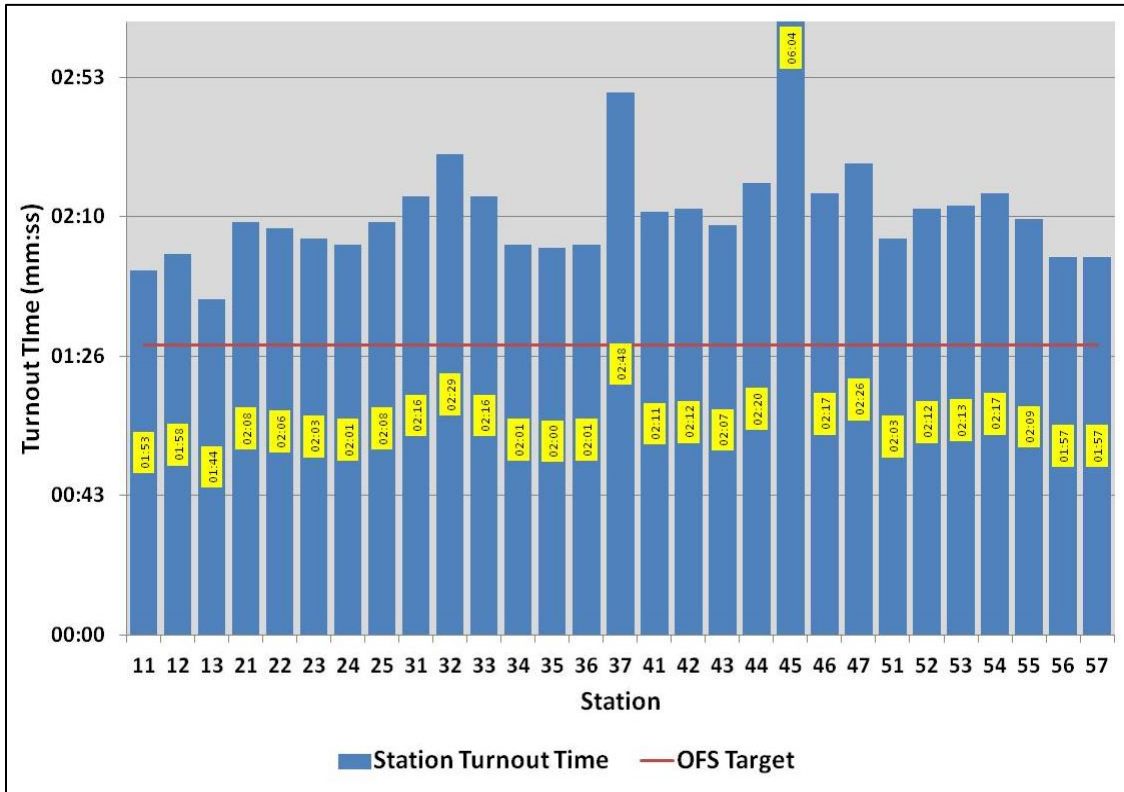


Figure 23 - Career 90th Percentile Turnout Time by Station (2011-2013)

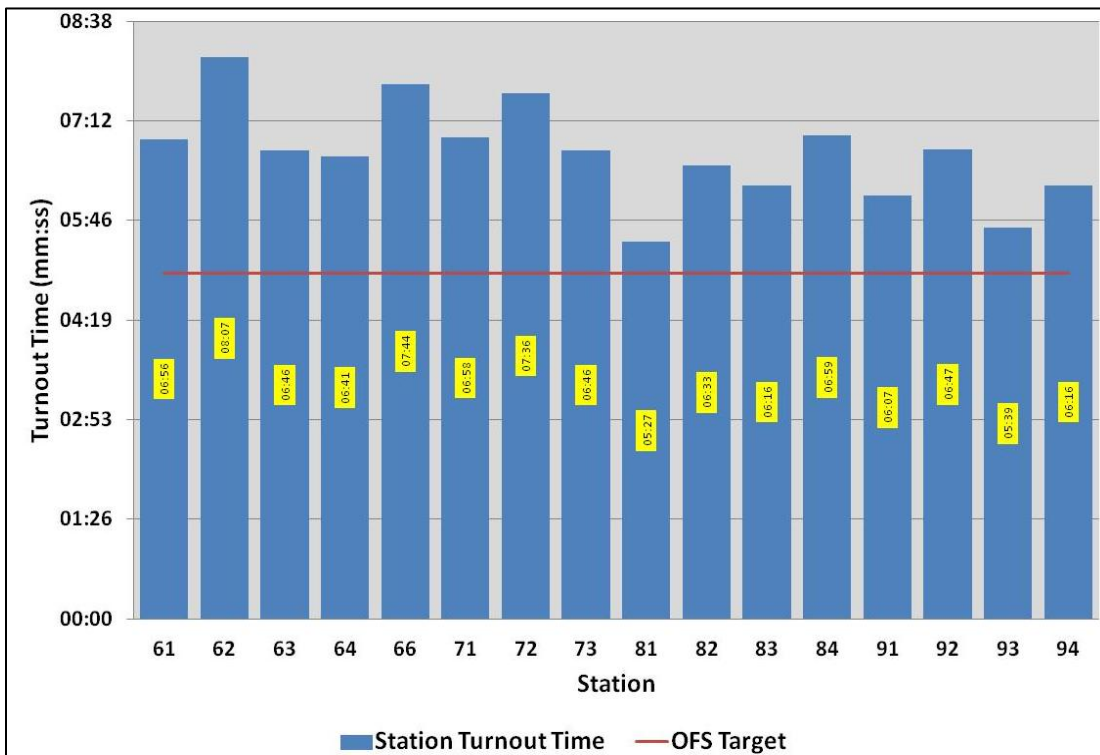


Figure 24 - Volunteer 90th Percentile Turnout Time by Station (2011-2013)



Component 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)⁵, 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 performance benchmarks for fire, medical and rescue incident responses (NFPA 1710, 1720) and NFPA 1221).

Incident response times for 2011, 2012 and 2013 were used to determine the Ottawa Fire Service baselines and provided a foundation upon which future decisions can be based. The OFS has adopted the CFAI baseline for response data components where the minimum CFAI baseline objective is not being met. It has further adopted the 85th percentile of the OFS baseline data gathered over the 3 years to establish local performance benchmarks (“OFS targets”) as part of a continuous quality improvement process, this establishes a 5% improvement goal. It is the gap which separates the baselines and benchmarks that departmental strategies and action plans aim to improve. There are specific areas where baseline data is not available due to a lack of responses (e.g. Collapse incidents, High risk hazmat). These ERF benchmarks will be established in future based on statistical data and GIS modelling.

The following are the performance statements with benchmark and baseline objectives, Appendix Tables T.1 – T.13 displays these statements and targets in table format.

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 general public.

Distribution

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 33 seconds in metro and urban areas; 8 minutes and 39 seconds in suburban areas; and 12 minutes and 06 seconds in rural areas.

⁵ Fire Protection And Prevention Act, 1997, S.O. 1997, chapter 4 – Part II, Responsibility for the Fire Protection Services

For 90 percent of all low risk fires within the **Volunteer sectors** of the City, the total response time for the arrival of the first-due unit shall be; 11 minutes 47 seconds in suburban areas; and 16 minutes and 51 seconds in rural areas.

For 90 percent of all moderate and high risk structure 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 35 seconds in metro and urban areas; 8 minutes and 31 seconds in suburban areas; and 11 minutes 22 seconds in rural areas.

For 90 percent of all moderate and high risk structure fires within the **Volunteer sectors** of the City, the total response time for the arrival of the first-due apparatus shall be; 9 minutes and 9 seconds in suburban areas; and 16 minutes in rural areas.

The first-due unit for all risk levels shall be 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; 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.

Concentration

For 90 percent of all Moderate risk (L1) structure fires within the **Career districts** of the City, the total response time for the arrival of the effective response force (ERF), staffed with 14 firefighters and officers, shall be; 13 minutes and 24 seconds in metro and urban areas; 16 minutes in suburban areas; and 18 minutes and 45 seconds in rural areas.

For 90 percent of all Moderate risk (L2) structure fires within the **Career districts** of the City, the total response time for the arrival of the effective response force (ERF), staffed with 17 firefighters and officers shall be; 13 minutes and 24 seconds in metro and urban areas and 16 minutes in suburban areas.

For 90 percent of all High risk structure fires within the **Career districts** of the City, the total response time for the arrival of the ERF, staffed with 25 firefighters and officers, shall be; 13 minutes and 24 seconds in metro and urban areas and 16 minutes in suburban areas.

For 90 percent of all Moderate risk (L1) structure fires within the **Volunteer sectors** of the City, the total response time for the arrival of the effective response force (ERF), staffed with 14 firefighters and officers shall be; 16 minutes in suburban areas; and 21 minutes and 12 seconds in rural areas.

For 90 percent of all Moderate risk (L2) structure fires within the **Volunteer sectors** of the City, the total response time for the arrival of the effective response force ERF staffed with 17 firefighters and officers shall be; 16 minutes in suburban areas; and 20 minutes and 15 seconds in rural areas.

For 90 percent of all High risk structure fires within the **Volunteer sectors** of the City, the total response time for the arrival of the effective response force (ERF), staffed with 14 firefighters and officers shall be; and 21 minutes and 12 seconds in 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 general public.

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.

For 90 percent of all Emergency Medical Service incidents within the **Career districts** of the City, the total response time for the arrival of the first-due unit, consisting of 3 firefighters and 1 officer (also recognized within the service as the effective response force), shall be; 6 minutes and 26 seconds for the Metro/Urban areas, 7 minutes 40 seconds for rural areas, and 11 minutes and 46 seconds for the rural areas.

For 90 percent of all Emergency Medical Service incidents within the **Volunteer sectors** of the City, the total response time for the arrival of the first-due unit in suburban areas shall be; 9 minutes and 48 seconds, and for rural areas, 13 minutes and 38 seconds.

This unit will 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.

Rescue Services

Distribution

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.

For 90 percent of all Rescue 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; 6 minutes and 48 seconds within the Urban /Metro areas, 7 minutes and 27 seconds for suburban areas, and 10 minutes 47 seconds for rural areas.

For 90 percent of all Rescue incidents located within the **Volunteer sectors** of the City, the total response time for the arrival of the first-due unit shall be; 10 minutes 50 seconds for suburban areas and 16 minutes 21 seconds for rural areas.

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.

Concentration

Rescues - Vehicle MVC/Extrication

For 90 percent of all Vehicle Rescue incidents within the **Career districts** of the City, the total response time for the arrival of the effective response force (ERF), staffed with a minimum of 8 firefighters and officers shall be; 8 minutes and 46 seconds in the Metro/Urban area, 10 minutes 37 seconds in the suburban areas, and 13 minutes 20 seconds in the rural areas.

For 90 percent of all Vehicle Rescue incidents located within the **Volunteer sectors** of the City, the total response time for the arrival of the effective response force (ERF), staffed with a minimum of 8 firefighters and officers shall be; 19 minutes and 52 seconds in the rural sectors.

The ERF 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 general public.

Rescues - Water/Ice

For 90 percent of all Water/Ice/Swift water rescues within the **Career districts** of the City, the total response time for the arrival of the effective response force (ERF), staffed with a minimum of fifteen firefighters and officers shall be; 19 minutes and 48 seconds in the Metro/Urban area and 20 minutes and 45 seconds in the suburban areas, and 22 minutes and 26 seconds in the rural areas.

For 90 percent of all Water/Ice/Swift water rescues within the **Volunteer sectors** of the City, the total response time for the arrival of the effective response force (ERF) shall be; 28 minutes and 28 seconds in the rural areas.

The ERF 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 general public.

Rescues – Technical Rescues

For 90 percent of all Trench, Confined Space, High/Low Angle rescues within the **Career districts** of the City, the total response time for the arrival of the effective response force (ERF), staffed with 23 firefighters and officers shall be; 26 minutes and 55 seconds to suburban areas.

For 90 percent of all Building Collapse 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; 33 minutes and 04 seconds in metro and urban areas.

Due to small number of Tech rescue incidents requiring an ERF, the department has limited data for Urban/suburban incidents within career areas and no current baseline data for high technical rescue response incidents occurring within the Volunteer sectors of the City.

The ERF for moderate risk and high risk incidents are capable of: establishing command; size-up, establishing a hazard protection zone, advanced search 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.

Hazardous Materials Services

Distribution

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 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 31 seconds within the Metro/Urban areas, 9 minutes and 22 seconds in the Suburban areas, and 13 minutes and 37 seconds in the rural areas.

For 90 percent of all Hazardous Material incidents occurring within the **Volunteer sectors** of the City, the total response time for the arrival of the first-due unit shall be; 12 minutes and 53 seconds to suburban areas and 17 minutes and 16 seconds to rural areas.

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.

Concentration

For 90 percent of all high risk Hazardous Materials incidents within the **Career districts** of the City, the total response time for the arrival of the effective response force (ERF), staffed with a minimum of 19 firefighters and officers shall be; 23 minutes and 11 seconds within the Metro/Urban areas of the City.

The ERF is capable of: establishing command, size-up, establishing hazard zone levels, perimeter monitoring, decontamination, evidence preservation, technical advice.

Due to small number of High risk Hazmat incidents requiring an ERF, the department has limited data for suburban incidents within career areas and no current baseline data for high Hazmat rescue response incidents occurring within the Volunteer sectors of the City to establish realistic ERF benchmarks.

Baseline Performance Levels

Based on three years of historical data the following baselines have been established for the following services within the Ottawa Fire Service.

Fire Suppression services

Distribution

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 57 seconds in metro and urban areas; 9 minutes and 7 seconds in suburban areas; and 12 minutes and 44 seconds in rural areas.

For 90 percent of all low risk fires within the **Volunteer sectors** of the City, the total response time for the arrival of the first-due unit is; 12 minutes and 24 seconds in suburban areas; and 18 minutes in rural areas.

For 90 percent of all moderate and high risk structure 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 56 seconds in metro and urban areas; 8 minutes and 58 seconds in suburban areas; and 11 minutes and 58 seconds in rural areas.

For 90 percent of all moderate and high risk structure fires within the **Volunteer sectors** of the City, the total response time for the arrival of the first-due apparatus is; 20 minutes and 51 seconds in suburban areas; and 24 minutes and 23 seconds in rural areas.

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 general public.

Concentration

For 90 percent of all moderate risk (L1) structure fires within the **Career districts** of the City, the total response time for the arrival of the effective response force (ERF), staffed with 14 firefighters and officers, is; 15 minutes and 20 seconds in metro and urban areas, 17 minutes 40 seconds in the suburban areas and 19 minutes and 44 seconds in the rural areas.

For 90 percent of all moderate risk (L2) structure fires within the **Career districts** of the City, the total response time for the arrival of the effective response force (ERF), staffed with 17 firefighters and officers, is; 15 minutes and 45 seconds in metro and urban areas and 18 minutes and 51 seconds in suburban areas.

For 90 percent of all high risk structure fires within the **Career districts** of the City, the total response time for the arrival of the ERF, staffed with 25 firefighters and officers, is; 19 minutes and 34 seconds in metro and urban areas and 24 minutes and 51 seconds in suburban areas. For Career “suburban” and “rural” areas there is not enough ERF data to establish current baselines.

For 90 percent of all moderate risk (L1) structure fires within the **Volunteer sectors** of the City, the total response time for the arrival of the effective response force (ERF), staffed with 14 firefighters and officers, is; 20 minutes and 51 seconds in suburban areas; and 24 minutes and 47 seconds in rural areas.

For 90 percent of all moderate risk(L2) structure fires within the **Volunteer sectors** of the City, the total response time for the arrival of the effective response force (ERF), staffed with 17 firefighters and officers is 21 minutes and 11 seconds in rural areas.

For 90 percent of all high risk structure fires within the **Volunteer sectors** of the City, the total response time for the arrival of the ERF, staffed with 25 firefighters and officers, is 22 minutes and 44 seconds in rural areas.

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 structure fires is also capable of placing elevated streams into service from aerial ladders. 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 general public.

Emergency Medical Services

For 90 percent of all Emergency Medical Service incidents within the **Career districts** of the City, the total response time for the arrival of the first-due unit, consisting of 3 firefighters and 1 officer (also recognized within the service as the effective response force) is; 6 minutes and 46 seconds for the Metro/Urban areas, 8 min and 4 seconds in the suburban areas, and 12 minutes 21 seconds in rural areas.

For 90 percent of all Emergency Medical Service incidents within the **Volunteer sectors** of the City, the total response time for the arrival of the first-due unit in suburban areas is; 10 min and 19 seconds in the suburban areas, and 14 minutes 21 seconds for rural areas.

This unit will 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 distribution and concentration values are the same.

Rescue Services

Distribution

For 90 percent of all Rescue 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; 6 minutes 52 seconds within the Urban /Metro areas, 7 minutes 50 seconds in suburban areas and 11 minutes 25 seconds in rural areas.

For 90 percent of all Rescue incidents located within the **Volunteer sectors** of the City, the total response time for the arrival of the first-due unit is; 9 minutes 53 seconds for suburban areas and 16 minutes 14 seconds for rural areas.

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.

Concentration

Rescues - Vehicle MVC/Extrication

For 90 percent of all vehicle rescue incidents within the **Career districts** of the City, the total response time for the arrival of the effective response force (ERF), staffed with a minimum of 8 firefighters and officers is; 9 minutes and 13 seconds in the Metro/Urban area, 12 minutes and 3 seconds in the suburban areas, and 14 minutes and 39 seconds in the rural areas.

For 90 percent of all vehicle rescue incidents located within the **Volunteer sectors** of the City; the total response time for the arrival of the effective response force (ERF), staffed with a minimum of 8 firefighters and officers is; 12 minutes and 18 seconds in the suburban areas and 21 minutes and 50 seconds in the rural sectors.

The ERF 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 general public.

Rescues - Water/Ice

For 90 percent of all Water/Ice/Swift water rescues within the **Career districts** of the City, the total response time for the arrival of the effective response force (ERF), staffed with a minimum of fifteen firefighters and officers is; 21 minutes and 55 seconds in the Metro/Urban areas; 24 minutes and 35 seconds in the suburban. For Career "rural" areas there is insufficient ERF data to establish current baselines.

For 90 percent of all Water/Ice/Swift water rescues, within the **Volunteer sectors** of the City the total response time for the arrival of the effective response force (ERF) is 29 minutes and 4 seconds in the rural sectors.

The ERF 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 general public.

Rescues – Technical Rescues

For 90 percent of all Trench, Confined Space, High/Low Angle rescues within the **Career districts** of the City, the total response time for the arrival of the ERF, staffed with 23 firefighters and officers, is 27 minutes and 27 seconds to suburban areas.

For 90 percent of all Building Collapse rescues within the **Career districts** of the City, the total response time for the arrival of the ERF, staffed with 28 firefighters and officers, is 28 minutes and 44 seconds in metro and urban areas.

Due to small number of Technical rescue incidents requiring an ERF, the department has limited data for Urban/suburban incidents within career areas and no current baseline data for high technical rescue response incidents occurring within the Volunteer sectors of the City.

The ERF for moderate risk and high risk is capable of: establishing command; size-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.

Hazardous Materials services

Distribution

For 90 percent of all 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 57 seconds within the metro/urban area, 9 minutes and 52 seconds for suburban areas, and 14 minutes and 20 seconds total for rural areas.

For 90 percent of all Hazardous Material incidents occurring within the **Volunteer** sectors of the City, the total response time for the arrival of the first-due unit is; 13 minutes and 34 seconds to the suburban areas and 18 minutes and 10 seconds to rural areas.

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

Concentration

For 90 percent of all high risk Hazardous Materials incidents within the **Career districts** of the City, the total response time for the arrival of the effective response force (ERF), staffed with a minimum of 19 firefighters and officers is 24 minutes and 24 seconds within the Metro/Urban areas.

The department does not have sufficient data to measure high risk responses to the suburban and rural areas of the City and no high risk hazardous materials response incidents have occurred within the volunteer sectors over the 3 year data timeframe.

The ERF is capable of: establishing command, size-up, establishing hazard zone levels, perimeter monitoring, decontamination, evidence preservation, technical advice.

Component G - Compliance Methodology

The purpose of a compliance methodology is to determine the how, when and what will be measured to ensure the Standards of Cover for Ottawa remains valid and continues to provide appropriate direction for strategic planning purposes.

A Compliance Committee has been established and is made up of Ottawa Fire Services personnel whose portfolios directly impact the Standards of Cover, its compliance methodology and role in strategic planning. Each member's roles and responsibilities are briefly outlined below;

- Program Manager of Performance Measurement and Reporting
 - Oversee all performance measures and evaluations including the development of a CFAI dashboard
 - Contribute and attend meetings
- Assistant Deputy Chief of Operations
 - Oversee all operational needs including resource deployment and communicating any changes to policies and procedures that may affect operations
 - Contribute and attend meetings
- Deputy Chief CFAI lead
 - Provide strategic direction
 - Report issues to FLT
 - Contribute and attend meetings

The Compliance Committee's role is to;

- Ensure the six-phase compliance model outlined below is executed
- Report findings, potential issues, risks and key decisions to the Fire Management Team (FMT), which currently consists of five Assistant Deputy Chiefs, two Program Managers and the Strategic Initiatives Project Officer and the Fire Leadership Team (FLT), which consists of the Fire Chief and three Deputy Chiefs
- Meet on a monthly basis or as required
- Conduct annual review and analysis
- Ensure the project is meeting CFAI requirements and continuously enhancing service delivery

The compliance model will be performed as follows;

1. Establish/Review Performance Measures

The Program Manager of Performance Measurement and Reporting is responsible for reviewing performance measurements within the CFAI Dashboard including baseline response times on a monthly basis. The CFAI Dashboard will be tabled by the Program Manager of Performance Measurement and Reporting to the Compliance Committee for approval on a monthly basis. Once approved the performance measurements will be tabled to FMT and FLT for final sign off on a quarterly basis. The compliance committee 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 Program Manager of Performance Measurement to flag any issues to the Deputy Chief overseeing CFAI for the purpose of raising any issues to FMT/FLT on an as needed basis.

2. Evaluate Performance

The Program Manager of Performance Measurement will generate reports based on the CFAI Dashboard on a monthly or as needed basis and this will be shared with the Compliance Committee for approval. The findings will then be sent by the Program Manager of Performance Measurement to FMT and FLT for sign off on a quarterly basis. The report will be a standing item on the Compliance Committee monthly meetings where any issues or concerns will be identified. It is the responsibility of the Program Manager of Performance Measurement to flag any issues to the Deputy Chief overseeing CFAI to bring to the attention of FMT/FLT on an as needed basis.

3. Develop Compliance Strategies

Compliance strategies are to be developed by the Compliance Committee in consultation with the Strategic Initiatives Project Officer as needed. Solutions to any issues that may arise will be tabled by the Assistant Deputy Chief of Operations at the FMT level for feedback and adjustment, and then tabled by the Deputy Chief overseeing CFAI to FLT for sign off before the strategy is implemented by the Compliance Committee.

4. Communicate Expectations to Organization

The Assistant Deputy Chief of Operations in consultation with the Strategic Initiatives Project Officer will develop any change management communications to operations personnel. The Assistant Deputy Chief of Operations will consult with the Assistant Deputy of Training & Planning of any new training requirements. It is the responsibility

of the Assistant Deputy Chief of Training in consultation with the Strategic Initiatives Project Officer to develop and disseminate relevant messages to training personnel. In addition, the agency shall submit an annual compliance report to the CFAI due on the anniversary of accreditation (commencing July 2015).

5. Validate Compliance

The CFAI Compliance Dashboard findings will be presented as a standing item on the Compliance Committee's monthly agenda for analysis and/or recommendations. It is the Compliance Committee's role to assess the impacts of any changes made to enhance service deliver. Any issues identified by the Compliance Committee will be raised to FMT/FLT by the Deputy Chief overseeing CFAI. General findings will be tabled on a quarterly basis by the Deputy Chief CFAI Lead to FMT/FLT

6. Make Adjustments Repeat Process

The Compliance Committee will coordinate a yearly review and evaluation of the Ottawa Fire Services' overall CFAI compliance. This is to be complete in adequate time for the OFS to make amendments to the work plan of the upcoming year. The evaluation will be in the form of a report and/or presentation to Ottawa Fire Leadership Team (FLT) and Ottawa Fire Management Team (FMT) by the Compliance Committee. Based on the report/presentations findings and feedback from management, the Compliance Committee will make further adjustments to the OFS policies, procedures and performance measurements.

Component H - Overall Evaluation and Conclusion Recommendations

The Standards of Cover provided the opportunity by using historical data and GIS technology to thoroughly review and analyze the emergency risks and potential risks within the greater City of Ottawa. The results of this examination provided evidence for the effective deployment of resources to these risks and addressed the critical tasks required to meet them.

The following conclusions were identified;

- Based on previous station location studies, the risks within the community have not changed significantly since 2008. Total incident volume has decreased due to the reduction in medical responses. Overall growth is continuing at a moderate pace with the exception of, Kanata North, Orleans (east) and Riverside South which have been identified as high growth suburban areas.
- A more detailed risk analysis requires the gathering of individual building information through pre-planning and inspections including: construction type, age of the structure, built in protections (sprinklers), use of the building (hazardous materials etc), and access issues. A classification system within the RMS would identify building details for on scene use and data analysis.
- Past OFS studies focused primarily on when initial crews would arrive on scene within the accepted timeframe. “Critical tasks” and the subsequent effective response forces have now been identified matching risk to deployment. Some of the current running assignments (2013) are not reflective in meeting the effective response force time within the established benchmarks.
- Data inaccuracies have been identified and may be the result of two issues; one being user error and second, the OFM SIR that allow end users too many options in the selection process. OFM codes do not have the necessary detail to provide the agency with detailed data. These issues may result in many incidents being categorized incorrectly.
- In evaluating response times the study confirmed that the department experiences an increase in incidents during the daytime hours, with the peak times between 16:00 and 19:00 hrs. Annually, fire related incidents are highest between April and August predominantly because of the additional seasonal grass and wildland fires.
- A mapping analysis of response zones revealed that some grid boundaries have the potential to be moved or changed to increase “first unit” reliability
- Compared to other Canadian cities, Ottawa has a high ratio of false alarms and a lower ratio of medical incidents.

- Station 45 is the only career station that does not have a first line pump and the minimum staffing for first response, essentially this reduces the distribution and concentration numbers required within the growing Kanata North area.
- Benchmarks and baselines have been established and a compliance methodology has been adopted to monitor performance, an annual compliance report will be provided to the CFAI beginning July 2015.

Recommendations

The following recommendations are based on the findings of the Ottawa Fire Service Integrated Risk Management plan Standards of Cover report, specific plans are also available in the accompanying self assessment study manual;

1. Adopt the service level objectives “Targets” as identified within this document from which strategic planning and specific objectives can be created.
2. Adopt the 2013 station location study (SLS) recommendations upon the completion of the document (2014). In future the SLS should be integrated with the 2019 Standards of Cover document.
3. Update running assignments to reflect the critical tasks and initial effective response force required for residential unit emergencies to improve the efficiency and effective use of fire suppression resources.
4. Continue to improve fire prevention strategies, inspection initiatives, and public education programs directed towards residential property types.
5. Develop “response triggers” where running assignments can automatically be increased based on information received by dispatchers.
6. Complete the installation of mobile data terminals (MDT) and global positioning satellite system / automatic vehicle location (GPS/ AVL) on apparatus to better capture “time stamps” for accurate data processing. A new code sheet should be developed accurately reflecting running assignment categories, these would automatically link with Ontario’s Office of the Fire Marshal’s Standard Incident Reporting codes (OFM SIR).
7. Conduct a detailed review for the process of Quality assurance (QA) for FDM/RMS data management. Accurate and reliable data must be provided to insure specific and strategic decisions are based on sound facts.
8. Conduct a thorough analysis of the pre-fire planning process to insure identification of risk is acknowledged in the plan, planning is maintained to insure entry data remains current and accurate, and the resulting plan is user friendly for on-scene personnel.
9. Develop a process for development, review and revision of Standard Operating Procedures (SOP’s) as identified in the CFAI self assessment manual (SAM).



Summary

The City of Ottawa incorporates a vast area and is unique in its layout with the large greenbelt separating the core of the City from the suburban and rural areas. The Ottawa Fire Service provides an “all risk” career and volunteer emergency service for the protection of its citizens. The service has demonstrated throughout its 150 year history its ability through prevention and mitigation initiatives to meet the emergency needs of a growing Capital City.

The accreditation process has provided the Ottawa Fire Service a methodology using the self assessment, strategic planning and Standards of Cover guides to capture and analyze valuable information and data from all divisions within the service, as well as from the partnerships within the corporate structure. Through this information the OFS can evaluate all the activities and programs relative to a modern and effective emergency service. One of the key areas of evaluation of service has been the measurement of response performance required within this Standards of Cover document.

The Standards of Cover measured the risks and potential risks within the City of Ottawa. The location and consequence of each risk has been evaluated to insure an adequate response deployment is available to mitigate the emergency. A breakdown of initial “critical tasks” required at each type of risk encourages the service to re-evaluate its current running assignments to insure the most effective use of initial on scene resources. An evaluation of the distribution and concentration of resources through historical data analysis and GIS mapping provides an overview of the strengths and weaknesses within the system, critical for the development of future goals and objectives.

The Ottawa Fire Service demonstrates a relatively high level of reliability for first unit response within the metropolitan area which is disproportionately, the highest incident volume within the City. Areas of weaker performance, particularly in the growing suburban districts have been identified as requiring improved deployment and prevention strategies.

Baseline performance levels for responses have been established from which the Ottawa Fire Service has created short term benchmarks or “Targets” for improvement over the next 3-5 years. The overall Benchmarks continue to align with internationally recognized NFPA standards.

Component I – APPENDIX

Exhibits

E.1 – The Ottawa Fire Service Running Assignments



Microsoft Office
Word 97 - 2003 Docu

E. 3- Vacant Building List



Microsoft Office
Word 97 - 2003 Docu

E.4 - Water Flow for Firefighting Calculation Methodology



Adobe Acrobat
Document

E.5- Fire Underwriters Survey Evaluation Criteria



Microsoft Office
Word 97 - 2003 Docu

E.6 OFM Standard Incident Reporting Codes List



Adobe Acrobat
Document

E.7 Risk Matrix Development – Probability and Consequence Breakdown



Microsoft Office
Word 97 - 2003 Docu



E.8 Grid Classification Criteria



Microsoft Office
Excel 97-2003 Worksl

E.9 - Tiered Medical Response Breakdown



Microsoft Office
Excel 97-2003 Worksl

E.10 - Critical Tasking



Microsoft Office
Excel 97-2003 Worksl

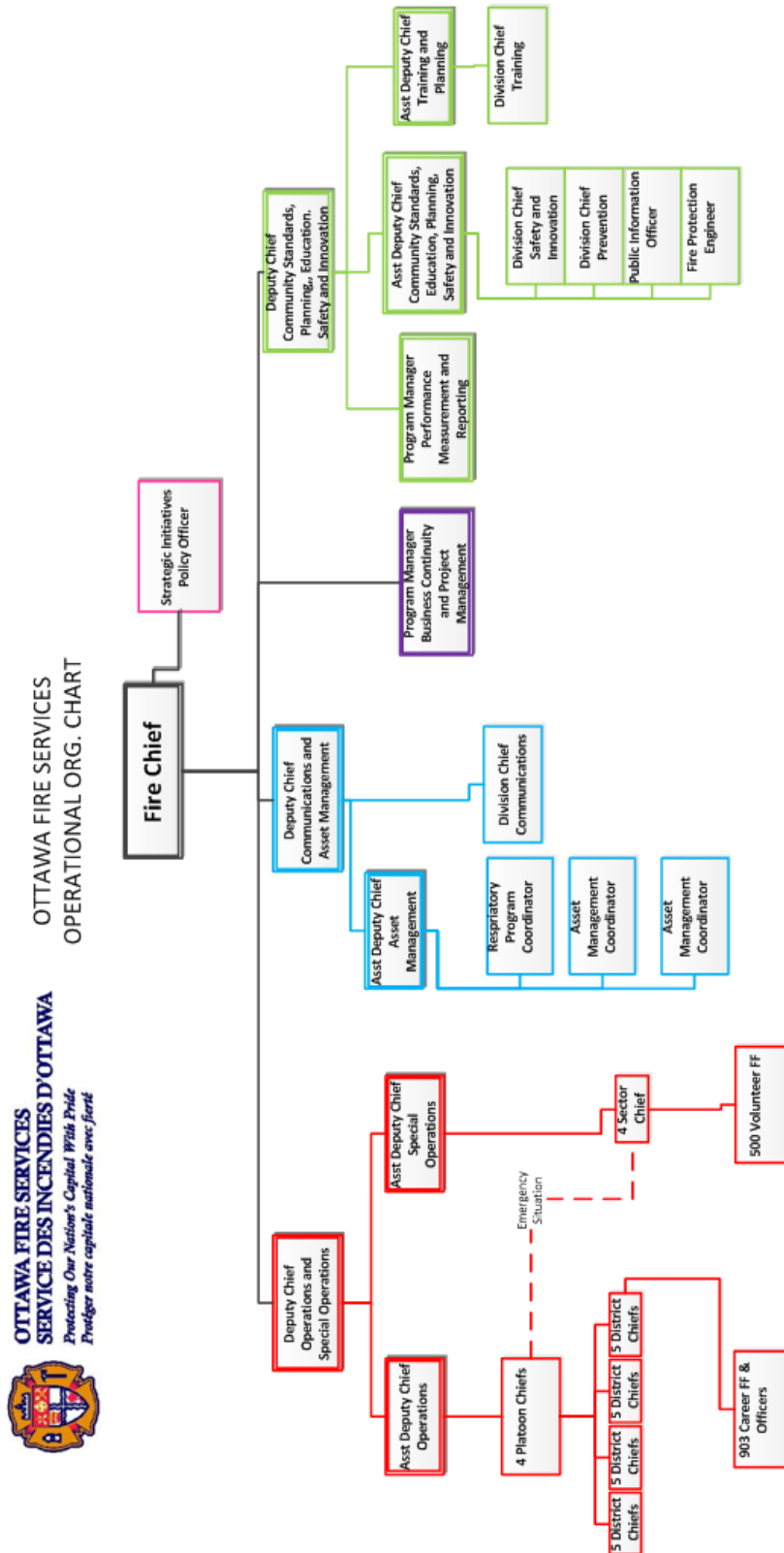
E.11 – Operational Planning: An Official Guide to Matching Resource Deployment and Risk



Adobe Acrobat
Document



E. 2 OFS Organizational Chart

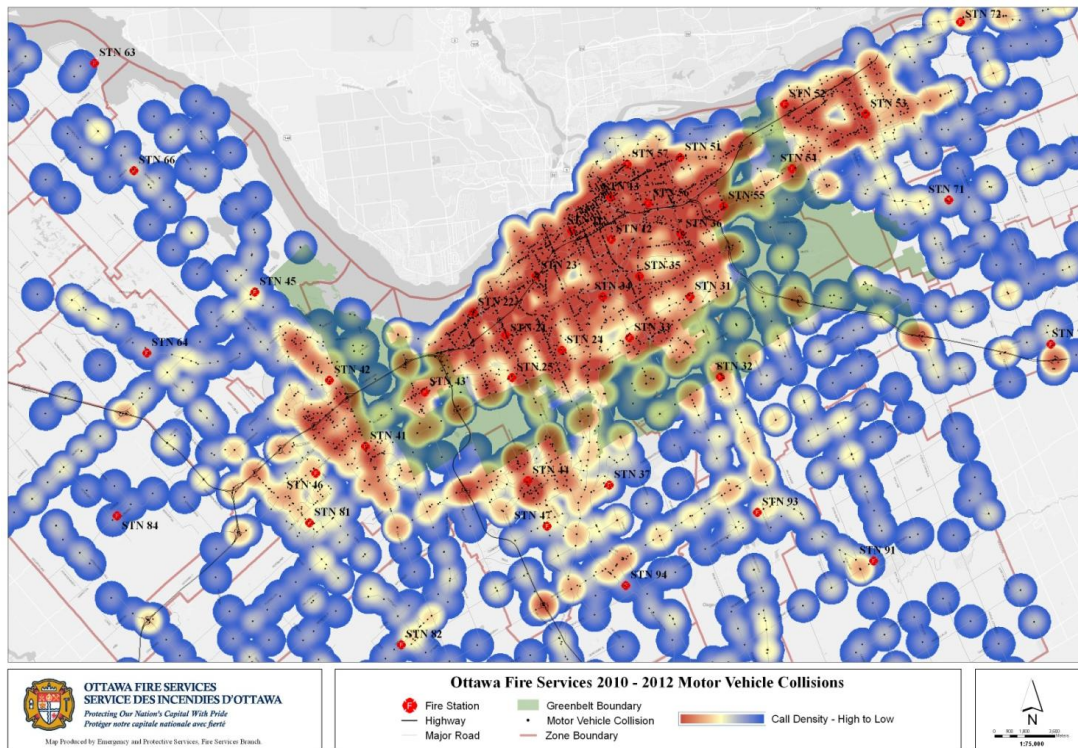


OTTAWA FIRE SERVICES
OPERATIONAL ORG. CHART

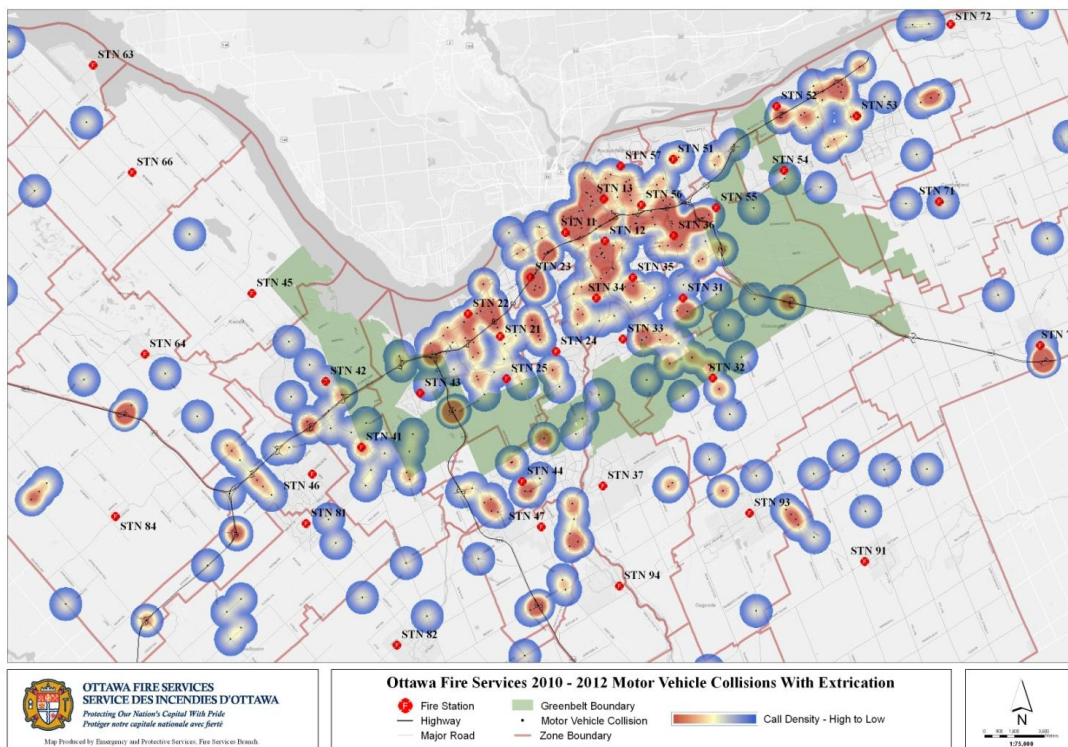


Maps

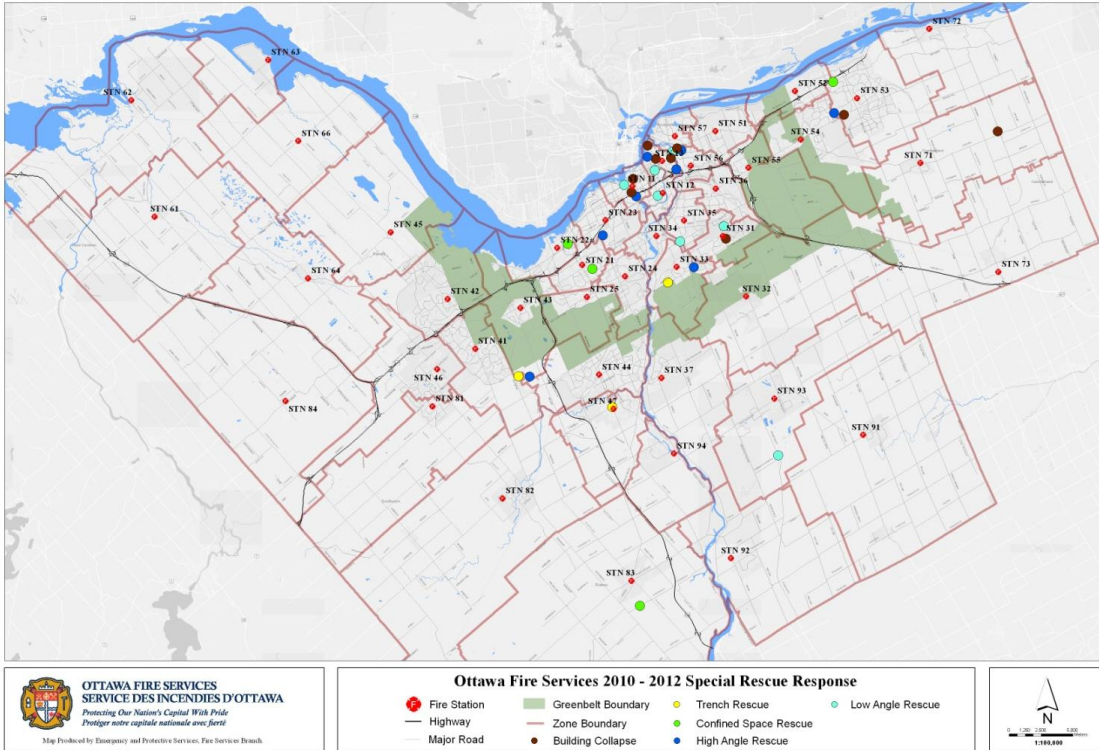
Hot Spot Mapping
MAP A.1 – MVC Collisions Hot Spots



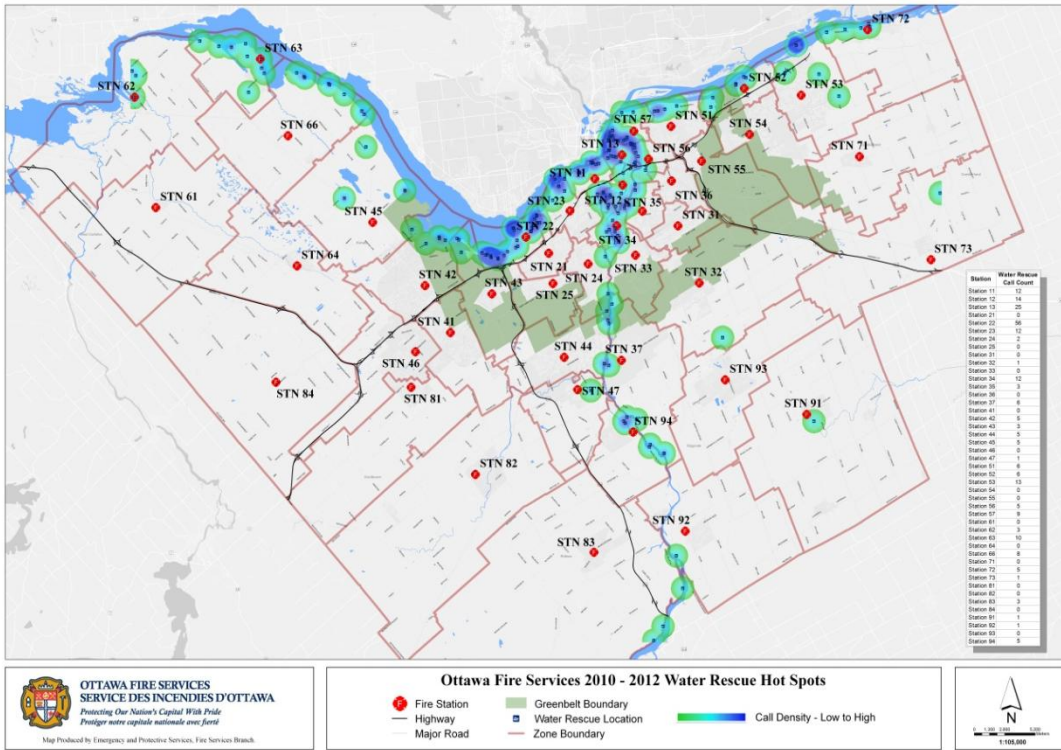
MAP A.2 – MVC Extrication Hot Spots



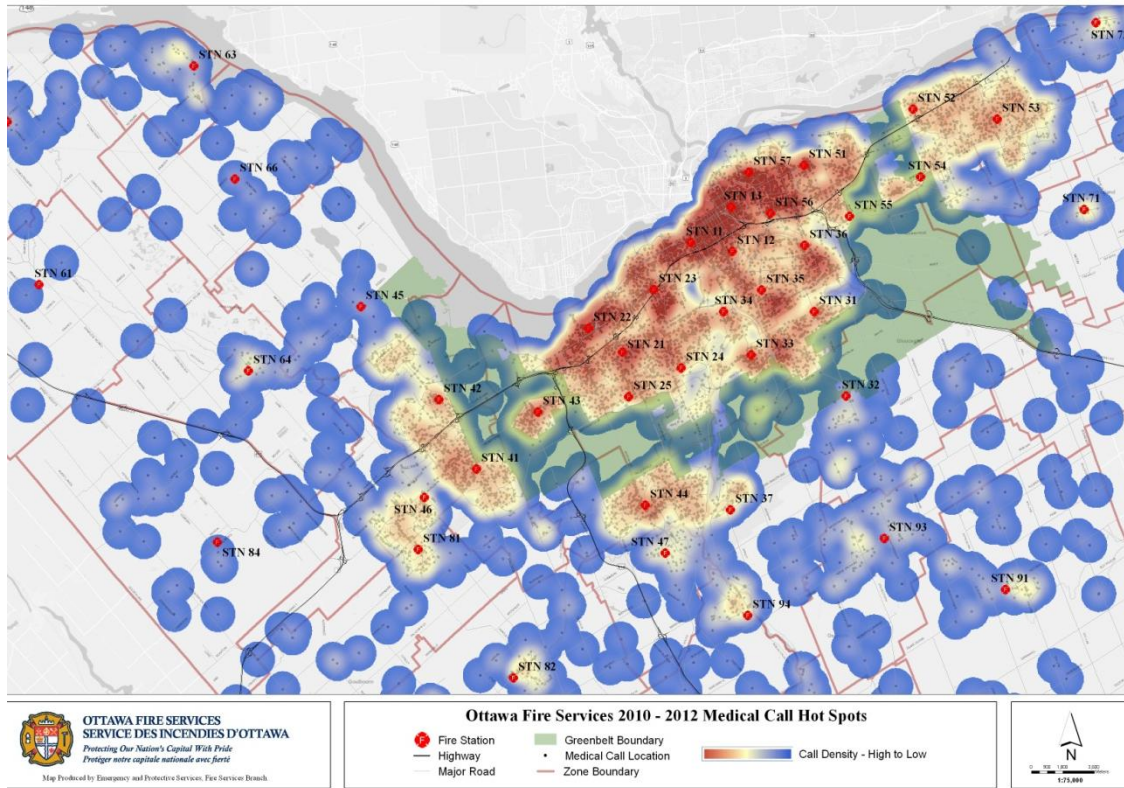
MAP A.3 – Special Rescue Hot Spots



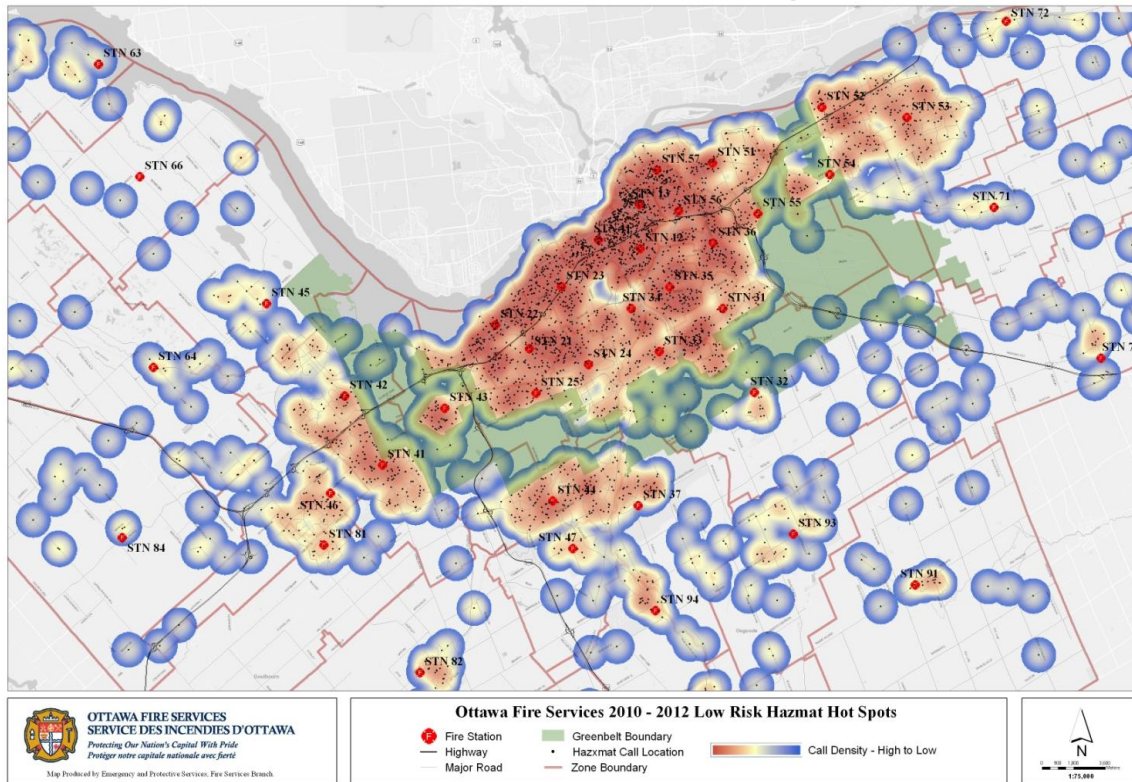
MAP A.4 – Water Rescue Hot Spots



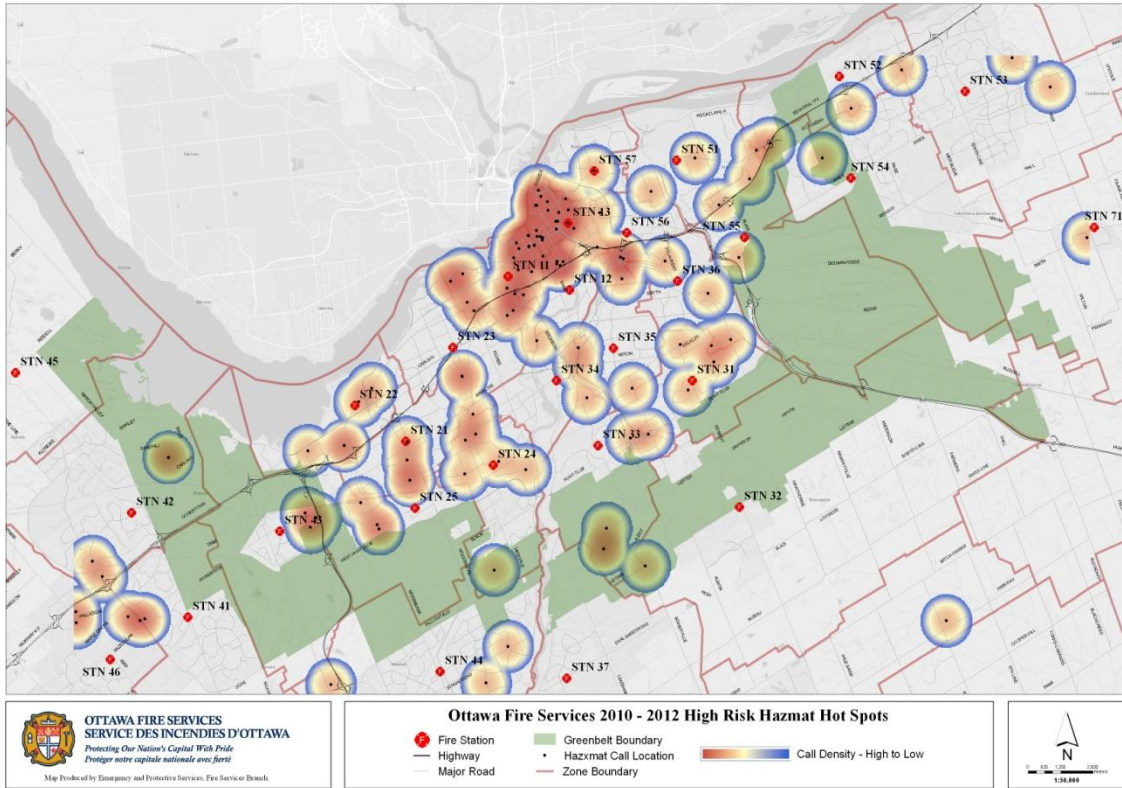
MAP A.5 – Medical Response Hot Spots



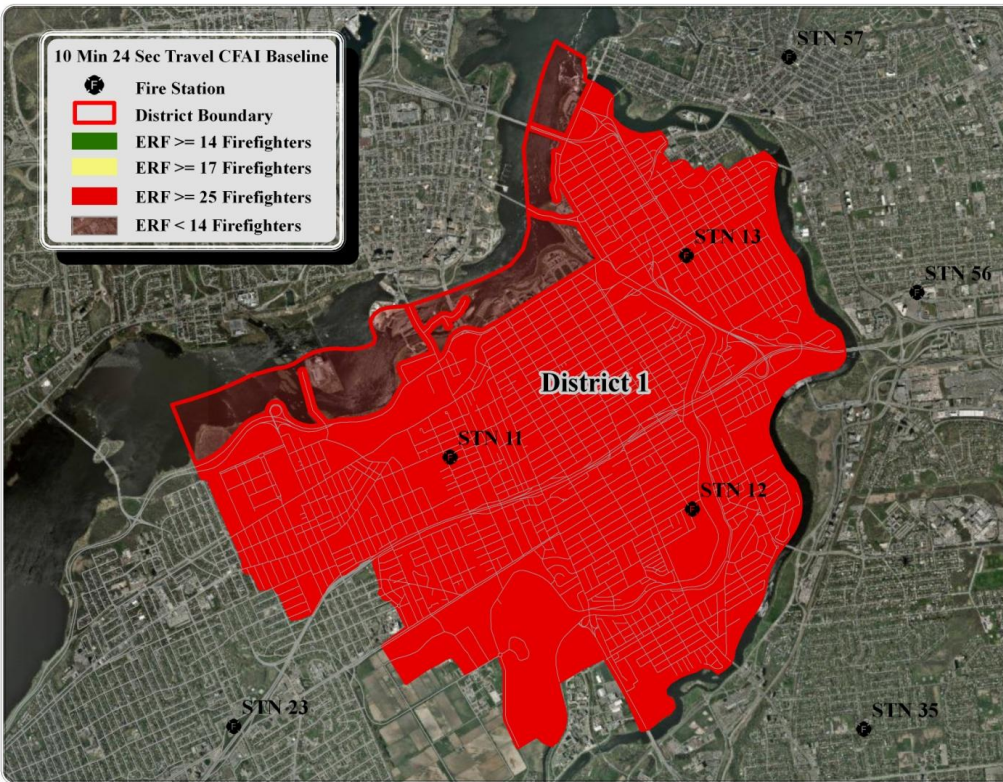
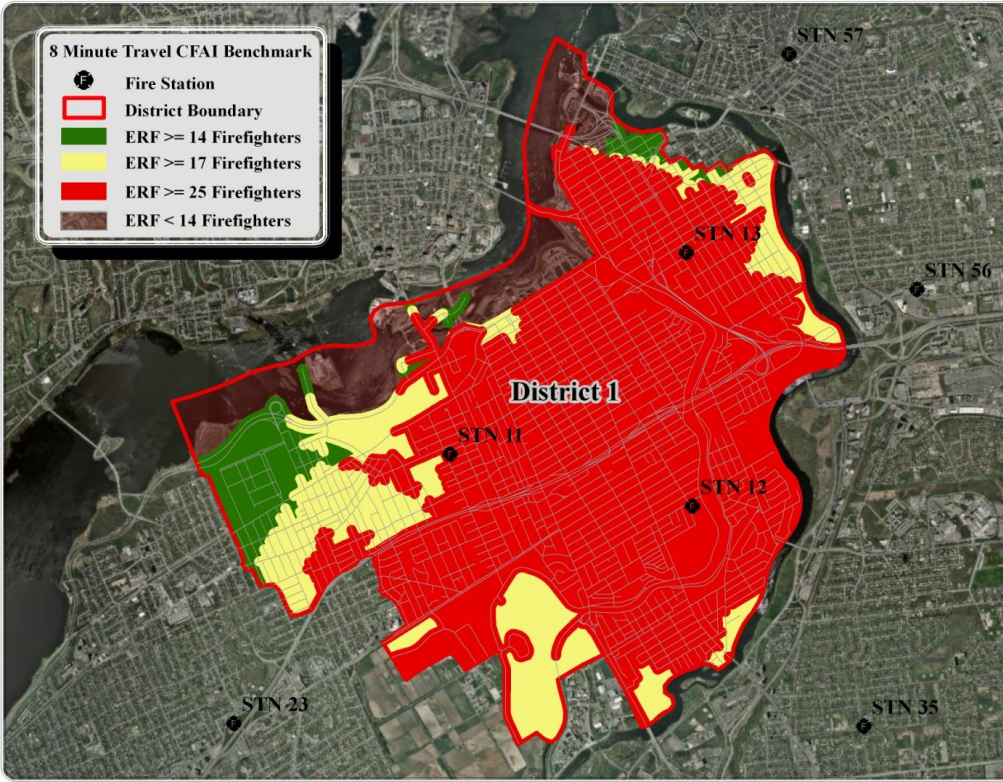
MAP A.6 – Low Risk HAZMAT Hot Spots

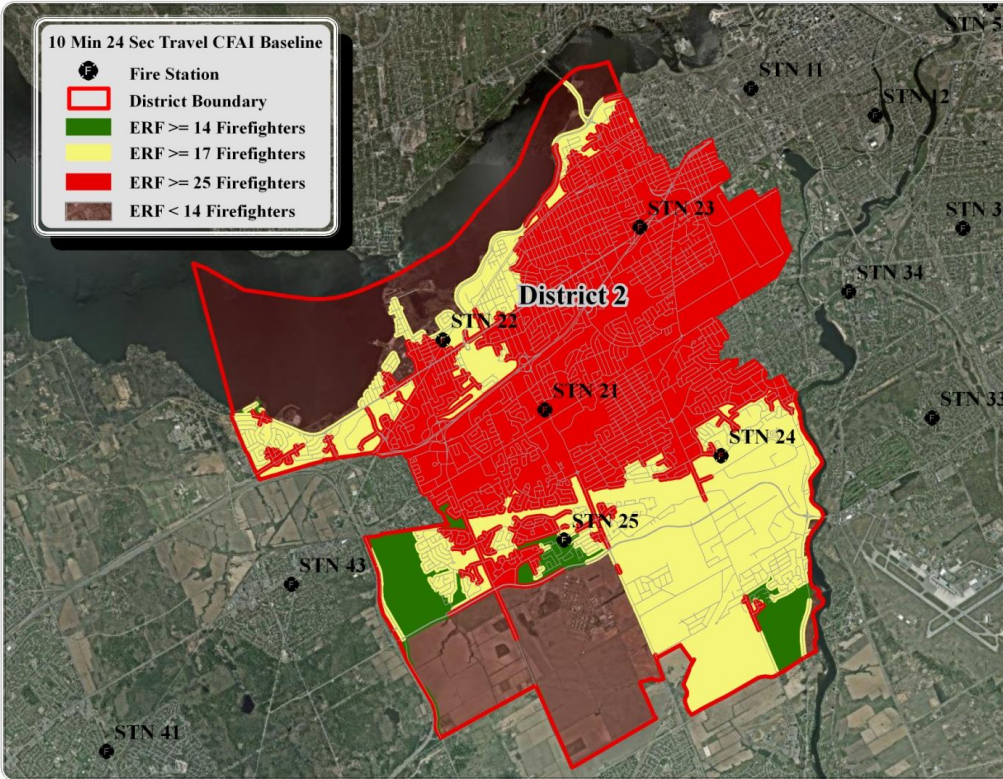
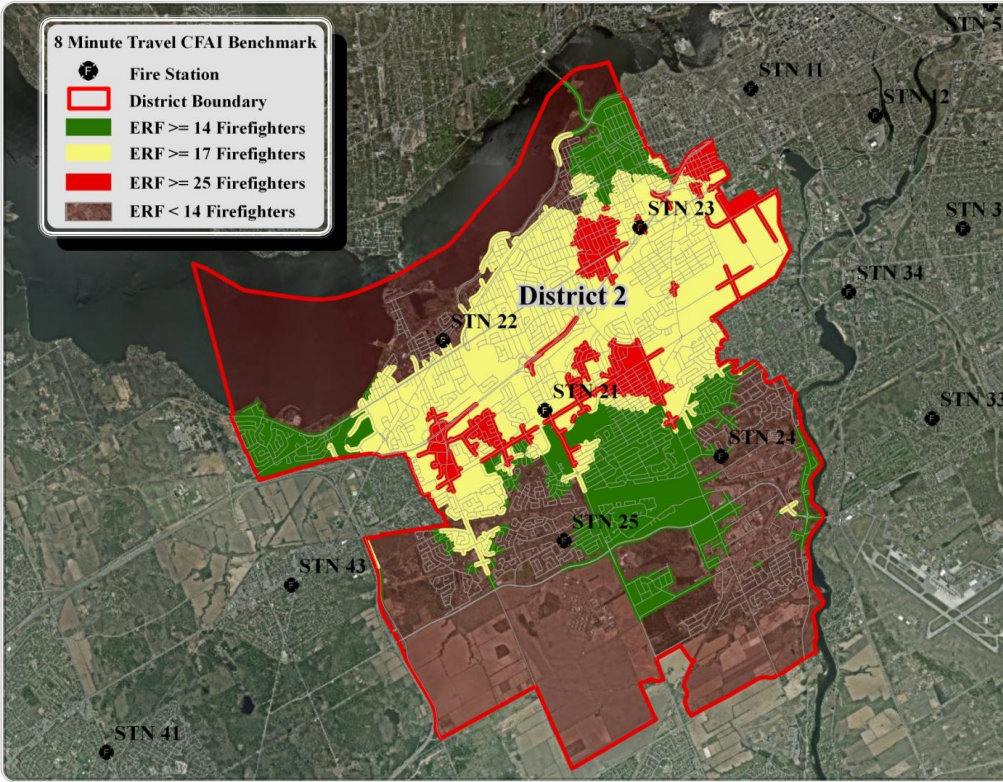


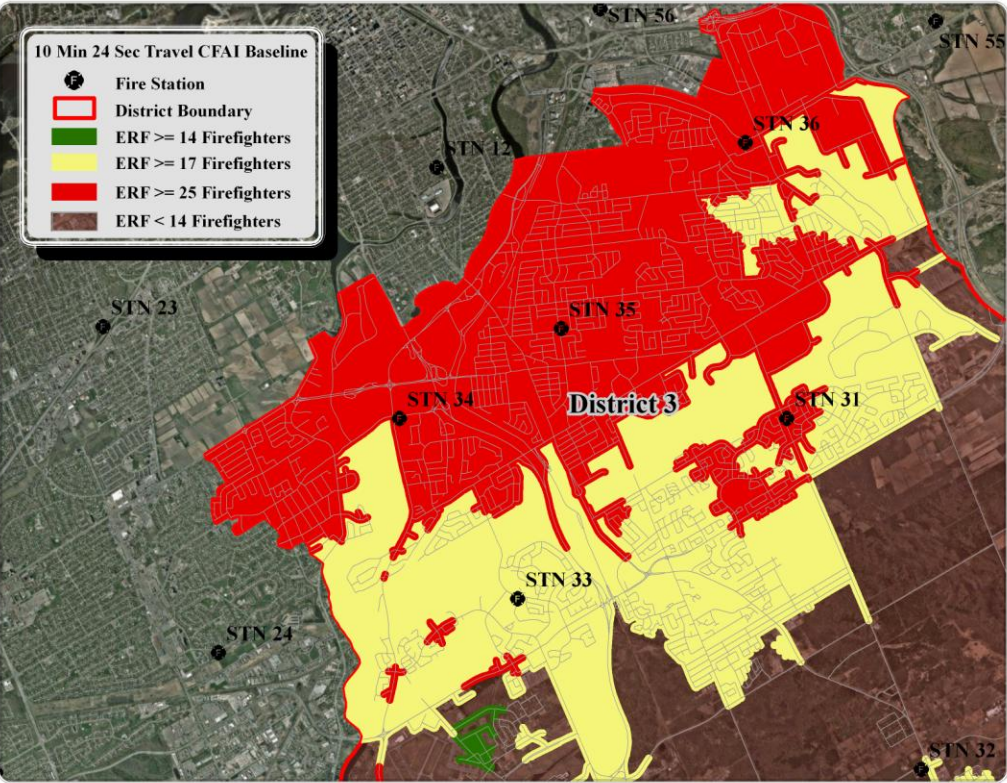
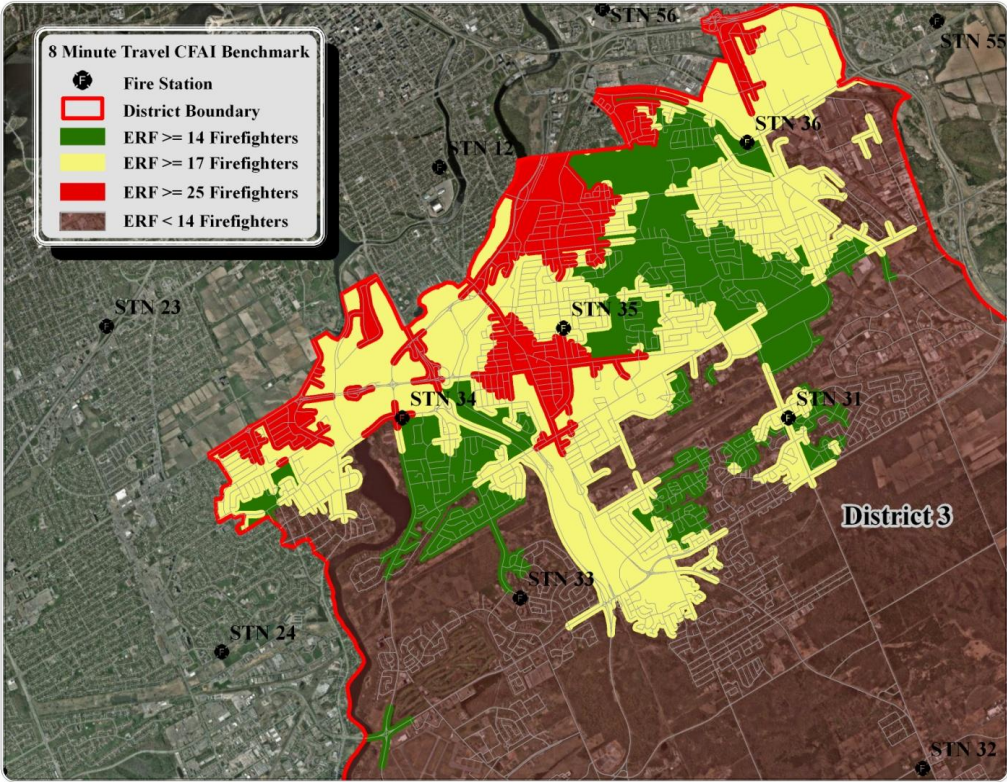
MAP A.7 – High risk HAZMAT Hot Spots

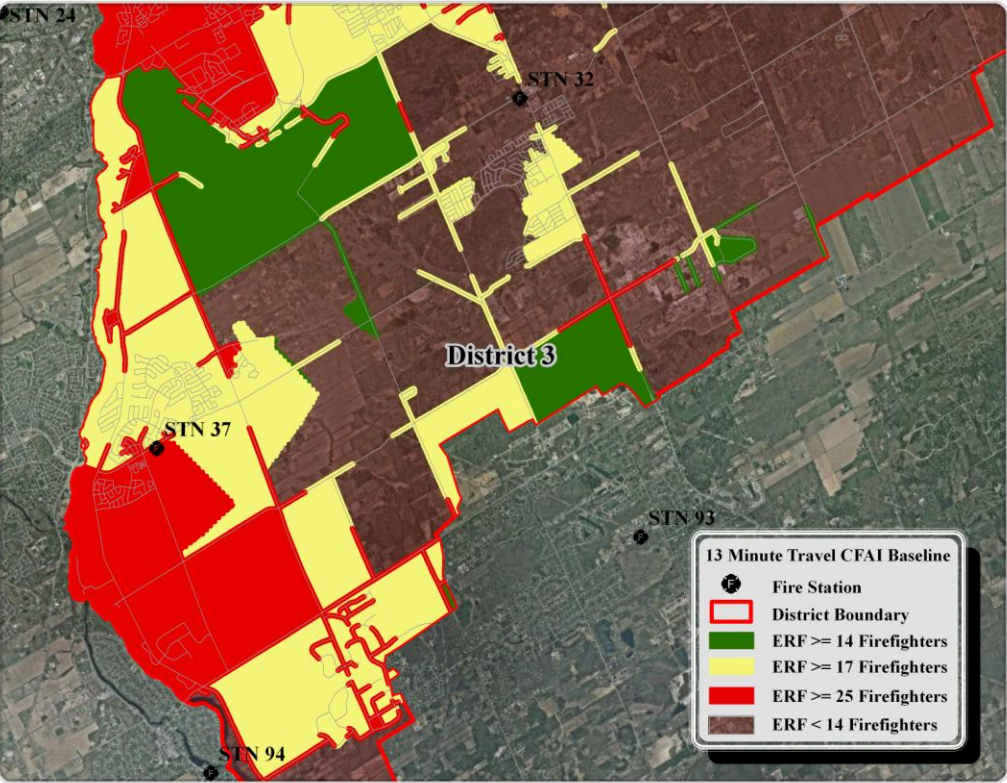
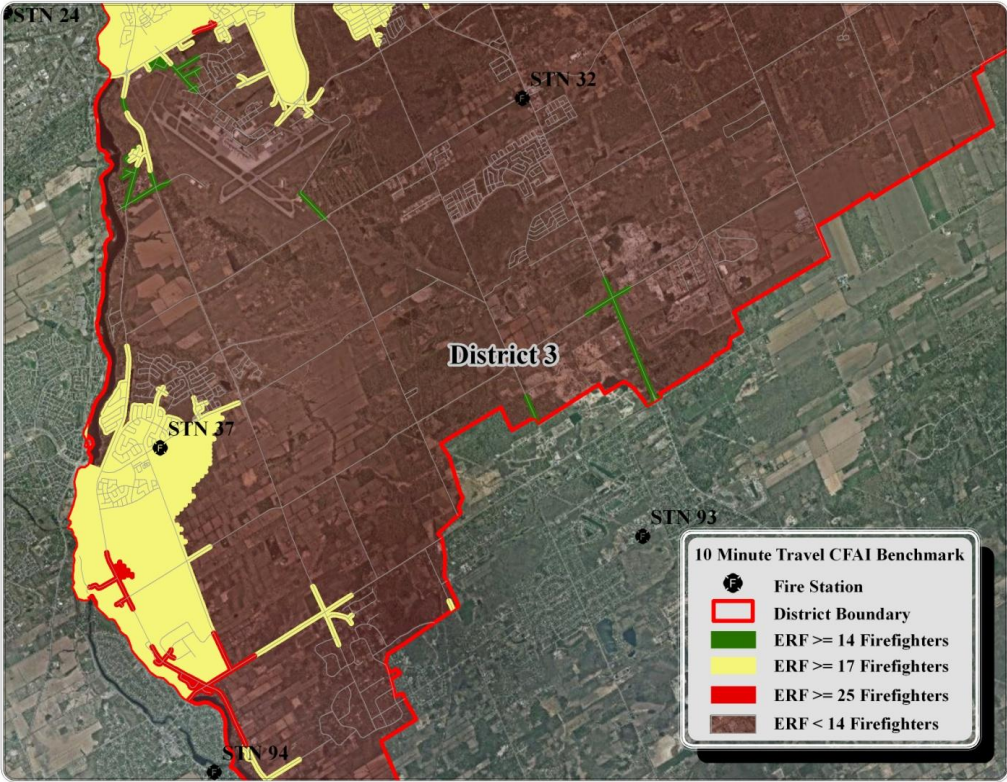


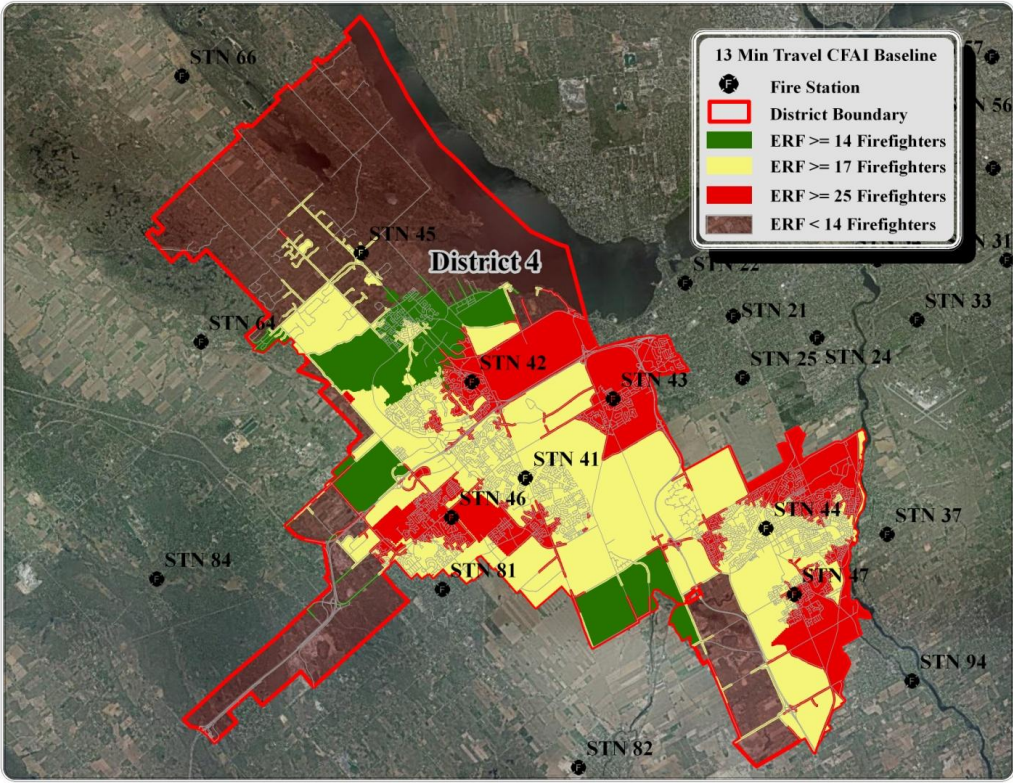
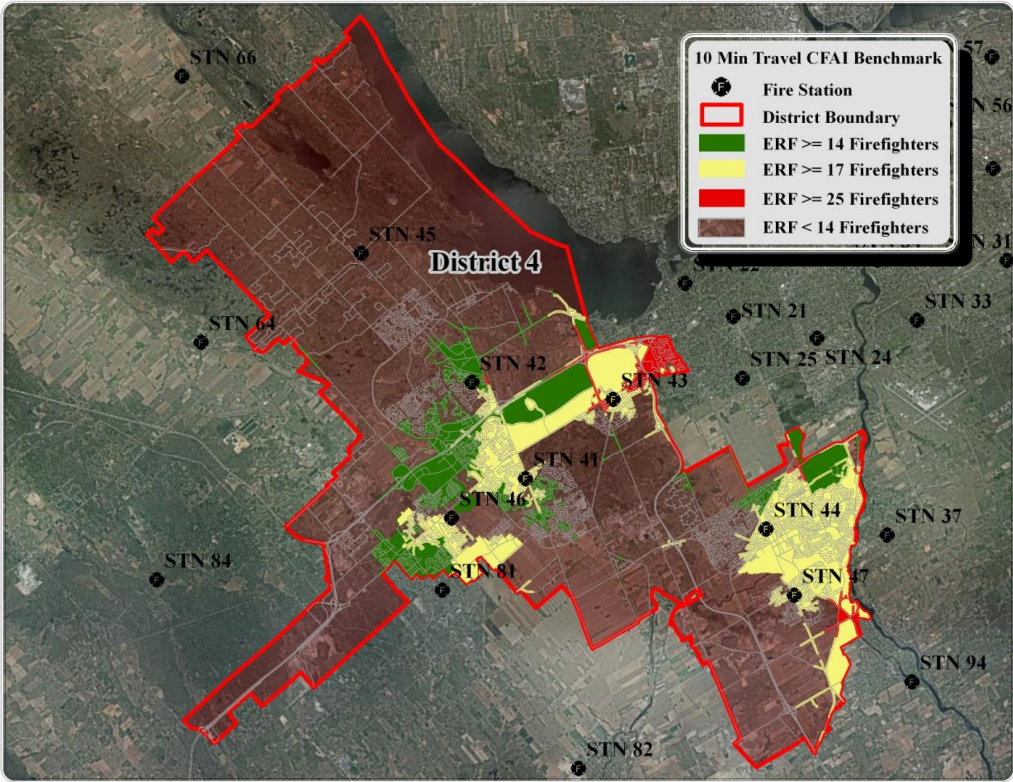
Concentration Maps B.1 – B.22

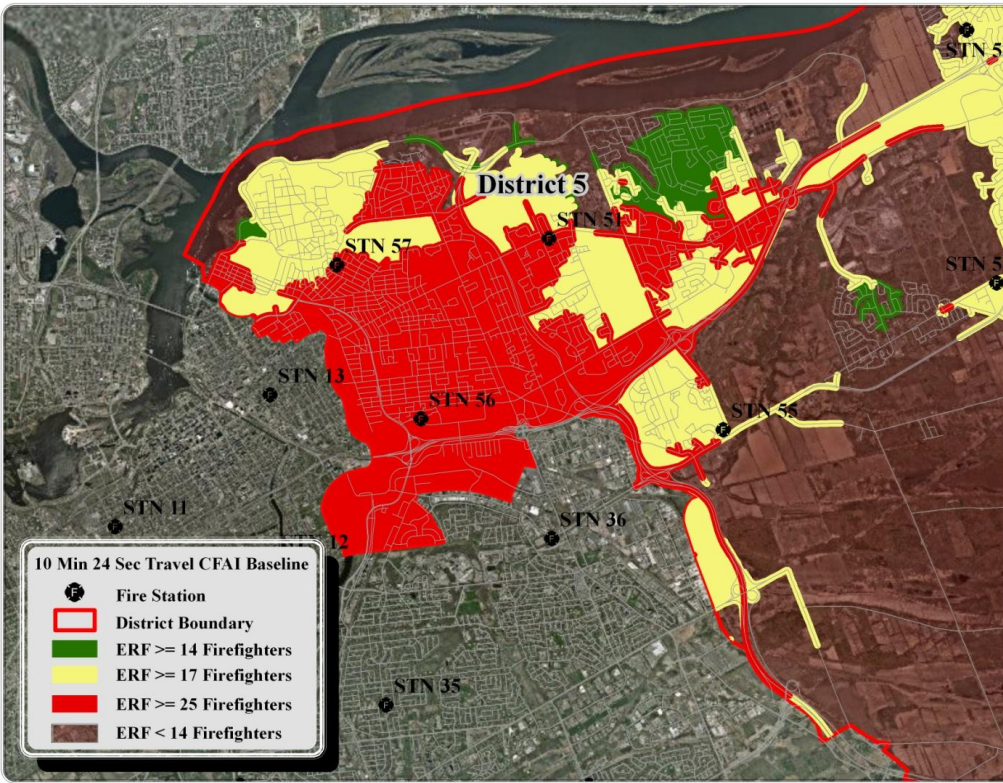
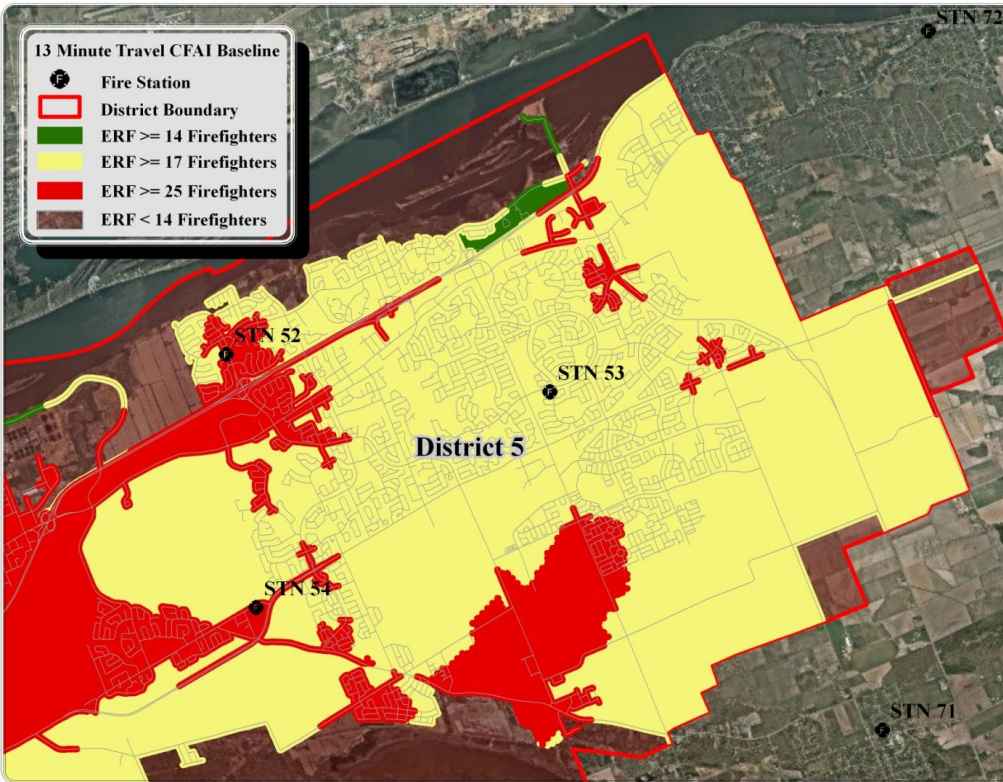


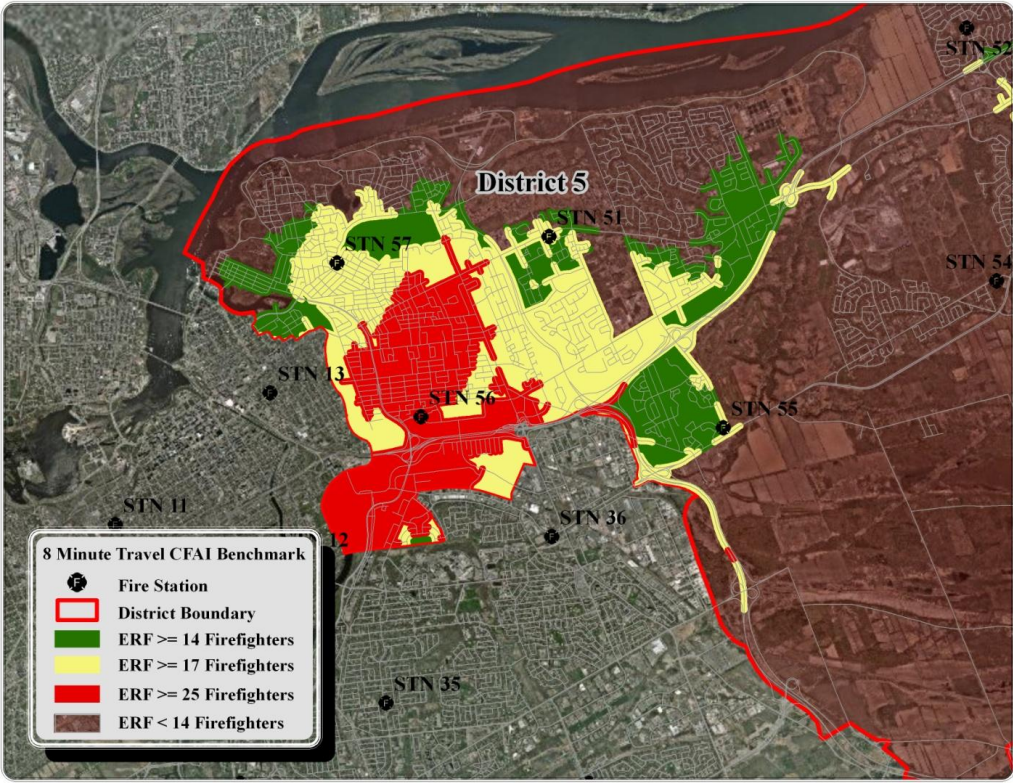
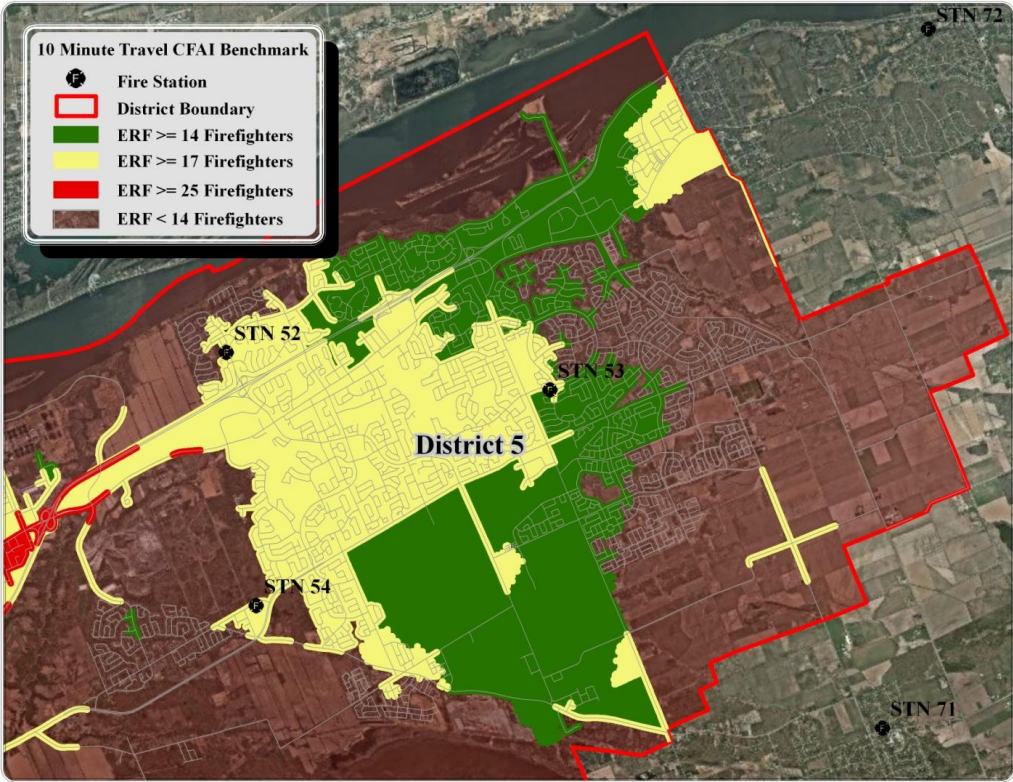


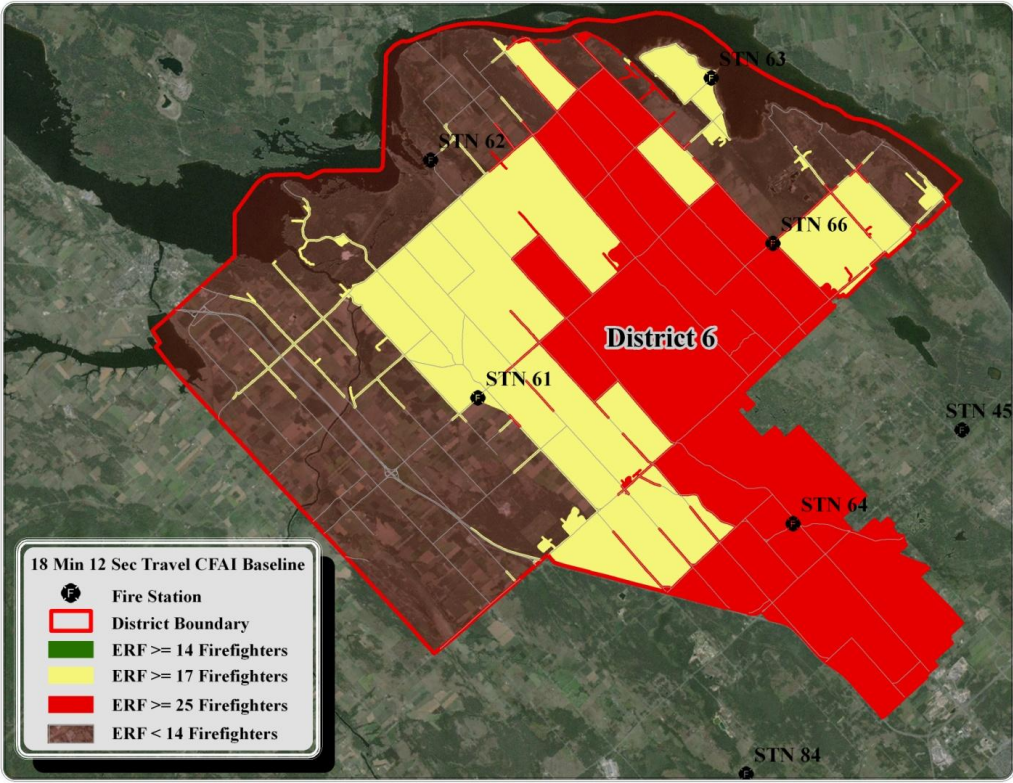
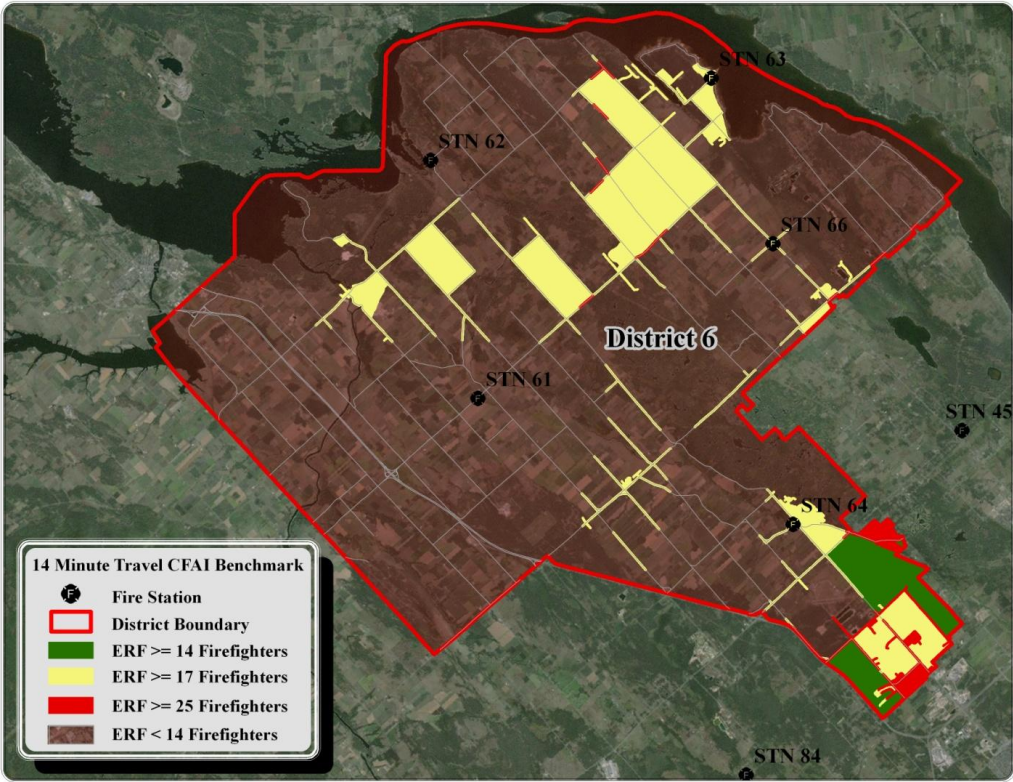


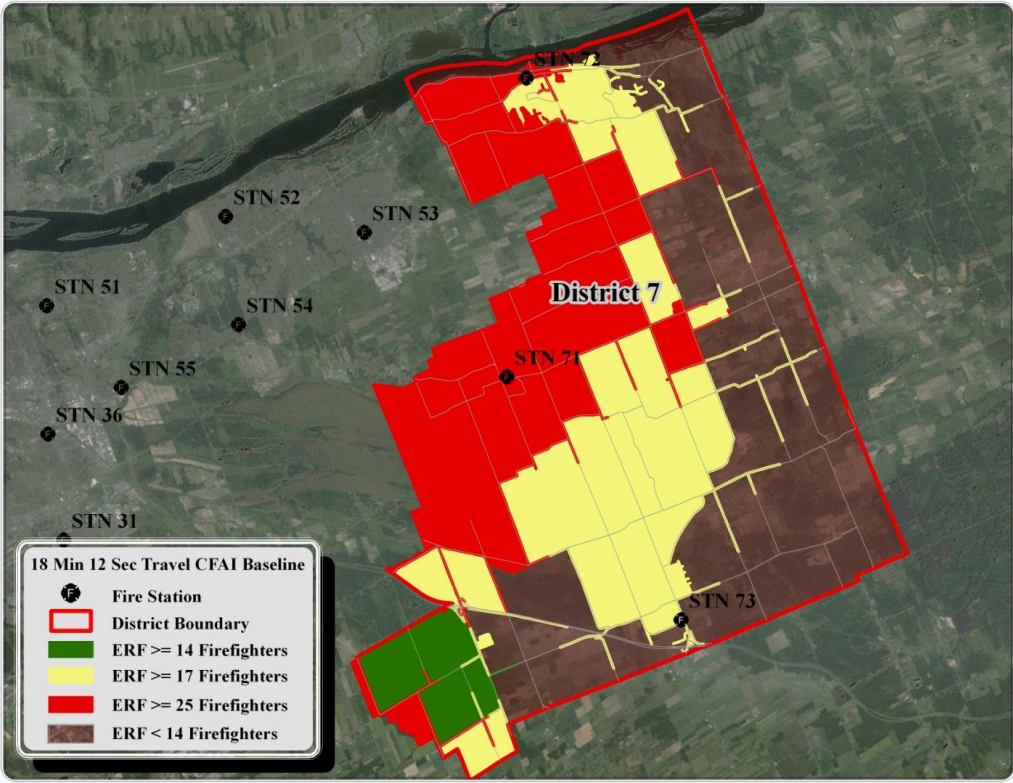
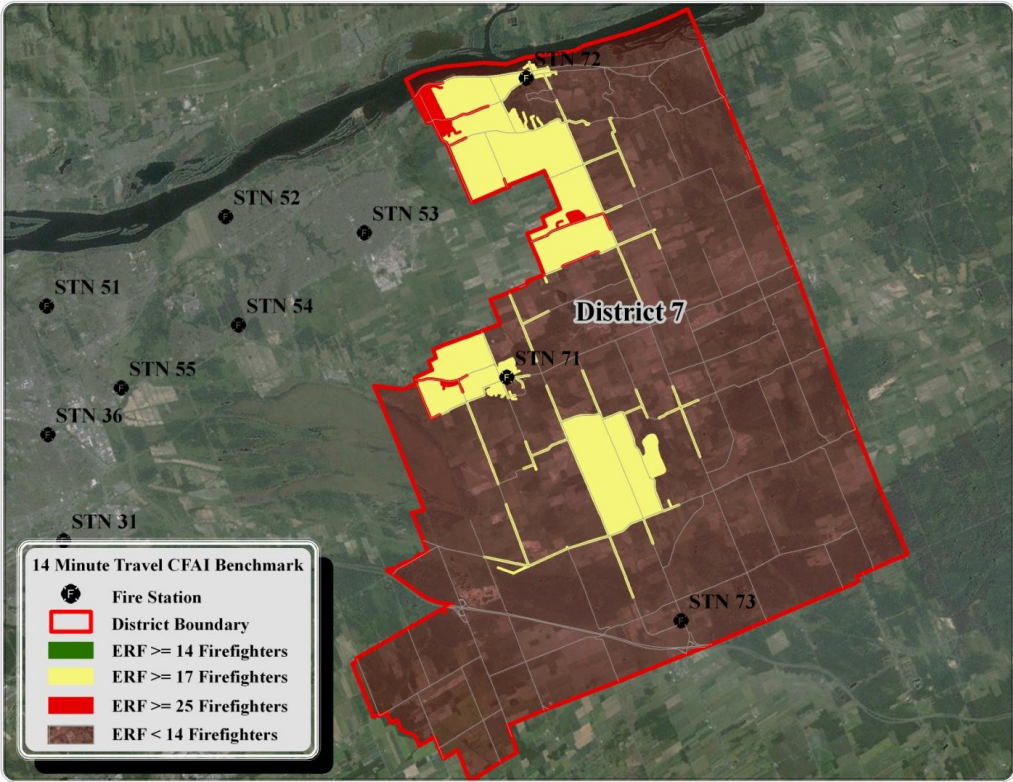


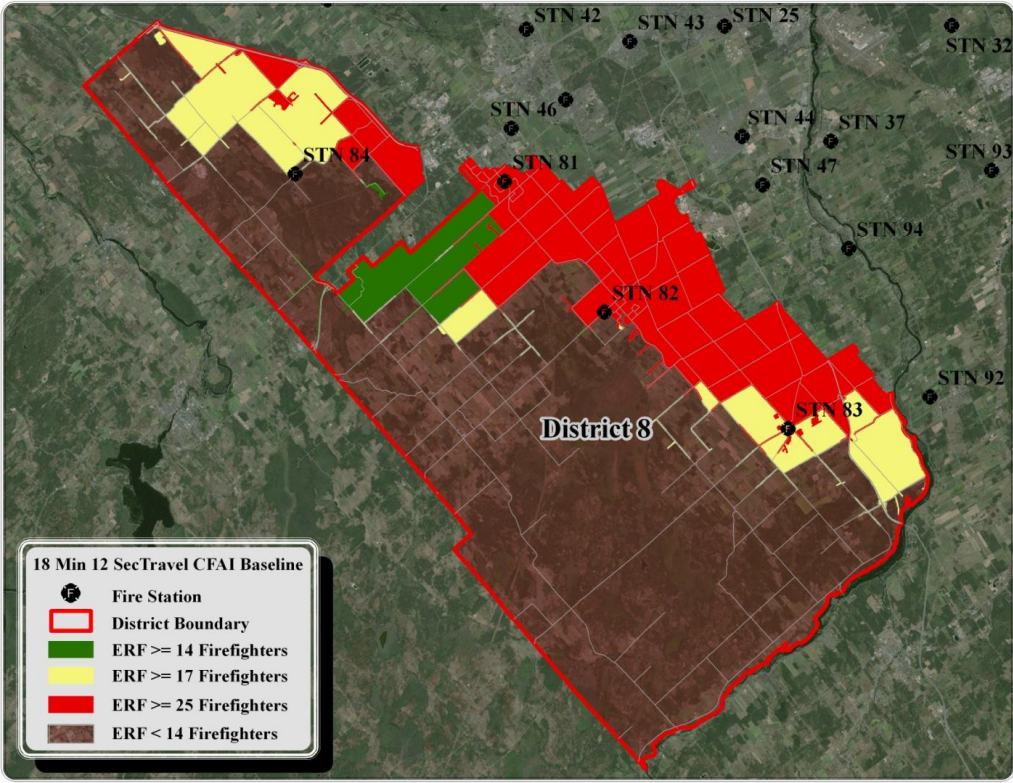
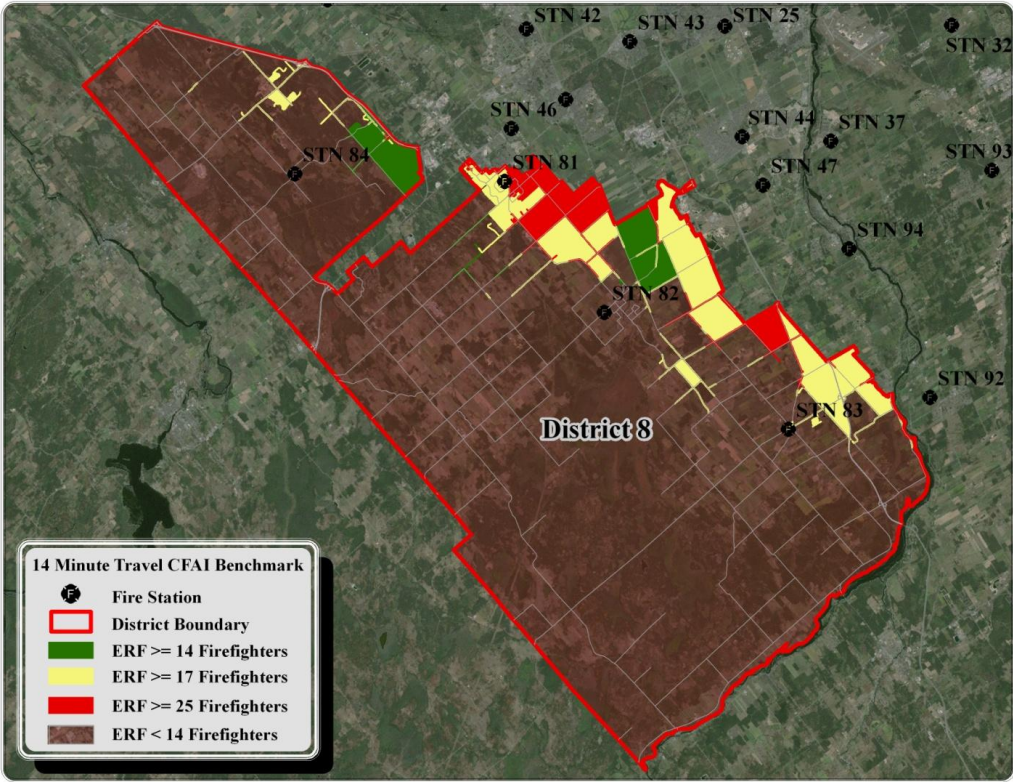


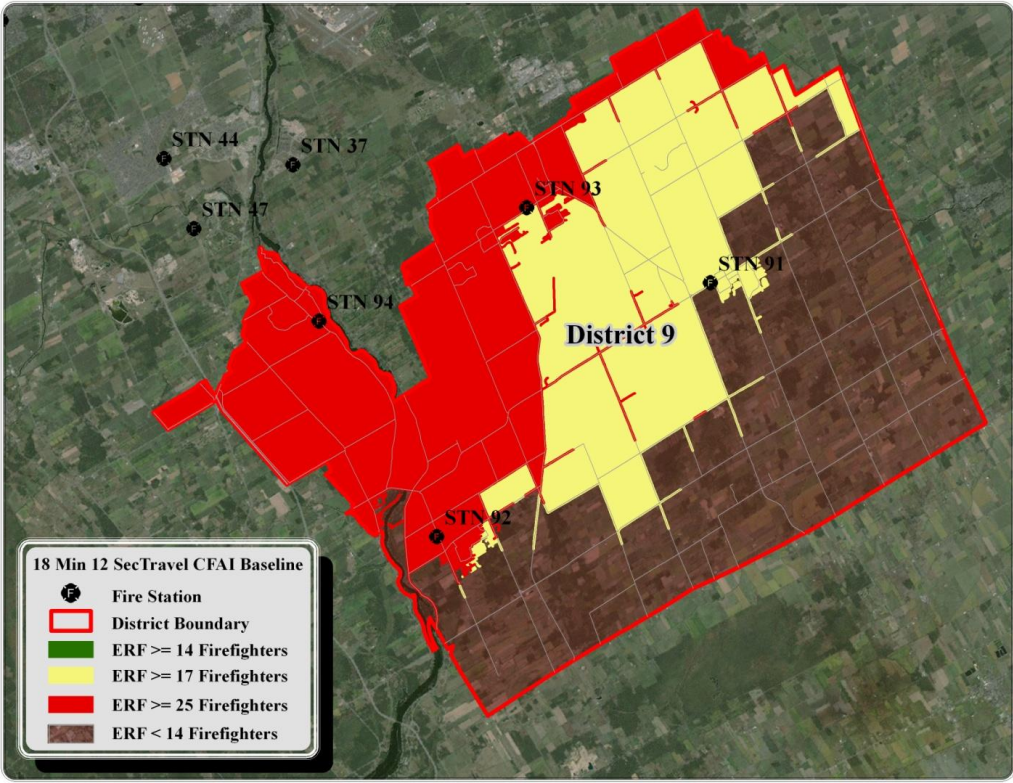
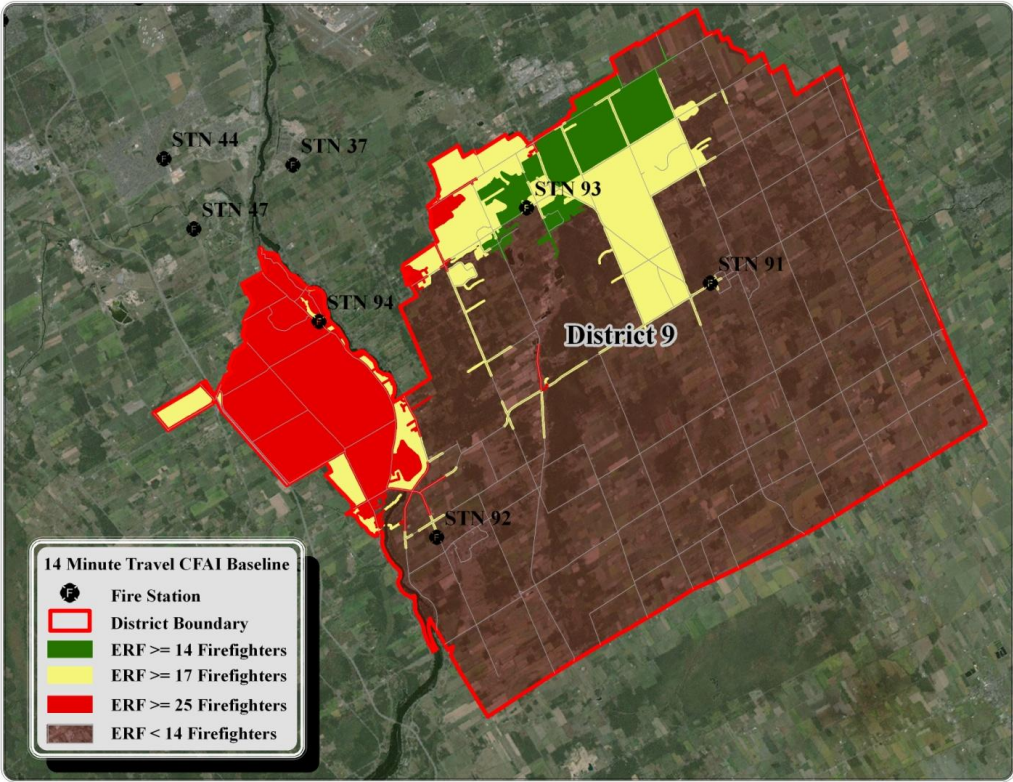













Tables

T.1 – Fire: Low Risk Performance Comparison Table

 OTTAWA FIRE SERVICES SERVICE DES INCENDIES D'OTTAWA <i>Protecting Our Nation's Capital With Pride</i> <i>Protégez notre capitale nationale avec fierté</i>		Fire: Low-Risk - Call Sub-Group Performance Levels at 90th Percentile				
Career		2011	2012	2013	Baseline 2011-2013	OFS Target
Call Count (ERF)	<i>Metro & Urban</i>	294 (294)	381 (381)	267 (267)	942 (942)	-
	<i>Suburban</i>	128 (128)	123 (123)	79 (79)	330 (330)	-
	<i>Rural</i>	37 (37)	41 (41)	41 (41)	119 (119)	-
Alarm Processing Time	<i>Metro & Urban</i>	01:26	01:44	01:21	01:33	01:28
	<i>Suburban</i>	01:22	01:42	01:24	01:32	01:28
	<i>Rural</i>	01:29	01:27	01:16	01:29	01:25
Turnout Time	<i>Metro & Urban</i>	02:11	02:19	02:04	02:12	01:30
	<i>Suburban</i>	02:20	02:29	02:20	02:24	01:30
	<i>Rural</i>	02:36	02:50	02:22	02:36	01:30
Travel Time	<i>Metro & Urban</i>	05:22	05:18	05:08	05:17	05:01
	<i>Suburban</i>	06:22	06:29	06:41	06:34	06:14
	<i>Rural</i>	10:18	09:01	08:27	09:13	08:45
Total Response Time	<i>Metro & Urban</i>	07:57	08:22	07:41	07:57	07:33
	<i>Suburban</i>	09:13	09:13	08:40	09:07	08:39
	<i>Rural</i>	12:13	13:04	12:39	12:44	12:06
ERF Travel Time	<i>Metro & Urban</i>	05:22	05:17	05:08	05:14	04:58
	<i>Suburban</i>	06:22	06:29	06:41	06:34	06:14
	<i>Rural</i>	10:18	09:01	08:27	09:13	08:45
ERF Total Response Time	<i>Metro & Urban</i>	07:55	08:21	07:41	07:57	07:33
	<i>Suburban</i>	09:13	09:13	08:40	09:07	08:39
	<i>Rural</i>	12:13	13:04	12:39	12:44	12:06
Volunteer		2011	2012	2013	Baseline 2011-2013	OFS Target
Call Count (ERF)	<i>Suburban</i>	4 (4)	8 (8)	6 (6)	18 (18)	-
	<i>Rural</i>	58 (57)	81 (80)	62 (62)	201 (199)	-
Alarm Processing Time	<i>Suburban</i>	01:19	01:32	01:29	01:36	01:30
	<i>Rural</i>	01:31	01:52	01:46	01:37	01:30
Turnout Time	<i>Suburban</i>	05:56	05:51	06:11	05:58	01:30
	<i>Rural</i>	06:39	07:08	07:05	07:06	01:30
Travel Time	<i>Suburban</i>	04:42	07:57	07:27	07:20	06:30
	<i>Rural</i>	11:03	14:23	10:59	11:46	11:11
Total Response Time	<i>Suburban</i>	11:01	11:42	12:22	12:24	09:30
	<i>Rural</i>	17:07	20:21	17:17	18:00	16:00
ERF Travel Time	<i>Suburban</i>	04:42	08:01	07:27	07:20	06:30
	<i>Rural</i>	10:58	12:26	10:59	11:36	11:01
ERF Total Response Time	<i>Suburban</i>	11:01	11:26	12:22	12:24	11:47
	<i>Rural</i>	16:47	19:12	17:17	17:44	16:51

T.2 – Fires: Moderate and High Risk Performance Comparison Table

	OTTAWA FIRE SERVICES SERVICE DES INCENDIES D'OTTAWA <i>Protecting Our Nation's Capital With Pride</i> <i>Protéger notre capitale nationale avec fierté</i>	Fire: Structure Fire - Custom Call Group Performance Levels at 90th Percentile

Career		2011	2012	2013	Baseline 2011-2013	OFS Target
Call Count (ERF)	<i>Metro & Urban</i>	273 (94)	297 (102)	290 (102)	860 (298)	-
	<i>Suburban</i>	79 (32)	73 (26)	58 (21)	210 (79)	-
	<i>Rural</i>	13 (9)	18 (8)	13 (5)	44 (22)	-
Alarm Processing Time	<i>Metro & Urban</i>	01:10	01:23	01:06	01:14	01:10
	<i>Suburban</i>	01:20	01:08	01:10	01:12	01:08
	<i>Rural</i>	01:11	01:12	01:10	01:11	01:08
Turnout Time	<i>Metro & Urban</i>	02:18	02:14	02:05	02:12	01:30
	<i>Suburban</i>	02:46	02:53	02:27	02:40	01:30
	<i>Rural</i>	03:52	03:39	04:22	04:30	01:30
Travel Time	<i>Metro & Urban</i>	04:28	04:38	04:51	04:36	04:22
	<i>Suburban</i>	06:25	05:32	07:40	06:22	06:03
	<i>Rural</i>	07:26	07:40	11:24	08:25	07:59
Total Response Time	<i>Metro & Urban</i>	06:50	07:07	07:01	06:56	06:35
	<i>Suburban</i>	09:01	08:38	09:26	08:58	08:31
	<i>Rural</i>	10:20	10:35	13:04	11:58	11:22

Volunteer		2011	2012	2013	Baseline 2011-2013	OFS Target
Call Count (ERF)	<i>Suburban</i>	5 (1)	4 (3)	8 (5)	17 (9)	-
	<i>Rural</i>	39 (29)	40 (20)	31 (17)	110 (66)	-
Alarm Processing Time	<i>Suburban</i>	01:04	01:47	00:44	01:26	01:22
	<i>Rural</i>	00:59	01:25	01:09	01:21	01:17
Turnout Time	<i>Suburban</i>	05:53	05:17	04:26	05:53	01:30
	<i>Rural</i>	06:45	07:28	06:56	06:57	01:30
Travel Time	<i>Suburban</i>	02:55	05:53	06:15	06:10	05:51
	<i>Rural</i>	12:21	12:07	11:05	12:07	11:31
Total Response Time	<i>Suburban</i>	08:53	10:32	09:35	09:38	09:09
	<i>Rural</i>	18:16	18:12	17:39	18:12	16:00

T.3 – Fire: Moderate (L1) Risk Performance Comparison Table

	OTTAWA FIRE SERVICES SERVICE DES INCENDIES D'OTTAWA <i>Protecting Our Nation's Capital With Pride</i> <i>Protéger notre capitale nationale avec fierté</i>	Fire: Moderate-Risk (Level 1) - Call Sub-Group Performance Levels at 90th Percentile				
---	---	---	--	--	--	--

Career		2011	2012	2013	Baseline 2011-2013	OFS Target
Call Count (ERF)	<i>Metro & Urban</i>	138 (57)	159 (74)	136 (57)	433 (188)	-
	<i>Suburban</i>	64 (29)	58 (25)	40 (18)	162 (72)	-
	<i>Rural</i>	10 (9)	13 (7)	7 (4)	30 (20)	-
Alarm Processing Time	<i>Metro & Urban</i>	01:12	01:26	01:05	01:15	01:11
	<i>Suburban</i>	01:13	01:04	01:08	01:08	01:05
	<i>Rural</i>	01:25	01:08	01:18	01:13	01:09
Turnout Time	<i>Metro & Urban</i>	02:25	02:19	02:03	02:13	01:30
	<i>Suburban</i>	02:48	02:58	02:26	02:41	01:30
	<i>Rural</i>	04:23	05:11	04:42	04:51	01:30
Travel Time	<i>Metro & Urban</i>	04:33	05:02	05:02	04:53	04:38
	<i>Suburban</i>	06:30	05:37	07:31	06:21	06:02
	<i>Rural</i>	07:36	07:29	09:48	08:15	07:51
Total Response Time	<i>Metro & Urban</i>	06:50	07:23	06:58	07:08	06:46
	<i>Suburban</i>	09:15	08:34	09:22	09:01	08:34
	<i>Rural</i>	10:37	10:44	12:59	12:11	11:34
ERF Travel Time	<i>Metro & Urban</i>	07:21	09:03	07:12	07:41	07:18
	<i>Suburban</i>	11:52	10:42	13:51	11:52	11:16
	<i>Rural</i>	13:08	11:12	17:50	14:14	13:31
ERF Total Response Time [ERF : 14]	<i>Metro & Urban</i>	15:51	15:55	13:51	15:20	13:24
	<i>Suburban</i>	18:37	15:42	17:53	17:40	16:00
	<i>Rural</i>	18:26	14:54	22:44	19:44	18:45

Volunteer		2011	2012	2013	Baseline 2011-2013	OFS Target
Call Count (ERF)	<i>Suburban</i>	5 (1)	3 (3)	8 (5)	16 (9)	-
	<i>Rural</i>	33 (27)	32 (19)	25 (15)	90 (61)	-
Alarm Processing Time	<i>Suburban</i>	01:04	01:34	00:44	01:06	01:02
	<i>Rural</i>	00:47	01:23	01:15	01:08	01:05
Turnout Time	<i>Suburban</i>	05:53	04:17	04:26	05:53	01:30
	<i>Rural</i>	06:49	06:36	07:58	06:57	01:30
Travel Time	<i>Suburban</i>	02:55	05:57	06:15	06:10	05:52
	<i>Rural</i>	12:02	12:08	11:05	12:09	11:33
Total Response Time	<i>Suburban</i>	08:53	10:49	09:35	09:42	09:12
	<i>Rural</i>	17:58	18:03	17:59	18:12	16:00
ERF Travel Time	<i>Suburban</i>	13:09	10:03	13:26	13:27	12:46
	<i>Rural</i>	19:00	17:42	18:32	18:51	17:54
ERF Total Response Time [ERF : 14]	<i>Suburban</i>	22:14	19:07	18:24	20:51	16:00
	<i>Rural</i>	25:10	22:05	25:14	24:47	21:12

T.4 – Fire: Moderate (L2) Risk Performance Comparison Table

	OTTAWA FIRE SERVICES SERVICE DES INCENDIES D'OTTAWA <i>Protecting Our Nation's Capital With Pride</i> <i>Protégez notre capitale nationale avec fierté</i>	Fire: Moderate-Risk (Level 2) - Call Sub-Group Performance Levels at 90th Percentile				
---	---	---	--	--	--	--

Career		2011	2012	2013	Baseline 2011-2013	OFS Target
Call Count (ERF)	<i>Metro & Urban</i>	91 (24)	98 (23)	110 (37)	299 (84)	-
	<i>Suburban</i>	3 (1)	9 (1)	10 (2)	22 (4)	-
	<i>Rural</i>	3 (0)	2 (1)	3 (1)	8 (2)	-
Alarm Processing Time	<i>Metro & Urban</i>	01:03	01:14	01:03	01:07	01:04
	<i>Suburban</i>	00:46	01:05	01:13	01:07	01:04
	<i>Rural</i>	00:55	00:18	00:43	00:49	00:46
Turnout Time	<i>Metro & Urban</i>	02:15	02:09	02:07	02:10	01:30
	<i>Suburban</i>	02:37	02:25	02:16	02:32	01:30
	<i>Rural</i>	02:05	01:59	02:58	02:29	01:30
Travel Time	<i>Metro & Urban</i>	04:28	04:17	04:33	04:29	04:16
	<i>Suburban</i>	06:08	04:05	08:16	06:42	06:22
	<i>Rural</i>	06:51	06:34	12:05	09:24	08:56
Total Response Time	<i>Metro & Urban</i>	06:55	06:31	06:55	06:47	06:26
	<i>Suburban</i>	08:17	06:53	09:53	09:43	09:13
	<i>Rural</i>	09:32	08:46	14:37	12:46	12:08
ERF Travel Time	<i>Metro & Urban</i>	09:42	07:04	07:37	08:07	07:42
	<i>Suburban</i>	06:31	07:52	10:03	09:54	09:24
	<i>Rural</i>	-	09:06	07:32	08:57	08:30
ERF Total Response Time [ERF : 17]	<i>Metro & Urban</i>	15:48	15:05	15:56	15:45	13:24
	<i>Suburban</i>	15:59	17:05	19:14	18:51	16:00
	<i>Rural</i>	-	15:28	17:16	17:05	16:14

Volunteer		2011	2012	2013	Baseline 2011-2013	OFS Target
Call Count (ERF)	<i>Suburban</i>	0 (0)	1 (0)	0 (0)	1 (0)	-
	<i>Rural</i>	4 (1)	6 (1)	5 (2)	15 (4)	-
Alarm Processing Time	<i>Suburban</i>	-	01:42	-	01:42	01:30
	<i>Rural</i>	01:27	02:39	00:58	01:49	01:30
Turnout Time	<i>Suburban</i>	-	05:31	-	05:31	01:30
	<i>Rural</i>	05:07	06:59	04:50	06:06	01:30
Travel Time	<i>Suburban</i>	-	00:39	-	00:39	00:37
	<i>Rural</i>	12:23	09:32	07:12	10:02	09:32
Total Response Time	<i>Suburban</i>	-	07:52	-	07:52	07:28
	<i>Rural</i>	18:14	17:31	11:03	17:56	16:00
ERF Travel Time	<i>Suburban</i>	-	-	-	-	13:00
	<i>Rural</i>	06:10	06:22	14:09	13:48	13:07
ERF Total Response Time [ERF : 17]	<i>Suburban</i>	-	-	-	-	16:00
	<i>Rural</i>	14:44	11:43	21:43	21:19	20:15

T.5 – Fire: High Risk Performance Comparison Table

	OTTAWA FIRE SERVICES SERVICE DES INCENDIES D'OTTAWA <i>Protecting Our Nation's Capital With Pride</i> <i>Protéger notre capitale nationale avec fierté</i>	Fire: High-Risk - Call Sub-Group Performance Levels at 90th Percentile				

Career		2011	2012	2013	Baseline 2011-2013	OFS Target
Call Count (ERF)	<i>Metro & Urban</i>	44 (13)	40 (5)	44 (8)	128 (26)	-
	<i>Suburban</i>	12 (2)	6 (0)	8 (1)	26 (3)	-
	<i>Rural</i>	0 (0)	3 (0)	3 (0)	6 (0)	-
Alarm Processing Time	<i>Metro & Urban</i>	01:17	01:55	01:18	01:22	01:18
	<i>Suburban</i>	01:20	01:15	01:30	01:20	01:16
	<i>Rural</i>	-	01:27	01:05	01:20	01:16
Turnout Time	<i>Metro & Urban</i>	02:02	02:19	02:05	02:11	01:30
	<i>Suburban</i>	02:27	02:58	02:18	02:33	01:30
	<i>Rural</i>	-	02:06	01:28	02:02	01:30
Travel Time	<i>Metro & Urban</i>	04:13	04:02	04:55	04:15	04:02
	<i>Suburban</i>	05:57	05:05	05:09	05:13	04:57
	<i>Rural</i>	-	07:32	07:57	08:02	07:37
Total Response Time	<i>Metro & Urban</i>	06:14	07:15	07:29	06:56	06:35
	<i>Suburban</i>	07:55	08:46	08:20	08:16	07:51
	<i>Rural</i>	-	10:23	10:18	10:42	10:10
ERF Travel Time	<i>Metro & Urban</i>	12:55	08:30	10:43	12:36	10:24
	<i>Suburban</i>	09:37	-	24:22	21:29	13:00
	<i>Rural</i>	-	-	-	-	18:12
ERF Total Response Time [ERF : 25]	<i>Metro & Urban</i>	19:07	16:04	20:27	19:34	13:24
	<i>Suburban</i>	17:27	-	26:42	24:51	16:00
	<i>Rural</i>	-	-	-	-	21:12

Volunteer		2011	2012	2013	Baseline 2011-2013	OFS Target
Call Count (ERF)	<i>Suburban</i>	0 (0)	0 (0)	0 (0)	0 (0)	-
	<i>Rural</i>	2 (1)	2 (0)	1 (0)	5 (1)	-
Alarm Processing Time	<i>Suburban</i>	-	-	-	-	01:30
	<i>Rural</i>	01:16	00:44	00:18	01:07	01:03
Turnout Time	<i>Suburban</i>	-	-	-	-	01:30
	<i>Rural</i>	02:10	07:21	05:40	07:03	01:30
Travel Time	<i>Suburban</i>	-	-	-	-	06:30
	<i>Rural</i>	10:35	04:57	09:20	10:26	09:55
Total Response Time	<i>Suburban</i>	-	-	-	-	09:30
	<i>Rural</i>	13:05	12:08	15:18	14:36	13:52
ERF Travel Time	<i>Suburban</i>	-	-	-	-	13:00
	<i>Rural</i>	12:02	-	-	12:02	11:26
ERF Total Response Time [ERF : 25]	<i>Suburban</i>	-	-	-	-	16:00
	<i>Rural</i>	22:44	-	-	22:44	21:12

T.6 – Medical Performance Comparison Table

 OTTAWA FIRE SERVICES SERVICE DES INCENDIES D'OTTAWA <i>Protecting Our Nation's Capital With Pride</i> <i>Protéger notre capitale nationale avec fierté</i>	Medical: All - Call Sub-Group				
	Performance Levels at 90th Percentile				

Career		2011	2012	2013	Baseline 2011-2013	OFS Target
Call Count (ERF)	<i>Metro & Urban</i>	1861 (1861)	1762 (1762)	1152 (1152)	4775 (4775)	-
	<i>Suburban</i>	547 (547)	573 (573)	384 (384)	1504 (1504)	-
	<i>Rural</i>	46 (46)	48 (48)	44 (44)	138 (138)	-
Alarm Processing Time	<i>Metro & Urban</i>	00:57	00:55	00:50	00:54	00:51
	<i>Suburban</i>	00:52	00:52	00:45	00:51	00:48
	<i>Rural</i>	01:16	01:12	01:23	01:23	01:18
Turnout Time	<i>Metro & Urban</i>	02:00	01:59	01:52	01:58	01:30
	<i>Suburban</i>	02:17	02:15	02:10	02:15	01:30
	<i>Rural</i>	02:11	02:37	02:17	02:16	01:30
Travel Time	<i>Metro & Urban</i>	04:40	04:33	04:44	04:39	04:25
	<i>Suburban</i>	06:01	05:52	05:37	05:49	05:32
	<i>Rural</i>	08:35	08:22	09:11	08:48	08:21
Total Response Time	<i>Metro & Urban</i>	06:47	06:46	06:46	06:46	06:26
	<i>Suburban</i>	08:17	08:08	07:28	08:04	07:40
	<i>Rural</i>	12:28	11:20	13:17	12:23	11:46
ERF Travel Time	<i>Metro & Urban</i>	04:40	04:33	04:44	04:39	04:25
	<i>Suburban</i>	06:01	05:52	05:37	05:49	05:32
	<i>Rural</i>	08:35	08:22	09:11	08:48	08:21
ERF Total Response Time [ERF : 4]	<i>Metro & Urban</i>	06:47	06:46	06:46	06:46	06:26
	<i>Suburban</i>	08:17	08:08	07:28	08:04	07:40
	<i>Rural</i>	12:28	11:20	13:17	12:23	11:46

Volunteer		2011	2012	2013	Baseline 2011-2013	OFS Target
Call Count (ERF)	<i>Suburban</i>	22 (22)	20 (20)	20 (20)	62 (62)	-
	<i>Rural</i>	97 (97)	101 (101)	45 (45)	243 (243)	-
Alarm Processing Time	<i>Suburban</i>	00:40	00:54	00:46	00:54	00:51
	<i>Rural</i>	01:02	01:04	00:56	01:03	01:00
Turnout Time	<i>Suburban</i>	05:01	04:54	07:12	06:12	01:30
	<i>Rural</i>	06:01	06:00	06:01	06:02	01:30
Travel Time	<i>Suburban</i>	04:51	04:34	04:31	04:44	04:30
	<i>Rural</i>	09:51	08:44	07:03	09:00	08:33
Total Response Time	<i>Suburban</i>	09:21	09:53	10:52	10:19	09:30
	<i>Rural</i>	14:23	14:34	12:45	14:21	13:38
ERF Travel Time	<i>Suburban</i>	04:51	04:34	04:31	04:44	04:30
	<i>Rural</i>	09:51	08:44	07:03	09:00	08:33
ERF Total Response Time [ERF : 4]	<i>Suburban</i>	09:21	09:53	10:52	10:19	09:48
	<i>Rural</i>	14:23	14:34	12:45	14:21	13:38


T.7 – Rescue Performance Comparison Table

 OTTAWA FIRE SERVICES SERVICE DES INCENDIES D'OTTAWA <i>Protecting Our Nation's Capital With Pride</i> <i>Protégez notre capitale nationale avec fierté</i>	Rescue - Call Group				
	Performance Levels at 90th Percentile				

Career		2011	2012	2013	Baseline 2011-2013	OFS Target
Call Count (ERF)	<i>Metro & Urban</i>	2087 (599)	1888 (506)	1787 (574)	5762 (1679)	-
	<i>Suburban</i>	679 (146)	655 (158)	538 (140)	1872 (444)	-
	<i>Rural</i>	355 (117)	370 (111)	327 (99)	1052 (327)	-
Alarm Processing Time	<i>Metro & Urban</i>	01:08	01:07	01:03	01:06	01:03
	<i>Suburban</i>	00:59	01:02	00:53	00:59	00:56
	<i>Rural</i>	01:16	01:22	01:16	01:18	01:14
Turnout Time	<i>Metro & Urban</i>	01:57	01:56	01:54	01:56	01:50
	<i>Suburban</i>	02:10	02:11	02:00	02:08	02:02
	<i>Rural</i>	02:17	02:19	02:12	02:17	02:10
Travel Time	<i>Metro & Urban</i>	04:54	05:05	05:28	05:06	04:51
	<i>Suburban</i>	05:53	05:36	05:38	05:41	05:24
	<i>Rural</i>	08:14	08:39	08:52	08:33	08:07
Total Response Time	<i>Metro & Urban</i>	07:05	07:04	07:23	07:10	06:48
	<i>Suburban</i>	08:04	07:50	07:39	07:51	07:27
	<i>Rural</i>	11:22	11:37	10:57	11:21	10:47

Volunteer		2011	2012	2013	Baseline 2011-2013	OFS Target
Call Count (ERF)	<i>Suburban</i>	13 (1)	8 (1)	12 (0)	33 (2)	-
	<i>Rural</i>	313 (49)	251 (64)	211 (51)	775 (164)	-
Alarm Processing Time	<i>Suburban</i>	01:05	01:14	00:26	01:10	01:06
	<i>Rural</i>	01:39	01:40	01:30	01:38	01:33
Turnout Time	<i>Suburban</i>	05:06	06:35	06:14	06:14	05:55
	<i>Rural</i>	06:42	06:54	07:15	06:51	06:30
Travel Time	<i>Suburban</i>	04:46	05:29	06:09	05:21	05:05
	<i>Rural</i>	10:51	11:54	11:09	11:14	10:40
Total Response Time	<i>Suburban</i>	09:36	11:40	11:50	11:24	10:50
	<i>Rural</i>	17:14	17:46	16:43	17:12	16:21

T.8 – Rescue: MVC, Extrication, Commercial Accident Performance Comparison Table

 OTTAWA FIRE SERVICES SERVICE DES INCENDIES D'OTTAWA <i>Protecting Our Nation's Capital With Pride</i> <i>Protégez notre capitale nationale avec fierté</i>	Rescue: MVC, Extrication, Commercial Accident - Call Sub-Group Performance Levels at 90th Percentile				
---	---	--	--	--	--

Career		2011	2012	2013	Baseline 2011-2013	OFS Target
Call Count (ERF)	<i>Metro & Urban</i>	2042 (577)	1825 (467)	1738 (546)	5605 (1590)	-
	<i>Suburban</i>	669 (138)	640 (147)	524 (131)	1833 (416)	-
	<i>Rural</i>	347 (109)	362 (108)	323 (96)	1032 (313)	-
Alarm Processing Time	<i>Metro & Urban</i>	01:05	01:03	00:58	01:03	01:00
	<i>Suburban</i>	00:59	00:58	00:49	00:56	00:53
	<i>Rural</i>	01:11	01:17	01:14	01:14	01:10
Turnout Time	<i>Metro & Urban</i>	01:57	01:54	01:52	01:55	01:49
	<i>Suburban</i>	02:08	02:10	01:59	02:08	02:02
	<i>Rural</i>	02:15	02:18	02:12	02:16	02:09
Travel Time	<i>Metro & Urban</i>	04:51	04:59	05:21	05:01	04:46
	<i>Suburban</i>	05:53	05:30	05:35	05:39	05:22
	<i>Rural</i>	08:14	08:35	08:55	08:32	08:06
Total Response Time	<i>Metro & Urban</i>	06:54	06:54	07:10	07:00	06:39
	<i>Suburban</i>	08:02	07:44	07:32	07:46	07:22
	<i>Rural</i>	11:21	11:18	10:58	11:17	10:43
ERF Travel Time	<i>Metro & Urban</i>	07:15	06:48	07:04	07:06	06:45
	<i>Suburban</i>	09:23	08:39	08:04	08:40	08:14
	<i>Rural</i>	11:47	11:17	11:35	11:32	10:57
ERF Total Response Time	<i>Metro & Urban</i>	09:22	09:11	09:13	09:14	08:46
	<i>Suburban</i>	11:49	11:24	10:04	11:11	10:37
	<i>Rural</i>	14:54	13:58	14:05	14:03	13:20
Volunteer		2011	2012	2013	Baseline 2011-2013	OFS Target
Call Count (ERF)	<i>Suburban</i>	12 (0)	7 (0)	12 (0)	31 (0)	-
	<i>Rural</i>	305 (45)	239 (55)	204 (49)	748 (149)	-
Alarm Processing Time	<i>Suburban</i>	00:51	01:07	00:26	01:05	01:02
	<i>Rural</i>	01:38	01:33	01:28	01:35	01:31
Turnout Time	<i>Suburban</i>	05:08	06:41	06:14	06:14	05:55
	<i>Rural</i>	06:40	06:55	07:12	06:50	06:30
Travel Time	<i>Suburban</i>	04:48	05:47	06:09	05:29	05:13
	<i>Rural</i>	10:44	11:38	11:08	11:12	10:38
Total Response Time	<i>Suburban</i>	09:36	11:53	11:50	11:30	10:55
	<i>Rural</i>	17:00	17:41	16:35	17:04	16:13
ERF Travel Time	<i>Suburban</i>	-	-	-	-	-
	<i>Rural</i>	12:40	15:24	17:56	16:00	15:12
ERF Total Response Time	<i>Suburban</i>	-	-	-	-	-
	<i>Rural</i>	19:37	20:52	21:38	20:55	19:52

T.9 – Rescue: Water/Ice Performance Comparison Table

	OTTAWA FIRE SERVICES SERVICE DES INCENDIES D'OTTAWA <i>Protecting Our Nation's Capital With Pride</i> <i>Protéger notre capitale nationale avec fierté</i>	Rescue: Water/Ice - Call Sub-Group Performance Levels at 90th Percentile				
---	---	---	--	--	--	--

Career		2011	2012	2013	Baseline 2011-2013	OFS Target
Call Count (ERF)	<i>Metro & Urban</i>	30 (11)	40 (21)	29 (9)	99 (41)	-
	<i>Suburban</i>	2 (1)	5 (1)	4 (1)	11 (3)	-
	<i>Rural</i>	5 (5)	6 (2)	2 (1)	13 (8)	-
Alarm Processing Time	<i>Metro & Urban</i>	02:41	02:46	03:25	02:50	02:00
	<i>Suburban</i>	00:57	03:54	03:47	04:15	02:00
	<i>Rural</i>	02:03	02:34	01:42	02:10	02:00
Turnout Time	<i>Metro & Urban</i>	03:06	04:08	03:15	03:38	03:27
	<i>Suburban</i>	02:04	03:24	02:55	03:02	02:53
	<i>Rural</i>	03:44	03:39	01:38	03:56	03:44
Travel Time	<i>Metro & Urban</i>	05:45	06:06	07:30	06:51	06:30
	<i>Suburban</i>	09:14	07:31	07:40	08:05	07:41
	<i>Rural</i>	08:51	11:41	05:53	10:08	09:37
Total Response Time	<i>Metro & Urban</i>	10:27	10:16	11:19	10:48	10:16
	<i>Suburban</i>	11:30	12:31	12:22	12:35	11:57
	<i>Rural</i>	11:48	15:24	09:10	14:09	13:27
ERF Travel Time	<i>Metro & Urban</i>	16:53	17:44	14:42	17:26	16:34
	<i>Suburban</i>	06:40	19:05	15:23	18:21	17:26
	<i>Rural</i>	15:39	16:29	22:04	18:22	17:27
ERF Total Response Time [ERF : 15]	<i>Metro & Urban</i>	19:23	21:56	19:22	20:51	19:48
	<i>Suburban</i>	13:51	22:21	19:48	21:50	20:45
	<i>Rural</i>	22:13	22:08	25:55	23:37	22:26


Volunteer		2011	2012	2013	Baseline 2011-2013	OFS Target
Call Count (ERF)	<i>Suburban</i>	0 (0)	0 (0)	0 (0)	0 (0)	-
	<i>Rural</i>	5 (1)	5 (2)	5 (0)	15 (3)	-
Alarm Processing Time	<i>Suburban</i>	-	-	-	-	02:00
	<i>Rural</i>	02:10	02:54	02:08	02:35	02:00
Turnout Time	<i>Suburban</i>	-	-	-	-	-
	<i>Rural</i>	07:47	05:56	07:34	07:47	07:23
Travel Time	<i>Suburban</i>	-	-	-	-	-
	<i>Rural</i>	11:33	13:30	11:50	13:37	12:56
Total Response Time	<i>Suburban</i>	-	-	-	-	-
	<i>Rural</i>	19:56	19:28	18:06	20:03	19:03
ERF Travel Time	<i>Suburban</i>	-	-	-	-	-
	<i>Rural</i>	22:39	27:11	-	27:36	26:13
ERF Total Response Time [ERF : 15]	<i>Suburban</i>	-	-	-	-	-
	<i>Rural</i>	26:08	29:19	-	29:58	28:28

T.10 – Rescue: Trench, Confined Space, High Angle Performance Comparison Table


 OTTAWA FIRE SERVICES SERVICE DES INCENDIES D'OTTAWA <i>Protecting Our Nation's Capital With Pride</i> <i>Protégez notre capitale nationale avec fierté</i>	Rescue: Trench, Confined Space, High Angle - Call Sub-Group	
	Performance Levels at 90th Percentile	

Career		2011	2012	2013	Baseline 2011-2013	OFS Target
Call Count (ERF)	<i>Metro & Urban</i>	1 (0)	3 (0)	2 (1)	6 (1)	-
	<i>Suburban</i>	1 (0)	0 (0)	1 (0)	2 (0)	-
	<i>Rural</i>	0 (0)	1 (0)	0 (0)	1 (0)	-
Alarm Processing Time	<i>Metro & Urban</i>	00:48	04:01	01:00	03:28	02:00
	<i>Suburban</i>	03:35	-	04:17	04:13	02:00
	<i>Rural</i>	-	02:26	-	02:26	02:00
Turnout Time	<i>Metro & Urban</i>	01:14	01:45	01:49	01:49	01:44
	<i>Suburban</i>	00:46	-	00:27	00:44	00:42
	<i>Rural</i>	-	02:59	-	02:59	02:50
Travel Time	<i>Metro & Urban</i>	03:38	05:29	04:40	05:30	05:13
	<i>Suburban</i>	04:44	-	03:35	04:37	04:23
	<i>Rural</i>	-	06:54	-	06:54	06:33
Total Response Time	<i>Metro & Urban</i>	05:40	09:58	07:29	09:21	08:53
	<i>Suburban</i>	09:05	-	08:19	09:00	08:33
	<i>Rural</i>	-	12:19	-	12:19	11:42
ERF Travel Time	<i>Metro & Urban</i>	-	-	16:54	16:54	16:03
	<i>Suburban</i>	-	-	-	-	-
	<i>Rural</i>	-	-	-	-	-
ERF Total Response Time [ERF : 23]	<i>Metro & Urban</i>	-	-	28:20	28:20	26:55
	<i>Suburban</i>	-	-	-	-	-
	<i>Rural</i>	-	-	-	-	-

T.11 – Rescue: Building Collapse Performance Comparison Table

 OTTAWA FIRE SERVICES SERVICE DES INCENDIES D'OTTAWA <i>Protecting Our Nation's Capital With Pride</i> <i>Protégez notre capitale nationale avec fierté</i>		Rescue: Building Collapse - Call Sub-Group Performance Levels at 90th Percentile				
Career		2011	2012	2013	Baseline 2011-2013	OFS Target
Call Count (ERF)	<i>Metro & Urban</i>	4 (1)	2 (0)	1 (1)	7 (2)	-
	<i>Suburban</i>	0 (0)	0 (0)	1 (0)	1 (0)	-
	<i>Rural</i>	0 (0)	0 (0)	0 (0)	0 (0)	-
Alarm Processing Time	<i>Metro & Urban</i>	02:05	02:20	01:13	02:20	02:00
	<i>Suburban</i>	-	-	03:04	03:04	02:00
	<i>Rural</i>	-	-	-	-	02:00
Turnout Time	<i>Metro & Urban</i>	01:52	01:51	00:59	01:56	01:50
	<i>Suburban</i>	-	-	02:18	02:18	02:11
	<i>Rural</i>	-	-	-	-	-
Travel Time	<i>Metro & Urban</i>	04:29	05:04	02:06	05:25	05:09
	<i>Suburban</i>	-	-	05:24	05:24	05:08
	<i>Rural</i>	-	-	-	-	-
Total Response Time	<i>Metro & Urban</i>	08:01	07:39	04:18	08:20	07:55
	<i>Suburban</i>	-	-	10:46	10:46	10:14
	<i>Rural</i>	-	-	-	-	-
ERF Travel Time	<i>Metro & Urban</i>	13:59	-	29:04	27:34	26:11
	<i>Suburban</i>	-	-	-	-	-
	<i>Rural</i>	-	-	-	-	-
ERF Total Response Time [ERF : 28]	<i>Metro & Urban</i>	28:44	-	35:29	34:49	33:04
	<i>Suburban</i>	-	-	-	-	-
	<i>Rural</i>	-	-	-	-	-


T.12 – HAZMAT Performance Comparison Table

 OTTAWA FIRE SERVICES SERVICE DES INCENDIES D'OTTAWA <i>Protecting Our Nation's Capital With Pride</i> <i>Protégez notre capitale nationale avec fierté</i>	Hazmat - Call Group			
	Performance Levels at 90th Percentile			

Career		2011	2012	2013	Baseline 2011-2013	OFS Target
Call Count (ERF)	<i>Metro & Urban</i>	207 (194)	152 (147)	218 (211)	577 (552)	-
	<i>Suburban</i>	39 (38)	54 (53)	63 (63)	156 (154)	-
	<i>Rural</i>	16 (15)	16 (15)	19 (19)	51 (49)	-
Alarm Processing Time	<i>Metro & Urban</i>	02:01	01:44	01:43	01:50	01:45
	<i>Suburban</i>	02:12	01:53	01:22	01:50	01:44
	<i>Rural</i>	01:47	01:36	02:04	02:01	01:55
Turnout Time	<i>Metro & Urban</i>	02:21	02:17	01:56	02:12	02:06
	<i>Suburban</i>	02:09	02:14	02:10	02:14	02:07
	<i>Rural</i>	03:01	02:05	02:25	02:50	02:42
Travel Time	<i>Metro & Urban</i>	06:14	05:34	05:44	05:51	05:33
	<i>Suburban</i>	06:10	07:11	07:01	07:04	06:43
	<i>Rural</i>	12:28	10:41	08:44	10:41	10:09
Total Response Time	<i>Metro & Urban</i>	09:36	09:00	08:03	08:57	08:31
	<i>Suburban</i>	10:30	10:11	09:40	09:52	09:22
	<i>Rural</i>	16:12	15:09	11:43	14:20	13:37

Volunteer		2011	2012	2013	Baseline 2011-2013	OFS Target
Call Count (ERF)	<i>Suburban</i>	4 (4)	3 (3)	5 (5)	12 (12)	-
	<i>Rural</i>	32 (31)	36 (36)	27 (27)	95 (94)	-
Alarm Processing Time	<i>Suburban</i>	01:40	00:41	01:36	01:54	01:48
	<i>Rural</i>	02:06	01:41	01:36	01:46	01:41
Turnout Time	<i>Suburban</i>	06:19	05:03	06:29	06:20	06:01
	<i>Rural</i>	07:08	07:20	06:25	07:00	06:39
Travel Time	<i>Suburban</i>	10:21	02:46	05:25	06:12	05:53
	<i>Rural</i>	13:00	10:31	10:51	12:14	11:37
Total Response Time	<i>Suburban</i>	17:08	08:26	13:06	13:34	12:53
	<i>Rural</i>	20:26	17:35	16:12	18:10	17:16

T.13 – HAZMAT: High Risk Performance Comparison Table

 OTTAWA FIRE SERVICES SERVICE DES INCENDIES D'OTTAWA <i>Protecting Our Nation's Capital With Pride</i> <i>Protégez notre capitale nationale avec fierté</i>		Hazmat: High-Risk - Call Sub-Group Performance Levels at 90th Percentile				
Career		2011	2012	2013	Baseline 2011-2013	OFS Target
Call Count (ERF)	<i>Metro & Urban</i>	15 (2)	5 (0)	8 (1)	28 (3)	-
	<i>Suburban</i>	1 (0)	1 (0)	0 (0)	2 (0)	-
	<i>Rural</i>	2 (1)	1 (0)	0 (0)	3 (1)	-
Alarm Processing Time	<i>Metro & Urban</i>	02:56	01:55	03:31	03:24	02:00
	<i>Suburban</i>	00:28	00:51	-	00:49	00:46
	<i>Rural</i>	04:16	01:24	-	03:59	02:00
Turnout Time	<i>Metro & Urban</i>	02:07	01:54	04:10	02:16	02:09
	<i>Suburban</i>	01:30	01:36	-	01:35	01:31
	<i>Rural</i>	02:27	01:49	-	02:26	02:19
Travel Time	<i>Metro & Urban</i>	05:52	04:04	09:13	06:32	06:12
	<i>Suburban</i>	03:03	05:50	-	05:33	05:17
	<i>Rural</i>	06:27	04:14	-	06:18	05:59
Total Response Time	<i>Metro & Urban</i>	08:50	06:38	15:18	11:36	11:01
	<i>Suburban</i>	05:01	08:17	-	07:57	07:34
	<i>Rural</i>	11:54	07:27	-	11:46	11:10
ERF Travel Time	<i>Metro & Urban</i>	19:55	-	12:09	19:15	18:17
	<i>Suburban</i>	-	-	-	-	-
	<i>Rural</i>	16:57	-	-	16:57	16:06
ERF Total Response Time [ERF : 19]	<i>Metro & Urban</i>	25:10	-	14:10	24:24	23:11
	<i>Suburban</i>	-	-	-	-	-
	<i>Rural</i>	24:26	-	-	24:26	23:13