



2025 COMMUNITY RISK ASSESSMENT

Hallandale Beach/Broward Sheriff's Office

Florida



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Emergency Services Consulting International

Providing Expertise and Guidance that Enhances Community Safety



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Executive Summary

The City of Hallandale Beach engaged Emergency Service Consulting International (ESCI) to perform a Community Risk Assessment (CRA) and establish a baseline Standards of Cover (SOC). The CRA identifies the community's risks, vulnerabilities, and hazards, while evaluating the capacity to mitigate these risks through strategic planning and coping mechanisms. The SOC offers a numerical benchmark for the Hallandale Fire Department to assess its ability to manage and mitigate the identified risks over the next three to five years. ESCI conducted this study using guidelines and best practices from the Commission on Fire Accreditation International (CFAI) and National Fire Protection Association (NFPA) Standards, ensuring alignment with the highest industry standards for fire service operations and community risk reduction.

Data Studied: The CRA involved a comprehensive analysis of various data points, including population and demographics, housing, and emergency services response types. For instance, Hallandale Beach has a population of 42,249 residents with a density of 9,615 people per square mile. The community is economically diverse, with a median household income of \$50,709, and 21% of households sit below the poverty level. The Broward Sheriff's Office (BSO) managed a wide array of emergency incidents from 2020 to 2023, with EMS calls accounting for 64.75% of the total incidents.

Positive Service Highlights: Hallandale Beach is well protected by its fire department, managed by the Broward Sheriff's Office. The city's progressive outlook and growth are evident in its strong support for fire services. The BSO is an all-hazard, accredited, Class 1 department known for its ability to handle a wide range of emergency incidents. Notable milestones include the Hallandale Fire Department being the first to operate telemetry and administer lifesaving drugs in the South Broward District in 1967, as well as the department's merger with the Broward Sheriff's Office Department of Fire Rescue and Emergency Services in 2020.

Recommendations: The report provides several recommendations to ensure the Broward Sheriff's Office can continue to provide efficient and effective fire services to Hallandale Beach. These include ensuring adequate and well-trained emergency responders, collaborating with neighboring fire departments through a coordinated regional response system, and adhering to federal regulations such as the two-in, two-out rule for structure fires.



Introduction

This report presents the Hallandale Beach, FL Standards of Coverage and Deployment Plan, developed in alignment with the Center for Public Safety Excellence (CPSE) Standards of Coverage model. This model provides a structured framework for assessing the distribution and concentration of both fixed and mobile resources within fire and emergency service agencies. By following this approach, the agency ensures it maintains a safe, efficient, and effective response force for fire suppression, emergency medical services (EMS), and specialized emergency scenarios.

The development of this Standards of Coverage and Deployment Plan involved comprehensive research, in-depth analysis, and critical evaluation. Initiated in early 2024, this project was conducted alongside an EMS Revenue Study. Due to the prioritization of the EMS Revenue Study, progress on this report experienced some delays. Additionally, slower data collection responses from the District Chief contributed to extended timelines.

The report begins with a detailed overview of the Hallandale Beach community and its fire and emergency services agency. Subsequent sections cover essential topics, including risk assessment, critical task analysis, agency service level objectives, and the strategic distribution and concentration of resources. Historical performance data is thoroughly analyzed to provide context and insights. The report concludes with actionable policy and operational recommendations aimed at enhancing service delivery and community safety.

Emergency Services Consulting International (ESCI) extends its sincere gratitude to the City of Hallandale Beach, the Broward Sheriff's Office Fire Department, and all stakeholders who contributed to the successful completion of this plan.



Acknowledgments

Broward Sheriff's Office

Fire Chief | Timothy Keefe

Sheriff | Dr. Gregory Tony

District Chief BSO | Brad Masters

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Vice Mayor | Michelle Lazarow

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City Manager | Dr. Jeremy Earle

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Community Overview

Service Area Population & Demographics

Hallandale Beach is a vibrant and diverse community with 42,249 residents. The community is densely populated, with 9,615 people per square mile, indicating a bustling and lively atmosphere. The daytime population density is slightly lower at 9,060.4 people per square mile, suggesting that a portion of the population commutes out for work or school during the day.

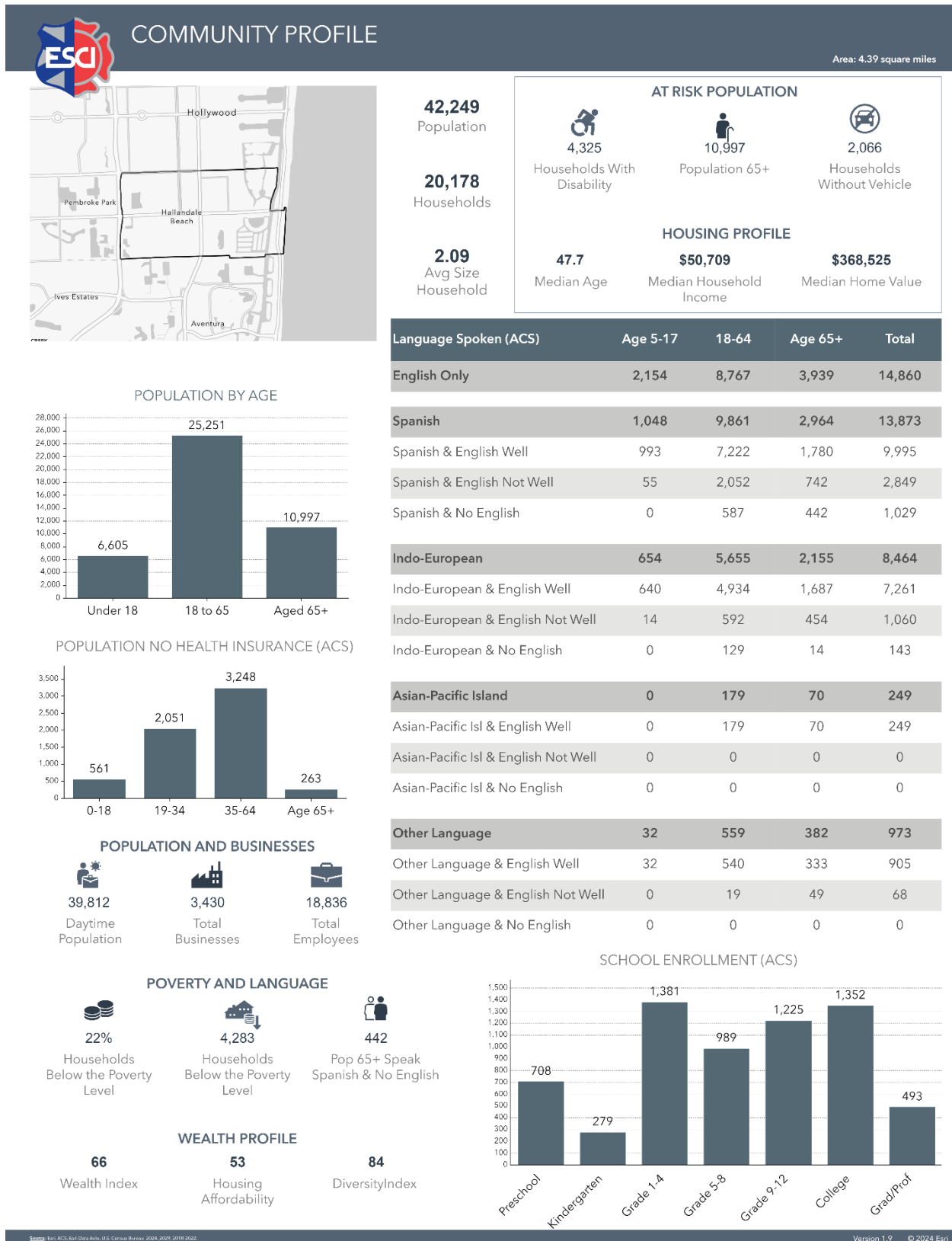
The community is economically diverse, with a median household income of \$50,709. However, it is important to note that 21% of households are below the poverty level, indicating a need for social services and support. On the other hand, the community is quite diverse, with a diversity index of 83.9, suggesting a rich mix of cultures and backgrounds among its residents.

In terms of housing, the community has a balanced mix of owner-occupied and renter-occupied households, each making up 50% of the total households. However, there is a relatively high percentage of vacant housing units at 30%, which could suggest a transient population or a high number of holiday or second homes. A significant proportion of the houses, 69%, were built before 1980, indicating a mature and established community with a rich history.

In terms of demographics, the community has a significant proportion of older residents, with 26% of the population being older than 65. This suggests that services and amenities catering to seniors could be important to community life. Additionally, the community is home to a significant number of school-aged children and a high school-aged population, indicating a need for quality educational facilities.



Figure 1. Hallandale Beach Demographic Profile





Description of the Current Service Delivery Infrastructure

Hallandale Beach was originally established as a way station between Palm Beach and Miami, envisioned by oil and railroad tycoon Henry Morrison Flagler. Flagler extended his Florida East Coast Railway (FEC) south to Miami, seeking produce from the fertile lands he acquired from Florida pioneer Julia Tuttle. The first Hallandale area plats were filed in 1898, with 12 original families. The first postmaster added "ale," and the settlement became known as Hallandale.

During the 1920s, Hallandale grew at a slower pace than nearby communities. To distinguish itself from Hollywood, it incorporated on May 14, 1927, with residents voting 229 to 21 to create the Town of Hallandale. In 1947, Hallandale annexed property from U.S. 1 east to the ocean, excluding an odd-shaped parcel north of Hallandale Beach Boulevard on A1A. The town reincorporated as the City of Hallandale and established its first Volunteer Fire Department under Fire Chief Bisson. The first fire station, located at 108 NE 1st Avenue, opened in February 1948, with firefighters carrying their own water to calls due to the lack of a city water system.

The 1950s and early 1960s saw significant growth, with the population increasing from just over 3,800 in 1950 to nearly 21,000 by 1966. High-rise condominiums and apartments were built along the beach and east of Federal Highway. In response to the growing population and need for services, the city formed a Rescue Squad in 1967, staffing it with two fully manned units, each including two county-certified "Fire-Medics" and one Emergency Medical Technician (EMT).

In 1971, the Hallandale Volunteer Fire Department transitioned to a Career Fire Department, with volunteers serving only administrative roles. Emergency medical calls rose to nearly 3,000 annually, leading to the implementation of an innovative project transforming the Rescue Squad into a highly trained emergency medical service. EMTs received eight months of training and a state examination, while paramedics underwent an additional eight months of training and a Broward County exam overseen by five local physicians. The Rescue Units were equipped with telemetry equipment and lifesaving drugs, first used on July 19, 1975, to save a heart attack victim's life. By 1976, fire and medical calls totaled over 6,000 annually.

After a development lull, the city's population grew to 36,000 by 1980. Over recent decades, the population has shifted from predominantly retirees to a younger community, with average ages decreasing from 64.1 years in 1990 to 46.7 years in 2010.



Hallandale Beach now handles approximately 8,000 emergency calls annually, with fire calls decreasing due to advancements in fire prevention and building codes, while emergency medical service needs have steadily increased.

Service Milestones:

- 1967: Hallandale Fire Department first to operate telemetry and administer lifesaving drugs in South Broward District.
- 1971: It transitioned from a volunteer to a career Fire Rescue Department.
- 2018: Hallandale Fire Department moved to a new LEED Certified headquarters building.
- 2020: It merged with Broward Sheriff's Office Department of Fire Rescue and Emergency Services.

Area Development: Since 1995, the city has added over a dozen high-rise buildings, two renowned casinos, and a world-class golf course and country club. Seven additional high-rise buildings are in various planning or construction stages.

The new "City Center" planned for the Foster Road corridor, supported by the Hallandale Beach Community Redevelopment Zone will bring retail and residential opportunities. The city also maintains a strong industrial presence on its northwestern border.

Service Delivery Program: Service is provided via a single-tier fire rescue organization from three modern fire stations. Legacy Hallandale Beach Fire Department (HBFD) served Hallandale Beach residents from the inception of the "Rescue Squads" in 1967, through the transition to a career department, and the merger with Broward Sheriff's Office Department of Fire Rescue and Emergency Services on January 4, 2020.

Governance & Lines of Authority

Hallandale Beach operates under a commission-manager government form, with four elected commissioners and one elected Mayor appointing a city manager to oversee the city's administration. The vice mayor is chosen by the commission from among themselves for two-year terms. The city commission sets policies and adopts ordinances and resolutions, while the city manager implements them and directs the daily operations of the city.



Review of Services Provided

Emergency Services Response Types

The Broward Sheriff's Office is an all-hazard, accredited, Class 1 department renowned for its capability to manage a wide array of emergency incidents. As a top-tier emergency service provider, BSO is equipped to address diverse challenges, from fire suppression and emergency medical services to specialized rescue operations and hazardous materials incidents.

The following chart provides a comprehensive overview of the various call types handled by BSO within the City of Hallandale Beach over the past four years (2020–2023). This data highlights the breadth of incidents managed and underscores the department's commitment to public safety and rapid response.

Figure 2. Incident Response Types

Incident Type	2020	2021	2022	2023	Total	%
Fire (100)	205	286	246	276	1,013	2.78%
Hazardous Condition (200, 400)	254	186	192	223	855	2.35%
EMS 300 (except 322-324)	5,571	6,017	5,613	6,373	23,574	64.75%
Vehicle Crash (322-324)	536	607	618	616	2,377	6.53%
Service Call (500)	857	787	759	763	3,166	8.70%
Canceled, Good Intent (600)	478	500	784	920	2,682	7.37%
Alarm (700)	606	552	739	830	2,727	7.49%
Other (800, 900)	1	2	2	6	11	0.03%
TOTAL:	8,508	8,937	8,953	10,007	36,405	100.00%
Out-Of-Zone	257					

Operational Staffing and Assignment Evaluation

An adequate and well-trained team of emergency responders is essential to effectively utilize the community's emergency apparatus and equipment in mitigating incidents. Insufficient staffing during emergencies can greatly reduce the response's effectiveness and increase damage and injury.

The Broward Sheriff's Office relies on career personnel to perform emergency response functions. The following figure illustrates the distribution of emergency personnel by rank.

*Figure 3. Distribution of Personnel by Shift*

Position	Number
District Chief (Not usually subject to call)	1
Battalion Chief	1
Fire Captain	4
Fire Apparatus Operator/Engineer	3
Firefighter	7

Staff Allocation for Emergency Functions

This document will analyze how well the Broward Sheriff's Office (BSO) provides personnel and other resources for incidents within its primary service area. This data is crucial as it can indicate the effectiveness of its staffing efforts.

For larger incidents, BSO commonly responds with additional units from outside the area or collaborates with neighboring fire departments through a coordinated regional response system of mutual and automatic aid agreements. This is particularly true for large structure fires, other high-risk incidents requiring substantial staffing, and during periods of significant incident activity.

The prompt arrival of at least four personnel is critical for structure fires. Federal regulations (CFR 1910.120) require that personnel entering a building involved in fire must be in groups of two. Furthermore, before personnel can enter a building to extinguish a fire, at least two personnel must be on scene and assigned to conduct search and rescue in case the fire attack crew becomes trapped. This is referred to as the two-in, two-out rule.

There are, however, some exceptions to this regulation. For example, if it is known that victims are trapped inside the building, a rescue attempt can be performed without additional personnel ready to intervene outside the structure. Additionally, there is no requirement that all four arrive on the same response vehicle. Many fire departments rely on more than one unit arriving to initiate an interior fire attack.

BSO staffs fire engines with three firefighters, thus it does need to wait for a second unit to arrive before it can initiate interior fire attack operations in a non-rescue incident.

Some incidents, such as structure fires, require more than one response unit. The ability of BSO and its automatic aid neighbors to assemble an effective response force for a



multiple-unit incident within a specific period, also known as resource concentration, will be analyzed in a later section of this document.

The following figure lists each station, staffed unit, and the staffing assigned to each at minimum staffing.

Figure 4. Apparatus & Minimum Staffing

Station	Apparatus	Minimum Staffing
Station 07	Engine 7 (E7)	3
	Quint 7 (Q7)	3
	Rescue 7 (R7)	2
	Battalion 7 (BC7)	1
Station 60	Engine 60 (E60)	3
	Rescue 60 (R60)	2
Station 90	Rescue 90 (R90)	2
TOTAL:		16



Community Risk Assessment

Topography

The city's topography is mostly flat, with an average elevation of 10 feet above sea level. The Atlantic Ocean borders the city to the east, the Interstate 95 to the west, and Hollywood and Aventura to the north and south, respectively. The city has a few response barriers, such as bridges, canals, and gated communities, that may affect emergency access and evacuation. The city also has some open space/interface areas, such as parks, golf courses, and wetlands, that may pose a fire risk or a flood hazard.

Transportation

The city relies on various transportation networks, including roads, rail lines, airports, and waterways, to connect with the surrounding areas and support its economic and social activities. The city has several major roads, such as State Road A1A, U.S. Route 1, Interstate 95, and Florida's Turnpike, that facilitate the movement of people and goods within and outside the city. Additionally, the city has access to the Tri-Rail commuter rail service, the Metrorail rapid transit system, and the Brightline intercity rail service, linking the city with other cities in South Florida and beyond. The city is also served by two airports, the Fort Lauderdale-Hollywood International Airport and the North Perry Airport, that offer domestic and international flights and general aviation and cargo services. Finally, the city also has a network of canals and waterways, such as the Intracoastal Waterway, that provides recreational and commercial boating opportunities and flood control and drainage functions.

Community Land Use Regulations

Community land use regulations determine how land can be used and developed in Hallandale Beach. They include:

- A comprehensive plan that guides the long-term vision and strategies for land use, transportation, housing, economic development, environmental protection, and other aspects of community life.
- A zoning code that divides the land into different districts or zones, each with specific regulations on the types, densities, heights, and locations of buildings and structures, as well as the uses and activities that are allowed, prohibited, or conditional within each zone.

- Hallandale Beach's land use regulations are enacted and enforced by the city government, under the authority granted by state laws. They are administered by the Sustainable Development department, and subject to public hearings and review processes. Hallandale Beach's land use regulations aim to protect the public health, safety, and welfare, as well as the natural and cultural resources, of the city, and to promote orderly and efficient development that reflects the city's character and values.

Figure 5. Hallandale Zoning Map





Facility & Deployment Analysis

Distribution

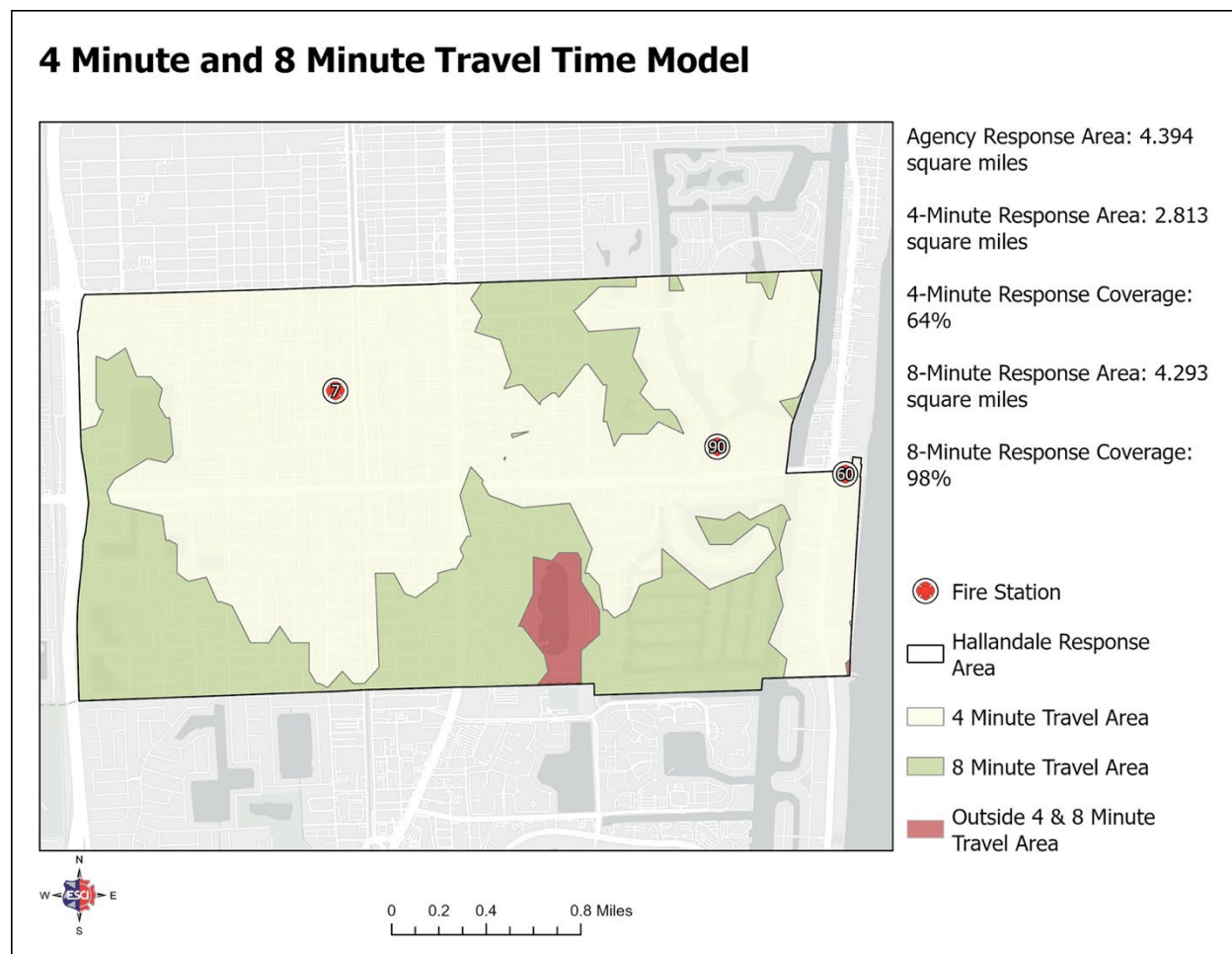
Resource distribution for fire and emergency services refers to how fire stations, personnel, and equipment are strategically located and allocated within a community to ensure optimal response times and service coverage. This distribution is guided by NFPA (National Fire Protection Association) Standards, particularly NFPA 1710 and NFPA 1720, which set benchmarks for the deployment of fire suppression resources.

The map below illustrates the 4-Minute and 8-Minute Travel Time Model for fire station response within the Hallandale Beach area. Below is a breakdown of the distribution:

1. Fire Station Locations: Three fire stations are marked with red symbols on the map.
2. Travel Time Areas:
 - 4-Minute Travel Area (Light Green): Covers 2.813 square miles, representing 64% of the agency's response area. This indicates the regions where emergency services can arrive within 4 minutes.
 - 8-Minute Travel Area (Light Yellow): Extends the coverage to 4.293 square miles, accounting for 98% of the total response area. This shows areas reachable within 8 minutes.
 - Outside 4 & 8-Minute Travel Area (Red): A small section is outside the 8-minute response range, indicating a potential gap in coverage.
3. Agency Response Area: The total area covered by the fire department is 4.394 square miles.

Key Insight: Most of the area (98%) is covered within 8 minutes, with 64% reachable in just 4 minutes. However, the red-shaded region suggests a slight delay in response time beyond 8 minutes, which could indicate a need for strategic resource allocation or new station planning.

Figure 6: 4 Minute and 8 Minute travel time

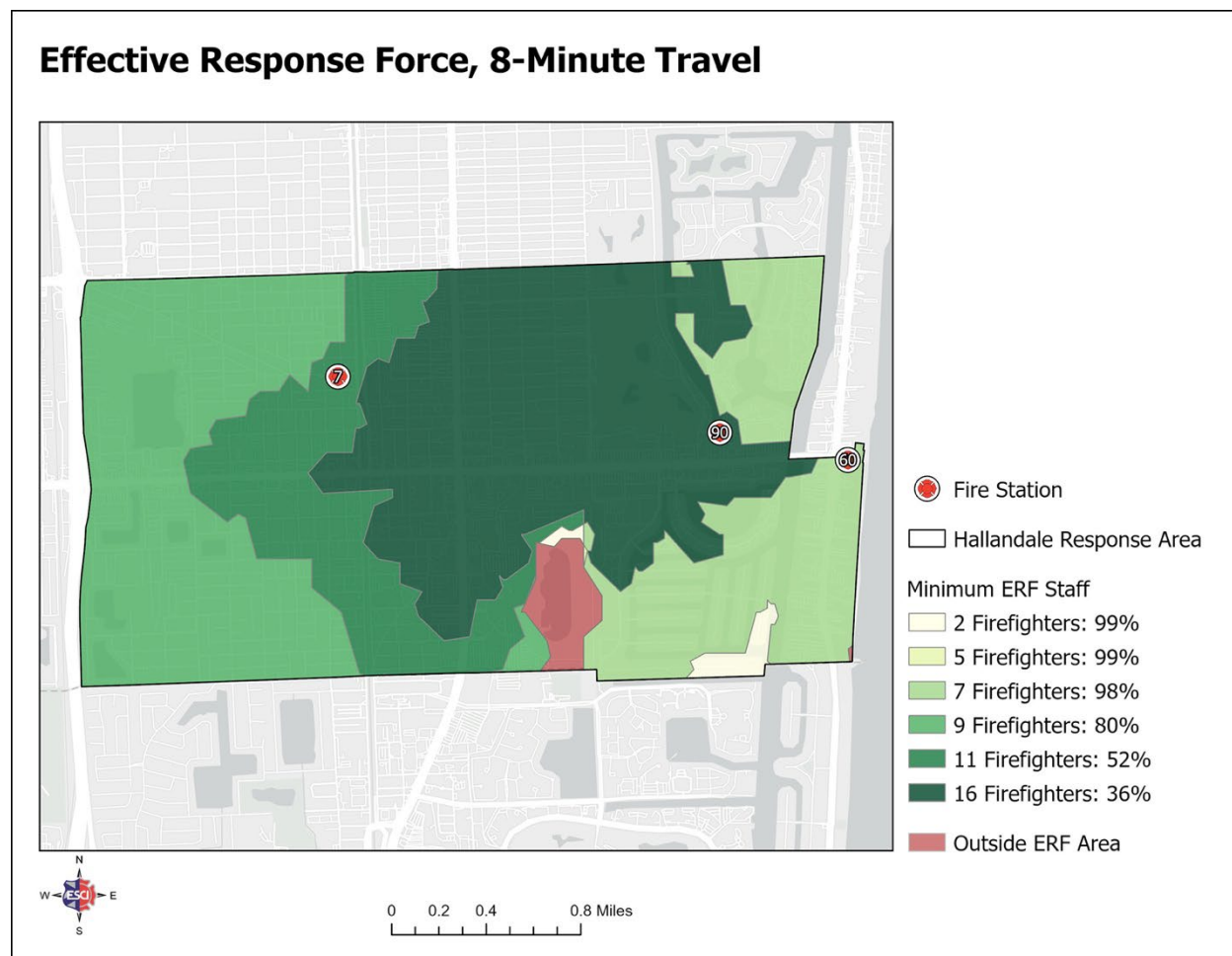


Concentration

The figure below shows the effective response force (ERF) of Hallandale Beach Fire Rescue in relation to the population density and call volume. The ERF is the number of personnel and apparatus needed to handle an emergency. The figure illustrates how the ERF capacity varies depending on the location within the city.

Note the area indicated as “Outside ERF Area” is a portion of the city where no road network is available for the analysis. Hallandale response resources can use alternative means to positively impact that area.

Figure 7. Effective Response Force



Note the area indicated as “Outside ERF Area” is a portion of the city where no road network is available for the analysis. Hallandale response resources can use alternative means to positively impact that area.



Service Delivery & Performance

Service delivery and performance are the metrics that best illustrate the services provided by the fire department to a community.

Service Demand Analysis

When assistance is requested, a demand for service from the fire department is requested. Analyzed by each calendar year, the primary analyses of service demand include the types of incidents, when they occur, and where they occur.

Incident Type Analysis

Documentation of response to incidents includes recording the type of incident found by an arriving unit. The National Fire Incident Reporting System (NFIRS) and its successor, the National Emergency Response Information System (NERIS), are industry standard systems used by the local fire department to record this information. The systems track over one hundred incident types which are grouped into series as illustrated in the following figure.

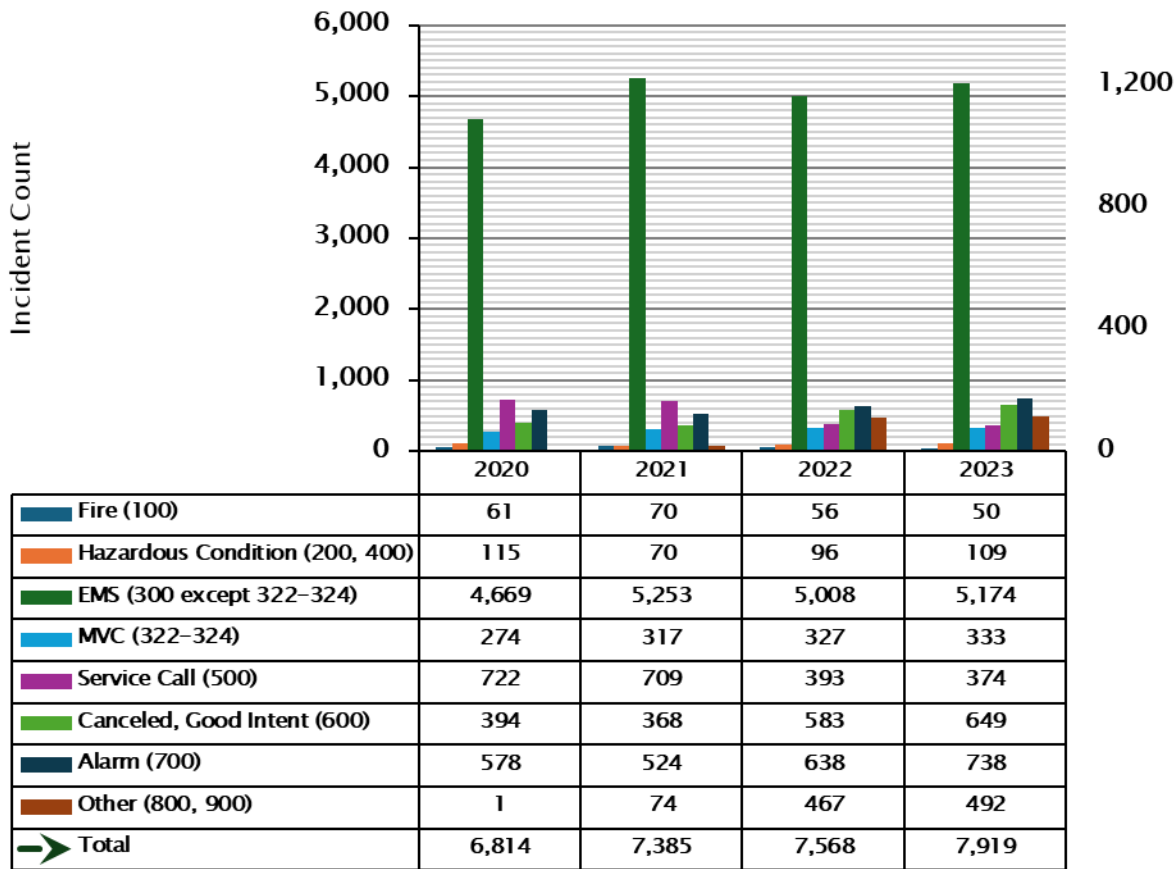
Figure 8. NFIRS Incident Series

Incident Series	Incident Heading
100-Series	Fires
200-Series	Overpressure Rupture, Explosion, Overheat (No Fire)
300-Series	Rescue and Emergency Medical Service (EMS) Incidents
400-Series	Hazardous Condition (No Fire)
500-Series	Service Call
600-Series	Canceled, Good Intent
700-Series	False Alarm, False Call
800-Series	Severe Weather, Natural Disaster
900-Series	Special Incident Type



The following figure illustrates the types of incidents the fire department has responded to over a four-year period.

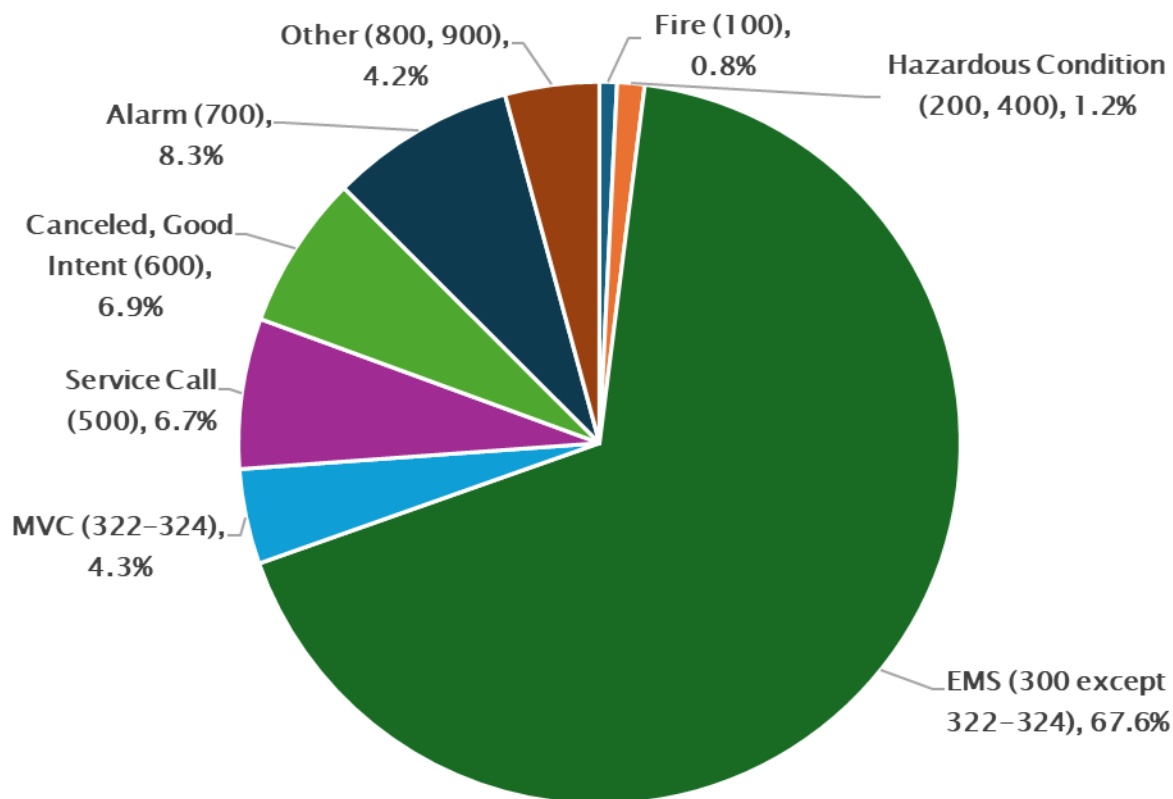
Figure 9. Service Demand by NFIRS Series, 2020-2023





Another consideration is to determine the percentage represented by each category comprising the entirety of service demand, as illustrated in the following figure.

Figure 10. Service Demand by NFIRS Series, 2020-2023



Temporal Analysis

Another data point documented for each incident response is the time at which it occurs. This may be analyzed from three different views—month, day, and hour, as illustrated in the following figures.

Figure 11. Service Demand by Month, 2020-2023

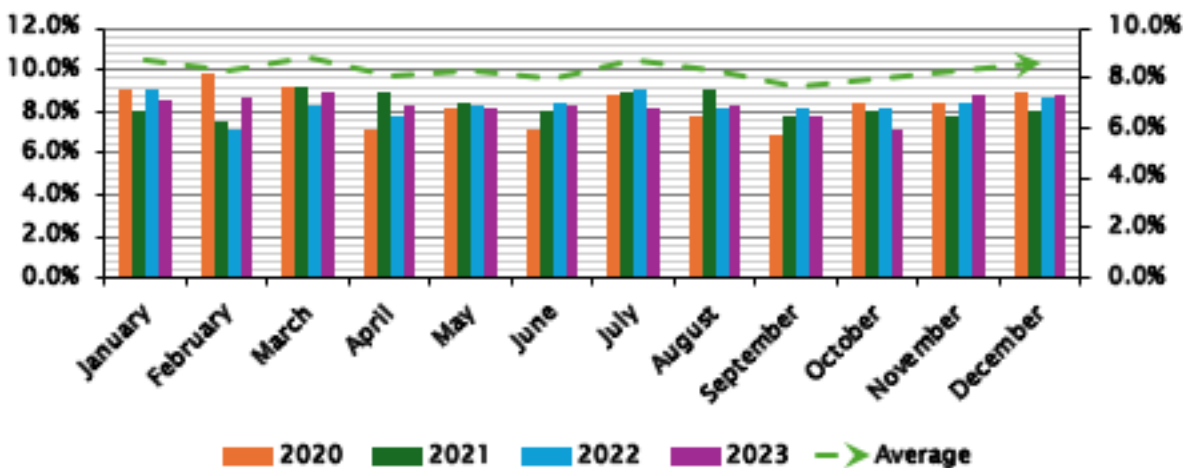


Figure 12. Service Demand by Day, 2020-2023

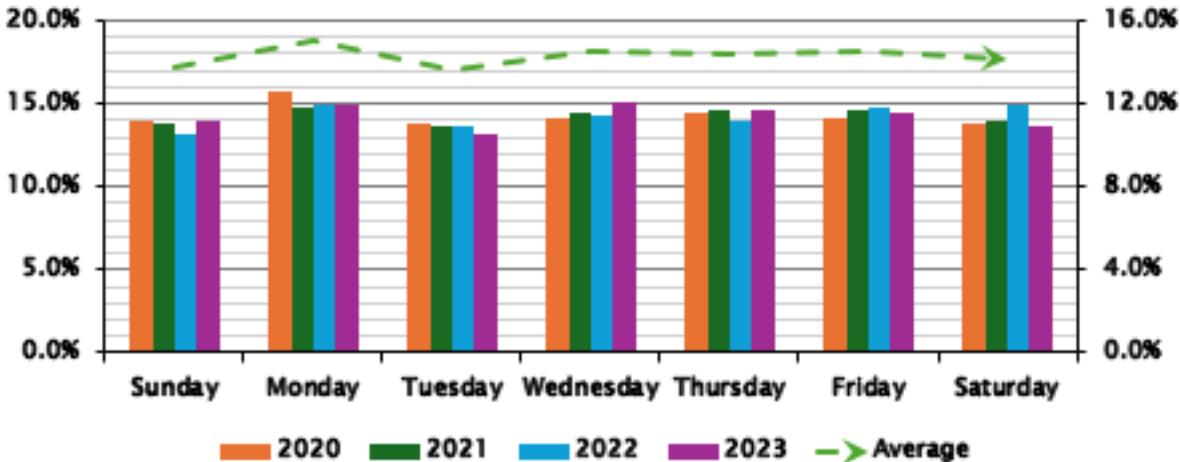
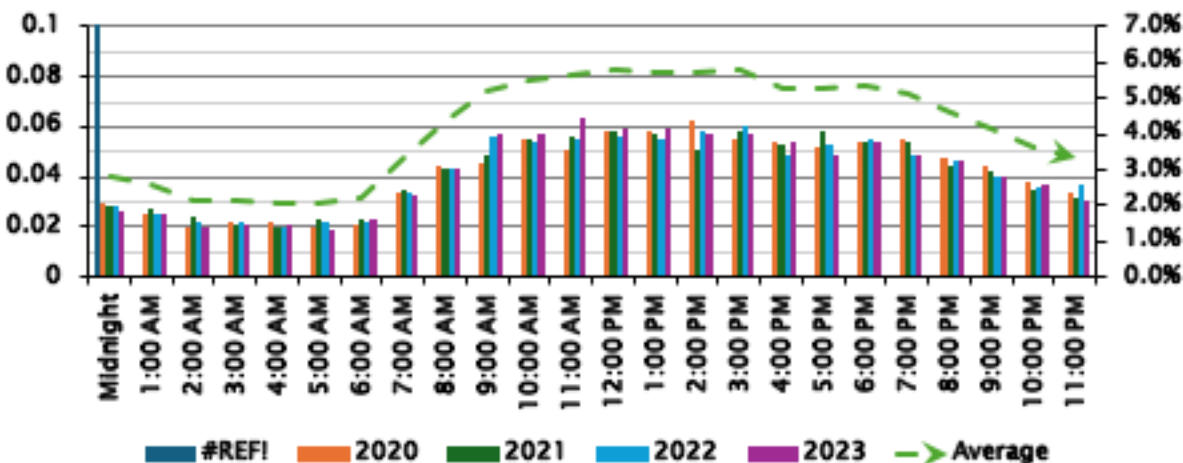


Figure 13. Service Demand by Hour, 2020-2023



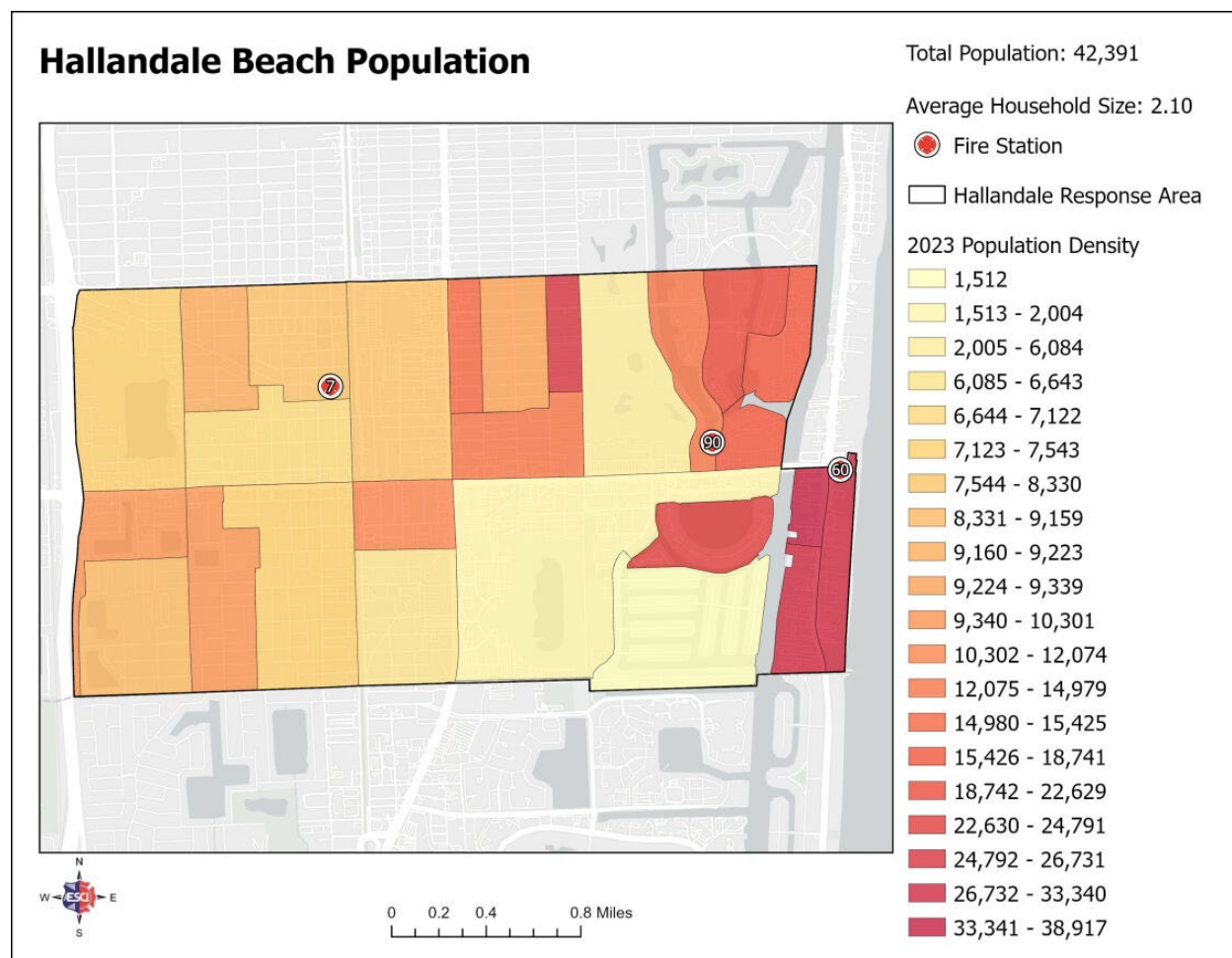
One additional note for time of day—based on a national study recently published, using data from 2018 to 2020, the occurrence of residential structure fires with fatalities were highest between midnight and 1:00 AM. The 8-hour peak period (11:00 PM to 7:00 AM) accounted for 45% of residential fatal fires¹.

¹ Fatal Fires in Residential Buildings (2018–2020), Topical Fire Report Series Volume 22, Issue 2 /June 2022, U.S. Department of Homeland Security, U.S. Fire Administration, National Fire Data Center.

Geographic Analysis

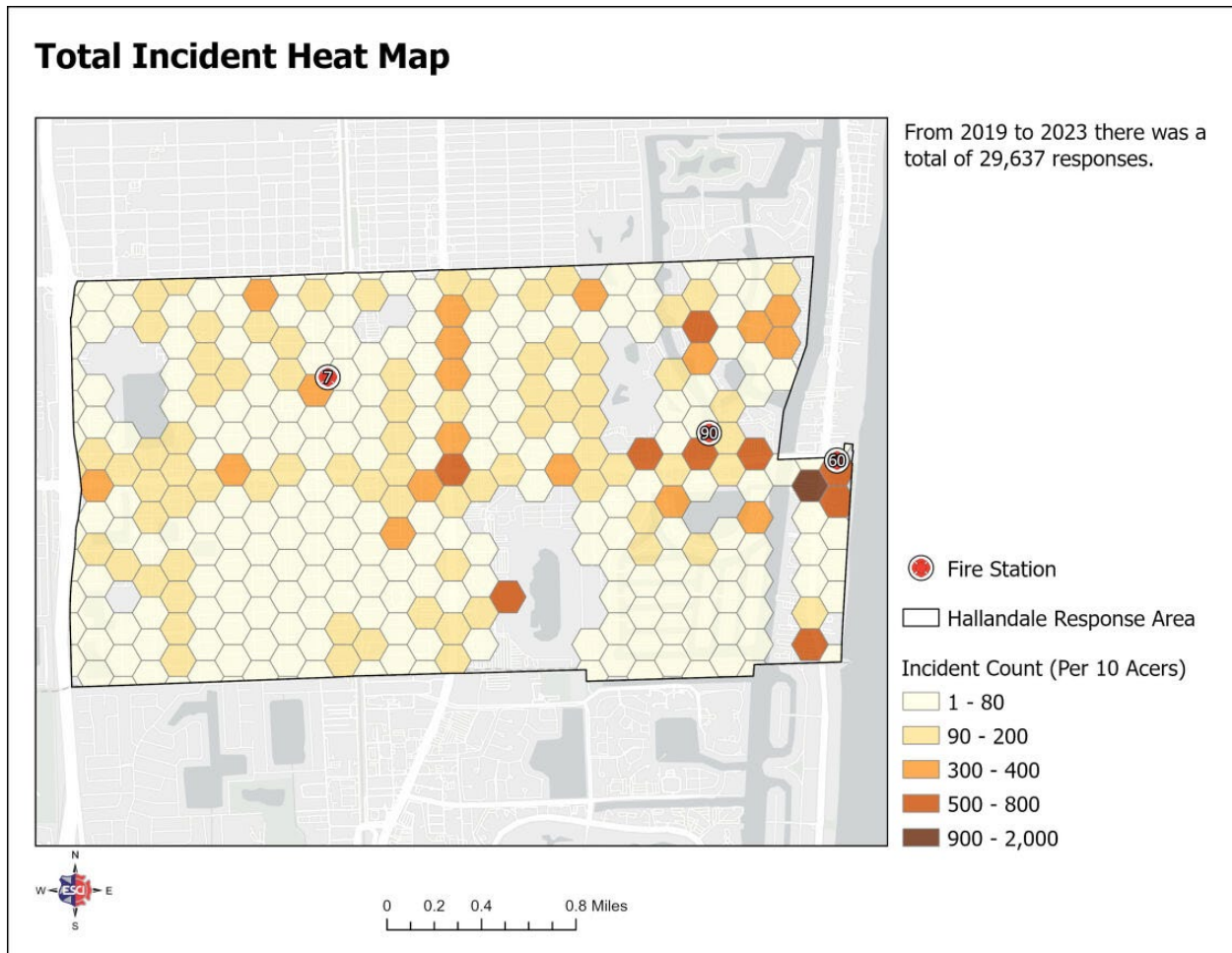
The location of incidents is closely related to the population density within the community. In other words, where there is greater population density (number of people per unit area such as square mile), there tends to be greater incident density. Heat maps are used to display this information. To compare the initial relationship of incidents and population, the first information needed is the population density, as illustrated in the following figure.

Figure 14. Population Density, 2024



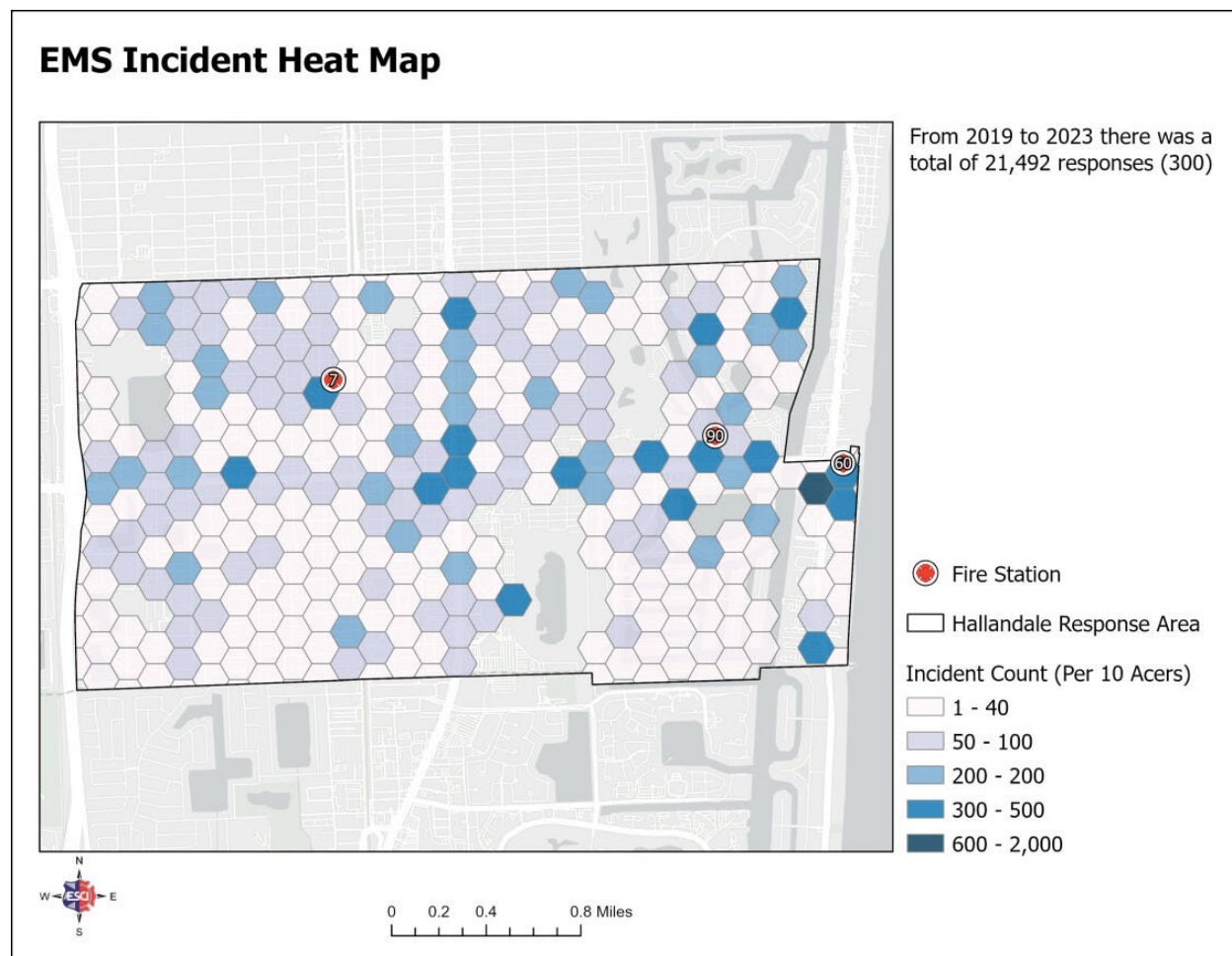
Another datapoint documented for each incident response is the location of the incident, either by address and/or the latitude and longitude of the incident. The first view of incident density includes all responses within the service area, regardless of incident type, as illustrated in the following figure.

Figure 15. Incident Density (All Incidents), 2020-2023



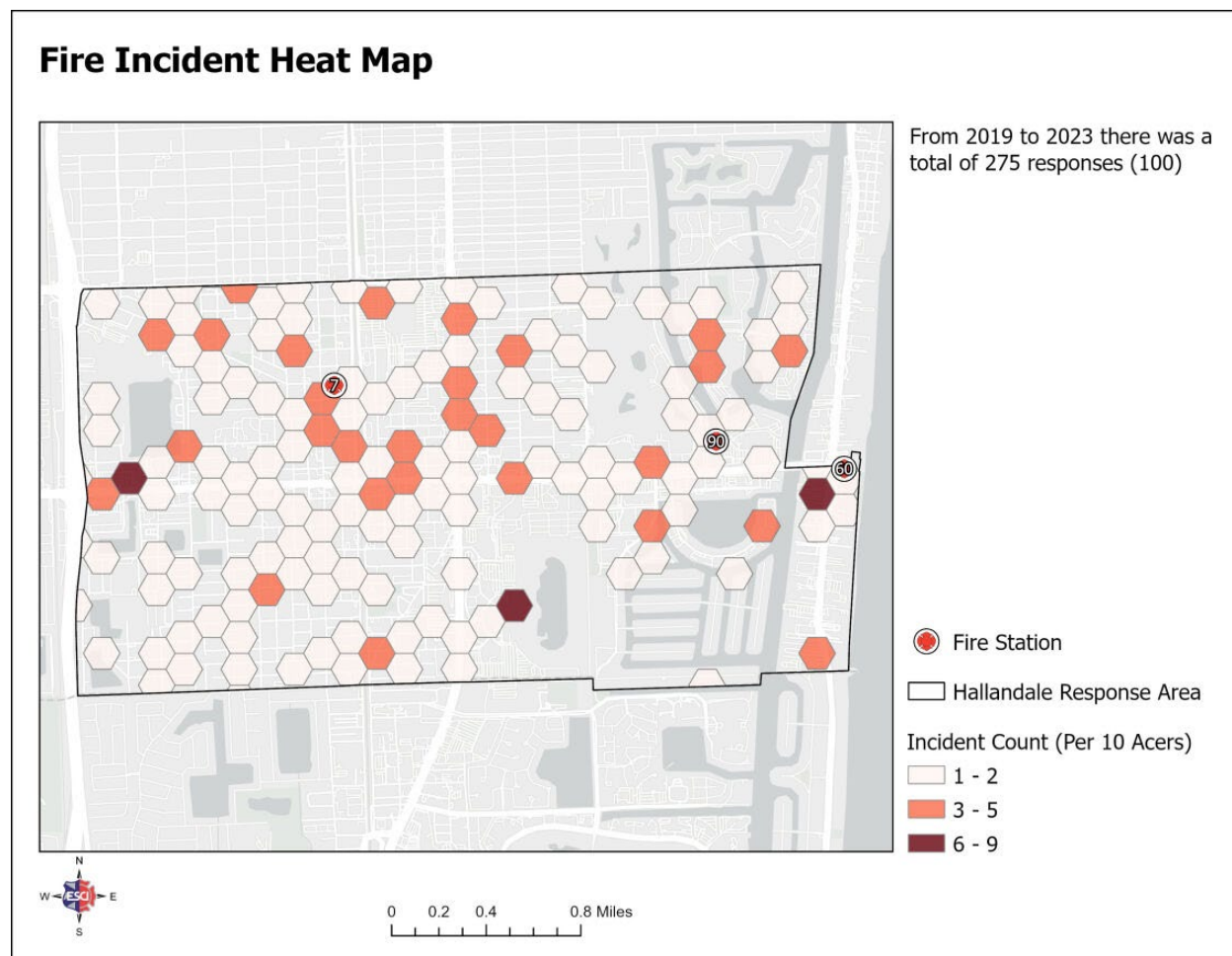
The second view of incident density includes only emergency medical services incidents, as illustrated in the following figure.

Figure 16. Incident Density (EMS), 2020-2023



The third view of incident density includes only fire incidents, as illustrated in the following figure.

Figure 17. Incident Density (Fire), 2020-2023





Resource Distribution Analysis

The placement of emergency services resources within the community should be compared to the location of incident density and guided by various industry standards and best practices.

ISO Distribution

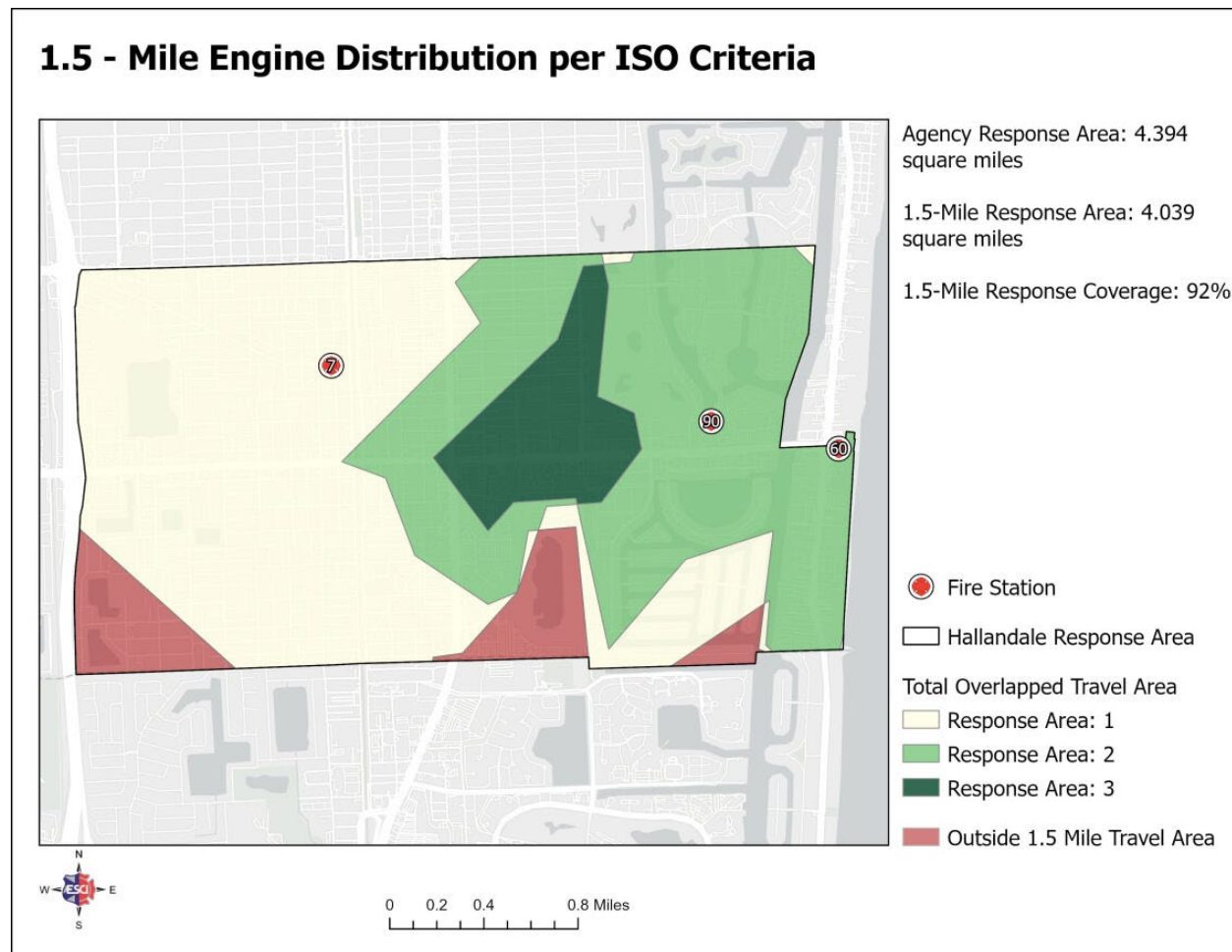
The Insurance Services Office, Inc. (ISO) is a national insurance industry organization that evaluates fire protection for communities across the country. A community's ISO rating is an important factor when considering fire station and apparatus concentration, distribution, and deployment, as there is a correlation between a community's ISO rating and the cost of fire (homeowners) insurance for residents and businesses.

To receive maximum credit for station and apparatus distribution, ISO evaluates the percentage of the community (contiguously built upon area) that is within specific distances of fire stations, central water supply access (fire hydrants), engine/pumper companies and aerial/ladder apparatus.

1.5 Mile Engine Distribution

ISO's first measure is the overall percentage of the service area that lies within a 1.5-mile travel distance of the first due fire engine from a fire station, as illustrated in the following figure.

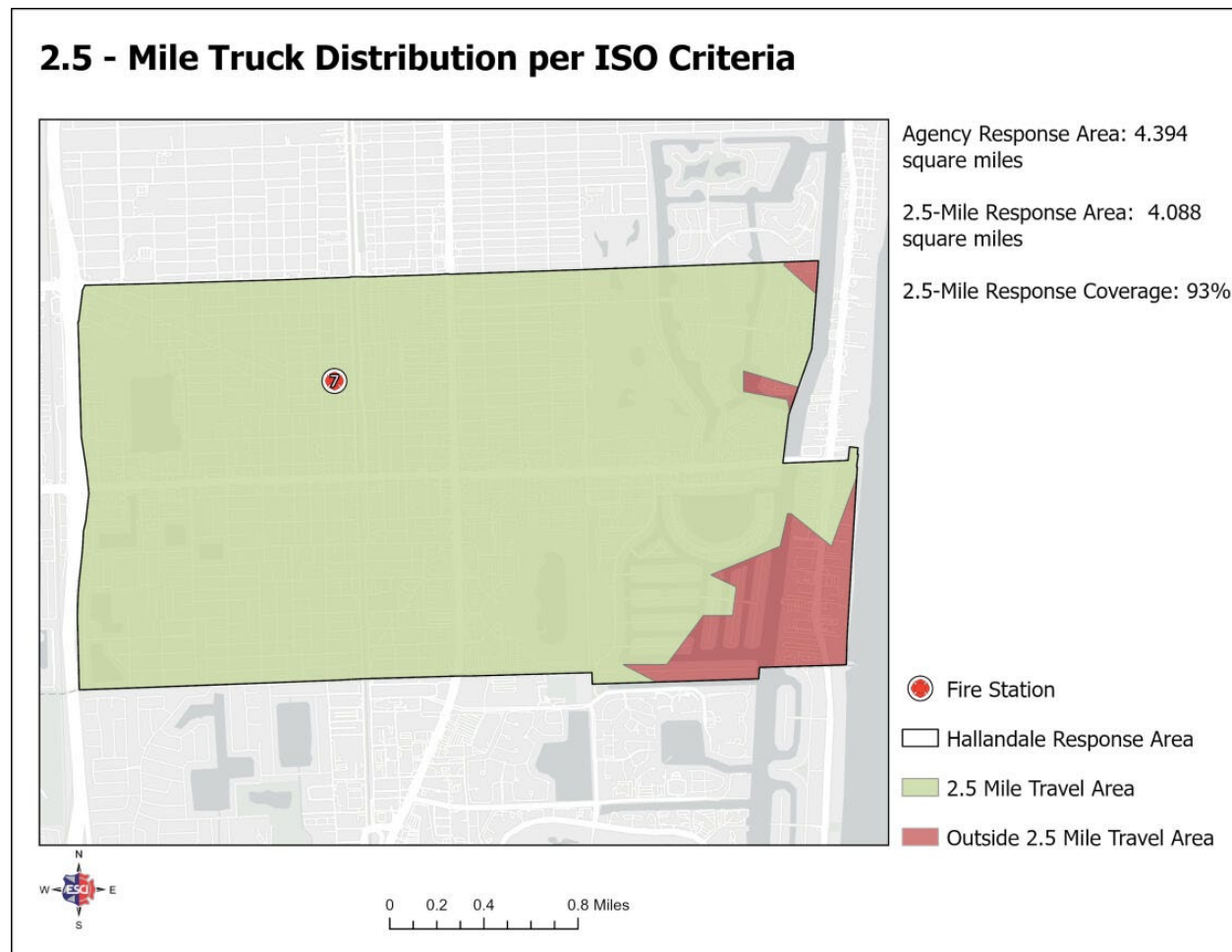
Figure 18. Engine Distribution



2.5 Mile Aerial Distribution

ISO's second measure is the overall percentage of the service area that lies within a 2.5-mile travel distance of the first due aerial apparatus from a fire station, as illustrated in the following figure.

Figure 19. Aerial Distribution



5 Mile Distribution

ISO's third measure is the overall percentage of the service area that lies within a 5-mile travel distance of a fire station, as illustrated in the following figure. Areas outside of the 5-mile travel distance are subject to a PPC® rating of 10 (no fire department protection available).

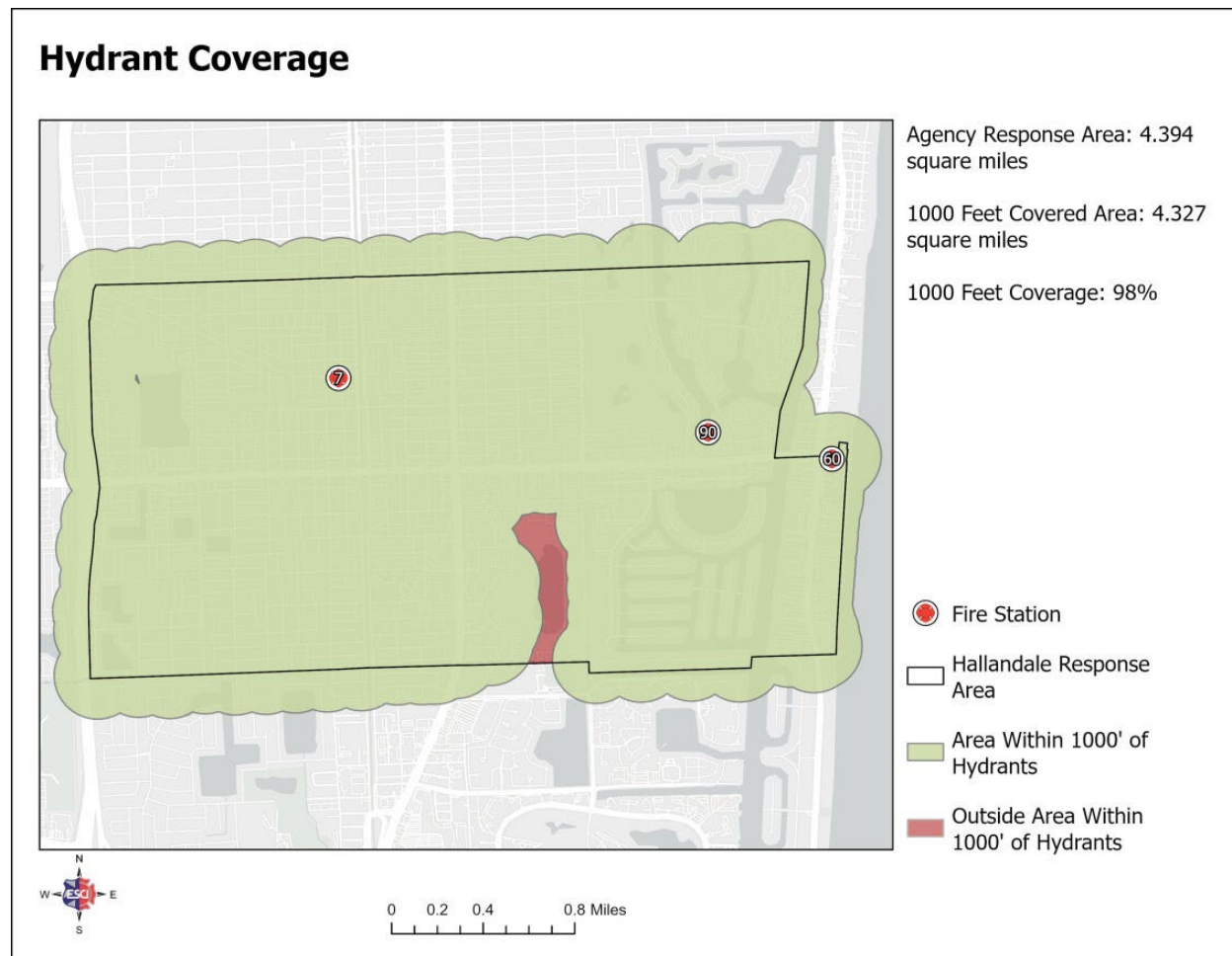
Figure 20. Station Distribution



Water Supply

ISO's fourth measure is the overall percentage of the service area that lies within a 1,000-foot travel distance of a fire hydrant, as illustrated in the following figure. Exceptions are made when a fire department can show that a dry hydrant or a suitable water tanker operation can provide the needed volume of water for fire suppression activities for a specific period.

Figure 21. Hydrant Distribution





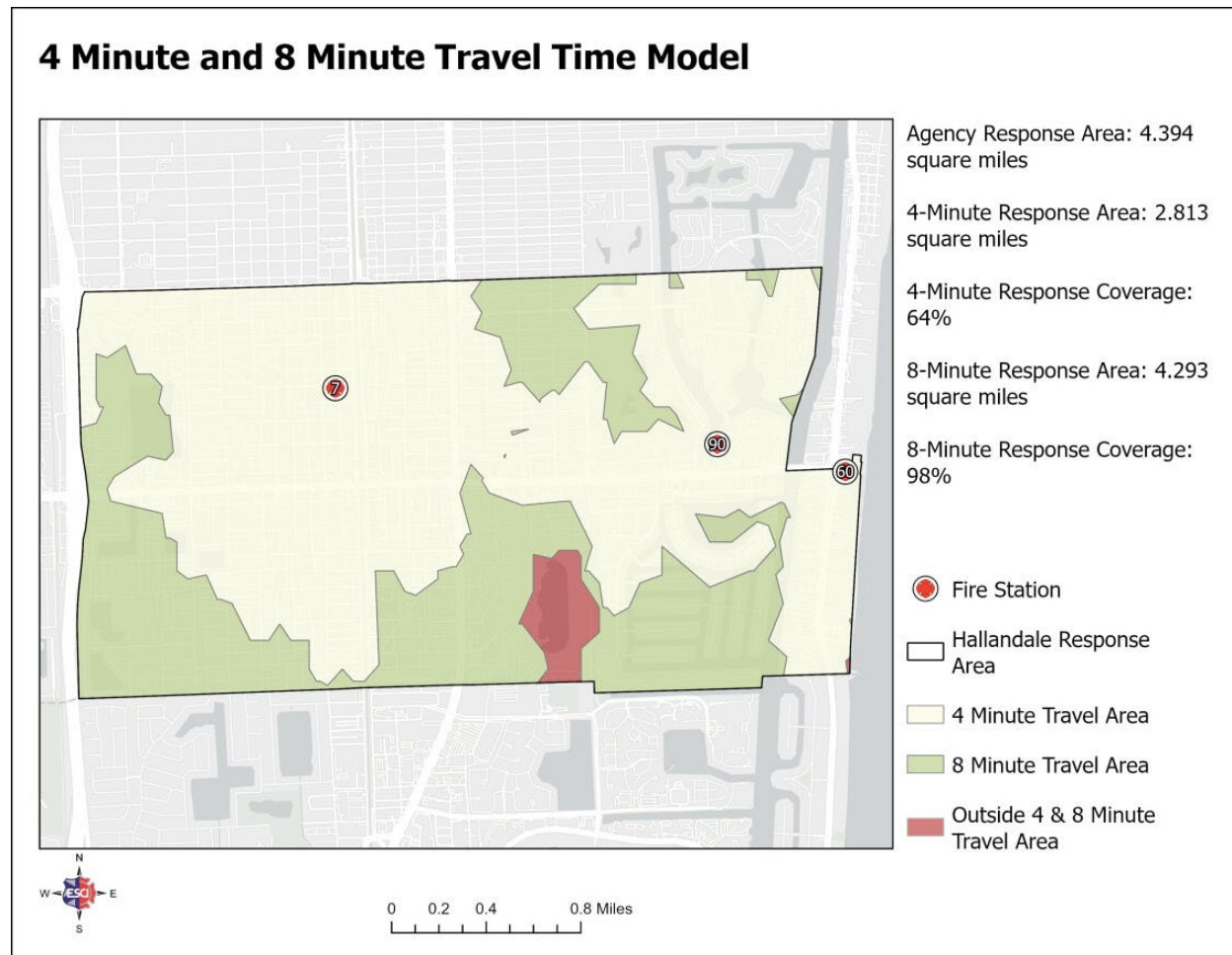
NFPA Distribution

The National Fire Protection Association (NFPA) is an industry trade association that develops and provides standards and codes for fire departments and emergency medical services for use by local governments.

The standard, NFPA 1710: *Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Career Fire Departments*, serves as a national consensus standard for career fire department performance, operations, and safety. Within this standard, a travel time of 4:00 minutes 90% of the time is identified as the benchmark for *career* departments to reach emergency incidents within their jurisdiction with the first arriving unit. Additionally, the balance of the response (called the effective response force or ERF) is required to arrive at the incident within 8:00 minutes 90% of the time.

The following figure illustrates the service area that falls within the 4-minute travel time and 8-minute travel times of a fire station.

Figure 22. 4/8-Minute Travel Time per NFPA Criteria



The prior graphic provides theoretical travel times based on all units within the station at the time of dispatch.



The following figure illustrates actual travel times during calendar year(s) 2020–2023, grouped into 4-minute increments.

Figure 23. Travel Time Analysis, 2020-2023

Travel Time Group	Count	Percentage	Year
4 Minutes or Less	8,365	15.17%	2023
4 – 8 Minutes	24,244	43.97%	
8 – 12 Minutes	13,059	23.69%	
Greater than 12 Minutes	9,467	17.17%	
Total	55,135	100.00%	



Resource Concentration Analysis

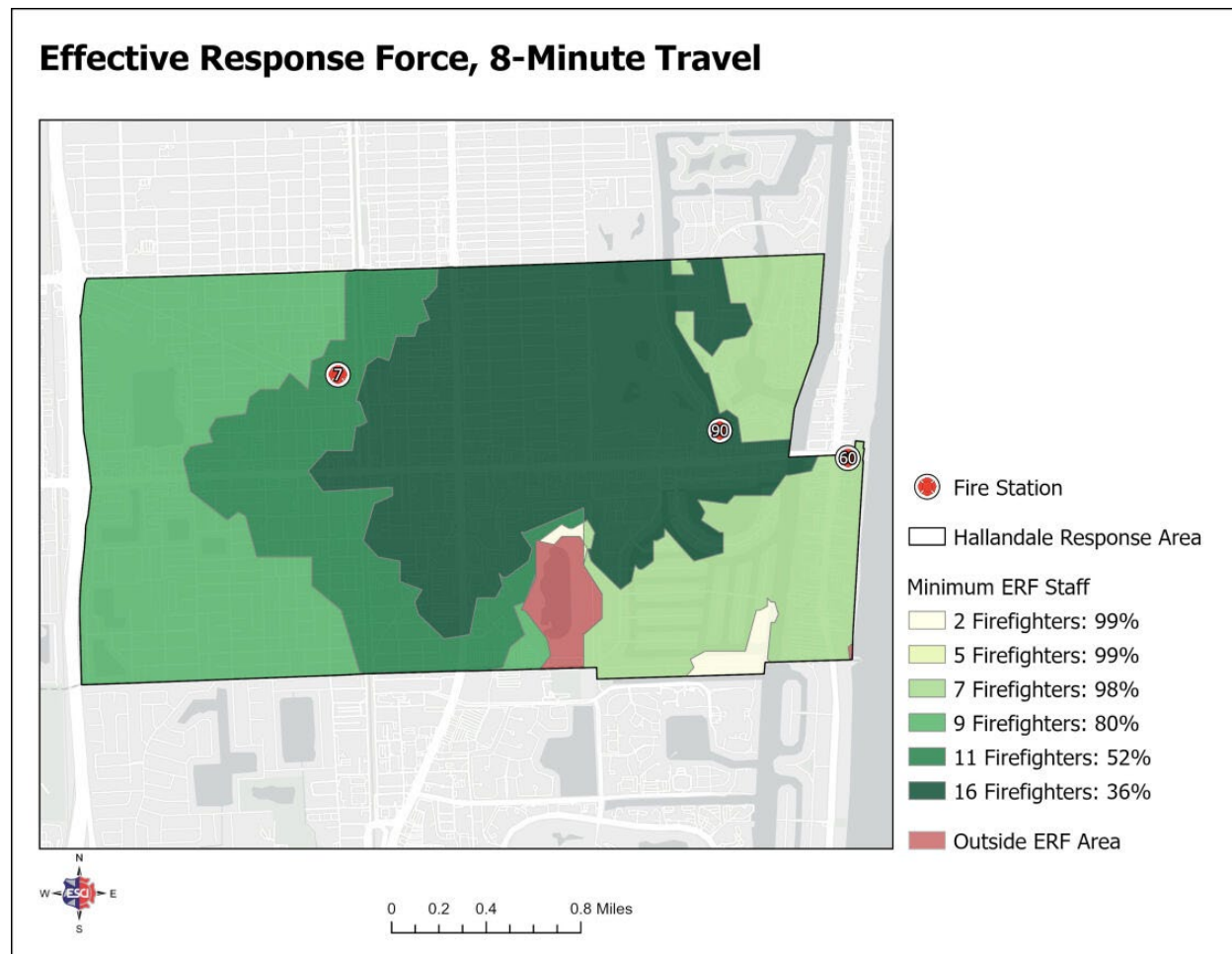
Each of the prior measures provided a view specifically associated with the arrival of the first unit to the incident scene. While arriving at an incident quickly and safely is essential, the ability to safely mitigate the incident is also impacted by the arrival of sufficient resources within an appropriate amount of time. The measure of this ability is referred to as ERF (effective response force) and ensures that sufficient personnel and resources arrive on the scene early enough to safely control a fire or mitigate other types of emergencies prior to substantial damage, injury, or loss of life. ERF is also commonly referred to as the “full assignment” to the incident. The following graphic illustrates the ERF recommended through standards such as NFPA 1710, *Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Career Fire Departments* and the Commission on Fire Accreditation (CFAI) Standards of Cover.

Figure 24. NFPA 1710 ERF Recommendations Based on Risk

Function/Task	Single-Family Residence (2,000 ft ²)	Open Air Strip Shopping Center (13,000–196,000 ft ²)	3-Story Garden Apartment (1,200 ft ²)
Command	1	2	2
Apparatus Operator	1	2	2
Handlines (2 members each)	4	6	6
Support Members	2	3	3
Victim Search and Rescue team	2	4	4
Ground Ladders/Ventilation	2	4	4
Aerial Ladder Operator (If ladder used)	(1)	(1)	(1)
Initial Rapid Intervention Team	4	4	4
Initial Medical Care Component	N/A	2	2
Total:	16 (17)	27 (28)	27 (28)

The following figure illustrates the concentration of firefighters that may arrive within the 8-minute travel time. Where responses from more than one station overlaps, the number of firefighters arriving increases.

Figure 25. Effective Response Force per NFPA 1710





Resource Reliability Analysis

To consider the reliability of a unit to respond to incidents within their primary response, workload and zone unit first arrived should be analyzed.

Commitment Time

A fair measure of workload by each unit within the department is to evaluate the amount of time assigned to incidents compared to the total time the unit is in service, called a commitment factor. While there are limited formal performance measures to use as a target measure, in May 2016, Henrico County (VA) Division of Fire published an article after studying their department's EMS workload.² As a result of the study, Henrico County Division of Fire developed a commitment factor scale for their department. The next figure is a summary of the findings as it relates to commitment factors and may be utilized by the department's leadership as a base for developing internal workload measures. These workload measures may vary based on the type of apparatus (i.e., fire engine versus transport ambulance).

Figure 26. Commitment Factors as Developed by Henrico County (VA) Division, 2016

Factor	Indication	Description
16%-24%	Ideal Commitment Range	Personnel can maintain training requirements and physical fitness and can consistently achieve response time benchmarks. Units are available to the community more than 75% of the time.
25%	System Stress	Community availability and unit sustainability are not questioned. First-due units are responding to their assigned community 75% of the time, and response benchmarks are rarely missed.
26%-29%	Evaluation Range	The community served will experience delayed incident responses. Just under 30% of the day, first-due ambulances are unavailable; thus, neighboring responders will likely exceed goals.
30%	"Line in the Sand"	Not Sustainable: Commitment Threshold—community has less than a 70% chance of timely emergency service and immediate relief is vital. Personnel assigned to units at or exceeding 30% may show signs of fatigue and burnout and may be at increased risk of errors. Required training and physical fitness sessions are not consistently completed.

² How Busy Is Busy?; Retrieved from <https://www.fireengineering.com/articles/print/volume-169/issue-5/departments/fireems/how-busy-is-busy.html>



The following figures illustrate the commitment factors by unit.

Figure 27. Commitment Time, 2020-2023

Station	Unit	2019	2020	2021	2022	2023	Change Over Study Period
7	BC7	0.00%	1.00%	1.03%	0.84%	0.97%	0.97%
7	E7	0.29%	4.34%	3.67%	3.45%	4.81%	4.52%
7	Q7	0.00%	2.72%	2.88%	2.61%	3.17%	3.17%
7	R7	0.02%	16.08%	24.50%	14.94%	17.71%	17.69%
60	E60	0.00%	5.83%	5.51%	5.42%	6.61%	6.61%
60	R60	0.01%	8.74%	13.52%	8.52%	8.89%	8.89%
90	R90	0.02%	17.52%	17.67%	16.86%	16.12%	16.10%

Response Zone Coverage by Response Zone Units

Ideally, incidents within each fire station response zone (or planning zone) would receive initial services from a unit primarily responsible for that zone (usually closest unit). Following the same concept as that of the commitment factor, and although no formal standard exists, this should occur for greater than 75% of incidents—allowing for units that may be committed already on other calls. At times, the first arriving unit is not the closest one. While the above standard is not a specific standard in place, it is a starting point for the department's leadership to consider when evaluating the reliability of units and potential need for additional resources.

The following figure illustrates the percentage of times that the primary responsible unit for a zone was the first to arrive on a call in that zone.

Figure 28: Zone Unit First Arrival, 2020-2023

Zone	Zone Analysis												Change over Study Period
	2020			2021			2022			2023			
	Incidents	Zone Unit	Percentage First	Incidents	Zone Unit	Percentage First	Incidents	Zone Unit	Percentage First	Incidents	Zone Unit	Percentage First	
	2020	First 2020	2020	2021	First 2021	2021	2022	First 2022	2022	2023	First 2023	First 2023	
7	3290	2162	66%	3,626	2,368	65%	4114	2422	59%	3562	2529	71%	5.3%
60	1417	981	69%	1,514	1,067	70%	1543	1139	74%	1694	1155	68%	-1.0%
90	2634	1195	45%	2,552	1,336	52%	2792	1291	46%	2547	1248	49%	3.6%



Response Performance Analysis

How quickly a unit arrives to the scene of caller's emergency is a key factor in their evaluation of the services provided. Industry standards and best practices recommend that departments regularly monitor this performance (total response time), as well as all the following time performance measures that are subsets of total response time. They include:

- Alarm handling time
- Turnout time
- Travel time
- Response time
- Total response time

In analyzing response performance, ESCI, aligned with national standards and best practices, generates percentile measurements of time performance. Percentile measurements are a more accurate measurement of performance standard compliance. A 90th percentile measurement means that 10% of the values are greater than the value stated, and all other data are at, or below, this level. This can be used as a performance objective to determine the degree of success in achieving the goal.

As this report progresses through response performance analysis, it is important to keep in mind that each component of response performance is not cumulative. Each is analyzed as an individual component, and the point at which the percentile is calculated exists in a set of data unto itself. Each of the following analyses only included those incidents where the response was coded as "emergency" priority.

Alarm Handling Time

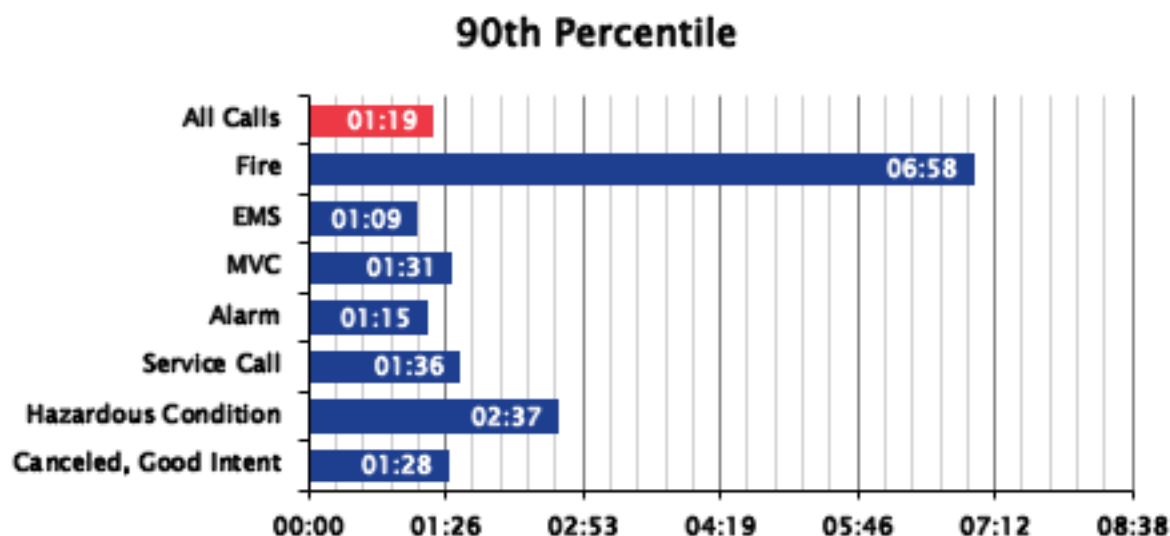
The measure of time between answering the 911 call and dispatch of resources is known as alarm handling time. For this measure there is one applicable standard as illustrated in the following figure.

Standard	Performance
NFPA 1225: <i>Standard for Emergency Services Communications</i> (2022 Edition)	60 seconds at the 90 th percentile



The following figure illustrates the department's alarm handling time performance.

Figure 29. Alarm Handling Time Performance, 2020-2023



As this is the first measure under direct control of the fire department, the department's leadership may consider the various actions that occur within this measure and determine if there are areas where process changes could improve performance. These factors include:

- Systems used to notify personnel of an incident
- Station design (as it relates to the movement of personnel from living quarters to the apparatus bay)
- Personnel adherence to department policies and acting with appropriate speed towards the apparatus
- Time required to don protective equipment prior to responding
- Moving equipment between apparatus when units are cross staffed
- Time from starting apparatus until radio system is capable of transmitting



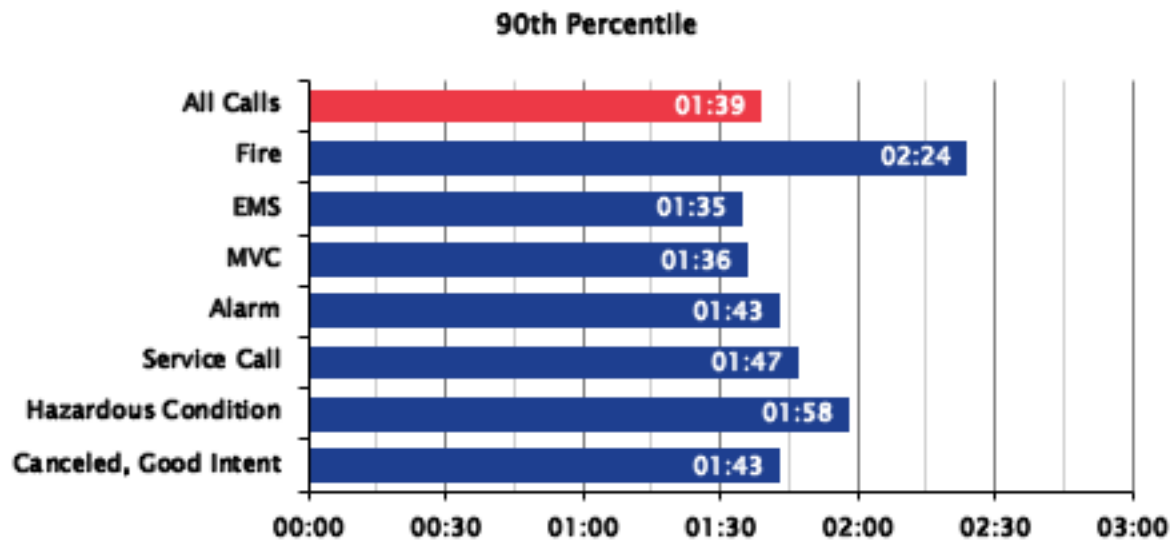
Turnout Time

The measure of time between notifying the fire department (dispatching) and the time that the first unit goes enroute is known as the turnout time.

Standard	Performance
NFPA 1710: <i>Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Career Fire Departments</i>	<u>Fire and Special Operations Incidents</u> 80 seconds at the 90 th percentile <u>All Other Incidents</u> 60 seconds at the 90 th percentile

The following figure illustrates the turnout time for the first responding units.

Figure 30. Turnout Time Performance, 2020-2023



Travel Time

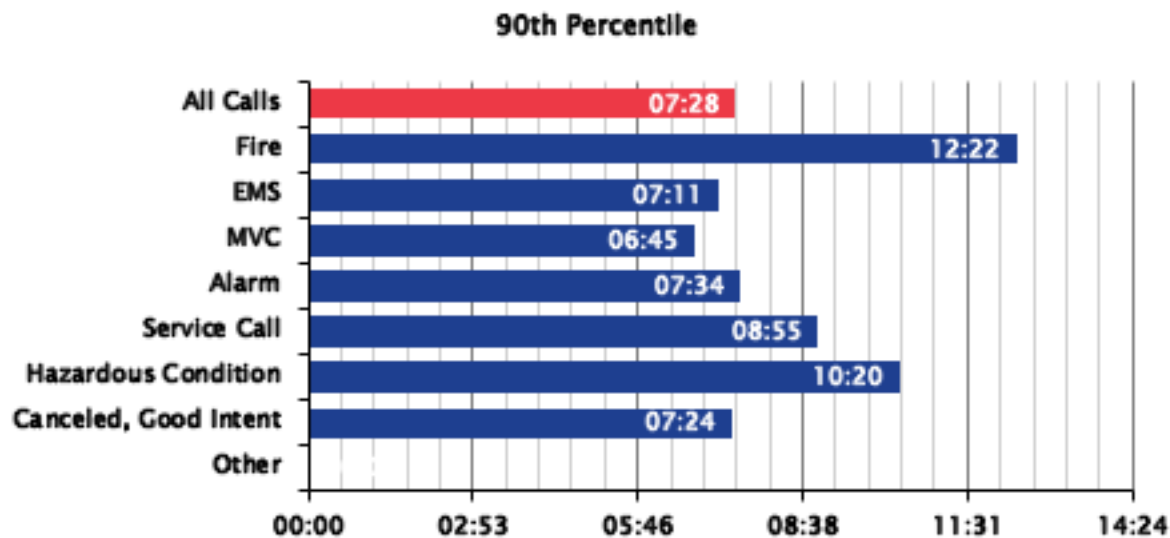
The measure of time between apparatus moving towards the scene of the emergency and arrival at the scene of the emergency is known as travel time. For this measure there is one applicable standard as illustrated below.

Standard	Performance
NFPA 1710: <i>Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Career Fire Departments</i>	4 minutes at the 90 th percentile



The following figure illustrates the travel time for the first responding units.

Figure 31. Travel Time Performance, 2020-2023



Response Time

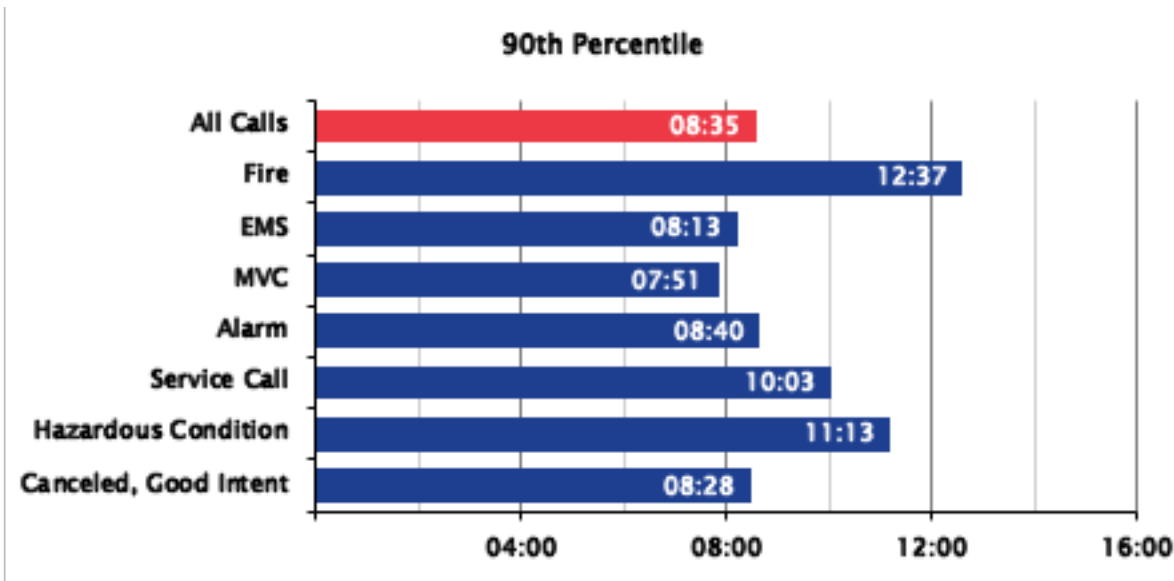
The measure of time between dispatch of units and arrival at the scene of the emergency is known as response time. For this measure, there is not a specific applicable standard. However, by combining the individual component standards, the following figure illustrates expected performance.

Standard	Performance
Turnout Time	<u>Fire and Special Operations Incidents</u> 80 seconds at the 90 th percentile
	<u>All Other Incidents</u> 60 seconds at the 90 th percentile
Travel Time	4 minutes at the 90 th percentile
Combined	<u>Fire and Special Operations Incidents</u> 5 minutes, 20 seconds at the 90 th percentile
	<u>All Other Incidents</u> 5 Minutes at the 90 th percentile



The following figure illustrates the response time for the first responding units.

Figure 32. Response Time Performance, 2020-2023



Total Response Time

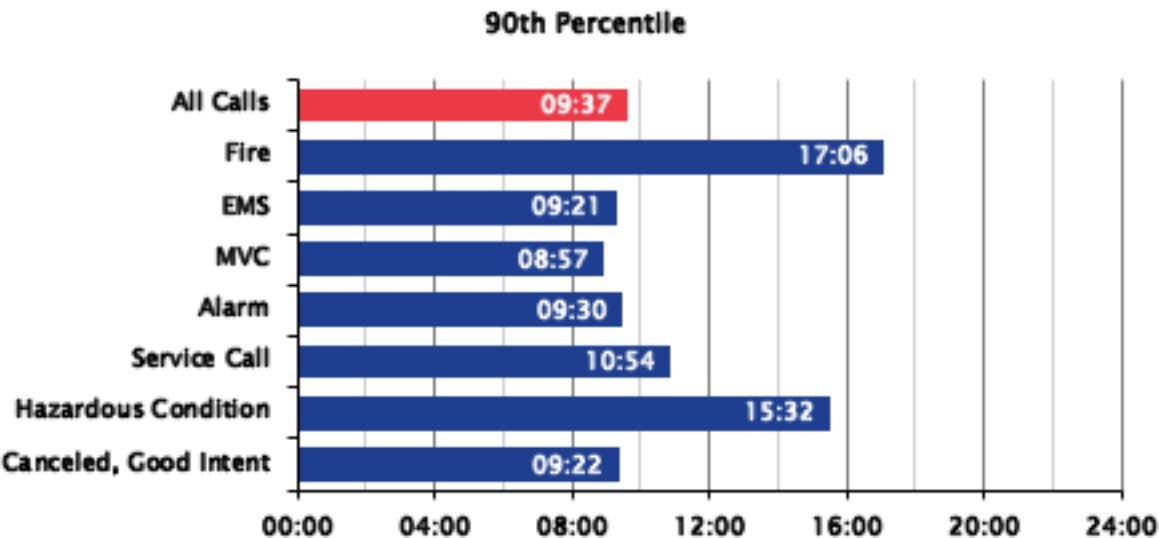
The measure of time between answering the 911 call and arrival at the scene of the emergency is known as total response time. For this measure, there is not a specific applicable standard. However, by combining the individual component standards, the following figure illustrates expected performance.

Component	Performance
Alarm Handling Time	60 seconds at the 90 th percentile
Turnout Time	<u>Fire and Special Operations Incidents</u> 80 seconds at the 90 th percentile
	<u>All Other Incidents</u> 60 seconds at the 90 th percentile
Travel Time	4 minutes at the 90 th percentile
Combined	<u>Fire and Special Operations Incidents</u> 6 minutes, 20 seconds at the 90 th percentile
	<u>All Other Incidents</u> 6 Minutes at the 90 th percentile



The following figure illustrates the total response time for the first responding units.

Figure 33. Total Response Time Performance, 2020-2023





Mutual & Automatic Aid

Fire departments throughout the nation enter into agreements with neighboring agencies whereby resources are shared. Within an automatic aid agreement, resources from all agencies are included in an initial dispatch to the incident. Within a mutual aid agreement, outside agency resources are only dispatched upon the request of the primary agency.

The following figure illustrates the agreements currently in place for Hallandale Beach.

Figure 34. Automatic & Mutual Aid Agencies

Agency Name	Agreement Type
Hollywood Fire Rescue	Fastest Unit / Both
West Park (BSO)	Fastest Unit / Both
Pembroke Park (BSO)	Fastest Unit / Both
Miramar Fire Rescue	Fastest Unit / Both
Miami-Dade Fire Rescue	Mutual Aid

As with other information, the use of automatic and mutual aid is documented within the system for each response. The following figure illustrates the use of automatic and mutual aid during the study period.

Figure 35. Aid Given/Received, 2019-2023

Description	2019	2020	2021	2022	2023	Total
Mutual aid received		10	16	5	2	33
Automatic aid received		3	1	1	1	6
Mutual aid given		2	1	1	3	7
Automatic aid given		1				1
Other aid given						0
No aid given/received		6,798	7,295	7,561	7,913	29,567

Future Projections

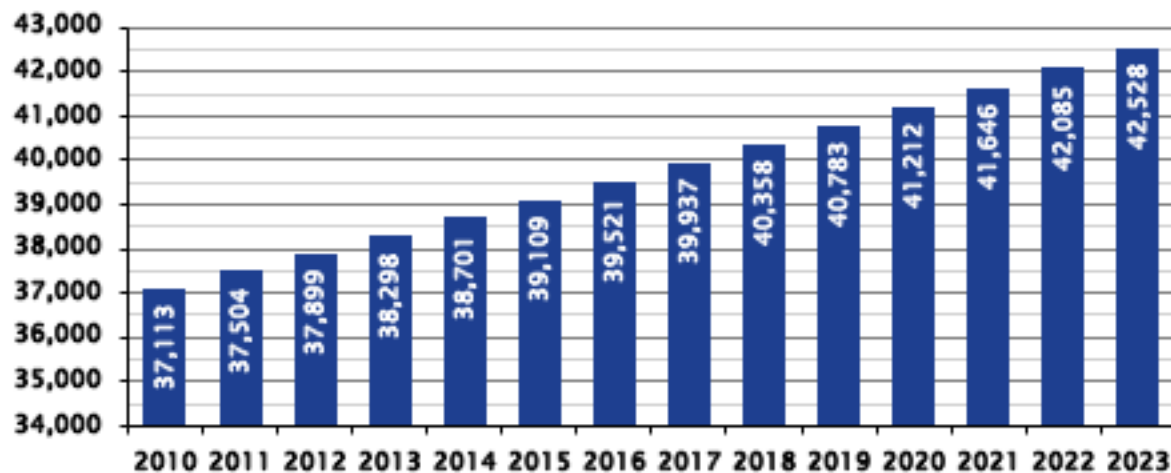
The project moves forward with an assessment of the future community conditions, service demand, and fire protection risks that the department can be expected to experience. ESCI will analyze potential growth projections and interpret their impact on emergency service planning and delivery.

Population Growth Projections

Population History

Based on data from the American Community Survey (U. S. Census Bureau), there was an increase of population within the service area of 14% from 2010 to 2023, as illustrated in the following figure. This equates to a compounded annual growth rate of 1.0%.

Figure 36. Population, 2010–2024

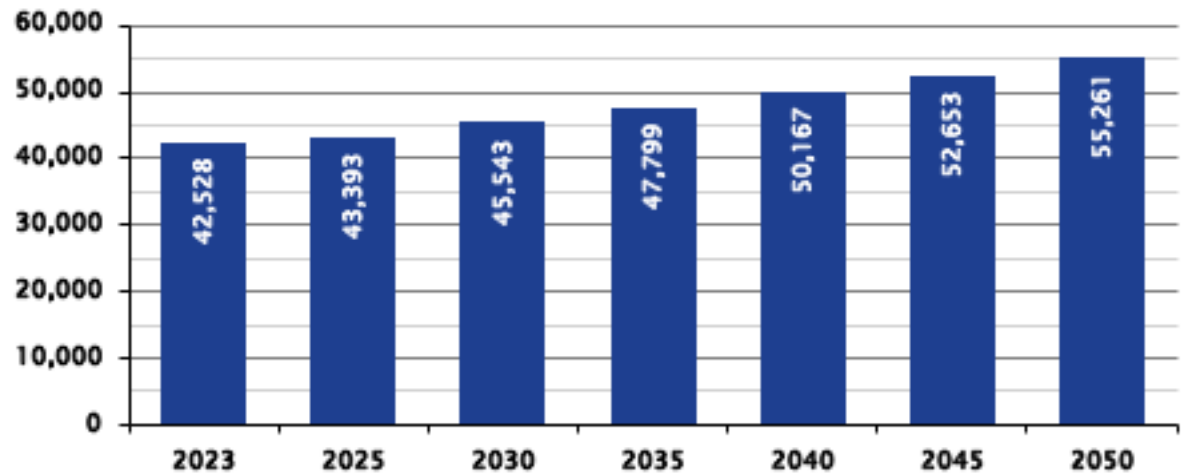




Population Projection

Using the compounded annual growth rate of 0.92%, future population growth may be theorized, as illustrated in the following figure.

Figure 37. Population, 2023–2050





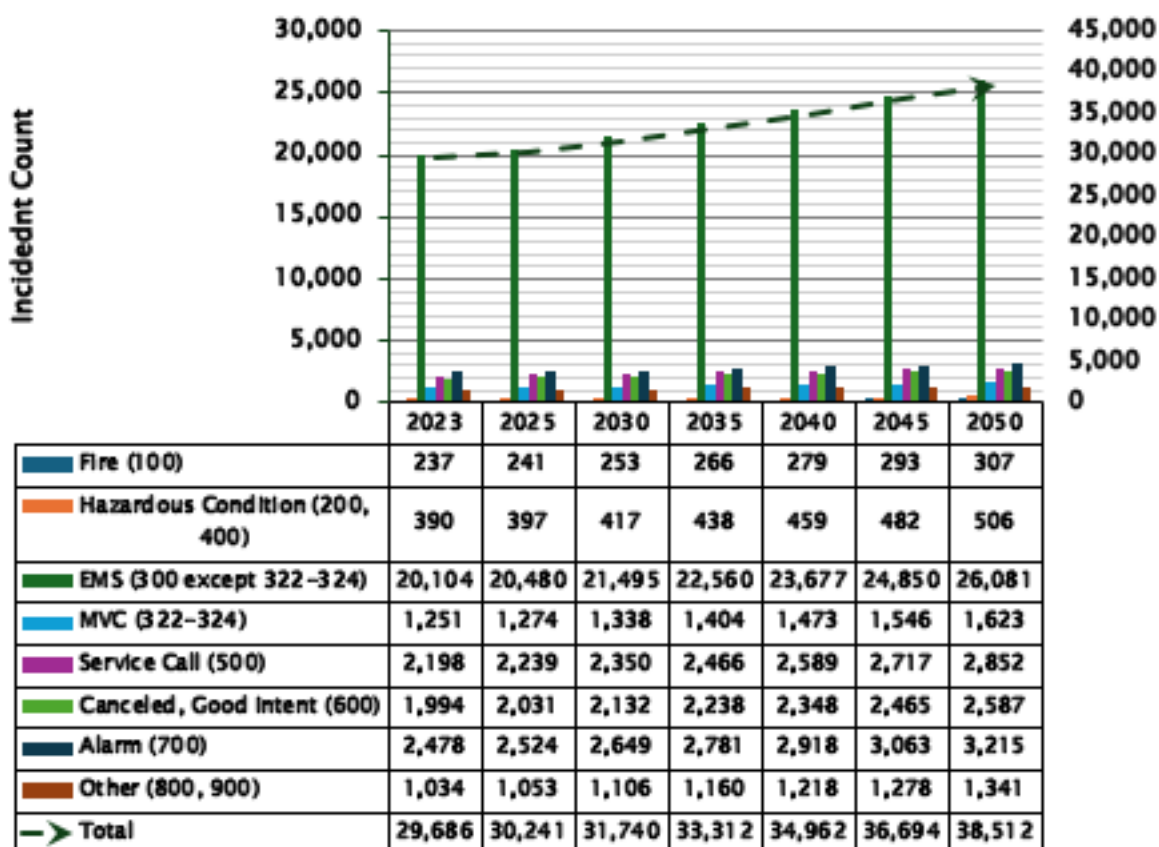
Service Demand Projections

ESCI uses two formulas to compute future service projections, incident history trends and population trends. These two trends provide upper and lower boundaries for forecasting call volumes.

Future Service Demand by Population

By evaluating the current number of incidents per 1,000 in population and applying that to the projected population growth from the preceding figure, it is possible to forecast a lower future service demand boundary within the community, as illustrated in the following figure.

Figure 38. Projected Service Demand by Population Change, 2025–2050

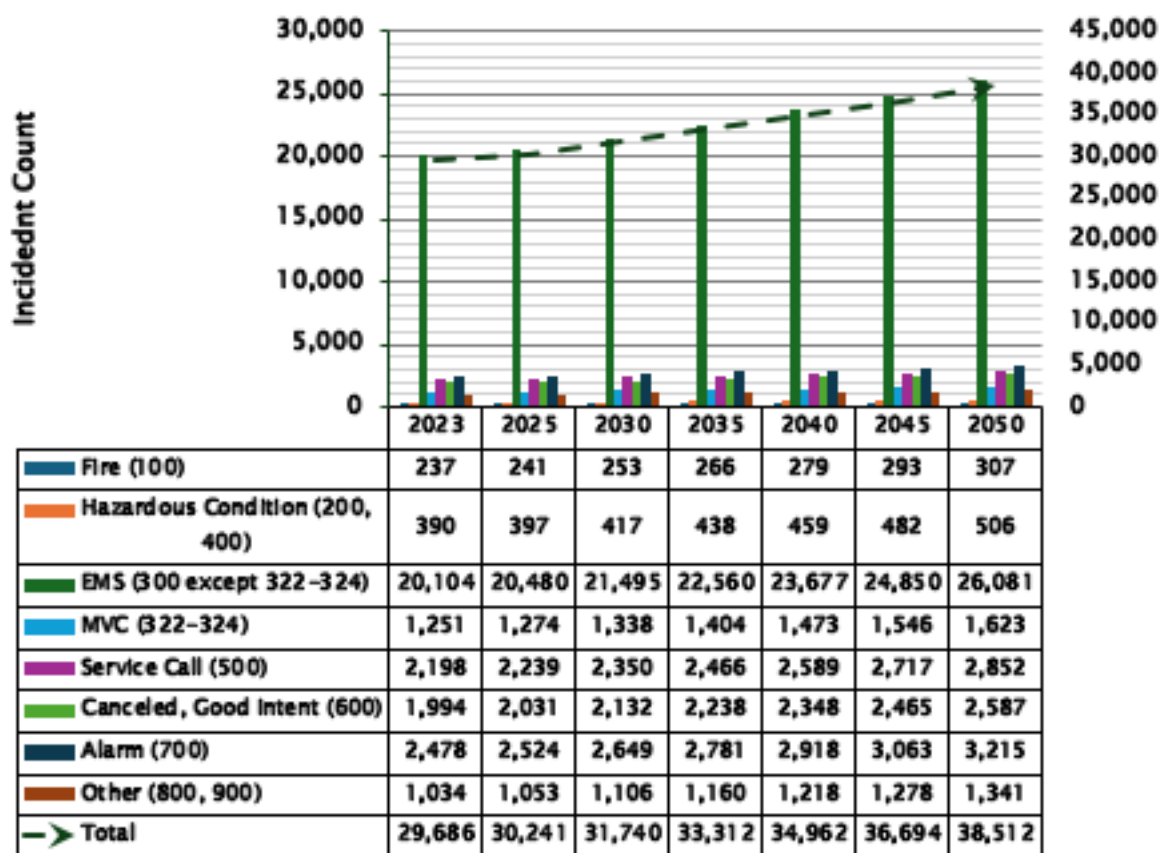




Future Service Demand by Historical Change

By applying the compounded annual growth rate (0.92%) derived from the incident type analysis, it is possible to forecast an upper future service demand boundary within the community, as illustrated in the following figure.

Figure 39. Projected Service Demand by Historical Change, 2025–2050





BSO Response Goals & Targets

The Broward Sheriff's Office has established comprehensive response time goals and targets for its system, applicable across all jurisdictions. These objectives align meticulously with the Commission on Fire Accreditation International (CFAI) Accreditation model, National Fire Protection Association (NFPA) standards, and industry best practices. This alignment ensures a high standard of performance and consistency in emergency response, enhancing the effectiveness and reliability of BSO's services. By adhering to these benchmarks, BSO aims to optimize response times, improve service delivery, and maintain a robust framework for continuous improvement and accountability.

Fire Suppression Benchmarks

For all fire incidents, the BSO shall arrive promptly with adequate resources to mitigate any fire and prevent its escalation upon discovery. Typically, this involves searching for any victims, confining the fire to the area of origin, and minimizing heat and smoke damage to that same area. The first arriving unit is equipped to initiate rescue efforts or establish a first line for fire control. The second engine and truck company provide additional personnel to support the ongoing tasks, as well as ventilation, salvage, and other necessary work.

The tasks of rapid intervention, rescue for trapped firefighters, property salvage, and crew rotation with rehabilitation requires additional personnel on a fire scene. In addition, all BSO next due supportive units are equipped with full ALS capabilities.

Fire Suppression Benchmark Performance Objectives First Due Unit

The first due unit shall be capable of providing three staff (company officer, driver engineer and firefighter), 500 gallons of water and 1500 gpm pumping capacity, advancing the first line for fire control or rescue and/or initiating command.

- The first due unit shall be capable of assessing the situation, establishing a plan of action, mitigating the emergency, and requesting additional resources as appropriate.
- For 90% of fire responses, the first due apparatus shall arrive within six minutes and fifty seconds total response time.



First Due Unit

The first due unit shall be capable of providing three staff (company officer, driver engineer and firefighter), 500 gallons of water and 1500 gpm pumping capacity, advancing the first line for fire control or rescue and/or initiating command. The first due unit shall be capable of assessing the situation, establishing a plan of action, mitigating the emergency, and requesting additional resources as appropriate.

- For 90% of fire responses, the first due apparatus shall arrive within a total response time of six minutes and fifty seconds.

Effective Response Force

For all fire incidents, the BSO effective response force (ERF) shall arrive in a timely manner with sufficient resources to stop the escalation of the fire and keep the fire to the area of involvement upon arrival. Initial response resources shall be capable of containing the fire, rescuing at-risk victims, and performing salvage operations, while providing for the safety of the responders and the public.

The ERF shall be capable of establishing command, providing an uninterrupted water supply, advancing an attack line and backup line, forcible entry, utility control, victim search and rescue, and ventilation while utilizing safe operating procedures.

All residential automatic alarms and potential structure fires receive a response assignment of two (2) engines, one (1) aerial, two (2) rescue, and two (2) battalion chiefs with a minimum of fourteen (14) personnel. All commercial automatic alarms and potential structure fires receive a response assignment of three (3) engines, one (1) aerial, two (2) rescues, and (2) battalion chiefs with a minimum of twenty (20) personnel. Confirmed or working fire/rescue or another type of incidents also receive a Regional Special Operations (Technical Rescue) and/or Hazmat assignment to enhance staffing composed of seven (7) to (14) personnel total for both teams, if utilized.

- For 90% of all low-risk structure fires, an effective response force of three personnel shall arrive within six minutes and fifty seconds.
- For 90% of all moderate-risk structure fires, an effective response force of fourteen personnel shall arrive within twelve minutes.
- For 90% of all high-risk structure fires, an effective response force of twenty personnel shall arrive within eighteen minutes of the total response time.



Emergency Medical Services Benchmarks

The performance objective for EMS-type calls is to arrive in a timely manner with sufficiently trained and equipped personnel to provide medical services for all emergency medical incidents. The first due unit shall be capable of assessing the situation, establishing a plan of action, mitigating the emergency, requesting additional resources as appropriate, providing basic life support with automatic external defibrillator (AED) capabilities, providing Advanced Life Support care (ALS), and stop or impede the escalation of the emergency.

All EMS incidents get a response of a minimum of one (1) ALS engine or (1) ALS ladder company and/or one (1) ALS transport rescue. This response may be modified by the battalion chief based on change in priority, nature of the call, or multiple 911 calls for the same incident.

Emergency Medical Services Benchmark Performance Objectives First Due Unit

- For 90% of all EMS Incidents, two EMS-qualified personnel with AED/ALS capability shall arrive in a total response time of six minutes and thirty seconds.

Emergency Medical Services Baseline Performance First Due Unit

For 90% of all EMS incidents, two EMS qualified personnel with AED/ALS capability arrived within nine minutes fifty-eight seconds total response time.

Effective Response Force

For all emergency medical incidents, BSO shall arrive in a timely manner with sufficiently trained and equipped personnel to provide medical services that will stabilize the situation, provide care and support to the victim, and reduce, reverse, or eliminate the conditions that have caused the emergency while providing for the safety of the responders. Timely transportation of the victim to appropriate medical facilities shall be accomplished in an effective and efficient manner, when warranted. The ERF shall be capable of providing paramedic-level Advanced Life Support care and transportation.

- All BSO Fire Rescue apparatus includes a complement of an ALS certified/staffed three- or four-person Engine/Tower Ladder/Aerial Company along with a minimum two-person staffed ALS Rescue unit.
- For 90% of all low-risk EMS Incidents, an ERF of two EMS qualified personnel with AED/ALS capability shall arrive in six minutes and thirty seconds total response time.



- For 90% of all moderate risk EMS Incidents, an ERF of five EMS qualified personnel with AED/ALS capability shall arrive in nine minutes or less total response time.

For 90% of all high-risk EMS incidents, an ERF of twenty EMS qualified personnel with AED/ALS capability shall arrive in twenty-five minutes or less total response time.

For 90% of all maximum-risk EMS incidents, an ERF of twenty-seven EMS qualified personnel with AED/ALS capability shall arrive in forty-five minutes or less total response time.



Recommendations

The Broward Sheriff's Office Fire Rescue has consistently demonstrated a high level of service excellence in protecting the Hallandale Beach community. This report presents recommendations to further enhance the efficiency and effectiveness of BSO Fire Rescue's operations. The recommendations are based on a comprehensive Community Risk Assessment and high-level Standards of Cover study, which identified key areas for improvement and strategic planning.

BSO Fire Rescue is renowned for its capability to manage a wide array of emergency incidents, from fire suppression and emergency medical services to specialized rescue operations and hazardous materials incidents. The department's commitment to public safety and rapid response is evident in its all-hazard, accredited, Class 1 status.

The following recommendations are designed to ensure that BSO Fire Rescue continues to provide top-tier emergency services to the Hallandale Beach community. These include ensuring adequate and well-trained emergency responders, collaborating with neighboring fire departments through a coordinated regional response system, and adhering to local, state, and federal regulations.

Evaluate Staffing Levels and Deployment

- **Evaluate Increase Personnel for Fire Suppression:** The current model of staffing three firefighters per engine often requires waiting for a second unit before initiating interior fire attacks in non-rescue incidents, due to OSHA's "Two-In: Two-Out" rule. Although this has not caused any significant challenges in fire suppression operations, the City should continue to regularly evaluate the feasibility of increasing staffing levels to ensure optimal service delivery. Increasing staff levels could potentially improve operational efficiency and safety; however, further analysis is necessary to determine whether the benefits justify the operational and financial impact.
- **Evaluate 3-Person Medic Staffing:** A comprehensive study should be conducted to assess the feasibility of transitioning to three-person medic units. This model may enhance emergency response by improving patient care, decreasing on-scene times, and increasing operational flexibility. Additional staffing could reduce the need for multiple units to respond to a single incident, potentially improving system-wide availability and response times. Nonetheless, a detailed



cost-benefit analysis is essential to evaluate whether the operational gains warrant the additional personnel expenditures.

Improve Response Times and Performance

- **Address Delays in Fire Response:** Investigate the causes of decreased fire response performance and implement corrective actions such as optimizing station locations, improving dispatch protocols, and enhancing training.
- **Enhance Turnout Times:** Review and streamline processes related to personnel readiness to meet NFPA 1710 turnout time benchmarks. Turnout time is the fire department performance metric most attributed to employee behaviors and motivation.

Develop Comprehensive Quarterly Reports

To ensure transparency and continuous improvement, BSO should provide a comprehensive quarterly report that includes:

- **Operational Performance Metrics:**
 - Response times (alarm handling, turnout, travel, and total response times)
 - Incident types and frequency (fire, EMS, hazardous conditions, etc.)
 - Performance against NFPA benchmarks
- **Staffing and Resource Allocation:**
 - Current staffing levels and changes
 - Apparatus and equipment status
 - Training and certification updates
- **Community Risk Assessment Updates:**
 - Changes in community demographics and risk profiles
 - Incident density heat maps
 - Seasonal trends and emerging risks
- **Financial Overview:**
 - Budget expenditures and resource allocation
 - Cost-saving initiatives and funding opportunities
- **Mutual and Automatic Aid Usage:**
 - Aid given and received statistics
 - Analysis of mutual aid efficiency and recommendations for improvement
- **Strategic Initiatives and Improvements:**
 - Progress on previously recommended improvements



- New initiatives undertaken or planned
 - Future goals and objectives
- **Community Engagement and Public Education Efforts:**
 - Public safety campaigns conducted
 - Community feedback and satisfaction metrics
 - Volunteer and partnership activities
- **Challenges and Recommendations:**
 - Identified challenges in service delivery
 - Recommended actions to address these challenges
- **Appendices:**
 - Detailed data tables and charts
 - Incident case studies or notable responses



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