Fire Service

Community Risk Assessment

Standards of Cover 2024

Acknowledgements

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Executive Summary

Halifax Regional Fire & Emergency (HRFE) has developed this strategic framework known as the Community Risk Assessment-Standards of Cover (CRA-SOC) to guide our preparedness for emergency responses. This document represents the culmination of an ongoing effort to ensure that HRFE's resources are deployed effectively, matching the service demand and community risk. The CRA-SOC is built on a foundation of data and operational performance analysis, ensuring that HRFE's methodologies and processes are data-driven.

The CRA-SOC covers several key processes, including the monitoring of performance, the establishment of benchmarks, performance reporting to Council and the public, the identification of areas where performance can be improved, and the development of strategies for improvement. It consolidates various methodologies and acts as a primary document guiding HRFE's decisions on how resources are allocated. In line with the standards and performance indicators set by the Commission on Fire Accreditation International (CFAI), the CRA-SOC plays a crucial role in shaping the development and renewal of HRFE's standard operating guidelines and procedures, which are essential for day-to-day operations.

The development of the CRA-SOC is informed by a detailed Community Risk Assessment, which considers the unique characteristics of the Halifax Regional Municipality (HRM), including municipal planning, development, demographics, and area characteristics. The CRA-SOC is also aligned with the broader goals and objectives set out in both HRM's Strategic Plan and HRFE's Strategic Plan which are reported to council through HRM's annual budget and business planning process, and HRFE's annual report posted online.

HRFE serves the wide and diverse area of HRM as the provider of all-hazards emergency response services. The range of emergency response services includes fire suppression, emergency medical response, technical rescues, hazardous material response, and marine response. HRFE is committed to risk reduction through public safety education, fire code inspection/enforcement, and fire investigation initiatives.

To support these comprehensive efforts, HRFE staffs approximately 1150 individuals, including both employees and volunteers. This team includes operational firefighting staff, fire prevention staff, training officers, logistic technicians, field leadership of district chiefs, senior officers, administrative staff, and partners in HRM fleet, IT services, building maintenance, and police dispatch. HRFE's participation in fire service accreditation provided a focused effort to refine response strategies and measurements for each deployment area.

The CRA-SOC embodies a continuous quality improvement process, aimed at enhancing operational performance in response to community risk and the resources available. This process involves four key steps: evaluating baseline service delivery performance, setting benchmark targets, identifying performance gaps, and developing plans for improvement.

Furthermore, the CRA-SOC includes a review of existing fire protection and detection systems, alongside a strategy for supporting performance and implementing additional and improved outcome measurement and resiliency strategies. Each element within the CRA-SOC is vital for shaping HRFE's response strategies, evaluating performance, establishing benchmarks, and planning for future enhancements.

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Fire Service Overview

History of the City of Halifax and Halifax Regional Municipality

The history of Halifax and the HRM is rich and complex, spanning from the indigenous communities that originally and continue to inhabit the region, to the modern thriving and growing city it is today.

The Mi'kmaq community was the first to inhabit the area that would later become Halifax. The first European settlers to arrive in the future Halifax region were French, in the early 1600s. However, it was not until 1749 that the British established the City of Halifax, which would grow westward by amalgamating several communities from the surrounding Halifax County, including Fairview, Rockingham, Spryfield, Purcell's Cove, and Armdale.

Halifax became a hotbed of political activism during the mid-1800s, with the fight for responsible government and the Anti-Confederation movement. The city was also a significant player in the American Civil War, with merchants making huge profits selling supplies and arms to both sides of the conflict. After the war, Halifax became linked by rail to Moncton and Saint John, and later to Quebec and other rural areas in Nova Scotia.

During World War I, Halifax emerged as a world-class port and naval facility, with the strategic location of the port providing protection from German U-boat attack. The city saw significant growth during this time, with suburban sprawl off the peninsula and the establishment of new industries.

In the 1940s, the Halifax Master Plan was developed to guide the city's growth and development as it transitioned from wartime to peacetime. The plan addressed issues such as personal automobiles, overcrowding due to wartime demands, economic development, and safeguarding a prosperous future. The plan reflected the Victorian ideals of social consciousness and protection for the underprivileged.

On 1 April 1996, Halifax was amalgamated with neighbouring communities to form the Halifax Regional Municipal Government. This amalgamation aimed to reduce costs and promote greater efficiency, with a mayor and 23 councillors now governing the urban region's metropolitan affairs.

Today, Halifax is a thriving city with a rich cultural scene, including music, art, and theatre. The city is also home to several universities and colleges, making it a hub for education and research. With a growing population and a strong economy, Halifax continues to evolve and grow, building on its rich history and looking toward the future.

Halifax Explosion

One of the most notable and world-famous incidents is the Halifax Explosion, a catastrophic event that occurred on December 6, 1917, in Halifax, Nova Scotia, Canada. It remains one of the largest non-nuclear explosions in history and had a profound impact on emergency management and firefighting practices, and causing Halifax firefighter line-of-duty deaths.

The disaster was triggered by a collision between the SS Mont-Blanc, a French cargo ship loaded with explosives, and the SS Imo, a Norwegian vessel, in the Halifax Harbor. The collision caused a fire on board the Mont-Blanc, leading to a massive explosion.

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The explosion resulted in a shockwave that devastated large areas of Halifax and Dartmouth. Entire neighborhoods were destroyed, and thousands of people were killed or injured. The explosion caused widespread fires, shattered windows, and inflicted significant structural damage.

The immediate response to the Halifax Explosion was largely improvised due to the magnitude and unexpected nature of the event. However, it showcased the resilience and spirit of the local community. Neighboring towns, military personnel, and medical personnel rushed to provide aid and support.

Boston Fire Department, along with other organizations from Massachusetts, provided critical aid to Halifax. Boston quickly mobilized to send assistance. A relief train departed from Boston within hours, carrying medical supplies, doctors, nurses, and Red Cross representatives to help treat the injured. The aid did not stop with the initial train. Over time, Massachusetts raised over $750,000 (equivalent to about $15 million today) to support relief efforts in Halifax. This included contributions from various sectors, such as the arts community, which organized benefit concerts.

In gratitude for the assistance received from Boston, Halifax sent a Christmas tree to the city in 1918. This gesture was meant to symbolize appreciation for the help provided during a time of crisis. The tradition of sending a Christmas tree from Halifax to Boston has continued annually since 1971, further solidifying the bond between the two cities. The tree is now an official part of Boston's holiday celebrations and is displayed on Boston Common.

The Halifax Explosion is the largest single firefighter line of duty death occurrence in Canadian history. The following firefighters were killed while responding to the fire on the SS Mont-Blanc on December 6, 1917:
- Chief Edward P. Condon
- Deputy Chief William Brunt
- Captain William Broderick
- Captain Michael Maltus
- Hoseman Frank Leahy
- Billy Wells (driver)
- 5 other unnamed firefighters

In total, 9 members of the Halifax Fire Department lost their lives while performing their duty that day. A monument at Halifax Fire Station No. 4 honors the fallen firefighters.

Lessons Learned:

The Halifax Explosion highlighted the critical importance of effective communication and coordination among emergency responders. Improved systems for communication and coordination were subsequently implemented to enhance emergency response efforts.

The disaster emphasized the need for proper evacuation plans and emergency shelters. Lessons learned from the Halifax Explosion contributed to the development of evacuation protocols and strategies for providing temporary shelter to displaced individuals during emergencies.

The fire following the explosion posed significant challenges for firefighters due to the magnitude of the event and the widespread fires. It highlighted the importance of effective firefighting tactics, including water supply management, firebreak creation, and collaborative efforts between firefighting teams. The

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Halifax landmark community, the Hydrostone, was rebuilt using stone materials to withstand the potential of another such disaster and, walking the neighbourhood today on can see these post-disaster buildings.

The healthcare system was overwhelmed by the massive number of injured individuals. The response to the Halifax Explosion emphasized the need for well-coordinated medical triage, transportation of patients, and distribution of medical supplies during emergencies.

The Halifax Explosion underscored the importance of conducting thorough risk assessments and incorporating them into emergency planning. It highlighted the need for identifying potential hazards and developing strategies to mitigate their impact on the community.

The disaster emphasized the importance of public education and preparedness for emergencies. Efforts were made to raise awareness about emergency procedures, personal safety, and the role of the community in responding effectively to disasters.

The lessons learned from the Halifax Explosion contributed to advancements in emergency management practices, firefighting techniques, and community preparedness. These lessons have been incorporated into modern emergency management frameworks, guiding efforts to mitigate risks, enhance response capabilities, and protect communities during emergencies.

Legal Basis for Halifax Regional Municipality

The Halifax Regional Municipality (HRM) is the capital of Nova Scotia and the largest municipality in Atlantic Canada, with a significant role in supporting the economic well-being of the province. Its existence is established by the Nova Scotia Municipal Government Act and the Halifax Regional Municipality Charter, which define its legal boundaries and legislative authority. The Halifax Regional Municipality Charter is the primary legislation governing the municipality, providing it with broad authority to pass bylaws and manage its affairs. This includes the ability to provide services, facilities, and other things necessary or desirable for the municipality, as well as the power to enter land, manage solid waste, sewers, and dangerous or unsightly premises.

Before the amalgamation that established the current Halifax Regional Municipality, there were many smaller lower-tier municipalities within the Halifax Region borders, each with their own fire departments or volunteer societies. The amalgamation brought these smaller municipalities together under a single-tier regional municipal government, creating the current Halifax Regional Municipality and its legal boundaries for both the municipality and Halifax Regional Fire & Emergency. This amalgamation aimed to streamline governance and improve the efficiency and effectiveness of municipal services.

Halifax Regional Municipality Administration

The Halifax Regional Municipality (HRM) is the capital and largest municipality in Nova Scotia, Canada, with a population of approximately 492,000 people and a land area of 5,500 km2. It is governed by a mayor-council system, where councillors are elected from sixteen geographic districts through a first past-the-post system and the mayor is elected at-large. The current mayor is Mike Savage, who has been in office since 2012.

The HRM is divided into four community councils: Halifax and West, Harbour East - Marine Drive, Northwest, and Regional Centre. Each community council is responsible for making recommendations to

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the Halifax Regional Council on development, land use, park, and community issues within their geographic area, as well as appointments to standing committees.

The Halifax Regional Council has established standing committees, community councils, and advisory committees to aid in policy development and decision-making. Standing committees are composed of councillors and have responsibility over key functional areas of the municipality, such as transportation or the environment, and can propose, review, debate, and make recommendations to council. Community councils are composed of councillors and have purview over development, land use, park, and community issues in their geographic area, as well as appointments to standing committees. Advisory committees include councillors and citizens and provide specific advice on various topics, such as accessibility, arts and culture, community design, and heritage.

The HRM has a Chief Administrative Officer (CAO) who provides advice and guidance to Regional Council, while carrying out relevant Regional Council policies and programs. The CAO has leadership of the administrative branch of the municipality, responsible for over 4,000 employees providing a wide range of services and programs as mandated by Regional Council. Services include public transit, policing, fire and emergency, streets and roads and sidewalks, recreation and cultural programs, libraries, community planning, economic development, regulatory and compliance, environmental stewardship and solid waste services. The municipal water system for water, wastewater, and storm water; including fire hydrants is overseen and delivered by Halifax Water an independent commission.

The HRM operates on a 12-month fiscal cycle, from April 1 to March 31 of the following year. It is required to prepare a balanced operating budget for ongoing items such as salaries, wages, and other recurring costs, in addition to a capital budget for fixed assets. The operating budget is balanced, while the capital budget is financed through a combination of debt (long-term assets), federal and provincial cost sharing, reserves, and transfers from the operating budget (capital from operating).

The Halifax Regional Municipality Charter (2008) outlines the powers and authority of the Halifax Regional Council. The Charter establishes standing committees, community councils, and advisory committees to aid in policy development and decision-making. Standing committees are composed of councillors and have responsibility over key functional areas of the municipality, such as transportation or the environment, and can propose, review, debate, and make recommendations to council. Community councils are composed of councillors and have purview over development, land use, park and community issues in their geographic area, as well as appointments to standing committees. Advisory committees include councillors and citizens and provide specific advice on various topics, such as accessibility, arts and culture, community design, and heritage.

In 2017, HRM's Chief Administrative Officer announced a new corporate structure designed to streamline operations to deliver on Regional Council's priorities and community outcomes and optimize citizen and business services delivery. The new organization structure included the following business units: Halifax Regional Fire & Emergency; Halifax Transit; Parks, Recreation & Community Services; Planning & Development; and Transportation & Public Works. A new Corporate & Customer Services business unit replaced the former Operations Support business unit and includes Corporate Communications, 311 Citizen Contact Centres, Customer Service & Performance Excellence, as well as Information Technology & Communications and other internal service providers.

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HRM is responsible for providing a wide range of services and programs to its residents, including public transit, policing, fire and emergency, streets and roads and sidewalks, recreation and cultural programs, libraries, community planning, economic development, regulatory and compliance, environmental stewardship and services, and water, wastewater, and storm water. The municipality operates on a 12-month fiscal cycle and is required to prepare a balanced operating budget and a capital budget for fixed assets. The Halifax Regional Council is responsible for policymaking and decision-making, while the Chief Administrative Officer is responsible for implementing council policies and programs. The municipality has established standing committees, community councils, and advisory committees to aid in policy development and decision-making.

History of Halifax Regional Fire & Emergency

The history of HRFE is marked by a long-standing commitment to protecting the lives and properties of the residents of Halifax, dating back to 1754 when the Union Fire Club was organized. Over the centuries, HRFE has responded to numerous major historical fires, fire losses, and significant events that have shaped the department's evolution and growth.

One of the most significant events in HRFE's history is the Halifax Explosion of 1917, which resulted in the deaths of over 2,000 people and the destruction of much of the city's north end. The explosion led to the creation of the Halifax Relief Commission, which was responsible for rebuilding the city's infrastructure, including its fire department.

In 1891, the building that now houses the Stubborn Goat Gastropub was commissioned as the home of the Halifax Fire Department. This building, which was once the heart of the city's firefighting efforts, is a testament to the department's long and storied history.

Throughout the 20th century, HRFE responded to numerous major fires, including the fire at the Halifax Infirmary in 1918, which destroyed much of the hospital's south wing. The department also played a critical role in responding to the fire at the Pier 21 immigration shed in 1945, which caused significant damage to the building and its contents.

In 1996, the HRM was formed, which amalgamated several municipalities, including the Halifax Fire Department. This merger resulted in the creation of HRFE, which is responsible for providing emergency response services to the entire HRM area, operating out of 51 fire stations.

In 2020, HRFE responded to the challenges of the global pandemic as the HRM municipal lead agency, adapting to new budget constraints, and operating an Emergency Operations Centre virtually. The department also continued to provide emergency response services, public education, and Fire Safety Maintenance Inspections (FSMI), supporting the first two lines of defense in the community.

The history of HRFE Emergency is marked by a long-standing commitment to protecting the lives and properties of the residents of Halifax. Over the centuries, the department has responded to numerous major historical fires, fire losses, and significant events, evolving from a volunteer-based organization to a composite metro fire service, and adapting to the changing needs of the community.

Legal Basis for Halifax Regional Fire & Emergency

HRFE is established under the authority of the Halifax Regional Municipality Charter and administered by the Halifax Regional Council through the Halifax Regional Fire & Emergency Administrative Order 2018-006-OP. The Administrative Order outlines the responsibilities and powers of the Fire Chief, who is

appointed by the Council and is responsible for the day-to-day operations of HRFE. The Fire Chief/Executive Director is also responsible for coordinating resources during major emergencies and ensuring the provision of efficient and effective emergency services to the whole of the Municipality.

The HRFE is responsible for providing fire and emergency services to the urban and rural areas of Halifax Regional Municipality, including technical rescue, water and ice rescue, hazardous material response, and medical first responder services. The service is guided by department Emergency Response Time Targets, and funded through the budget and business planning process with council approval, the service is delivered through a combination of career, composite, and volunteer staffing models across 51 stations.

The Halifax Regional Municipality Charter provides the legal framework for the establishment and administration of the HRFE, including the powers and duties of the Council and the Chief Administrative Officer as the Authority Having Jurisdiction (AHJ) in relation to the provision of emergency services within the Municipality and its legal borders. The Charter also allows for the establishment of community committees responsible for monitoring the provision of services and recommending improvements in the area for which they are responsible.

Financial Resources

HRM boasts a diverse and resilient economy driven by a multitude of sectors and factors. Government services, education and research, healthcare, ocean industries, information technology and innovation, tourism and hospitality, arts and culture, and manufacturing and aerospace are all significant contributors to HRM's economic growth and stability.

As the capital city of Nova Scotia, and Canada's largest city east of Montreal, Halifax serves as a hub for various government services and agencies, creating a substantial economic impact on the municipality. The presence of government institutions and related services generates employment opportunities and attracts businesses and individuals seeking to access these services.

Halifax's education and research sector is thriving, with several renowned universities, including Dalhousie University, Saint Mary's University, Mount Saint Vincent University, as well as Nova Scotia Community College, and Nova Scotia College of Art and Design. These institutions contribute to research and innovation in fields such as medicine, engineering, marine sciences, and business, attracting students, faculty, and research funding. The presence of these institutions generates economic activity in the form of tuition fees, research grants, and spin-off businesses.

The healthcare sector is another major driver of Halifax's economy, with the municipality being home to the largest health district in the province. The presence of hospitals, clinics, research facilities, and related healthcare services contributes to employment, attracts skilled professionals, and generates economic activity.

Halifax's strategic location on the Atlantic Ocean has led to the development of a thriving ocean industry sector. The municipality is a major seaport and plays a vital role in shipping, logistics, and international trade. Additionally, the HRM has expertise in naval defense, shipbuilding, offshore energy, and ocean research, creating employment opportunities, attracting investments, and supporting related businesses.

Halifax's technology and innovation sector is growing, with the municipality supporting startups, incubators, and accelerators, fostering entrepreneurship and innovation. The IT sector, including software development, data analytics, and cybersecurity, contributes to economic growth and job creation. The municipality also hosts various technology-related events and conferences, further promoting the sector.

Tourism and hospitality play a significant role in the local economy, with Halifax attracting tourists from around the world, drawn to its rich history, scenic coastline, cultural events, and vibrant arts scene. The tourism and hospitality industry, including accommodations, restaurants, entertainment venues, and cultural attractions, generates economic activity, particularly during the summer months. Halifax is home to the Halifax Stanfield International Airport, and major international passenger and Cargo air hub for the east coast of Canada.

Halifax has a thriving arts and cultural scene, with numerous galleries, museums, theaters, and music venues. Festivals such as the Halifax International Busker Festival and the Halifax Jazz Festival attract visitors and contribute to the local economy.

The HRM has a strong manufacturing sector, including aerospace and defense industries. The presence of companies like Pratt & Whitney Canada, IMP Aerospace, and other manufacturing firms contributes to employment and exports.

These factors collectively contribute to the economic growth and stability of the Halifax Regional Municipality, creating a diverse and resilient economy. However, it's worth noting that the economic landscape is subject to change due to various factors such as market conditions, government policies, and global trends.

Budget Process

HRFE adheres to HRM operating budget guidelines and processes which are laid out in HRM Budget and Business Plan guided by HRM's Charter, Chapter 39, Part IV. Generally, the HRM Budget Office works with each Business Unit (including HRFE) before the budget cycle begins to identify pressures on the current budget. Once the information from across HRM has been aggregated the Budget Office identifies a target for each Business Unit for the upcoming Operating Budget. HRFE identifies options for Council to consider when developing the budget.

The schedule is laid out every year and in HRM's Budget and Business Plan. The parameters under which the budget is requested are set up in the template and the working group provides guidance on how to complete it. This is done virtually through tools such as MS Teams and in-person meetings. The Capital Steering committee (currently under review) accepts and approves the work when it is complete. The annual Capital budget schedule is presented by HRM's Asset Management Office to the working group and the HRM Steering Committee, which has representation from HRFE. The process is transparent both internally and externally as it is clearly laid out in the HRM Budget and Business Plans which is posted for the public to view on Halifax.ca. All budget discussions brought before HRM council, are open for the public to attend and provide input and are accessible on the Halifax.ca website. The Capital Working Group and Steering Committee provide an opportunity for key stakeholder engagement and transparency during the budget planning process.

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Since amalgamation in 1996, HRFE has operated as a Business Unit within HRM. Subsequently, HRFE's finance resource management has been directed and supported by HRM's Finance Office. HRM has always adhered to Public Sector Accounting Standards (PSAS), Generally Accepted Accounting Principles (GAAP), and Financial Reporting and Accounting Manual (FRAM). Additionally, HRFE and HRM Finance Office operate within HRM's internal Finance Policies as posted on HRM's Intranet.

Operating Budget

HRFE's operating budget is documented in the HRM Budget and Business Plan. The HRM Charter limits HRM and HRFE to a 1-year balanced operating budget. Every year, HRFE develops and contributes budget content specific to the department's goals and objectives as laid out in the Strategic Plan, Community Risk Assessment (CRA) and Standards of Cover (SOC). Each account manager is required provide monthly projections on the operating budget and identify ways to manage and reconcile budget lines and departmental business plans to stay within the budget wherever possible.

Capital Budget

HRFE presents its goals, objectives and needs to HRM through its annual Budget and Business Plan. When goals and objectives require capital funds, HRFE works with HRM's Finance department to develop a Capital Budget and Business Plan as part of a balanced 1 year, 4 year and 10-year plan. HRM Finance reviews any reports going to HRM Council and occasional requests better explanations of long-term financial implications prior to presenting HRM Council. For HRFE's Budget and Business Plans to be approved, they must align with the strategic plan and show how it directly relates to the department's goals and objectives.

HRFE capital budgets are documented in the HRM Budget and Business Plan. The HRM Budget and Business plan serves as a financial operation guide to HRFE and a communication mechanism to HRM Council. Every year, HRFE develops and contributes budget content specific to the department's goals and objectives as laid out in the Strategic Plan, Community Risk Assessment (CRA) and Standards of Cover (SOC). HRFE uses the Capital Budget Book as a communication tool both internally and externally. Each project manager that works on a capital project provides quarterly updates to the Asset Management Office through the assigned MS Teams channel. The Asset Management Office provides the consolidated version to the CAO and council.

HRM Capital Budget is planned for 5-10yrs but only a balanced 4-year horizon are public facing. Years 5-10 are internal facing only and used for planning purposes. Effectively, HRM analyzes the financial environment, revenue and expenditure forecasts, debt position and affordability analysis, and strategies for achieving and maintaining financial balance to include plan monitoring mechanisms, on behalf of all business units, such as HRFE.

Growth and Development

The rapid expansion of the community brings about a set of unique challenges for HRFE, particularly in terms of securing adequate human and financial resources to manage the increased demand for services and to catch-up on major capital expenditures such as aging heavy apparatus fleet and many stations inherited at amalgamation that require repair, upgrading, or replacement. According to the HRM growth and development forecast, it is anticipated that a continued trend of increased density in established neighborhoods and the development of new communities on the outskirts of the core will occur.

HRM has allotted capital funding to modernize some fire stations and rebuild several aged fire stations, including a new community fire station in Sheet Harbour and west Bedford combined with a new Headquarters, Logistics and Fire Prevention & Community Risk Reduction (FP-CRR) campus. The new large urban fire station in west Bedford will allow HRFE to accommodate more emergency vehicles, additional career and volunteer firefighters and staffing in a community with elevated needs and identified risks. Additionally, HRFE has successfully obtained operating funds to hire more staff to serve the growing areas on a 24/7 basis in Hammonds Plains (Station 50) and Capital funds to renovate the station to accommodate 24-hour staffing. However, it is crucial for HRM Council to strike a balance between funding all municipal services and managing growth in all its forms. With the recent community risk reduction realignment, HRFE will be more actively collaborating with Planning & Development, and other municipal business units to ensure that public safety needs are met during the growth and development process.

Challenges Managing Capital Budget Projects

The capital budget challenges facing HRFE include aging facility infrastructure, aging heavy apparatus fleet, the need to improve and replace small equipment on all our apparatus, purchase of new equipment and training for climate change challenges and multiple major upgrade projects. Capital projects are triaged centrally through HRM finance and Regional Council Approval processes and allotted to specific business units within HRM. Most distinctly, HRM Property, Fleet and Environment - emergency fleet manages all HRFE vehicles through their department's capital budget and Building Maintenance Services (BMS) manages the capital and maintenance budget for all HRM buildings including HRFE stations. HRFE is a client of these other business units with a service level agreement (SLA) and does not have direct management or oversight of the assets. Engagement of front-line staff members has identified frustrations working with centralized services. HRFE is working to improve these issues collaboratively within the department's sphere of influence.

Aging facility infrastructure is a significant challenge, with the need for functional station improvements to be addressed by capital infrastructure planning. HRM BMS is responsible for ensuring that their facilities are safe and functional, but aging infrastructure can lead to increased maintenance costs and potential safety hazards. HRFE works through a SLA with BMS who prioritizes maintenance, repairs, upgrades, replacement, and net new facilities within their budget envelope across all of HRM.

The aging heavy apparatus fleet is another challenge, with lifecycle planning, difficulty with long lead times from manufacturers and significant price increases post-covid. The fire department relies on its heavy apparatus fleet to respond to emergencies, but aging equipment leads to decreased system reliability, increased maintenance costs, equipment failures, and safety hazards. The long lead times and increased prices from manufacturers makes it difficult to plan for replacements and system resource improvements and reduced the quantity of vehicle that could be purchased within existing budget. HRFE works through a SLA with HRM Property, Fleet, and Environment who prioritizes maintenance, repairs, upgrades, replacement, and net new vehicles within their budget envelope and across all HRM departments.

Multiple major upgrade projects are also a challenge, with radio systems, self-contained breathing apparatus, and technology software upgrades being significant initiatives currently underway. These upgrades are necessary to ensure that the HRFE can respond effectively to emergencies, they are costly and require significant planning and coordination taking valuable staffing resources.

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These challenges are compounded by budget constraints and the need to balance the need for capital investments for a growing community with the need to maintain current levels of service. HRFE is currently seeing strain on the state of many of our older facilities, and extreme difficulties maintaining operational fleet. Strategies to address these issues are underway.

Capital facility projects currently in construction and development in 2024 include renovations to station 38 in Middle Musquodoboit, and station 50 in Hammond's Plains to facilitate staffing to a 24/7 career-composite model; as well as rebuilding station 28 in Sheet Harbour, and a net new station in West Bedford to significantly address population density growth and effective response force. This new facility in addition to being an operational station will also consolidate several divisions that currently occupy leased space include the logistics and supply warehouse, administration, and community risk reduction – fire preventions divisions; ultimately providing long-term cost savings by reducing lease holds, and new critical infrastructure built to modern post-disaster standards.

Area Characteristics

Geography & Topography
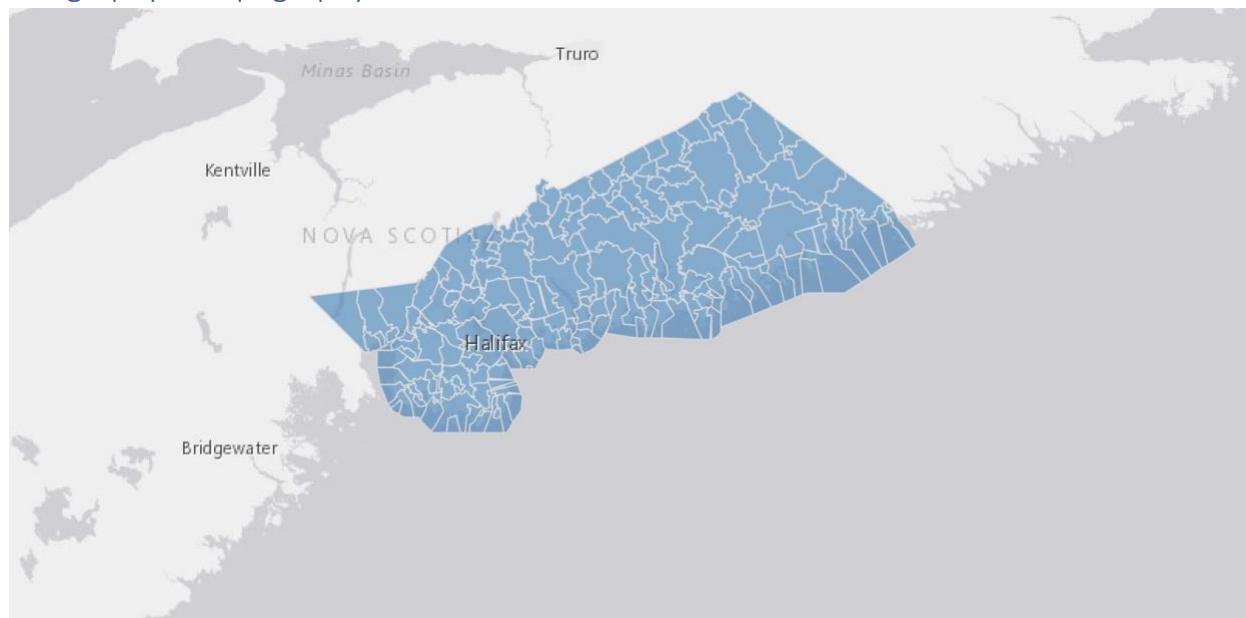
Figure 1. HRM Boundaries and Communities

Geography is a primary feature of HRM that has a significant impact on the region and the associated climate, that affects operating within the geographical region. HRFE's assessment considers transportation and road networks, mass transportation including rail and air, waterways including sea and shipping ports, and the urban road infrastructure is undergoing a major shift with significant traffic calming and an active transportation network being established.

HRM is in the province of Nova Scotia, Canada. It is situated on the eastern coast of the country, specifically on the Halifax Peninsula, surrounded by the Atlantic Ocean. The HRM encompasses a diverse range of landscapes, including coastal areas, rugged shorelines, rolling hills, and many inland lakes.

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One of the prominent physical features of HRM is the Halifax Harbour, which is a large, natural harbor that serves as a major seaport and is central to the city's identity. The harbour is relatively deep, allowing large ships to access the port, and it is protected by a narrow entrance into what is called the Bedford Basin.

The municipality is characterized by a mix of urban, suburban, and rural areas covering 5500KM^2. The downtown core of Halifax, the capital city of Nova Scotia, is located on the Halifax Peninsula and is known for its vibrant waterfront, historic buildings, and bustling streets. The cityscape features a combination of modern high-rises, heritage structures, and green spaces.

The coastline of the Halifax Regional Municipality is marked by numerous picturesque bays, coves, and inlets. Popular coastal areas include Peggy's Cove, known for its iconic lighthouse, and Lawrencetown Beach, which attracts surfers from around the region. These coastal regions are characterized by rugged cliffs, rocky shores, and beautiful sandy beaches.

Moving away from the coastline, the landscape transitions into rolling hills and valleys. The region is dotted with numerous lakes and rivers, offering opportunities for outdoor activities such as boating, fishing, and hiking. Bedford Basin, a large, enclosed bay within the HRM, provides further recreational opportunities for water-based activities.

Forests and wooded areas are prevalent throughout the municipality, particularly in the rural and suburban parts. These areas contribute to the natural beauty of the region and provide habitats for a variety of wildlife species, but also presents an imminent wildland urban interface risk to the community given the state of the climate.

HRM encompasses various land use types that serve different purposes and functions for development. These include:

Residential: This land use type includes areas designated for housing, ranging from single-family homes to multi-unit dwellings such as apartments and townhouses. Residential areas can be further classified into suburban neighborhoods, urban communities, and rural settlements.

Commercial: Commercial land use refers to areas designated for business activities, such as retail stores, office spaces, restaurants, and entertainment venues. Commercial areas are typically found in urban centers, commercial districts, and along major transportation routes.

Industrial: Industrial land use is dedicated to manufacturing, processing, warehousing, and distribution activities. Industrial zones are often located near transportation infrastructure and may include heavy industrial areas, light industrial parks, and specialized industrial facilities.

Institutional: Institutional land use includes properties used for public and community purposes, such as schools, universities, hospitals, government offices, and community centers. These areas are essential for providing educational, healthcare, administrative, and social services.

Open Space and Parks: Open space land use is designated for public enjoyment and recreation. This includes parks, green spaces, sports fields, playgrounds, and natural areas. HRM is known for its numerous parks and recreational facilities, offering opportunities for outdoor activities, and preserving natural habitats.

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Agricultural: Agricultural land use encompasses farmland and rural areas dedicated to farming activities, including crop cultivation, livestock rearing, and agricultural support services. These areas are important for food production, agricultural sustainability, and preserving rural landscapes.

Conservation and Natural Areas: These land use types include protected areas, nature reserves, wildlife habitats, and environmentally sensitive zones. They are intended to preserve biodiversity, maintain ecological balance, and protect natural resources.

Transportation and Infrastructure: Land use for transportation and infrastructure includes roads, highways, railways, airports, ports, and utility corridors. These areas facilitate the movement of people, goods, and services, ensuring connectivity within and beyond HRM.

Mixed-Use: Mixed-use land use combines multiple functions within a single area, often incorporating a combination of residential, commercial, and recreational elements. These areas aim to create vibrant, walkable communities where people can live, work, and play in proximity.

It's worth noting that the specific distribution and extent of each land use type varies across different parts of HRM. The municipality's land use planning and zoning regulations guide the development and allocation of land for various purposes, aiming to achieve a balance between economic, social, and environmental considerations. A significant challenge that exists with respect to land use is that the land use and zoning definitions, data management across HRM has not been harmonized since municipal amalgamation, therefore there is no single coding and tracking methodology. Each of the old municipal borders still holds the former land use designations making it almost impossible to ubiquitously apply community risk reduction measure by building type across the whole of HRM. The FP-CRR reduction division is currently engaging GIS and data science vendors to build a technology solution to overcome this problem presenting a risk-based priority inspection system.

Geographical Boundaries of Halifax Region

HRM is a large regional municipality located in the province of Nova Scotia, Canada. It is the largest municipality in Nova Scotia in terms of geography and population, covering an area of approximately 5,500 square kilometers and having a population of over 460,000 as of 2022. The municipality is in the Sipekni'katik and Eskikewa'kik districts of Mi'Kmak'i, the traditional and ancestral lands of the Mi'Kmaq First Nations.

The legal boundaries of the HRM are established by the Halifax Regional Municipality Charter, which is a piece of legislation created by the provincial government of Nova Scotia. This charter outlines the powers and responsibilities of the municipality, including its ability to create bylaws and regulations, and its responsibilities for local and community issues such as economic development, planning, policing, fire services, engineering standards, and more.

The governance of the HRM is established through a system of municipal government, with a mayor and council elected by the residents of the municipality. The council is responsible for setting policies and making decisions that affect the municipality, while the mayor is responsible for providing leadership and representing the municipality at various levels of government.

The HRM is divided into several historical and colloquial communities, including Halifax, Dartmouth, Bedford, and Sackville, among others. Each community has its own unique character and identity, and

the municipality works to support and promote the cultural and heritage priorities of each community through initiatives such as the Culture and Heritage Priorities Plan.

HRM is bordered by other municipalities and communities, including the Municipality of the District of Lunenburg, the Region of Queens Municipality, the Municipality of the District of West Hants, and the Municipality of the District of East Hants, and Guysborough County.

The relationship between the provincial government and the HRM is an important one, as the province has the power to create legislation that affects the municipality's ability to operate and provide services to its residents. The province is responsible for addressing important issues that are outlined in Canada's Constitution Act, and these issues are often reflected in the legislation that affects municipal operations.

In recent years, the HRM has experienced significant population growth, with a population increase of 2.1 per cent in 2021 and an additional increase of 4.4 per cent in 2022. This growth has been driven by both international and interprovincial immigration, leading to a more varied and vibrant cultural make-up in the region.
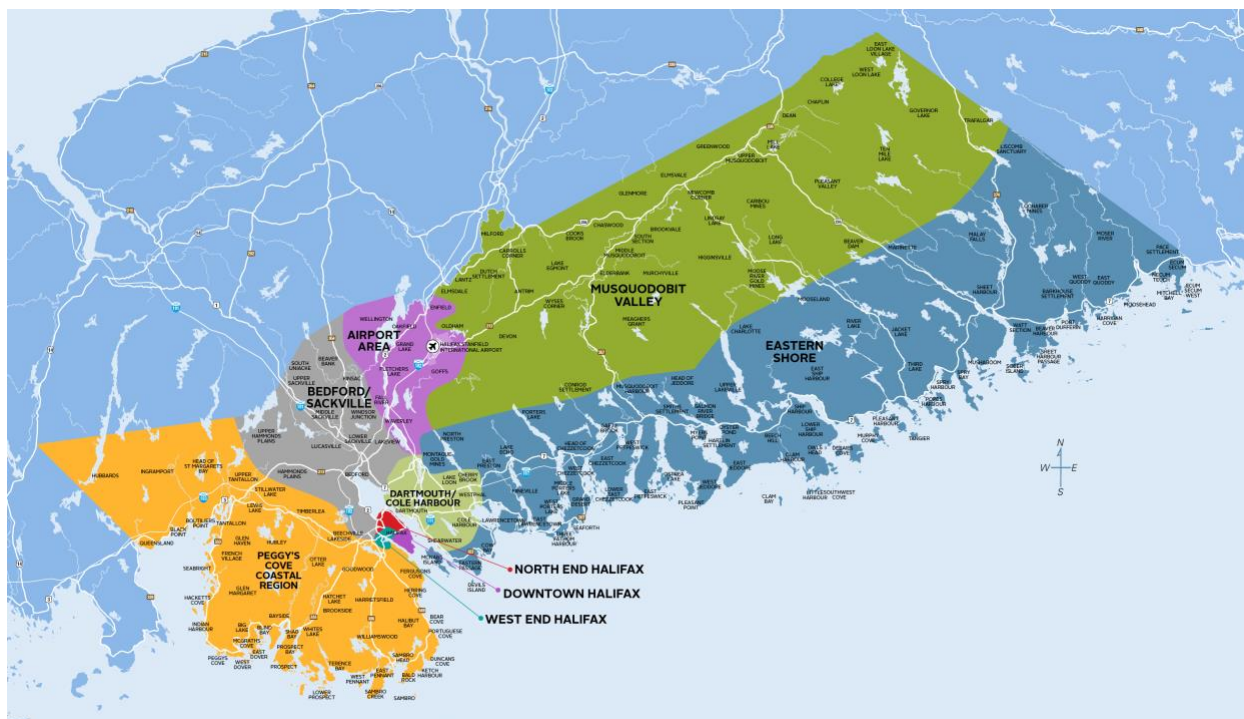
Figure 2. HRM Colloquial Development Regions

Overall, the HRM is a vibrant and diverse municipality that is governed through a system of municipal government and guided by legislation created by the provincial government. The municipality works to support the cultural and heritage priorities of its various communities, while also addressing important local and community issues such as economic development, planning, policing, and more.

Development Plan

The HRM Land Use and Development Plan is a comprehensive guide that shapes land use, zoning, and development decisions within the municipality. The plan aims to promote sustainable growth, enhance the quality of life, and preserve the unique character of the region. It establishes a vision for HRM as a

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vibrant, inclusive, and sustainable community, setting forth goals to guide land use decisions, such as protecting natural resources, promoting economic development, creating diverse housing options, enhancing transportation networks, and preserving cultural heritage.

The plan outlines various land use categories, including residential, commercial, industrial, institutional, open space, and mixed-use zones. These categories provide a framework for appropriate development and zoning regulations in different areas of the municipality. The plan also identifies urban growth boundaries to manage urban expansion and preserve rural and agricultural lands, directing development within existing urban areas, protecting natural landscapes, and promoting compact, walkable communities.

Transit-oriented development is encouraged by the plan, which promotes mixed-use, higher-density development around transit corridors and major transportation nodes. This approach aims to reduce reliance on private vehicles, enhance accessibility, and support sustainable transportation options. The plan emphasizes environmental stewardship and the protection of natural resources, including policies and guidelines to mitigate the impacts of development on ecosystems, water resources, and sensitive habitats. It promotes green infrastructure, energy efficiency, and sustainable design principles.

Community engagement and collaboration are key components of the plan, which encourages public participation, dialogue with stakeholders, and partnerships with community organizations. The plan outlines strategies for implementation, including updates to zoning regulations, infrastructure investments, and the establishment of development guidelines. It includes mechanisms for ongoing monitoring, evaluation, and adaptive management to ensure the plan's effectiveness and relevance over time.

HRFE has established an improvement plan for Community Risk Reduction that includes a new position established and being implemented in 2024 that is a direct interface between HRFE and HRM Planning & Development department (P&D). This position is designed to provide direct input from HRFE on all P&D projects to ensure optimal integration of emergency services in current and future developments.

The HRM Land Use and Development Plan will impact HRFE in several ways. Land use and development policies will influence the accessibility of properties, road networks, and the placement of buildings. Effective emergency access and response require consideration of factors such as road widths, turning radii, and the location of fire hydrants. Land use policies often include building codes, fire safety regulations, and standards for construction, which can impact the fire resistance of structures, installation of fire suppression systems, accessibility for firefighters, and the inclusion of emergency exits.

Land use policies that encourage urban density and the construction of high-rise buildings can present unique challenges for fire and emergency services. HRFE will adapt its strategies and resources to address the unique risks associated with high-rise buildings. In regions where urban areas interface with natural or forested lands, land use policies need to consider the risk of wildland fires. Effective planning can include strategies for defensible space, vegetation management, and the use of fire-resistant materials in construction. HRFE has further onboarded a new Manager of Wildland Fire Mitigation to lead this program across the municipality and in partnership with the Nova Scotia Department of Natural Resources and Renewables (DNRR). HRFE's Fire Suppression program improvement team has

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placed substantial focus on improving high-rise firefighting equipment and tactics for HRM based on the annual program appraisal.

Integrating HRFE's expertise and insights into the land use and development planning process will help identify and address potential risks, such as hazardous materials storage, access limitations, or congested areas. Collaborative risk assessments will inform land use decisions, ensuring that emergency services' capabilities and response times are factored into the planning process. The actual impact on HRFE will depend on the specific provisions, enforcement, and implementation of the land use and development policies. Regular coordination, communication, and collaboration between HRFE and land use planners will be essential to align priorities and ensure effective emergency management within the Halifax Regional Municipality.

Community Features

The central part of HRM includes the Halifax Peninsula, which is home to the city's downtown core and is characterized by hilly terrain, with Citadel Hill being a prominent landmark. The elevated landscape provides panoramic views of the city and the harbor. Sambro Island is situated at the entrance of Halifax Harbour and is known for its historic lighthouse, while the coastline around Sambro Island features rugged cliffs presenting areas requiring technical rescue capabilities and headlands that provide stunning views of the ocean.

There are various salt marshes and wetlands scattered throughout HRM, particularly along the coast and around estuaries. These areas provide important habitats for various wildlife species and contribute to the overall ecological diversity of the region. HRM is also home to several lakes and rivers, including Lake Banook, Lake Micmac, and the Northwest Arm, which are used for recreational activities such as boating, fishing, and kayaking. The significant number of oceanic and inland waterways present significant risk of water-based emergencies. HRFE has implemented plans to re-invigorate the marine and water rescue programs based on the risk assessment of these hazards and the likelihood and frequency of them occurring.

In areas such as Bedford, Dartmouth, and Cole Harbour, you can find drumlin fields. Drumlins are elongated, rounded hills formed by glaciers and covered in till (unsorted glacial sediments). They contribute to the varied topography of the region. Numerous islands are scattered along the coastline of HRM, including Georges Island and McNab's Island, which have historical significance and add to the scenic beauty of the area. Evidence of these landforms being problematic became evident in the summer of 2023 when a substantial rainstorm caused flash-flooding and required rescue of citizens in these geographical areas of Bedford. The marine programs include upgrades to swift water capabilities based on the flood plains and river overflows that present in these areas.

Beyond the urban areas, you'll find upland regions and plateaus characterized by rolling hills and wooded landscapes. These areas are often used for recreational activities such as hiking and exploring. Halifax Regional Municipality extends 165Km east and west linearly on the southern border with rugged ocean shoreline. The shoreline is made up of many ocean inlets, harbours, and bays, with a variety of islands and an archipelago on the far eastern shore attracting paddlers, and a large surfing community.

Risk reduction considerations in HRM include wildland fires on islands only accessible by boat, frequent recreational watercraft in distress, access during extreme weather events, and restrictions on ocean usage of existing watercraft. Risk reduction measures currently in place include partnerships with

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primary ocean response agencies such as the Department of National Defense Search & Rescue and the Canadian Coast Guard, recent upgrades to the Halifax Regional Fire & Emergency (HRFE) Fire Boat 1 to include ocean operations within coastal limits established by Transport Canada for Vessel type, water and ice rescue training to operations shore-based level, small watercraft to access inland islands, and standard operating guidelines for member access on private watercraft.

Roadways

HRM is the capital city of Nova Scotia and one of the largest urban areas in the Atlantic region of Canada. The city boasts a well-developed road network that consists of a combination of local streets, arterial roads, highways, and major interchanges. The main arterial roads within HRM include Barrington Street, Spring Garden Road, Robie Street, Quinpool Road, and Joseph Howe Drive. These roads serve as major routes for both local and through traffic. The growing city is showing signs of higher traffic congestion and combined with street scaping, active transportation, and traffic calming measure there may be impacts on emergency response times requiring deeper study and analysis.

Highway 102, also known as the Bicentennial Highway, is a significant highway that connects Halifax to Truro and northern Nova Scotia. It is a major route for travelers heading to and from the airport and destinations in the northern part of the province. Highway 103, known as the Lighthouse Route, connects Halifax to southwestern Nova Scotia, passing through many coastal communities and offering scenic views of the Atlantic Ocean. Highway 118, also known as the Dartmouth-Cole Harbour Connector, is a highway that connects the communities of Dartmouth and Cole Harbour to Highway 102, providing an essential link for commuters.

Notable interchanges in HRM include the Bayers Lake Interchange, which serves as a hub for commercial and retail areas, and the Burnside Interchange, which connects various industrial and commercial zones. The Mackay Bridge and the Angus L. Macdonald Bridge connect Halifax to Dartmouth and serve as key links for commuters traveling between the two sides of the harbor.

In addition to the road network within HRM, Nova Scotia has an extensive network of provincial highways and routes that connect various regions of the province. Highway 101, known as the Annapolis Valley Highway, connects Halifax to the Annapolis Valley and southwestern Nova Scotia. It is an essential route for both commuters and travelers. Highway 104, which is a part of the Trans-Canada Highway system, connects Nova Scotia to New Brunswick through the Canso Causeway. It is a vital transportation corridor for long-distance travel. Highway 105, known as the Cabot Trail, is famous for its stunning views along the Cabot Trail loop on Cape Breton Island. It is a popular tourist route offering scenic vistas of coastal landscapes. Nova Scotia's Road network extends to other regions such as the South Shore, Eastern Shore, and Cape Breton, connecting various communities and providing access to natural attractions and cultural sites.

When it comes to risk reduction considerations, there are several factors to keep in mind. These include the need for secondary means of egress from subdivisions, both in new and existing. The impact of traffic congestion on emergency response is also a significant consideration. Additionally, the impact of walkable streetscapes, active transportation, and traffic calming measures on response times is an important factor to consider. Unprecedented extreme weather events and their detrimental effects on roadways, which can delay response times or make routes impassable, are also a concern. Road

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construction, development, and bridge closures can also impact response times, as can the network of forest access utility roads, unassumed roads, and private roadways that may be undocumented.

Rail Transportation

HRM contains an extensive and vital rail infrastructure, primarily centered around the Port of Halifax, a major container port on the East Coast of North America. These rail networks play a crucial role in transporting diverse types of cargo to and from the port and other areas. The Port of Halifax consists of several terminals, each with its unique operator and cargo focus.

The Halifax Ocean Terminals, operated by the Halifax Port Authority, handle a diverse range of cargo, including containerized goods, bulk cargo, and breakbulk cargo. Containerized cargo is the most significant portion, with various consumer goods, industrial products, and raw materials being transported through the terminals.

The Fairview Cove Container Terminal, operated by Ceres Halifax Inc. (Halterm), specializes in handling containerized cargo, making it one of the key facilities for moving containers in and out of the port.

Richmond Terminals, also known as PSA Halifax, focus on containerized cargo handling, serving as a major terminal in the port complex.

The CN Halifax Intermodal Terminal, operated by Canadian National Railway (CN), serves as a significant rail intermodal facility. It facilitates the movement of containers between ships and trains, handling various types of cargo, with a focus on containerized goods.

CN Dartmouth Yard, also operated by Canadian National Railway (CN), is a classification yard used for assembling and sorting railcars before they are dispatched to different destinations. It handles a range of cargo types, including containers, bulk goods, and more.

The Halifax & Southwestern Railway Museum, while not a commercial rail network, is a historic site that preserves the history of rail transport in the region. It offers exhibits, artifacts, and educational programs related to the railway heritage of Nova Scotia.

The primary cargo types transported through these rail networks include containerized goods, bulk cargo, and intermodal traffic. Containerized goods, such as consumer goods, industrial products, and raw materials, are moved in containers to and from the port terminals. Bulk cargo, including coal, grain, and other raw materials, is also transported via rail. Intermodal traffic, facilitated by the rail intermodal terminals, enables the efficient transfer of containers between ships and trains for long-distance transportation.

VIA Rail Canada operates long-distance passenger train services connecting Halifax, Nova Scotia, to other parts of the country. The primary VIA Rail service that serves Halifax and Nova Scotia is "The Ocean." This transcontinental train service runs between Montreal, Quebec, and Halifax, Nova Scotia, offering passengers picturesque views of urban and natural landscapes as it travels through several provinces. The Ocean's route includes stops in cities and towns such as Montreal (Quebec), Drummondville (Quebec), Quebec City (Quebec), Moncton (New Brunswick), Truro (Nova Scotia), and finally, Halifax (Nova Scotia).

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Waterways & Shipping

HRM contains significant presence of inland lakes, rivers, tributaries, and a rugged ocean coastline. HRM is home to several seaports that play a crucial role in maritime trade and transportation, with the Port of Halifax and the Port of Sheet Harbour being the two primary ports.

The Port of Halifax is situated on the eastern coast of Canada, overlooking the Halifax Harbour. It is a natural deep-water harbor that can accommodate large vessels, making it a significant hub for maritime trade. The port handles a wide range of cargo, including containerized goods, bulk commodities, and breakbulk shipments. It has modern container terminals, specialized cargo-handling equipment, storage facilities, and on-dock rail connections. The port hosts various types of vessels, including container ships, bulk carriers, tankers, cruise ships, and Ro-Ro (Roll-on/Roll-off) vessels. The port has its own firefighting and emergency response requirements as a federal jurisdiction, however no current trained personnel and specialized firefighting equipment available to handle potential fires, hazardous materials incidents, and other emergencies. The port collaborates with local emergency services to ensure a coordinated response to any maritime incidents, but HRFE does not have shipboard firefighting capabilities. The ports present significant risk and likelihood of a hazardous materials incident, especially with transportation of large volumes of lithium-ion batteries and electric vehicles.

The proximity of the Port of Halifax to residential areas and urban infrastructure poses potential community risks, including the release of hazardous materials, vessel accidents, and the potential for fires and explosions. Mitigation measures, such as emergency response plans, training programs, and regular inspections, are in place to address these risks. In addition, the Port of Halifax has engaged HRFE to provide a Deputy Chief on secondment to develop a fire inspection program for the port lands, and further recommend response and fire suppression programs for the port lands, facilities, and shipboard firefighting.

The Port of Sheet Harbour is located on the eastern shore of the HRM, along the Sheet Harbour Passage. The port primarily handles bulk commodities, including forest products, aggregates, and other natural resources. It has facilities for vessel loading and unloading, storage areas, and transportation connections. The port accommodates various types of vessels involved in the transport of bulk cargo, including bulk carriers, barges, and other specialized vessels. The port does not maintain firefighting and emergency response capabilities to address potential incidents and incorporates HRFE with emergency management plans and protocols in place, along with coordination with other local emergency services, to ensure a prompt and effective response.

The handling and transportation of bulk commodities at the Port of Sheet Harbour poses inherent risks to the surrounding community, including the potential for spills, fires, or other emergencies. The port implements safety measures, training programs, and risk assessment procedures to mitigate these risks and ensure community safety. The proposed partnership with the Port of Halifax who operates all the ports within HRM will address solutions for each location.

It is important to note that each port may have specific emergency management plans and protocols tailored to their unique operational requirements. These plans address risks, firefighting capabilities, and community engagement to ensure the safety of port operations and nearby communities. Currently, there is a lack of ship-board fire suppression capabilities, and the jurisdiction for ship-board firefighting rests with the port authority who fall under federal jurisdiction. HRFE is working closely with the Halifax

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Port Authority to assist in their planning towards mitigating this risk. The Canadian Department of Defence provides shipboard firefighting for its own vessels while in Halifax harbour.

Waterway risk reduction considerations in the HRM include the significant volume of rugged coastline and ocean waters on the southern border of HRM, the significant volume of inland waters over a broad geographical area, and the response time of boats and crews to inland waterways with HRFE as the primary response over a vast geographical area. Safety and risk to HRFE members is a prime consideration to ocean incidents with the Department of National Defense Search & Rescue and the Canadian Coast Guard as the Authorities having jurisdiction over oceanic waters. Additionally, there is risk of swift water hazards in severe weather around rivers, streams, dams, spill ways, and inland lakes.

Existing risk reduction measures include the Halifax Regional Fire & Emergency (HRFE) Kjipuktuk, Fire Boat 1, operated centrally within Halifax Harbour and within Transport Canada permissible distance of the coastline for vessel class. Standard Operating Guidelines for Fire Boat Operations, Marine Operations, Open Water & Ice Rescue for response to water incidents are also in place. Collaborative training and operations with the Department of National Defense Search & Rescue, Canadian Coast Guard, and Halifax Volunteer Search & Rescue Societies are essential to ensure the safety of port operations and nearby communities.

Active Transportation, Parks, Pathways

HRM is developing a comprehensive active transportation plan to promote walking, cycling, and other non-motorized travel. The municipality aims to create a connected network of pedestrian pathways, bike lanes, and multi-use trails, integrated into broader transportation and urban planning strategies.

The Halifax Urban Greenway project will create a continuous multi-use trail network, connecting parks, natural areas, neighborhoods, and key destinations. This includes the development of various pathways such as the Birch Cove Park, which offers five trails for outdoor enthusiasts to explore. The Cyril Smith Golden Acres Park is another significant park with 13 trails catering to various activities, including mountain biking, hiking, and trail running.

The Deer Trails, Shubie Park, Spectacle and Frenchman Lake Park, and Spider Lake are also part of the Halifax Regional Municipality's extensive park network, offering a combined total of 74 trails for residents and visitors to enjoy. These parks provide a diverse range of outdoor experiences, from scenic walks to challenging bike rides, making them an integral part of the municipality's active transportation plan.

Bike lanes and cycle tracks are being implemented, providing safe and designated spaces for cyclists. Pedestrian infrastructure, including crosswalks, sidewalks, and pedestrian-friendly streetscapes, is also being enhanced. HRM has adopted active transportation planning policies and actively engages with residents and stakeholders to ensure projects meet community needs. The municipality's long-term vision includes expanding and improving the active transportation network, fostering a culture of active transportation.

Risk reduction measures include a new position in the HRFE FPCRR Division to proactively identify community risks and barriers to fire service response. An update to the council mandate is being collaboratively addressed to align emergency response mandates with traffic calming and street scaping measures.

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In addition to the extensive park network, Halifax Regional Municipality offers hundreds of parks, trails, and gardens for residents and visitors to enjoy. From award-winning Victorian gardens to local community trails, there are numerous opportunities to get outside and experience the natural beauty of the region. The municipality encourages open fires and campfires within municipal parks at any time, ensuring a safe and enjoyable experience for all park users.

The municipality's active transportation plan and park network are designed to provide safe, accessible, and enjoyable outdoor spaces for residents and visitors alike. By prioritizing active transportation and outdoor recreation, Halifax Regional Municipality is fostering a healthy, sustainable, and connected community.

Air Transportation

The Halifax Stanfield International Airport is the primary airport serving the Halifax Regional Municipality and Nova Scotia, Canada. It has a modern terminal building with multiple concourses, boarding gates, customs and immigration facilities, security checkpoints, retail and dining establishments, lounges, and car rental services. The airport features two parallel runways capable of accommodating a wide range of aircraft, equipped with lighting, navigation aids, and systems for safe aircraft operations.

The airport has comprehensive emergency management procedures in place, coordinating with local emergency services, airlines, and relevant agencies. An airport fire service emergency response team is maintained, and regular drills and training exercises are conducted to ensure preparedness. The airport's firefighting and rescue services, known as Aircraft Rescue and Firefighting (ARFF), are specialized teams trained to respond to aircraft emergencies, equipped with specialized firefighting vehicles, equipment, and protective gear.

Security measures at the airport include passenger and baggage screening, surveillance systems, access control, and collaboration with law enforcement agencies. Security staff and police are present to maintain a safe environment within the airport premises. Weather-related risks, such as severe weather conditions, can impact flight operations and pose safety risks. The airport closely monitors weather conditions and takes appropriate measures to mitigate risks, including de-icing facilities and snow removal equipment.

Communication systems are in place to disseminate information and provide updates to passengers, airport personnel, and relevant stakeholders during emergencies or disruptions. These systems include public address announcements, digital displays, and online platforms. The Halifax Regional Fire and Emergency (HRFE) and the Halifax Stanfield Airport share a common channel for emergency response.

The HRFE primarily consists of volunteer response in rural areas surrounding the airport property. The Halifax Stanfield Airport Fire Service responds to structure fires on the property and relies on HRFE to support the response. The Halifax Stanfield Airport is an international airport with large volume passenger jets and high-volume cargo. To mitigate risks, HRFE Station 45 in Fall River was added with 24/7 career staffing and the addition of a Quint apparatus for local urban density and airport risk mitigation. Mutual aid agreements are in place for airport response, and a Memorandum of Understanding (MOU) with the airport fire service is in negotiations.

Hospitals

The Halifax Infirmary is one of the most prominent healthcare facilities in the region, serving as the largest hospital in the province. This facility is home to the Charles V. Keating Emergency and Trauma Centre, which is the primary emergency care center for the HRM. The Halifax Infirmary also houses several inpatient units, general surgery, and specialized clinics such as the Epilepsy Monitoring Unit, the First Unprovoked Seizure Clinic, and the Halifax Infirmary Medicine-Surgery Program.

The Dartmouth General Hospital is another significant healthcare facility in the HRM. The government has announced plans to expand the emergency department at this hospital, as well as to spend $13.9 million to buy the East Coast MediCenter Building, which is home to Scotia Surgery. The province has a partnership with the private clinic in Dartmouth to perform certain surgeries.

The Cobequid Community Health Centre in Lower Sackville is also set to undergo expansion, with plans to add 36 inpatient beds and assess the emergency department for expansion or replacement. The government will also build two transition community centers to move people who are unnecessarily occupying acute care beds in hospital to a more appropriate level of care before they can return home or be placed in a long-term care home.

In addition to these facilities, the HRM is home to several community health centers, rehabilitation care centers, and environmental health centers, which provide a range of services from primary care to specialized care for specific conditions. These healthcare facilities are crucial in providing access to healthcare services for the residents of the HRM, particularly in satellite and urban-surrounding areas where perceived access to healthcare is quite low.

The healthcare infrastructure plan announced by the Nova Scotia government aims to address the needs of the growing population in the HRM by adding more beds, operating rooms, and emergency departments across the region. The plan includes the redevelopment of the Halifax Infirmary, which will include a new emergency department, 72 more in-patient beds, and 16 new operating rooms. The plan also includes the expansion of the emergency department at the Dartmouth General Hospital, the expansion of the Cobequid Community Health Centre, and the construction of two transition community centers. These projects aim to reduce construction timelines and address needs not included in the original QEII New Generation plan, which was announced in 2015 but was 10 years away from being completed.

The Halifax infirmary is a major institutional location that is considered in our risk mitigation plans. It houses a rooftop helipad that HRFE crews regularly visit for familiarity and to learn about upgrades to fire suppression systems. Recently the infirmary has been undergoing renovations resulting in disruptions to water supply in the area. In collaboration with NSHA, HRFE has assessed this risk and updated the response zone requirement to the infirmary to include additional water supply resources.

Care Facilities

The Halifax Regional Municipality (HRM) is home to 30 major seniors care facilities, including long-term care homes that are being replaced with new 144-room facilities. Ocean View Continuing Care Centre in Eastern Passage, Oakwood Terrace in Dartmouth, and Saint Vincent's Nursing Home in Halifax are all being replaced with new modern facilities housing 1,400 rooms. This is part of a provincial expansion plan to add 5,700 single rooms by 2032, including 800 new rooms in the Central Zone and the replacement of older homes with modern facilities.

In addition to these long-term care facilities, there are also home care and other services available for seniors in the HRM. Always Home-care provides long-term senior home care and home-based health care to residents of HRM, including Halifax, Dartmouth, Bedford, and Sackville.

The government is also taking steps to help seniors in the HRM stay in their homes. A new program will provide more seniors with access to services that help them live safely and independently at home.

A significant risk identified in the HRFE post incident analysis of the 2023 major wildfire is wildland urban interface risk of several care facilities and the preparedness of staff and Nova Scotia Health to evacuate these facilities in a major emergency. These identified risks have been shared with HRM emergency management for consultation and planning with the provincial partners.

Educational Institutions

The HRM is home to seven degree-granting post-secondary educational institutions, with four of them having athletic programs. These institutions include Dalhousie University, University of King's College, Mount Saint Vincent University, NSCAD University, Nova Scotia Community College, the Halifax campus of Université Sainte-Anne, and Saint Mary's University. These institutions offer a wide range of programs and attract students from all over the world.

In addition to these institutions, the HRM is also home to the Atlantic School of Theology and several private institutions. The largest of these, Dalhousie University, is Atlantic Canada's premier research-intensive university and hosts most of the province's professional schools.

HRM has a well-developed network of public and private schools, providing instruction from grade primary to grade twelve. There are 135 public schools administered by the Halifax Regional Centre for Education, while eight public schools are administered by the Conseil Scolaire Aacadien provincial. The municipality also has fourteen private schools that are operated independently.

HRFE sits on committees with institutions, particularly Dalhousie University to mitigate risk in the community around unsanctioned events that cause large gatherings of crowds that have previously resulted in harm, damage, and fire risk to the community.

Entertainment & Sporting Venues

HRM is home to a variety of entertainment and sporting venues that attract large crowds. One of the most significant venues is the Wanderers Grounds, a historic location that has been a gathering place for sports and entertainment for over a century. The Wanderers Grounds is currently used as a temporary stadium for the Halifax Wanderers Football Club, with a capacity of 6,000. The club has been successful in attracting large crowds to the venue, with over 400,000 people attending matches since 2018 and raising over $200,000 for local charities. The Wanderers Grounds is also used for other outdoor events, such as concerts and festivals.

Another major venue in Halifax is the Scotiabank Centre, the largest multi-purpose facility in Atlantic Canada, with a capacity of 10,500. The Scotiabank Centre is used for a variety of events, including concerts, sporting events, and trade shows. The venue has hosted numerous high-profile events, including the World Junior Ice Hockey Championship, the Canadian Figure Skating Championships, and the Juno Awards. The Scotiabank Centre is also the home arena for the Halifax Mooseheads, a major junior ice hockey team.

The HRM 4-Pad is a modern, clean, and fun facility that provides organized sport for people of all ages in the Halifax Regional Municipality. The facility is in Bedford and attracts teams and associations from throughout the province and nationwide. The HRM 4-Pad is used for ice hockey, figure skating, and other ice-based sports.

In addition to these major venues, the HRM also has a variety of sport fields and courts that are used for organized sports and recreational activities. These facilities are available for rent and are used for a variety of sports, including soccer, football, baseball, and basketball.

Halifax is also home to several major events that attract large crowds, including the Royal Nova Scotia International Tattoo, the Halifax International Busker Festival, and the Atlantic Film Festival. These events attract visitors from across the province and beyond, contributing to the local economy and enhancing the city's cultural offerings.

Climate

HRM's climate has a humid continental climate that is influenced by the Gulf Stream, resulting in warm summers and relatively mild winters. The climate is characterized by significant seasonal lag in summer, with August being significantly warmer than June and September being the third mildest month in terms of mean temperature. Precipitation is high year-round, with a mix of rain, freezing rain, and snow in winter, and frequent freeze-thaw cycles that melt accumulated snow. Spring is often wet and cool, arriving later than in areas of Canada at similar latitudes due to cooler sea temperatures. Summers are mild and pleasant, with hot and humid conditions very infrequent. Warm, pleasant conditions often extend well into September, sometimes into mid-October.

The climate of Halifax is also projected to change in the future, with higher average annual and maximum temperatures, more heat waves, and higher annual precipitation expected. The number of hot summer days and tropical nights is projected to increase, particularly if heat events last for more than a few days. This can have significant impacts on human health and safety, as well as energy use for cooling.

Halifax is also vulnerable to climate hazards such as floods, heatwaves, and hurricanes, which can cause significant damage to public and private property. These hazards are projected to increase in variability, frequency, and intensity because of projected changes in climate.

Demographic Characteristics

HRM had a population of 439,819 people as of the 2021 Statistics Canada Census of Population, an increase of 36,682 people since the 2016 census, representing a 9.1% growth. The region has a wide urban and rural variability with 200,473 private dwellings, 190,512 of which are occupied year-round by residents, resulting in an overall population density of 90.3 people per km2.

The age distribution in the HRM is relatively balanced, with a median age of approximately 41 years, indicating a mix of young and older residents. The most populous demographic is the 15 to 64 age group, with 298,640 residents, making up 67.9% of the population.

The HRM is known for its cultural diversity, with residents from various ethnic backgrounds, including British, Scottish, Irish, African Nova Scotian, Mi'kmaq Indigenous, and many others. The municipality also has a growing immigrant population, with individuals from countries such as China, India, the

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Philippines, and Lebanon. English is the primary language spoken in the HRM, over 100 other languages are also spoken, reflecting the multicultural nature of the community.

HRM is home to several prestigious universities, including Dalhousie University, Saint Mary's University, and Mount Saint Vincent University, attracting students from across Canada and around the world. The municipality has a diverse economy with sectors such as education, healthcare, finance, technology, government services, and the arts contributing to its employment opportunities. The region also benefits from its proximity to the Atlantic Ocean, which supports industries such as fishing, shipbuilding, and port-related activities.

HRM offers a range of housing options, including detached houses, apartments, condominiums, and townhouses. The housing market has experienced growth in recent years due to increased demand and population growth. Halifax has a vibrant 2SLGBTQI+ community with various organizations and events supporting 2SLGBTQI+ rights and visibility.

HRM is the most populous municipality in Atlantic Canada, with a diverse geographic distribution and population density. HRM comprises urban, suburban, and rural areas, each contributing to its unique character. The Halifax Peninsula, the urban core of the city, is densely populated and hosts a mix of residential, commercial, and cultural facilities. Across the Halifax Harbour, Dartmouth is another urban center known for its historic downtown, waterfront, and residential neighborhoods.

Suburban areas such as Bedford and Sackville, located to the northwest of the Halifax Peninsula, consist of residential neighborhoods, schools, and commercial centers. Spryfield, situated southwest of the Halifax Peninsula, is a community with a mix of suburban and rural characteristics. The eastern coastal region of HRM includes communities along the Atlantic coast, featuring a blend of rural and seaside areas. Cole Harbour, lying to the east of Dartmouth, is known for its residential neighborhoods and recreational spaces.

Clayton Park and Fairview, suburban areas to the northwest of the Halifax Peninsula, include residential communities and shopping centers. Sambro, a coastal area to the southwest of the Halifax Peninsula, is known for its scenic beauty. Lower Sackville, a suburban community to the northeast of the Halifax Peninsula, is known for its residential neighborhoods and amenities. HRM also includes more rural areas outside of the urban centers, with agricultural land, natural landscapes, and smaller communities.

Population density tends to be higher in urban and suburban areas, especially around the Halifax Peninsula and Dartmouth, reflecting a higher concentration of housing, commercial spaces, and amenities. In contrast, the outlying regions tend to have lower population densities, reflecting a more rural lifestyle and natural landscapes.

Age Distribution
Age Distribution: The HRM has a balanced age distribution. The median age in the municipality was approximately 41 years, indicating a mix of young and older residents; with the most populous demographic being 15 to 64 years of age for 298,640 residents making up 67.9% of the population.

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Total - Age groups of the population - 100% data   439,820

0 to 14 years	65,025
0 to 4 years	19,795
5 to 9 years	22,630
10 to 14 years	22,600
15 to 64 years	298,640
15 to 19 years	21,880
20 to 24 years	32,125
25 to 29 years	34,775
30 to 34 years	33,180
35 to 39 years	30,795
40 to 44 years	28,300
45 to 49 years	27,735
50 to 54 years	28,120
55 to 59 years	32,055
60 to 64 years	29,665
65 years and over	76,150
65 to 69 years	24,835
70 to 74 years	21,030
75 to 79 years	13,835
80 to 84 years	8,565
85 years and over	7,885
85 to 89 years	5,125
90 to 94 years	2,065
95 to 99 years	605
100 years and over	85
Total - Distribution (%) of the population by broad age groups - 100% data	100.0
0 to 14 years	14.8
15 to 64 years	67.9
65 years and over	17.3
85 years and over	1.8
Average age of the population	41.3
Median age of the population	40.4

Table 1. Age Demographics HRM

Culture, Distinct Communities, Language

HRM is a culturally rich area located in Mi'kma'ki, the traditional territory of the Mi'kmaq Indigenous people. The Mi'kmaq have a deep historical connection to the land, with a way of life that includes fishing, hunting, and trading. They maintain a rich cultural heritage with spiritual significance tied to the land and sea.

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HRM is also home to the African Nova Scotian community, with roots dating back to the 17th century. Despite facing systemic racism, this community has contributed to Nova Scotia's development and continues to celebrate its heritage, particularly during African Heritage Month in February.

The municipality's diversity includes more than 200 ethnicities from 168 different countries and 100 different languages, each contributing their cultural practices. HRM's universities attract international students, adding to the cultural mix, and the region is known for its inclusive environment for the 2SLGBTQI+ community.

Additionally, HRM has welcomed immigrants and refugees from various countries, adding languages such as Arabic, Somali, and Tigrinya to the linguistic landscape. The European heritage is reflected in Gaelic-speaking and Acadian French communities, highlighting HRM's dynamic cultural and economic landscape.

HRM is committed to supporting culture and heritage, as evidenced by its Culture and Heritage Priorities Plan. The plan aims to celebrate culture, support connection and inclusion through cultural expression, create a region that reflects the diversity of the people who live there, uphold the principles of Truth and Reconciliation, and be stewards of heritage and cultural resources.

Citizenship

Total - Citizenship for the population in private households - 25% sample data	435,295
Canadian citizens	395,665
Canadian citizens aged under 18	71,490
Canadian citizens aged 18 and over	324,175
Not Canadian citizens	39,625

Table 2. Citizenship Demographics HRM

Socioeconomics

The socioeconomics of HRM include a mix of income levels, diverse job opportunities, and housing challenges. While some residents enjoy high incomes, others face financial difficulties due to income disparities. The job market is varied, with low unemployment, but certain groups may face employment barriers. Housing affordability is an issue due to rising prices and increased demand. The education system is robust, but disparities in access and outcomes exist, particularly for marginalized students. Health and social services are available, but access and resource distribution can be improved. HRM is becoming more diverse, requiring ongoing efforts to promote inclusivity and cultural diversity. Community development and engagement are prioritized, with local initiatives and organizations playing a crucial role. Addressing poverty and social inequality requires a collaborative effort from various stakeholders.

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In low income based on the Low-income cut-offs, after tax (LICO-AT)	24,455
0 to 17 years	4,075
0 to 5 years	1,270
18 to 64 years	19,055
65 years and over	1,325
Prevalence of low income based on the Low-income cut-offs, after tax (LICO-AT) (%)	5.6
0 to 17 years (%)	5.2
0 to 5 years (%)	5.3
18 to 64 years (%)	6.7
65 years and over (%)	1.8

Table 3. Income Demographics HRM

Building Inventory & Dwellings

The number of dwellings in the HRM is estimated to be 200,904 (2016), with most of the population (57%) falling between the ages of 20 and 59. The population is aging, with 22% of the population over the age of 60.

HRM has experienced population growth over the past 20 years, with a 44.1% increase in population from 1996 to 2016. This growth has been driven by a strong economy, with a low unemployment rate and a median household income of $72,784 (2016).

Unfortunately, there has been a significant uptick in the number of unhoused individuals within HRM and the community, in particular the inner city is seeing many people in temporary shelters in parks and common community areas. There has been a great amount of work between HRM and the provincial government to address the situation including an HRM Executive Leadership Team sub-committee prioritizing solutions to help people experiencing homelessness and provide support while the province enhances more permanent solutions and services.

The municipality has a robust business community, with a variety of commercial and industrial properties. The HRM is committed to supporting business growth and development, with a range of policies and programs in place to support business start-ups and expansions.

In terms of housing, the HRM has a range of housing types, including single-family homes, townhouses, and semi-detached dwellings. The municipality is committed to promoting housing diversity and affordability, with a focus on preserving and enhancing existing housing stock.

In recent years, the HRM has seen a decline in the number of rooming houses, from 153 in 2007 to 25 in 2012. This decline is due in part to changing demographics and housing preferences, as well as changes in zoning regulations and building codes. However, the municipality recognizes the importance of rooming houses as an affordable housing option and is committed to promoting housing diversity and affordability using secondary planning strategies.

In terms of building starts, the HRM has seen steady growth over the past five years, with a total of 4,575 building starts in 2019, up from 3,747 in 2015. This growth is expected to continue in the coming years, with projections for 5,000 to 6,000 building starts per year over the next 5 to 20 years.

Household and dwelling characteristics

Total - Occupied private dwellings by structural type of dwelling - 100% data	190,510
Single-detached house	90,825
Semi-detached house	12,485
Row house	7,390
Apartment or flat in a duplex	6,540
Apartment in a building that has fewer than five stories	40,470
Apartment in a building that has five or more stories	28,320
Other single-attached house	200
Movable dwelling	4,270
Total - Private households by household size - 100% data	190,510
1 person	56,935
2 persons	71,090
3 persons	29,105
4 persons	22,770
5 or more persons	10,615
Number of persons in private households	435,290

Table 4. Household Dwelling Characteristics HRM

Housing Starts

Year	Housing Starts	Building Permits ($)	% Change
2019	4,575	1,025,000,000	7.9%
2020	4,200	1,000,000,000	-2.4%
2021	4,400	1,100,000,000	9.8%
2022	4,500	1,200,000,000	9.1%
2023	4,600	1,300,000,000	8.3%

Table 5. Housing Starts HRM

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Large Scale Event & Disaster Analysis

HRM is exposed to a variety of natural and human-made hazards that could result in large scale emergency events and disasters. These hazards include severe weather conditions, such as hurricanes, blizzards, floods, and wildfires, as well as industrial accidents, major transportation accidents, and acts of terrorism.

Natural Hazards

Hurricanes: Hurricanes are a significant risk in Halifax, as the region is located on the Atlantic coast and is prone to these powerful storms. Hurricane Juan, which struck Halifax in 2003, caused extensive damage and power outages.

Blizzards: Severe winter storms, including blizzards, ice storms, and extreme cold, are common in Halifax. These storms can cause power outages, transportation disruptions, and infrastructure damage.

Floods: Flooding is a significant risk in Halifax due to the region's coastal location and the potential for storm surges. The municipality has experienced several major floods in the past, including the 2020 flood that caused significant damage and evacuations.

Wildfires: Wildfires are a growing concern in Halifax, particularly in areas with high wildfire risk, such as the wildland-urban interface. The Upper Tantallon wildfire in 2021 destroyed more than 200 structures, including 151 homes.

Tsunamis: Nova Scotia's position on a trailing-edge plate margin the risk of a tsunami is low. November 18, 1929 an earthquake located near the southern edge of the Grand Banks, and the resulting underwater landslide, created a tidal wave that hit Newfoundland reaching heights of three to seven metres. With large amounts of coastal development, an event of this scale today would result in large loss of life in Nova Scotia.

Human-Made Hazards

Industrial Accidents: Industrial accidents, such as chemical releases, can have severe consequences for the community. The 2014 explosion at the Irving Oil refinery in Saint John, New Brunswick, highlighted the potential risks associated with these incidents.

Major Transportation Accidents: Major transportation accidents, such as train derailments or shipping accidents, can cause significant damage and disruptions. The 2013 derailment of a freight train in Lac-Mégantic, Quebec, resulted in 47 fatalities and widespread destruction, and the crash of Swiss Air flight 111 that crashed in 1998 off the coast of HRM near Peggy's Cove.

Acts of Terrorism: The possibility of acts of terrorism on Canadian soil is a concern for Halifax, as with any major city. The 1985 bombing of Air India Flight 182, which originated in Montreal, underscores the potential for such incidents.

Infrastructure Risks

Power Outages: Power outages are a common occurrence in Halifax, particularly during severe weather events. These outages can have significant impacts on the community, including disruptions to essential services and businesses.

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Critical Infrastructure: The municipality's critical infrastructure, such as water and sewage systems, transportation networks, and emergency services, are vulnerable to disruptions during large scale emergency events and disasters. The HRVA project aims to identify and address these vulnerabilities.

Community Preparedness and Resilience

The residents of Halifax have demonstrated a strong sense of community resilience, with 67% having personally experienced a major emergency or disaster in Canada. However, there is still room for improvement in emergency preparedness and planning. Only 71% of residents live in households that engaged in at least two emergency planning activities, and only 32% have implemented all three fire safety measures within their households.

HRM Emergency Management Office is conducting a Hazard, Risk and Vulnerability Assessment (HRVA) in 2024 to better understand the community's vulnerabilities and mitigate emergency risks and hazards. The HRVA program will establish profiles and recommendations for action for each of the municipality's districts, informed through comprehensive public engagement.

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Halifax Regional Fire & Emergency
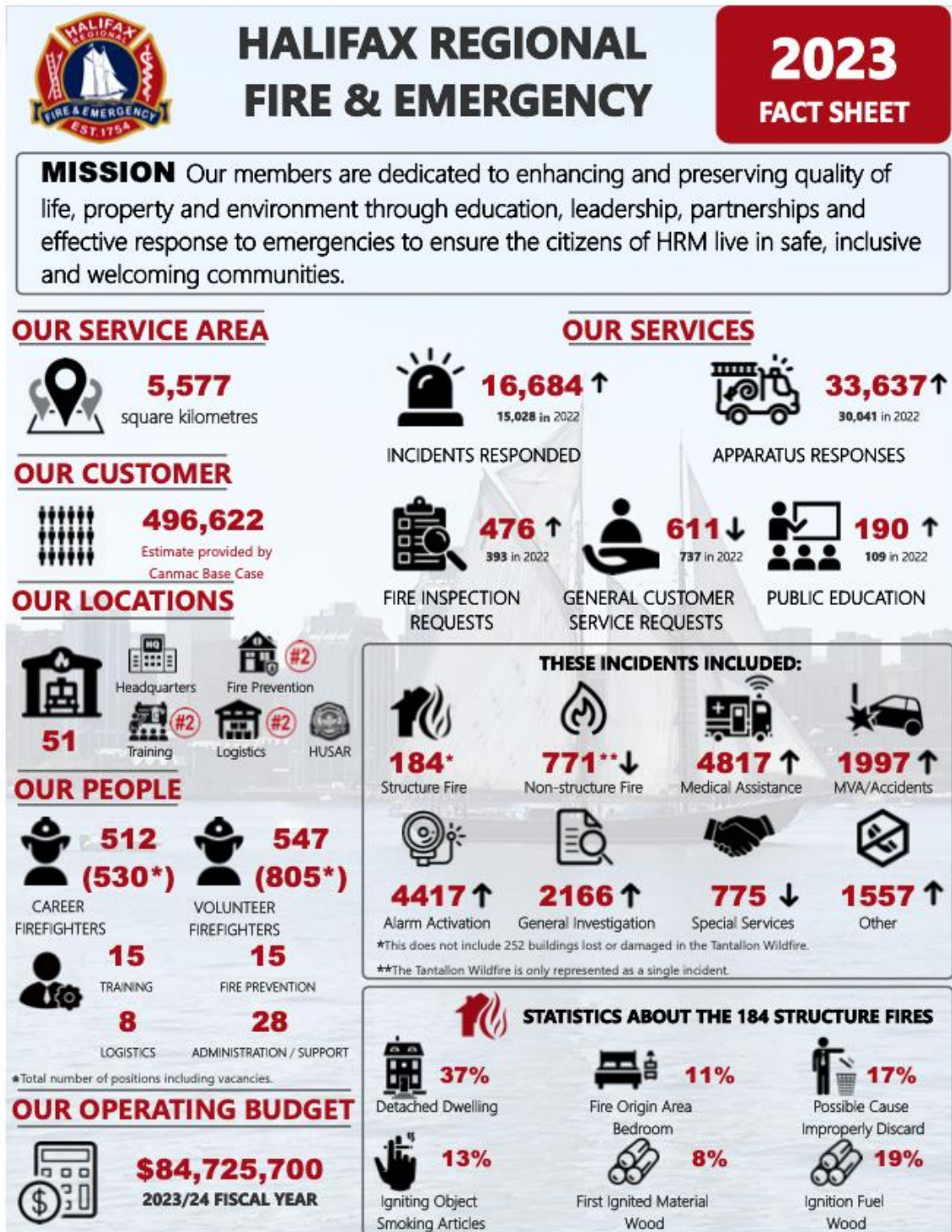
Figure 3. HRFE Council Fact Sheet 2023

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HRFE Structure

HRFE's authority is established through the [Halifax Regional Council Administrative Order 2018-006-OP](#) providing direction to the fire chief on level of service provided to the Halifax Regional Municipality when carrying out the mission of the department. Halifax Regional Municipality was given the authority to register and control the provision of fire and emergency services by the province of Nova Scotia through the [Halifax Regional Municipality Charter 2008](#) establishing the municipality, and it's legal geographical borders.

HRFE is organized into three pillars with multiple divisions across the pillars and a matrix leadership model reporting to the Fire Strategic Team under the direction of the Executive Director/Fire Chief. The Fire Strategic Team operates in a board-like structure to collective analyze strategic decisions across pillars to bring broad organizational awareness to emerging issues requiring collaboration. The Office of the Fire Chief provides strategic leadership in the advancement of HRFE's mission and vision to serve and protect the residents of Halifax Regional Municipality

The Operations pillar is made up of one deputy chief and two assistance chiefs who carry strategic initiative reporting to the Chief. A team of district chiefs across five platoons provides front-line leadership and incident command to the current 541 career members on 24/7 shifts across four platoons (24 hours on/72 hours off) and day work on the fifth platoon (10.5 hours/4 days per week), and the current 547 volunteer members. The most senior operational firefighting members are platoon captains who provide incident command support and incident safety officer roles.

The Community Risk Reduction, Logistics and Infrastructure (CRRLI) Pillar includes Fire Preventions & Community Risk Reduction Division, under the direction of a Division Chief currently with 31 full time positions and being restructured for the 2024/25 fiscal year. The Medical division consisting of a Division Chief and Medical Quality Improvement Specialist and contracted Medical Educators. The logistics division made up of a Division Captain and seven staff including drivers, warehouse staff, bunker gear technician, SCBA technicians, and equipment maintenance technicians, with the recent addition of a Division Chief of Logistics.

The Professional Development, Performance & Safety (PDPS) Pillar consists of four divisions: Safety, Professional Development & Training, Technology and Innovation, and Workplace Culture. Technology and Innovation is operated by a Division Chief with support of a radio technician, data analyst, and GIS specialist. This service is responsible for communications and information management technology. This service also promotes innovation and the use of best practices to improve firefighter safety and emergency service delivery. This includes the collection, analysis and reporting of business unit performance. The Safety Division is overseen by a Division Chief along with Operations Division Platoon Captains reporting to the division for their safety officer roles. This service provides on-shift incident safety officers at emergencies, leads workplace inspections, supervises accident investigations and provides expert advice to all divisions of the organization. The Division Chief of Safety also leads policy and operational guideline development related to safety and supports the Joint Occupational Health & Safety Committee. While the Professional Development & Training Division is overseen by a Division Chief and Platoon Captain with 12 Training Officers responsible for both volunteer and career recruit training, certification courses, officer development, and ongoing continuing fire service training and evaluation. The Office of Workplace is dedicated to fostering an inclusive and equitable environment implementing diversity, equity, and inclusion (DEI) initiatives that promote respect. It delivers education

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and outreach programming and supports competency-based employment equity recruitment. Additionally, the office oversees Critical Incident Stress Management services and Firefighter & Family Assistance Program services.

Finally, there is a deputy chief of special operations and projects with an ongoing portfolio of service enhancement projects that includes the introduction of the new wildfire mitigation manager position and building the partnership with the Port of Halifax.

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Figure 4. HRFE Organizational Chart HQ
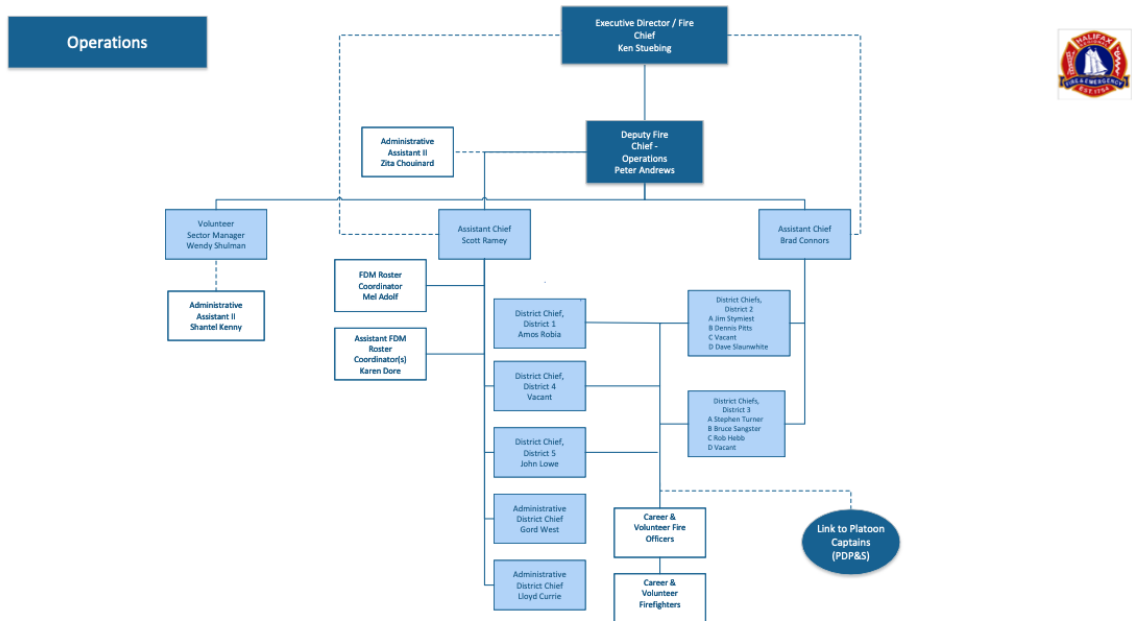
Figure 5. HRFE Organizational Chart - Operations

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Professional Development, Performance & Safety

Halifax Regional Fire & Emergency Effective October 1, 2023

Executive Director / Fire Chief
Ken Stuebing

Deputy Chief – Professional Development, Performance & Safety
David Meldrum

Administrative Assistant II
Agnes Gyurcsanyi

GIS Technician
Robbie Evans

Division Chief – Technology & Innovation
Mark Burgess

Division Chief – Training & Professional Development
Vince Conrad

Assistant Chief – Workplace Culture & Inclusion
Sherry Dean

Fire Application Specialist
Andrew Higginbotham

Communications Technician
Keith Sheppard

Data Analyst
Li Wang

Administrative Support Assistant
Cherry Cohen

ELC & Instructional Designer
Shawn McNamara

Division Captain, Training
John MacLean

Training Officers

Training Staff

FFAP Coordinator
Chris Charles

Division Chief – Safety & Compliance
Bruce Lake

Administrative Support Assistant
Wanda York

Platoon Captains

Link to District Chiefs (Operations)

Figure 6. Organizational Chart - PDSP

Community Risk Reduction, Logistics & Infrastructure

Halifax Regional Fire & Emergency Effective October 1, 2023

Executive Director / Fire Chief
Ken Stuebing

Deputy Fire Chief – CRRLI
Corey Beals

Administrative Assistant II
Stella Cavalli

Division Chief – Fire Prevention
Matt Covey

Division Captain, Logistics
Marcheta Fitzgerald

Division Chief – Medical, Research & Continuous Quality Improvement
Corey Banks

Administrative Support Assistant
Judith Liebold

FSMI Program Administrator
Jessica Hawkins

Division Captain, Fire Prevention
vacant

Fire Prevention Officers

Fire Inspectors

Administrative Support Assistant
Janelle Campbell-Hanson

Logistics Staff

Medical Instructors

Figure 7. HRFE Organizational Chart CRRLI

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HRFE Staff

Halifax Regional Fire & Emergency consists of over 1150 uniformed and administrative positions. Staffing levels at end of 2023 fiscal year are 541 career members and 547 volunteer operational members with additional staffing of 15 in the training division, 32 fire prevention & community risk reduction, 8 logistics and 28 administrative staff. The 2023/24 fiscal year budget was $84,725,700. These members provide all the operational services to the community including fire suppression, medical response, technical rescue (high angle, marine, trench, confined space), hazardous materials, and marine based structural firefighting with HRFE Fireboat 1 (Kjipuktuk). FP-CRR division provides inspection, investigation, and public education; while our logistics staff are the glue that holds all aspects of the department together with essential resources. The corporate fleet department with emergency vehicle technician keep our fleet on the road and functional, and the administrative staff are the backbone of the organization that ensures we have the proper support and resources to deliver services effectively and efficiently. HRFE as a municipal department and service benefits from partnerships across business units such as building maintenance services, corporate fleet, human resources, finance, and information technology services.
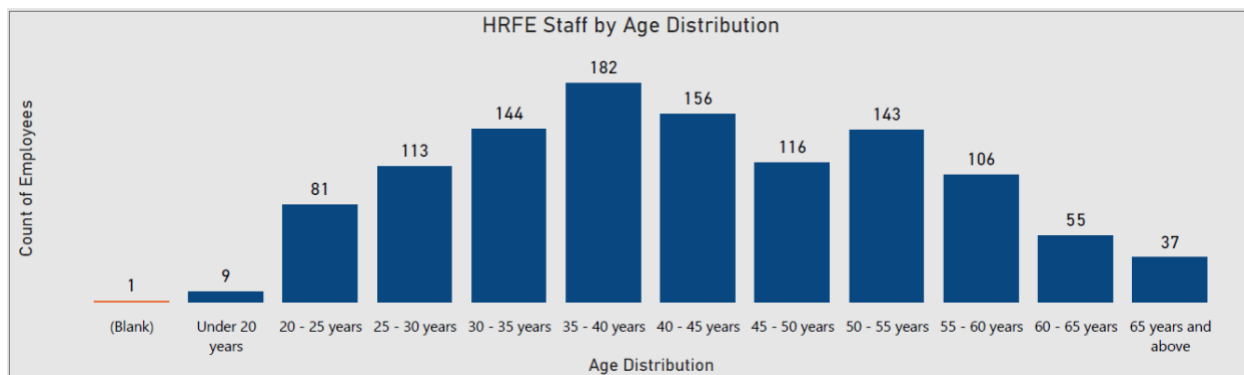
Figure 8. HRFE Staff Age Demographics
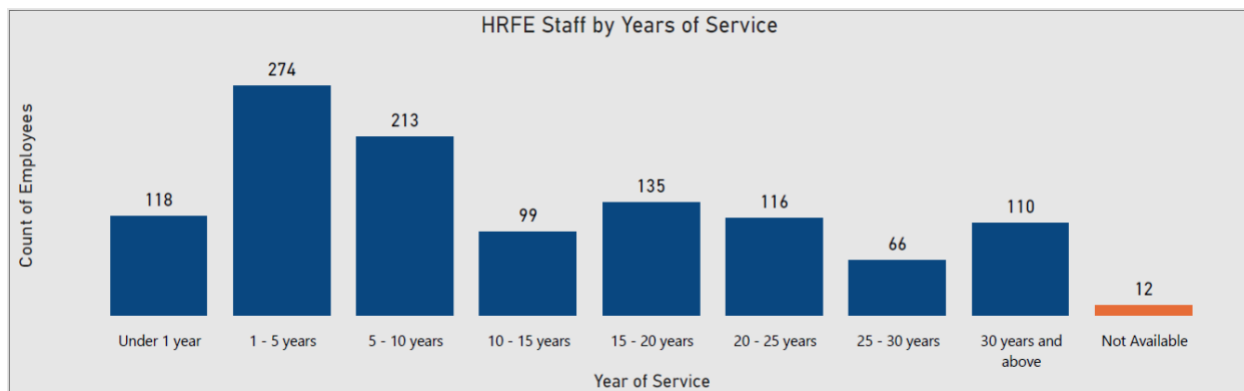
Figure 9. HRFE Staff Years of Service Distribution

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HRFE Staff (2023 Fiscal Year, Does not include current vacancies)

Employee Status	Employee Rank	Employee Group			Grand Total
		IAFF 268	NSGEU	Non-Union	
Career	Administrative Staff		7	6	13
	Assistant Chief			4	4
	Captain Operations	120			120
	Co Ord Chf Dir			1	1
	Data Analyst			1	1
	Deputy Fire Chief			4	4
	District Chief			12	12
	Division Captain	2			2
	Division Chief			5	5
	FFAP Coordinator	1			1
	Fire Chief			1	1
	Fire Inspector	7			7
	Fire Prev Officer	4			4
	Firefighter	261		1	262
	FireFighter Engineer	121			121
	Medical Specialist			1	1
	Mgr Admin Services			1	1
	Mgr Fire Inspection			1	1
	Mgr Fire Intl Invest			1	1
	Mgr Wildfire Prgm			1	1
	Platoon Captain	5			5
	Roster Coordinator			2	2
	Storesperson	1			1
	Support Member	1			1
	Technician	7			7
	Training Officer	10			10
	Vol Program Manager			1	1
	NONE SELECTED	1		1	2
	Total	**541**	**7**	**44**	**592**
Volunteer	Captain(V)			30	30
	Firefighter			270	270
	Firefighter Prob.(V)			66	66
	Lieutenant (V)			57	57
	Platoon Captain(V)			5	5
	Recruit(V)			68	68
	Support Staff			47	47
	Total			**543**	**543**
Contract	Administrative Staff			1	1
	Co Ord Chf Dir			1	1
	Roster Coordinator			1	1
	Technician	4			4
	Total	**4**		**3**	**7**
Other	Administrative Staff		1		1
	Total		**1**		**1**
Grand Total		**545**	**8**	**590**	**1143**

Table 6. HRFE Staffed Positions

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Service Delivery Model

HRFE has engaged the accreditation process as an opportunity to apply an objective and structured approach to analyzing our system to make improvements based on actual risk assessment, community growth and development, council administrative order including emergency response time targets and effective response force targets.

The resulting changes are implementing a culture of continuous improvement to better understand the various levels of community risk and needs, expectations, and service demands which are currently increasing year over year.

HRFE has implemented a response performance dashboard, staffing dashboard, effective response force operational reporting, implementation of predictive analytics tools for system improvement assessments, and operations program enhancements in response areas previously presenting significant risk in operations. Some enhancements include the addition of 24/7 staffing in rural communities, and the addition of a new station, logistics site, and headquarters in a fast-growing community in HRM.

Service Delivery Programs

HRFE provides response to fires, medical, technical rescue, hazardous materials, motor vehicle collision, and has a significant number of extreme weather events including hurricanes that impact the east coast maritime environment. HRFE undergoes an annual municipal business planning process and budget process that is presented to HRM council and delivers the council approved budget based on the HRM strategic plan and council mandates to municipal services. This includes service enhancements recommended to council based on regular assessment of demands, growth, and areas of risk to ensure HRFE can deliver on its mission to the community.
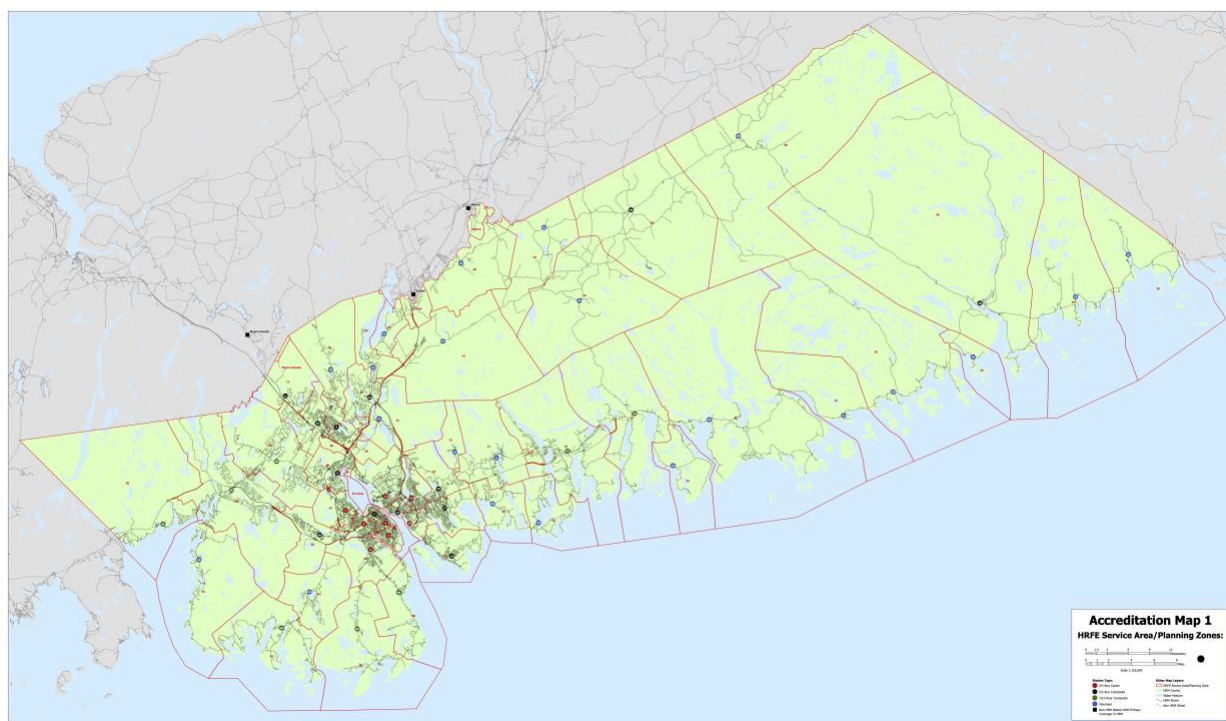
Figure 10. HRFE Primary Station Areas/Planning Zones

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Fire Suppression

HRFE's fire suppression program provides protection to Haligonian's across a vast urban, suburban, and rural rugged landscape. HRFE response to fires, medical emergencies, motor vehicle collisions, marine incidents, hazardous materials, technical rescue; including confined space, trench, high angle, collapse, and crane incidents. HRFE responds to these incidents using a fleet of 114 heavy apparatus that includes engines, ladders, tankers, and support and specialty units. HRFE underwent the Fire Underwriters Survey (FUS) evaluation and was awarded the Superior Tanker Shuttle Certification for rural residential water supply. HRFE applies an adapted response model based on the NFPA 1710 standard for urban residential neigbourhoods and the NFPA 1720 standard for rural residential. This delineation is based on the primary response area (planning zone) being 100 people per square kilometer to meet the urban designation.

Medical Response

The province of Nova Scotia, Department of Health & Wellness, Emergency Health Services is responsible for the delivery of pre-hospital emergency care and ambulance transportation within Nova Scotia. This service is carried out primarily by Nova Scotia Emergency Health Services (EHS) through their contractor Emergency Medical Services Inc. Paramedic services are regulated by the professional body the Nova Scotia Paramedic Regulator responsible for the licensing of Paramedics. EHS oversees a provincial medical first responder program (MFR) for fire services to deliver medical first/tiered response. HRFE for many years operated its own program outside of the official MFR program.

HRFE underwent a program review and developed a new Medical Division in 2020 during COVID. The Medical Division re-established partnership with Nova Scotia Emergency Health Services to align medical response with the provincial healthcare system and the medical first responder program. This included HRFE building a new medical first responder program to meet the provincial level of qualification now delivered in-house by the Medical Division. HRFE delivers medical first response with all front-line staff qualified to the MFR level and provides automated external defibrillation (AED) including CPR to the healthcare provider level. HRFE voluntarily adheres to the Nova Scotia Personal Health Information Act, and the Municipal Freedom of Information Act to ensure patient privacy is protected.

HRFE is actively working with the Nova Scotia Department of Health and Wellness – Emergency Health Services Department to strengthen our partnership and work towards seamless system wide integration of medical first response services in an evidence-based patient first and patient journey-based model including the development of new joint pilot programs.

Technical Rescue

HRFE's technical rescue team primarily based at Station 3 and 7 in Halifax provides rope high/low angle rescue, marine rescue (open water and ice rescue), trench rescue, confined space rescue, crane and collapse (building shoring) rescue. All firefighters are provided awareness and/or operations level training, and the teams are trained to technical level operations. The rescue teams are overseen by a district chief responsible for budget, equipment, and planning, recommendations; working with and informed by a front-line team lead and subject matter experts. Each team is paired with a health and safety committee member to consultand a training officer consult to assist in program review and development. Each team has defined and recommended minimum training requirements, ongoing maintenance of qualification and professional development, equipment standards, and capital lifecycles.

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Fire Boat, Marine, Water/Ice Rescue

The HRFE Halifax Harbour Fire Rescue Boat 1 (Kjipuktuk) responds to open water emergencies, both within the sheltered waters of Halifax Harbour as well as outside the Harbour within an established operational area. Fire Boat 1 was purchased in 2021 to provide all-weather rescue capability and increased water flows for firefighting. HRFE deploys Fire Boat 1 (Kjipuktuk) from the Alderney Marina year-round to reduce emergency response time. This strategy supported the HRFE mission as outlined in AO 2018-OPS-006, Table A - Services Provided by Halifax Regional Fire & Emergency:

> 1.1 Structural firefighting of buildings along the Halifax Harbour and approaches.
> 1.2 Wildland firefighting on islands and along the shore
> 1.3 Marine (Vessel) firefighting
> 3.2 Surface water rescue
> 3.4-3.5 Technical Rescue (bridges, wharfs, vessels)
> 7.0 Ground Search & Rescue along the shoreline

FB1 is crewed primarily with members from Station 13. A secondary or back-up crew is at Station 15. All activities of FB1 and its crew members are undertaken to provide the greatest benefit to the municipality and its citizens. Crew members receive valuable training and experience to provide a skilled and competent response force in a fire or water rescue emergency. The team shares their knowledge, skills, and abilities with other HRFE members to increase awareness and response effectiveness.

In addition to the harbour fire boat, HRFE operates a series of inland water rescue boats and ice rescue equipment strategically placed across HRM near major waterways identified through risk assessment and historical call volumes. The overall base level training of HRFE members includes the shore-based operations level of training and select station with on-ice rescue training.

Following a civilian drowning off the rocks of the Peggy's Cove tourist area in 2022, HRFE conducted a post incident analysis that led to the in-depth review of the water/ice rescue program and development of the team to conduct a community risk assessment, determine industry best practices and standards, and make recommendation for system improvement.

Water rescue was identified as a significant risk and gap in service for HRFE. The council administrative order directs the service level of technician level of water rescue. A program improvement team was established, and work is underway to re-develop the water rescue program to incorporate water rescue advanced technicians into the overall HRFE system with capabilities on the harbour boat, and a strategic response location to deploy the advanced technicians for swift water occurrences. While HRM has minimal natural swift water locations in the municipality, post incident analysis of flash flooding in HRM and Nova Scotia has shown a definitive need to address the risk for community and responder safety.

Hazardous Materials

HRFE's hazardous materials program assesses community risk and identifies significant risks that represent elevated risks to the community to ensure appropriate response resources are established. Hazardous materials risks in HRM include the potential for large industrial fires, chemical spills, and releases and unknown products. Areas of focus include the Burnside industrial area, the Halifax

Halifax Regional Fire & Emergency, Community Risk Assessment – Standards of Cover

Stanfield Airport and industrial area, the Port of Halifax, rail lines and major freeways where transport of dangerous goods may occur. All firefighters in HRM are trained to the hazardous materials awareness and operations level making our first due apparatus the primary response to all hazardous materials incidents for meeting first due response performance and ERF for minor classified incidents. HRFE operates a full-time staff of hazardous materials technician level response for moderate and major incidents based on the NFPA 1072 hazmat technician level with Pro Board certification. The program is operated out of two stations and the hazmat specified station includes a tactical auxiliary apparatus and hazmat trailers consisting of a containment and a decontamination unit.

Wildfire Mitigation Program and Firefighting

In the province of Nova Scotia, the authority having jurisdiction for wildland and wildfire and primary response agency is the Nova Scotia Department of Natural Resources and Renewables (DNRR). HRFE works in partnership with DNRR to augment their program with HRFE's primary responsibility by MOU being within HRFE response districts 2 and 3, which are primarily urban designation. HRFE responds to wildfire in all districts as initial response and coordinates with DNRR. HRFE's wildfire program consists of developing strategies consistent with the province of Nova Scotia and FireSmart Canada's practices framed around the seven FireSmart Disciplines.

1. Education – Public Education: making communities and homes more resilient, Education for internal and external agencies and HRFE staff.
2. Cross Training – Stakeholders and firefighters.
3. Interagency Cooperation – Exercises and Information Sharing.
4. Emergency Preparedness and Response – Emergency Evacuation and preparedness and response review including firefighter equipment and personal protective gear.
5. Development – Working with municipal planning and development to incorporate FireSmart practices into growth in partnership with developers.
6. Vegetation Management – Educating and incorporating fuel reduction practices.
7. Legislation – Reviewing and updating where needed: current bylaws, standard operating guidelines, and policies and to improve and incorporate wildfire mitigation.

Wildland firefighting is complex in urban interface situations and requires multiple agencies with varying degrees of experience. HRFE works together with these agencies to respond, detect, prevent, and suppress wildfires within the regional municipality.

In 2023 HRM suffered a significant wildfire in the wildland urban interface in the community to Upper Tantallon. This devastating wildfire displaced 16,000 residents, destroyed and damaged over 200 homes and buildings, and tested the capacity of HRFE and the mutual aid partners surrounding the municipality.

In addition to a post incident analysis resulting in 56 areas of improvement for consideration by HRFE and HRM, a significant amount of investment has been made in wildland firefighting apparatus, equipment, and the on-boarding of a new wildland fire mitigation Manager within HRFE to better coordinate the wildland community risk reduction and build deeper partnerships.

Fire Prevention & Community Risk Reduction Programs

HRFE has established several community risk reduction programs to ensure the safety and well-being of its residents. Most Fire Investigation and Fire Inspection responsibilities are delegated to the

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Municipality by the Province's Office of the Fire Marshal by way of the Nova Scotia Fire Safety Act. The Division Chief of Fire Prevention is designated specific responsibilities for Fire Inspection, Investigation, and Public Education by way of the HRM Administrative Order 2018-OPS-006.

1. **Fire Investigation**: HRFE investigates the cause and origin of every fire that destroys or damages property within the Municipality. All fires are reported to the office of the fire marshal. More complex investigations, including suspected arson and fatalities are referred to experienced investigators that work in the Fire Prevention Division.

2. **Fire Inspection Program:** Fire Prevention staff (Fire Inspectors, Fire Prevention Officers) carry out inspections of occupancies as defined in the Nova Scotia Fire Safety Act. These inspections confirm compliance with the Nova Scotia Fire Code. Violations are communicated by an order to take action. Case files are closed by voluntary compliance, or escalation by way of prosecution.

3. **Fire Safety Maintenance Inspection Program**: HRFE front-line staff conduct Fire Safety Maintenance Inspections (FSMI) to help property owners maintain fire-safe and code-compliant buildings. They provide a checklist and detailed guide for property owners of bars, restaurants, residential multi-unit, mercantile, and business and personal service occupancies. Violations are recorded and communicated to the owner, with a follow-up performed to verify compliance. Further regulatory action is referred to specialised Fire Prevention Division staff.

4. **After Hours Bar Inspections:** Fire Prevention staff conduct unscheduled inspections of assembly occupancies, typically where alcohol is being consumed, to check for hazards with a focus on overcrowding. These inspections are performed in teams, often with the Province's Alcohol and Gaming Division in attendance.

5. **Plans Examination:** Fire Prevention Division receives request from the Transportation and Public Works and Planning and Development Business units to review plans. Requests typically come in the form of infrastructure variances, planning applications, subdivision plans, sidewalk cafes, development agreements, and building permit applications.

6. **Special Events:** Fire Prevention staff review applications for short-term events, and often perform field inspections of the site setups. Applications for events are broad and include things like food trucks, large gatherings, street closures, concerts with stages, large tents, and commercial grade pyrotechnics and fireworks.

7. **Alarmed and Ready Program:** This program is intended to support citizens who needs a smoke and/or carbon monoxide alarm and are unable to afford one. Firefighters will visit the property, install the alarm, educate you on the importance of early warning devices, and demonstrate how to maintain and test your alarm.

8. **Public Education**: HRFE is committed to educating the public about fire safety. They provide fire safety tip sheets in multiple languages, and they have a program called PUSH (Practise Using Safety at Home) to promote home safety.

9. **FireSmart Program**: The FireSmart program helps protect residents, their homes, neighbourhoods, critical infrastructure, and vital natural resources from wildfire. This is achieved through seven disciplines: vegetation management, emergency planning, education,

legislation, development, interagency cooperation, and cross-training. They also offer a voluntary, free property wildfire risk assessment using the FireSmart standard.

10. **Wildland Fire Mitigation**: In recognition of the increased risk of wildland fires due to climate change, HRFE is developing a comprehensive Wildland Urban Interface Strategy. This includes tactics such as education for crews on property risk assessments, critical infrastructure protection, and a focus on public education on inspection programs and neighbourhood collaboration. HRFE recently onboarded a new position of Manager of wildland urban interface fire mitigation as part of the strategy.

These programs play a crucial role in reducing the risk of fire and ensuring the safety and well-being of the community.

Community & Citizen Expectations

In alignment with Administrative Priority of Community Focused, and to support evidence-based decision making, the 2022 Municipal Services Survey was conducted from September 12 – 29, 2022. The 2022 Municipal Services Survey is the 11th survey HRM has conducted since amalgamation in 1996. The Municipal Services Survey is a public engagement tool used to gather information from our diverse communities; it acts as a gauge of the satisfaction of residents and taxpayers with the services provided by their municipal government. The results of the survey guide strategic priority planning, and associated business planning and budgeting decisions. The survey results provide Regional Council and administration with valuable insight into what matters most to residents. On June 27, 2011, the Executive Standing Committee endorsed a long-term survey cycle; the Municipal Services Survey (previously Municipal Budget Survey) is conducted every two years to solicit public feedback into the budget process. In the interim years the more comprehensive Resident Survey provides more detailed data for decision-making and service performance reporting.

Community Priorities Respondents were asked to rate how important each of the thirteen council priority outcomes were to them. For every council priority outcome, a large majority of survey respondents indicated that it was important or very important. More than 74% of respondents rated each of the priority outcomes as important or very important, however Economic Growth (23%) and Talent Attraction, Retention & Development (27%) both had lower very important ratings than the other priority outcomes. Net-Zero Emissions received the lowest combined important or very important score, at 74%. **Safe Communities (95%)** and Holistic Planning (92%) had the highest combined important or very important ratings, while Safe Communities (57%), Affordable Communities (50%), Protected and Sustainable Environment (47%), and Holistic Planning (46%) had the highest very important ratings.

Respondents were asked to rate their satisfaction with 36 municipal services. Respondents are most satisfied with Halifax Public Libraries (92% very satisfied or satisfied), **Fire services (89%)**, Civic events (82%), and public transit – ferry (81%). They were least satisfied with Community planning / land use and approvals (24%), Traffic management (26%), Bike lanes / cycling facilities (34%), and Street / road maintenance (35%)

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Communities: Satisfaction
(2,756 > n > 2,677)
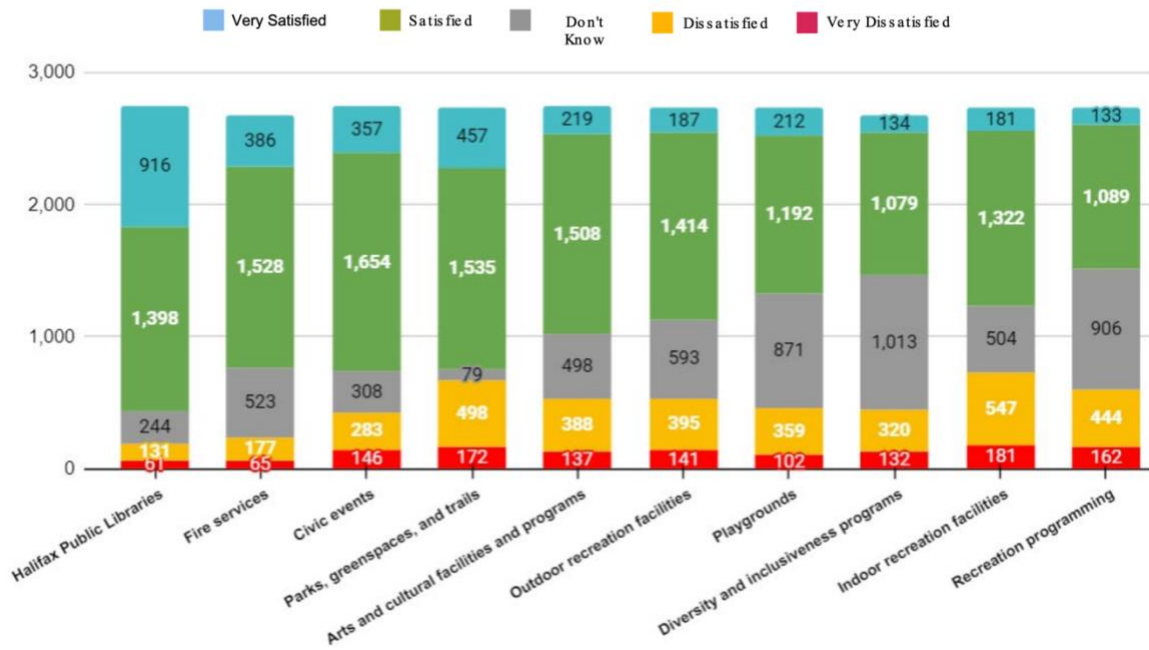
Figure 11. HRM Citizens Survey Service Satisfaction

Communities: Satisfaction vs Desire for service level change
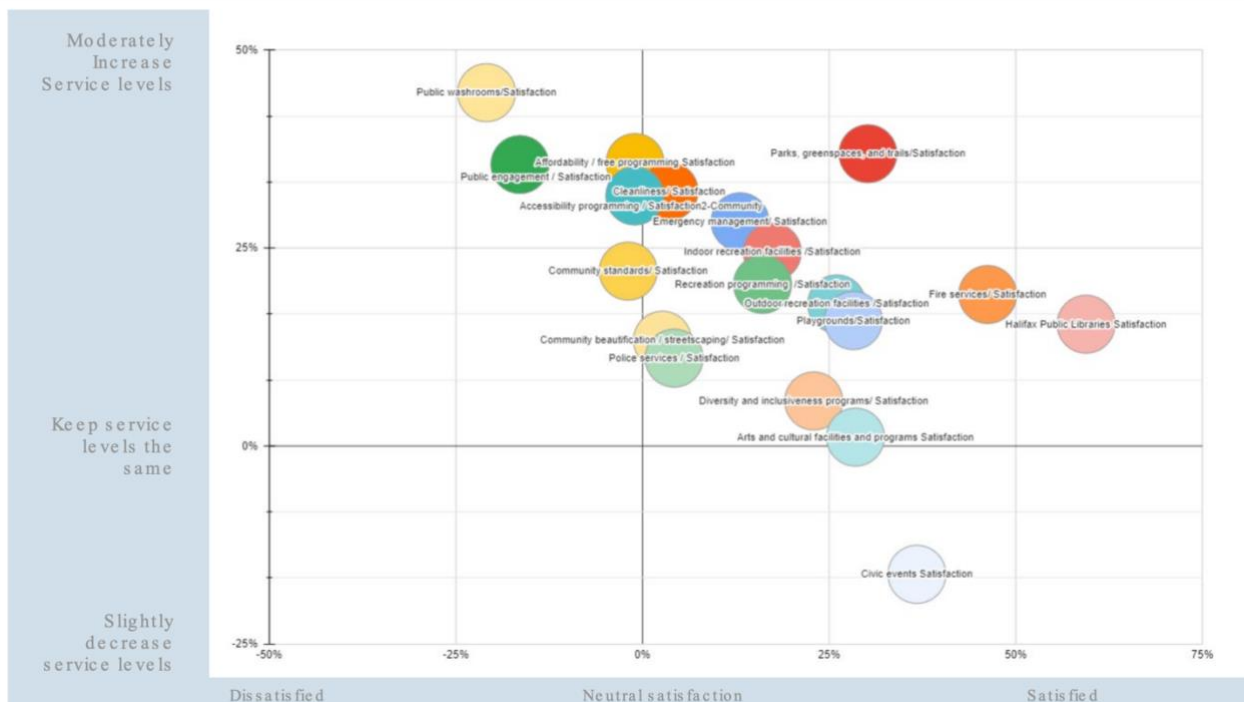
Figure 12. HRM Citizens Survey Satisfaction and Change

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Figure 13. HRM Strategic Plan on a page

Figure 14. HRM Council Priorities

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Organizational Goals & Objectives

HRFE as a department to the Halifax Regional Municipality is first and foremost a municipal service delivery unit and falls under the HRM Strategic Priorities Plan 2021-2025. The plan is broken down with the overall organization's vision, mission, and values; as well the council priorities and administrative priorities which inform the business and strategic plan of HRFE an individual business unit of the whole.

HRFE as a business unit of HRM also maintains its own mission, values, an annual departmental financial and business plan, and a departmental five-year strategic plan.

HRFE Mission

Our members are dedicated to enhancing and preserving quality of life, property and environment through education, leadership, partnerships, and effective response to emergencies to ensure the citizens of HRM live in safe, inclusive, and welcoming communities.

HRFE Values

We value Safety, Pride, Integrity/Accountability, Respect Diversity & Inclusion, Innovation, and Teamwork **(SPIRIT)**

SAFETY: Commitment to a safe community and workplace.

PRIDE: In our performance, the service we provide and the communities we serve.

INTEGRITY & ACCOUNTABILITY: In everything we do, an organization that is trusted by those we serve.

RESPECT: The uniqueness and diversity of others. All our actions and interactions with others reflect on HRFE.

INNOVATION: Building a sustainable emergency service strategy for the future and remaining relevant in a changing landscape.

TEAMWORK and COMMUNICATION: Together we are better. Open, honest, timely and respectful communications are always welcome.

HRFE Cornerstones

1. Public Safety and Trust
2. Workplace Safety
3. Performance and Brand Integrity
4. Teamwork and Leadership

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HRFE Strategic Plan

The HRFE 2024-2029 departmental strategic plan considers the evolving and growing community, the development of HRFE community risk assessment and standards of cover, the needs of our people, and the elements of the HRM strategic priorities to develop and define the goals and objectives of HRFE for the five-year period.

The HRFE strategic plan has evolved over the past three years with a series of milestones along the path. Initial consultation began with an internal qualitative survey that used an ethnographical thematic analysis to determine evolving themes within the department that presented from the members. This methodology was primarily chosen due to COVID restriction preventing gatherings and therefore limited the ability to hold workshops.

The second phase using the thematic analysis was presented to the department's senior officers to interpret and prioritize the themes based on the HRM and HRFE mission, values, and municipal priorities. Factoring programs and improvement already in-flight and those in the queue.

Finally, as the COVID restrictions eased off, HRFE hosted regionalized community forums with open ended questions to listen to public opinion in a cross section of communities capturing urban and rural settings, as well as some unique demographics of HRM.

HRFE Strategic Priorities & Goals

Priority 1: Support our People
Strategic Goals:
- A.   Recruit, Retain, Effectively Operationalize Staff
- B.   Diversity, Equity, Inclusion
- C.   Foster health and wellbeing
- D.   Enhance professional development
- E.   Foster labour-management relations

Priority 2: Serve Our Community
Strategic Goals:
- A.   Build partnerships and collaborate
- B.   Enhance the foundation of community outreach
- C.   Enhance community health and safety programs

Priority 3: Respond Diligently
Strategic Goals:
- A.   Improve response time performance
- B.   Excellence in specialty response programs
- C.   Enhance medical response and health care integration
- D.   Improve operational programs, processes, and equipment

Priority 4: Build Resilience (Prepare, Prevent, Recover)
Strategic Goals:
- A.   Improve community risk reduction programs

B. Build long-term plan for departmental infrastructure
C. Sustain effective capacity for large scale incidents
D. HUSAR program
E. Continuous process and system improvement

Priority 5: Embed Quality & Innovation
Strategic Goals:
A. Achieve and maintain fire service accreditation
B. Enhance fire service technology integration
C. Create a fire service innovation incubator
D. Imagine and realize a modern collaborative training facility

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Response & Preparedness

Fire Stations

HRFE has 51 stations located across approximately 5500Km^2 in urban and rural settings. The station locations are largely unchanged from the former lower tier communities that existed pre-amalgamation. Many stations require significant on-going maintenance and repair. In the past five year there has been several significant enhancements to the response stations across HRM.

Station list, Staffing Model, and Apparatus Assignment Chart

STN	Station Name	Station Type	Address	Apparatus
2	University Ave	24 Hour Career	5988 University Ave, Halifax	2A
3	West St	24 Hour Career	5663 West St, Halifax	3E, 3A, 3R, 3TRE
4	Lady Hammond	24 Hour Composite	5830 Duffus St, Halifax	4E, 4ALPH
5	Bayers Rd	24 Hour Career	7090 Bayers Rd, Halifax	5Q, 5DCN
6	Spryfield	24 Hour Career	245 Herring Cove Rd, Halifax	6E, 6R
7	Knightsridge Dr	24 Hour Career	45 Knightsridge Dr, Halifax	7Q
8	Bedford	24 Hour Composite	15 Convoy Run, Bedford	8E, 8ALPH, 8 TCT
9	Metropolitan	24 Hour Composite	1 Metropolitan Ave, Lower Sackville	9E, 9ALPH, 9A, 9A
10	Millwood	24 Hour Composite	1156 Sackville Dr, Middle Sackville	10T, 10ALPH
11	Patton Rd	24 Hour Composite	479 Patton Rd, Upper Sackville	11T
12	Highfield Park	24 Hour Career	45 Highfield Park Dr, Dartmouth	12E, 12A, 12TCT, 12HM
13	King St	24 Hour Composite	86 King St, Dartmouth	13Q, 13ALPH, 13R
14	Walker/Second	24 Hour Career	1 Second St, Dartmouth	14E, 14R
15	Pleasant St	24 Hour Career	331 Pleasant St, Dartmouth	15E
16	Eastern Passage	24 Hour Composite	1807 Caldwell Rd, Eastern Passage	16T, 16ALPH, 16R
17	Cole Harbour	24 Hour Composite	1150 Cole Harbour Rd, Cole Harbour	17E, 17ALPH, 17T
18	Westphal	24 Hour Composite	690 Highway 7, Westphal	18T
19	Lawrencetown East	Volunteer	2385 Crowell Rd, East Lawrencetown	19T, 19R
20	Lawrencetown	Volunteer	2931 Lawrencetown Rd, Lawrencetown	20E, 20T, 20R
21	Lake Echo	Volunteer	3035 Highway 7, Lake Echo	21E, 21T, 21R
22	North Preston	Volunteer	8 Cain St, North Preston	22T, 22R
23	Chezzetcook	10.5 Hour Composite	5543 Highway 7, Head of Chezzetcook	23E, 23T, 23R
24	Musquodoboit Harbour	10.5 Hour Composite	32 Riverside Ave, Musquodoboit Harbour	24E, 24T, 24TCT
25	Ostrea Lake	Volunteer	1765 Ostrea Lake Rd, Ostrea Lake	25T, 25R
26	Oyster Pond	Volunteer	51 Old Trunk Rd, Oyster Pond	26E, 26T, 26R

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28	Sheet Harbour	24 Hour Composite	22835 Highway 7, Sheet Harbour	28E, 28T, 28TCT
29	Moser River	Volunteer	28971 Highway 7, Moser River	29E, 29T
30	Tangier	Volunteer	17559 Highway 7, Tangier	30E, 30T, 30R
31	East Ship Harbour	Volunteer	15750 Highway 7, East Ship Harbour	N/A
33	Three Harbours	Volunteer	26291 Highway 7, West Quoddy	33T, 33R
34	Mushaboom	Volunteer	22 Powers Rd, Mushaboom	N/A
35	Cooks Brook	Volunteer	39 Corbett Rd, Cooks Brook	35T, 35R
36	Meaghers Grant	Volunteer	4413 Highway 357, Meaghers Grant	36T, 36R
38	Middle Musquodoboit	24 Hour Composite (Soon)	36 Glenmore Rd, Middle Musquodoboit	38E, 38T, 38TCT, 38R, 38U
39	Upper Musquodoboit	Volunteer	14 Highway 336, Upper Musquodoboit	39E, 39T, 39R
40	Dutch Settlement	Volunteer	36 Logan Rd, Dutch Settlement	40E, 40T, 40R
41	Waverley	Volunteer	2433 Highway 2, Waverley	41E, 41T, 41R, 41U
42	Wellington	Volunteer	4132 Highway 2, Wellington	42T, 42R
43	Grand Lake	Volunteer	22 Lakeside Dr, Grand Lake	43T, 43R
45	Fall River	24 Hour Composite	1359 Fall River Rd, Fall River	45E, 45Q, 45T, 45R
47	Goffs	Volunteer	2040 Old Guysborough Rd, Goffs	47E, 47R
48	Beaver Bank	Volunteer	1581 Beaver Bank Rd, Beaver Bank	48E, 48T, 48R, 48TCT
50	Hammonds Plains	10.5 Hour Composite	2050 Hammonds Plains Rd, Hammonds Plains	50E, 50T, 50R
52	Prospect	Volunteer	2101 Prospect Rd, Hatchet Lake	52E, 52T
54	Shad Bay	10.5 Hour Composite	3610 Prospect Rd, Shad Bay	54E, 54T
55	Seabright	Volunteer	11229 Peggys Cove Rd, Seabright	55E, 55T, 55R
56	Black Point	10.5 Hour Composite	8579 St Margarets Bay Rd, Black Point	56E, 56T, 56R
58	Lakeside	24 Hour Composite	26 Myra Rd, Timberlea	58E, 58ALPH
60	Herring Cove	10.5 Hour Composite	40 Latter Pond Lane, Herring Cove	60E, 60T, 60R
62	Williamswood	10.5 Hour Composite	2417 Old Sambro Rd, Williamswood	62E, 62T
65	Upper Tantallon	10.5 Hour Composite	17 Scholars Rd, Upper Tantallon	65E, 65T, 65U

Table 7. HRM Stations

APP TYPE	ABRV
Aerial	A
Alpha	ALPH
Decon	DCN
Engine	E
HazMat	HM
Quint	Q
Rescue	R
Tact	TCT
Trench	TRE
Utility	U

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Future Station Planning

HRFE is embarking on a long-range assessment to build a strategic approach to the placement of fire stations and the deployment of apparatus to optimize response times and resource allocation. This strategy ensures that emergency services are efficiently distributed across the region based on a comprehensive analysis of various factors including community risk, growth, development, and standards of cover.

The process of determining the location for new fire stations involves evaluating incident frequencies, both actual and projected response times, population growth, geographical features, and potential risks. Additionally, considerations include zoning compatibility and the existing road network to ensure seamless integration into community planning, and a risk-stratified building and population analysis.

The decision-making process for new fire stations is structured into five distinct phases:
1. Identification of Need: Recognizing the requirement for a new station based on community growth and risk assessment.
2. Assessment and Selection: Evaluating potential sites and deciding on the feasibility of proceeding with the project.
3. Planning and Design: Detailed planning and architectural design of the fire station.
4. Execution: Construction and implementation of the planned fire station.
5. Evaluation: Post-completion assessment of the project's success in meeting its intended goals.

Throughout these stages, there is ongoing collaboration with city planners, developers, and other municipal departments to ensure that the fire service levels are appropriate for the anticipated needs of the area. This collaborative effort extends to the maintenance and upgrading of existing facilities, prioritized according to their condition and the critical nature of the services they provide.

The planning process involves multiple stakeholders, including the Fire Senior Team, the HRM PFE, and the Executive Leadership Team. Final approvals and funding requests are presented to HRM Council as part of the multi-year capital plans and budgets, ensuring that all decisions align with the broader objectives of HRM's growth management strategy.

This strategic framework not only supports the immediate needs of HRFE but also aligns with long-term urban development plans, ensuring that all areas of the city have adequate emergency response capabilities as they grow and evolve.

Apparatus & Support Vehicles

HRFE operates 114 heavy apparatus and light operational vehicles across 51 stations throughout the regional municipality with additional spare apparatus located primarily at the emergency fleet mechanical centre in Dartmouth. All operational vehicles are equipped with lights and sirens and accessible via the radio system for dispatch and response. HRFE has a mixed composite staffing model that has a combination of 24/7 career staffed apparatus, on-shift district chiefs, and platoon captains, a mixed rural composite model of 10.5/5 career staffing with evening and weekend volunteer members, and volunteer only rural stations.

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The first responding unit is area designated with an engine, quint, or on the urban-rural borders a high-capacity engine that can serve as both an engine in its primary response area or a tanker to neighbouring response areas. Deployment modeling and standards of cover are augmented with auxiliary units based on the station response area risk profile that can include multi-story residential, institutional, and commercial. Engines are staffed with 4 personnel, aerials with 2 personnel, and tactical with 2 personnel. Specialty auxiliary units are cross staffed with hot seating to respond with the appropriate resources based on the call criteria.

Apparatus Maintenance & Lifecycle

HRFE Property, Fleet, and Environment, Emergency Fleet Services performs ongoing fleet needs analysis in collaboration with HRFE through a Service Level Agreement. The fleet needs assessments are used to ensure that appropriate types of apparatus and support vehicles are planned and budgeted in the HRM capital business planning cycles. HRM Corporate Fleet Asset and Analytical Services are responsible for collaborating with HRFE on apparatus and vehicle design, specifications and acquisition processes. HRFE, through the program improvement teams including equipment standards team, establishes needs to inform apparatus and vehicle types based on the Community Risk Assessment (CRA) and Standards of Cover (SoC) requirements.

HRM Property, Fleet, and Environment, emergency fleet services are responsible for performing the on-going inspection, maintenance, repair, and replacement of all HRFE heavy apparatus and support vehicles including specialty resources such as UTV's, Wildland apparatus, and boats. Emergency fleet is responsible for the life cycle and capital budget planning of all HRFE's fleet and apparatus.

A comprehensive assessment of HRFE's heavy apparatus fleet has been conducted in reference to NFPA 1900 and Fire Underwriters Survey criterion to establish a plan to update the fleet to meet or continue to adhere to these standards, and to request appropriate capital funding in the HRM budget process.

Safety equipment, tools, supplies, materials

HRFE's tools and equipment are manage and distributed through the HRFE Logistics Division. The logistics division oversees the respiratory protections program; the bunker gear distribution, maintenance, and inspection; consumable inventory and small asset program, including preventative maintenance and repair of small engine and battery-operated tools. The operational equipment standards team determines equipment standards and requirements based on the CRA-SoC and informs the type, quantity, and placement of appropriate tool and equipment resources in collaboration with stakeholders.

HRFE has a collaborative practice across multiple divisions to ensure all aspects of safety and use are considered. Safety sensitive equipment and PPE recommendations are reviewed through the HRFE Safety Division and the Joint Occupational Health and Safety committee for advice and feedback prior to implementation. The safety division is responsible for ensuring regulatory compliance to safety regulations and standards for service operations.

HRFE is subject to the HRM corporate small tool and asset management policy. A project is underway to update the tool and asset inventory in an interim data base while a longer-term procurement process is transpiring to update the next generation fire records management system and inventory and asset management system.

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Mutual Aid and Automatic Aid

HRFE has established mutual aid/automatic aid agreements as permitted under the Nova Scotia Fire Act that allows for automatic aid with surrounding municipalities and fire departments to ensure effective and efficient response to emergencies across the province and in support of bordering services.

Mutual Aid Agreements: Mutual aid agreements are arrangements between HRFE and neighbouring fire departments to assist each other during emergencies that exceed the resources of a single department. These agreements define the type and level of services provided. For instance, HRFE has a mutual aid agreement with the Enfield Volunteer Fire Department (EVFD). The agreement allows both fire services to request assistance from each other through mutual aid requests, but further includes opportunities for shared resources and training opportunities.

Automatic Aid Agreements: Automatic aid is an arrangement where the nearest fire department responds to an emergency, regardless of municipal boundaries. This practice is enshrined in the Nova Scotia Fire act and allows areas near the boundaries of HRFE's jurisdiction to be called upon, ensuring the quickest possible response to emergencies despite formalized mutual agreements.

These processes and agreements are crucial for maintaining public safety across HRM and its surrounding areas. They allow for a more efficient use of resources and ensure a quick and effective response to emergencies.

HRM Public Safety Office

HRM has a public safety division that encapsulates the Emergency Management Office and works together with HRFE and all municipal departments, the province, and federal government to ensure the safety and well-being of the community.

Public Safety Divisions:

1. **Halifax Regional Police (HRP)**: HRP is responsible for policing the urban core of HRM, as well as the areas commonly referred to as the Sambro Loop and the Purcell's Cove - Herring Cove Loop. The organisational structure of HRP consists of the Office of the Chief of Police, Operations (which encompasses Criminal Investigations and Patrol divisions), Support (which encompasses Specialised Support and Administration divisions), Professional Standards Division, and Corporate Affairs Division.

2. **Royal Canadian Mounted Police (RCMP)**: The RCMP is responsible for policing the suburban and rural areas of HRM. Having a unique dual policing model that is closely linked has been a long serving model in HRM. Both police services are dispatched from a common centre operated by HRP called the Integrated Emergency Services Communication Centre. The RCMP offers national support, many specialty policing services, and experience with rural policing to the benefit of HRM.

3. **Public Safety Office (PSO)**: The PSO was established in 2009 following the 2008 Mayor's Roundtable on Violence. The office provides leadership and backbone support to two community-based initiatives - Community Mobilisation Teams and the Safe City and Safe Public Spaces Program. The Public Safety Advisor oversees the implementation of the actions in the strategy through collaboration and partnerships with internal and external stakeholders and

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provides advice on locally informed, evidence-based approaches to community safety and well-being.

4. **Emergency Management Division**: The Emergency Management Office was transitioned to the Regional Municipality Public Safety Office in 2024 and is responsible for supporting communities and critical municipal services preparing for and during times of emergency and disaster. This includes activating the emergency operations centre during initial response or when needed, preparing emergency plans, coordinating, and managing emergency planning with first responders, facilitating emergency training and exercises with other first responders and municipal staff, providing essential services to those impacted by a disaster, and maintaining specialised volunteer disaster response Joint Emergency Management teams to deliver comfort centre services during a disaster.

Accountability and Reporting Structure: The PSO reports to the CAO and Council, rather than the Chief of Police and Board of Police Commissioners. Each year, the office provides a report to Regional Council on progress to date. The HRP also has a command structure where every Commissioned Officer and NCO has command responsibility for subordinates on duty.

These divisions work together to address the complex, multiple, and interconnected roots of crime, victimisation, safety, and well-being. They are guided by the Public Safety Strategy, which pushes the municipality and its partners to think and act upstream, or systemically and holistically.

Supporting Agencies

In the event of major emergencies or disasters, several community and volunteer agencies provide support to HRM Emergency Management Office and HRFE:

1. **Joint Emergency Management (JEM) Teams**: JEM is a concept developed by the HRM's Emergency Management Office (EMO) to allow community organisations to prepare for and respond quickly to emergencies. [JEM teams are all community volunteers](). They offer support by setting up Comfort Centres where residents can receive up-to-date information, assistance with food, warmth, and access to power during emergencies. There are five such JEMs in the municipality: Eastern Shore, Musquodoboit Valley, Riverlake and District, Sheet Harbour and Area, and Western Region.

2. **Halifax Search and Rescue (HSAR)**: HSAR is a volunteer organization that provides support in search and rescue operations. They work closely with HRFE and other emergency services during major emergencies.

4. **Canadian Red Cross**: The Canadian Red Cross provides disaster response and recovery services, including emergency shelter, food, and clothing. They work closely with municipal emergency management officials during major emergencies.

These agencies play a crucial role in supporting HRM's emergency management efforts. They provide essential services and resources during emergencies, helping to ensure the safety and well-being of the community.

The Halifax Regional Municipality (HRM) provides a range of victim and post-incident services to support individuals who have been affected by emergencies, disasters, or crime:

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Halifax Regional Police's Victim Services Unit: This unit offers support services to victims of crime, particularly victims of domestic violence, sexualised violence, and serious crimes. The services provided by this unit include:

- **Emotional Support**: The unit provides emotional support to victims during these difficult times.

- **Domestic Violence Emergency Response System Alarms**: These alarms are provided to victims identified as being at high risk for serious harm or injury.

- **Safety Planning**: The unit assists victims in creating a safety plan.

- **Referrals**: Victims are referred to existing community services that may be able to help them further.

- **On-Scene Support**: The unit provides crisis intervention and support to victims at a scene at the request of police officers.

- **High-Risk Case Coordination**: The unit coordinates with primary service providers for victims identified as being high risk for serious harm or injury.

- **Follow-Up Information and Referral Service**: After a crime, the Victim Services Unit provides case information, such as the status of investigation, charges, how to contact the investigating officer, and offers emotional support or services as needed.

These services can be accessed via telephone, drop-in visits, at the scene, and during home visits. The Victim Services Unit is there to help victims through each step of the process.

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Service Demands

HRFE CALL HISTORY BY CALENDAR YEAR 2019 - 2023

TOTAL # OF EMERGENCY CALLS RESPONDED

2019	2020	2021	2022	2023
13,016	9,651	11,172	15,028	16,684

RESPONDED CALLS TREND BY INCIDENT NATURE

RESPONDED CALL DETAILS BY INCIDENT NATURE

Major Type of Incident Nature	2019	2020	2021	2022	2023
Medical Assistance	2,727	921	2,498	4,446	4,817
Other Alarm Activations	3,101	2,789	2,960	3,697	4,416
General Investigation	1,578	1,837	1,537	1,712	2,166
Vehicle Accidents - MVA/Other Accidents	1,939	1,507	1,823	1,916	1,997
Non HRM Incident	746	321	314	594	800
Special Services - HazMat, Mutual Aid, Technical Rescue	607	409	436	852	775
Other Fires	891	989	639	934	771
Cancelled or Service not Required	1,251	711	788	691	758
Structure Fire	176	167	177	186	184
Total	**13,016**	**9,651**	**11,172**	**15,028**	**16,684**

Figure 15. HRFE Response Volume Trend Overview

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Over the past 5 years HRFE has experienced a significant increase in call volumes. As seen demonstrated in fig.15 there was a significant decrease in call through 2020 and 2021 primarily contributed to Nova Scotia emergency health services eliminating fire service medical first response. This was followed by a significant increase in medical calls and all other types of calls in 2022 with subsequent years following trend that can be partially attributed to a large influx of new citizens moving to Halifax during the pandemic and the growth driven response requirements.

It was found that Nova Scotia was initially seen as a safe place during the COVID-19 Pandemic with clear communication and practices from public health resulting in low case counts. This resulted in a major influx of people moving to nova scotia, especially Halifax driving up the population and development growth to the municipality. This has impacted HRFE's call volumes and response capabilities.

Proactive Response through Community Risk Reduction

While the call volume is increasing the FP-CRR division has been re-organizing to build a more comprehensive proactive community risk reduction program. The HRM auditor general conducted an audit on HRFE's Fire Inspection Program, demonstrating the need for substantial improvement in several areas.

HRFE is restructuring the FP-CRR division based on the NFPA standard for fire prevention and community risk reduction programs NFPA 1300: Standard on Community Risk Assessment and Community Risk Reduction Plan Development, as well as NFPA 1730 Standard on Organization and Deployment of Fire Prevention Inspection and Code Enforcement, Plan Review, Investigation, and Public Education Operations.

NFPA 1300 provides requirements for conducting a community risk assessment (CRA) and developing, implementing, and evaluating a community risk reduction (CRR) plan.

HRFE is implementing the six-step approach for developing a CRR program:

- Conduct a community risk assessment
- Determine which risks should be prioritized
- Develop strategies to mitigate risks
- Develop a CRR plan
- Implement the CRR plan
- Monitor, evaluate, and modify the CRR plan

The standard emphasizes using data-driven processes to identify and prioritize risks, and strategically invest resources to reduce the occurrence and impact of fires and other hazards. To this end, HRFE has engaged our GIS provider to assist in building a risk assessment and prioritization tool integrated with the HRM building model to identify high-risk occupancies, prioritize them, and track the inspection cycles.

The plan will be identifying gaps in current practices, outlining strategies to fill those gaps, and recommend implementation of processes consistent with local resources and capabilities.

The plan is to determine what kinds of emergencies are occurring, where, and to whom. It provides a framework for building the new FP-CRR team, fostering strategic partnerships, and applying data to

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conduct CRA and CRR activities. This approach is designed to strengthen community safety by creating more effective CRR plans that can be implemented efficiently.

An important element of the community risk reduction plan is understanding the overall community and factors that drive risk for both health and fire. The plan includes the creation of dashboards with maps, charts, and graphs to identify at-risk populations, places, and conditions to support CRR activities considering historical and contemporary incidents and collaboration with other agencies such as the Nova Scotia Department of Health and Wellness Emergency Health Services, Nova Scotia Health Authority Community Health, and Statistics Canada who is building tools to support identifying at-risk and vulnerable communities.

The key objective is to continue to develop comprehensive, data-driven approaches to fire prevention and risk reduction that are tailored to their specific needs and risks.

Results of the change and focus has shown some preliminary improvements in the FP-CRR division over the last two years.
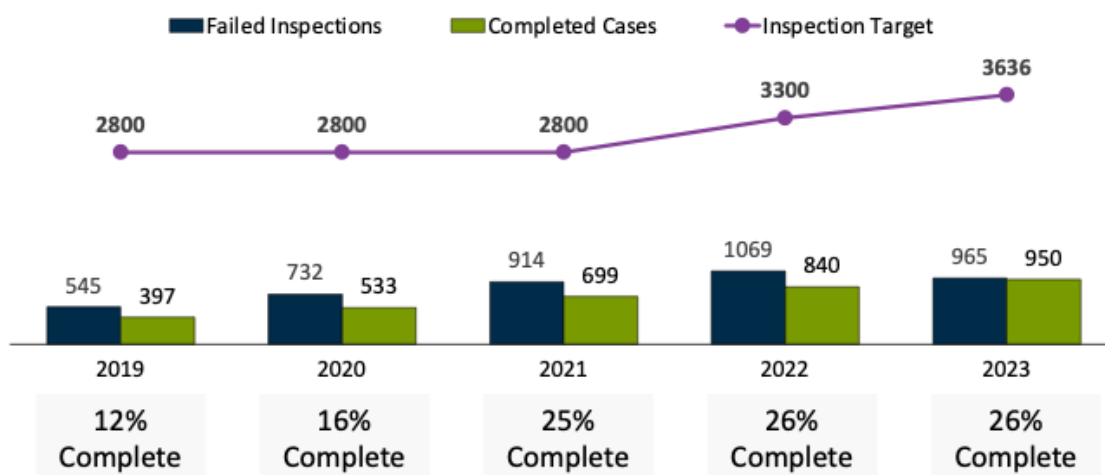
Figure 16. FP-CRR Inspection program progress

HRFE's Fire Inspection program underwent an audit by the HRM auditor general. The auditor general produced a report on the performance of HRFE's FP-CRR Division with specified areas for improvement. These areas had been identified and the plan was established for major improvement changes, but not yet begun implementation. The re-organization of FP-CRR is underway and addressing the recommendations from the auditor general.

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Planning Zones

HRFE has adopted planning zones based on the primary response area of fire stations in HRM based on a methodology that incorporates geographical boundaries established by former municipalities amalgamated within HRM and their traditional fire departments, first due emergency response time targets, natural geographical features, community development and population disbursement, population density, and municipal infrastructure.

The planning zones are reviewed on an annual basis by the HRFE GIS technician, and recommendations made based on response analytics, assessed changes to community risk, temporary or permanent changes in the road network or developments, and documented growth in the population. HRFE has identified some challenges with the current planning zones with mixed densities that will be addressed in future iterations.

In addition to this methodology, HRFE has procured a predictive data analytics tool that incorporated the planning zone model, community data, and HRFE historical call data; which allows HRFE to build scenarios based on population growth and addition, subtraction, or re-deployment of resources showing the resulting effects of proposed changes to either planning and response zones or apparatus types and staffing models to make informed decisions.
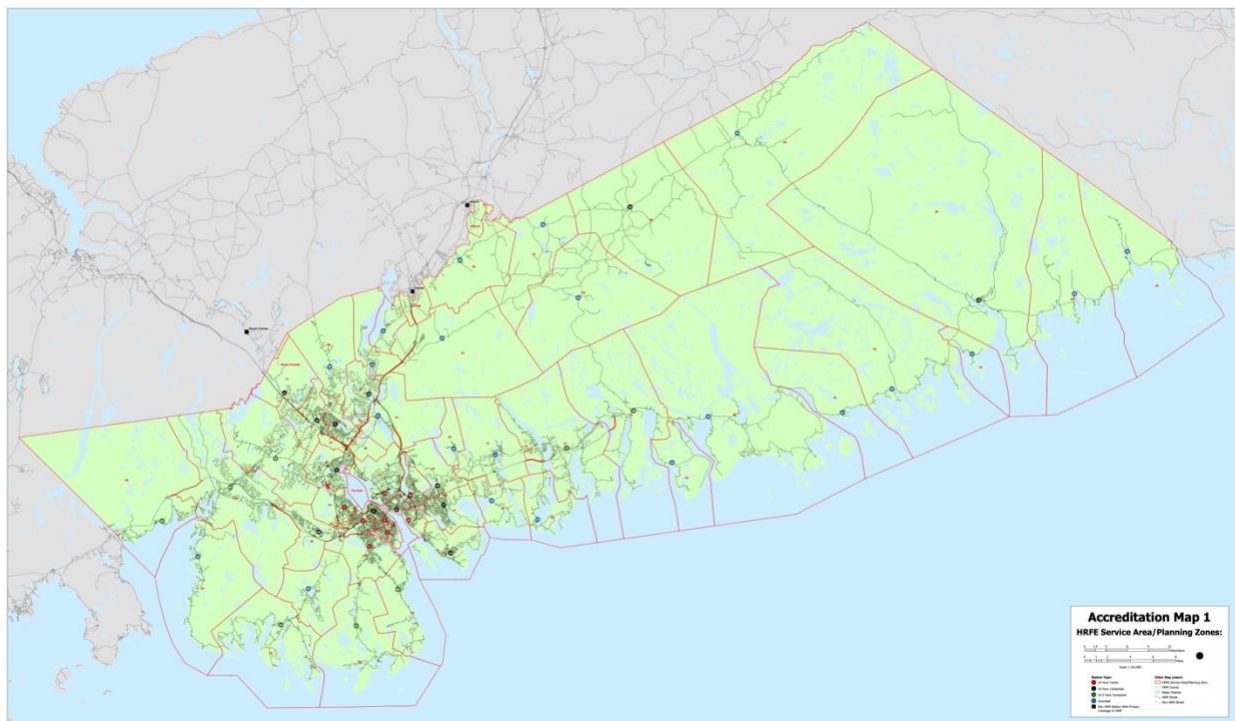
Figure 17. HRFE Planning Zone/Primary Response Areas

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All-Hazards Risk Assessment, Service Provisions, Response Strategies

Community Risk Assessment

Overview

The Community Risk Assessment (CRA) is a thorough evaluation that identifies and prioritizes risks that are relevant to the community, adhering to the guidelines provided by the Community Risk Reduction Guidelines and NFPA 1300-20 Standard on Community Risk Assessment and Community Risk Reduction Plan. The Halifax Regional Fire & Emergency has adopted a three-step approach for conducting the CRA.

The first step involves assessing community profiles by collecting data on the community's composition and evaluating characteristics that pose potential fire safety concerns, represent vulnerabilities, community demographics or feature any elements that may impact the delivery of fire protection services. The HRM Public Safety Division, Hazard Vulnerability and Risk Assessment plays a significant role in providing robust information that contributes to the assessment.

The second step entails identifying and evaluating risk scenarios based on the concerns and issues identified in the profiles. This step assesses gaps and potential hazards by evaluating concerns based on a two-axis risk assessment of probability and consequence to assign them a risk level from the hazard.

Finally, after analyzing the risks, the third step involves prioritizing risks and identifying low, medium, and high-risk scenarios. The CRA then develops strategic options to avoid, mitigate, and respond to the risks, ensuring that the community is well-prepared to manage and mitigate potential hazards.

Community Risk Assessment Methodology

HRFE utilized a basic two-axis risk assessment framework tailored to the unique characteristics of HRM and its approach to fire service delivery. This assessment process incorporates industry best practices while considering HRM's distinct geographic and demographic profile, integrating guidelines from widely recognized methodologies in fire safety and prevention and consideration of NFPA 1710, 1720.

The assessment results in a final risk rating of low, medium, and high for response types within the municipality. The methodology draws from multiple sources, including the Commission on Fire Accreditation International (CFAI), the National Fire Protection Association (NFPA), and the Fire Underwriters' Survey (FUS), as well as established practices from HRM and other fire services.

The risk assessment process analyzes data associated with structures across HRM available in the GIS data set. Qualitative information on risk factors for individual buildings is aggregated from pre-plan activities where available, and HRFE's records management system and HRM's property information repository. The data available to HRFE from municipal departments responsible for maintaining inspections and specific structure information is extremely limited in its current format, including fire protection and detection systems for buildings prior to municipal amalgamation.

The resulting risk assessment methodology combines objective data for responses in HRM from various sources. This approach determines individual risk assessments across different event types: fire suppression, medical, technical rescues, hazardous material incidents, and wildfire.

HRM is a large geographical land mass with a broad variety of variable characteristics and unique communities making the assessment challenging. HRFE works closely with the HRM Emergency Management Office (EMO) of the Public Safety Department to use shared resources and information

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and reduce the need for duplication in efforts. HRM EMO is the AHJ for Emergency Management in HRM.

HRFE has identified challenges in developing the risk assessment methodology for all HRM. It was found that the municipal data collection methodologies have not been fully homogenized since the amalgamation of the lower tier municipalities resulting in such things as zoning classifications for building types being coded differently across the old municipal borders. Therefore, there is no contiguous database of building classification and zoning across the entire of HRM.

Much of this work has been conducted in the 2024 fiscal year resulting in data being analyzed using the historical methods and lacking fidelity in the risk stratification tracking. A major aspect of the improvement plan is the implementation of the risk stratified tracking of all responses tied across category for ERTT and ERF.

HRFE utilized a two-axis risk assessment methodology to determine hazards in the following areas.

The HRFE risk stratification response types are categorized as:

1. Low = high probability and low consequence
2. Medium = low to high probability and moderate consequences
3. High = low probability and high consequences

Events considered to be above High-Risk by magnitude or duration escalation to the HRM Major Emergency Response Plan (MERP) with each HRM department having an individual plan as part of the whole. This is a new approach and underway with the transition of the Emergency Management Program.

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Demand for Service

HRFE regularly monitors the demand for service and resulting system performance, using data analytics considers scenarios for system improvement based on the community growth and change.

Incident Type / Day of Week	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Total
False Alarm	1,734	2,167	2,268	2,279	2,338	2,247	2,024	15,057
Hazardous Materials	59	56	52	64	64	51	66	412
Investigation	1,308	1,261	1,152	1,193	1,332	1,374	1,502	9,122
Medical Response	2,605	2,638	2,510	2,551	2,558	2,576	2,508	17,946
Motor Vehicle Collision	1,039	1,370	1,523	1,544	1,594	1,645	1,282	9,997
Other	1,906	1,788	1,795	1,837	1,902	2,071	2,015	13,314
Outside Fire	556	430	359	383	339	385	586	3,038
Structure Fire	209	222	219	217	232	227	235	1,561
Technical Rescue	82	55	53	64	75	75	109	513
Total	**9,498**	**9,987**	**9,931**	**10,132**	**10,434**	**10,651**	**10,327**	**70,960**

Figure 18. HRFE Call volume day of week

Incident Type / Start Hour	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Total
False Alarm	371	368	299	248	263	289	301	459	727	949	922	1,005	907	977	940	794	806	898	819	695	605	508	478	429	15,057
Hazardous Materials	9	8	6	3	3	5	8	17	23	26	34	25	32	21	23	24	33	29	22	8	18	12	12	11	412
Investigation	243	178	132	127	133	145	158	228	291	354	358	390	468	421	500	521	561	571	553	673	676	641	453	347	9,122
Medical Response	547	445	425	381	370	411	516	659	793	931	1,034	987	984	973	837	871	855	964	960	973	897	828	722	583	17,946
Motor Vehicle Collision	123	94	81	67	72	106	271	439	559	424	385	538	641	617	733	882	937	870	565	468	385	313	266	161	9,997
Other	370	296	259	243	241	259	305	485	567	616	634	731	742	731	841	774	773	828	717	656	636	607	557	446	13,314
Outside Fire	53	28	15	12	15	15	14	18	37	48	82	93	115	159	183	233	250	226	212	312	341	330	149	98	3,038
Structure Fire	45	43	27	41	31	34	30	33	56	61	61	72	70	102	91	72	91	111	100	97	97	57	68	71	1,561
Technical Rescue	14	13	8	3	6	2	4	9	12	11	21	31	41	29	32	45	34	32	35	32	34	31	18	16	513
Total	**1,775**	**1,473**	**1,252**	**1,125**	**1,134**	**1,266**	**1,607**	**2,347**	**3,065**	**3,420**	**3,531**	**3,872**	**4,000**	**4,030**	**4,180**	**4,216**	**4,340**	**4,529**	**3,983**	**3,914**	**3,689**	**3,327**	**2,723**	**2,162**	**70,960**

Figure 19. HRFE Call Volume time of day

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Call Volumns by First-Due District 2019 - June 2024							
First-Due District	2019	2020	2021	2022	2023	2024	Total
02	989	838	928	1,080	1,143	553	5,531
03	738	563	729	881	854	393	4,158
04	342	299	313	360	417	188	1,919
05	657	490	481	653	859	384	3,524
06	556	510	535	563	637	293	3,094
07	697	607	684	755	746	301	3,790
08	542	502	558	648	833	374	3,457
09	400	388	601	999	1,137	498	4,023
10	259	200	409	564	628	270	2,330
11	54	60	105	122	143	73	557
12	750	639	728	894	998	460	4,469
13	390	301	328	399	450	231	2,099
14	451	388	392	458	468	227	2,384
15	301	250	238	284	357	172	1,602
16	195	157	243	388	431	220	1,634
17	398	357	454	719	894	511	3,333
18	206	194	242	343	464	253	1,702
19	68	59	57	65	64	30	343
20	133	76	70	116	101	41	537
21	220	139	147	201	246	126	1,079
22	68	33	46	49	66	26	288
23	288	202	201	358	418	237	1,704
24	119	73	87	108	122	26	535
25	34	17	19	33	21	7	131
26	98	52	69	107	84	42	452
28	102	54	73	98	91	52	470
29	25	10	16	13	14	11	89
30	39	26	16	23	29	15	148
31	15	7	7	26	20	8	83
33	25	8	21	30	25	17	126
34	17	7	11	7	11	5	58
35	38	29	18	18	12	11	126
36	60	26	22	11	18	8	145
38	45	34	43	67	83	35	307
39	48	17	27	43	49	34	218
40	95	34	40	50	64	45	328
41	152	92	55	100	125	66	590
42	65	33	35	64	66	19	282
43	29	26	23	32	18	19	147
45	262	154	116	203	181	88	1,004
47	407	163	177	349	423	196	1,715
48	143	102	92	159	148	63	707
50	364	217	212	330	341	185	1,649
52	145	77	84	116	137	64	623
54	192	110	123	152	153	93	823
55	150	79	94	197	221	95	836
56	157	94	98	136	155	80	720
58	377	225	274	410	424	225	1,935
60	176	75	105	147	149	70	722
62	122	78	153	237	201	100	891
65	283	238	260	329	318	115	1,543
Total	12,486	9,409	10,859	14,494	16,057	7,655	70,960

Table 8. Call volume first due district

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Service Demand Distribution by Major Call Type

Call Volumns by First-Due District, by Call Type 2019 - June 2024										
First-Due District	False Alarm	Hazardous Materials	Investigation	Medical Response	Motor Vehicle Collision	Other	Outside Fire	Structure Fire	Technical Rescue	Total
02	2,099	41	789	310	406	1,629	106	93	58	5,531
03	1,486	30	612	332	482	931	98	109	78	4,158
04	430	20	314	146	397	521	42	34	15	1,919
05	860	30	662	300	892	570	106	77	27	3,524
06	652	13	593	361	463	751	158	75	28	3,094
07	974	38	458	291	746	1,015	160	79	29	3,790
08	1,016	29	573	277	743	552	161	64	42	3,457
09	622	21	416	1,814	442	470	152	72	14	4,023
10	306	7	265	1,031	333	244	99	41	4	2,330
11	50	2	69	234	81	82	30	8	1	557
12	1,764	42	535	256	919	723	129	80	21	4,469
13	638	15	393	215	326	370	61	43	38	2,099
14	666	15	443	246	470	360	114	59	11	2,384
15	573	8	257	137	194	300	84	40	9	1,602
16	224	2	232	781	141	133	80	31	10	1,634
17	665	23	430	1,391	346	304	101	57	16	3,333
18	191	6	240	656	330	151	77	47	4	1,702
19	12		45	156	16	60	38	10	6	343
20	33	1	48	237	44	76	77	15	6	537
21	69	2	106	516	102	133	107	42	2	1,079
22	29	1	34	137	13	39	23	12		288
23	86	1	156	1,076	139	123	77	36	10	1,704
24	44	3	56	229	58	95	32	11	7	535
25	8		10	56	4	27	15	10	1	131
26	24		36	225	44	81	23	15	4	452
28	50	1	33	231	36	91	14	11	3	470
29	1		1	52	5	19	4	7		89
30	5		4	79	9	41	3	5	2	148
31	1		3	38	16	13	5	6	1	83
33	3		4	85	11	14	5	4		126
34	1		2	43	4	5	1	2		58
35			20	27	25	37	11	6		126
36	10		7	50	25	24	16	8	5	145
38	51	1	23	123	27	48	18	16		307
39	6		11	112	17	37	5	29	1	218
40	22	1	19	174	37	52	15	8		328
41	52	2	67	185	115	114	42	9	4	590
42	20		25	156	22	28	18	8	5	282
43	15		31	12	31	34	13	5	6	147
45	120	6	130	215	251	211	52	16	3	1,004
47	59	2	24	88	99	1,429	10	3	1	1,715
48	75	2	68	349	51	82	62	18		707
50	227	11	152	760	131	240	79	46	3	1,649
52	58	3	56	296	76	64	53	16	1	623
54	51	2	52	487	86	64	51	26	4	823
55	67	4	51	479	47	127	39	17	5	836
56	53	2	81	274	64	145	71	29	1	720
58	239	10	199	899	293	191	72	22	10	1,935
60	80	1	57	373	43	82	56	20	10	722
62	52	3	39	598	58	75	47	18	1	891
65	218	11	190	351	287	308	126	46	6	1,543
Total	15,057	412	9,121	17,946	9,997	13,315	3,038	1,561	513	70,960

Table 9. Call volume first due call type

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Service Demand Visual by District & Geographic Area
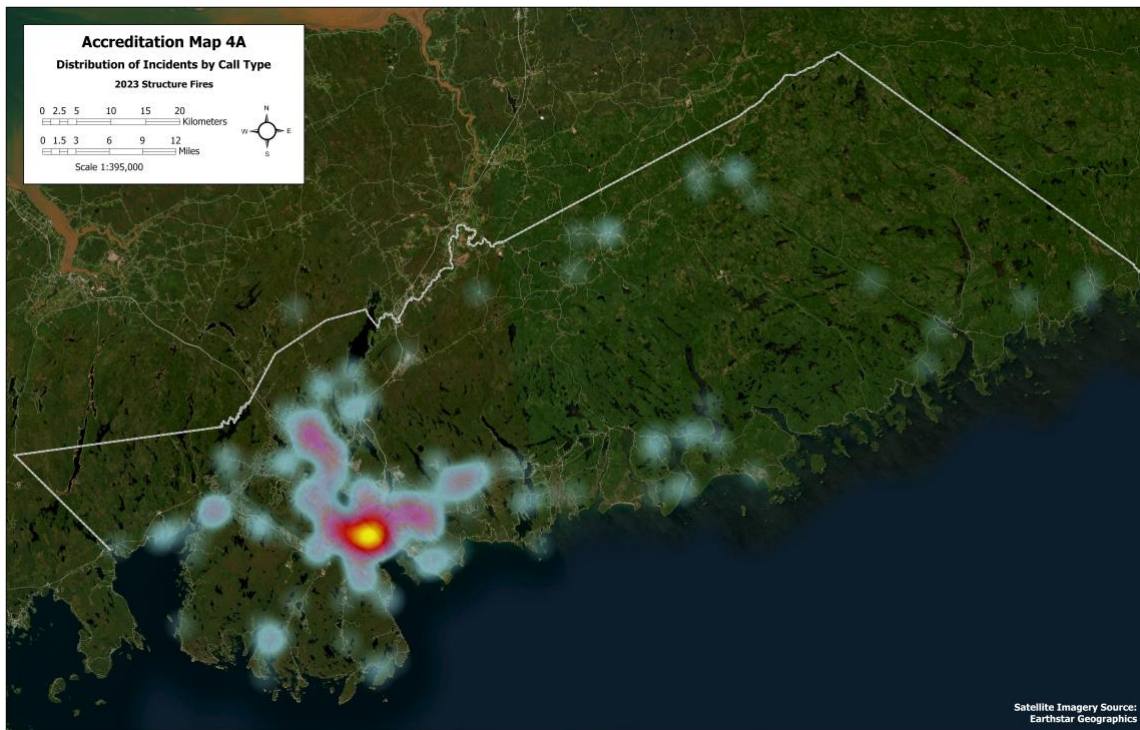
Figure 20. Distribution of Incidents by call type structures
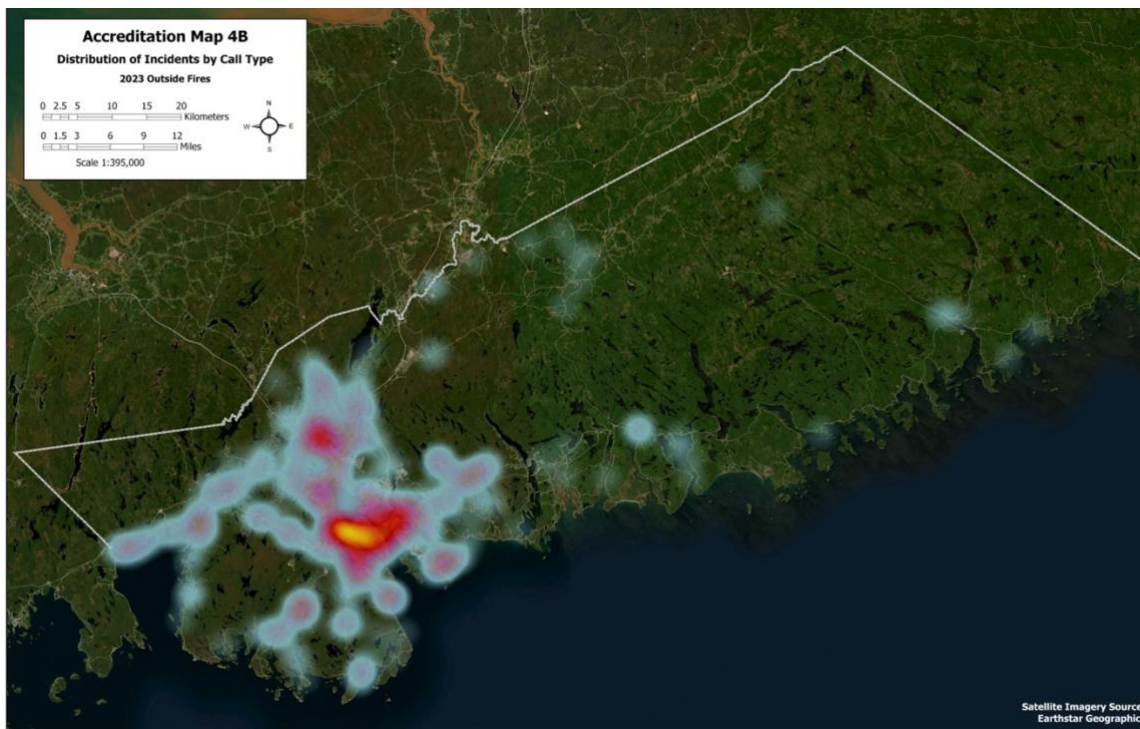
Figure 21. Distribution of incidents by call type outside fires

Halifax Regional Fire & Emergency, Community Risk Assessment – Standards of Cover
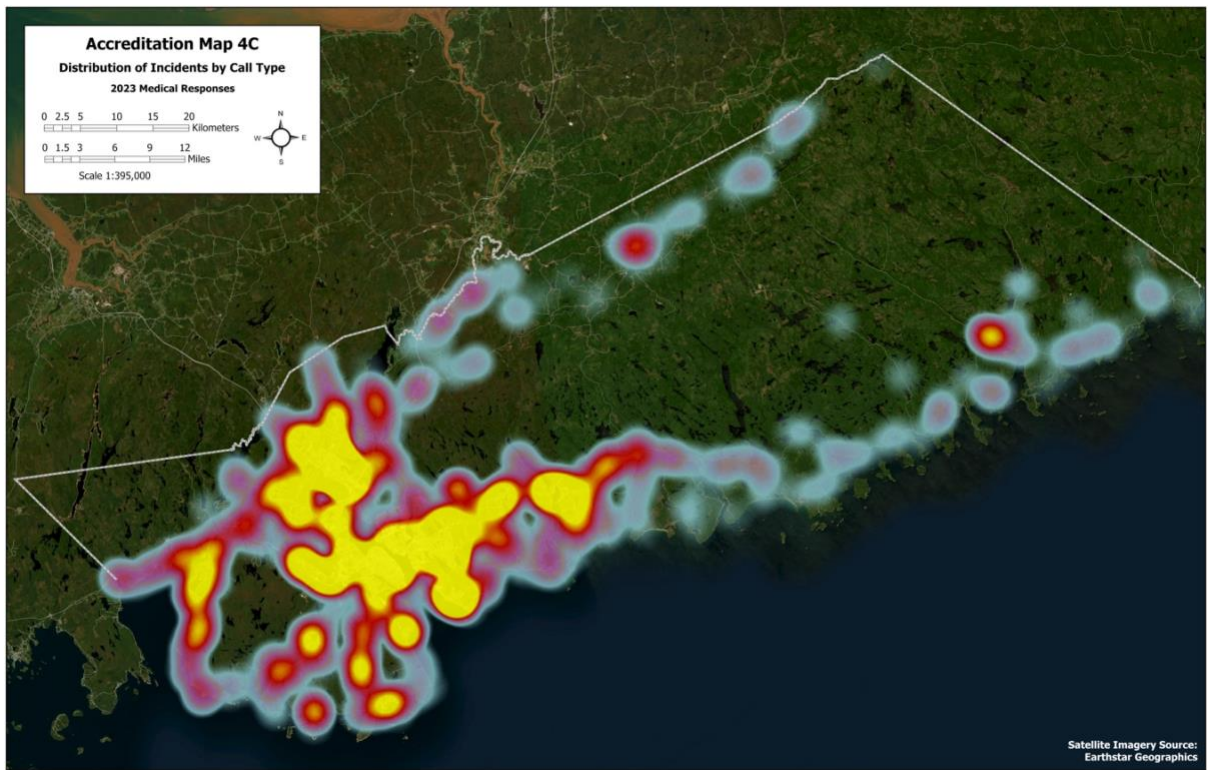
Figure 22. Distribution of incidents by call type - medical
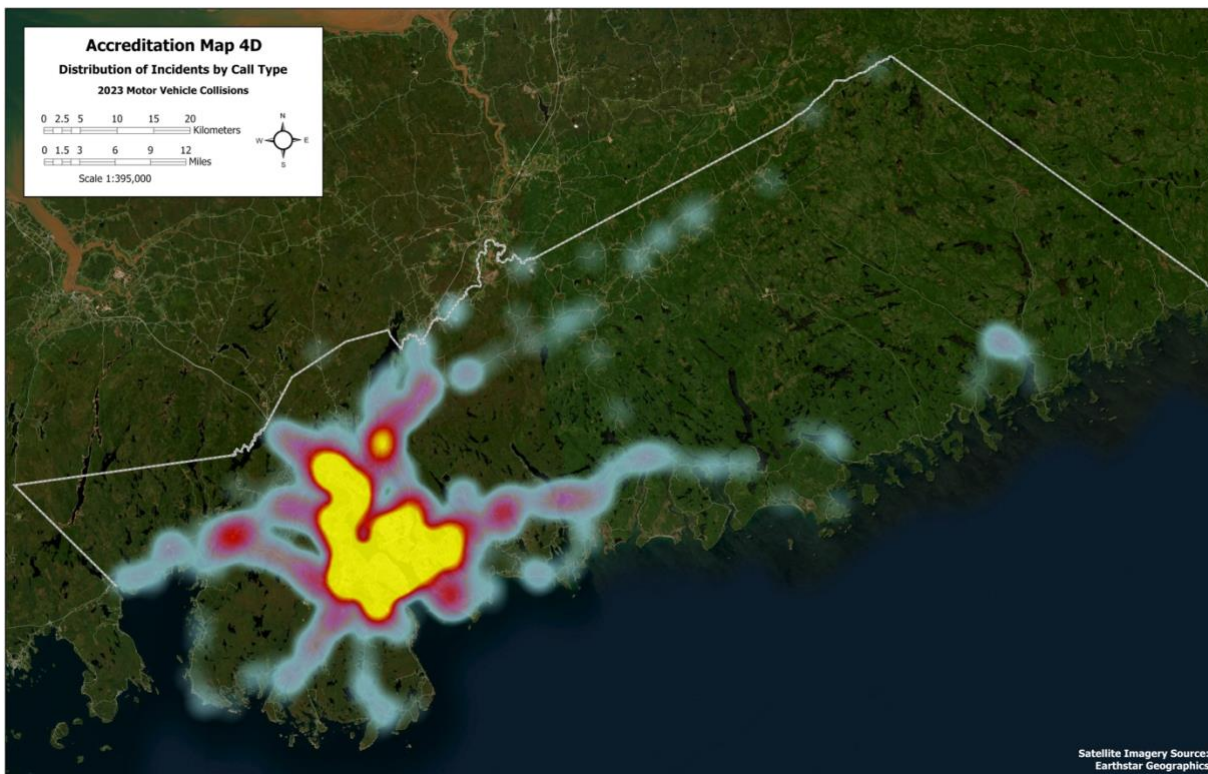
Figure 23. Distribution of incidents by call type - MVC

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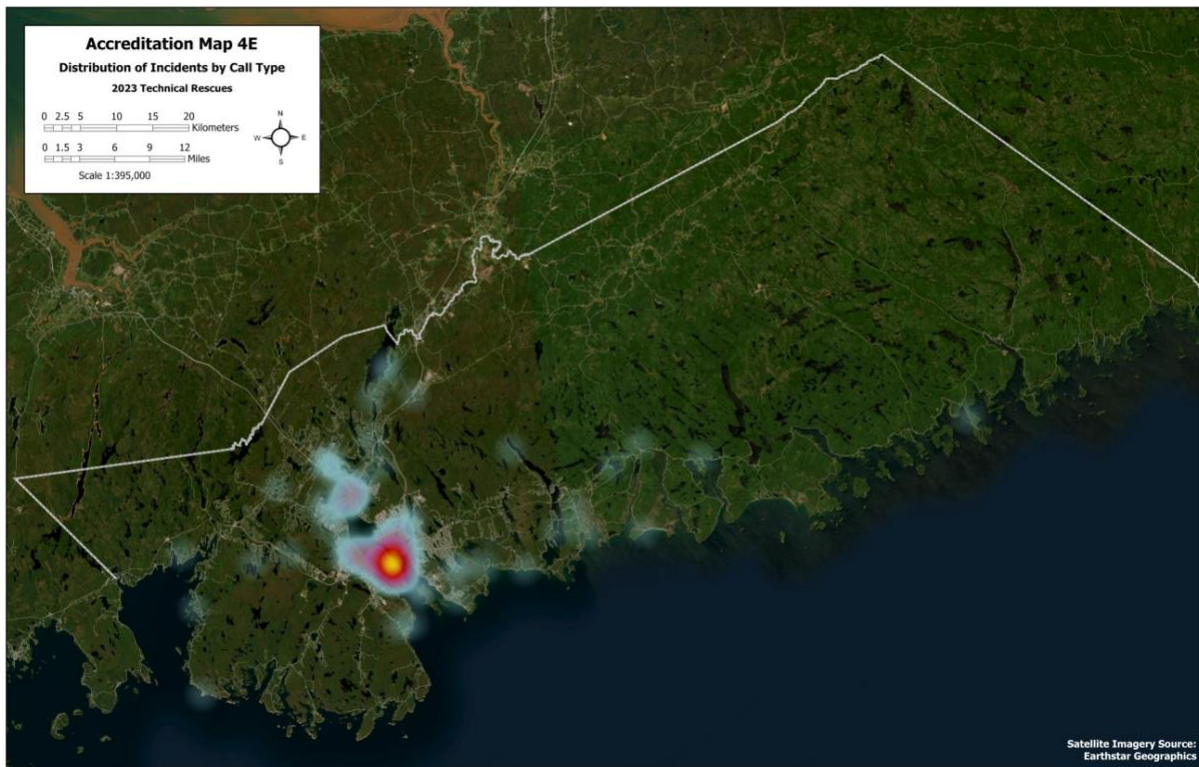
Figure 24. Distribution of Incidents by call type - technical rescue
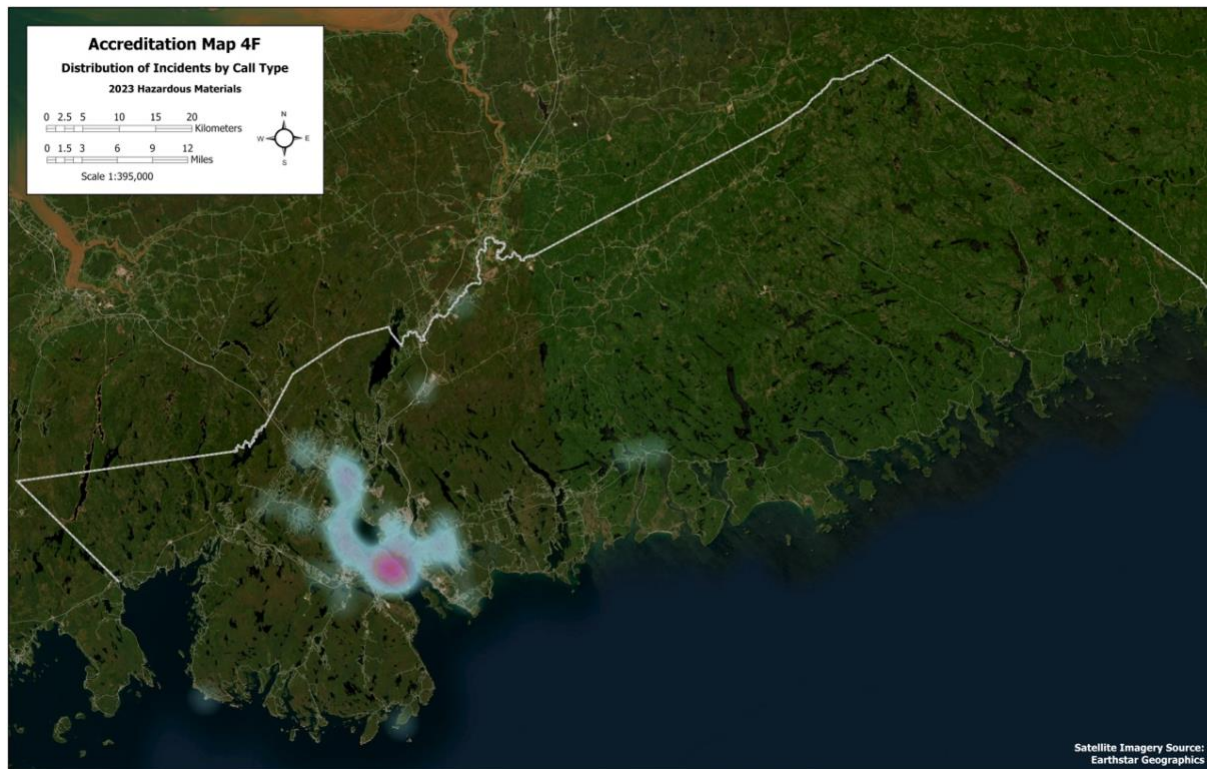
Figure 25. Distribution of incidents by call type -hazardous materials

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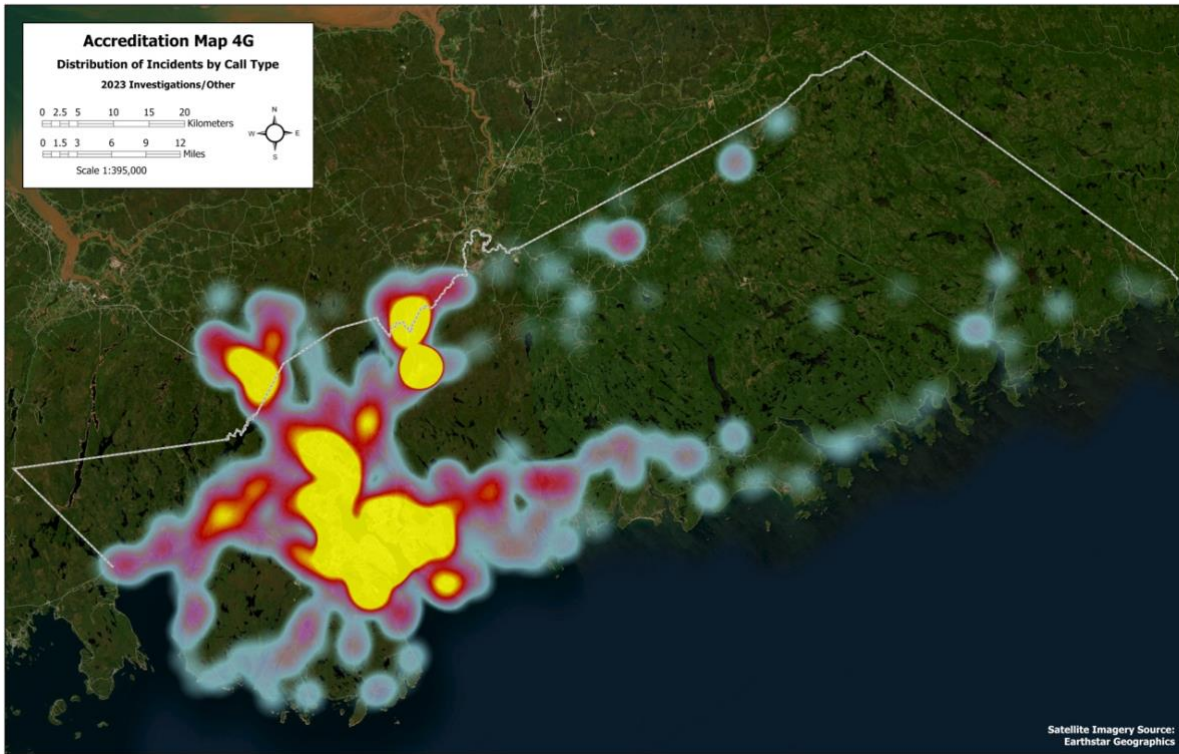
Figure 26. Distribution of incidents by call type - investigation/other
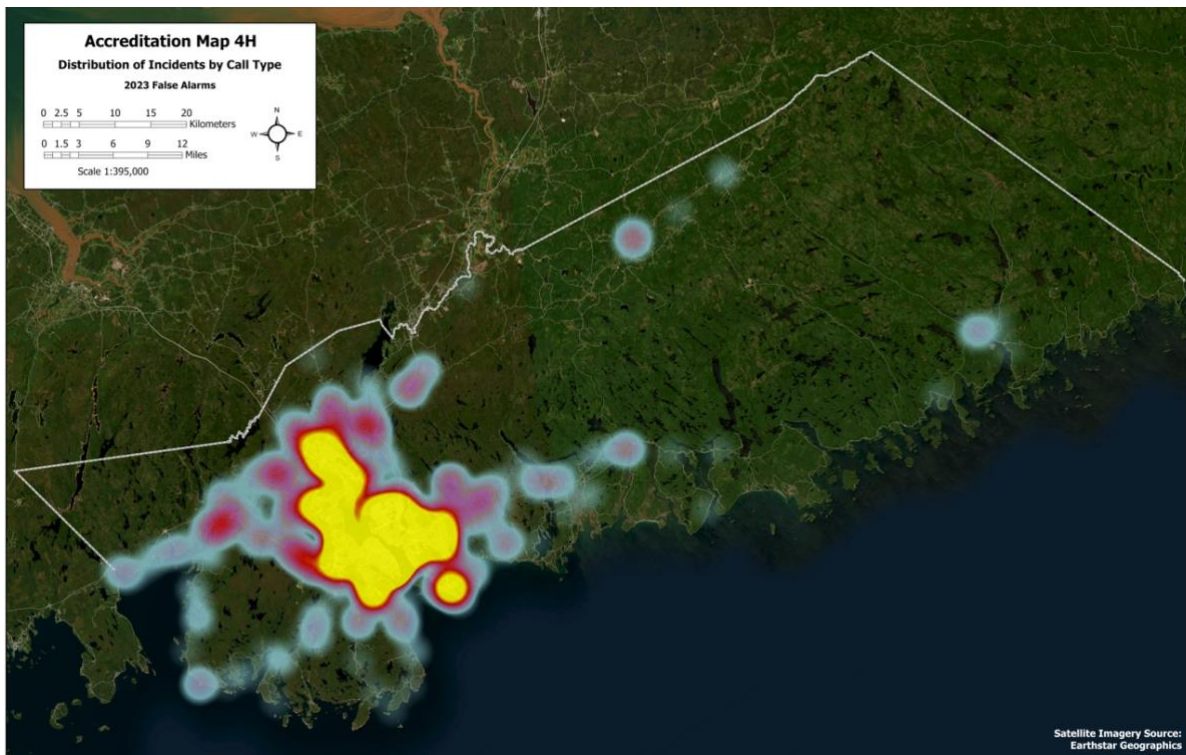
Figure 27. Distribution of incidents by call type -false alarms

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Current Deployment & System Performance

The current deployment model was designed prior to the current administration with one major update just prior to COVID-19 following the POMAX report and update to the HRM Council administrative order in 2018.

The 2018 model consists of an emergency response time target (ERTT) and effective response force (ERF) for all types of fire suppression calls. This is delineated for urban and rural responses with the primary designation between urban and rural being population density of the planning zone (prime station response area). A planning zone density of 100 people per square kilometer is used to make this delineation.

Areas of specialty response are reliant on call taker assessment, or scene size-up and assessment by first due officer to request required resources. Currently the call screening process is handled by the primary service answering point with no discrete fire service call taking service. No validated third-party call screening tool is utilized to provide the fidelity needed to determine detailed call analysis for response type.

The historical response model for HRFE is apparatus based, using risk assessment and resource requirements; primarily being water supply and staffing, with critical tasking designations being based on the HRFE standard operating guidelines. The weight of response is adjusted to perceived risk level based on the incident commander adding additional alarms to the response. Introducing the council administrative order shifted the organizational thinking to the idea of critical tasking by call type, however, little progress was made in beyond medium-risk residential structure fires when the process was interrupted by the pandemic.

The application of this approach was based on targeting the NFPA 1710 standards in the planning zones, and the NFPA 1720 standards in the rural zones in combination with a national industry scan and HRFE's capacity given current staffing, station, and apparatus.

In addition to fire suppression, an ERTT is established for urban and rural medical responses.

The key objective of HRFE's deployment model is to establish an effective response to emergency scenes that provides an appropriately staffed and resourced response to the assessed risk and requirements of the emergency in a safe and timely manner.

The distribution of stations and concentration of HRFE's resources, combined with continuous data analysis and assessment ensures that HRFE is ensuring adequate resource availability towards response time and targets, to carry out critical task functions to mitigate the duration and magnitude of the emergency event. Historical urban response areas were designed on a 5 minute travel time, leaving modern day HRFE with a travel time deficit when considering NFPA 1710 standards for deployment.

HRFE has several projects in-flight to enhance the deployment system model and capabilities. The station alerting system project is updating the dispatch notification system to assist in the reduction of call handling and notification times with expected impact on turnout times. The next project implementing dynamic resource-based deployment and moving away from station-based deployment will enhance the ability to get the right resource, at the right time, to the right call based on apparatus

and staff capabilities using AVL/GPS status in the Computer Aided Dispatch (CAD) system in relation to the call location and risk requirements.

Additionally, HRFE has been awarded research grant funding to Artificial Intelligence and Machine Learning deployment model capabilities with academic and industry partners to move our system and Canadian Fire Services to a new era of live dynamic computer-based deployment modeling, however this is in a research and development phase and therefore remains speculative at this point.

HRFE Overall Incidents and Responses Table

Summary of Rates / Year	2019	2020	2021	2022	2023	2024 Jan - Jun
Total Number of Incidents in HRM	12,486	9,405	10,859	14,494	16,057	7,659
Daily Average Incidents	34	26	30	40	44	42
Total Population	429,895	439,529	456,499	472,962	492,199	NA
Incident Rate (per 1,000 population)	29	21	24	31	33	-
Apparatus Responses (HRFE On Route)	27,109	22,545	24,003	29,901	33,705	18,018
Daily Average Apparatus Responses	74	62	66	82	92	99
Note: 2019, 2020 population are estimates from Corporate Planning.						

Table 10. Overall incident responses by population

HRFE Incidents and Responses Table by Type

Incident Type / Year	2019	2020	2021	2022	2023	2024 Jan - Jun
Structure Fire	283	265	261	301	298	153
Outside Fire	577	762	428	530	463	278
Medical Response	2,721	921	2,494	4,440	4,815	2,555
Motor Vehicle Collision	1,915	1,485	1,793	1,887	1,970	947
Technical Rescue	103	64	81	93	114	58
Hazardous Materials	82	61	69	85	72	43
Investigation	1,472	1,667	1,407	1,654	2,084	838
False Alarm	2,473	2,155	2,379	2,971	3,481	1,598
Severe Weather Related	NA	NA	NA	NA	NA	NA
Other	2,860	2,025	1,947	2,533	2,760	1,189
Total	12,486	9,405	10,859	14,494	16,057	7,659

Table 11. Overall incident responses by call type

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Response Time Goals & Objectives

HRFE has a well-established digital records management system with historical performance data available for analysis, combined with industry research, community risk profiles, service demand volumes, community input and expectations, and consultation; HRFE has developed and established benchmark service level objectives, reviewed and approved by the HRFE Fire Strategic Team (FST) based on currently available data. HRM council through the council administrative order established service levels that HRFE provides and authority for the CAO to approve structure and targets for HRFE. HRFE continues to annually report on progress toward the service levels and targets as part of the overall departmental strategic plan, budget and business cycles for HRM.

The benchmarks for urban fire suppression were developed as an initial set of performance targets and objectives for HRFE which consider the uniqueness of HRM as a community and the NFPA 1710, 1720, 1221 standards, and the capability of HRFE to deliver on the benchmarks with the current system capacity; there are no provincial or federal regulations that dictate the level of fire service a municipality must provide.

Benchmark Service Level Objectives

HRFE has established the following benchmark service level objectives based on historical practices and available data models. The objectives are based on a minimum of 3 years historical response performance data and considers the available data limitations and the plan to advance the data collection and analysis methodologies. Benchmark service level objectives are informed by the community risk assessment and stratification of risk for the community and HRFE's past and current capacity to deliver response based on the incident type and magnitude of risk, with primary response area first-due apparatus and HRFE initial effective response force capabilities. HRFE's community risk analysis and critical tasking assessment will inform the plan to update the CAD and records management system (RMS) to more effectively track ERF across the system.

Fire Suppression

For 90 per cent of all fire suppression incidents, the total response time for the arrival of the first-due engine, staffed with a minimum of three firefighters and one officer, shall be 8 minutes in urban population density areas, and 17 minutes, 30 seconds for rural population density areas. The first-due engine for all risk levels can establish incident command; carry minimum of 1893L of water, pump at 3785L/min, request additional resources with the application of water; and initiate the critical tasks required for the incident-specific response. These operations shall be done in accordance with departmental operating guidelines while providing for the safety of firefighters and the public.

For 90 per cent of all low-risk fire suppression incidents, the total response time for the arrival of the effective response force (ERF), staffed with 3 firefighters and 1 officer shall be 8 minutes in the urban population density areas, and 17 minutes 30 seconds in rural population density areas. The ERF is capable of establishing incident command; requesting additional resources with the application of water; and initiating the critical tasks required for the incident-specific response. All instances not requiring fire suppression including non-emergency events may be attended by utility apparatus.

For 90 per cent of all medium-risk fire suppression incidents, the total response time for the arrival of the effective response force (ERF), staffed with 14 firefighters and officers shall be 11 minutes in urban

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population density areas, and 35 minutes in rural population density areas. The ERF is capable of establishing incident command; requesting additional resources; establishing an uninterrupted water supply; advancing an attack line and a backup line for fire control; completing forcible entry; searching and rescuing at-risk victims; and performing salvage and overhaul operations and providing rehabilitation. These operations shall be done in accordance with the HRFE operating guidelines while providing safety for the firefighters and public.

For 90 per cent of all <u>high-risk risk fire suppression</u> incidents, the total response time for the arrival of the effective response force (ERF), staffed with 34 firefighters and officers shall be 45 minutes in urban population density areas, and 23 firefighters and officers in 45 minutes for rural population density areas. The ERF is capable of establishing incident command; requesting additional resources; establishing an uninterrupted water supply; advancing an attack line and a backup line for fire control; completing forcible entry; searching and rescuing at-risk victims; and performing salvage and overhaul operations and providing rehabilitation. These operations shall be done in accordance with the HRFE operating guidelines while providing safety for the firefighters and public.

Medical Response

HRFE responds to medical emergencies at the request of the Nova Scotia Department of Health and Wellness Emergency Health Services (NS DHW-EHS), Medical First Responder (MFR) program. NS DHW-EHS does not establish risk level benchmarks for MFR agencies. In the current state, HRFE responds to NS DHW-EHS medical emergencies classified as Delta and Echo responses utilizing the Advanced Medical Priority Dispatch System as provided by Priority Dispatch, Inc. HRFE benchmarks reflect a standard single level of medical response for ERTT and ERF.

For 90 per cent of <u>all medical response incidents</u>, the total response time for the arrival of the first-due unit, staffed with a minimum of 1 firefighter and 1 officer, shall be 7 minutes and 30 seconds in urban population density areas, and 17 minutes and 30 seconds in rural population density areas. The first-due unit is capable of establishing initial incident command; providing basic life support; stabilizing the scene; and triaging patients until the arrival of Nova Scotia Emergency Health Services. These operations shall be done in accordance with departmental operating guidelines and provincial clinical practice guidelines while providing for the safety of firefighters and the public.

Technical Rescue

For 90 per cent of all technical rescue incidents, the total response time for the arrival of the first-due unit, staffed with a minimum of 1 firefighter and 1 officer, shall be 8 minutes in urban population density areas and 17 minutes and 30 seconds in all rural population density areas. The first-due unit for all risk levels is capable of establishing initial incident command; requesting additional resources; and initiating the critical tasks required for the incident-specific response. These operations shall be done in accordance with departmental operating guidelines while providing for the safety of firefighters and the public.

For 90 per cent of all <u>low-risk technical incidents</u>, the total response time for the arrival of the effective response force (ERF), staffed with a minimum of 4 firefighters and officers, shall be 8 minutes in urban population density areas, and 17 minutes and 30 seconds in rural population density areas. The ERF is

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capable of establishing initial incident command, requesting additional resources and initiating the critical tasks required for the incident-specific response.

For 90 per cent of all medium-risk technical incidents, the total response time for the arrival of the effective response force (ERF), staffed with 3 firefighters and 1 officer, and 4 rescue technicians and 2 rescue technician officers, shall be 15 minutes in urban population density areas, and 35 minutes in rural population density areas. The ERF is capable of establishing incident command, requesting additional resources; and carrying out rescue team operations specific to the event.

For 90 per cent of all high-risk technical incidents, the total response time for the arrival of the effective response force (ERF), staffed with 6 firefighters and 2 officers, and 7 technicians and 3 rescue technician officers, shall be 15 minutes in urban population density areas, and 35 minutes in rural population density areas. The ERF is capable of establishing initial incident command, carrying out rescue team operations specific to the event; and supporting general operations. These operations shall be done in accordance with departmental operating guidelines while providing for the safety of firefighters and the public.

Marine/Water Rescue

For 90 per cent of all marine and water rescue incidents, the total response time for the arrival of the first-due unit, staffed with a minimum of 1 firefighter and 1 officer, shall be 8 minutes in urban population density areas, and 17 minutes and 30 seconds in rural population density areas. The first-due unit for all risk levels is capable of establishing initial incident command; requesting additional resources; and initiating the critical tasks required for the incident-specific response. These operations shall be done in accordance with departmental operating guidelines while providing for the safety of firefighters and the public.

For 90 per cent of all low-risk marine and water rescue incidents, the total response time for the arrival of the effective response force (ERF), staffed with 3 firefighters and 1 officer, shall be 8 minutes urban population density areas, and 17 minutes and 30 seconds in rural population density areas. The ERF is capable of establishing initial incident command; requesting additional resources; and initiating the critical tasks required for the incident-specific response, including operations level shore-based rescue, and providing fireboat-based fire suppression operations.

For 90 per cent of all medium-risk marine and water incidents, the total response time for the arrival of the effective response force (ERF), depended on incident resource required: staffed with 2 fireboat operators/2 deck hands OR water rescue technicians of 3 firefighters and 1 officer, shall be 20 minutes in urban population density areas, and 45 minutes in rural population density areas. The ERF is capable of establishing initial incident command; requesting additional resources; establishing shore-based incident safety officer and communications, and initiating the critical tasks required for the incident-specific response, including boat-based water rescue, and fireboat-based fire suppression operations.

For 90 per cent of all high-risk marine and water rescue incidents, the total response time for the arrival of the effective response force (ERF), staffed with 18 firefighters and officers including water rescue technician, shall be 20 minutes in urban population density areas, and 45 minutes in rural population

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density areas. The ERF is capable of establishing initial incident command; preventing and mitigating harmful materials from entering a body of water; conducting technician level rescue operations; fireboat-based fire suppression operations with relay pumping from the fireboat; monitoring safety lines and shore-based incident safety officer and communications; and supporting general operations. These operations shall be done in accordance with departmental operating guidelines and safe work practices while providing for the safety of firefighters and the public.

Hazardous Materials

For 90 per cent of all hazardous material incidents, the total response time for the arrival of the first-due unit, staffed with a minimum of 1 firefighter and 1 officer, shall be 8 minutes in urban population density areas, and 17 minutes and 30 seconds in rural population density areas. The first-due unit for all risk levels shall be capable of establishing initial incident command; requesting additional resources; and initiating the critical tasks required for the incident-specific response. These operations shall be done in accordance with departmental operating guidelines while providing for the safety of firefighters and the public.

For 90 per cent of all low-risk hazardous material incidents, the total response time for the arrival of the effective response force (ERF) staffed with 3 firefighters and 1 officer shall be 8 minutes in urban population density areas, and 17 minutes and 30 seconds in rural population density areas. The ERF can establish initial incident command; requesting additional resources; and initiating the critical tasks required for the incident-specific response.

For 90 per cent of all medium-risk hazardous material incidents, the total response time for the arrival of the effective response force (ERF) staffed with 10 firefighters and officers including hazardous materials technicians shall be 20 minutes and in urban population density areas, and 45 minutes in rural population density areas. The ERF can establish initial incident command, detecting and identifying the presence of hazardous material substances; carrying out hazardous materials operations; monitoring operations; and providing back up support. These operations shall be done in accordance with departmental operating guidelines while providing for the safety of firefighters and the public.

For 90 per cent of all high-risk hazardous material incidents, the total response time for the arrival of the effective response force (ERF) staffed with 10 firefighters and officers including hazardous materials technicians shall be 20 minutes in urban population density areas, and 45 minutes in rural population density areas. The ERF is capable of establishing initial incident command, detecting and identifying the presence of hazardous material substances; carrying out hazardous materials operations; monitoring operations; providing back up support; safely removing persons from potentially dangerous situations; providing backup support, and performing decontamination procedures, providing hazardous materials incident management, carrying our research, performing medical monitoring and rehabilitation. These operations shall be done in accordance with departmental operating guidelines while providing for the safety of firefighters and the public.

Wildfire Incidents

For 90 per cent of all wildfire incidents, the total response time for the arrival of the first-due engine, staffed with a minimum of 1 firefighter and 1 officer, shall be 8 minutes in urban population density

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areas, and 17 minutes and 30 seconds in rural population density areas. The first-due engine for all risk levels can establish incident command; requesting additional resources with the application of water; and initiating the critical tasks required for the incident-specific response. These operations shall be done in accordance with departmental operating guidelines while providing for the safety of firefighters and the public.

For 90 per cent of all low-risk wildfire incidents, the total response time for the arrival of the effective response force (ERF), staffed with 3 firefighters and 1 officer, shall be 8 minutes in urban population density areas, and 17 minutes and 30 seconds in rural population density areas. The ERF is capable of establishing incident command, requesting additional resources with the application of water; and initiating the critical tasks required for the incident-specific response. All instances not requiring fire suppression including non-emergency events may be attended by utility/brush apparatus.

For 90 per cent of all moderate-risk wildfire incidents, the total response time for the arrival of the initial effective response force (ERF), staffed with 14 firefighters and officers, shall be 11 minutes in urban population density areas, and 20 firefighters and officers in 35 minutes and 30 seconds in rural population density area. The ERF can establish incident command; requesting additional resources; establishing an uninterrupted water supply; advancing an attack line and a backup line for fire control; establishing a perimeter; searching and rescuing at-risk victims; and performing salvage and overhaul operations.

For 90 per cent of all high-risk wildfire incidents, the total response time for the arrival of the initial effective response force (ERF), staffed with 14 firefighters and officers, shall be 11 minutes in urban population density areas, and 20 firefighters and officers in 35 minutes in rural population density areas. The ERF shall also be capable of conducting ladder or ground ladder operations; protecting exposures; performing ICS functions with DNRR and multi-agency response; and providing rehabilitation. These operations shall be done in accordance with departmental operating guidelines while providing for the safety of firefighters and the public.

Baseline Performance

HRFE's baseline statement reflect the actual performance for the periods of 2019 through September 2024. HRFE does not rely on neighbouring fire departments to supply an effective response force but does augment the response when the neighbouring department can assist with firs-due and ERF in a timelier manner. HRFE incorporates the Nova Scotia automatic aid process and MOUs with neighbouring departments for mutual aid and training.

Fire Suppression Baseline Performance Statements

Low-Risk Fire Suppression

In 2023, for 90 per cent of low-risk fire suppression responses, the total response time for the arrival of the first-due engine, staffed with a minimum of 3 firefighters and 1 officer, was within: 11 minutes and 10 seconds in urban areas; and within 22 minutes and 24 seconds in rural areas. The first-due engine is capable of establishing incident command, requesting additional resources with the application of water; and initiating the critical tasks required for the incident-specific response. These operations are done in accordance with departmental operating guidelines while providing for the safety of firefighters and the public.

In 2023, for 90 per cent of low-risk fire suppression responses, the total response time for the arrival of the ERF, staffed with 4 firefighters and officers was within 12 minutes and 46 seconds in urban areas; and 25 minutes and 07 seconds in rural areas. The ERF is capable of establishing initial incident command; requesting additional resources with the application of water; and initiating the critical tasks required for the incident-specific response. These operations are done in accordance with departmental operating guidelines while providing for the safety of firefighters and the public.

(Low Risk) Fire Suppression - 90th Percentile Times - Baseline Performance			2019 - Sept 09, 2024	2019	2020	2021	2022	2023	2024	Target
Alarm Handling Time	Pick-up to Dispatch	Urban	04:12	03:52	03:58	04:10	04:21	04:23	04:12	01:30
		Rural	04:11	04:06	04:27	03:49	04:16	04:29	03:57	
Turnout Time	Turnout Time 1st Unit	Urban	02:41	02:41	02:44	02:54	02:45	02:33	02:37	01:30
		Rural	10:04	09:19	09:38	08:36	09:42	10:39	10:40	06:00
Travel Time	Travel Time 1st Unit Distribution	Urban	06:06	06:01	06:09	05:12	06:16	06:15	06:38	05:00
		Rural	12:44	11:50	12:21	11:15	13:57	13:19	12:09	10:00
	Travel Time ERF Concentration	Urban	07:09	07:05	07:15	06:56	07:08	07:12	07:25	05:00
		Rural	15:38	13:20	17:04	15:44	16:21	15:37	14:54	10:00
Total Response Time	Total Response Time 1st Unit on Scene Distribution	Urban	10:47	10:16	10:25	09:60	10:49	11:10	11:24	08:00
			N=4144	N=698	N=658	N=615	N=742	N=856	N=575	
		Rural	22:20	21:08	21:10	19:49	24:12	22:24	22:29	17:30
			N=1132	N=178	N=189	N=157	N=210	N=267	N=131	
	Total Response Time ERF Concentration	Urban (4 ERF)	12:30	11:48	12:05	12:11	12:51	12:46	12:42	08:00
			N=7573	N=1251	N=1223	N=1143	N=1351	N=1621	N=984	
		Rural (4 ERF)	24:48	28:49	27:42	23:29	26:10	25:07	22:35	17:30
			N=961	N=91	N=136	N=108	N=149	N=258	N=219	
Alarm handling time was much longer in low risk level calls, duef Primary PSAP Call handling time.										

Table 11. Low-risk fire suppression

Medium-Risk Fire Suppression

In 2023, for 90 per cent of moderate risk fire suppression responses, the total response time for the arrival of the first-due engine, staffed with a minimum of 3 firefighters and 1 officer, was within 9 minutes and 01 seconds in urban areas; and 18 minutes and 53 seconds in rural areas. The first-due engine is capable of establishing initial incident command; requesting additional resources with the application of water; and initiating the critical tasks required for the incident-specific response. These operations are done in accordance with departmental operating guidelines while providing for the safety of firefighters and the public.

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In 2023, for 90 per cent of moderate risk fire suppression responses, the total response time for the arrival of the effective response force (ERF), staffed with 14 firefighters and officers was within 18 minutes and 36 seconds in urban areas; and 58 minutes and 33 seconds in rural areas. The ERF is capable of establishing initial command; requesting additional resources; establishing an uninterrupted water supply; advancing an attack line and a backup line for fire control; completing forcible entry. searching and rescuing at-risk victims; and performing salvage and overhaul operations. These operations are done in accordance with departmental operating guidelines while providing for the safety of firefighters and the public.

(Medium Risk) Fire Suppression - 90th Percentile Times - Baseline Performance			2019 - Sept 09, 2024	2019	2020	2021	2022	2023	2024	Target
Alarm Handling Time	Pick-up to Dispatch	Urban	02:33	02:27	02:18	02:33	02:38	02:33	02:41	01:30
		Rural	02:49	03:23	02:50	02:53	02:33	02:46	02:47	
Turnout Time	Turnout Time 1st Unit	Urban	02:46	02:42	02:48	02:42	02:47	02:46	02:48	1:30
		Rural	10:46	09:57	09:17	12:02	11:03	10:09	11:06	6:00
Travel Time	Travel Time 1st Unit Distribution	Urban	05:30	05:37	05:26	05:17	05:40	05:26	05:21	05:00
		Rural	11:48	11:49	10:48	12:02	13:10	11:23	11:49	10:00
	Travel Time ERF Concentration	Urban	12:18	12:22	13:33	12:35	11:58	11:35	12:23	09:00
		Rural	42:04	36:54	56:10	31:50	41:39	37:14	28:23	27:30
Total Response Time	Total Response Time 1st Unit on Scene Distribution	Urban	09:10	09:07	09:06	09:11	09:12	09:01	09:12	08:00
			N=999	N=161	N=174	N=169	N=186	N=173	N=136	
		Rural	21:26	21:26	20:17	22:49	22:41	18:53	20:38	17:30
			N=464	N=79	N=80	N=77	N=80	N=98	N=50	
	Total Response Time ERF Concentration	Urban (14 ERF)	19:04	20:58	19:44	19:26	17:47	18:36	18:51	11:00
			N=689	N=115	N=111	N=92	N=129	N=137	N=105	
		Rural (14 ERF)	01:13:16	54:59	02:04:47	01:02:22	01:35:51	58:33	46:10	35:00
			N=224	N=36	N=28	N=39	N=37	N=52	N=32	

Table 12.. Medium-risk fire suppression

High-Risk Fire Suppression

In 2023, for 90 per cent of high-risk fire suppression responses, the total response time for the arrival of the first-due engine, staffed with a minimum of 3 firefighters and 1 officer, had NO DATA in urban areas; and NO DATA in rural areas. The first-due engine is capable of establishing initial incident command; requesting additional resources with the application of water; and initiating the critical tasks required for the incident-specific response. These operations are done in accordance with departmental operating guidelines while providing for the safety of firefighters and the public.

In 2023, for 90 per cent of high-risk fire suppression responses, the total response time for the arrival of the effective response force (ERF), staffed with 34 firefighters and officers had no NO DATA in urban areas; and NO DATA in rural areas. The ERF is capable of establishing initial command; requesting additional resources; establishing an uninterrupted water supply; advancing an attack line and a backup line for fire control; searching and rescuing at-risk victims; performing salvage and overhaul operations; conducting ladder or ground ladder operations; protecting exposures; performing lobby control functions; and providing rehabilitation. These operations are done in accordance with departmental operating guidelines while providing for the safety of firefighters and the public.

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(High Risk) Fire Suppression - 90th Percentile Times - Baseline Performance			2019 - Sept 09, 2024	2019	2020	2021	2022	2023	2024	Target
Alarm Handling Time	Pick-up to Dispatch	Urban	01:19	01:19	null	null	null	null	null	01:30
		Rural	null	null	null	null	null	null	null	
Turnout Time	Turnout Time 1st Unit	Urban	00:38	00:38	null	null	null	null	null	01:30
		Rural	null	null	null	null	null	null	null	06:00
Travel Time	Travel Time 1st Unit Distribution	Urban	00:02	00:02	null	null	null	null	null	05:00
		Rural	null	null	null	null	null	null	null	10:00
	Travel Time ERF Concentration	Urban	null	null	null	null	null	null	null	42:00
		Rural	null	null	null	null	null	null	null	37:30
Total Response Time	Total Response Time 1st Unit on Scene Distribution	Urban	06:00	06:00	null	null	null	null	null	08:00
			N=1	N=1	null	null	null	null	null	
		Rural	null	null	null	null	null	null	null	17:30
			N=0	N=0	N=0	N=0	N=0	N=0	N=0	
	Total Response Time ERF Concentration	Urban (34 ERF)	null	null	null	null	null	null	null	45:00
			N=0	N=0	N=0	N=0	N=0	N=0	N=0	
		Rural (23 ERF)	null	null	null	null	null	null	null	45:00
			N=0	N=0	N=0	N=0	N=0	N=0	N=0	

Table 13. High-risk fire suppression

Medical Baseline Statements

HRFE provides Medical First Responder level of care to HRM. Paramedic services and medical transport is provided by Nova Scotia Department of Health and Wellness Emergency Health Services. HRFE as the first responding agency provides basic life support with automated external defibrillation, until NS EHS arrives on scene. If NS EHS arrived first, they will initiate care and cancel HRFE is assistance is not required to support patient care.

In 2023, for 90 per cent of all low-risk medical responses, the total response time for the arrival of the first-due unit, staffed with a minimum of 1 firefighter and 1 officer was within 9 minutes and 17 seconds in urban areas; and 20 minutes and 17 seconds in rural areas. The first-due unit is capable of establishing initial incident command, gathering vital signs, providing basic life support, stabilizing the scene, and triaging patients until the arrival of Nova Scotia Emergency Health Services. These operations are done in accordance with departmental operating guidelines and NS EHS MFR guidelines while providing for the safety of firefighters and the public.

(Low Risk) Medical - 90th Percentile Times - Baseline Performance			2019 - Sept 09, 2024	2019	2020	2021	2022	2023	2024	Target
Alarm Handling Time	Pick-up to Dispatch	Urban	01:27	01:17	01:32	01:32	01:26	01:25	01:29	01:30
		Rural	01:27	01:16	01:22	01:38	01:30	01:25	01:29	
Turnout Time	Turnout Time 1st Unit	Urban	02:46	02:20	02:36	02:52	02:49	02:44	02:51	01:00
		Rural	08:57	07:23	07:31	08:54	09:15	09:42	10:02	06:00
Travel Time	Travel Time 1st Unit Distribution	Urban	06:10	05:60	06:20	06:04	06:20	06:10	06:07	05:00
		Rural	11:31	10:38	10:13	12:58	11:40	11:57	11:20	10:00
	Travel Time ERF Concentration	Urban	06:17	06:29	06:27	06:12	06:24	06:14	06:13	05:00
		Rural	13:16	13:44	12:23	15:17	15:04	12:54	11:58	10:00
Total Response Time	Total Response Time 1st Unit on Scene Distribution	Urban	09:15	08:47	09:18	09:11	09:26	09:12	09:19	07:30
			N=8580	N=693	N=311	N=1170	N=2199	N=2447	N=1760	
		Rural	19:54	17:43	17:27	21:19	20:25	20:17	20:06	17:30
			N=7232	N=1485	N=440	N=929	N=1581	N=1621	N=1176	
	Total Response Time ERF Concentration	Urban (2 ERF)	09:25	09:20	09:20	09:18	09:27	09:21	09:27	10:30
			N=9697	N=897	N=385	N=1299	N=2411	N=2708	N=1997	
		Rural (2 ERF)	22:43	22:44	22:16	25:57	25:29	21:58	20:43	17:30
			N=4515	N=625	N=203	N=454	N=748	N=1126	N=1359	

Table 14. Low-risk medical

(Medium Risk) Medical - 90th Percentile Times - Baseline Performance			2019 - Sept 09, 2024	2019	2020	2021	2022	2023	2024	Target
Alarm Handling Time	Pick-up to Dispatch	Urban	00:59	00:45	00:31	00:59	01:27	01:21	00:43	01:30
		Rural	01:27	00:38	00:33	05:13	00:48	00:36	01:27	
Turnout Time	Turnout Time 1st Unit	Urban	02:33	02:09	01:47	03:03	02:53	02:42	02:12	01:00
		Rural	03:07	01:25	02:02	03:33	07:43	02:35	02:23	06:00
Travel Time	Travel Time 1st Unit Distribution	Urban	06:36	05:49	06:41	06:56	06:34	05:52	05:40	05:00
		Rural	11:14	03:52	10:43	14:53	10:09	09:02	09:43	10:00
	Travel Time ERF Concentration	Urban	06:44	06:22	06:07	06:55	07:25	05:58	05:31	05:00
		Rural	12:31	null	10:37	08:20	14:17	08:51	09:43	10:00
Total Response Time	Total Response Time 1st Unit on Scene Distribution	Urban	09:09	08:10	08:32	09:21	09:06	07:49	12:38	07:30
			N=87	N=13	N=9	N=16	N=17	N=16	N=16	
		Rural	17:27	08:06	12:54	25:54	12:46	12:05	13:18	17:30
			N=25	N=2	N=2	N=8	N=3	N=1	N=9	
	Total Response Time ERF Concentration	Urban (2 ERF)	09:21	08:55	08:06	09:20	09:23	08:06	10:15	10:30
			N=105	N=17	N=8	N=17	N=21	N=23	N=19	
		Rural (2 ERF)	17:06	null	16:08	10:17	22:11	11:57	13:18	17:30
			N=18	N=0	N=1	N=3	N=3	N=2	N=9	

Table 15. Medium-risk medical

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(High Risk) Medical - 90th Percentile Times - Baseline Performance			2019 - Sept 09, 2024	2019	2020	2021	2022	2023	2024	Target
Alarm Handling Time	Pick-up to Dispatch	Urban	00:35	00:35	00:36	00:31	00:35	00:40	00:29	01:30
		Rural	00:51	00:35	00:36	00:23	01:27	00:26	02:05	
Turnout Time	Turnout Time 1st Unit	Urban	02:11	02:05	01:59	02:18	02:06	02:15	02:31	01:00
		Rural	08:50	10:38	07:19	09:07	08:06	02:03	02:45	06:00
Travel Time	Travel Time 1st Unit Distribution	Urban	04:35	04:01	04:43	04:24	04:25	04:42	04:60	05:00
		Rural	09:47	07:58	08:14	04:44	16:03	08:39	11:21	10:00
	Travel Time ERF Concentration	Urban	04:41	04:01	04:59	04:20	04:49	04:42	04:46	05:00
		Rural	09:56	05:58	06:59	06:16	22:16	08:39	11:21	10:00
Total Response Time	Total Response Time 1st Unit on Scene Distribution	Urban	06:41	06:09	06:27	06:34	06:19	06:58	07:04	07:30
			N=583	N=105	N=77	N=110	N=104	N=124	N=63	
		Rural	17:55	17:35	17:46	09:55	24:41	10:48	15:16	17:30
			N=31	N=5	N=8	N=4	N=5	N=5	N=4	
	Total Response Time ERF Concentration	Urban (2 ERF)	06:39	06:08	06:38	06:18	06:36	06:57	06:38	10:30
			N=662	N=116	N=88	N=125	N=120	N=140	N=73	
		Rural (2 ERF)	16:20	10:11	15:42	13:56	25:57	10:48	15:16	17:30
			N=27	N=4	N=5	N=4	N=5	N=5	N=4	

Table 16. High-risk. medical

Technical Rescue and Water/Ice/Marine Baseline Statements

Low-Risk Technical Rescue

In 2023, for 90 per cent of all low-risk technical rescue responses, the total response time for the arrival of the first-due unit, staffed with a minimum of 1 firefighter and 1 officer, was within 9 minutes and 25 seconds in urban areas; and 18 minutes and 05 seconds in rural areas. The first-due unit for all risk levels is capable of establishing initial incident command; requesting additional resources; and initiating the critical tasks required for the incident-specific response. These operations are done in accordance with departmental operating guidelines while providing for the safety of firefighters and the public.

In 2023, for 90 per cent of all low-risk technical rescue responses, the total response time for the arrival of the effective response force (ERF), staffed with 4 firefighters and officers was within 9 minutes and 31 seconds in urban areas; and 19 minutes and 33 seconds in rural areas. The ERF is capable of establishing initial incident command; requesting additional resources; and initiating the critical tasks required for the incident-specific response. These operations are done in accordance with departmental operating guidelines while providing for the safety of firefighters and the public.

(Low Risk) Technical Rescue - 90th Percentile Times - Baseline Performance			2019 - Sept 09, 2024	2019	2020	2021	2022	2023	2024	Target
Alarm Handling Time	Pick-up to Dispatch	Urban	00:50	00:53	00:42	00:43	00:50	00:52	00:60	01:30
		Rural	00:56	00:55	00:58	00:45	00:57	00:57	00:59	
Turnout Time	Turnout Time 1st Unit	Urban	02:23	02:13	02:26	02:26	02:23	02:23	02:27	1:30
		Rural	09:07	09:09	09:27	08:49	09:25	08:17	09:53	6:00
Travel Time	Travel Time 1st Unit Distribution	Urban	06:35	06:34	06:20	06:26	06:41	06:41	06:49	5:00
		Rural	10:51	10:55	09:54	10:37	11:04	10:58	11:23	11:00
	Travel Time ERF Concentration	Urban	06:42	06:35	06:25	06:32	06:51	06:51	06:58	5:00
		Rural	14:42	14:20	15:03	16:37	16:59	12:54	15:06	11:00
Total Response Time	Total Response Time 1st Unit on Scene Distribution	Urban	09:08	08:56	08:52	08:58	09:05	09:25	09:36	08:00
			N=6609	N=1192	N=961	N=1164	N=1214	N=1235	N=843	
		Rural	17:55	18:17	18:42	16:19	18:38	18:05	19:03	17:30
			N=1684	N=306	N=240	N=302	N=301	N=309	N=226	
	Total Response Time ERF Concentration	Urban (4 ERF)	09:16	09:08	08:58	08:54	09:19	09:31	09:52	8:00
			N=7424	N=1365	N=1058	N=1276	N=1360	N=1410	N=955	
		Rural (4 ERF)	21:54	23:56	23:20	24:00	21:38	19:33	20:55	17:30
			N=933	N=115	N=92	N=123	N=131	N=227	N=245	

Table 17. Low-risk technical rescue

Medium-Risk Technical Rescue

In 2023, for 90 per cent of all medium-risk technical responses, the total response time for the arrival of the first-due unit, staffed with a minimum of 1 firefighter and 1 officer, was within 9 minutes and 36 seconds in urban areas; and 17 minutes and 01 seconds in rural areas. The first-due unit for all risk levels is capable of establishing initial incident command; requesting additional resources; and initiating the critical tasks required for the incident-specific response. These operations are done in accordance with departmental operating guidelines while providing for the safety of firefighters and the public.

Halifax Regional Fire & Emergency, Community Risk Assessment – Standards of Cover

In 2023, for 90 per cent of all medium-risk technical rescue responses, the total response time for the arrival of the effective response force (ERF), staffed with 10 firefighters and officers including rescue technicians was within 1 hour and 5 minutes in urban areas; and 58 minutes and 58 seconds in rural areas. The ERF is capable of establishing initial incident command; requesting additional resources; and initiating the critical tasks required for the incident-specific response. These operations are done in accordance with departmental operating guidelines while providing for the safety of firefighters and the public. There is insufficient data to assess high-risk technical rescue responses.

(Medium Risk) Technical Rescue - 90th Percentile Times - Baseline Performance			2019 - Sept 09, 2024	2019	2020	2021	2022	2023	2024	Target
Alarm Handling Time	Pick-up to Dispatch	Urban	04:56	04:49	04:26	04:35	05:48	04:57	04:24	01:30
		Rural	04:29	02:27	03:15	08:39	04:04	03:51	04:16	
Turnout Time	Turnout Time 1st Unit	Urban	02:36	02:51	02:28	03:02	02:12	02:27	02:22	1:30
		Rural	07:15	06:30	03:35	05:40	06:16	03:04	15:12	6:00
Travel Time	Travel Time 1st Unit Distribution	Urban	07:02	06:04	06:09	07:16	06:43	04:51	07:12	8:00
		Rural	13:30	08:09	07:02	16:01	18:25	10:15	07:20	11:00
	Travel Time ERF Concentration	Urban	20:47	13:15	09:40	29:01	14:23	18:03	16:59	12:00
		Rural	39:03	37:14	42:53	22:15	23:47	32:04	25:39	27:30
Total Response Time	Total Response Time 1st Unit on Scene Distribution	Urban	13:42	15:20	10:25	12:13	12:25	09:36	15:05	11:00
			N=111	N=15	N=17	N=18	N=18	N=16	N=27	
		Rural	25:16	16:14	23:09	28:05	25:05	17:01	24:12	17:30
			N=35	N=5	N=5	N=7	N=9	N=4	N=5	
	Total Response Time ERF Concentration	Urban (10 ERF)	42:43	38:43	22:33	43:42	34:34	01:05:35	25:52	15:00
			N=27	N=4	N=2	N=6	N=5	N=5	N=5	
		Rural (10 ERF)	01:54:36	01:19:04	01:45:58	01:43:46	33:59	58:58	01:54:42	35:00
			N=16	N=2	N=2	N=3	N=1	N=3	N=5	

Table 18. Medium-risk technical rescue

(High Risk) Technical Rescue - 90th Percentile Times - Baseline Performance			2019 - Sept 09, 2024	2019	2020	2021	2022	2023	2024	Target
Alarm Handling Time	Pick-up to Dispatch	Urban	03:35	03:38	04:54	00:16	02:06	03:26	02:47	1:30
		Rural	00:56	00:58	null	null	00:37	null	null	
Turnout Time	Turnout Time 1st Unit	Urban	02:14	02:13	03:49	null	02:05	01:50	01:45	1:30
		Rural	05:26	05:26	null	null	null	null	null	06:00
Travel Time	Travel Time 1st Unit Distribution	Urban	04:52	04:27	04:45	null	04:19	09:13	03:47	8:00
		Rural	04:59	04:59	null	null	null	null	null	11:00
	Travel Time ERF Concentration	Urban	28:01	null	null	null	29:55	10:53	null	12:00
		Rural	00:00	00:00	null	null	null	null	null	27:30
Total Response Time	Total Response Time 1st Unit on Scene Distribution	Urban	10:44	10:18	08:14	null	08:25	12:43	08:19	8:00
			N=15	N=6	N=2	N=0	N=3	N=2	N=2	
		Rural	11:23	11:23	null	null	null	null	null	17:30
			N=1	N=1	N=0	N=0	N=0	N=0	N=0	
	Total Response Time ERF Concentration	Urban (18 ERF)	35:29	null	null	null	37:54	13:37	null	15:00
			N=2	N=0	N=0	N=0	N=1	N=1	N=0	
		Rural (18 ERF)	04:26:41	04:26:41	null	null	null	null	null	35:00
			N=1	N=1	N=0	N=0	N=0	N=0	N=0	

Table 19. High-risk technical rescue

Low-Risk Water and Ice Rescue

In 2023, for 90 per cent of all low-risk technical and water rescue responses, the total response time for the arrival of the first-due unit, staffed with a minimum of 1 firefighter and 1 officer, was within 9 minutes and 41 seconds in urban areas; and a significant data outlier to accurately assess in rural areas. The first-due unit for all risk levels is capable of establishing initial incident command; requesting additional resources; and initiating the critical tasks required for the incident-specific response. These operations are done in accordance with departmental operating guidelines while providing for the safety of firefighters and the public.

In 2023, for 90 per cent of all low-risk water and ice rescue responses, the total response time for the arrival of the effective response force (ERF), staffed with 4 firefighters and officers was within 23 minutes and 53 seconds in urban areas; and 53 minutes and 41 seconds in rural areas. The ERF is capable of establishing initial incident command; requesting additional resources; initiating shore-based rescue, and critical tasks required for the incident-specific response. These operations are done in accordance with departmental operating guidelines while providing for the safety of firefighters and the public.

Halifax Regional Fire & Emergency, Community Risk Assessment – Standards of Cover

(Low Risk) Water, Ice, Marine - 90th Percentile Times - Baseline Performance			2019 - Sept 09, 2024	2019	2020	2021	2022	2023	2024	Target
Alarm Handling Time	Pick-up to Dispatch	Urban	09:54	04:26	02:48	03:55	04:46	34:15	04:48	01:30
		Rural	02:21:43	03:53	01:28	02:05	18:41	02:40:14	01:39	
Turnout Time	Turnout Time 1st Unit	Urban	02:48	02:42	02:46	02:43	02:28	02:51	02:55	01:30
		Rural	09:60	03:07	01:45	null	06:30	07:50	10:55	06:00
Travel Time	Travel Time 1st Unit Distribution	Urban	05:57	05:32	05:52	05:41	04:48	05:59	07:57	08:00
		Rural	13:21	06:19	10:56	null	05:16	18:17	05:01	11:00
	Travel Time ERF Concentration	Urban	06:60	06:11	04:42	06:44	05:60	07:38	10:31	12:00
		Rural	14:58	06:19	null	12:40	32:18	13:21	14:08	26:00
Total Response Time	Total Response Time 1st Unit on Scene Distribution	Urban	10:38	10:28	10:29	09:57	09:13	09:41	12:11	08:00
			N=136	N=22	N=15	N=13	N=31	N=48	N=7	
		Rural	02:18:17	15:02	14:09	null	12:55	03:19:10	17:35	17:30
			N=13	N=2	N=1	N=0	N=2	N=7	N=1	
	Total Response Time ERF Concentration	Urban (4 ERF)	14:48	11:11	11:00	11:36	11:09	23:53	13:42	08:00
			N=253	N=38	N=21	N=22	N=45	N=116	N=11	
		Rural (4 ERF)	01:21:46	15:02	null	16:12	01:40:28	52:41	28:45	17:30
			N=14	N=2	N=0	N=1	N=2	N=7	N=2	
*2023 Bedford Flooding. Multiple units dispatched to same incident over time against initial call received.										

Table 20. Low-risk water rescue

Medium-Risk Water and Ice Rescue

In 2023, for 90 per cent of all medium-risk technical and water rescue responses, the total response time for the arrival of the first-due unit, staffed with a minimum of 1 firefighter and 1 officer, was within 22 minutes and 00 seconds in urban areas; and 27 minutes and 44 seconds in rural areas. The first-due unit for all risk levels is capable of establishing initial incident command; requesting additional resources; and initiating the critical tasks required for the incident-specific response. These operations are done in accordance with departmental operating guidelines while providing for the safety of firefighters and the public.

In 2023, for 90 per cent of all medium-risk water and ice rescue responses, the total response time for the arrival of the effective response force (ERF), staffed with 6 firefighters and officers was within 52 minutes and 26 seconds in urban areas; and 1 hour and 1 minute in rural areas. The ERF is capable of establishing initial incident command; requesting additional resources; initiating shore-based rescue, launch the fire boat, and critical tasks required for the incident-specific response. These operations are done in accordance with departmental operating guidelines while providing for the safety of firefighters and the public. There is no data to assess high-risk responses.

(Medium Risk) Water, Ice, Marine - 90th Percentile Times - Baseline Performance			2019 - Sept 09, 2024	2019	2020	2021	2022	2023	2024	Target
Alarm Handling Time	Pick-up to Dispatch	Urban	05:51	03:33	03:27	06:36	05:32	05:60	03:37	01:30
		Rural	06:02	06:41	09:09	03:50	04:13	05:50	04:29	
Turnout Time	Turnout Time 1st Unit	Urban	03:13	02:52	03:11	03:35	02:43	02:34	03:16	01:30
		Rural	08:41	11:43	06:50	07:07	09:44	04:35	08:40	06:00
Travel Time	Travel Time 1st Unit Distribution	Urban	10:47	07:15	12:57	09:14	10:22	08:12	06:58	08:00
		Rural	18:17	12:05	12:23	18:40	15:37	22:09	11:20	11:00
	Travel Time ERF Concentration	Urban	19:56	13:41	13:25	18:04	17:29	23:19	32:49	17:00
		Rural	37:26	27:57	04:50	44:48	32:03	40:15	22:06	37:30
Total Response Time	Total Response Time 1st Unit on Scene Distribution	Urban	16:53	12:12	20:40	16:12	15:10	21:60	13:53	08:00
			N=63	N=9	N=6	N=12	N=14	N=12	N=10	
		Rural	25:19	23:24	19:26	26:21	22:46	27:44	18:13	17:30
			N=49	N=13	N=4	N=8	N=8	N=10	N=6	
	Total Response Time ERF Concentration	Urban (6 ERF)	32:26	25:29	19:25	31:02	29:31	52:26	34:46	20:00
			N=65	N=8	N=9	N=14	N=9	N=16	N=9	
		Rural (6 ERF)	01:14:04	01:04:37	17:25	02:46:27	01:02:32	01:01:39	29:49	45:00
			N=33	N=10	N=2	N=5	N=5	N=4	N=7	

Table 21. Medium-risk water rescue

(High Risk) Water, Ice, Marine - 90th Percentile Times - Baseline Performance			2019 - Sept 09, 2024	2019	2020	2021	2022	2023	2024	Target
Alarm Handling Time	Pick-up to Dispatch	Urban	Null	Null	Null	Null	Null	Null	Null	01:30
		Rural	Null	Null	Null	Null	Null	Null	Null	
Turnout Time	Turnout Time 1st Unit	Urban	Null	Null	Null	Null	Null	Null	Null	01:30
		Rural	Null	Null	Null	Null	Null	Null	Null	06:00
Travel Time	Travel Time 1st Unit Distribution	Urban	Null	Null	Null	Null	Null	Null	Null	08:00
		Rural	Null	Null	Null	Null	Null	Null	Null	11:00
	Travel Time ERF Concentration	Urban	Null	Null	Null	Null	Null	Null	Null	17:00
		Rural	Null	Null	Null	Null	Null	Null	Null	37:30
Total Response Time	Total Response Time 1st Unit on Scene Distribution	Urban	Null	Null	Null	Null	Null	Null	Null	08:00
			Null	Null	Null	Null	Null	Null	Null	
		Rural	Null	Null	Null	Null	Null	Null	Null	17:30
			Null	Null	Null	Null	Null	Null	Null	
	Total Response Time ERF Concentration	Urban (6 ERF)	Null	Null	Null	Null	Null	Null	Null	20:00
			Null	Null	Null	Null	Null	Null	Null	
		Rural (6 ERF)	Null	Null	Null	Null	Null	Null	Null	45:00
			Null	Null	Null	Null	Null	Null	Null	

Table 22. High-risk water rescue

Halifax Regional Fire & Emergency, Community Risk Assessment – Standards of Cover

Hazardous Materials Baseline Statements

Low-Risk Hazardous Materials

In 2023, for 90 per cent of all low-risk hazardous material responses, the total response time for the arrival of the first-due unit, staffed with a minimum of 1 firefighter and 1 officer, was within 12 minutes and 27 seconds in urban areas; and 23 minutes and 16 seconds in rural areas. The first-due unit is capable of establishing initial incident command; requesting additional resources; and initiating the critical tasks required for the incident-specific response. These operations are done in accordance with departmental operating guidelines while providing for the safety of firefighters and the public.

In 2023, for 90 per cent of all low-risk hazardous material responses, the total response time for the arrival of the effective response force (ERF), staffed with 4 firefighters and officers was within 13 minutes and 01 second in urban areas; and 30 minutes and 18 seconds in rural areas. The ERF is capable of establishing initial incident command; requesting additional resources; and initiating the critical tasks required for the incident-specific response. These operations are done in accordance with departmental operating guidelines while providing for the safety of firefighters and the public.

(Low Risk) Hazmat - 90th Percentile Times - Baseline Performance			2019 - Sept 09, 2024	2019	2020	2021	2022	2023	2024	Target
Alarm Handling Time	Pick-up to Dispatch	Urban	03:40	04:15	03:21	03:52	03:30	03:35	03:52	01:30
		Rural	03:38	03:55	02:58	03:30	03:20	03:50	02:54	
Turnout Time	Turnout Time 1st Unit	Urban	02:39	02:22	02:24	02:17	03:02	02:34	03:30	01:30
		Rural	11:15	10:59	10:44	09:38	10:27	10:59	12:59	06:00
Travel Time	Travel Time 1st Unit Distribution	Urban	06:08	05:45	06:54	05:58	06:04	06:30	05:48	08:00
		Rural	12:50	10:10	15:03	10:52	12:18	13:50	12:18	10:00
	Travel Time ERF Concentration	Urban	07:14	07:10	06:58	06:50	07:23	07:31	07:24	05:00
		Rural	14:46	14:10	14:59	13:41	10:40	16:59	12:18	10:00
Total Response Time	Total Response Time 1st Unit on Scene Distribution	Urban	10:48	10:32	11:03	10:35	10:48	12:27	10:29	08:00
			N=318	N=57	N=61	N=52	N=56	N=55	N=37	
		Rural	22:04	21:43	21:45	18:11	21:05	23:16	22:48	17:30
			N=154	N=35	N=22	N=13	N=28	N=36	N=20	
	Total Response Time ERF Concentration	Urban (4 ERF)	12:14	12:40	11:18	11:44	11:22	13:01	13:29	08:00
			N=861	N=175	N=158	N=140	N=147	N=145	N=96	
		Rural (4 ERF)	27:43	24:07	36:38	19:00	20:42	30:18	22:19	17:30
			N=122	N=19	N=13	N=13	N=19	N=28	N=30	

Table 23. Low-risk hazardous materials

Medium-Risk Hazardous Materials

In 2023, for 90 per cent of all medium-risk hazardous material responses, the total response time for the arrival of the first-due unit, staffed with a minimum of 1 firefighter and 1 officer, was within 12 minutes and 20 seconds in urban areas and insufficient data in rural areas. The first-due unit capable of establishing initial incident command; requesting additional resources; and initiating the critical tasks required for the incident-specific response. These operations are done in accordance with departmental operating guidelines while providing for the safety of firefighters and the public.

In 2023, for 90 per cent of all medium-risk hazardous material responses, the total response time for the arrival of the effective response force (ERF), staffed with 10 firefighters and officers including hazardous materials technicians was within 1 hour 01 minute and 49 seconds in urban areas; and no responses in rural areas. The ERF capable of establishing initial incident command; requesting additional resources; and initiating the critical tasks required for the incident-specific response. These operations are done in accordance with departmental operating guidelines while providing for the safety of firefighters and the public.

Halifax Regional Fire & Emergency, Community Risk Assessment – Standards of Cover

There was an insufficient high-risk level hazardous materials responses requiring the assembly of an effective response force (ERF), staffed with 10 firefighters and officers including hazardous materials technicians, therefore performance has not been calculated.

(Medium Risk) Hazmat - 90th Percentile Times - Baseline Performance			2019 - Sept 09, 2024	2019	2020	2021	2022	2023	2024	Target
Alarm Handling Time	Pick-up to Dispatch	Urban	03:30	03:44	03:26	03:18	03:04	03:21	04:06	01:30
		Rural	03:26	03:14	03:05	null	03:59	02:43	01:60	
Turnout Time	Turnout Time 1st Unit	Urban	02:32	02:23	02:35	02:49	02:22	02:38	02:02	01:30
		Rural	09:39	09:42	04:51	null	07:53	04:27	01:38	06:00
Travel Time	Travel Time 1st Unit Distribution	Urban	06:40	08:20	07:27	06:34	04:22	07:06	05:23	08:00
		Rural	15:28	14:22	16:03	07:07	07:07	07:16	03:16	10:00
	Travel Time ERF Concentration	Urban	16:36	16:40	17:15	14:17	11:40	19:01	12:02	17:00
		Rural	null	null	null	null	null	null	null	37:30
Total Response Time	Total Response Time 1st Unit on Scene Distribution	Urban	12:17	13:22	13:57	10:31	08:18	12:20	09:57	08:00
			N=80	N=13	N=12	N=13	N=15	N=13	N=14	
		Rural	23:41	24:07	22:14	null	16:23	12:58	05:14	17:30
			N=7	N=3	N=1	N=0	N=1	N=1	N=1	
	Total Response Time ERF Concentration	Urban (10 ERF)	45:05	32:26	25:60	47:42	19:41	01:01:49	42:17	20:00
			N=42	N=11	N=4	N=4	N=9	N=8	N=6	
		Rural (10 ERF)	null	null	null	null	null	null	null	45:00
			N=0	N=0	N=0	N=0	N=0	N=0	N=0	

Table 24. Medium-risk hazardous materials

(High Risk) Hazmat - 90th Percentile Times - Baseline Performance			2019 - Sept 09, 2024	2019	2020	2021	2022	2023	2024	Target
Alarm Handling Time	Pick-up to Dispatch	Urban	Null	Null	Null	Null	Null	Null	Null	01:30
		Rural	Null	Null	Null	Null	Null	Null	Null	
Turnout Time	Turnout Time 1st Unit	Urban	Null	Null	Null	Null	Null	Null	Null	01:30
		Rural	Null	Null	Null	Null	Null	Null	Null	06:00
Travel Time	Travel Time 1st Unit Distribution	Urban	Null	Null	Null	Null	Null	Null	Null	08:00
		Rural	Null	Null	Null	Null	Null	Null	Null	11:00
	Travel Time ERF Concentration	Urban	Null	Null	Null	Null	Null	Null	Null	17:00
		Rural	Null	Null	Null	Null	Null	Null	Null	37:30
Total Response Time	Total Response Time 1st Unit on Scene Distribution	Urban	Null	Null	Null	Null	Null	Null	Null	08:00
			Null	Null	Null	Null	Null	Null	Null	
		Rural	Null	Null	Null	Null	Null	Null	Null	17:30
			Null	Null	Null	Null	Null	Null	Null	
	Total Response Time ERF Concentration	Urban (10 ERF)	Null	Null	Null	Null	Null	Null	Null	20:00
			Null	Null	Null	Null	Null	Null	Null	
		Rural (10 ERF)	Null	Null	Null	Null	Null	Null	Null	45:00
			Null	Null	Null	Null	Null	Null	Null	

Table 25. High-risk hazardous materials

Wildfire Baseline Statements

In 2023, for 90 per cent of low-risk wildfire responses, the total response time for the arrival of the first-due engine, staffed with a minimum of 1 firefighter and 1 officer, was within 10 minutes and 59 seconds in urban areas; and 21 minutes and 26 seconds in rural areas. The first-due engine capable of establishing initial incident command; requesting additional resources with the application of water; and initiating the critical tasks required for the incident-specific response. These operations are done in accordance with departmental operating guidelines while providing for the safety of firefighters and the public.

In 2023, for 90 per cent of all low-risk wildland fire responses, the total response time for the arrival of the effective response force (ERF), staffed with 4 firefighters and officers was within 13 minutes and 44 seconds in urban areas; and 24 minutes and 56 seconds in rural areas.

Halifax Regional Fire & Emergency, Community Risk Assessment – Standards of Cover

(Low Risk) Wildfire - 90th Percentile Times - Baseline Performance			2019 - Sept 09, 2024	2019	2020	2021	2022	2023	2024	Target
Alarm Handling Time	Pick-up to Dispatch	Urban	04:05	04:01	03:25	04:16	04:11	04;14	04:26	01:30
		Rural	04:09	03:38	04:06	04:25	03:29	04:06	04:31	
Turnout Time	Turnout Time 1st Unit	Urban	02:48	03:42	03:14	02:23	02:17	02:21	03:35	1:30
		Rural	10:08	09:50	09:33	09:10	11:58	09:09	10:08	6:00
Travel Time	Travel Time 1st Unit Distribution	Urban	07:31	07:12	06:52	07:52	06:30	05:47	08:30	5:00
		Rural	11:31	10:13	12:06	11:16	12:46	09:51	11:17	10:00
	Travel Time ERF Concentration	Urban	07:59	08:11	07:36	07:26	08:01	08:27	08:32	5:00
		Rural	13:46	14:07	14:39	12:58	14:04	12:55	12:34	10:00
Total Response Time	Total Response Time 1st Unit on Scene Distribution	Urban	12:05	10:30	11:56	12:45	10:15	10:59	14:60	08:00
			N=201	N=33	N=37	N=28	N=26	N=35	N=42	
		Rural	24:25	20:06	24:09	23:44	25:53	21:26	24:35	17:30
			N=277	N=54	N=56	N=39	N=44	N=43	N=41	
	Total Response Time ERF Concentration	Urban (4 ERF)	13:15	12:36	12:19	13:17	13:07	13:44	15:00	8:00
			N=1273	N=203	N=317	N=190	N=206	N=147	N=210	
		Rural (4 ERF)	24:38	23:02	23:08	26:19	22:38	24:56	23:50	17:30
			N=266	N=27	N=41	N=27	N=33	N=62	N=76	

Table 26. Low-Risk wildfire

In 2023, for 90 per cent of medium-risk wildfire responses, the total response time for the arrival of the first-due engine, staffed with a minimum of 1 firefighter and 1 officer, was within 12 minutes and 56 seconds in urban areas; and 21 minutes and 58 seconds in rural areas. The first-due engine is capable of establishing initial incident command; requesting additional resources with the application of water; and initiating the critical tasks required for the incident-specific response. These operations are done in accordance with departmental operating guidelines while providing for the safety of firefighters and the public.

In 2023, for 90 per cent of all medium-risk wildfire responses, the total response time for the arrival of the effective response force (ERF), staffed with 14 firefighters and officers was within 57 minutes and 46 seconds in urban areas; and insufficient data quality in rural areas. The effective response force can provide critical tasks for scene operations including incident command and size up, engine operations, water supply, fire attack, water tender operations, and firefighter rehabilitation.

(Medium Risk) Wildfire - 90th Percentile Times - Baseline Performance			2019 - Sept 09, 2024	2019	2020	2021	2022	2023	2024	Target
Alarm Handling Time	Pick-up to Dispatch	Urban	03:26	03:45	03:17	03:25	03:06	03:13	02:50	01:30
		Rural	03:51	03:14	03:10	03:29	04:33	03:56	04:36	
Turnout Time	Turnout Time 1st Unit	Urban	02:38	02:38	02:22	02:38	02:30	02:22	03:02	1:30
		Rural	09:47	08:02	10:19	07:37	09:43	10:36	08:52	6:00
Travel Time	Travel Time 1st Unit Distribution	Urban	07:53	06:49	10:46	08:27	06:45	09:15	08:02	5:00
		Rural	14:03	14:40	10:53	10:37	14:07	12:14	15:25	10:00
	Travel Time ERF Concentration	Urban	23:01	16:04	08:18	44:29	22:28	17:31	05:01	5:00
		Rural	01:12:25	10:00	59:39	25:44	01:03:21	01:06:07	23:08	27:30
Total Response Time	Total Response Time 1st Unit on Scene Distribution	Urban	12:26	12:14	18:33	12:48	10:12	12:56	11:48	08:00
			N=160	N=32	N=22	N=20	N=31	N=35	N=20	
		Rural	22:43	24:06	22:49	18:44	21:55	21:58	27:14	17:30
			N=200	N=41	N=30	N=30	N=42	N=43	N=14	
	Total Response Time ERF Concentration	Urban (14 ERF)	01:07:32	01:01:06	03:07:07	59:07	01:19:16	57:46	43:45	11:00
			N=24	N=4	N=2	N=6	N=3	N=7	N=2	
		Rural (20 ERF)	02:19:04	49:32	01:41:59	02:03:29	01:53:04	10:04:44	01:23:03	35:00
			N=20	N=1	N=5	N=2	N=5	N=6	N=1	

Table 27. Medium-risk wildfire

In 2023, for 90 per cent of high-risk wildfire responses, the total response time for the arrival of the first-due engine, staffed with a minimum of 1 firefighter and 1 officer, was no responses in urban areas; and 8 minutes and 29 seconds in rural areas. The first-due engine is capable of establishing initial incident command; requesting additional resources with the application of water; and initiating the critical tasks required for the incident-specific response. These operations are done in accordance with departmental operating guidelines while providing for the safety of firefighters and the public.

Halifax Regional Fire & Emergency, Community Risk Assessment – Standards of Cover

In 2023, for 90 per cent of all high-risk wildfire responses, the total response time for the arrival of the effective response force (ERF), staffed with 14 firefighters and officers has no responses in urban areas; and 37 minutes and 32 seconds in rural areas. The effective response force can provide critical tasks for scene operations including incident command and size up, engine operations, water supply, fire attack, water tender operations, incident safety officer, sector command, and firefighter rehabilitation.

(High Risk) Wildfire - 90th Percentile Times - Baseline Performance (Tantallon Fire)			2019 - Sept 09, 2024	2019	2020	2021	2022	2023	2024	Target
Alarm Handling Time	Pick-up to Dispatch	Urban	null	null	null	null	null	null	null	01:30
		Rural	01:32	null	null	null	null	01:32	null	
Turnout Time	Turnout Time 1st Unit	Urban	null	null	null	null	null	null	null	1:30
		Rural	03:35	null	null	null	null	03:35	null	6:00
Travel Time	Travel Time 1st Unit Distribution	Urban	null	null	null	null	null	null	null	5:00
		Rural	03:22	null	null	null	null	03:22	null	10:00
	Travel Time ERF Concentration	Urban	null	null	null	null	null	null	null	08:00
		Rural	17:54	null	null	null	null	17:54	null	27:30
Total Response Time	Total Response Time 1st Unit on Scene Distribution	Urban	null	null	null	null	null	null	null	08:00
			N=0	N=0	N=0	N=0	N=0	N=0	N=0	
		Rural	08:29	null	null	null	null	08:29	null	17:30
			N=1	N=0	N=0	N=0	N=0	N=1	N=0	
	Total Response Time ERF Concentration	Urban (14 ERF)	null	null	null	null	null	null	null	11:00
			N=0	N=0	N=0	N=0	N=0	N=0	N=0	
		Rural (20 ERF)	37:32	null	null	null	null	37:32	null	35:00
			N=1	N=0	N=0	N=0	N=0	N=1	N=0	

Table 28. High-risk wildfire

Halifax Regional Fire & Emergency, Community Risk Assessment – Standards of Cover

HRFE Wide Response Data – Low/Medium/High Risk Classifications

HRFE Total Response Time First-in (90th Percentile Time) Urban/Rural – Low/Medium/High Risk

HRM Urban/Rural Coverage Staff Type Incident Type		2019	2020	2021	2022	2023	2024 Jan – Jun	Total
HRM Urban	False Alarm	09:32	09:08	09:15	09:17	09:25	09:18	**09:19**
		1790	1598	1846	2251	2663	1222	**N=11370**
	Hazardous Materials	13:06	13:04	10:38	08:60	10:30	10:41	**11:34**
		32	25	31	34	34	18	**N=174**
	Investigation	10:22	10:42	10:10	10:54	11:25	11:31	**10:53**
		539	525	501	585	729	349	**N=3228**
	Medical Response	08:47	09:18	09:11	09:26	09:12	09:11	**09:14**
		693	311	1170	2200	2448	1284	**N=8106**
	Motor Vehicle Collision	08:45	08:45	08:48	09:01	09:12	09:20	**08:58**
		1297	1038	1274	1318	1359	656	**N=6942**
	Other	09:49	09:16	09:11	09:41	09:32	09:17	**09:27**
		1118	965	977	1076	1237	584	**N=5957**
	Outside Fire	10:50	11:43	11:19	10:42	11:17	12:32	**11:27**
		112	94	83	95	112	58	**N-554**
	Structure Fire	09:01	09:01	09:18	09:20	09:03	09:17	**09:10**
		160	158	153	174	162	85	**N=892**
	Technical Rescue	12:41	15:24	14:40	13:50	16:27	12:55	**14:54**
		27	22	30	34	30	26	**N=169**
	Total	**09:33**	**09:24**	**09:20**	**09:33**	**09:36**	**09:32**	**09:30**
		5768	**4736**	**6065**	**7767**	**8774**	**4282**	**N=37392**
HRM Rural	False Alarm	20:22	17:24	20:59	19:26	19:04	19:31	**19:24**
		224	204	188	243	266	128	**1253**
	Hazardous Materials	21:19	21:57	03:23	19:20	15:15	13:06	**20:05**
		8	2	1	10	7	5	**N=33**
	Investigation	21:57	21:25	19:43	24:16	23:20	21:52	**22:38**
		97	115	97	132	205	68	**N=714**
	Medical Response	17:42	17:04	20:59	19:57	20:02	19:33	**19:32**
		1484	440	929	1581	1621	830	**N=6885**
	Motor Vehicle Collision	18:20	18:41	16:19	18:20	17:55	19:25	**17:54**
		311	248	306	306	314	161	**N=1646**
	Other	19:43	22:13	22:23	24:19	24:22	24:51	**22:25**
		435	248	200	250	205	89	**N=1427**
	Outside Fire	23:12	22:45	22:20	23:42	21:41	24:35	**22:56**
		108	100	70	93	97	43	**N=511**
	Structure Fire	21:35	20:07	23:08	22:38	19:15	20:44	**21:24**
		84	75	77	79	94	39	**N=448**
	Technical Rescue	22:31	24:19	26:29	25:21	26:11	17:33	**25:41**
		16	7	14	13	14	4	**N=68**
	Total	**18:51**	**19:31**	**20:36**	**20:52**	**20:28**	**20:20**	**20:12**
		2767	**1439**	**1882**	**2707**	**2823**	**1367**	**12985**

Table 29. Total response time first due 90th percentile

HRFE Call Handling Time (90th Percentile Time) by Incident Type – Low/Medium/High Risk

Incident Type		2019	2020	2021	2022	2023	2024 Jan – Jun	Total
False Alarm		02:22	02:12	02:17	02:17	02:17	02:30	02:18
	N =	2473	2155	2379	2971	3481	1598	15058
Hazardous Materials		04:60	03:44	04:32	03:38	03:60	04:03	04:30
	N =	82	61	69	85	72	43	412
Investigation		03:60	04:16	04:20	04:30	04:33	03:60	04:19
	N =	1472	1667	1407	1654	2084	838	9129
Medical Response		01:16	01:25	01:34	01:28	01:25	01:29	01:27
	N =	2721	921	2495	4441	4815	2554	17969
Motor Vehicle Collision		00:52	00:44	00:43	00:50	00:53	01:00	00:50
	N =	1915	1485	1793	1887	1971	947	10023
Other		02:39	02:55	02:40	03:12	03:17	02:34	02:56
	N =	2860	2029	1948	2532	2760	1188	15910
Outside Fire		03:45	03:35	03:57	03:51	03:54	04:23	03:51
	N =	577	762	428	530	463	278	3038
Structure Fire		02:34	02:20	02:44	02:33	02:39	02:27	02:34
	N =	283	265	261	301	298	153	1563
Technical Rescue		04:51	04:44	05:44	05:28	04:60	04:10	05:10
	N =	103	64	81	93	114	58	513
Total (HRM Urban and Rural)		**02:37**	**02:54**	**02:42**	**02:41**	**02:43**	**02:33**	**02:42**
	N =	**12486**	**9409**	**10861**	**14494**	**16058**	**7657**	**70965**
Note: Call handing time of Medical Response is based on PASP time Only – EHS Conducts AMPDS caller screening.								

Table 30. Call handling time 90th percentile incident type

HRFE Call Handling Time (90th Percentile Time) Urban/Rural – Low/Medium/High Risk

HRM Urban/Rural Year		2019	2020	2021	2022	2023	2024 Jan – Jun	Total
HRM Urban	**Primary PSAP Call handling time**	02:08	02:20	02:14	02:03	02:04	02:06	**02:08**
	Fire Dispatch Call handling time	00:47	00:40	00:37	00:42	00:42	00:37	**00:41**
	Call handling time	02:49	02:53	02:46	02:44	02:44	02:39	**02:46**
	N =	8302	6968	8243	10520	11884	5626	**51543**
HRM Rural	**Primary PSAP Call handling time**	01:41	02:21	02:02	01:57	02:05	01:49	**01:58**
	Fire Dispatch Call handling time	00:34	00:39	00:35	00:37	00:40	00:32	**00:36**
	Call handling time	02:13	02:57	02:31	02:33	02:42	02:16	**02:32**
	N =	4184	2441	2618	3974	4174	2031	**19422**
Other	**Primary PSAP Call handling time**	01:37	02:04	02:03	01:54	02:06	01:50	**01:55**
	Fire Dispatch Call handling time	00:35	00:46	00:43	00:36	00:45	00:41	**00:41**
	Call handling time	02:10	02:46	02:36	02:25	02:39	02:23	**02:28**
	N =	520	234	305	526	616	449	**2650**
Total	**Primary PSAP Call handling time**	**02:02**	**02:20**	**02:11**	**02:02**	**02:05**	**02:03**	**02:06**
	Fire Dispatch Call handling time	**00:42**	**00:40**	**00:36**	**00:41**	**00:41**	**00:36**	**00:40**
	Call handling time	**02:38**	**02:54**	**02:42**	**02:41**	**02:43**	**02:33**	**02:42**
	N =	**13006**	**9643**	**11166**	**15020**	**16674**	**8106**	**73615**
Note: Call handing time of Medical Response is based on PASP time Only – EHS Conducts AMPDS caller screening.								

Table 31. Call handling time 90th percentile

Halifax Regional Fire & Emergency, Community Risk Assessment – Standards of Cover

HRFE Turnout Time First-in (90th Percentile Time) Urban/Rural – Low/Medium/High Risk

HRM Urban/Rural Coverage Staff Type Incident Type		2019	2020	2021	2022	2023	2024 Jan – Jun	Total
HRM Urban	False Alarm	02:29	02:31	02:35	02:37	02:32	02:28	**02:32**
		1790	1598	1846	2251	2663	1222	**N=11370**
	Hazardous Materials	02:20	02:46	02:31	02:32	02:19	02:26	**02:33**
		32	25	31	34	34	18	**N=174**
	Investigation	02:41	02:41	02:48	02:48	02:32	02:41	**02:41**
		539	525	501	585	729	349	**N=3228**
	Medical Response	02:20	02:36	02:52	02:49	02:44	02:47	**02:46**
		693	311	1170	2200	2448	1284	**N=8106**
	Motor Vehicle Collision	02:11	02:24	02:25	02:21	02:22	02:27	**02:22**
		1297	1038	1274	1318	1359	656	**N=6942**
	Other	02:24	02:29	02:39	02:35	02:32	02:31	**02:32**
		1118	965	977	1076	1237	584	**N=5957**
	Outside Fire	02:38	02:42	02:36	02:45	02:28	03:20	**02:42**
		112	94	83	95	112	58	**N=554**
	Structure Fire	02:46	02:59	02:52	02:59	02:44	02:48	**02:51**
		160	158	153	174	162	85	**N=892**
	Technical Rescue	02:51	02:59	03:11	02:14	02:32	02:26	**02:54**
		27	22	30	34	30	26	**N=169**
	Total	**02:27**	**02:32**	**02:39**	**02:40**	**02:34**	**02:35**	**02:35**
		5768	**4736**	**6065**	**7767**	**8774**	**4282**	**N=37392**
HRM Rural	False Alarm	09:45	09:45	09:35	09:57	08:56	09:58	**09:43**
		224	204	188	243	266	128	**N=1253**
	Hazardous Materials	09:44	07:19	00:17	09:45	07:23	05:45	**09:40**
		8	2	1	10	7	5	**N=33**
	Investigation	07:21	10:08	08:16	10:07	10:39	11:34	**10:06**
		97	115	97	132	205	68	**N=714**
	Medical Response	07:24	07:27	08:45	09:00	09:37	09:48	**08:44**
		1484	440	929	1581	1621	830	**N=6885**
	Motor Vehicle Collision	09:09	09:26	08:49	09:16	08:05	09:32	**09:02**
		311	248	306	306	314	161	**N=1646**
	Other	08:14	10:02	09:13	09:50	10:20	11:05	**09:46**
		435	248	200	250	205	89	**N=1427**
	Outside Fire	08:49	10:16	08:20	11:04	10:19	13:18	**10:12**
		108	100	70	93	97	43	**N=511**
	Structure Fire	09:59	08:50	11:56	11:38	10:09	12:15	**10:47**
		84	75	77	79	94	39	**N=448**
	Technical Rescue	10:37	04:52	06:38	08:24	03:24	09:16	**08:19**
		16	7	14	13	14	4	**N=68**
	Total	**08:17**	**09:15**	**09:06**	**09:23**	**09:42**	**10:05**	**09:11**
		2767	**1439**	**1882**	**2707**	**2823**	**1367**	**N=12985**

Table 32. Turn out time first due 90th percentile

HRFE Travel Time First-in (90th Percentile Time) Urban/Rural – Low/Medium/High Risk

HRM Urban/Rural Coverage Staff Type Incident Type		2019	2020	2021	2022	2023	2024 Jan – Jun	Total
HRM Urban	False Alarm	05:52	05:28	05:40	05:43	05:42	05:37	**05:41**
		1790	1598	1846	2251	2663	1222	**N=11370**
	Hazardous Materials	06:22	07:18	06:08	04:35	06:13	05:31	**06:15**
		32	25	31	34	34	18	**N=174**
	Investigation	05:60	06:05	05:21	06:11	06:18	06:45	**06:06**
		539	525	501	585	729	349	**N=3228**
	Medical Response	05:60	06:20	06:04	06:20	06:10	06:05	**06:10**
		693	311	1170	2200	2448	1284	**N=8106**
	Motor Vehicle Collision	06:28	06:15	06:15	06:34	06:34	06:36	**06:29**
		1297	1038	1274	1318	1359	656	**N=6942**
	Other	06:02	05:46	05:44	05:50	05:44	05:24	**05:48**
		1117	963	976	1076	1233	583	**N=5948**
	Outside Fire	06:50	07:07	07:46	06:33	07:18	07:46	**07:03**
		112	94	83	95	112	58	**N=554**
	Structure Fire	05:28	05:12	05:21	05:29	05:36	06:20	**05:29**
		160	158	153	174	162	85	**N=892**
	Technical Rescue	05:57	09:33	07:52	07:13	07:42	06:45	**07:35**
		27	22	30	34	30	26	**N=169**
	Total	**06:02**	**05:54**	**05:56**	**06:04**	**06:03**	**06:04**	**06:01**
		5767	**4734**	**6064**	**7767**	**8770**	**4281**	**N=37383**
HRM Rural	False Alarm	12:27	10:03	11:23	12:22	11:22	10:49	**11:23**
		224	204	188	243	266	128	**N=1253**
	Hazardous Materials	12:13	15:01	01:38	07:49	08:43	05:03	**11:19**
		8	2	1	10	7	5	**N=33**
	Investigation	13:41	12:01	10:59	13:12	13:40	12:56	**13:15**
		97	115	97	132	205	68	**N=714**
	Medical Response	10:26	10:09	12:28	11:10	11:36	10:59	**11:19**
		1484	440	929	1581	1621	830	**N=6885**
	Motor Vehicle Collision	10:53	09:47	10:35	11:04	10:51	11:43	**10:44**
		311	248	306	306	314	161	**N=1646**
	Other	10:48	11:59	13:53	13:60	14:01	15:44	**12:51**
		435	248	200	249	203	89	**N=1424**
	Outside Fire	13:15	11:45	10:59	13:08	10:32	12:58	**12:28**
		108	100	70	93	97	43	**N=511**
	Structure Fire	11:24	10:39	11:45	12:27	11:54	11:55	**11:45**
		84	75	77	79	94	39	**N=448**
	Technical Rescue	10:41	10:11	20:40	20:04	20:07	05:31	**19:24**
		16	7	14	13	14	4	**N=68**
	Total	**10:54**	**10:49**	**12:10**	**11:57**	**11:51**	**11:34**	**11:36**
		2767	**1439**	**1882**	**2706**	**2821**	**1367**	**N=12982**

Table 33. Travel time first due 90th percentile

90th Percentile Times – Baseline Performance – Low, Medium, High Risk - Fires & Medical			2019	2020	2021	2022	2023	2024 Jan – Jun	Total
Primary PSAP Call handling time									
		Target NA	02:01	02:20	02:10	02:02	02:05	02:02	02:06
		N = Event Count	13,006	9,643	11,166	15,02	16,674	8,106	73,615
Fire Dispatch Call handling time									
		Target NA	00:42	00:40	00:37	00:40	00:41	00:36	00:40
		N = Event Count	13,006	9,643	11,166	15,02	16,674	8,106	73,615
Call Processing Time									
		Target 01:30	02:37	02:54	02:42	02:41	02:43	02:33	02:42
		N = Event Count	13,006	9,643	11,166	15,02	16,674	8,106	73,615
Turnout Time – First Dispatched									
	Career	**Fire** Target 01:30	03:40	04:01	03:54	03:44	03:43	03:31	03:46
		N = Event Count	2,967	2,972	2,888	3,258	2,910	1,805	16,800
		Medical Target 01:00	02:20	02:37	02:57	02:51	02:46	02:47	02:47
		N = Event Count	1,701	687	1,932	3,142	3,397	1,888	12,747
		Other Target NA	02:34	02:39	02:45	02:42	02:40	02:38	02:40
		N = Event Count	6,266	5,614	5,950	6,866	8,214	3,773	36,683
	Volunteer	Target 06:00	11:36	12:58	12:39	12:23	12:30	13:04	12:30
		N = Event Count	1,882	1,313	1,425	1,726	1,872	908	9,126
Travel Time, First-In									
	Urban	Target 08:00	06:02	05:54	05:56	06:04	06:03	06:04	06:01
		N = Event Count	5,767	4,734	6,065	7,766	8,770	4,281	37,383
	Rural	Target 10:00	10:54	10:49	12:10	11:57	11:51	11:34	11:35
		N = Event Count	2,767	1,439	1,882	2,706	2,821	1,367	12,982
Travel Time, ERF – Fire (HRM Urban)									
	Urban	Target 08:00	11:14	12:34	11:03	11:30	10:56	11:29	11:33
		N = Event Count	207	182	183	224	195	133	1124
	Rural	Target NA	-	-	-	-	-	-	-
		N = Event Count	-	-	-	-	-	-	-
Total Response Time, First-In									
Urban	**Fire**	Target 08:00	08:54	09:13	09:14	09:27	09:28	09:16	09:15
		N = Event Count	401	376	388	437	366	219	2,187
	Medical	Target 07:30	09:01	09:04	09:12	09:26	09:14	09:16	09:16
		N = Event Count	765	335	1,258	2,184	2,448	1,329	8,319
	Other	Target NA	09:44	09:27	09:23	09:36	09:47	09:42	09:37
		N = Event Count	4,601	4,023	4,419	5,145	5,956	2,733	26,877
Rural	**Career / E Platoon**	**Fire** Target 13:00	14:36	14:15	17:21	15:09	13:29	13:26	14:24
		N = Event Count	20	29	21	22	26	14	132
		Medical Target 12:30	11:37	11:44	14:08	13:37	12:47	12:49	12:55
		N = Event Count	373	150	252	435	384	205	1,799
		Other Target NA	13:06	13:47	14:34	15:55	14:30	16:09	14:27
		N = Event Count	245	246	270	318	344	172	1,595
	Volunteer	Target 17:30	19:59	21:26	21:57	22:24	21:48	21:33	21:31
		N = Event Count	2,125	1,001	1,331	1,914	2,060	976	9,407
Total Response Time, ERF – Fire (HRM Urban)									
		Target 11:00	17:03	17:29	15:43	15:42	16:05	15:49	16:03
		N = Event Count	207	182	183	224	195	133	1124
Table 34. Baseline performance 90th percentile									

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Current Effective Response Force Coverage

The ability for HRFE to deliver an effective response force (ERF) [Note: terminology used internally for budget reporting continues to utilize the former Effective Firefighting Force – EFF, and for the purpose of the CRA-SOC are considered equal in presentation of published departmental statistics] is considered the most significant and priority risk for HRFE when considering systemic improvements. Prior to 2018 a formal methodology for determining optimal deployment coverage and critical task analysis was not utilized. In 2018 a consultant report was commissioned to assess the current stat of HRFE's system and make recommendations for initial considerations for improvement. The key recommendation from the report was the implementation of the council administrative order to define the authority having jurisdiction's service levels where the concept of emergency response time targets (ERTT) and effective response force were introduces and adopted for structure fires in the urban areas of HRM.
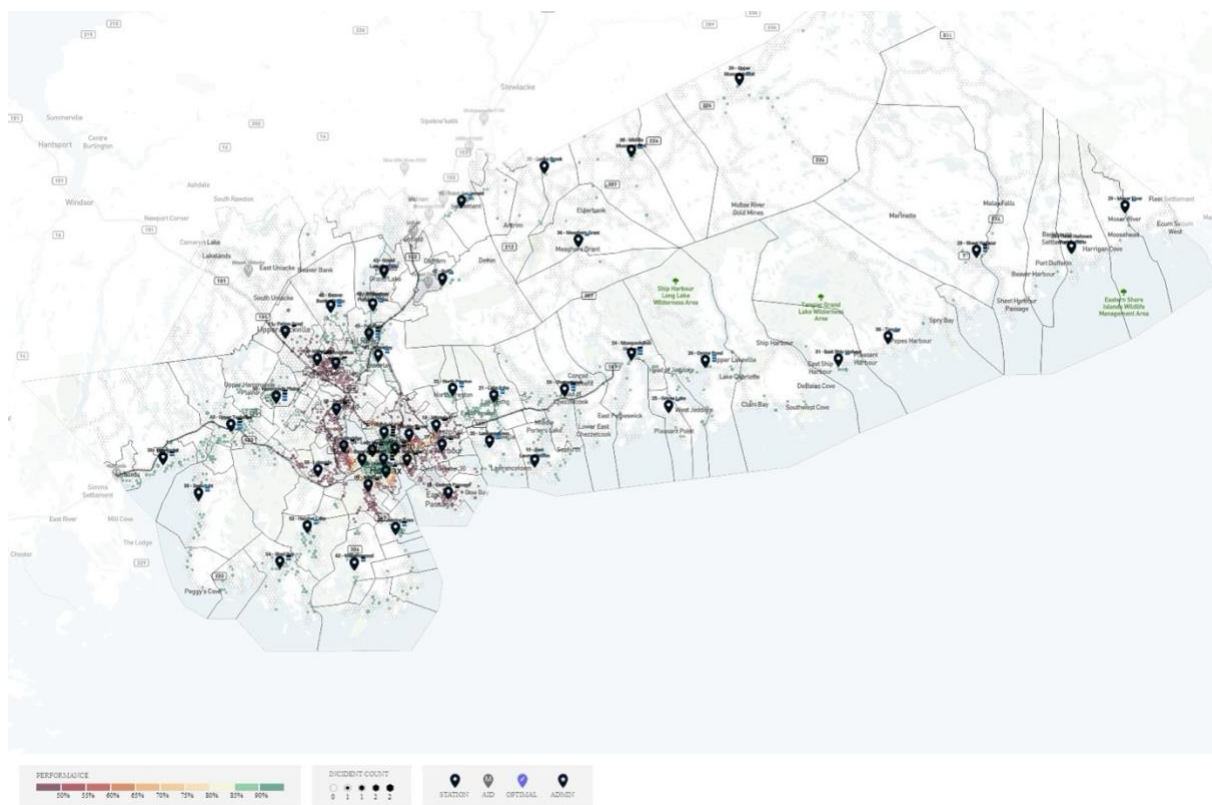
Figure 28. Station planning predictive analytics ERF distribution

Post amalgamation in the late 1990's HRFE saw the reduction of service levels primarily to the former municipalities of Halifax, Dartmouth, and Bedford that provided career staffed service. Multi-apparatus stations were reduced to shift staffing to suburban and rural areas with generally two firefighters per apparatus during weekday hours to offset the influx of volunteers working day jobs in the city. Over the two decades prior to 2018 HRFE struggled to improve overall staffing levels that would contribute to ERF with the primary focus on establishing a standard of four firefighters per apparatus, therefore only slow movement addressing depth of response towards ERF.

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Following the consultant report and subsequent introduction of the council administrative order defining service levels and response targets HRFE began implementing means to track metrics for the key performance indicator of ERTT and its component performance indicators, and the ERF. While this was a significant advancement, the implementation focused on what is now categorized as of 2024 as a moderate-risk fire suppression event with an ERF of fourteen in eleven minutes. Due to the COVID-19 pandemic, much of this work came to a halt and no further metrics were designated and introduced during that time.

Analysis of community fire risk shows that most structure fires, fire injury and death in HRM occurs in this category of fire. The resulting data analysis of HRFE's ERTT and ERF for demonstrates that an ERF of 14 can be met only about 60% of the time in the urban response areas. This has been essentially unchanged since implementation with an (N) value that does not allow for reliable statistical significance with a minimal change in percentage of success when presented in this manner. The actual 90th percentile number paints a better picture for analysis showing that despite adding resources, considering significant immigration to Halifax; community growth; increased traffic and congestion; and increased overall call volume there is very little change year over year in meeting the targets and the component metrics with the largest potential for impact are currently the call handling time and turn out times.
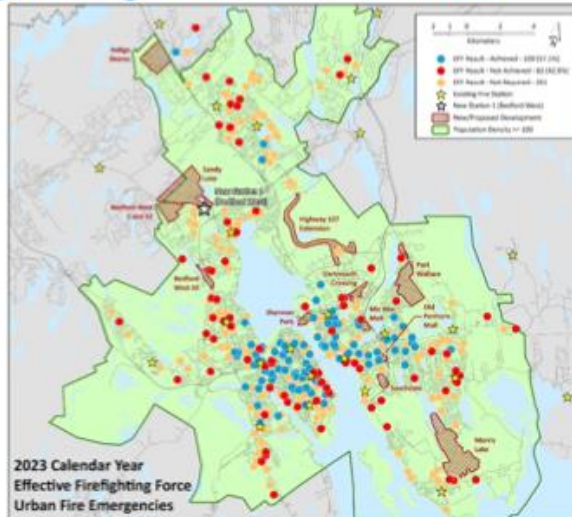
Figure 29. 2023 ERF target performance urban

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Effective Firefighting Force (14 firefighters) within 11 minutes – 2020 to 2023 Results
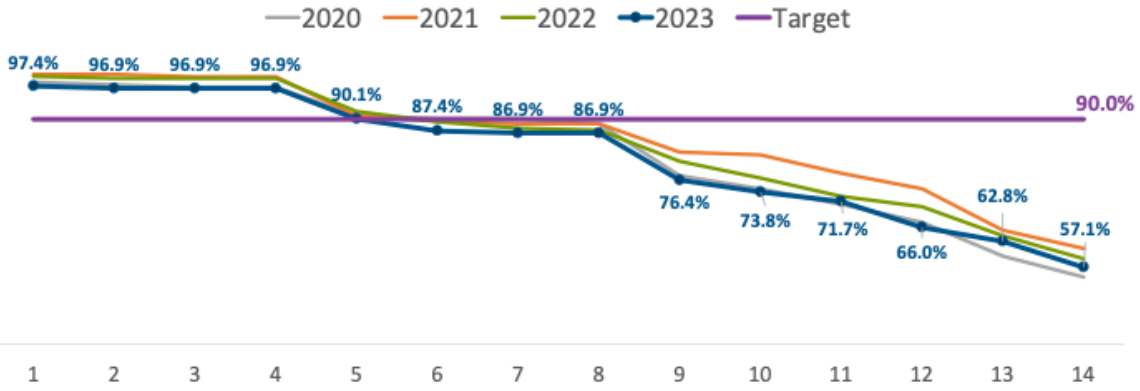
Figure 30. 2020-2023 ERF trend target performance

The above chart demonstrates that HRFE's 90% reliability currently only exist for the first unit meeting the 11-minute ERF target, and the second unit being close. With current call handling average close to 2.5 minutes, turn out time close to 2.5 minutes, and prime station areas with a drive time of 5 minutes, there is little buffer for neighbouring stations to make an 11-minute ERF. To achieve this ERF more depth of response is needed.
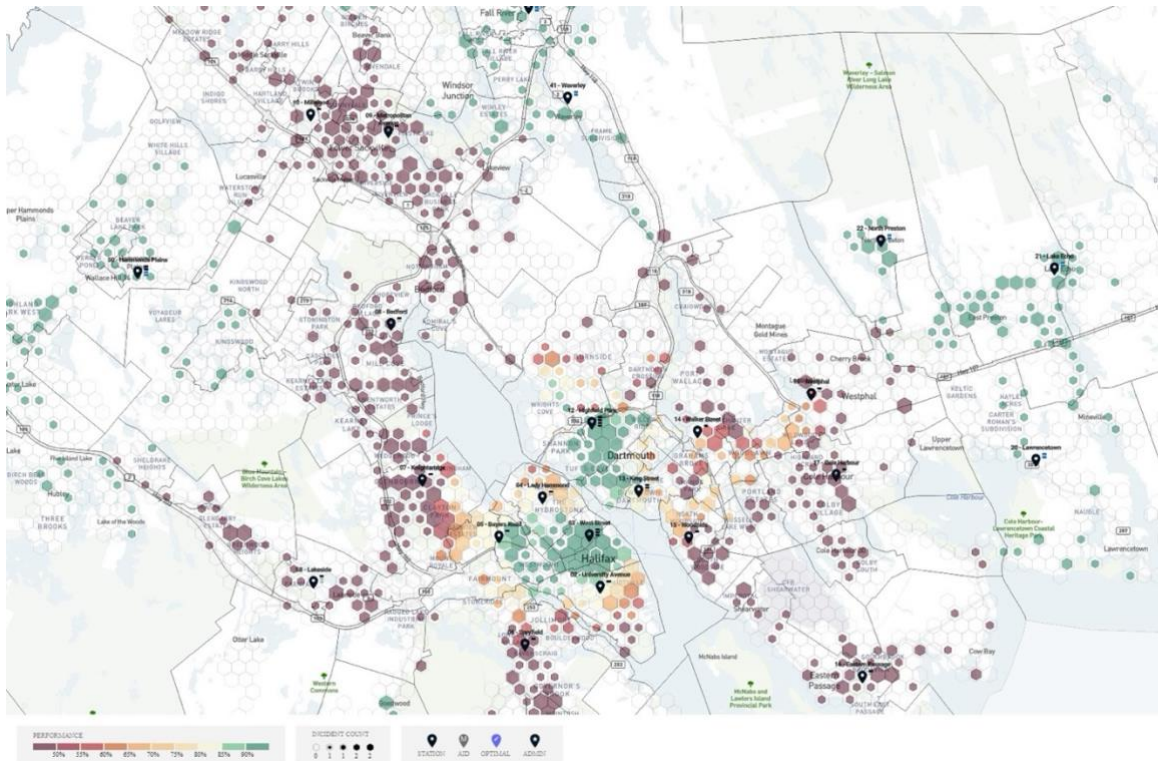
Figure 31. Predictive analytics ERF performance

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Updated Deployment and Standards of Cover 2024-2025

Critical Tasking

HRFE has not traditionally utilized the critical tasking model. As a result, the benchmark statements are based on historical operations and data collection with a major update underway to define new modernized critical tasking and benchmarks based on a combination of community risk, geography, NFPA standards, industry research and practices, and internal data analysis as outlined in this section.

HRFE's all-hazards risk assessment identifies areas within the HRM that are at the highest risk for incidents such as fires, medical emergencies, technical rescues, water rescue, wildfire, and hazardous material situations, as well as those areas with typically lower and moderate risks. HRFE's new critical tasking process identifies the necessary resources to address these specific risks, enabling the department to prepare for effective emergency responses by deploying the appropriate apparatus, equipment, and personnel; and will require an overhaul of the current call-taking and CAD programming for resource recommendations.

The alignment of risks, critical tasks, and dispatched personnel is designed to deliver a targeted and effective initial response, tailored to the type of emergency and the risk classification associated with the incident. Critical tasks are focused on ensuring life safety, stabilizing incidents, and protecting property and the environment. This approach considers the most common and likely actions required during emergency operations, recognizing that tasks depend on various factors, including the potential risk level of the incident. It is essential that all responding personnel are well-versed in these critical tasks to ensure a swift, precise, efficient, and effective use of resources. Initial actions commence with the first arriving team and continue in sequence or parallel until tasks are completed or additional resources arrive. Some tasks require simultaneous completion, and personnel may be reassigned once their initial tasks are finished.

Critical tasking has been developed for six categories of incidents and risk classifications: fire suppression, medical response, technical rescue/water rescue, hazardous materials, and wildland firefighting incidents. Using a critical tasking risk matrix, HRFE has reviewed its critical tasking to ensure its capabilities align with the demands posed by the risk, type, and level of service required and HRFE's current staffing capabilities with a view to continuous improvement. Additionally, HRFE has defined where the risk classification hands over from the all-hazards high-risk response to the broader scale emergency management approach using the Major Emergency Response Plan (MERP) incorporated into the wider HRM emergency management system.

Subject-matter experts and senior staff collaborated to determine response plans and apparatus deployment protocols based on the critical tasks needed within the ERF targets of an event. Next steps, include review and confirmation of critical tasking integrated into regular operation guidelines and officer training, and the implementation of a deployment working group occurring with district chiefs' meetings.

HRFE relies on the experience, knowledge, training, and professional judgment of company and chief officers to request additional resources during an incident. Training is a crucial element of an effective response, enabling crews to perform all tasks promptly and proficiently. Through individual and multi-

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company performance-based measurements, practical skill assessments, and evaluations, HRFE ensures that all personnel have the necessary training to carry out their assigned tasks.

Fire Suppression Critical Tasking

Fires represent a crucial service area and can pose a significant risk to lives and property. Critical tasking during fire suppression incidents involves assigning tasks to firefighting personnel that may need to be executed swiftly, depending on the nature of the incident, to protect life, property, the environment, and to extinguish the fire. It is essential for fire personnel and equipment to arrive promptly, as fires can spread rapidly.

Research by the Underwriters Laboratory shows that the rate of flashover in modern homes is eight times faster than it was 50 years ago, with evidence indicating that today's homes can reach flashover in as little as 90 seconds (NFPA 921). According to the National Fire Protection Agency (NFPA), the likelihood of civilian death increases by 1,090 percent when a fire extends beyond the room of origin, and the probability of civilian injury and average financial loss per fire more than doubles. Within HRM, the probability of civilian death can increase by 243 percent when a fire spreads beyond the room of origin, and under similar circumstances, the financial loss due to fire increases by 1,736 percent.

As highlighted in the National Institute of Standards and Technologies Report on Residential Fireground Field Experiments (2010), the size of the crew directly impacts the ability to initiate and complete critical tasks to manage the incident. In fire suppression incidents, this is particularly crucial for life safety when considering the time versus products of combustion.

Firefighters are comprehensively trained and participate in ongoing training activities throughout the year to ensure readiness to respond to various fire scenarios, including residential, high-rise, commercial, industrial, and wildland-urban interface fires. All initial arriving units are equipped to establish initial incident command and commence the critical tasks identified for all scales of fire suppression incidents, executing operations in line with standard operating guidelines while ensuring the safety of both firefighters and the public.

Low-Risk Fire Suppression Incidents

Low-risk fire suppression incidents require HRFE intervention to achieve incident mitigation and stabilization. Typically, a low-risk fire suppression incident will be attended with a single apparatus resource, are minor in intensity and magnitude, and will have low impact on the system and community. Examples include vehicle fires >3m from a structure or extinguished, contained appliance fires, controlled burning complaints, outside fire investigations, catalogued alarm notifications, alarm investigation single source no secondary indicator.

Medium-Fire Suppression Incidents

Medium-risk fire suppression incidents require HRFE intervention to achieve incident mitigation and stabilization as well as property protection. Examples include alarm bells with secondary indicator, institutional alarms, structure fires including single family residence, garage, shed/out building, outside fires not controlled.

High-Risk Fire Suppression Incidents

High-risk fire suppression incidents require HRFE resources for substantial risk and/or extended periods of time placing strain the overall system capabilities. Examples include industrial/commercial and

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institutional fires, explosions, threats to fuel and chemical storage, confirmed high-rise fires, train/rail/shipboard commercial fires.

Major Fire Suppression Incidents (MERP)

Major fire suppression incidents are those that elevate to Emergency Management for HRM including those that exceed the available capacity of HRFE on daily shift, multi day, and/or affect a large population base or vulnerable/at-risk population, as well as a high-rise/multi-residential fire not contained to a single unit. Major fire incidents can include large explosions, mass occupancy event structures, and major risk such as military base munitions depots.

Fire Suppresion - Urban	Low Risk			Medium Risk			High Risk		
	Critical Tasking	Resources	Deployed	Critical Tasking	Resources	Staff Deployed	Critical Tasking	Resources	Staff Deployed
Critical Tasking	Deployment Model			Deployment Model			Deployment Model		
Incident Command (IC)	1	1 E	4	1	3 E	12	1	6 E	24
Scene Assessment (360)***		2nd closest unit	2-4		1 A	2		2 A	4
Engine/Pump Operations (OPS)	1			1	1 DC	1	2	2 DC	2
Forceable Entry***					1 TCT	2		1 TCT	2
Fire Attack	2			3	1 PC	1	3	1 PC	1
Ventilation/Utilities***								1 On-Call Senior Officer	1
Salvage/Overhaul***									
Accountability				1			1		
Air Supply***							1		
Water Supply							1		
Backup Attack Line				2			3		
Search & Rescue***									
Rapid Intervention Team (RIT)				3			3		
Incident Safety Officer				1			1		
Staging Officer							1		
Chief Officer/Senior Advisor							1		
Tactical Reserve				2			12		
Evacuation***									
Exposures							4		
	4	1-2	6-8	14	7	18	34	13	34
***Personnel perform primary role and then transition to secondary role	Totals			Totals			Totals		
	(low prob/cons)			(high prob/low cons)			(low prob/high cons)		
	vehicle fire >3m from structure			vehicle fire <3m of structure			vehicle fire w/multiple exposures or explosion		
	vehicle fire extinguished			vehicle fire persistant			confirmed fire - train, rail, shipboard		
	contained appliance fires			structure fire - residential single family no exposures			structure fire - highrise, industrial, commercial, institutional		
	controlled burning complaints			outbuilding fire <3m from structure			threat to fuel and chemical storage		
	outside fire investigations			outside fire confirmed					
	alarm activated - single source, catalogued			alarm activated - multiple source, institutional					

Table 35. Fire suppression urban critical tasking

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Fire Suppression - Rural	Low Risk			Medium Risk			High Risk		
	Critical Tasking	Resources	Staff Deployed	Critical Tasking	Resources	Staff Deployed	Critical Tasking	Resources	Staff Deployed
Critical Tasking	Deployment Model			Deployment Model			Deployment Model		
Incident Command (IC)	1	1 E	4	1	3 E	12	1	3 E	12
Scene Assessment (360)***		2nd closest unit	2-4		5 T	5-10		5 T	5-10
Engine/Pump Operations (OPS)	1			1	1 DC	1	2	2 DC	2
Forceable Entry***					1 TCT	2		1 TCT	2
Fire Attack	2			3	1 PC	1	3	1 PC	1
Ventilation/Utilities***								1 On-Call Senior Officer	1
Salvage/Overhaul***									
Accountability				1			1		
Water Supply							4		
Backup Attack Line							3		
Search & Rescue***				2					
Rapid Intervention Team (RIT)							3		
Incident Safety Officer				3			1		
Staging Officer				1			1		
Chief Officer/Senior Advisor							1		
Tactical Reserve							3		
Evacuation***				2					
Exposures									
	4	1-2	6-8	14	11	21-26	23	13	23-28
***Personnel perform primary role and then transition to secondary role	Totals			Totals			Totals		
	(low prob/cons)			(high prob/low cons)			(low prob/high cons)		
	vehicle fire >3m from structure			vehicle fire <3m of structure			vehicle fire w/multiple exposures or explosion		
	vehicle fire extinguished			vehicle fire persistant			confirmed fire - train, rail, shipboard		
	contained appliance fires			structure fire - residential single family no exposures			structure fire - highrise, industrial, commercial, institutional		
	controlled burning complaints			outbuilding fire <3m from structure			threat to fuel and chemical storage		
	outside fire investigations			outside fire confirmed					
	alarm activated - single source, catalogued			alarm activated - multiple source, institutional					

Table 36. Fire suppression rural critical tasking

Emergency Medical Incidents and Critical Tasking

Deployment to medical incidents in the Halifax Regional Municipality is managed through the province of Nova Scotia Department of Health and Wellness, Emergency Health Services (NS EHS) HRM's Integrated Emergency Services Dispatch Centre (IES) is the primary service answering point (PSAP) for emergency and non-emergency call answering, who will then transfer medical related calls to NS EHS communication centre who uses the Advanced Medical Priority Dispatch (AMPDS) protocols from Priority Dispatch to screen and triage calls determining the requirement for Fire Service Medical Response. These protocols facilitate rapid, over-the-phone triaging of medical events by assessing severity and chief complaints through predetermined questions. This process is outside of the control and scope of HRFE, and we work on a partnership basis as a Medical First Response agency with NS EHS. Therefore, HRFE does not currently have access to call handling triage and prioritization times for our medical responses.

HRFE's deployment model involves co-responding with emergency medical services to life-threatening, time-sensitive medical calls and multi-casualty incidents. HRFE currently provides basic life support, collects vital signs, stabilizes the scene, and triages patients until the arrival of emergency medical services. All responding fire apparatus are equipped with an automated external defibrillator and a basic life support trauma bag, which includes the necessary equipment for c-spine control, airway and oxygen management, bleeding control, naloxone administration, and obstetrics response.

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All firefighters are trained to at least the medical first responder (MFR) level, based on identified competencies and delivered through HRFE's internal MFR program approved by NS EHS, and can establish initial incident command and initiating the critical tasks required for these incidents. HRFE's ERF for medical is therefore currently assessed at a single risk level, and the same benchmark for ERTT and ERF being MFR arrival to patient location, while HRFE begins to redefine data governance to broaden medical outcome/disposition coding in the RMS to better capture risk stratification.

Major Medical Event Response (MERP)

A Major medical event response may be required if such an event occurs that is a mixed incident type or overwhelms the resources of the provincial medical and EHS system activating Emergency Management. Examples of Major medical events that would activate the medical section of the Major Event Response Plan may include Pandemics, terrorist or mass casualty incidents of a nature creating large volumes of patients or victims, events affecting food or water supply causing widespread population illness.

Medical - Ruban/Rural	Low Risk			Medium Risk			High Risk		
	Critical Tasiking	Resources	Staff Deployed	Critical Tasiking	Resources	Staff Deployed	Critical Tasiking	Resources	Staff Deployed
Critical Tasking	Deployment Model			Deployment Model			Deployment Model		
Incident Command/Communication	1	Closest Unit	2-4	1	Cosest Unit	2-4	1	Closest Unit	2-4
Driver/Pump Operator									
Firefighter/Technical									
Firefighter/Patient Care	1			1			1		
Lock Out/Tag Out***									
Patient Care***									
Incident Safety Officer									
Tools/Equipment									
Tactical Reserve									
	2	1	2-4	2	1	2-4	2	1	2-4
***Personnel perform primary role and then transition to secondary role	Totals			Totals			Totals		
	(low prob/cons)			(high prob/low cons)			(low prob/high cons)		
	MFR Standard 911 Request			Industrial Accident Temporary Shelter OD			Vehicle vs Pedestrian Struck		

Table 37. Medical Incident critical tasking

Technical Rescue Incidents and Critical Tasking

HRFE employs multiple disciplines for technical rescue teams: Water and Ice rescue and technical rescue. All firefighters receive introductory training and awareness in various rescue techniques and can establish initial incident command and initiating critical tasks until the arrival of specialized technical team members. Technical rescue teams are dispatched for known specialized rescue calls currently at dispatcher discretion and may also be called upon after the first unit arrives on the scene and identifies the need for specialized rescue. The introduction of the new risk based model and critical tasking will result in the implementation of updated call screening and dispatch resource deployment recommendations.

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Technical rescue team members and stations have apparatus equipped with tools and materials to support the response level outlined in the National Fire Protection Association (NFPA) 1006 and NFPA 1670 standards, covering rope rescue, structural collapse, confined space rescue, and trench collapse. HRFE is currently updating and enhancing our program to a fully equipped, trained, and staffed marine rescue team at the advanced technician level, which includes surface rescue specialists, boat operators, and swift water personnel. Two stations are equipped and trained to operate Fire Boat 1 for harbour and oceanic operations, and there are distributed inflatable boat, and a dedicated boat tow vehicles for surface rescue operations.

Low-Risk Technical Rescue Incidents

Low-risk technical/water rescue incidents are capable of mitigation by the first-due responding apparatus and typically do not require risk to the responding members. Examples include motor vehicle collisions for standard passenger vehicles, and investigations of unconfirmed technical events including high angle, confined space, structural collapse, spotting of empty watercraft, elevator entrapment with no critical risk to occupants and no access to elevator shaft.

Medium-Risk Technical Rescue Incidents

Medium-risk technical/water rescue incidents have an element of active mitigation and intervention that requires specialized tools or presents risk to the members carrying out the tasks but does not require a full technical rescue team response. This can be carried out by the first due apparatus and the addition of additional crew members with operations level training and additional equipment. Examples include low slopes, shore-based water assistance, large commercial vehicle/bus extrication, water access fire suppression activities, stagnant shallow flood water, waterside exposure fire suppression, medical patient in remote location.

High-Risk Technical Rescue Incidents

High-risk technical/water rescue incidents require the deployment of fully staff and equipment technical or water rescue teams. HRFE disperses the full teams across several stations therefore requiring multiple station response to make up a complete technician level response. Examples include confined space, high-angle, crane rescue, major commercial equipment or vehicle extrication such as manufacturing equipment, rail, port/shipping dock, oceanic vessel, structural collapse with victim(s), trench rescue, submerged vehicle with victim, distressed sinking vessel, shipboard fire, victim in water.

Major Technical Event Response (MERP)

HRFE operates the CAN Task Force 5 USAR team in partnership with Public Safety Canada. In the event of a major incident requiring specialty technical rescue services on a large scale, HRFE would provide an initial response to the High-Risk level and activate a partial local or approved CAN-TF5 deployment.

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Technical Rescue - Urban/Rural	Low Risk			Medium Risk			High Risk		
	Critical Tasking	Resources	Staff Deployed	Crticial Tasking	Resources	Staff Deployed	Crticical Taslking	Resources	Staff Deployed
Critical Tasking	Deployment Model			Deployment Model			Deployment Model		
Incident Command (IC)	1	1 E	4	1	1 E	4	1	1 E	4
Scene Assessment (360)***		2nd closest unit	2-4		2nd closest unit	4		2nd closest unit	4
Scene Stabilization	2			2	1 E(Tech)	4	1	1 E (Tech Team)	4
Fire Attack				1	1 HR/A	2	1	1 HR/A	2
Water Supply				1	1 DC	1	1	1 DC	1
Lock Out/Tag Out***					1 PC	1		1 PC	1
Tools/Hydraulics***								1 TCT	2
Patient Care	1			1			1	1 On-Call Senior Officer	1
Incident Safety Officer				1			1	1 TRENCH	2
Technical Safety Officer				1			1	1 Q (Tech Team)	2
Rescue Group Leader				1					
Rescuer 1				1			1		
Rescuer 2				1			1		
Edge 1							1		
Edge 2/ Control							1		
Rigger 1							1		
Rigger 2							1		
Haul Team Lead							1		
Assist/Haul Asst #1							1		
Assist/Haul Asst #2							1		
Haul Asst #3							1		
Haul Asst #4							1		
Haul Asst #5									
Haul Asst #6									
Tactical Reserve				4					
	4	1-2	6-8	15	6	16	18	10	23
***Personnel perform primary role and then transition to secondary role	Totals			Totals			Totals		
	(low prob/cons)			(high prob/low cons)			(low prob/high cons)		

Low Risk (low prob/cons):
- elevator access
- entrapment non-life threatening
- investigation/uncomfirmed
- ring removal

Medium Risk (high prob/low cons):
- construction site - patient extraction light rescue
- elevator access & rescue
- GSAR remove/rescue support
- large vehicle/mass occupant extrication
- medical rescue remote location
- rescue at height
- shore based water rescue
- stagnent flood water rescue
- train derailment, cargo crash
- water access fire suppression

High Risk (low prob/high cons):
- airport extrication/resce
- confined space rescue
- construction site - low infrasturcture difficult extracations or multiple patients
- crane & tower rescue
- elevator access & rescue multiple victims
- GSAR remote access rescue
- high angle rope rescue (rope team of 10)
- large vehicle/possible mass caualty
- major industrial/commercial equipment
- oceanic vessel
- rescue at height >10
- shipboard
- structural collapse
- train derailment mass casualty
- trench
- water rescue

Table 38. Technical rescue critical tasking

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Water/Ice Rescue - Urban/Rural	Low Risk			Medium Risk			High Risk		
	Critical Tasking	Resources	Staff Deployed	Crticial Tasking	Resources	Staff Deployed	Crticical Taslking	Resources	Staff Deployed
Critical Tasking	Deployment Model			Deployment Model			Deployment Model		
Incident Command (IC)	1	1 E	4	1	1 E	4	1	1 E	4
Scene Assessment (360)***		2nd closest unit	2-4		Utility + Boat	4		2nd E or FireBoat	4
Scene Stabilization					1 PC	1		1 E (Water Tech)	4
Boat Operator				1	1DC	1	1	1 U + Boat	2
Navigator/Spotter				1			1	1 DC	1
Patient Care								1 PC	1
Incident Safety Officer				1			1	1 TCT	2
Technical Safety Officer	1			1			1	On-Call Senior Officer	1
Rescue Group Leader									
Rescuer 1	1			1			1		
Rescuer 2	1			1			1		
Rigger 1							1		
Rigger 2							1		
Haul Team Lead									
Assist/Haul Asst #1									
Assist/Haul Asst #2									
Haul Asst #3									
Haul Asst #4									
Tactical Reserve				3			3		
	4	1-2	6-8	10	4	10	12	10	19
***Personnel perform primary role and then transition to secondary role	Totals			Totals			Totals		
	(low prob/cons)			(high prob/low cons)			(low prob/high cons)		
	Shore based access			Lost person in watter investigation			Harbour Water Incident		
	No water entry			Boat No person investigation			Bridge Jumper		
	investigation/uncomfirmed			Car in water			Boat Accident		
	Swimiing Pool			Shore based water rescue			Fast moving flood waters		
	Shallow water below waiste			Stagnant flood waters			Swift water		
				Water access to island			Ice Rescue		
				Water access to dry rescue			Boat Fire		
							Building Fire Water side exposure		
							Fire on island/water access		

Table 39. Water/Ice/Marine incident critical tasking

Hazardous Materials Incidents and Critical Tasking

All HRFE firefighters are certified to hazardous materials operations level and capable of establishing initial incident command, incident size up, and initiating critical tasks for all hazardous materials incidents and risk levels. If the incident is of moderate level a hazardous materials response unit is deployed, and if the incident is a high-risk level a full hazardous materials team response is deployed.

Low-Risk Hazardous Materials Incidents

Low-risk hazardous materials incidents are mitigated by HRFE with the first due responding engine to the scene to stabilize the incident, protect property and the environment and provide medical first response to a patient that is not within a hot zone or grossly contaminated in any way. Low risk hazardous materials incident examples include fuel and fluid clean up at motor vehicle collisions, small fuel leaks, gas leaks outside residential lines, odour complaints and investigations in residences, and contained hazardous materials substance investigations.

Medium-Risk Hazardous Materials Incidents

Medium-risk hazardous materials incidents require the addition of trained hazardous materials technician knowledge and/or specialized equipment, but not necessarily an entire team deployment to stabilize the incident, protect property and the environment, or provide medical first response or patient care. The addition of trained team members can ensure the incident does not escalate and protect the safety of HRFE members. Examples of moderate risk incidence include gas leaks and odour

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complaints and investigation in commercial, industrial, or institutional facilities, multi-residential buildings, large fuel spills, suspicious packages, and contained hazardous waste in or near waterways.

High-Risk Hazardous Materials Incidents

High-risk hazardous materials incidents for HRFE are classified based on the risk HRFE members in mitigating the incident and/or the risk to the public at large and the environment should the hazardous materials not be mitigated and contained in a timely manner. Examples include high risk and high-life hazard environments typically found within industrial, commercial, and institutional environments as well as the sea and airports, transport trucks and rail, and environments of high complexity potentially exposing large numbers of citizens requiring evacuation.

Major Hazardous Materials Event Response (MERP)

Major hazardous materials events are those that require resources beyond the daily capacity of HRFE and typically institute an emergency management response and opening of an EOC, with large scale public communication. Examples of Major hazardous materials events would include chemical, biological, radiological, nuclear, white powder, and explosives as a threat or large-scale incident with maximal risk to the community and responders. These incidents are likely to be longer time frames and require multiple agencies and levels of government involvement.

Critical Tasking	Low Risk			Medium Risk			High Risk		
	Critical Taslking	Resources	Staff Deployed	Critical Taslking	Resources	Staff Deployed	Critical Taslking	Resources	Staff Deployed
Critical Tasking	Deployment Model			Deployment Model			Deployment Model		
Incident Command/Communication	1	1 E	4	1	1 E	4	1	2 E	4
Driver/Pump Operator	1			1	1 Hazmat E	4	1	2 Hazmat E/Q	8
Firefighter/Technical	1			1	1 Hazmat TCT	2	1	1 Hazmat TCT	2
Firefighter/Patient Care	1			1	1 PC	1	1	1 PC	1
Patient Care***					1 DC	1		1 DC	1
Incident Safety Officer							1	1 Senior Officer	1
Technical Safety Officer				1			1		
HAZMAT Group Leader/Researcher				1			2		
HAZMAT TECH Entry Team 1				1			2		
HAZMAT TECH Entry Team 2				2			2		
HAZ-RIT									
Tactical Reserve							2		
				1					
	4	1	4	10	5	12	14	1-2	17
***Personnel perform primary role and then transition to secondary role	Totals			Totals			Totals		
	(low prob/cons)			(high prob/low cons)			(low prob/high cons)		
	-CO investigation			-chemical spill			-CBRNE events		
	-contained HAZMAT investigation			-CO investigation			-chemical spill		
	-liquid hydrocarbon <50L			contained harzardous material substance call			-CO investigation		
	-MVC fuel/fluid spill			fuel spill >50L			-confirmed hazardouse fluid spill		
	-Odour investigation (single source)			-liquid hydrocabon >50L			-fuel spill = 55 USG		
				-lithium-ion battery failure - small i.e. scooter?			-gas leaks and odour complaints		
				-LPG/CNG outside residential lines			-liquid hydrocarbon = 55 USG		
				-natural gas leak			-lithium ion battery bus/vehicle		
				-Radiation small source			-LNG/LPG/CNG outside residential lines		
				-suspicious odour			-radiation (large source)		
				-unidentified fluid spill rail, port			-suspicious odour		
							-uncontained HAZMAT substance call		

Table 40. Hazardous material incident critical tasking

Wildfire Incidents and Critical Tasking

All HRFE firefighting crews can establish initial incident command and initiating the critical tasks for all wildland fire responses and risk levels. If the incident type is moderate or higher risk the new wildfire

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mitigation strategy will include specialized wildfire trailer modules consisting of additional pumps, wildland hose, and residential protection systems.

Low-Risk Wildfire Incidents

Low-risk wildfire suppression incidents require HRFE to achieve fire containment and stabilization. Low risk wildfire suppression incidents are generally handles with a single resource being minor in intensity and potential for spread. Examples include outside fire investigations, controlled bun complaints during no-burn periods, and small brush/grass fire in well-defined and contained areas.

Medium-Risk Wildfire Incidents

Medium-risk wildfire suppression incidents require HRFE to achieve fire containment and stabilization prevent property damage and protect the environment and may require support from the Nova Scotia Department of Natural Resources and Renewables as the lead agency dependent on location in HRM. Examples include outside fires where lives and property are in the path and may be threatened by brush/grass fires and near structures or the wildland urban interface (WUI).

High-Risk Wildfire Incidents

High-risk wildfire suppression incidents will generally be the primary responsibility of Nova Scotia Department of Natural Resources and Renewables, with the understanding that HRFE will typically be the first responding agency and a transition of command or join command model will need to be instituted. These incidents will require longer extended periods of time to gain fire control. Examples of high-risk wildfire suppression incidents include large scale fire encroaching on the WUI with potential for multiple structure losses, threatening fuel storage or other hazardous materials, or critical infrastructure, rail lines, and wildland with significant WUI exposure, may require small scale evacuations of those in the immediate fire path.

Major Wildfire Incidents (MERP)

Major wildfire suppression incidents are beyond the daily capacity of HRFE and require resource capacity increases and sustainability for extended duration. These will be the primary responsibility of Nova Scotia Department of Natural Resources and Renewables, with the understanding that HRFE will typically be the first responding agency and a transition of command or join command model will need to be instituted. Examples of high-risk wildfire suppression incidents include large scale fire inevitably impacting the WUI and multiple structure losses, threatening fuel storage or other hazardous materials, or critical infrastructure, rail lines, and wildland with significant WUI exposure and requiring the evacuation of residents.

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Wildire - Urban/Rural	Low Risk			Medium Risk			High Risk		
	Critical Tasking	Resources	Staff Deployed	Critical Tasking	Resources	Staff Deployed	Critical Tasking	Resources	Staff Deployed
Critical Tasking	Deployment Model			Deployment Model			Deployment Model		
Incident Command (IC)	1	1 E	4	1	1 E	4	1	3 E	12
Driver/Pump Operator	1	2nd closest unit	2-4	1	2nd closest unit	2-4	1	5 Tankers	5-10
Fire Attack	2			2	1 DC	1	4	2 DC	1
Communication***					1 PC	1		1 PC	1
Patient Care***					1 BT	2-4		3 BT	6-12
Establish Perimeter Control				2	1 SPU	2-4	2	2 SPU	8
Fire Control					1 TCT	2		1 TCT	2
Structure Exposure Protection				2			2		
Incident Safety Officer				1			1		
Sector Chief							1		
Water Supply				1			1		
Drone Operations							1		
Tactical Reserve				2			4		
Evacuation				2			2		
	4	1	6-8	14	4	18-20	20	13	36-47
***Personnel perform primary role and then transition to secondary role	Totals			Totals			Totals		
	(low prob/cons)			(high prob/low cons)			(low prob/high cons)		
	Burning complaint			Burning complaint out of control			Wildfire FWI high		
	Outside smoke investigation			Outside smoke/fire near wildland			Wildfire in wildland actibvely burning		
	Contained outdoor fire no structures near			Outside fire near strucutres			Wildfire/Wind driven		
	Small grass/brush fire no wildland contact			Burning complaint FWI index High			Wildfire encroaching WUI		
				Wildfire FWI Low Conditions			Wildfire Structures at risk		

Table 41. Wildfire incident critical tasking

Analysis of Performance & Capabilities

Halifax Regional Fire and Emergency utilizes its electronic records management system and data warehouse to store current and historical data that includes detailed information on incidents and apparatus activities. This data is crucial for analyzing both emergency and non-emergency service demands across the regional municipality and within primary response districts. The system, which houses records dating back to early 2000's, includes data on consequence losses and saves, covering aspects such as property, life, injuries, and other losses. HRFE leverages this information to guide strategic, operational, and deployment planning, evaluate response time performance, and determine program and service outcomes, as well as trends fire medical first response interventions and community risk reduction program targets.

HRFE evaluates response performance by examining all components of response time, including call handling, turnout, travel, and total response time. These results are presented at both the regional municipal level and the primary response area level, focusing on the 90th percentile times.

Appendix A outlines: Methodologies for monitoring, measuring, and reporting system performance, outlines the considerations for measuring response time, including handling outliers, ensuring data completeness, and validating data, along with additional details related to monitoring and reporting system performance.

In assessing its capabilities against the risks and demands throughout the municipality; HRFE analyzes and reports on the following response time and performance components:

1. Deployment Coverage: This involves evaluating HRFE's ability to provide an effective, efficient, and equitable initial response to all types of risks. The distribution study assesses the effectiveness of coverage by analyzing first-in unit response times for each component of response time. Results are detailed for each program area at both the citywide and individual response area levels.

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2. Program Response: This focuses on HRFE's planning and performance in deploying additional specialized resources to heightened risks. The concentration study evaluates the effectiveness of resource deployment by analyzing travel time performance for incidents that require more than a first-due unit. Results are provided for each incident program area and risk level.

3. Reliability: This examines the availability and capacity of resources to consistently meet response benchmarks, even when resources are engaged in other emergencies, training, or assignments. It identifies factors such as busyness or workload demands that may affect resource availability or issues with volunteer capacity or turnout at stations.

4. Unit Hour Utilization: This component analyzes the workload of individual units when committed to responses and utilization of resources by unit, reflecting on overall availability and factors that affect personnel and their ability to sustain workload.

6. Industry Comparison: This involves comparing HRFE's performance with other similar-sized fire departments and industry standards to gauge and contextualize system performance.

Deployment Coverage

Deployment coverage is the terminology given to the application of the standards of cover for HRFE. It constitutes the geographical locations of apparatus, personnel, and specialty resources throughout HRM to provide an equitable initial response for all-hazards emergencies and incidents of all levels of risk and types within the emergency response time targets (ERTT) for the services established by HRM council through the council administrative order. The ERTT's and effective response force (ERF) provide guidance to HRFE for planning and service delivery decisions to determine staffing, apparatus deployment, and future station locations. HRFE uses data and predictive analytics to assess the current state, community growth, and future state scenarios in the decision-making process. The community risk assessment, and particularly the HRM emergency management office Hazard Risk Vulnerability Assessment (HRVA) provides insights on community risk in the planning process. Due to the vast geographical nature of HRM, a combination of considerations is used around geographical travel time and population density that results in significantly different response zones for urban and rural areas of the municipality.

HRFE used the following primary criteria to consider deployment coverage for HRM:

1. Prime Response Area: The prime response area consists of the geographical coverage area for each fire station that includes the areas size, apparatus, available staffing, significant hazards within the area, population, and population density. This is measured as the ERTT.
2. Weight of Response: In addition to the prime response area, HRFE assesses the capability of surrounding prime response areas to contribute to the weight of response to the prime area with the incident, measured as the ERF.
3. System Performance: The overall system performance is measured across HRM and broken down by prime response areas using a 90th percentile measurement as the performance measurement for each aspect of the ERTT.
    a. The ERTT is a key performance indicator broken down into its individual performance indicators:

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i. Call Handling: Consists of the time of answer at the primary system answering point (PSAP) to the time that the notification is transmitted to the responding crews. HRFE's benchmark target for total call handling time is 90 seconds for all call types 90 percent of the time.

ii. Turnout Time: Consists of the time interval from when the dispatch notification is transmitted to the crew from the IES dispatch centre to the time in which the apparatus is physically moving in departure from the station enroute to the call. The HRFE benchmark target is 60 seconds or less, 90 percent of the time for medical emergencies; and 90 seconds or less, 90 percent of the time for all other emergency responses for urban and career staffed stations. The benchmark for rural volunteer stations is 420 seconds or less, 90 percent of the time for medical emergencies; and 450 seconds or less, 90 percent of the time for all other emergency responses.

iii. Travel Time: Consists of the time interval where the apparatus begins to physically move enroute to the incident and ends when the apparatus arrives at the scene. The HRFE benchmark for urban response is 300 seconds or less, 90 percent of the time; and rural response is 600 seconds or less, 90 percent of the time.

These components combined make up the total response time, that encompasses the time from receipt of the call for the incident, to the first unit arrival on scene.

- HRFE's benchmark emergency response time targets are:
- Urban All-Hazards Response: 480 seconds (8 minutes), 90 percent of the time.
- Urban Medical Response: 450 seconds (7 minutes, 30 seconds), 90 percent of the time.
- Rural All-Hazards & Medical Response: 1050 seconds (17 minutes, 30 seconds), 90 percent of the time.

These components are analyzed within HRFE on an ongoing basis. HRFE provides and ERTT and ERF dashboard to all senior officers and operational chief officers for regular review and quality improvement. In addition, the HRFE data analyst provides incident specific performance reports for all fires in HRM urban catchment areas for evaluation and performance improvement.

Prime Response Area Characteristics

HRFE utilizes multi-variate sources of population data and community information. Primarily HRFE assesses and adapts the population density classifications established by Statistics Canada Population Centre and Rural Area Classifications as well as Environics Canada data provided through our GIS application software, placing the data within the prime response area GIS polygon boundaries to determine the prime response area population and density. HRFE utilized a population density of >100 people per square kilometer as Urban, and <100 people per square kilometer as rural to define the deployment coverage criterion.

While these prime response areas have been adopted for planning zones, further work is underway to establish planning zones that closer relate to census and building data which will ultimately lead to multiple planning zones within prime response areas.

Response Area Coverage

HRFE provides deployment coverage with the objective of providing equitable distribution of service based to meet council approved services for urban and rural designated areas. As a baseline the first due apparatus response is established upon providing a fully equipped engine apparatus with 1 officer and 3 firefighters on board capable of mitigating all-hazards type of responses, controlling and stabilizing the scene, and identifying additional resources that may be required. Many factors affect the deployment coverage capabilities including geographical distance and urban density and traffic calming measures, although travel time is only one variable. Auxiliary vehicles with 1 firefighter and 1 officer or more may be an acceptable alternative selected by responding crews where appropriate for ERF, such as medical incidents with a rural rescue or tactical unit.

HRFE's benchmark travel time is 300 seconds (5 minutes) for urban responses, 90 percent of the time; and 600 seconds (10 minutes) for rural responses, 90 percent of the time. HRFE utilizes a GIS model to evaluate and determine travel times for prime and secondary response areas, as well as a predicative analytics tool top consider population growth, urban density growth, and the positioning and additional staffing and resources to model for future planning.
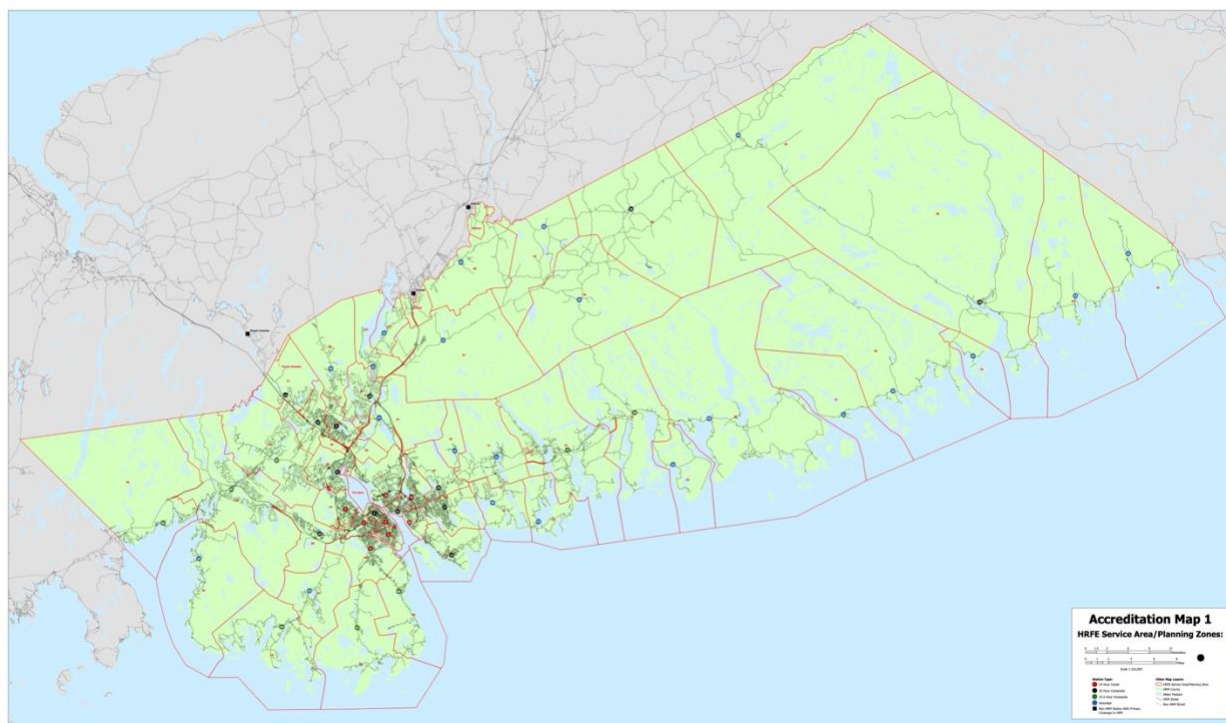

Figure 32. HRFE Prime response areas

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Response Reliability

Response reliability is an assessment of HRFE's overall system capacity and ability to respond to multiple simultaneous emergencies. When the percentage of response within prime response area are high, it signifies that the assigned resource in that areas was available to respond with a high frequency. The lower the percentage indicates the assigned apparatus was unavailable in the area when the next call comes into dispatch for the same area. Unit Hour Utilization (UHU) is a metric used to measure the amount of time out of a given staffing period that a resource is committed and in use and actively assigned to a call, therefore not available for the next incoming call. The higher the percentage that a unit has for a UHU the more likely the response area reliability is lower. Therefore, using both metrics can help validate that a unit has poor reliability in its own response area due to it being busy on calls versus other reasons.

Response Reliability within First-Due Station Area

First-In Unit Within District Reliability: % Success (URBAN, RURAL)

Year	2019		2020		2021		2022		2023		2024		Total	
Service Area	% Succ	N =	% Succ	N =	% Succ	N =	% Succ	N =	% Succ	N =	% Succ	N = Inc	% Succ	N =
Urban	87%	7964	89%	676	90%	7984	88%	1013	88%	1147	91%	541	89%	4973
Rural	72%	4568	69%	267	70%	2897	70%	4389	70%	4612	72%	225	71%	2139
Total	82%	1253	84%	943	85%	1088	83%	1452	83%	1609	86%	768	83%	7112

Table 42. First due within district reliability
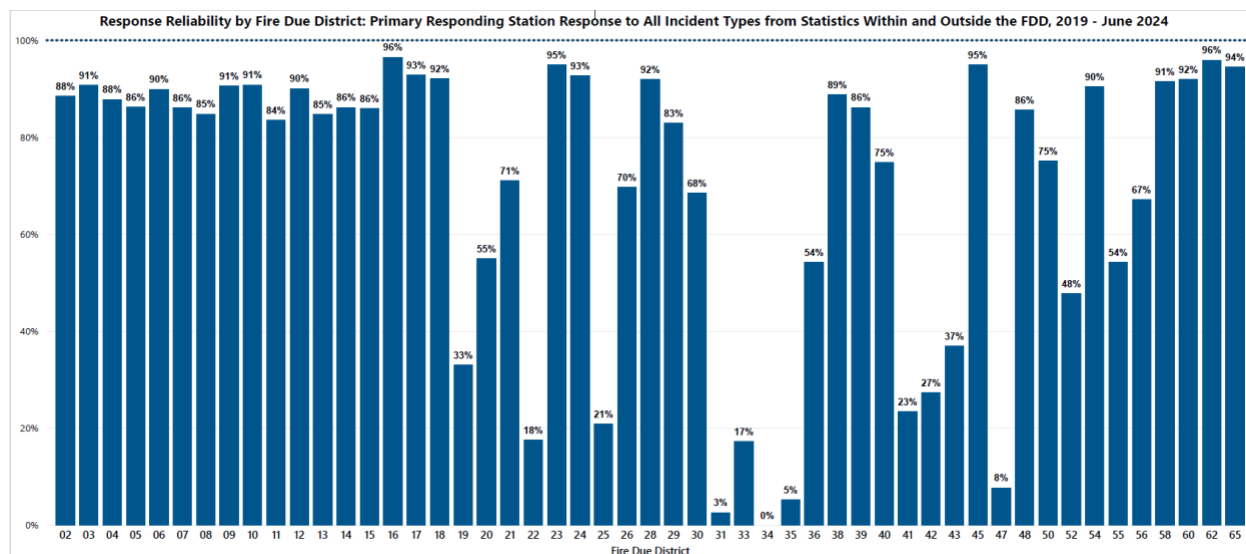
Figure 33. Response reliability by first due station response area

Response Reliability Analysis

First-in unit reliability is meant to capture the occasions where the first arriving resource in a station prime response area is a unit other than the one regularly assigned to the station. The primary intention is to identify how often a resource may be unavailable for response in its own station area, due to circumstances such as being committed to another call, out of service or area for training, or potentially no available volunteer crew.

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The stations depicted in this chart with significantly low first due response reliability represent two issues. The first is a lack of volunteer members therefore resulting in no response in the prime station area and requiring all or most responses from other station areas, or secondly, volunteer stations neighbouring on station areas where a crew is more readily available including career neighbouring first due, therefore more rapid than the prime area volunteer response. Year over year there is statistically insignificant fluctuation in the percentage of success for first due within district.

Over the five-year period there was little variation and no statistically significant change in the response reliability despite an overall increase in call volumes year over year. Response reliability demonstrates the known staffing issues with several rural station areas and the impact on response in those communities. Recruitment and retention of volunteer firefighters in the rural areas continues to be a major concern, and the addition of 24/7 career staffing in strategic rural station locations has helped to support and improve response to rural communities.

HRFE's deployment model is currently a static deployment coverage model based on prime station area response. Available units passing a call are not considered by the CAD, nor the CAD overridden by dispatchers. Decision making for resource allocation, move up and backfilling of stations while resources are committed to calls is dependent on operational District Chiefs with no automated solutions, and dispatcher intervention with situational awareness is not permitted in the current model. Research and development of a system optimization and deployment coverage model and system is overdue for HRFE.

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Unit Hour Utilization

HRFE uses the unit hour utilization (UHU) metric in concert with additional metrics such as call volumes, response times, and response reliability to create a picture of overall system demand and resources that remain staff and available for responses. This is measured globally but can also be applied to times of increased service demand for daily understanding. UHU can be helpful in determining requirements for additional staffing, apparatus, and stations across the system. UHU is an overall evaluation of workload and units that are available to respond to incidents.

The below table shows the overall UHU for individual units for each year.

Apparatus Type and ID	2019	2020	2021	2022	2023	2024	Total
HRFE Unit Hour Utilization Profile							
⊟ **COMPOSITE**							
E23	1.9%	1.8%	1.9%	3.1%	3.6%	4.0%	2.6%
E24	1.7%	1.1%	1.4%	2.0%	1.8%	1.5%	1.6%
E38	1.2%	0.9%	0.8%	1.1%	1.2%	1.5%	1.1%
E50	1.9%	1.6%	1.5%	1.9%	2.6%	2.7%	2.0%
E54	2.2%	1.3%	1.6%	2.1%	2.1%	2.4%	1.9%
E56	0.8%	0.5%	0.7%	0.9%	1.7%	1.3%	0.9%
E60	1.1%	0.7%	0.8%	1.0%	1.1%	1.0%	0.9%
E62		0.1%	2.1%	3.6%	3.2%	3.0%	1.9%
E63	2.0%	1.1%					0.6%
E65	2.5%	2.3%	2.8%	3.5%	3.5%	2.7%	2.9%
EA58	0.0%	0.0%		0.0%	0.1%	0.0%	0.0%
T17	0.2%	0.3%	0.3%	0.2%	0.5%	0.2%	0.3%
T58	0.4%	0.5%	0.7%	0.7%	2.1%	2.3%	1.0%
TA58					0.7%	0.1%	0.1%
TA60	0.2%	0.1%					0.1%

Table 34. Unit hour utilization composite units

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HRFE Unit Hour Utilization Profile

Apparatus Type and ID	2019	2020	2021	2022	2023	2024	Total
⊟ **CAREER**							
A03	3.7%	3.0%	2.9%	3.9%	3.8%	4.6%	3.6%
A05			0.0%	0.0%		0.0%	0.0%
A09			0.0%		0.4%	1.2%	0.2%
A12	1.9%	1.7%	1.5%	2.1%	2.6%	2.5%	2.0%
A13	0.0%		0.0%	0.1%			0.0%
AC2		0.0%	0.1%	0.1%	0.0%		0.0%
CAR01	0.0%	0.1%	0.0%	0.0%		0.0%	0.0%
CAR02	0.0%		0.0%			0.0%	0.0%
DC01	0.3%	0.3%	0.2%	0.4%	0.5%	0.5%	0.3%
DC02	3.4%	2.9%	3.0%	3.5%	3.1%	3.1%	3.2%
DC03	4.0%	3.5%	2.6%	3.1%	3.3%	2.9%	3.3%
DC04	0.5%	0.5%	0.3%	0.2%	0.0%		0.3%
DC05	0.6%	0.6%	0.5%	0.6%	0.5%	0.3%	0.6%
DC06	0.3%						0.1%
DCAP06	0.1%						0.0%
E02	4.8%	3.8%	4.0%	4.9%	4.5%	5.0%	4.4%
E03	5.5%	4.7%	5.2%	6.2%	6.2%	6.7%	5.6%
E04	3.1%	2.8%	2.6%	3.3%	3.5%	3.6%	3.1%
E05		0.0%	0.1%	0.0%	0.0%	3.0%	0.3%
E06	3.3%	2.9%	2.9%	3.5%	3.6%	3.4%	3.3%
E07	0.0%			0.0%	0.2%	0.0%	0.1%
E08	3.3%	3.0%	3.0%	3.7%	4.4%	4.7%	3.6%
E09	0.0%	0.0%	0.0%	0.2%	2.0%	5.9%	0.9%
E10	0.0%	0.6%	0.3%	0.5%	0.8%	0.6%	0.4%
E11			0.0%	0.0%	0.0%		0.0%
E12	3.1%	3.3%	3.4%	4.1%	4.6%	5.0%	3.8%
E13	0.2%	0.0%	0.0%	0.1%	0.4%	0.7%	0.2%
E14	3.0%	2.7%	2.7%	3.3%	3.8%	3.9%	3.2%
E15	1.9%	1.6%	1.5%	1.9%	2.4%	2.0%	1.9%
E16	0.4%	0.1%	0.1%	0.2%	0.2%	0.0%	0.2%
E17	0.5%	2.5%	2.5%	4.1%	5.0%	5.8%	3.2%
E18	0.0%	0.2%	1.2%	0.8%	0.4%	0.4%	0.5%
E28	1.1%	0.7%	1.1%	1.8%	1.9%	2.0%	1.4%
E45	2.5%	1.7%	1.8%	2.7%	2.9%	2.8%	2.4%
E58	1.9%	1.1%	1.7%	2.6%	0.9%	0.3%	1.5%
PCC	5.1%	4.7%	3.4%	4.1%	3.9%	4.2%	4.2%
PCR	1.0%	0.6%	0.4%	0.7%	0.9%	0.7%	0.7%
Q05	5.3%	4.2%	4.1%	5.5%	6.1%	2.9%	4.8%
Q07	4.3%	3.7%	3.9%	4.5%	4.9%	5.1%	4.3%
Q08	0.0%						0.0%
Q09	3.0%	2.5%	3.2%	5.0%	3.8%	0.0%	3.2%
Q12	0.5%	0.0%	0.1%	0.0%	0.0%	0.0%	0.1%
Q13	3.5%	3.2%	3.0%	3.7%	3.9%	3.8%	3.5%
Q17	2.2%						0.4%
T10	2.3%	1.4%	2.2%	3.2%	3.4%	3.4%	2.6%
T11	0.8%	0.7%	0.9%	1.3%	1.6%	1.2%	1.1%
T16	0.8%	0.7%	1.1%	1.9%	2.2%	2.4%	1.4%
T18	2.7%	2.0%	1.4%	2.6%	3.9%	4.1%	2.7%
TCT12	3.5%	3.3%	3.1%	3.4%	2.7%	2.9%	3.2%

Table 35. Unit hour utilization career units

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Apparatus Type and ID	2019	2020	2021	2022	2023	2024	Total
HRFE Unit Hour Utilization Profile							
⊟ **VOLUNTEER**							
DCAP01	0.2%	0.0%					0.0%
DCAP04	0.2%	0.0%					0.0%
E19	0.0%	0.0%	0.0%	0.0%	0.0%		0.0%
E20	1.0%	1.0%	0.8%	1.0%	1.5%	0.8%	1.0%
E21	1.5%	1.4%	1.3%	1.4%	1.8%	1.7%	1.5%
E22	0.0%	0.0%	0.0%		0.0%		0.0%
E25		0.0%		0.0%		0.0%	0.0%
E26	0.9%	0.4%	0.6%	0.9%	1.0%	0.9%	0.8%
E29	0.3%	0.2%	0.2%	0.1%	0.2%	0.2%	0.2%
E30	0.7%	0.4%	0.3%	0.5%	0.5%	0.4%	0.5%
E39	0.3%	0.2%	0.2%	0.5%	0.4%	0.9%	0.4%
E40	0.9%	0.5%	0.5%	0.6%	0.8%	1.1%	0.7%
E41	0.8%	0.3%	0.3%	0.5%	0.7%	0.4%	0.5%
E42	0.0%	0.0%	0.0%	0.0%		0.0%	0.0%
E47	0.5%	0.4%	0.6%	0.7%	0.9%	0.8%	0.6%
E48	0.6%	0.6%	0.4%	0.7%	0.9%	0.6%	0.6%
E52	1.1%	0.8%	0.9%	1.3%	2.1%	1.3%	1.2%
E55	0.6%	0.4%	0.5%	1.2%	2.2%	1.5%	1.0%
EA04	0.2%	0.1%	0.1%	0.4%	1.3%	0.1%	0.4%
EA08	0.4%	0.3%	0.2%	0.3%	1.5%	0.2%	0.5%
EA09	0.2%	0.1%	0.0%	0.1%	0.9%	0.0%	0.2%
EA10	0.1%	0.1%	0.1%	0.3%	0.8%	0.1%	0.2%
EA13	0.0%	0.2%	0.1%	0.1%	0.8%	0.1%	0.2%
EA16	0.2%	0.1%	0.1%	0.1%	0.2%	0.1%	0.1%
EA17	0.3%	0.4%	0.2%	0.1%	0.7%	0.3%	0.3%
EA65	0.0%					0.0%	0.0%
PC1E		0.2%					0.0%
PC1W		0.2%					0.0%
PCV1E		0.2%	0.5%	0.5%	0.3%	0.7%	0.4%
PCV1W		0.4%	0.7%	0.4%	0.9%	0.6%	0.5%
PCV3E				0.0%			0.0%
PCV4E		0.4%	0.5%	0.4%	0.7%	0.6%	0.4%
PCV5E		0.1%	0.3%	0.2%	0.1%	0.3%	0.1%
PCV5W		0.2%	1.2%	0.7%	0.8%	0.5%	0.6%
Q45		0.1%	0.3%	0.3%	0.5%	0.1%	0.2%
R19	0.2%	0.1%	0.1%	0.1%	0.2%	0.2%	0.1%
R20	0.2%	0.3%	0.0%	0.1%	0.6%	0.1%	0.2%
R22	0.1%	0.1%	0.0%	0.1%	0.2%	0.1%	0.1%
R23	0.3%	0.6%	0.3%	0.5%	1.7%	0.6%	0.7%
R26	0.6%	0.2%	0.2%	0.2%	0.8%	0.2%	0.4%
R28	0.0%		0.2%	0.0%			0.0%
R30	0.5%	0.2%	0.1%	0.2%	0.5%	0.2%	0.3%
R33	0.2%	0.2%	0.0%	0.0%	0.1%	0.3%	0.1%
R35	0.0%		0.0%				0.0%
R36	0.3%	0.1%	0.1%	0.2%	0.4%	0.2%	0.2%
R38	0.5%	0.3%	0.2%	0.2%	0.2%	0.2%	0.3%
R39	0.4%	0.1%	0.2%	0.4%	0.7%	1.0%	0.4%
R41	0.2%	0.1%	0.0%	0.0%	0.1%	0.1%	0.1%
R42	0.2%	0.0%	0.1%	0.2%	0.1%	0.1%	0.1%
R43	0.1%	0.0%	0.0%	0.1%	0.4%	0.1%	0.1%

Table 36. Unit hour utilization volunteer units

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Unit Hour Utilization Analysis

Analysis of HRFE's unit hour utilization show low overall UHU across the system. The overall UHU is low in comparison to other Canadian metro fire services. Despite the low UHU, HRFE has difficulty meeting the ERF across the system for a moderate-risk fire suppression response as one of HRFE's core metrics. Given the UHU there is a higher likelihood of meeting ERTT, and low likelihood of meeting ERF with the current resource compliment especially for high-risk response categories. Analysis therefore indicates a need to enhance the depth of resources, across the system, and primarily in urban areas with greater multi-residential, institutional, and commercial risks, that cannot meet the ERF. Consideration of additional stations or relocation of stations need to be considered where current station and apparatus locations have difficulty meeting ERTT frequently.

Industry and Canadian Fire Service Comparators

HRFE considers other similar sized municipalities with similar characteristics when analyzing performance making decisions on system improvements. HRM and HRFE have several unique characteristics, with those being a metro size composite service with an urban core and a vast rural area resulting from upper and lower tier municipal amalgamation. There are several similar services within Canada with these characteristics and serve as a comparable service to test hypothesis and benchmark performance.

HRM has been a participant in the Canadian Municipal Benchmarking Network (MBNCanada), but the municipality has recently elected to withdraw and current data is no longer submitted or collected across the municipality including for HRFE and fire services.

Nova Scotia Office of the Fire Marshal

The Nova Scotia Office of the Fire Marshal (NS OFM) is responsible for fire and building safety. The office develops policies, regulations and programs to promote and enforce the principles and practices of fire safety. We also provide advice on all initiatives and issues concerning building and fire safety.

The Office of the Fire Marshal is a division of the [Department of Municipal Affairs and Housing](#) and has the responsibility for:

- Promoting and enforcing building and fire safety
- Advising various levels of government on building and fire-related matters, including fire protection
- Working with fire services partners throughout the province
- Leading, coordinating and providing government departments, municipalities and the public with effective approaches for building and fire safety
- Working with provincial and municipal partners to support their efforts in achieving building and fire safety
- Supporting provincial fire services, including the ongoing administration of the Emergency Services Provider Fund
- Supporting the work of the Joint Municipal Fire Services Committee by ensuring that proper recommendations are made for the implementation of the Fire Services Review

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The NS OFM is the central point of data collection for the fire services in Nova Scotia for all data on fire death, injury, and loss. The NS OFM is responsible for collecting and publishing statistics that local fire service use to direct their programs.

Industry Best Practices

As part of its commitment to continuous quality improvement, HRFE monitors and reviews relevant ordinances, national and provincial guidelines and standards, industry best practices and new research to inform quality improvement initiatives and program and service delivery.

National Building Code of Canada and National Fire Code of Canada (Nova Scotia editions)

HRFE works collaboratively with the Province of Nova Scotia to monitor fire trends occurring in Nova Scotia, enhance building and fire codes to increase fire safety, and help minimize the severity, frequency and damage caused by fire. The department participates in provincial working groups that recommend changes to building and fire codes based on provincial trends.

In Nova Scotia, the National Building Code of Canada and the National Fire Code of Canada are adopted and enforced through the Nova Scotia Building Code Act and the Fire Safety Act respectively. The Office of the Fire Marshal of Nova Scotia is responsible for administering these acts and regulations.

Recent changes to the Nova Scotia Building Code Regulations have addressed fire safety concerns, including:

- Updated requirements for egress windows in bedrooms, specifying minimum sizes and configurations
- Adoption of the National Energy Code of Canada for Buildings 2017 (NECB) for energy-efficient construction
- Requirements for fire suppression systems design, which must be filed with building officials

The Nova Scotia Fire Safety Act and Regulations outline requirements for fire prevention, fire safety plans, and fire department access. Some key provisions include:

- Mandatory fire safety plans for certain occupancies
- Requirements for fire department access to buildings and construction sites
- Specifications for fire protection equipment and systems

In developing communities, where newly finished homes may be close to ongoing construction sites with flammable materials, the Nova Scotia Building Code and Fire Safety Regulations address risks by:

- Ensuring proper access for fire departments to construction sites
- Requiring protection measures for adjacent buildings
- Specifying placement and availability of fire extinguishers on construction sites
- Mandating improved fire safety plans for construction projects

The Fire Department actively participates in provincial working groups and committees to stay informed of emerging best practices and code changes. These insights are then incorporated into the department's program and service development and delivery to enhance fire safety in the community.

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National Fire Protection Association Standards 1710, 1720 and 1221

Halifax Regional Fire & Emergency (HRFE) actively monitors and adapts to evolving standards within the fire service industry. This includes staying abreast of National Fire Protection Association (NFPA) standards, particularly NFPA 1710, NFPA 1720, and NFPA 1221, which provide crucial guidelines for fire department operations and emergency communications systems.

NFPA 1710 outlines performance targets for career fire departments regarding response times, personnel deployment, and equipment requirements for structure fires and medical incidents. NFPA 1720 provides similar guidelines but is specifically tailored for volunteer and combination fire departments, which is particularly relevant for HRFE's rural areas. NFPA 1221 focuses on emergency communications systems, including 9-1-1 call handling. Together, these standards offer comprehensive benchmarks for emergency response, from initial call receipt to on-scene arrival.

HRFE, like many Canadian fire services, uses these standards as a foundation for developing its own response time targets and service level benchmarks. However, HRFE tailors its approach to address Halifax's unique characteristics:

1. Geographical challenges: HRFE covers an area comparable in size to Prince Edward Island, requiring strategies to manage both urban and rural response scenarios.

2. Diverse demographics: The department serves a wide range of communities, from densely populated urban areas to remote rural locations.

3. Infrastructure considerations: Many fire stations in Halifax are outdated, affecting turnout times and necessitating strategic upgrades.

4. Composite service model: HRFE utilizes both career and volunteer firefighters, requiring flexible strategies to meet response targets across different staffing models. This is where NFPA 1720 becomes particularly relevant for rural areas and the suburban transition areas.

HRFE's recent operational review and subsequent council approval of new 2018 standards reflect this adaptive approach:

1. Adjusted dispatch times: An additional 30 seconds has been added to dispatch time targets, acknowledging the complex role of Halifax's integrated dispatch system.

2. Modified turnout times: Both urban and rural firefighters have been granted an extra 30 seconds for turnout, recognizing infrastructure and staffing realities.

3. Focus on effective firefighting force (EFF = ERF): HRFE is prioritizing the assembly time of an 14-firefighter and officer team on scene, rather than solely focusing on first unit arrival.

4. Staffing enhancements: Consideration of increasing full-time staffing at strategic locations, such as Stations 45, 28, 38, 50, to improve first due and ERF coverage and response times.

5. Annual performance reporting: HRFE has committed to providing yearly updates to council on emergency response times, ensuring ongoing accountability and adaptation.

By balancing industry standards (including both NFPA 1710 and 1720) with local realities, HRFE aims to provide effective and efficient fire protection services across the Halifax Regional Municipality. This approach allows for continuous improvement while addressing the unique challenges faced by a fire service covering such a diverse and expansive area, including both urban centers and rural communities.

Next steps for HRFE include an in-depth review of current system status and required resources to meet benchmark targets in current day, as well as forward looking analysis of the community risk, growth, development and maintenance of benchmarks given these contributing factors, to produce a long-term multi-year improvement plan that outlines staffing, station, apparatus, training, and support service needs to identify additions, relocations, resources, and procurement; identifying long-term budget and planning pressures.

Evidence and research-based fire service operations

HRFE continually strives to enhance its operational effectiveness by staying abreast of cutting-edge research and industry best practices. A key component of this effort has been the thorough analysis of groundbreaking fireground, and high-rise field studies conducted by the National Institute of Standards and Technology (NIST). These studies, which combine laboratory experiments with real-world fire scenarios, have provided HRFE with invaluable insights.

Impact on Operational Strategies

The NIST research has significantly influenced HRFE's approach to several critical areas:

1. Risk Assessment: The studies have refined HRFE's ability to match incident risk levels with appropriate deployment configurations.

2. Resource Allocation: HRFE has gained a deeper understanding of how crew sizes and apparatus arrival times impact overall effectiveness.

3. Firefighter Safety: The research has shed light on crucial factors affecting the safety of HRFE personnel during operations.

4. Task Completion: HRFE has used the findings to optimize its strategies for efficient and thorough task completion at incident scenes.

5. Building Tenability: The studies have enhanced HRFE's comprehension of how various factors influence structure tenability during fire events.

By incorporating these research-based insights, HRFE continues to refine its tactics and strategies, ensuring the highest standards of safety and effectiveness in its service to the community.

Overall Evaluation, Compliance, Plan for Improving Response

Overall Evaluation

HRFE has conducted a comprehensive risk assessment and in-depth review of its current service delivery methods including the effectiveness of the current systemic deployment model, response demands, service reliability, unit hour utilizations, and capability to meet emergency response time targets and effective response force requirements based on the station geography, community development, and risk profiles. The overall results show areas requiring improvement based on these factors taken into consideration and present several challenges, in-flight solutions, on-going assessment, and process improvements to ensure HRFE continuously improves its operational service delivery to HRM.

Compliance

Compliance Responsibility

HRFE has identified several areas for improvement including the implementation of continuous quality improvement methodologies to integrate compliance and responsibility for overall system performance and progress. First and foremost is routine production of performance metrics and instilling the culture of utilizing data to make regular incremental and measurable improvements. In addition, there is an identified need to review internal processes to ensure that the responsibility at cross divisional hand-off points of accountability is clear and managed effectively.

While HRFE has been developing strategic performance metrics and dashboards to present real-time data, an effective methodology for a continuous cycle of improvement needs to be implemented and practiced, the recommendation is the use of a well know improvement methodology cycle, PDSA: Plan, Do, Study, Act. Planning the improvement based on the data, doing the work to implement the improvement, studying the results of the work, acting on the results based on the next round of data.

Performance Evaluation

Performance Area	Evaluations and Strategies
Station Location and Design	HRFE conducted a review of stations for long-term life cycle and worked with Dalhousie University Engineering department to conduct turnout time trials to evaluate the effects of station layouts on turnout times given current layouts, and incorporating best layouts for turnout times in new station builds. HRFE has maintained the use of fire poles and installed some in current stations to enhance the turnout times in older designed buildings. HRFE is beginning a comprehensive review of all station locations across HRM with significantly aging infrastructure HRFE is experiencing substantial maintenance issues, and with population growth, density, and development the landscape of the community is changing rapidly. The comprehensive assessment will include predictive analysis of impacts to ERTT and ERF.
Call Handling	HRFE has identified alarm handling time as a significant factor affecting the overall ERTT and ERF that requires improvement. The performance is consistently longer than the desired 90 second target and the call taking process does not provide the fidelity required to accurately dispatch with a risk-based ERF model.

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	HRFE works with Halifax Regional Police through a Service Level Agreement with the Integrated Emergency Services (IES) Dispatch centre to provide fire call taking and dispatch services for HRFE. HRFE continues to work with IES on systemic improvements on call handling time and has begun to work with IES on changes required for improved risk-based deployment modelling. In addition, HRFE has identified the need to update the district based dispatching model to a dynamic resource allocation model using computer aided real-time apparatus-based deployment tools.
Turnout Time	HRFE has identified turnout time as a significant factor affecting the overall ERTT and ERF. HRFE has established turnout times of 60 seconds in urban areas for medical responses and 90 seconds, 90 percent of the time for all other calls. A detailed assessment was conducted to review turnout time and consider the human factors, physical environment, and technology system that affect the turnout times. Initial data analysis was conducted identifying the state of turnout times, followed by a time trial assessment. A review of stations, the physical environment, as well as the human factors, and notification system was conducted. Physical factors in some stations have been addressed, as well as incorporated into new building design. HRFE is currently implementing a new station alerting system that should overcome the deficit found in serial analog paging that elongates the time to notification for each subsequent station following the first. New multi-variate data analytics have been introduced to improve the accuracy of turnout time data recordings, as well as travel times that include GPS/AVL to record actual vehicle movement as opposed to the human intervention of solely a Mobile Data Terminal (MDT) button press. Data analysis observations have shown two significant human factors in turnout times. First, turnout times are substantially slower between the hours of 1000pm and 0800am; and the second responding apparatus from the same station is significantly longer with turnout times.
Travel Time	HRFE uses an aged CAD deployment model that is based on station prime areas and notifying the station of a response. This does not account for the specific apparatus, personnel, resources, tools, or call type; nor the closest unit that may be in or passing through a response area that is not assigned to the station. Introduction of a CAD that can assess closest most appropriate staff and resourced unit regardless of station area borders will make a significant difference in response time. HRFE has assessed and determined the importance of deep integration in planning and development to best design the system and deployment model of a growing community. HRFE is implementing the new plans examiner position in fire prevention and community risk reduction to review and advise on community growth and development, building development, street scape planning, traffic calming, active transportation, and water supply to ensure strategic analysis and input from HRFE is provided as all of these factors are

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	currently affecting the ability for fire apparatus to traverse city streets to incidents. HRFE stations were previously built to a 5-minute travel time standard. As a result, HRFE must accept current ERTT models and find other areas for improvement or consider improvements to the NFPA 1710 ERTT through system enhancements when planning new stations and their locations, that may consider relocating existing stations, and re-locating more strategically based on traffic and travel studies along with risk assessments and community demographics, geography, and density. HRFE has identified gaps in the Opticom traffic light pre-emption system that has had little maintenance and monitoring over the years, requiring addressing to monitor and improve the reliability and effectiveness of the system and contribute to improved travel times in main transport corridors.
Data Analytics and Effective Response Force (ERF/EFF)	HRFE is committed to collecting accurate and reliable data on performance measures to make systemic improvements. The existing data governance and model has proven problematic in applying an ERF assessment to the global system using historical call coding on both the front and back end of the data collection. On the front end HRFE is lacking fidelity in the call taking process and incident determinants to apply a risk-based response model. On the back end, the incident final type/disposition is not aligned with a risk-based model and is not consistent across incident types. Currently a significant amount of manual intervention by the HRFE data analyst is required to assess ERTT and ERF and incident types do not accurately represent the spectrum of incident responses in a manner that support in-depth data analytics. Currently there is no call screening or building model in the CAD that will identify structures or situations of various risk levels, such as industrial, institutional, and high-rise. The system is reliant on first-due officer identification of risk and requesting additional resources to the response. HRFE is undergoing a CAD upgrade and is in the process of considering a new records management system (RMS) with additional functionality that will make data capture more robust with an updated data governance and QA/QI.

Strategy & Plan for Improving Response Capabilities

As a component of the strategic planning process an analysis was completed to understand HRFE's current strengths and weaknesses and consider strategies to address gaps and deficiencies in the organization. Strategies to address community growth and gaps in the deployment and response model have been identified, as well as supporting staff members, updating scheduling and rostering tools, records management, and station alerting. HRFE is undergoing substantial systemic transformation, and the overall accreditation process has been instrumental in identifying and documenting the processes and methodologies to carry out the transformation and underpin and instill a continuous quality improvement process.

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HRFE would be remiss in not acknowledging the direct and frequent input from front-line career and volunteer members identifying issues and challenges across the system. HRFE members voices have been heard and while HRFE elects to formalize and entrench the continuous quality improvement processes through the accreditation process, including staff engagement. HRFE believes that members are listened to, heard, and insights captured within the program appraisals, plans, departmental strategic plan, and CRA-SoC. HRFE plan to work diligently in communicating these tools and working towards better acceptance to the overall process and its cyclical nature to help improve a common operating picture, vision, and expectations.

All plans for improvement encompass the inclusion and engagement of HRM business units, external partnerships, and stakeholders where appropriate and necessary.

Station Location and Design, Travel Times
To improve the overall response target performance HRFE will:

- Conduct a comprehensive long-range assessment of HRFE stations, locations, response areas, building stock, new build designs, in conjunction with HRM growth and development, and HRFE ERTT's and ERF's.

Alarm Handling
To improve the ERTT and ERF of the benchmark performance, HRFE will:

- Implement performance dashboard for HRP IES to monitor HRFE call handling times.
- Work through the interdepartmental SLA to support performance improvement actions to improve call handling times.
- Collaborate with NS EHS on CAD integration for digital call handling of medical responses.
- Research and seek opportunities towards all hazards risk-based deployment coverage modelling through the call taking process.

Turnout Times
To improve the ERTT and ERF of the benchmark performance, HRFE will:

- Implement the digital station alerting system.
- Maintain new fire station building design standards.
- Provide quarterly updates of turnout time performance metrics to front-line staff.

Response and Coverage
HRFE will continue with the planning and implementation of the following improvements:

- Continue with muti-source data inputs to track time on route to arrival.
- Implement Opticom remote management and monitoring software to improve traffic light pre-emption reliability.
- Transition to dynamic resource allocation through CAD upgrade.
- Participate in a research and development project on automated deployment resource allocation.
- Work in collaboration with HRM Planning & Development to research and make recommendations on street scape, active transportation, and traffic calming measures.

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- Conduct in-depth systemic review on deployment coverage requirement for benchmark ERTT and ERF.

Data and Quality Improvement

To enhance overall system performance and quality HRFE will:

- Monitor call handling dashboard and collaborate through SLA for performance improvements.
- Improve data model and governance to better classify responses by risk classification and category for dispatch and documentation.
- Plan for new Records Management System and data structure to better meet record and reporting needs.
- Improve planning zone specificity to better depict risk, response type by risk, and response reporting by type and risk level.
- Improve residential and commercial community risk assessment model to support community risk reduction programs and risk-based response model.

These strategies and plans are incorporated in the HRFE strategic plan and annual departmental business and budget planning cycles.

Fire Prevention and Community Risk Reduction

To enhance pro-active risk mitigation in the community before emergencies occur, HRFE will:

- Build organizational resilience and capacity to respond to major events across HRM.
- Implement a building risk stratification and prioritization model to target inspections and public education for the FP-CRR division.
- Enhance the use of socio-demographic, health and social factors for in the community-risk assessment and target FP-CRR model.
- Establish performance metrics and quality improvement program for FP-CRR division.
- Complete the Wildfire mitigation strategy and implement wildfire mitigation programs across HRM.
- Design and implement plans evaluation program in FP-CRR division and improve programs based on community growth and development.

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Evaluation Plan

HRFE employs a comprehensive evaluation plan to continuously assess and improve its emergency services performance. This plan aligns with the municipality's commitment to ongoing enhancement and incorporates several key elements.

Ongoing Evaluation

HRFE consistently monitors its progress towards established service level objectives and identifies areas for improvement. The department has developed and implemented methodologies for tracking, measuring, and reporting system performance.

This rigorous monitoring approach serves two primary purposes:

1. It meets the requirements of the Commission on Fire Accreditation International (CFAI) accreditation process.
2. It aligns with the Halifax Regional Municipality's (HRM) dedication to continuous improvement and performance management.

Continuous Improvement Plan

HRFE's continuous improvement plan consists of five core elements:

1. **Performance Measurement and Visualization**: Consistent visualization of performance metrics for analysis.

2. **PDSA Improvement Cycles**: Approaching program improvement with PDSA QI cycles to continuously learn and improve, strategic and controlled failure is acceptable.

3. **Service Review and Improvement**: Includes municipal improvement programs, departmental reviews, and annual program appraisals.

4. **HRM Budget and Business Plan**: Aligns with HRM's annual budget and business plan process.

5. **Performance Reporting and Accountability**: Involves regular reporting to the HRM Council, HRFE Fire Strategic Team, and CFAI annual compliance reports.

Enhanced Performance Benchmarks

HRFE has adopted more detailed internal benchmarks that supplement Council-approved service level standards. These enhancements provide greater insight for operational planning and evaluation, aligning closely with CFAI reporting requirements at the incident level providing deeper insights for deployment coverage planning.

Regular Program Updates and Reporting

Program teams prepare and present an annual program appraisal for the end of the fiscal year in March. They present their risk assessment, gaps and needs, recommendations, and budget implications to the Fire Strategic Team in the first quarter of the new fiscal year. These program updates based on the annual program appraisal and completed workplans identifies budget needs and pressures for the upcoming budget and business planning cycle that typically ramps up in August for the following fiscal year. This entails that the program teams are operationalizing the plans from the prior program

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appraisal cycle while conducting program updates informing the next fiscal budget year. Program are encouraged to project maintenance, lifecycle, capital, and operational costs including staffing further out for a minimum of three years.

External Evaluations

Fire Underwriters' Survey evaluations are typically conducted every 10-15 years to assess the capacity of fire protective services in relation to municipal growth, with superior tanker shuttle certification every 5 years. HRFE recently underwent both evaluations.

External to the department, within HRM, HRFE is subject to audits by the HRM auditor general. Like the audit conducted on FP-CRR building inspections, the auditor general may select to audit aspects of HRFE and make recommendations for improvement.

Reporting Processes

HRFE uses a centralized register called ART to track progress on goals and objectives, which form the foundation of HRFE's annual HRM budget and business plan. Quarterly updates area recorded in the tracker with progress towards goals and objectives, which are tied to the departmental multi-year strategic plan.

HRFE regularly reports on its performance and operational capabilities to the Regional Council, Council Committees, and the Chief Administrative Officer.

Long-term targets are set in multi-year capital plans and HRFE's strategic plan document.

Through this comprehensive evaluation plan, HRFE demonstrates its commitment to continuous improvement and maintaining standards of emergency service delivery for the Halifax Regional Municipality.

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Appendix A – Performance Measurement Methodologies

This appendix outlines the methodologies, measurements, and reporting models that HRFE utilizes to report on system metrics. The intent of documenting methodologies is to ensure consistency and reproducibility, creating accurate year over year data and reporting outputs for accurate assessments. Establishing adapted and documented methodologies allows for quality assurance and critical assessment of statistical data and transparency to the processes.

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Methodology for organizing prime response area into geographical planning zones

HRFE has organized HRM into 51 prime response areas adopted as geographical planning zones for purposes of community risk assessment and standards of cover. Prime response areas are identified by the station number of the response station within the area. Each response area contains one HRFE station. The deployment coverage plan assigns the first due unit to a response from the station within the response area with which the incident occurs. This prime response area elicits a station page for the response areas and subsequent neighbouring response areas to make up the total initial response.

The borders of each response areas meet with adjacent response areas and the typical border in each direction is targeted to be 5 minutes' drive time in urban areas, and 10 minutes' drive time in rural areas.

The methodology used in the creation of the response areas is based on GIS data assessment and parameters:

- Current analytical built road network.
- HRFE operational station locations.

Within each prime response area, secondary zones are established to determine which adjacent stations will respond into the area when the first due unit is not available or as the second in unit, as well as specialized resources such a aerial, tanker, and tactical units. The secondary zones account for known issues within the prime areas such as permanent or long-term traffic closures, as well as specialized response requirements such as major institutions.

Once the GIS data parameters are updated and complete, HRFE creates the first due response area leveraging networks and analyzing them based on routing that is dependent on a maximum drive for urban or rural response.

The response areas are then processed overlayed in a GIS map with map layers of attributes for individual planning zone analysis. Attributes include:

- Major road networks
- Geographical Features and hazards; wilderness protected area, WUI, recreation areas
- HRM building model and development zoning
- Pressurized fire hydrants, dry hydrants, cisterns, and static open water sources
- Critical Infrastructure
- Known major hazards; military ammunition depots, ports, shipping corridors, hazardous materials, ocean, lakes, rivers, flood zones
- Apparatus and resources
- External resources
- Fire Incidents
- HRFE Pre-planning

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Methodology for monitoring emergency response performance

HRFE uses two primary methodologies for monitoring performance across the region and planning zones for consistency. The methodology monitors and measures baseline performance and established timely opportunity for intervention and improvement.

1. Emergency Response Time Target Dashboard
2. Effective Response Force Performance Reporting

Emergency Response Time Target Dashboard
The ERTT dashboard is a MS BI server based interactive analytics dashboard published to the HRM intranet site with access available to all HRFE Chief officers. The dashboard provides an at-a-glance overview of system wide performance in the main page, which has further ability to pick attribute and variable customizations to allow District Chiefs to focus on their Platoon, District, as well as individual stations and platoons; providing an ability to identify and focus on outliers.

The ERTT dashboard is available for monthly operations meetings to review performance, and monthly Fire Strategic Team meetings.

Effective Response Force Performance Reporting
HRFE has developed a customized ERF report that is issues for every structure fire in the urban response areas that meet the population density requirement of 100pp/SqKM response targets. The HRFE data analyst prepares the report for weekly dissemination if structure fire occurred meeting the criteria. The data analyst builds the standardized report and conducts an initial analysis to identify outliers and factors present in the data, dispatch notes, or data quality that may have affected the response performance.

The ERFPR provides a map of the incident in relation to pass/fail ERF responses in the area. The District Chief responsible for the shift/district/platoon to direct the report for review and action, the total response time data broken down by interval, and pass/fail ERTT for each responding unit with the ability to identify the failing portion of the targets. Finalized with an overall pass/fail of meeting ERF.

This report currently meets the pre-2024/25 critical tasking, risk level, and ERF's. Now identified as medium-risk structure fire.

The ERFP Report is sent to the District Chief for review, assessment, and action where necessary to bring the target performance into the awareness of responding crews.

HRFE Benchmark Targets
Establishing baseline performance benchmarks is new for HRFE. The first benchmarks established were in 2018 outlining the structure fire ERTT and ERF, and the Medical ERTT for urban and rural. This was a major change for HRFE and the basis for developing the performance measurement tools. These initial benchmarks were chosen based on NFPA 1710, 1720 and the historical travel time choices for HRFE stations established prior to HMR amalgamation. Existing data governance has not been robust enough to expand the measurements of benchmark targets and was stalled during the Covid-19 pandemic.

Based on HRFE historical data and performance, industry research, NFPA standards, and current system capacity HRFE has set 2024/25 benchmark performance for each type of response, level of risk, and

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population density; based on critical tasking for ERF. Establishing these benchmarks has been the first step in identifying the gaps in data and data governance that require attention to improve the performance data.

Measure performance gap between benchmark targets and baseline performance

With the benchmarks established and the baseline performance reported HRFE will measure the gap between the actual baseline performance and benchmark performance target to established plans to improve service with the Community Risk Assessment and Standards of Cover.

Gap analysis is assessed for all HRM, and for individual prime response areas to identify priority action.

Establish Plan for Improvement

Annual gap analysis and trending provides areas of service delivery requiring improvement for HRFE. Based on the year over year trend of the 90th percentile ERTT and ERF for service type and risk level HRFE will create a plan for improvement within the departmental span of control. This can include the Division Chief of Technology, Innovation, and Communication working with HRP IES through the SLA or with operations District Chiefs working directly with front-line crews.

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