



HARTFORD FIRE DEPARTMENT

COMMUNITY RISK ASSESSMENT - STANDARDS OF COVER
2019



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HARTFORD FIRE DEPARTMENT

COMMUNITY RISK ASSESSMENT-STANDARDS OF COVER

Executive Summary

In the Spring of 2018, the Hartford Fire Department (HFD) contracted with the Center for Public Safety Excellence (CPSE) to facilitate the department's desire to become an internationally accredited agency. This began with the development of a community-driven plan to guide the agency in continuing to provide the highest level of service to the residents, businesses and visitors to the City of Hartford. The adopted HFD 2018-2023 Strategic Plan will guide the department's vision towards meeting the expectations and concerns of both the internal and external stakeholders of the agency.

The next step in the process was the development of this Community Risk Assessment / Standards of Cover (CRA-SOC). The CRA-SOC forced the department to evaluate its operations concerning resource allocation and distribution. HFD developed a risk-based data driven plan for staffing and deployment to meet the unique profile of risk within the City of Hartford.

Key elements of this document include: service levels provided, performance analysis of response capacity, and recommendations for improvements in efficiency. The CRA-SOC incorporates the following; a general overview of the community, a detailed description of the agency and services provided, a comprehensive community risk assessment including the deployment model, an evaluation of baseline performance based upon adopted benchmark measures, and the compliance methodology.

Finally, the CRA-SOC is a living document that will direct HFD in resource allocation and deployment strategies. It will be updated on an annual basis. The update will include the evaluation of community risks in a dynamic urban environment, baseline performance analysis and recommendations for improvements in efficiency.

HARTFORD FIRE DEPARTMENT

COMMUNITY RISK ASSESSMENT-STANDARDS OF COVER

A. Description of Community Served

Introduction

The Hartford Fire Department (HFD) provides Fire and Emergency services to the City of Hartford, Connecticut. These services are provided by the 361 career personnel, including four (4) civilian personnel, who comprise the HFD. Seventeen (17) Fire Companies are distributed throughout the City in twelve (12) stations. The City of Hartford Fire Department is committed to preventing and minimizing the loss of life and property through incident stabilization and mitigation with the delivery of professional, high quality, efficient emergency fire, rescue and emergency medical service, fire prevention, public education and hazardous materials response as a regional partner for the protection of the residents, business community and visitors to the City of Hartford and its region. HFD is an Insurance Service Organization (ISO) Class 1 rated agency, the highest rating earned, consistently working to achieve the highest level of professionalism and efficiency on behalf of those it serves and is currently pursuing accreditation through the Commission on Fire Accreditation International (CFAI).

The mission of the Commission on Fire Accreditation International (CFAI) is to assist the fire and emergency service agencies throughout the world in achieving excellence through self-assessment and community-driven strategic planning to provide continuous quality improvement and enhancement of service delivery to their communities. The financial oversight of this organization is maintained by the Board of Directors of the Center for Public Safety Excellence, Inc. (CPSE). The CFAI is responsible for the general governance of the organization and for decisions regarding agency accreditation, the self-assessment process and any other CFAI activities. The CFAI is governed by eleven commission members who represent the following areas of expertise: International Association of Fire Chiefs (IAFC) Fire Agency Head Representative for each of the following populations- up to 24,999, 25,000-99,999, 100,000-249,999, and 250,000 and above; a Federal Fire Service Representative; an Insurance Industry Representative; a Consensus Standards Representative; an International City/County Management Association (ICMA) CEO County Government Representative; an ICMA CEO City Representative; an International Fire Service Representative; and the International Association of Firefighters (IAFF) Labor Representative.

The CFAI is responsible for the creation of the only international set of performance criteria by which an agency and their community can evaluate the levels of service and quality of Fire, EMS, and other services it provides to its constituents. The CFAI accreditation process is comprised of four components: Self-Assessment, Community Risk Analysis, Standards of Cover, and Strategic Plan. This document represents the Standards of Cover (SOC) which includes the Community Risk Analysis (CRA) for the Hartford Fire Department.

HARTFORD FIRE DEPARTMENT

COMMUNITY RISK ASSESSMENT-STANDARDS OF COVER

Standards of Cover are defined as those written policies and procedures that establish the distribution and concentration of fixed and mobile resources of an organization. This document will assist the Hartford Fire Department in the following areas:

- Assessing community fire and non-fire risks.
- Defining baseline and benchmark emergency response performance standards.
- Planning future station locations.
- Determining apparatus and staffing patterns.
- Evaluating workload and ideal unit utilization.
- Measuring service delivery performance.
- Supporting strategic planning and policy development relative to resource procurement and allocation.

The Standards of Cover for the Hartford Fire Department will address all the following elements:

- There will be a thorough review of the current deployment of resources including a description of the community served, review of the services provided with the existing deployment and baseline performance and a review of the community expectations.
- There will be a risk assessment completed for each neighborhood served.
- System performance will be measured utilizing historical data.
- Performance Objectives and Measures will be developed.
- A compliance methodology will be developed and validated for compliance with performance objectives and measures.
- Complete evaluation of the delivery system including any recommendations for changes to deployment or policies within the department.

The Standards of Cover for the Hartford Fire Department was developed by the following SOC committee members: Accreditation Manager - Harry Tulier along with Accreditation Team Members; Brian Thompson, Leandro Cieri, Alvaro Cucuta, James York, Mario Oquendo, Andrew Beliveau, John Cafazzo, Michael Eremita, Dan McCue, Fred Nelson, Marisabel Barbagallo, and James Davis. Much credit is extended to the following retired members who initiated the original process during the previous decade; Edward Caseres, Rocco Fierravanti, Clifton Cooper, Peter Towey, Carlos Huertas, Roger Martin and Robert Walsh. The HFD is appreciative of the contributions of the many individuals within the department and within other city departments and agencies that assisted with this historic effort.

HARTFORD FIRE DEPARTMENT

COMMUNITY RISK ASSESSMENT-STANDARDS OF COVER

Community and Department Legal Basis

The City of Hartford was incorporated in 1784 and is outlined in the City Charter Chapter 1 Section 2, excerpt provided below.

Sec. 2. - Boundaries.

The territorial limits of the body politic and corporate existing under the name of the City of Hartford are those set forth in Special Laws 1947, Act No. 30, Chapter I, §2; Ord. No. 28-67, 11-7-67; Sp. Laws 1971, Act No. 106 and are hereby reaffirmed by the City of Hartford.

Hartford is managed by a strong Mayor/Council form of government. The Court of Common Council is comprised of nine members elected at large. The Mayor is the Chief Executive of the city. A Chief Operating Officer, reporting directly to the Mayor, directs the daily operations of the city through the various department heads.

Connecticut abolished the county form of government in 1960. State towns and cities provide most community services such as police, fire, education, and snow removal.

The Mayor is granted the legal powers in the City Charter Chapter 8 Sections 1 and 4 (b), excerpt provided below, to appoint a Fire Chief to exercise protective and preventive fire services within the city boundaries. Furthermore, Municipal Code Chapter 13 grants more detailed authority for the Fire Department.

(b) *Fire department.* There shall be a fire department that shall consist of the fire chief, the fire marshal and such other officers and employees of such ranks and grades as may be prescribed by ordinance. The fire department shall be responsible for the protection of life and property within the city from fire and for the enforcement of all laws, ordinances and regulations relating to fire prevention and fire safety.

(1) *Fire chief.* The head of the department shall be the fire chief who shall be in direct command of the fire department and shall be responsible for the operation of the department consistent with the policy directives of the mayor.

The Hartford Fire Department was incorporated in 1864.

HARTFORD FIRE DEPARTMENT

COMMUNITY RISK ASSESSMENT-STANDARDS OF COVER

History of the Community

Hartford was settled in 1623 as a Dutch trading post called House of Hope. In 1636, a group of English settlers led by the Reverend Thomas Hooker left Massachusetts and formed a colony here. The settlers made peace with the local Algonquin Indians, who called the town Saukiog, and renamed it after Hertford, England.

Early in its existence Hartford made a significant contribution to the burgeoning society. The Fundamental Orders adopted by the colony in 1639, was the first document in history to establish a government by the consent of the people. The pattern was followed by the framers of the United States Constitution, giving Connecticut its nickname, "The Constitution State."

Evolving from an early agricultural economy, Hartford grew into an important trading center on the Connecticut River. Molasses, spices, coffee and rum were distributed from warehouses in the city's thriving merchant district. Ships set sail from Hartford to England, the West Indies and the Far East. Merchants were concerned about risks to this thriving trade, with fires, pirates, storms and accidents always a threat.

The insurance industry was created when groups of merchants began to share these risks. The practice was formalized with the creation of the Hartford Fire Insurance Group in 1810. The nation's oldest insurance company still operates in the city as the Hartford Insurance Company. Hartford became the home of many of the nation's largest insurance companies, such as Aetna and Travelers, and is known today as the Insurance Capital of the World.

Pioneering manufacturers like Samuel Colt also called Hartford home. Colt's experiments with interchangeable parts created the basis for today's assembly line manufacturing methods. New techniques employed in his firearms factory, made mass production possible and laid the groundwork for Hartford's pre-eminence in the industry of precision manufacturing.

Shaped by the social and economic forces which gave rise to industrial growth in America, Hartford grew and prospered as successive waves of immigrants came to work, build and settle in the community. This ethnic and cultural diversity continues to be a prominent part of Hartford's heritage and one of the city's greatest assets.

Hartford also became an important cultural and communications center. The Hartford Courant, founded in 1764, is the country's oldest continuously published newspaper. The nation's oldest public art museum, the Wadsworth Athenaeum, was founded in 1844. Supported by prominent benefactors like J.P. Morgan, the museum grew to become one of the top ten art museums in the country. Authors like Mark Twain and Harriet Beecher Stowe were drawn to the area, because, as Twain said, "of all the beautiful towns it has been my fortune to see, this is the chief."

HARTFORD FIRE DEPARTMENT

COMMUNITY RISK ASSESSMENT-STANDARDS OF COVER

On December 15, 1814, delegations from throughout New England gathered at the Hartford Convention to discuss possible secession from the United States. Later in the century, Hartford was a center of abolitionist activity. Harriet Beecher Stowe, daughter of Lyman Beecher and author of Uncle Tom's Cabin, lived in Nook Farm, part of the Asylum Hill section of the city.

On the week of April 12, 1909, the Connecticut River reached a then-record flood stage of 24 1/2 feet above the low water mark flooding the city and causing great damage.

On July 6, 1944, the Hartford Circus Fire destroyed the big top at the Ringling Bros. and Barnum & Bailey Circus, the deadliest circus fire in the history of the United States. On November 3, 1981, Thirman L. Milner became the first black mayor elected in New England. In 1987, Carrie Saxon Perry was elected mayor of Hartford, the first female African American mayor of a major American city.

Starting in the late 1950s the suburbs of Hartford grew while the capital city began a long decline. This decline may have been accelerated by construction of highways (including I-84 & I-91 which intersect in downtown Hartford). Many residents moved out of the city and into the suburbs, and this trend has continued. During the 1980s, Hartford experienced an economic boom of sorts and by the late 1980s, almost a dozen new skyscrapers were proposed to be built in the city's downtown. For various reasons, including the economic recession that followed in the early 1990s, many of these buildings were never built. By the beginning of the twenty-first century, many workers in Hartford lived more than 20-minute drive from the city - though according to the Census Bureau, the city's average commute time of 22 minutes is a full three minutes less than the U.S. average. In the past few years, development, both commercial and residential, has increased in the downtown area.

It remains home to the nation's oldest public art museum (Wadsworth Atheneum), the oldest public park (Bushnell Park), the oldest continuously published newspaper (The Hartford Courant), the second-oldest secondary school (Hartford Public), and one of the oldest colleges (Trinity College).

In 2017, Hartford ranked 40th of 383 metropolitan areas in total economic production and generates more economic activity than sixteen U.S. states.

Hartford lies in the north central portion of the State of Connecticut. Two major metropolitan cities are located within two hours of the city; New York City - 100 miles to the southwest, and Boston, MA - 94 miles to the northeast.

HARTFORD FIRE DEPARTMENT

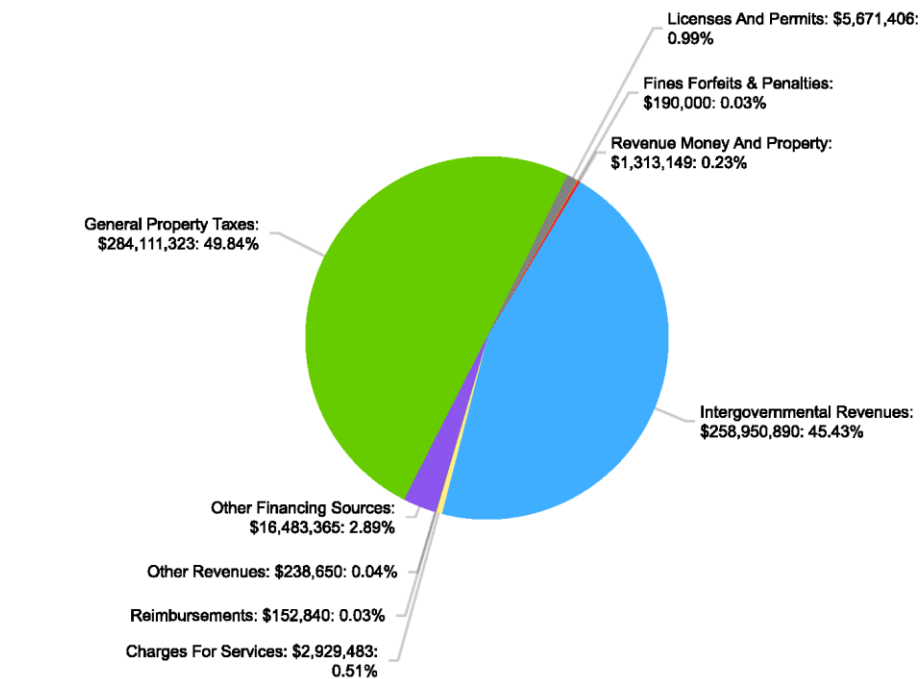
COMMUNITY RISK ASSESSMENT-STANDARDS OF COVER

Community Financial Basis

The City of Hartford receives funds from taxes leveled on property, fees for services provided and from Federal and State Aid. The city is unable to tax over 50% of its property due to exemption status afforded the numerous properties owned by the state and federal governments, city schools, and non-profits (hospitals, colleges, churches, etc.) The city relies upon significant state aid in the form of Education Cost Sharing (ECS) and the Payment in Lieu of Taxes (PILOT) programs. These programs approach over 40% of the revenues for the annual budget as of late. The fiscal year 2019 intergovernmental portion is projected to be \$258,950,890 making up 45.4% of total revenues.

Figure 1: Revenue - City of Hartford Fiscal Year 2019 Budget

GENERAL FUND REVENUES BY CATEGORY					
	ACTUAL FY2017	ADOPTED FY2018	REVISED FY2018	ADOPTED FY2019	FORECAST FY2020
General Property Taxes	258,987,304	280,165,161	280,165,161	284,111,323	291,822,197
Licenses And Permits	5,376,215	5,971,406	5,971,406	5,671,406	5,671,406
Fines Forfeits & Penalties	161,421	190,000	190,000	190,000	190,000
Revenue Money And Property	2,364,183	1,313,149	1,313,149	1,313,149	1,313,149
Intergovernmental Revenues	266,482,052	265,635,563	265,635,563	258,950,890	258,950,890
Charges For Services	3,493,697	2,844,964	2,844,964	2,929,483	2,929,483
Reimbursements	156,718	152,840	152,840	152,840	152,840
Other Revenues	1,035,507	238,650	238,650	238,650	238,650
Other Financing Sources	6,032,053	6,777,445	6,777,445	16,483,365	16,483,365
Total Revenue	544,089,150	563,289,178	563,289,178	570,041,106	577,751,980
Fund Balance Applied - To					
Balance Budget	9,372,110	0	0	0	0
State Partnership - Additional					
Funding	0	49,634,380	49,634,380	0	0



Summary tables are rounded.

HARTFORD FIRE DEPARTMENT

COMMUNITY RISK ASSESSMENT-STANDARDS OF COVER

The Hartford Fire Department receives its funding from the City of Hartford through the budgetary process. The provisions outlined in Chapter 10 of the City of Hartford's Charter regulate this process. This process requires that the fire chief submit a proposed budget to the Office of Management and Budget by January of each year. Between February and April of each year, the mayor and department heads hold hearings to develop the Mayor's Recommended Budget. The mayor is required to submit the recommended budget to the Court of Common Council. In turn, the Court of Common Council holds Public Hearings on the Mayor's Recommended Budget. The council has the ability to amend the Mayor's Budget for submission back to the mayor, but the council must adopt a budget by May 30th of each year. The resulting budget is a Program Based Budget, which is broken down by line-item within each program. Once adopted the budget is monitored and controlled by the Administration of the Hartford Fire Department. Funding may be transferred within the department from other programs only upon approval from the Director of Management and Budget and the mayor.

Community Boundaries

The City of Hartford comprises a total area of 18.4 square miles which is outlined in the City Charter Chapter 1 Section 2, excerpt provided below:

Sec. 2. - Boundaries.

The territorial limits of the body politic and corporate existing under the name of the City of Hartford are those set forth in Special Laws 1947, Act No. 30, Chapter I, §2; Ord. No. 28-67, 11-7-67; Sp. Laws 1971, Act No. 106 and are hereby reaffirmed by the City of Hartford.

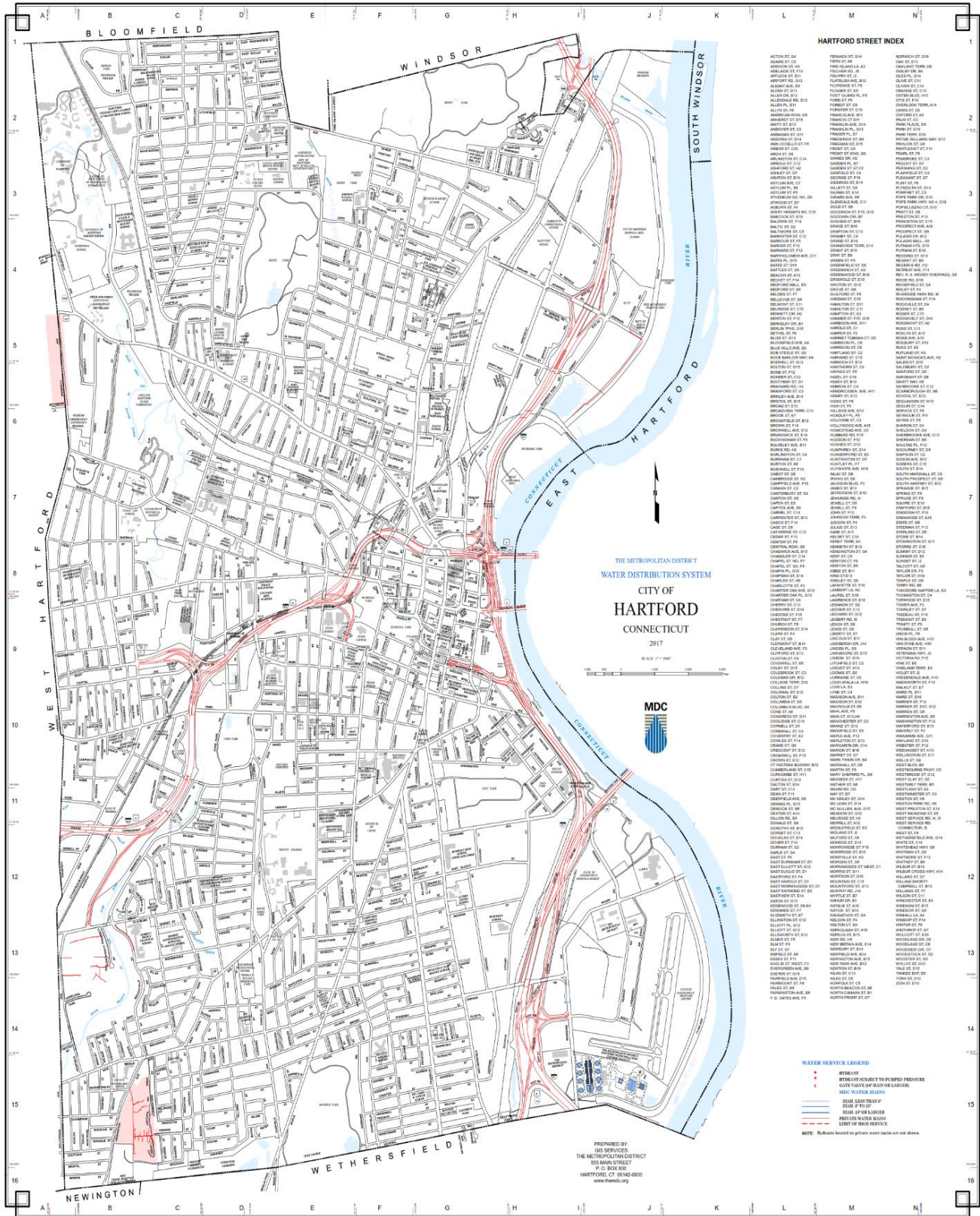
The city comprises a total area of 18.4 square miles, of which, 17.4 square miles of it is land and 0.7 square miles of it (3.9%) is water. Of which 71.7% is developed, 13.8 % is Grass of Agriculture, 9.6% is forest, and almost 4% is water.

Hartford shares borders with the following towns: Windsor, Bloomfield, West Hartford, East Hartford, Wethersfield, and Newington. The Connecticut River forms the natural boundary between Hartford and East Hartford.

The Park River originally divided Hartford into northern and southern sections and was a major part of Bushnell Park but the river was nearly completely enclosed and buried by flood control projects in the 1940s. The former course of the river can still be seen in some of the roadways that were built in its place, such as Jewell St. and the Conlin-Whitehead Highway.

HARTFORD FIRE DEPARTMENT COMMUNITY RISK ASSESSMENT-STANDARDS OF COVER

Map 1: Hartford Community Borders



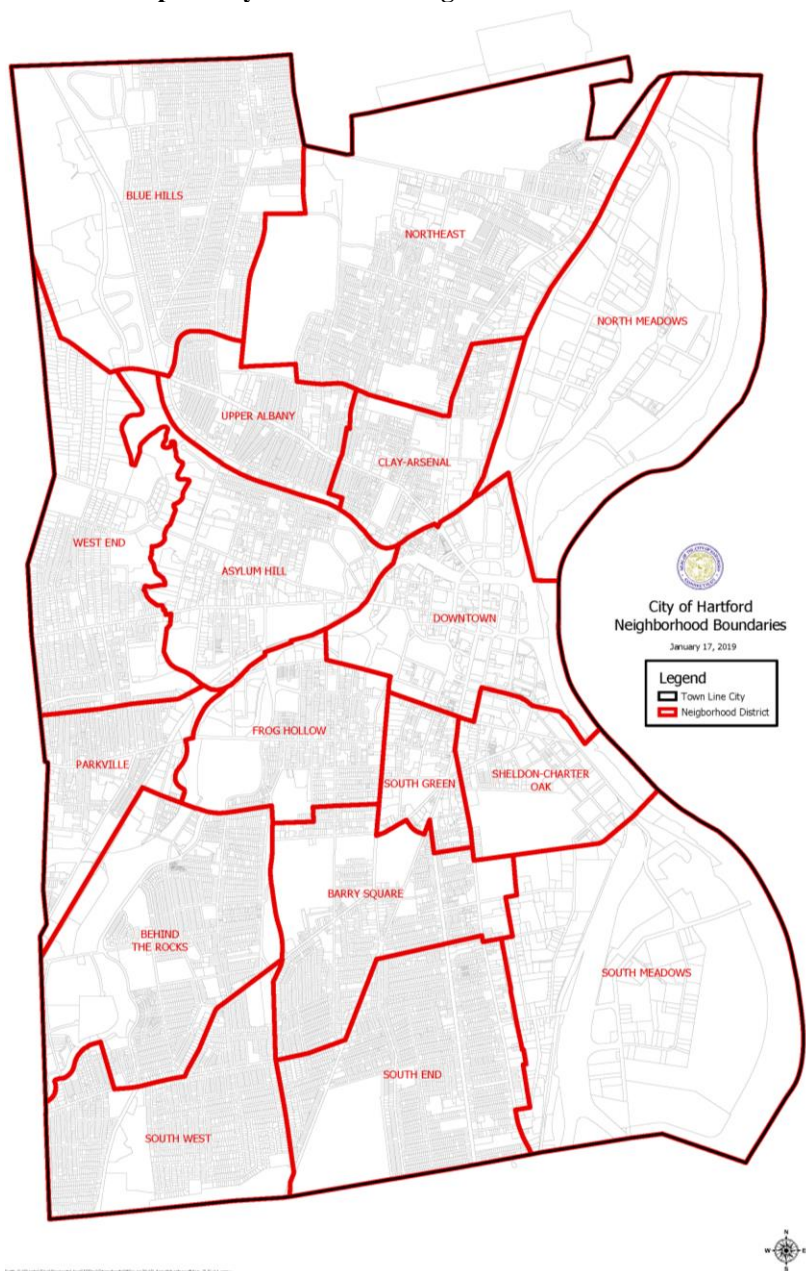
HARTFORD FIRE DEPARTMENT

COMMUNITY RISK ASSESSMENT-STANDARDS OF COVER

Community Planning Areas

The community is made up of 17 neighborhoods that are each designated as a Geographic Planning Zone (GPZ). The GPZ's comprise the following: Blue Hills, Northeast, North Meadows, Upper Albany, Clay-Arsenal, West End, Asylum Hill, Downtown, Parkville, Frog Hollow, South Green, Sheldon-Charter Oak, Behind the Rocks, Barry Square, South West, South End, and the North Meadows. The city utilizes each GPZ for community planning purposes. GPZ's have their own civic groups that organize area events, coordinate area projects, and act as proponents for city accountability. A brief history is provided for each planning zone.

Map 2: City of Hartford Neighborhood Boundaries



HARTFORD FIRE DEPARTMENT

COMMUNITY RISK ASSESSMENT-STANDARDS OF COVER

Downtown

The downtown area is the city's primary business district. Downtown is home to such corporations as Travelers Insurance, The Hartford Steam Boiler, Nassau Reinsurance Group, and Prudential Retirement, most of which are housed in office towers constructed over the last 30-40 years. Downtown also serves as the hub for primary bus routes of the Connecticut Transit System. Union Station is located in the western part of downtown.

Downtown is also home to the Hartford City Hall, the Hartford Public Library, which recently underwent a major expansion and renovation, the Old State House, which is one of the oldest state houses in the nation, the Wadsworth Atheneum, which is the oldest public art museum in the country, The Travelers Tower, and Bushnell Park.



Along Main Street, Capital Community College and the Hartford Public Schools offices are located in the former G. Fox and Company Building. The University of Connecticut – Hartford branch is located in the historic former Hartford Times building. The Connecticut Convention Center, Marriott Hartford Hotel and Connecticut Science Center serve as a major attraction to the region. The recent addition of residential development downtown has included Hartford 21, a 36-story apartment tower serving as the highest residential high-rise in New England.

HARTFORD FIRE DEPARTMENT

COMMUNITY RISK ASSESSMENT-STANDARDS OF COVER

Parkville

Parkville takes its name from its location at the junction of the North and South Branches of the Park River. The area, similar to others surrounding Hartford, was primarily farmland through much of the 19th century. Today it is home to a vibrant microcosm of cultural diversity.



Frog Hollow

Frog Hollow takes its name from the marshy conditions in the low land near what is now the corner of Broad and Ward Streets. The neighborhood was originally developed as three and six-family buildings to house the immigrant population that worked in the factories which lined Capitol Avenue. The Park River, now underground, once was used as a source of water power by the factories.

Lafayette is the neighborhood's oldest street, appearing on a 1640 map of Hartford as part of the "Road from George Steele's to the Great Swamp." It was called Cooper Lane between 1838 and 1851 and was home to the pre-Civil War African American community in Hartford.

Park Street was once called Malt Lane. In 1821, it was renamed for Barnard Park at its eastern end, which was the only park in the city at the time. Park Street has also been called "New England's Spanish Main Street" because of the high Puerto Rican population and merchants.



The neighborhood is home to Pope Park, designed by renowned Olmsted Brothers landscape architects. Land for the park was donated by industrialist Albert Pope, who believed that the success of any business was in large part reliant upon the happiness of its employees. Today, the 75-acre park provides recreational facilities for neighborhood families.

Frog Hollow is also home to Hartford Superior Court, Hartford Community Court, Hartford Family Court, Trinity College, The Learning Corridor, The Lyceum Resource and Conference Center, and the Juvenile Court.

HARTFORD FIRE DEPARTMENT

COMMUNITY RISK ASSESSMENT-STANDARDS OF COVER

Asylum Hill

The Asylum Hill neighborhood was originally known as "Lords Hill." Many insurance companies have been located in the Asylum Hill neighborhood, such as The Hartford and Aetna Insurance. Hartford Public High School, more notably, is considered the nation's second oldest high school in existence. Farmington Avenue includes the historic homes of Mark Twain and Harriet Beecher Stowe, which are now museums.



West End

The West End neighborhood, which runs from the Park River, just past the Mark Twain House to the West Hartford border, was mostly farmland until 1870. During the 1900s-1920s many two- and three-story homes were built, lending a residential, Victorian air to the neighborhood which persists to this day.



Elizabeth Park in the West End was created in 1895 when Charles N. Pond gave his estate to the Hartford Parks Commission which created the park and named it in honor of his wife. The park boasts a playground, softball field, and other recreational facilities in addition to views of the downtown skyline. It features the oldest, and one of the largest, municipal rose gardens in the United States. Elizabeth Park's famous rose arches were designed by noted rosarian Theodore Wirth in 1904.

The University of Connecticut School of Law and the Hartford Seminary are located in the West End. Prospect Avenue boasts belle epoque and jazz age mansions, including the Governor's Mansion. Grand estates also line Scarborough Street including the former residence of A. Everett 'Chick' Austin, Director of Wadsworth Atheneum from 1927 to 1944.

HARTFORD FIRE DEPARTMENT

COMMUNITY RISK ASSESSMENT-STANDARDS OF COVER

Sheldon/Charter Oak

The neighborhood is located just south of downtown with the Connecticut River and I-91 running at the eastern end of the neighborhood. The Charter Oak monument is located at the corner of Charter Oak Place, a historic street, and Charter Oak Avenue.

The area was home to the Colts Firearm Factory, which was started by Samuel Colt, who invented the revolver firearm. Along with building a factory, Mr. Colt also made a village with houses, a library, and recreational activities so that his employees could be close to work. Colt's estate, Armsmear, was given to the city as Colt's Park after Mr. and Mrs. Colt's deaths. A developer renovated the whole facility to create office space and apartments.

The Capewell Horsenail Company was also in the area. In 1881, George Capewell invented a machine to make horseshoe nails. In 2017, it was re-developed into a residential apartment building.



North East

Once home to a mostly Irish and Jewish population, North Hartford today is primarily African American, West Indian/Caribbean, and Latino. Following World War II, a series of events occurred that led to a sharp decline. This began with the construction of Interstate 84 which gutted the neighborhood, separating it from nearby downtown. During this time the city's once strong manufacturing base dissolved, creating the start of a mass exodus to ringing suburbs (most notably north to neighboring Bloomfield and Windsor). Former

military barracks were converted into housing projects, creating a high concentration of low-income housing.

Today the North East is home to an active community of West Indian/Caribbean immigrants that provide the area with a cultural and artistic presence: the West Indian Social Club and Scott's Jamaican Bakery are two notable neighborhood institutions. It is also home to the 1944 Hartford Circus Fire Memorial, Weaver High School, and



Keney Park, one of the largest municipal parks in New England.

HARTFORD FIRE DEPARTMENT

COMMUNITY RISK ASSESSMENT-STANDARDS OF COVER

Blue Hills

The Northwest corner of the city, known as Blue Hills, is home to many schools and homes. Its main thoroughfares are Granby Street, Blue Hills Avenue CT-187, Plainfield Street, Bloomfield Avenue CT-189 and Albany Avenue US-44.

A large portion of the University of Hartford campus is located in the northwest corner of the Blue Hills neighborhood. Blue Hills has a majority population of West Indian and African American citizens. The Watkinson School, the University of Hartford and the Artists Collective are all located in the neighborhood.



South End

The South End comprises the primary arteries of Maple Avenue, Wethersfield Avenue, and Franklin Avenue. Franklin Avenue is known as the city's Little Italy. Although many Italians have moved just over the border to Wethersfield, Newington, and Rocky Hill, there is still a major Italian presence in that portion of the city.

There are numerous Italian bakeries and merchants along Franklin Avenue. In recent years, many eastern European ethnic groups have moved into South End neighborhoods, predominantly Bosnians and Albanians and other countries from the former Republic of Yugoslavia. This has contributed to more cultural enrichment in the area with a diverse assortment of businesses and eateries.

The Hartford portion of 237-acre Goodwin Park, (85-acres lie within the border of the Town of Wethersfield), is in the South End neighborhood.



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COMMUNITY RISK ASSESSMENT-STANDARDS OF COVER

South Green

South Green is home to Barnard Park, one of the nation's oldest municipal parks, in honor of Henry Barnard, whose home is located on Main Street. Congress Street and Morris Street compose a historic district with many Greek Revival and Italianate homes. Previously it was rumored that many of the homes



in this area were slated for demolition in the early 1980s as many were boarded up. Today, Congress Street is a well-kept street complete with cobblestone crosswalks and architecturally harmonious lighting.

Hartford Hospital, the largest hospital in the area, and the adjacent Connecticut Children's Medical Center, which is the only hospital primarily for children, are also located in South Green. The State Capitol for Connecticut is located here as well.

South Meadows

Located at the southeastern corner of the city, the area is primarily industrial, manufacturing and commercial businesses, including numerous building supply warehouses. It is home to the Regional Market, a 32-acre facility with 185,000 square feet of warehouse space, the largest food distribution point between Boston and New York. Brainard Airport along I-91 serves small aircraft and offers flight instruction. The Metropolitan District Water Pollution Control Plant is located here as well as a number of waste recycling facilities.

Behind the Rocks

Behind the Rocks is a predominantly residential neighborhood at the southwestern corner of Hartford below Parkville, bordering the town of West Hartford. It was named from the rocky outcropping that serves as the western border of the Trinity College campus.

In the 1890s, the Rocky Hill Quarry, located on what is now called Rocky Ridge, produced trap rock which was used primarily for road building. Much of the heavy labor was performed by Irish immigrants. In 1876, the first St. Lawrence O'Toole Church was constructed to meet community needs.



By 1912, the Rocky Hill Quarry had become a park, that is today known as the Thomas Hyland Memorial Park. The park provides a playground and sports fields for area families.

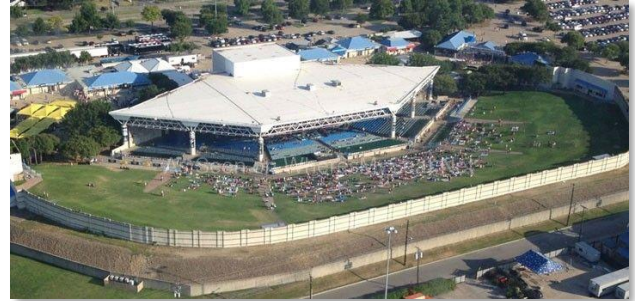
HARTFORD FIRE DEPARTMENT

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North Meadows

Located just north of downtown along the CT River and I-91, the North Meadows is a largely commercial and industrial area that is home to many of the area's car dealerships.

The North Meadows is also the home of Restaurant Depot, which supplies regional food establishments with food products and commercial kitchen equipment/supplies; the Xfinity Music Theater, seating 22,500 people in the outdoor lawn area and 7,500 people indoor, and Riverside Park.



The CT Department of Transportation operates CT Transit, the state-wide regional bus system out of the North Meadows, near Riverside Park. Riverside Park is managed by Riverfront Recapture, a project undertaken by the State of Connecticut and the City of Hartford, aiming to renew interest in the waterfront of the Connecticut River. Included in the park are a high ropes challenge course, a playground, boat launch, and the Riverfront Recapture boathouse, home to numerous private clubs and the crew teams for numerous regional schools, including Watkinson School, East Hartford, and Hartford public schools.

Barry Square

The Barry Square neighborhood is located in the southern half of the city. It is adjacent to Hartford Hospital, the Institute for the Living, and Trinity College. Barry Square takes its name from Father Michael Barry, whose Catholic parish built St. Augustine's Church on Campfield Avenue in 1902. Many early parishioners at St. Augustine's were Irish who came to Hartford as laborers, the greatest number came from County Kerry. This is Hartford's original Irish neighborhood.



Historically, the central part of the neighborhood served as a military campground in both the Revolutionary and Civil wars due to the open fields west of Campfield Avenue. In fact, this is how the street acquired its name; the camp field stretched south and east from the site of the existing Campfield branch of the Hartford Public Library.

The neighborhood is dominated by one, two, and three-family homes that provide great opportunities for first time home buyers who are also looking for rental income to help offset their cost. Maple Avenue is the primary commercial arterial in the neighborhood and provides the residents with easy access to retail goods, services, and many restaurants. A portion of Fairfield Avenue falls within the Barry Square neighborhood. Considered one of Hartford's prettiest roads, it runs along a ridge between New Britain Avenue and Cedar Hill Cemetery.

HARTFORD FIRE DEPARTMENT

COMMUNITY RISK ASSESSMENT-STANDARDS OF COVER

South West

Hartford's South West neighborhood is considered the quiet corner of the city. Located along New Britain Avenue and south to the Newington boarder, this neighborhood offers wonderful single-family residential homes along quiet streets. The neighborhood also offers two and three-family homes, apartments, and condos.

It is also home to the beautiful Cedar Hill Cemetery, an exemplary landscape-park style open space. Laid out by landscape architects Jacob Weidenmann and Fredrick Law Olmsted, the chapel, gatehouse, and several monuments were designed by George Keller. Several notables are buried at Cedar Hill, among them J.P. Morgan, Samuel Colt, and poet Wallace Stevens.



Upper Albany

From colonial days until the end of the 19th century, Upper Albany was primarily farmland. Albany Avenue, which dissects the neighborhood, is one of the oldest roads in the state, having been laid out in 1678 as The Talcott Mountain Turnpike which eventually extended from Providence to Albany, New York.



Today the neighborhood is experiencing a rebirth with much investment into community facilities. It is home to the Artists Collective and the University of Hartford Arts Center. Community and business organizations are working to make Albany Avenue a destination for shopping and entertainment.

The Upper Albany neighborhood offers historic housing, shopping, and restaurants. The neighborhood is dominated by large historic two and three family homes and includes two wonderful historic streets, Burton Street and Deerfield Avenue.

HARTFORD FIRE DEPARTMENT

COMMUNITY RISK ASSESSMENT-STANDARDS OF COVER

Clay-Arsenal

Located just north of downtown, Clay Arsenal is one of Hartford's oldest neighborhoods, developed in the middle and late 19th century. The section west of Main Street lies on a gentle rise above downtown and is known as Clay Hill, so named for the type of soil there. The area east of Main Street has been known since 1812 as the Arsenal District, when a State Arsenal was constructed. The Arsenal was demolished in 1909.

It was mainly farmland prior to 1847, when the Hartford-Springfield Railroad, which now forms the neighborhood's eastern border, was constructed. The neighborhood is also the site of both Old North and Saint Patrick's cemeteries. Originally called the North Burying Ground, the cemetery was established in 1807 and represents a cross-section of 19th century Hartford society, including Jewish and Italian immigrants, Civil War soldiers and prominent residents.

Multi-family dwellings were the dominant development in the late 19th century. The Clay Hill Historic District of the neighborhood spans roughly 60 acres of the neighborhood and contains examples of Italianate, Queen Anne and Neo-Classical Revival styles of architecture.



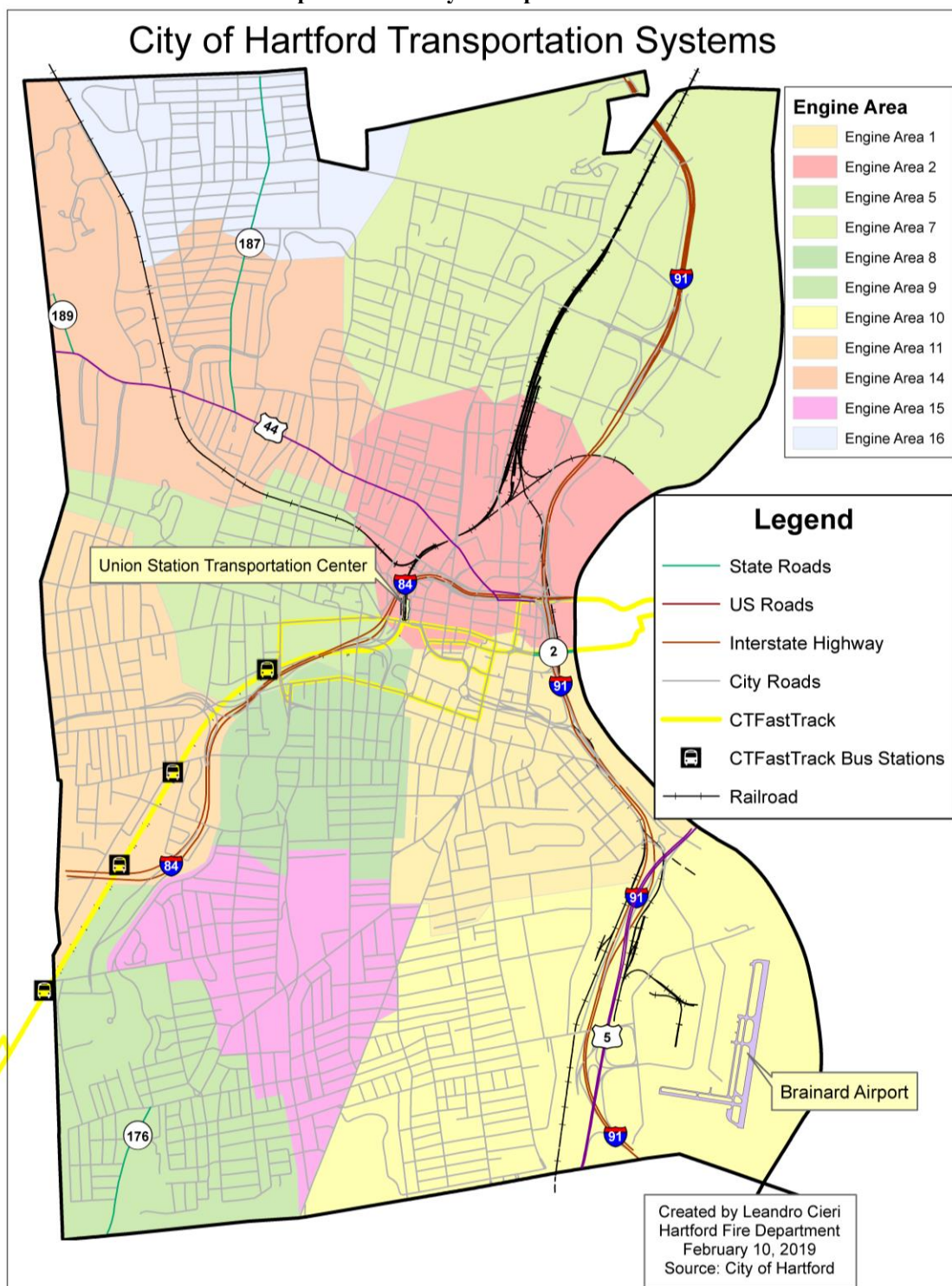
HARTFORD FIRE DEPARTMENT

COMMUNITY RISK ASSESSMENT-STANDARDS OF COVER

Community Transportation Systems

The City of Hartford is the metropolitan hub and economic driver for the region. Road, rail, and air transportation systems are provided for the region.

Map 3: Community Transportation Network



HARTFORD FIRE DEPARTMENT

COMMUNITY RISK ASSESSMENT-STANDARDS OF COVER

Road - Located at the mid-point between New York City and Boston, the City of Hartford serves as a major transportation hub for the region. Two major Interstate Highways (I-91 and I-84) intersect in the center of the city. These highways provide access to other regional cities as well as the metropolitan areas of Boston



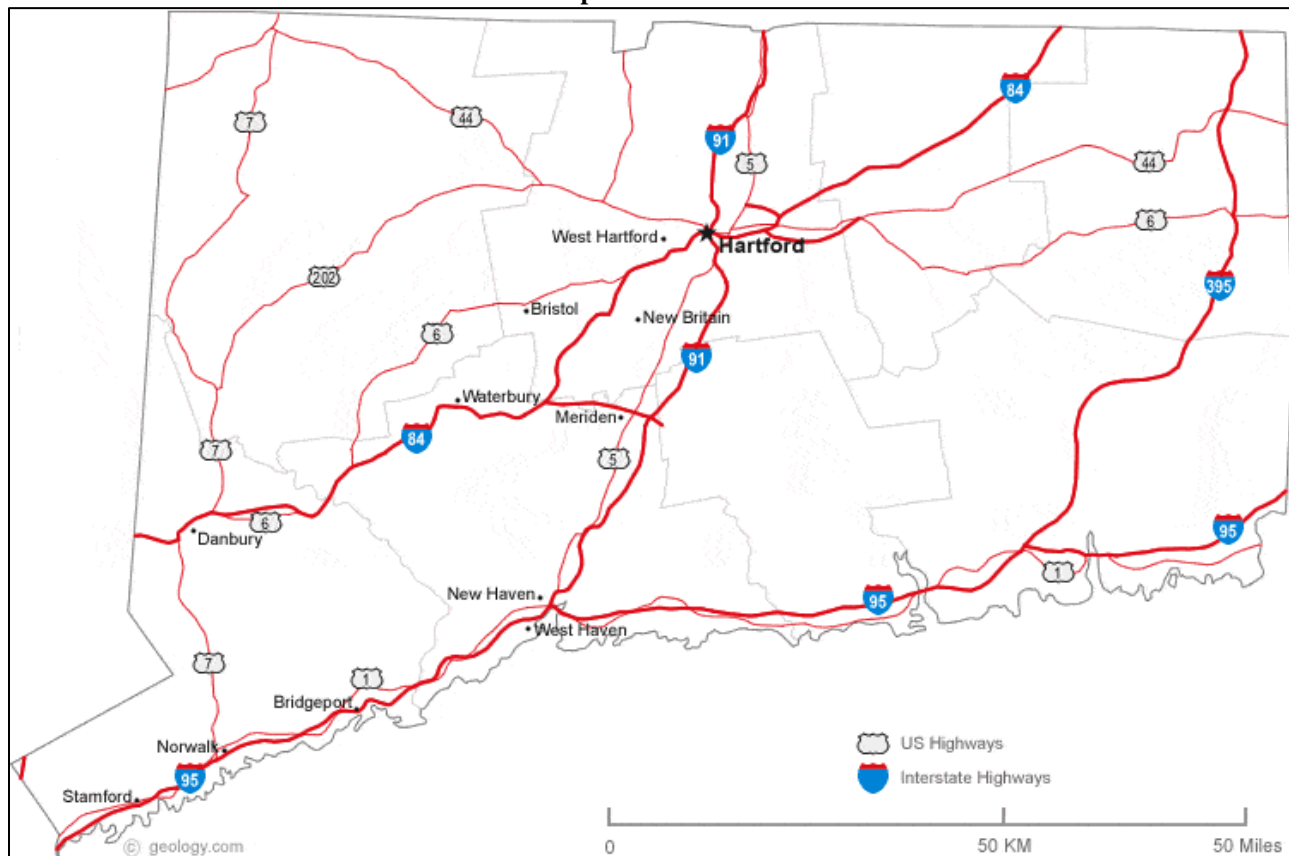
and New York City. Both highways are highly trafficked and are used as major shipping routes for the Northeast, moving large quantities of hazardous materials on a daily basis.

US Route 44 travels east-west along Albany Avenue to the West Hartford line. CT Route 187 travels North-South along Blue Hills Avenue to the Bloomfield line.

Table 1: State Road Distance Totals

State Road	Miles	Travel Direction
Interstate 91	7.5 Miles	North-South
Interstate 84	4.5 Miles	East-West
US Route 44	3.6 Miles	East-West
CT Route 187	1.4 Miles	North-South

Map 4: State Roads



HARTFORD FIRE DEPARTMENT

COMMUNITY RISK ASSESSMENT-STANDARDS OF COVER

Rail - The City of Hartford provides the region with a railroad link. Amtrak runs regular passenger service to New York City and other New England destinations from its Hartford (Union Station) Stop. The Hartford Line CTrail started passenger service in 2018 between Springfield, MA to New Haven, CT with seven stops including Hartford at the midpoint.

In addition to the passenger trains, the CSX Main Line between New York and New England runs through Hartford. A portion of the freight moves large quantities of volatile and/or toxic hazardous materials daily through the community. The city also is home to a large rail yard that services the region.



Figure 2: Passenger Rail Service to/from Hartford



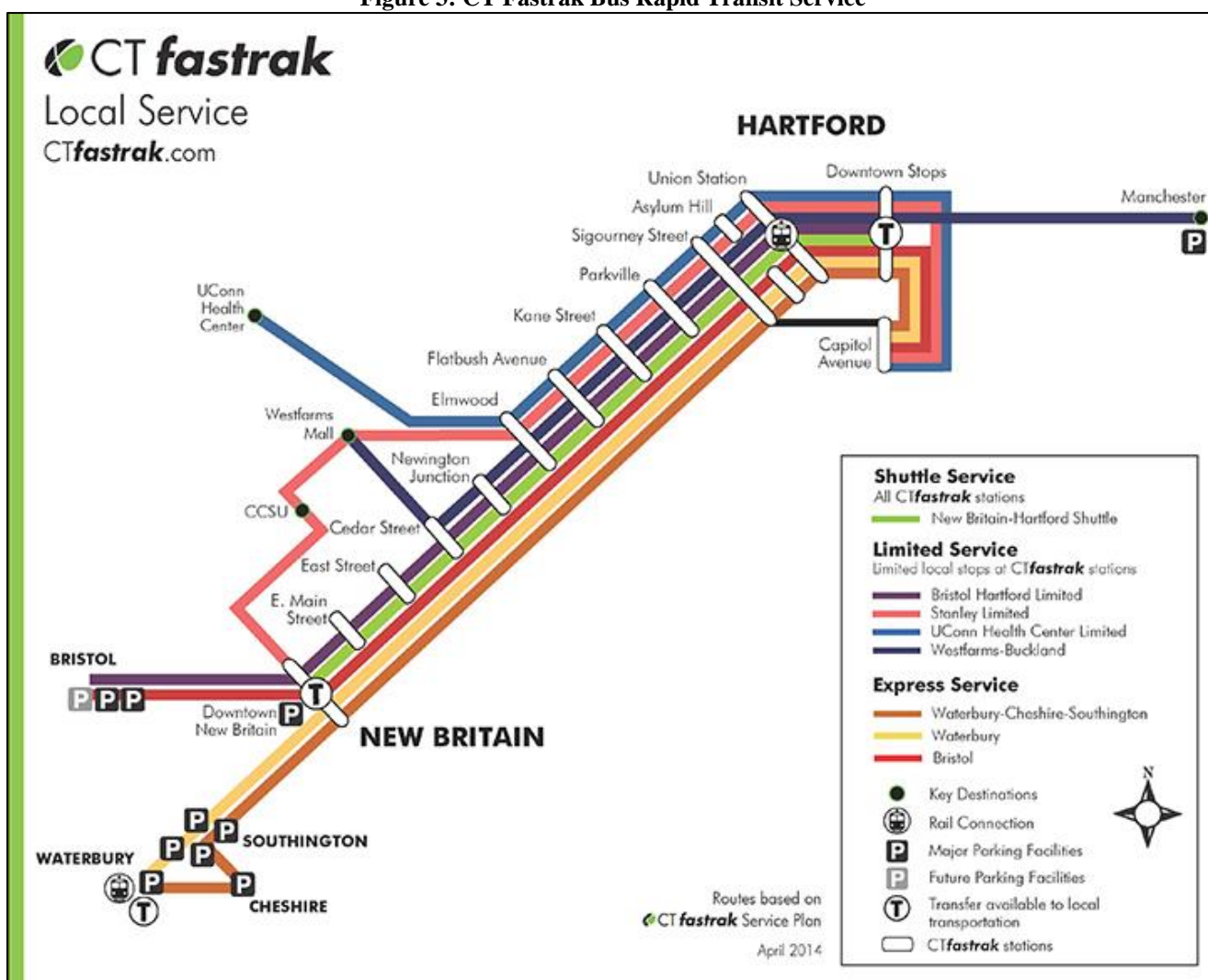
HARTFORD FIRE DEPARTMENT

COMMUNITY RISK ASSESSMENT-STANDARDS OF COVER

Bus - Union Station serves as a regional hub for bus transit. Multiple lines utilize the station for interstate service. CT Transit, the state-wide transit service, provides bus service for the city. CTfastrak is a Bus Rapid Transit (BRT) system along a 9.4-mile two-lane guideway, constructed as a grade-separated limited-access highway. It links nine communities with supported local routes within the city. Express buses access the guideway from a dedicated bus exit ramp off the highway. Express buses access the guideway from a dedicated bus exit ramp off the highway.



Figure 3: CT Fastrak Bus Rapid Transit Service



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COMMUNITY RISK ASSESSMENT-STANDARDS OF COVER



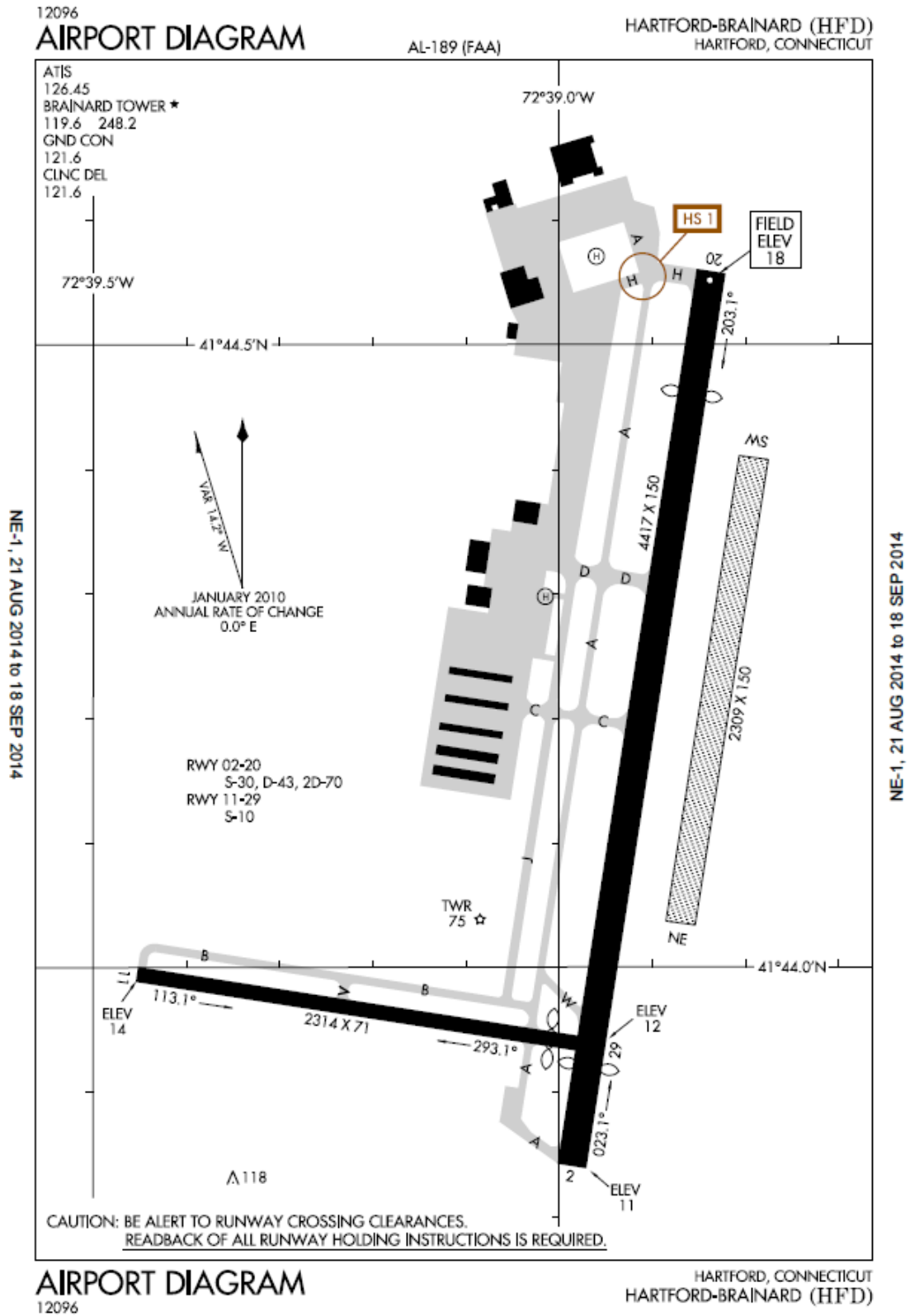
Air - Brainard Airport is located in the south end of the city. The airport consists of one seasonal 2,350-foot-long turf runway and two asphalt runways, 4,400 and 2,300 feet long, one lighted helipad, and supporting infrastructure that includes a taxiway system, aircraft parking aprons, an instrument landing system, air traffic control tower, weather station, vehicle parking, and numerous airport tenant facilities. FAA contract tower operating hours are 6 am to midnight daily.

A full range of FBO aviation business services are available including concierge, fueling, ground support, aircraft repair, avionics and flight school training. Other business service offerings are T-hangar and corporate aircraft storage, private air charter, aircraft sales and rental, car rental, and an on-airport restaurant.

HFD currently has the primary responsibility for fire and other emergencies at this location. Hartford is also located within 15 Miles of Bradley International Airport that services large commercial airline flights, and is located under major skyways.

HARTFORD FIRE DEPARTMENT COMMUNITY RISK ASSESSMENT-STANDARDS OF COVER

Figure 4: Hartford-Brainard Airport Diagram



HARTFORD FIRE DEPARTMENT

COMMUNITY RISK ASSESSMENT-STANDARDS OF COVER

Water - The Connecticut (CT) River is on the Eastern boundary of the city. Recent development has greatly increased the recreational traffic on and around the river. The river is home to various recreational and



sporting events each year. These events include triathlons, fishing and boat racing. A seasonal charter boat offers regular music and dining trips on the river. The Park River is more than nine miles long with three miles buried in a conduit tunnel. It enters in the West End and ends at the CT River.

There are five ponds located within the following community parks: Keney, Pope, Bushnell, Elizabeth and Goodwin.



top: Tobacco farms and neighborhoods along the Connecticut River, East Windsor.

middle: Built in 1829 to bypass the Enfield rapids, the Windsor Locks Canal runs parallel to the river's shoreline for more than five miles. The canal was in use until 1976. A hike and bike trail now follows the length of the canal.

bottom: A warehouse (c. 1798) at Wethersfield Cove is the last surviving element of a shipping port that was active into the 1830s.

The nation's oldest continuously operated ferry has run between Rocky Hill and South Glastonbury since 1855. Operated by the State of Connecticut, the ferry runs May through October.

Hartford and East Hartford seen from the south, with the National Historic Landmark Colt's Firearms factory (left foreground), the Founder's Bridge (1958), and, to the north, the Bulkeley Bridge (1908). Just north of Colt's is the spot where the Dutch built a fort in 1633, on the banks of the Park (or Hog) River, which was buried in the 1940s. Linear parks along the riverbanks were created beginning in the 1980s by the nonprofit group Riverfront Recapture.

left: The Connecticut River takes a turn in Middletown, changing its route as it cuts through the Bolton Ridge. The double-arch Arington Bridge and the turnstile railroad bridge connect Middletown with Portland and its famous brownstone quarries.

CT Explains // 16

CT Explains // 17

HARTFORD FIRE DEPARTMENT

COMMUNITY RISK ASSESSMENT-STANDARDS OF COVER

Community Critical Infrastructure (e.g. water supply distribution, storm drainage, etc.)

Electricity - Eversource is the regional electrical provider. The company provides service to the community through six (6) sub-stations located in various points around the city. The sub-stations were switched to underground facilities in recent years. The company maintains a total of 401 miles of electrical circuit wire; 312 underground miles and 89 overhead miles on 9,566 utility poles.

Natural Gas - Connecticut Natural Gas (CNG) is the regional natural gas provider. CNG maintains 225 miles of underground distribution pipeline throughout the city. There is no storage facility in the region. No map is provided due to infrastructure confidentiality.

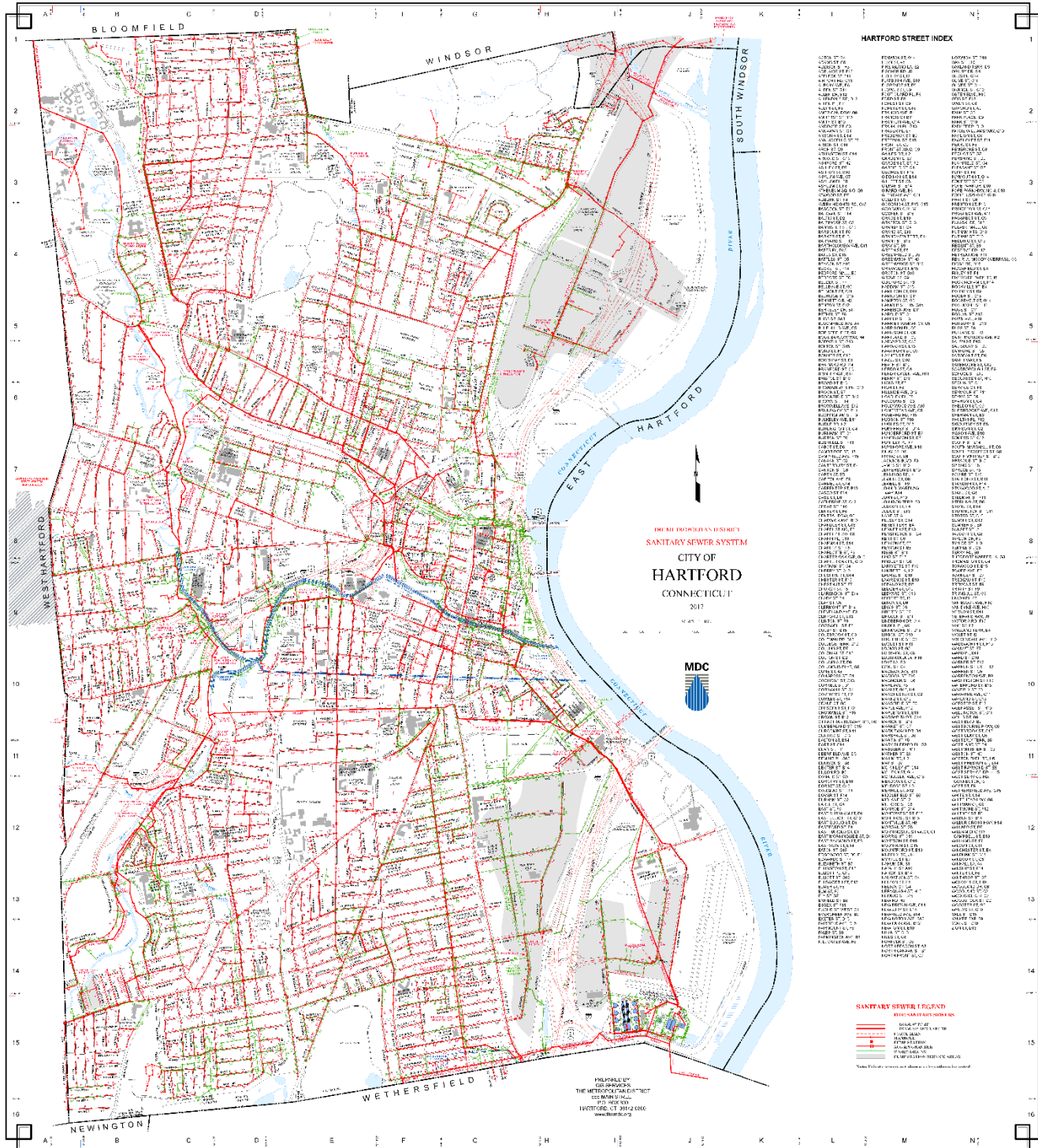
Water - The City of Hartford's water distribution network is maintained by the Metropolitan District Commission (MDC), a non-profit municipal corporation created by the CT General Assembly in 1929 with the purpose of providing potable water and sewage systems to the Hartford area. The water source is the 30.3 billion gallon Barkhamsted Reservoir in Barkhamsted and the 9.5 billion gallon Nepaug Reservoir in New Hartford. The MDC maintains approximately 2,584 public hydrants throughout the city. Fire hydrants are located at a maximum of 500 feet apart in residential areas and 250 feet apart in commercial/industrial areas. There are an additional 270 private hydrants in the city. The minimum flow from any hydrant is 440 gallons per minute with a residual pressure of 75 psi with over 95% of all fire hydrants flowing greater than 1,000 gpm. There are two areas within the City of Hartford with high elevation of 294 ft above sea level, Avery Heights and Prospect Avenue Hill, that are serviced by low pressure and volume hydrants. (The department utilizes relay pumping to ensure that the adequate pressure and volume of water needed for fire suppression activities are available in those areas). MDC maintains 276 miles of water mains. Storm drainage is maintained through 224 miles of sanitary water pipes and 148 miles of storm drainage pipes. Mains include diameters up to 126 inches.

MDC operates a major water pollution control plant in the South Meadows GPZ. Currently, MDC is in the midst of a 15-year \$2.1 billion infrastructure improvement project. This includes the South Hartford Conveyance and Storage Tunnel, a four-mile long deep rock tunnel constructed to convey and temporarily store wastewater minimizing sewer overflows into local waterways, the CT River, and Long Island Sound during storm events.

HARTFORD FIRE DEPARTMENT

COMMUNITY RISK ASSESSMENT-STANDARDS OF COVER

Map 6: Sanitary Sewer System



Community Land Use and Zoning

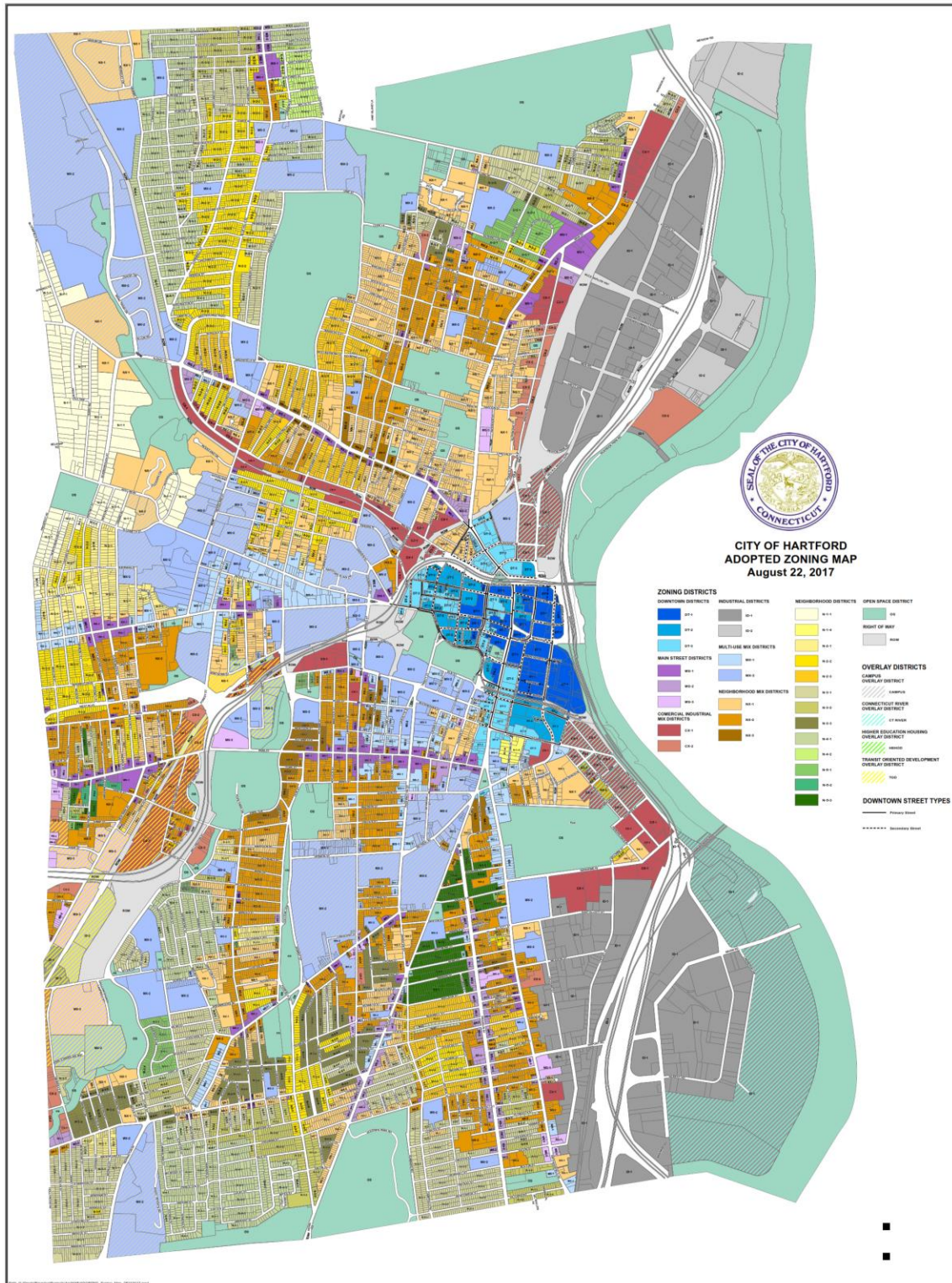
The Department of Development Services (DDS) provides support to various boards and commissions that regulate the use of land in the City of Hartford and assists applicants in understanding the permit processes. The Planning and Zoning Commission (PZC) is responsible for strategic planning to guide future development and growth. PZC also functions as the Inland Wetlands & Watercourse Commission

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(IWWC), reviews applications associated with zoning, subdivisions or activities which occur within regulated areas of wetlands and watercourses. There are a number of designated areas within the community that DDS has oversight concerning economic development which will be further described.

Map 7: Zoning

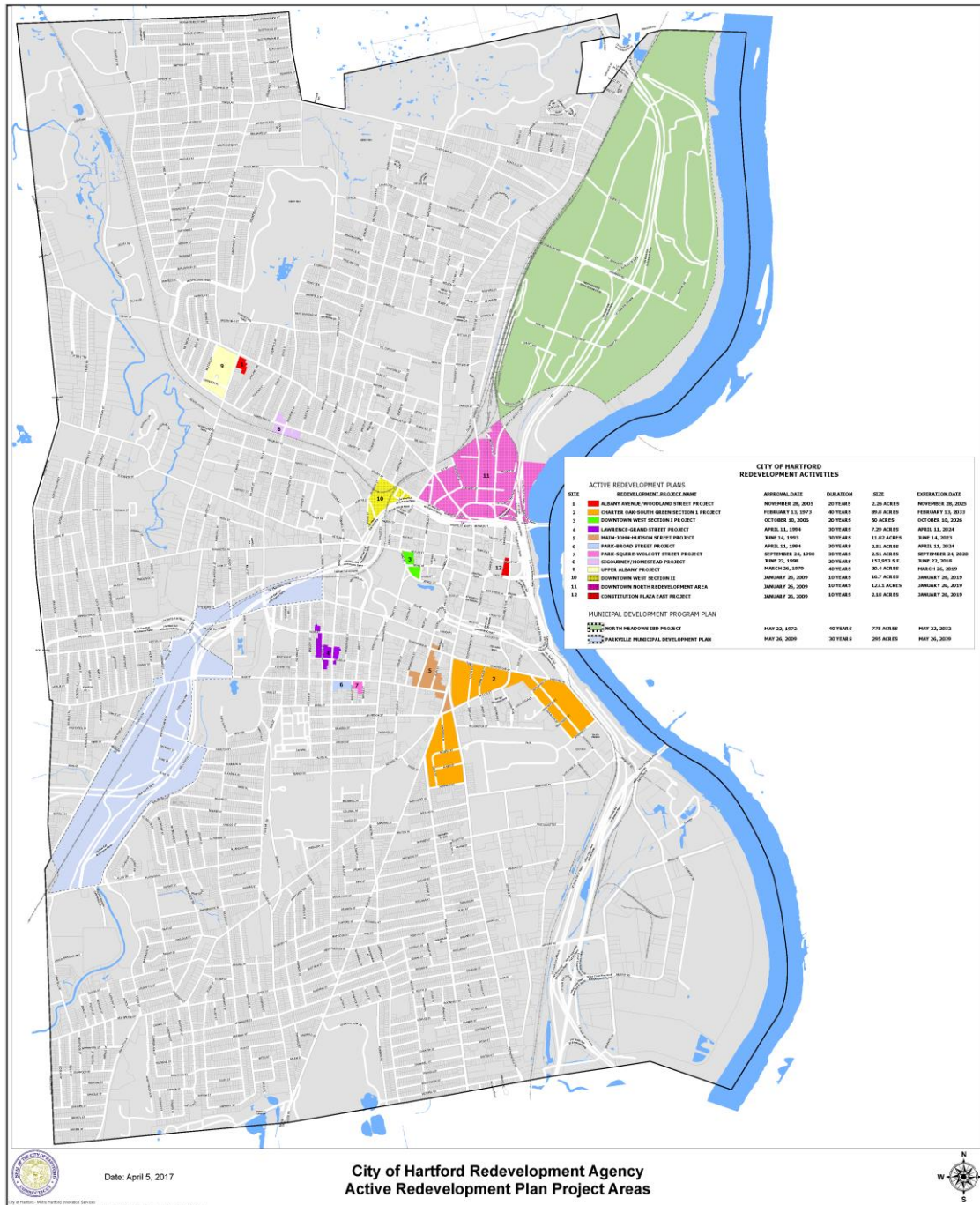


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The Hartford Redevelopment Agency (HRA) establishes and manages Redevelopment Plans. HRA has special interest and jurisdiction in eighteen established redevelopment areas which include the Neighborhood Redevelopment Plan (NRP), the Enterprise Zone (EZ), and the Promise Zone (PZ). HRA may purchase targeted properties through negotiated acquisitions or through the use of eminent domain. Following acquisition, properties are sold and redeveloped in accordance with the plan. HRA currently manages over eighteen Redevelopment Plans throughout the city.

Map 8: Redevelopment Plan



HARTFORD FIRE DEPARTMENT

COMMUNITY RISK ASSESSMENT-STANDARDS OF COVER

Promise Zone: (Federal Program) On April 28, 2015, the U.S. Department of Housing and Urban Development (HUD) awarded the City of Hartford a Promise Zone designation for North Hartford; a 3.11 square-mile area encompassing the Clay Arsenal, Northeast and Upper Albany neighborhoods - making Hartford the first city in New England to have been selected to take part in this competitive initiative. The North Hartford Promise Zone (NHPZ) rate of poverty is 49.35 percent, compared to the city's rate of 33.9 percent and the State's rate of 10 percent, and encompasses a population of 23,930 residents.

Promise Zones benefits include technical assistance, federal staff support, and access to preference points for existing federal grant programs. Promise Zone designation has a term of 10 years, and will be extended as necessary.

Under the Promise Zones initiative, the federal government is investing and partnering with a total of 20 "high-poverty, high capacity" communities in the country and supporting the implementation of neighborhood revitalization strategies focused on job creation, increased access to quality, affordable housing, expanded educational opportunities, improved public safety and improved health outcomes.

HARTFORD FIRE DEPARTMENT COMMUNITY RISK ASSESSMENT-STANDARDS OF COVER

Map 9: Promise Zone



HARTFORD FIRE DEPARTMENT

COMMUNITY RISK ASSESSMENT-STANDARDS OF COVER

Enterprise Zone: (State Program) Companies involved in manufacturing, research associated with manufacturing and distribution warehousing (new construction/expansion only), as well as certain service companies that develop properties in an Enterprise Zone or a zone that is eligible for Enterprise Zone-level benefits will receive:

- a five-year, 80% abatement of local property taxes on qualifying real estate and personal property (note: the company must be new to the municipality's grand list as a direct result of a business expansion or renovation); and
- a 10-year, 25% credit on the portion of the corporate business tax that is directly attributable to a business expansion or renovation project, as determined by the Connecticut Department of Revenue Services. The credit may increase to 50% based on the number of new jobs created.

Specific newly formed corporations located in a zone qualify for a 100% corporate tax credit for their first three taxable years and a 50% tax credit for the next seven taxable years.

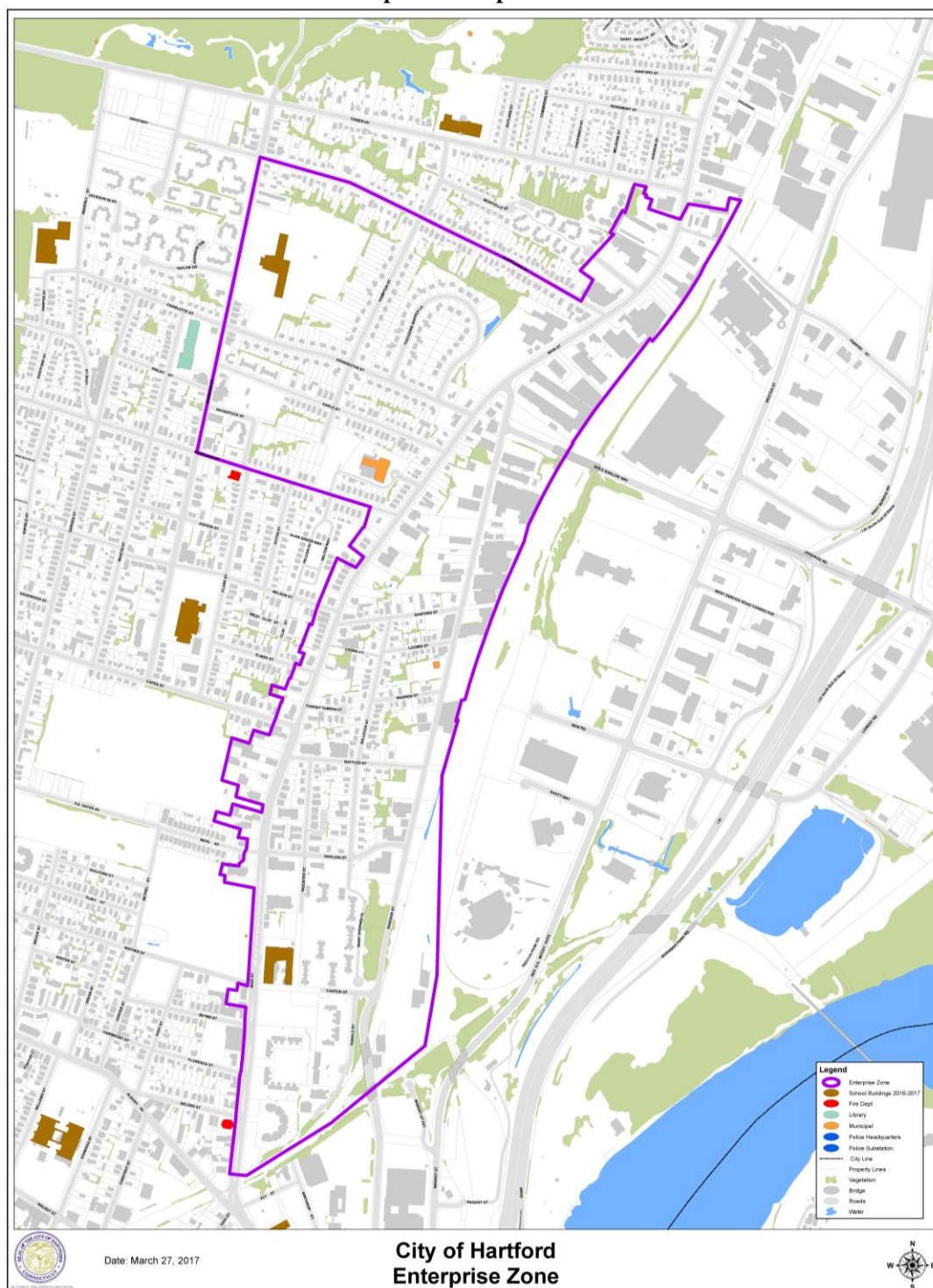
An Enterprise Zone consists of a primary or secondary census tract or several contiguous tracts within a community. To be eligible to establish an Enterprise Zone, a community must meet certain minimum criteria related to social and economic conditions as outlined:

- Poverty rate: Primary tract - 25%; Secondary tract - 15%
- Unemployment rate: Primary tract - 2x state average; Secondary tract - at least 1.5x
- Population on public assistance: Primary tract - 25%; Secondary tract - 15%

HARTFORD FIRE DEPARTMENT

COMMUNITY RISK ASSESSMENT-STANDARDS OF COVER

Map 10: Enterprise Zone

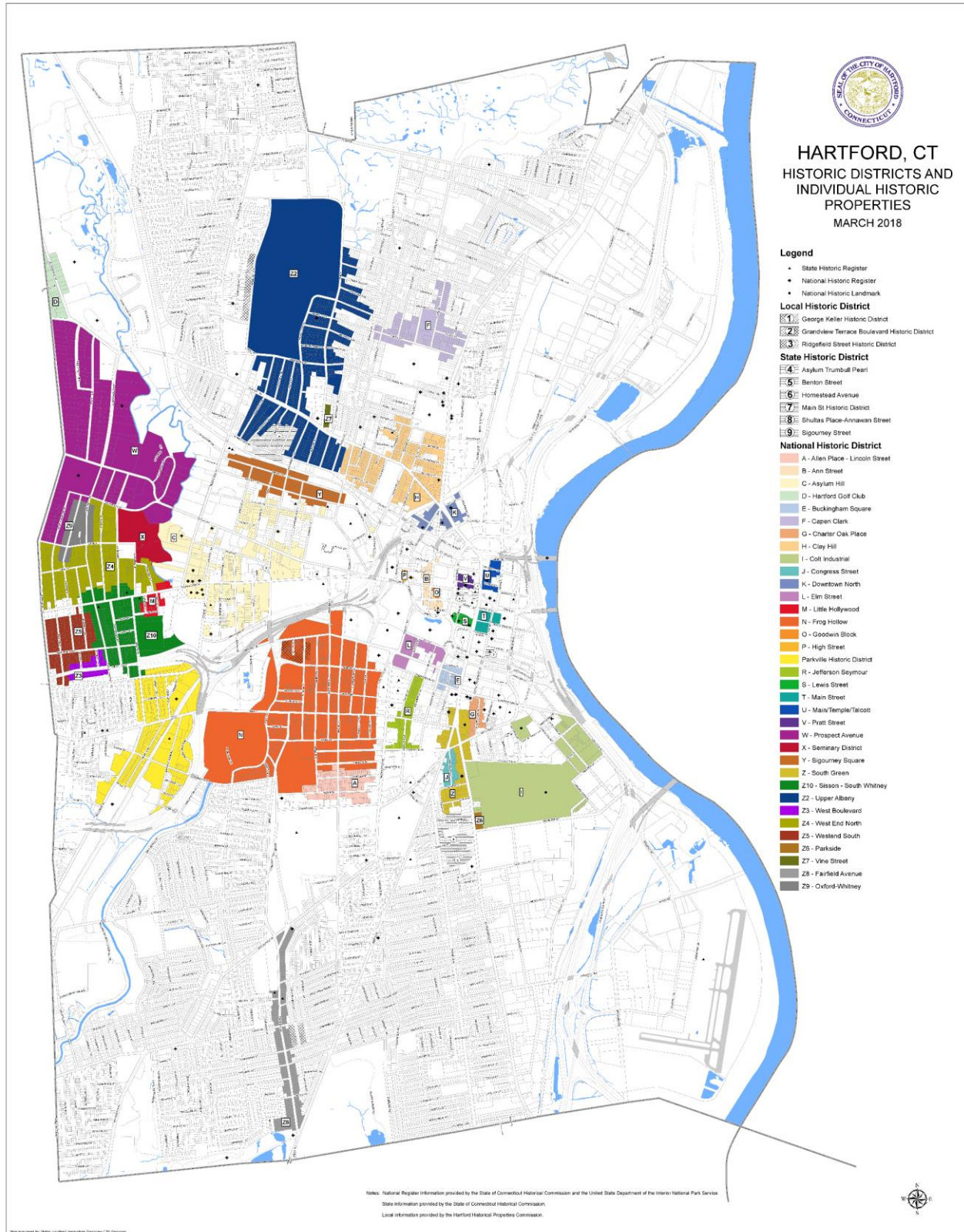


Historical: Nearly one-third of the structures in the city are historic or are in a historic district, some dating back to the 1600s. Many of the properties hold significant community economic and civic value. The Historic Properties Commission reviews work on properties that are in local historic districts. The Historic Preservation Commission reviews applications for work on properties that are listed as state or national

HARTFORD FIRE DEPARTMENT COMMUNITY RISK ASSESSMENT-STANDARDS OF COVER

historic resources. Both commissions comprise the same members. Redevelopment of any these parcels contain stringent measures and requirements to meet the historical aesthetic and modern building code.

Map 11: Historical



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Community Topography

Hartford is predominately flat with rolling hills and ranges in elevation from sea level to a high point of 294 feet. Hartford maintains 217 centerline road miles and 398 centerline miles of sidewalk. The State of Connecticut maintains 53 centerline road miles within the city.

Hartford maintains 37 recreational parks encompassing just under 2,300 acres. Keney Park, at 693 acres, is one of the largest municipal parks in New England.

Community Geography

Hartford lies in the north-central portion of the State of Connecticut. The city comprises a total area of 18.4 square miles, of which, 17.4 square miles of it is land and 0.7 square miles of it (3.9%) is water. Of which 71.7% is developed, 13.8% is Grass of Agriculture, 9.6% is forest, and almost 4% is water.

Hartford is bordered by the towns of West Hartford, Newington, Wethersfield, East Hartford, Bloomfield, South Windsor, and Windsor. The Connecticut River forms the boundary between Hartford and East Hartford, and is located on the east side of the city.

The Park River originally divided Hartford into northern and southern sections and was a major part of Bushnell Park, but the river was nearly completely enclosed and buried by flood control projects in the 1940s. The former course of the river can still be seen in some of the roadways that were built in the river's place, such as Jewell Street and the Conlin-Whitehead Highway.

Community Climate

Hartford lies in the humid continental climate zone. Summers are typically hot and muggy by New England standards, while winters are typically cold with frequent snowfall. The average annual precipitation is approximately 45.9 inches which is distributed fairly evenly throughout the year.

Hartford typically receives about 48.0 inches of snow in an average winter; the record seasonal snowfall was 115.2 inches during the winter of 1995-1996. The winter of 2010-2011 was an example of an extreme winter in Connecticut. From the beginning of December through the end of April, the total for the season was 86.4 inches.

The Meteorological Winter runs from the beginning of December through the end of February. The average over the three months of the 2010-2011 Winter was 2.4 degrees colder than normal. Total snowfall was 84.1 inches, which is 36 inches above normal. Total precipitation was 15.09 inches, which is 4.69 inches above normal. This is the second snowiest season on record and records date back 106 years to 1905.

During the summer, temperatures often exceed 90°F (32°C). Thunderstorms are common during the summer months since the frontal boundary that separates the tropical air mass from colder air to the north moves back and forth over the city. While these thunderstorms may be severe with damaging winds and

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hail, tornadoes are rare. Tropical storms and hurricanes have also struck Hartford, although the occurrence of such systems is rare and is usually confined to the remnants of such storms. Hartford has been struck by major hurricanes in the years of 1938, 1944, 1954, 1955 (2), 1985, and 1991.

A portion of Hartford is protected from the 100-year 30-foot Connecticut River Flood Zone and the 500-year 38-foot Connecticut River Flood Zone by a flood control system. This system consists of a seven-mile-long levee of river walls and dikes, four pumping stations, seven stop lock gates, and the Park River System which contains conduits, spillways, water management tunnels, and pump stations. The Park River System is maintained by the Metropolitan District Commission (MDC) and the State of Connecticut. The flood control system is managed and operated by the City of Hartford Public Works Department and the Greater Hartford Flood Commission in Coordination with the MDC.

This protected area accounts for approximately 800 properties and an estimated residential population of approximately 5,800 predominately located along the eastern side of the city. The Flood Commission conducted a hazard analysis of the flood control system and maintains a current flood evacuation plan as part of the city Emergency Operations Plan.

Maps are provided to follow with the first displaying the FEMA 100-year and 500-year flood zones. Map 13 displays the various components of the flood control system.

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Map 12: FEMA Flood Zones

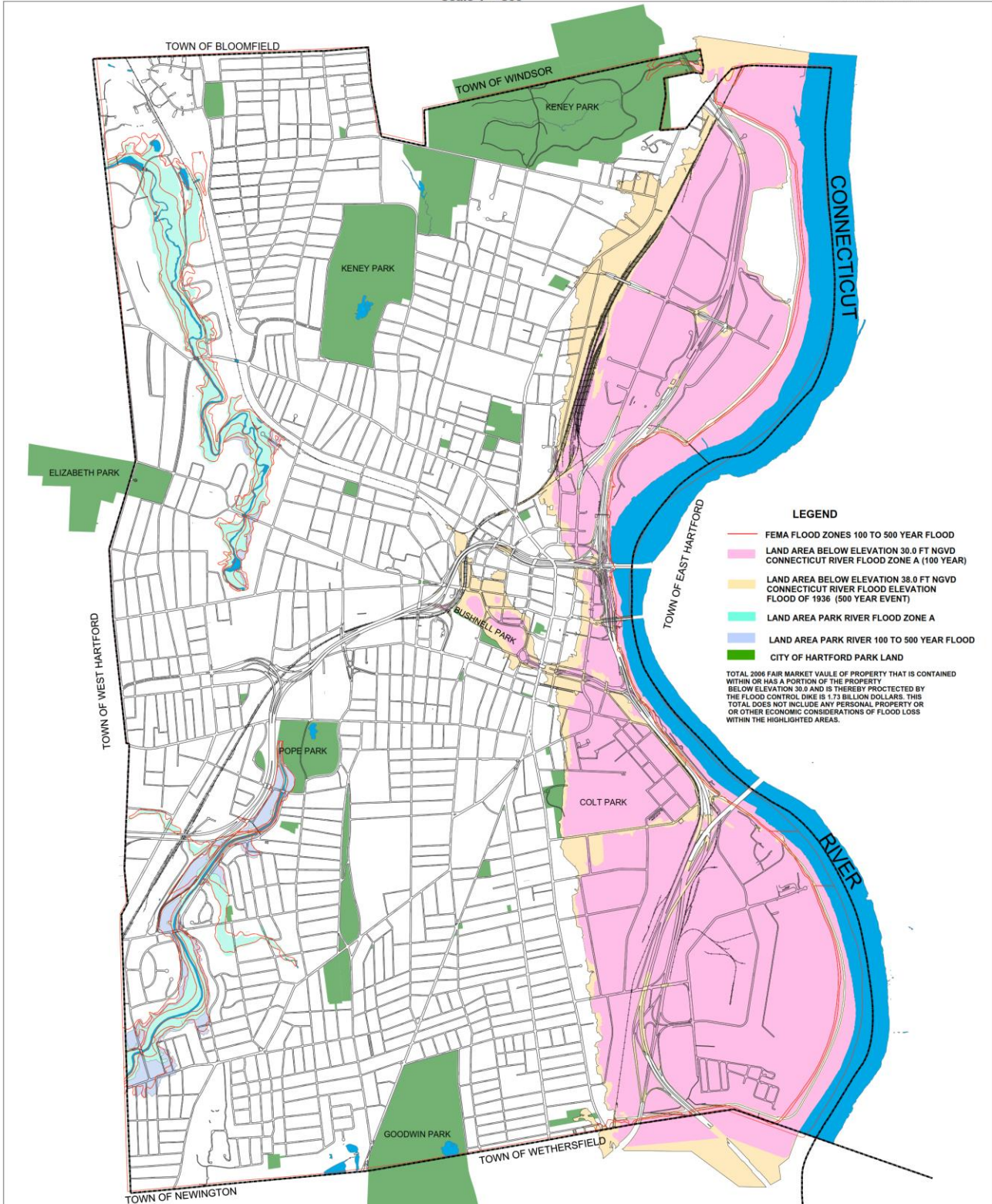
CITY OF HARTFORD FLOOD CONTROL

LAND AREAS PROTECTED FROM 100 YEAR FLOOD EVENTS ALONG
CONNECTICUT RIVER BY CITY OF HARTFORD FLOOD PROTECTION STRUCTURES

Scale 1"= 800'

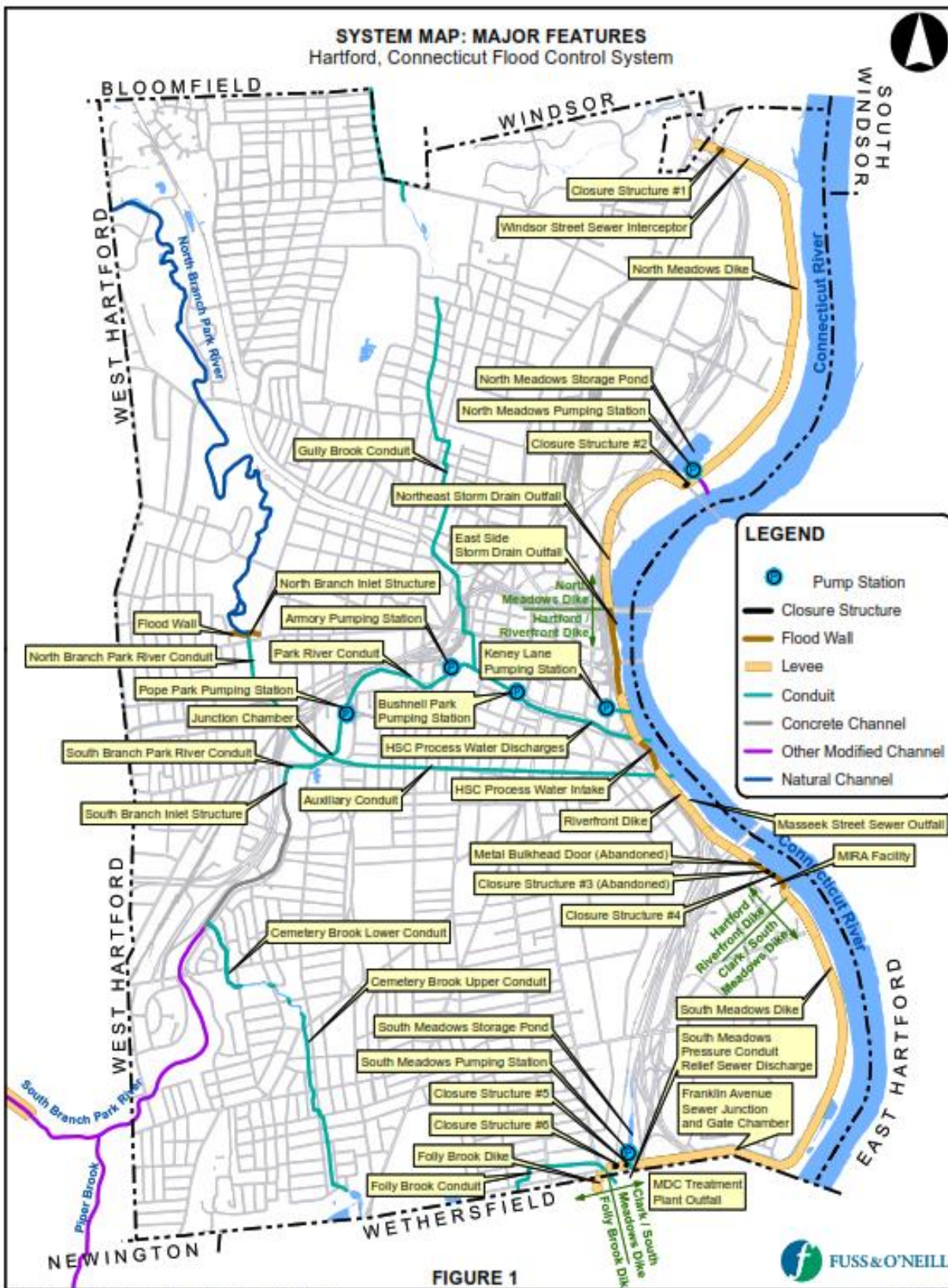


Map Prepared by: James Haggitt, L.P.
City of Hartford, 2010-2012
Map Date: January 7, 2007
This Map Conforms to the Code of Ordinances - Compilation File



HARTFORD FIRE DEPARTMENT COMMUNITY RISK ASSESSMENT-STANDARDS OF COVER

Map 13: Flood Control System



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Community Population/Population Densities

Hartford has a resident population of 124,775 according to the 2010 US Census. This breaks down to a population density of 7,178 people per square mile, classifying the city as an urban location according to the U.S. Census Bureau. There are 7,841 businesses that operate in the community from small one-two person shops to international companies that are headquartered here.

Community Demographic Features

Table 2: 2010 US Census Community Demographics

Community Demographics, US Census 2010	
Population	124,775
Persons under 5 years, percent	6.60%
Persons under 18 years, percent	24.40%
Persons 65 years and over, percent	10.30%
Female persons, percent	52.00%
White alone, percent	33.10%
Black or African American alone, percent	37.90%
American Indian and Alaska Native alone, percent	0.30%
Asian alone, percent	3.00%
Native Hawaiian and Other Pacific Islander alone, percent	0.00%
Two or More Races, percent	6.10%
Hispanic or Latino, percent	44.30%
White alone, not Hispanic or Latino, percent	14.80%
Owner-occupied housing unit rate, 2013-2017 ACS	23.80%
Households, 2013-2017 ACS	45,822
Persons per household, 2013-2017 ACS	2.54
High school graduate or higher, age 25 years+, 2013-2017 ACS	72.70%
Bachelor's degree or higher, age 25 years+, 2013-2017 ACS	16.60%
With a disability, under age 65 years, percent, 2013-2017 ACS	11.40%
Median household income (in 2017 dollars), 2013-2017 ACS	\$33,841
Per capita income in past 12 months (in 2017 dollars), 2013-2017 ACS	\$19,220
Persons in poverty, percent	30.50%
All firms, 2012	7,841
Population per square mile, 2010	7,178.80
Land area in square miles, 2010	17.38

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More than 10% of the population is over the age of 65. This population segment usually requires more services and resources due to the nature of immobility and the natural effects of aging. A summary is provided of community convalescent facilities where the elderly reside with 24-hour care and medical services provided. Additionally, a summary is provided of senior housing facilities where the elderly are provided independent living.

Table 3: Convalescent Facilities

Address	Name	Total Beds
5 Greenwood St	Park Place Health Center	150
705 New Britain Ave	Avery House	199
27-29 Girard Ave	Fernwood Manor	24
38 Girard Ave	Westway Manor	15
614 New Britain Ave	Maple Leaf Manor	15
25 Lorraine St	Chelsea Place Care Center	234
151 Hillside Ave	Trinity Hill Care Center	144
21 Victoria Rd	Alberta Manor	30

Table 4: Senior Housing Facilities

Address	Name	Total Units
141 Woodland St	Betty Knox Apartments	193
3545 Main St	St Monica's Elderly Housing	59
65 Eaton St	Mary Caruso Gables	40
80 Charter Oak Ave	Smith Tower	150
170 Sisson Avenue	Shephard Park	373
180 Oak St	La Casa Elderly Housing	40
25 Laurel St	Underwood Apartments	136
470 Broad St	Capitol Towers	144
461 Washington St	M.D. Fox Manor	90
43 Morris St	Bacon Congregate Housing	23
15 Woodland St	Immanuel House	200
51 Vine St	Horace Bushnell Congregate Homes	60
1130 – 1132 Albany Ave	Cathedral Manors	40 (x2)
705 New Britain Ave	Avery Heights	203
25 Belden St	Casa Edad De Oro	36

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According to the 2010 US Census, the daytime population increases by an additional 79,500 due to employment factors. Hartford is home to numerous finance and medical firms with a growing technology presence. The State of Connecticut maintains a large workforce within the city. The Hartford Public School system is the largest in the state with a 2018-2019 student population of 26,019 distributed amongst 46 schools spread throughout the city.

Table 5: Top Ten Employers

Employer	Total Employees	Employer	Total Employees
State of CT	8,685	Hartford Hospital	6,555 (982 v)
Travelers	7,400	Saint Francis Hospital	5,731
Aetna	5,618	City of Hartford	1,388
The Hartford	6,800	CT Children’s Medical	2,710
United Health	4,450	Hartford School System	3,610
Total		52,947	

v = Total volunteers in the facility.

Hartford has a number of institutions of higher learning with the six largest being; Trinity College, Capital Community College, University of Hartford, University of Connecticut (UCONN) - Hartford Branch, UCONN Business School and the UCONN School of Law. Student enrollment for the 2018-2019 academic year was 16,825.

Table 6: Student Population (2018-2019)

Institution of Higher Learning	Student Base (Employees)
University of Hartford	6,792 (1,466)
UCONN - Hartford	3,100 (300)
UCONN - Business School	1,100 (45)
UCONN - School of Law	457 (43)
Trinity College	2,282 (300)
Capital Community College	3,315 (223)
Total Campus Population	19,202

Hartford has consistently placed 5 of the top 11 tourist attractions in Connecticut. In 2018, Hartford hosted over two million people to the following sites.

Table 7: Most Visited Attractions (2018)

Attraction	2018 Visitors
Riverfront Recapture	617,000
Elizabeth Park	500,000
Bushnell Park	500,000
Bushnell Performing Arts Center	316,000
Connecticut Science Center	295,843
Total Visitors	2,228,843

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B. History of the Agency

Major Historical Milestones of the Department (Legacy Era 1864 – 1994)

The Hartford Fire Department (HFD) officially dates its organization to 1864. The City of Hartford has long recognized the dangers associated with fire and the need to control it for the city to prosper. Throughout its history dating back to colonial times, the City of Hartford has been an innovator regarding the fire service. The first ordinance governing fire safety in Hartford was passed in 1788. This ordinance outlawed bonfires in Hartford's streets. It was enacted in response to the accidental burning of the State House that was a wood structure during a parade and fireworks display celebrating the end of the Revolutionary War in April 1793. The roof was set on fire and it nearly destroyed the entire roof. Thanks to the efforts of the volunteer firefighters, the building was saved. In 1796, the new State House was completed, and it became the first brick structure State House in the nation. Until 1864, Hartford's fire protection was volunteer. The volunteer fire service was served by merchants and all citizens. These neighbors would, upon need, drop whatever they were doing and run to fight a fire and aid their fellow citizens. Residents pulled the "engines" and hose carts. Often as many as 40 persons were needed to pull one apparatus.

On October 1, 1864, the Common Council passed an ordinance to establish a paid fire department for the City of Hartford that would be overseen by a Board of Fire Commissioners.

After 1864, the department continued to modernize at a rapid pace. In 1867, the Fire Alarm Bell and Tower was erected behind 19 Pearl Street. It weighed 9,000 pounds and was used for three decades to summon firefighters to fires. In 1868, the fire department installed the first Gamewell telegraph fire alarm system in New England. In August 1876, the first self-propelled fire engine in the United States was put in service at Engine Company #7. "Blake Seven" as it was called was purchased for \$5,000, weighed six tons and had a pumping capacity of 700 gallons. This apparatus stayed in service for 37 years. In 1887, the city began to use box alarm assignments instead of sending every apparatus to a call. In 1880 and 1881, two new First Class Clapp and Jones Double Engines were put into service. The "swinging harness" was adopted by the department in 1881 which allowed the horses to be harnessed in a fraction of the time, thus eliminating the previous method of leaving the horses harnessed 24 hours a day. In 1884, horses replaced the last hand drawn hose company. In 1884, there were 382 fire hydrants in the city and an additional 100 were in the process of being installed. In 1889, the largest engine of its day, Jumbo was placed into service. It cost \$7,000, weighted nine tons, and remained in service for 37 years. The department's first water tower was erected in 1899.

The turn of the century saw the continued modernization and expansion of the HFD. The first African American firefighter (William Henry Jacklyn) was listed as a member of the department. In 1908, there was

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a complete reorganization of the department and all companies were now on permanent paid status. A drill school for firefighters was started in 1909. A drill tower was erected in 1910.

In 1910, a new running card system was implemented to provide standard responses for alarms and movement of companies to provide coverage for involved companies. In 1914, several mechanical system updates were implemented that resulted in faster response times. All signal boxes and other equipment was altered to transmit in one and one-quarter seconds instead of three seconds.

A number of new fire stations were built, and apparatus purchases made during this period. The first gasoline-powered apparatus was purchased for Engine Company #2 in 1907. The addition to Headquarters was completed in 1927 and the clerical staff and records of the Fire Commission were moved from the Municipal Building to the third floor of Headquarters on Pearl Street. By 1926, horse-drawn apparatus were completely replaced by motorized apparatus. Modern apparatus replaced the last of the steam fire engines by 1931.

There were several major fires during this time period that had a profound effect on the growth of the City of Hartford. Some of these fires resulted in the implementation of fire code standards and regulations in Hartford and throughout the country. They included the following:

(March 1854) Fales and Grey Railroad Car Works

A boiler explosion caused the death of twenty-one people and another fifty wounded. Since there was no hospital in the city, people were cared for in private homes and physicians' offices. *In May 1854, the General Assembly granted a charter for Hartford Hospital.*

(July 1902) Capewell Horsenail Company

The factory was completely destroyed by fire. The owners rebuilt this factory to be as fireproof as possible with building materials consisting of brick and steel construction with concrete floors. In addition, a water tower was affixed atop the building. *This represented the first consideration of fire safety and prevention in commercial building construction.*

(July 6, 1944) The Ringling Brothers Barnum and Bailey Circus Fire

This fire took the lives of 168 people and injured an additional 225 people. Widely known as "The Day the Clowns Cried," *this fire caused major changes in fire safety regulations nationwide.*

In 1948, the department installed communication radios in the apparatus. Also, in 1948, a major change in the operations of the Suppression Division occurred when the work schedule changed from a 77-hour workweek to a 56-hour workweek. Formerly, each firefighter worked a rotating shift that required six days of day duty, ten hours per day, followed by six nights of 14-hour nights with a 24-hour period off duty at the end of each tour. The new schedule permitted them to work three days followed by a 48-hour period off duty and then three nights followed by a similar period off.

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The start of lasting integration within the department began on October 4, 1948. On this date, Chief Henry G. Thomas appointed six African American men to the HFD after successfully completing an examination process. These six men, Harry Ashe, Sr., Frank Davis, Jr., George Hayes, Benjamin Laury, Joseph Kitchens, and James Lewis served the department with distinction for a combined total of 171 years.

In 1963, the new drill tower was built on Fischer Road.

The department went through a tumultuous period as civil unrest led to the burning of many structures in the City of Hartford in the late 1960s. The department began the process of reducing working hours by cutting from 56 to 48 hours per week in 1969.

In 1968, the Special Services Unit was opened. In 1969, the Fire Alarm Division that was responsible for the maintenance of the fire alarm system in the city was given the additional responsibility of maintaining traffic signals. It became known as the Alarm and Signal Division of the HFD.

On February 3, 1969, Victor Solis became the first Hispanic firefighter appointed to the HFD. He served the department until March 3, 1976.

There were several major fires during this time period between 1948 and 1970 that had a profound effect on the growth of the City of Hartford. Some of these fires resulted in the implementation of fire code standards and regulations in Hartford and throughout the country. They included the following:

(November 15, 1949) The Arsenal School

This was the last 4-4 call transmitted in the City of Hartford.

(December 9, 1949) The Cleveland Block (561-563 Main Street)

This 3-3 alarm resulted in a \$150,000.00 loss.

(December 29, 1956) St. Patrick's Church

This third alarm fire resulted in heavy damage to the interior of the structure and loss of most of the roof. It should be noted that this was the third fire to occur within this structure in its history.

(December 30, 1956) St. Joseph's Cathedral

This fire was a third alarm that resulted in a total loss of structure. At the time of this fire, it represented the largest dollar loss in Hartford's history at approximately \$5,000,000.00.

(December 8, 1961) Hartford Hospital Fire

This third alarm fire resulted in the loss of sixteen lives.

In 1971, a fourth shift of 120 firefighters was added to the department and working hours were reduced to 42 hours per week. The cultural demographic of the City of Hartford began to change as the Hispanic population increased, bringing with it a language barrier. The residents of the city wanted a fire department that reflected the growing diversity of the population. As a result, a large class of Hispanic applicants (25) were appointed in June 1980.

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On August 1, 1980, John B. Stewart, Jr. was appointed Chief of the HFD. He became the first African American to be appointed Fire Chief in the City of Hartford. Later in 1982, Maria Ortiz and Zandra Clay became the first women to be appointed to the department. Today, the HFD has one of the most diverse workforces in all of the nation; comprised of 35% Latino, 33% Caucasian, and 32% African-American.

In 1981, the Fire Alarm Division changed the primary system of transmitting calls to the fire station from house brass bell to voice alarm system. The first civilian fire dispatchers were hired in 1985. Prior to this time, fire alarm dispatching was done entirely by fire department personnel from the dispatch center at Fire Headquarters. By 1987, fire dispatching was no longer done by fire department personnel. In 1989, an enhanced 911 system was established, and a common dispatch center was opened for fire, police, and EMS dispatching. A computer aided dispatch (CAD) system was developed internally and managed by the police department.

In 1986, the first fire rescue boat (17' Boston Whaler) was put into operation for rescue operations on the Connecticut River.

In 1988, the Equipment Maintenance Division moved to a new facility at 34 Jennings Road.

By May 1992, the current company configuration of eleven engine companies, five ladder companies, and one tactical unit was established with the decommissioning of Ladder 1 and Tactical Unit 2. In terms of building construction, there were several major fires that occurred during this time period between 1980 and 1994 including the following:

(April 10, 1981) 210 Judson Street and 139 Clark Street

This 3-3 alarm resulted in the loss of many buildings on this block that displaced many families from their homes. The intensity of the fire resulted in damage to apparatus as well. There were two other third alarm fires (940 Asylum Avenue and 1273 Main Street), which taxed the resources of the department in 1981.

(June 28, 1982) 19 Belden Street

This third alarm fire ended the career of numerous firefighters who were injured due to the collapse of a building roof.

(July 12, 1992) Royal Typewriter Company

This abandoned factory burned for many days resulting in the largest and longest duration fire in the department history.

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Major Historical Milestones of the Department (Modern Era 1994 - Present)

The HFD has continually evolved over the years to meet the needs and expectations of the city. The fire department first obtained the designation as an Insurance Services Organization (ISO) Class 1 rated department on February 1, 1991, the first in New England. Since that time, it has undergone two re-evaluations and has continued to maintain this Class 1 designation. The maintenance of this designation has been a source of pride for the department and community.

In 1995, the HFD placed into service a firefighter rehabilitation unit. The unit provides for a climate-controlled environment in which firefighters can be medically evaluated and rehabilitated prior to being placed back into service. The unit is dispatched to all working fires and other major incidents with a full complement of hydration and nutritional provisions.

The HFD assumed primary Emergency Medical First Responder status from the Hartford Police Department in May of 2001. To obtain the appropriate licensing to serve as Emergency Medical First Responder, the HFD trained all its uniformed personnel to the level of Medical Response Technician with the AED level. Since that date, the department has responded to all high priority medical calls within the city and continues to provide rapid, high-quality Emergency Medical Service (EMS) to its citizens.

In 2002, the HFD began participation in the State of Connecticut Regional Foam Trailer Program by housing and staffing one of the eight statewide Regional Foam Trailers. Since that date, the HFD has maintained this asset and responded to multiple incidents statewide.

In August of 2002, the HFD implemented its first electronic information management system (IMS). This system initially was for the completion of training records but was expanded to include incident reporting and scheduling of personnel. Over the years, as the information needs of the department have changed and newer software and technology has become available, the department has updated its IMS. Currently, the department utilizes FIREHOUSE Software® for its records management needs.

In 2002 the HFD teamed with the Hartford Board of Education to utilize internet protocol television and video conferencing equipment to facilitate the timely dissemination of pertinent information and to provide training to the members of the HFD.

In early 2004 the City of Hartford rolled out its mobile data computer (MDC) program. This program creates a geographical information system (GIS) and integrates the information with the CAD system and automatic vehicle location (AVL) technology. It allows for increased information to be provided to the responding fire companies.

In September 2005 the HFD rolled out its Community Service Information (CSI) system which allowed for the entry of community hazards or special needs in the existing GIS systems. This allows for special hazard or service information to be disseminated to the responding companies via the onboard MDC's.

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The department is currently in the process of increasing its capabilities to respond and control incidents involving the release of hazardous materials. Currently, all members assigned to the tactical unit have been trained to Hazardous Materials Technician to the requirements set forth in National Fire Protection Association (NFPA) 472. These members are integrated into the Capitol Region Hazardous Materials Team. In 2008 the HFD was assigned one of the thirty-four statewide mass decontamination trailers.

In October of 2005, the HFD commissioned a 22-foot Sea Ark aluminum rescue boat to replace the existing Boston Whaler. This rescue boat was designated as Marine 1 and was the first rescue boat with firefighting capabilities in the Greater Hartford Region.

In August of 2007, the HFD implemented a rapid entry key lock box system. This system requires that any building with an automatic alarm, sprinkler system, or large residential or commercial building be installed with a key lock box. The keys to access these key boxes are secured on the apparatus and can only be removed by entering a personal identification number.

In November of 2008, the HFD purchased two four-wheel-drive Kawasaki Mules to be utilized at public assembly events citywide to provide medical services. Due to program effectiveness, the department added three more Kawasaki Mules to the fleet the following year. The HFD has staffed all large assembly events with dedicated personnel to assist the public.

In April of 2010, Fire Prevention Chief Edward Caseres was promoted to the rank of Chief of Department, becoming the first Hispanic fire chief in the city's history. Chief Caseres would lead the HFD as fire chief for three years until his retirement in 2013. He would be succeeded by Fire Chief Carlos Huertas, the city's second fire chief of Hispanic heritage in its history.

Also, in 2010 the HFD joined the established Capitol Region Hazardous Materials Response Team. This team is a centralized regional asset of the State of Connecticut comprised of career and volunteer departments that provides response to requesting communities specifically for the investigation, management, and mitigation of hazardous materials incidents. With participation on this team, the HFD has entered into a joint Labor/Management Agreement to train all tactical unit and ladder company members to the level of NFPA 472 Hazardous Materials Response Technician. This goal was accomplished in 2017 but with retirements and the influx of new members, the process is once again ongoing.

In August of 2012, the HFD embarked upon its technical rescue program, initiating technical rescue training for all members assigned to its tactical unit. Accomplishment of this training is now a pre-requisite for members upon assignment to the tactical unit, and with the acquisition of technical rescue equipment the department is able to provide technical rescue response services in the areas of high angle rope, confined space, trench, tunnel, and advanced vehicle/machinery rescue at the technical level.

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On October 7, 2014, the HFD suffered the loss of Firefighter Kevin Bell of Engine Co. 16 at a building fire on Blue Hills Avenue in the city's north end. The loss of Firefighter Bell was the department's first Line of Duty death in 40 years, since the loss of Firefighter Thomas Fischer on September 15, 1974.

On February 1, 2016, Reginald D. Freeman was sworn in as the 37th Chief of Department. Chief Freeman was the youngest to be appointed Fire Chief in HFD history and the Metro Fire Chiefs section of the NFPA, at 37 years of age. Chief Freeman's tenure has been filled with progressive programming including the creation and development of a number of HFD initiatives to be described.

Beginning mid-year 2016, the HFD experienced what most likely has been its largest "Mass Exodus" of senior members due to retirement in the department's history. Between 2016 and 2017 roughly 106 of the department's membership, including most of its senior staff and leadership, retired due to uncertain fiscal circumstances surrounding the city.

In 2016, the HFD established its first joint Labor/Management Professional Development Program intended to train, educate, and certify its membership to nationally recognized standards of professional learning never seen in the department's history. To date, more than 300 individual certifications have been earned by department members, at all ranks, and across divisions, increasing exponentially as members continue to enroll at high rates for certification classes offered through this program. An additional joint labor/management initiative was entered in 2016 to update and revise the agency's "Rules and Regulations." The updated document marked a new era of defined institutional professionalism and included the department's first "Code of Conduct."

Also, in 2016, the administration of the HFD implemented "FIRESTAT" as a performance management tool which evaluates data sets and standards reflective of the NFPA, ISO, and Center for Public Safety Excellence (CPSE), respectively. FIRESTAT was originally created by Chief Freeman during his tenure as Assistant Chief in 2011. FIRESTAT informational meetings are held monthly and are open to the public. The information disseminated at these meetings serves not only as an internal and external educational tool for department members, city officials, and the public they serve but also a standards-based barometer of performance and self-measure.

With its construction in 2016, the HFD Training Academy Grounds were augmented by a 2.5-story "Multi-Purpose Training Simulator" building. The multi-purpose building is used for a variety of training evolutions including but not limited to, Search and Rescue, Confined Space training, Live Fire, Forcible Entry, Ladder Operations, etc.

Also in 2016, the HFD created and implemented the department's first strategic initiatives program focusing on short term goals (0-3 years). Each initiative is tracked accordingly with a person identified as "responsible," with follow-up dates identified.

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Finally, in 2016, the HFD was recognized as the State of Connecticut’s busiest Fire and Emergency Services Organization, responding to 27,267 calls for service. Hartford’s status as Connecticut’s busiest fire department was again recognized in 2017, responding to 29,468 calls for service. HFD continues to be among the state’s busiest fire and emergency services organizations.

In 2017, the Training Division, at the direction of Chief Freeman, opened its newly designed Computer Simulation Lab, the first of its kind in New England. Designed and constructed in 2016, the newly opened “Sim Lab” hosted its first participants in 2017, part of the HFD program of requiring mandatory Blue Card training for all officers. The Sim Lab is designed and implemented to afford Incident Commanders the ability to train in “real time” under a multitude of incident scenarios while sharpening their command and control skills and fire ground decision-making abilities.

Beginning in July of 2017, the City of Hartford began the largest mass hiring in the history of the HFD. Since the entrance of “Recruit Class 23” into the HFD’s Training Academy, the HFD has welcomed approximately 130 new members between 2017 and 2018 marking the largest influx of new members into the department in its history.

Also, in 2017, the HFD was awarded two federal grants totaling \$12,060,562.68, the largest award in the department’s history. Separately, the awards were received from the “Fire Act” grant program in the amount of \$993,492.68 for the procurement of new radios, and the “SAFER Act” grant program in the amount of \$11,067,070.00 for the purpose of hiring 70 new firefighters. The SAFER grant award of 2017 was second in size only to that awarded to the City of Los Angeles Fire Department.

Finally, in 2017 the HFD became a registered agency with the CPSE, for accreditation.

In 2018, under new leadership and with a renewed focus on destination and purpose, the HFD, through its executive leaders and membership participation re-embarked on the pursuit of attaining and maintaining international accreditation.

Current Legal Boundary of Service Area

The City of Hartford comprises a total area of 18.4 square miles which is outlined in the City Charter Chapter 1 Section 2, excerpt provided below:

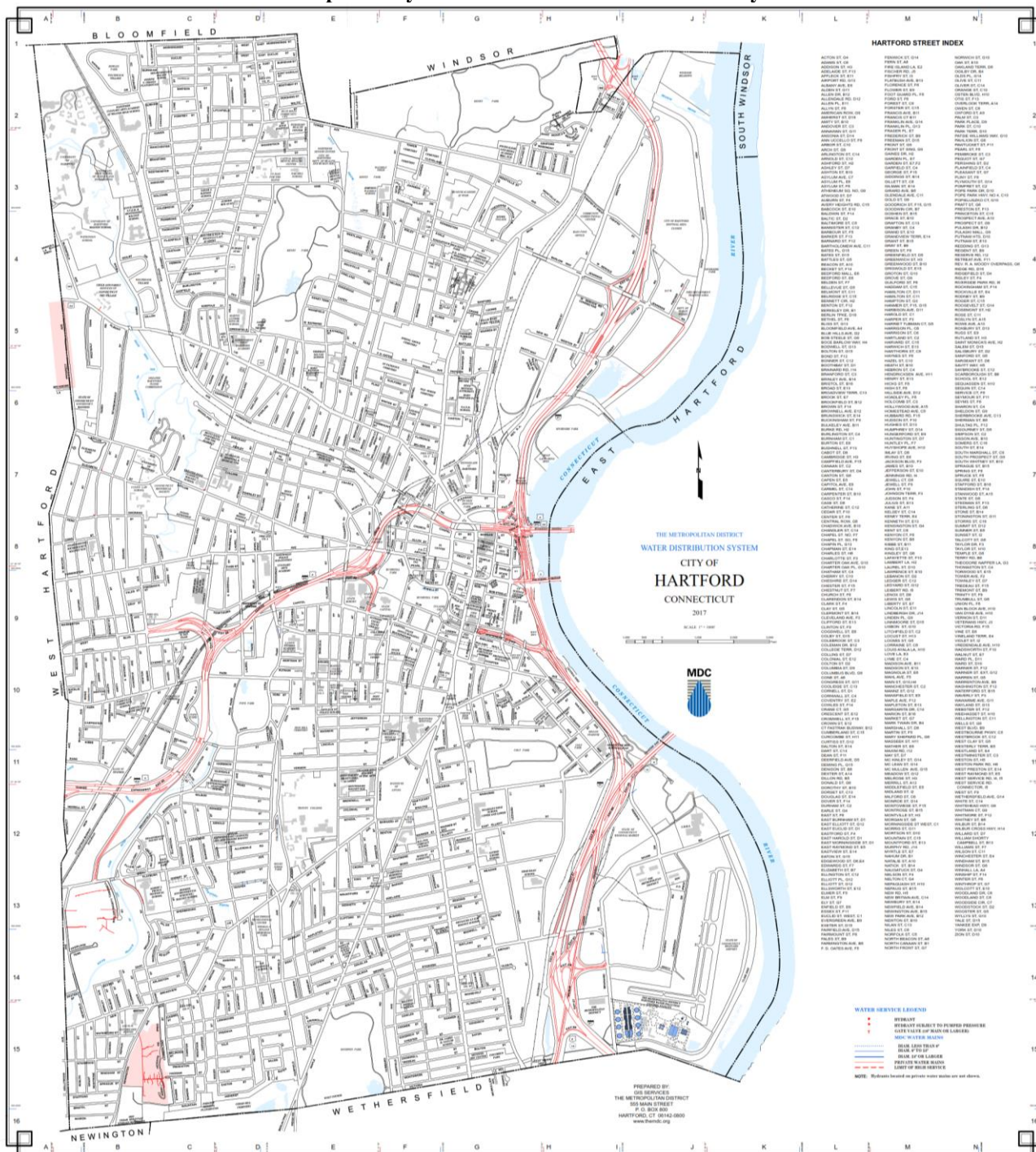
Sec. 2. - Boundaries.

The territorial limits of the body politic and corporate existing under the name of the City of Hartford are those set forth in Special Laws 1947, Act No. 30, Chapter I, §2; Ord. No. 28-67, 11-7-67; Sp. Laws 1971, Act No. 106 and are hereby reaffirmed by the City of Hartford.

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Map 14: City of Hartford Jurisdictional Boundary



Mutual Aid and Regional Relationships

The City of Hartford is a participant in mutual aid as part of emergency preparedness through the Connecticut (CT) *Intra-State Mutual Aid Compact*. Section 28-22, Chapter 517a of the Connecticut General Statutes establishes the authority of the State of Connecticut and its political subdivisions to prepare for and respond to natural disasters and other emergencies.

HARTFORD FIRE DEPARTMENT

COMMUNITY RISK ASSESSMENT-STANDARDS OF COVER

The Capitol Region Council of Governments (CRCOG) is the largest of Connecticut's fifteen regional planning organizations. It was established as a voluntary association of municipal governments serving the City of Hartford and 41 surrounding suburban and rural communities. The region covers approximately 1,078 square miles and houses approximately 1,086,000 (2010 US Census) people and comprises Region 3 of the State's Division of Emergency Management & Homeland Security (DEMHS).

Map 15: Capitol Region Council of Governments Map



Regional assistance is provided through the Capitol Region Emergency Planning Committee (CREPC). CREPC is responsible for the CT-Region 3 Regional Emergency Support Plan (R3-RESP). The R3-RESP follows the National Incident Management System (NIMS) and the national response framework and is used to provide a coordination mechanism for intra- and inter-regional resources. The purpose of the R3-RESP is to provide a framework for DEMHS Region 3 communities and agencies to collaborate in planning, communication, information sharing, and coordination activities before, during, or after a regional emergency.

With this focus in mind, CRCOG established the CREPC. The mission of CREPC is to enhance the operational readiness of the member governments in handling hazardous materials incidents and all types of emergency incidents. Additionally, CREPC is responsible for developing hazardous materials emergency plans as well as overall emergency response plans for the capital region.

The Robert T. Stafford Emergency Relief and Disaster Assistance Act (PL 930288, as amended, a.k.a. "The Stafford Act") is the federal legislation that creates a national program for disaster preparedness, response, recovery, and mitigation. Connecticut's emergency management program, of which the City of Hartford participates in, complies with the federal program established by the Stafford Act.

HARTFORD FIRE DEPARTMENT

COMMUNITY RISK ASSESSMENT-STANDARDS OF COVER

Current Organization, Divisions, Programs and Services

Figure 5 Organization Chart

HARTFORD FIRE DEPARTMENT ORGANIZATION CHART

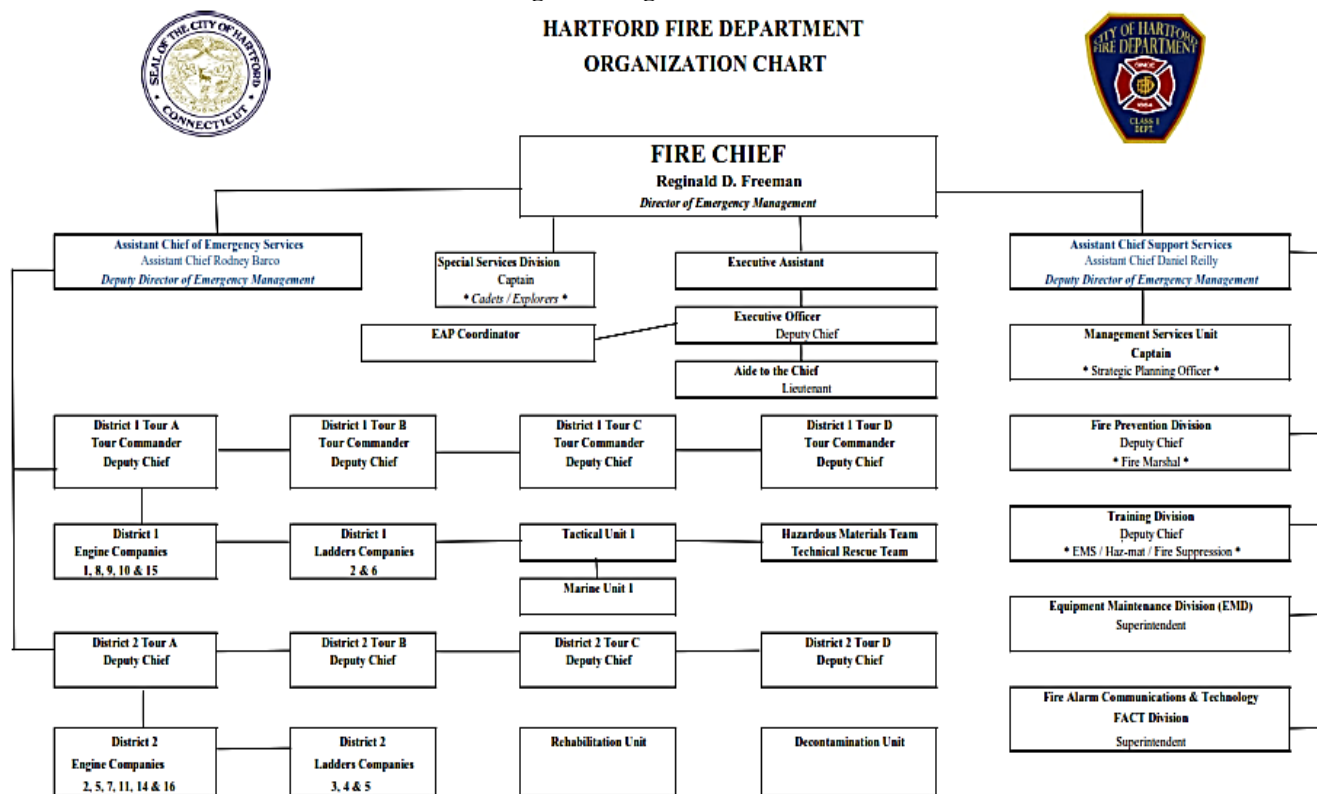
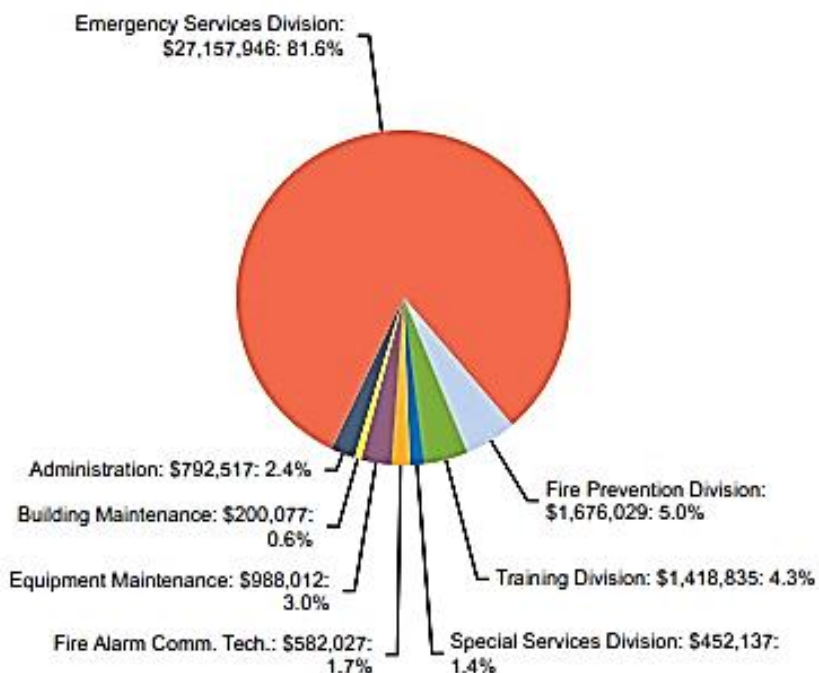


Figure 6: HFD General Fund Budget by Program
General Fund Total: \$33,267,580



HARTFORD FIRE DEPARTMENT

COMMUNITY RISK ASSESSMENT-STANDARDS OF COVER

Fire Administration Headquarters 253 High Street, Hartford, CT

The HFD administration consists of a fire chief and two assistant fire chiefs. The fire chief is also the emergency management director. One assistant fire chief is responsible for the Emergency Services Division and the other for the Support Services Division. The Executive Office is also a vital and necessary component of the fire chief's office.

The fire chief, as emergency management director, plans, directs, coordinates, supervises and oversees the activities and operations of the fire department. The fire chief/emergency management director also develops, coordinates, and approves the City All Hazards Emergency Operations Plan.

Emergency Services Division: responsible for delivering the core services of fire suppression, EMS, technical rescue and hazardous materials response. These services are performed by seventeen companies which consist of eleven engine companies, five ladder companies and one tactical unit. Each company has a geographic first due area of responsibility.

Support Services Division: provides support for the delivery of emergency services, training, prevention, education, communications, technology, finance and apparatus/equipment maintenance. Additionally, duties include grant management, accreditation, ISO compliance, and personnel/labor relations.

Executive Office: engages in duties and functions that are wide in nature and require a deep understanding of the HFD. Responsible for the procurement/distribution of all uniforms, protective clothing, and all other personnel firefighting equipment required by the department and issued to each firefighter on a 24/7 basis, daily maintenance of the fire stations, and the replenishment of other necessary supplies.



HARTFORD FIRE DEPARTMENT

COMMUNITY RISK ASSESSMENT-STANDARDS OF COVER

Fire Marshal's Office 253 High Street, Hartford, CT

The goal of the Fire Prevention Division (FMO) is to prevent and minimize the loss of life and property from fire and other emergencies through comprehensive inspection/code enforcement, engineering and origin and cause investigations that will effectively fulfill the mission of the HFD.

To accomplish the goal, the FMO is led by the fire marshal, a deputy chief who serves as the city's fire marshal and oversees the Fire Prevention Program. The division is comprised of two units, the Fire Inspection Unit and Fire Investigation Unit. Each unit is supervised by a captain who oversees six Lieutenants.

The fire marshal and his designees are required by state law to inspect all buildings within their jurisdiction based upon the inspection schedule set forth in the Connecticut General Statutes 29-291 and 29-292 and the Department of Public Safety Regulations 29-291-7 and 29-292-7e.

FMO personnel utilize numerous documents including but not limited to the Connecticut State Fire Code with Connecticut Amendments, the Connecticut Fire Prevention Code, and other Regulatory Codes adopted by the Department of Public Safety. Personnel are trained and certified by the State of Connecticut Department of Public Safety in Code Enforcement in accordance with NFPA 1031, *Professional Qualifications of Fire Inspector*.



Within the engineering portion, members of the FMO conduct plan reviews of new and existing buildings that are either being built or renovated to ensure that submitted documents conform to the appropriate Fire and Life Safety Codes. Members of the FMO work closely with the members Department of Licenses and Inspections (L&I) to ensure code compliance.

HARTFORD FIRE DEPARTMENT

COMMUNITY RISK ASSESSMENT-STANDARDS OF COVER

FMO personnel will also meet with members of the Suppression Division to ensure that they are aware of new construction projects and renovations to existing buildings and that any potential operational needs are addressed in the event of an emergency. Upon completion of the work, members of the FMO will witness operational acceptance testing on all Fire and Life Safety Systems to ensure proper operational function in the event of an emergency.

The members of the FMO are trained and certified by the Department of Public Safety in accordance with NFPA 1033, *Professional Qualifications of Fire Investigators* and NFPA 921, *Guide to Fire and Explosion Investigations* to determining origin and cause of fires and explosions.

Members conduct investigations of all fires that occur in the City of Hartford and put in writing their findings on the origin and cause of these fires. These reports are critical in determining whether the performance measures set by the fire chief are being met, whether additional types of public education are required to reduce the numbers of fires and injuries, and for the potential of product recalls.



Management Services Unit **253 High Street, Hartford, CT**

The Management Services Unit is comprised of the strategic planning captain and two human resource analysts. The Management Services Division is responsible for the daily monitoring of the fiscal year responsibilities of the department. The division maintains the statistics and demographics of the department and to ensure long term compliance with procurement regulations with regards to equipment and protective clothing. The division is also responsible for ensuring the accuracy of the department's payroll.

HARTFORD FIRE DEPARTMENT

COMMUNITY RISK ASSESSMENT-STANDARDS OF COVER

Fire Training Division

1 Fischer Road, Hartford, CT

The Training Division is comprised of a deputy chief, two captains, and six lieutenants. The Training Division assures that all department members possess the knowledge and skills necessary to safely and effectively fulfill the mission of the HFD. To accomplish this, the Training Division is divided into two units,



Fire and EMS, each having its own specific area of expertise and training responsibilities. Each unit of the Training Division is supervised by a captain and supported by three lieutenants.



The Fire Unit is headed by a captain and has three permanently assigned lieutenants to help oversee operations of the unit. They are responsible for officer training, driver training, and other specialized training such as confined space rescue, rapid intervention training, high-rise training, live fire, swimming, and boat training.



The EMS unit is headed by a captain with three permanently assigned lieutenants. They are responsible for providing the initial and continuing education necessary to maintain the Connecticut Department of Health's certifications for Emergency Medical Responder (EMR) for all department members.

HARTFORD FIRE DEPARTMENT

COMMUNITY RISK ASSESSMENT-STANDARDS OF COVER

Emergency Services Division Stations in Multiple Locations

The Fire Suppression Division is responsible for delivering the core services of fire suppression, EMS, technical rescue, and hazardous materials response. These services are performed by 17 companies which consist of 11 engine companies, 5 ladder companies, and 1 tactical unit. Each company has a geographic first due area of responsibility and has a minimum response staffing of four personnel. There are four working tours; A, B, C, and D. The city is divided into two districts which are designated Fire District 1 and Fire District 2. Each district is supervised by a deputy fire chief and they are assigned a deputy fire chief's aide. District 1 serves as the overall shift commander. These services are maintained 24/7 amongst the four rotating shifts working a 24-hour shift.



HARTFORD FIRE DEPARTMENT

COMMUNITY RISK ASSESSMENT-STANDARDS OF COVER

Equipment Maintenance Division 38 Jennings Road, Hartford, CT

The Equipment Maintenance Division (EMD) maintains HFD apparatus, tools, and technologies. The division operates a preventive maintenance program keeping non-personnel resources in a constant state of readiness, providing support to the Emergency Services and Support Services Divisions. The division is staffed by a superintendent, supervisor, and four mechanics.

EMD performs maintenance on apparatus, support vehicles, self-contained breathing apparatus (SCBA), roof and chain saws, firefighting equipment, fire hose and nozzles, lawn care equipment, station generators, and fire apparatus fueling stations. Duties include filling of oxygen cylinders, SCBA cylinders, and servicing of department fire extinguishers. The division responds to emergency scenes to provide support or assistance as needed.



EMD personnel hold certifications and training in SCBA maintenance and overhaul, Emergency Vehicle Technician (EVT), Automotive Service Excellence (ASE), hybrid batteries and energy management, regenerative braking and high voltage accessories, Hale pump service and maintenance/repair, State of Connecticut Fire Academy Basic Pump Testing, Pierce chassis and Ferrara electrical systems, Cairns helmet repairs, Fleet Pro air brake system and Haldex air brake inspector. Requirements placed on the division are that

all personnel are knowledgeable in plumbing, electronics, welding and fabrication, hydraulics, and the ability to see problems with equipment and determine if or what repair is needed.

EMD supervises yearly fire hose and ground ladder testing. The hose testing is mandated under NFPA 1962 *Standard for the Inspection, Care, and Use of Fire Hose, Couplings, and Nozzles and the Service Testing of Fire Hose*. The standard for ladder testing is NFPA 1932 *Standard on Use, Maintenance, and Service Testing of In-Service Fire Department Ground Ladders*. All ground ladder and fire hose repairs are performed by the EMD and retested before being put back in service.

EMD performs mandated annual pump tests on all apparatus with fire pumps in accordance with NFPA 1911 *Standard for the Inspection, Maintenance, Testing, and Retirement of In-Service Automotive Fire Apparatus*.



HARTFORD FIRE DEPARTMENT

COMMUNITY RISK ASSESSMENT-STANDARDS OF COVER

Fire Alarm and Communication Technology

38 Jennings Road, Hartford, CT

The Fire Alarm Communication & Technology (FACT) Division supports the Emergency Services and Support Services Divisions through state-of-the-art technology. The division has evolved from its early days as linemen running fire alarm cable, to maintaining fire alarm circuits that protect hospitals, schools, and apartment buildings. FACT maintains all department computers including mobile data computers in the apparatus. The division maintains the department's AVL with GPS, and the FIREHOUSE Software® records management system. The division is staffed by a Superintendent, and three technicians to maintain fire suppression equipment, fire alarm radio master boxes, traffic signals, and computer support.

FACT provides administrative, supervision, installation, repair and testing of emergency dispatch alarm transmission and reception systems, which include primary firehouse alert system, and printers. The division interfaces with Emergency Services & Telecommunications to maintain department radios. The division supports the KNOX-BOX® rapid entry system providing nondestructive emergency access to commercial and residential property.



In each fire apparatus is a MDC with a preloaded map of the city. The map will automatically identify the exact building as soon as the call is generated to dispatch, displaying an aerial image of the building, building number, hazardous materials, hydrants, water mains, and speed bumps.

FACT is responsible for Hartford's traffic systems by marking the location of underground utilities for contractors using the "Call Before You Dig" Program. The division's duties include; administration, supervision, installation, programming, repair, and testing of traffic systems: 270 traffic intersections containing traffic signal controller and traffic signals, pedestrian signals, video vehicle-detection cameras, microwave vehicle detectors, in-pavement vehicle detectors, and underground and aerial traffic interconnect cables between each traffic intersection and the central computer.



HARTFORD FIRE DEPARTMENT

COMMUNITY RISK ASSESSMENT-STANDARDS OF COVER

Special Services Unit
253 High Street, Hartford, CT

The Special Services Division (SSU) is staffed by a captain and two lieutenants. The division assists in community risk reduction facilitating many programs including:

- Public Fire and Life Safety Education- Provided to daycares, schools, senior centers, businesses, community, and faith-based organizations.
- Community Relations/ Liaison Officers- Acts as intermediary between the HFD and the community.
- Fire Relocation- Assists victims of fire and other natural disasters in relocation and refers to appropriate agencies.
- Fire Cadet Program- A paid part-time position for young men and women between the ages of 16-24 to prepare for a career in the fire service with the HFD.
- Fire Explorer Program- A volunteer program for young men and women between the ages of 14-21 who want to learn about the fire service.
- Community Emergency Response Team (CERT)- Training citizens in basic disaster response skills and emergency preparedness incidents within the community.
- Smoke Alarm Program- Provides and installs smoke alarms to one, two, and owner-occupied three family dwellings in the City of Hartford.
- Youth Fire Setter Intervention Program- Identifies youth with fire setting tendencies and offers specialized fire safety programs and/or refers to other agencies.
- Fire Fighter Recruitment- Attends schools and career fairs to interest future Fire Fighters, Fire Explorers, and Fire Cadets.
- Child Passenger Safety Technician Program- Installs child passenger safety seats and educates the community on their proper use.



HARTFORD FIRE DEPARTMENT

COMMUNITY RISK ASSESSMENT-STANDARDS OF COVER

Employee Assistance Program

The Employee Assistance Program (EAP) office works in conjunction with Pathways EAP, the contracted EAP provider. The program is administered by a coordinator whose function is to address and administer assistance to employees and family members of the HFD in any problems and concerns that may affect job performance or well-being. The overall goal of this office is to promote well-being and a safe, healthy, and fulfilling career to the membership of the HFD, both on the job and at home.

As the assigned Ryan White Officer (RWO) for the HFD, this office responds to incidents or facilities where department members may have been exposed to possibly harmful substances. The RWO position was created by federal legislation with the goal of providing emergency responders the notification of potential exposure to life-threatening disease by victims they have provided service care to. This is to ensure that federal mandates are followed and adhered to by treating hospitals regarding pertinent information about the substance in question and available treatment options, so the responder can make informed decisions. Documentation of any exposure is stored in affected member's personnel file for future reference.

Other duties of this office include coordinating and implementing the OSHA mandated physical examinations for department members. These include an exam for rank and file members to be conducted by the member's personal physician in a time span determined by the examining physician, no less than every three years.

Also, for approximately ninety department members who are certified Hazardous Material Technicians, OSHA mandates a yearly physical examination. These are conducted in conjunction with St. Francis Occupational Health. This office conducts the required yearly tuberculosis screening for department members, as well as the optional yearly influenza inoculations for members and their families.

In recent years, this office has coordinated various recreational activities for the members of HFD, including annual charity fundraising games of hockey, softball, and basketball between the Hartford Fire and Police Departments. These events have been well received and attended in serving to promote community awareness of worthy causes. An ancillary benefit has promoted camaraderie amongst public safety servants in forging stronger relationships during some fun times together.



HARTFORD FIRE DEPARTMENT

COMMUNITY RISK ASSESSMENT-STANDARDS OF COVER

Fire Stations, Training Facilities, Apparatus, Equipment, and Staffing

HFD strives to be responsible stewards with the assets the community entrusts with the department. HFD is responsible for the maintenance of the following structures; 12 fire stations; an apparatus/equipment machine shop; and a training complex with an administrative building, burn building, training tower, multi-use building, flashover simulator, roof simulator, confined space area, and gas field. This section will provide more detailed information on the stations providing emergency services.

Table 8: Fire Stations and Minimum Staffing

Station	Apparatus	Minimum Staffing
Station 1	Engine 1	4
	Ladder 6	4
Station 2	Engine 2	4
	Ladder 3	4
	District 2	2
Station 4	Tactical Unit 1	4
	District 1	2
Station 5	Engine 5	4
Station 7	Engine 7	4
Station 8	Engine 8	4
Station 9	Engine 9	4
Station 10	Engine 10	4
Station 11	Engine 11	4
	Ladder 5	4
Station 14	Engine 14	4
	Ladder 5	4
Station 15	Engine 15	4
	Ladder 2	4
Station 16	Engine 16	4
Daily Minimum Staffing Total		72

All apparatus, with the exceptions of Ladder 4 and Tactical Unit 1, have a 1,500 gpm pump. Ladder 4 has a 2,000 gpm pump. Tactical Unit 1 does not have a pump.

GPM = gallons per minute. The maximum amount of water flow that a pump is capable of producing at pressurized levels when provided a sufficient supply of water.

HARTFORD FIRE DEPARTMENT

COMMUNITY RISK ASSESSMENT-STANDARDS OF COVER

Station 1



Station 1 is a two-story brick structure constructed in 1920. It houses Engine Company 1 and Ladder Company 6. Station 1 is in the South Green/Sheldon Charter Oak geographic planning zone. The station contains 11,084 square feet for office space, living quarters, kitchen/dining areas, and equipment storage. Station 1 has historically been the busiest individual Engine Company & Ladder Company with the largest number of first due responses and target hazards in the city.

Engine 1's first due area is 1.42 square miles with 30 miles of roadway and is populated by approximately 7,784 residents in 3,051 households; a population density of 5,482 per square mile.

Ladder 6's first due area is 4.25 square miles with 67 miles of roadway and is populated by approximately 20,950 residents in 7,471 households.

Engine 1 operates a 2016 Sutphen with a six-person cab.

Ladder 6 operates a 2008 Sutphen with a six-person cab.

HARTFORD FIRE DEPARTMENT

COMMUNITY RISK ASSESSMENT-STANDARDS OF COVER

Table 9: Service Demand - Engine 1 (2014-2018)

Hazard Class	2014-2018	2018	2017	2016	2015	2014
EMS	9,783	2,935	2,635	2,307	1,906	1,886
Fire	589	161	146	135	147	125
Haz-Mat	229	49	54	61	65	60
Rescue	32	9	4	12	7	8
Total by Class	8,508	3,154	2,839	2,515	2,125	2,079
Total Demand	19,888	4,921	4,392	3,909	3,398	3,268

Table 10: Service Demand - Ladder 6 (2014-2018)

Hazard Class	2014-2018	2018	2017	2016	2015	2014
EMS	1,950	636	498	458	358	289
Fire	470	131	116	108	115	110
Haz-Mat	316	90	71	78	77	105
Rescue	230	62	64	56	48	38
Total by Class	2,966	919	749	700	598	542
Total Demand	10,409	2,499	2,188	2,050	1,868	1,804

Critical Infrastructure:

Hartford City Hall
 Hartford Steam Generation Plant
 Van Dyke Electrical Substation 12
 Eversource Work Center
 DPW - Bushnell Park Pumping Station
 MCI Cellular Substation
 Frontier Cellular Substation #3
 Hartford Hospital
 Connecticut Children's Medical Center (CCMC)

Schools:

Ramon Betances Early Reading Lab
 R.J. Kinsella Magnet School of Performing Arts
 Joseph Renzulli Gifted & Talented Academy
 Sport & Medical Sciences Academy
 Bulkeley High School
 Adult Education Center

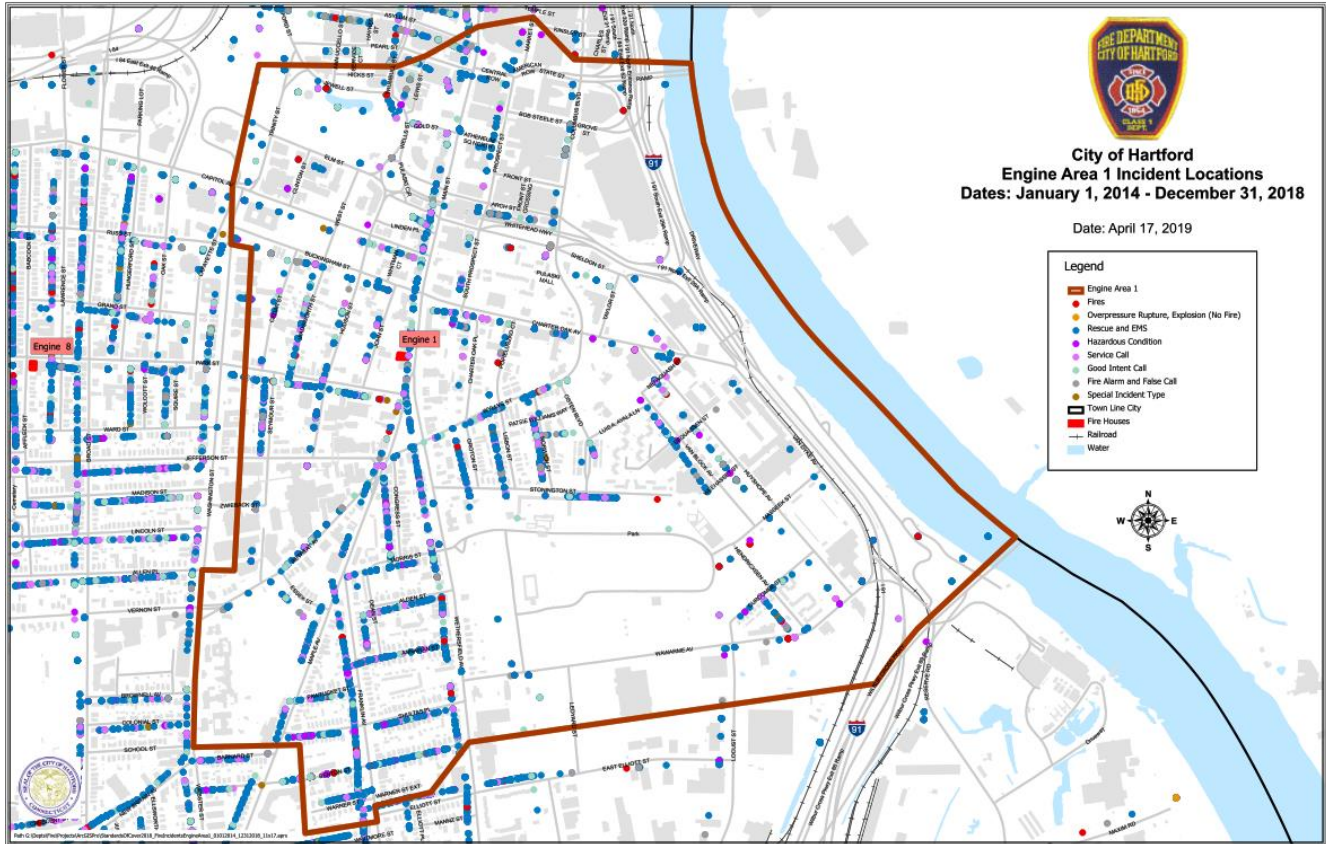
Transportation Risk:

Interstate 91
 Whitehead Highway
 Downtown Bus Transfer Area
 Rail Transportation
 City Roadways

HARTFORD FIRE DEPARTMENT

COMMUNITY RISK ASSESSMENT-STANDARDS OF COVER

Map 16: Incident Locations - Station 1 (2014-2018)



HARTFORD FIRE DEPARTMENT

COMMUNITY RISK ASSESSMENT-STANDARDS OF COVER

Station 2



Station 2 is a two-story brick structure constructed in 1910. It houses Engine Company 2, Ladder Company 3, and District 2. Station 2 is in the Downtown/Clay Arsenal geographic planning zone. The station contains 12,640 square feet for office space, living quarters, kitchen/dining areas, and equipment storage. Station 2 has the highest total call volume in the city. Station 2 has the highest concentration of high-rise buildings in the city.

Engine 2's first due area is 1.37 square miles with 32 miles of roadway and is populated by approximately 8,207 residents in 3,293 households; a population density of 5,991 per square mile.

Ladder 3's first due area is 4.32 square miles with 67 miles of roadway and is populated by approximately 17,042 residents in 6,146 households.

District 2's primary response coverage area is the northern part of the city. The following stations are in District 2's primary response coverage area: Stations 2, 5, 7, 11, 14, and 16.

Engine 2 operates a 2003 Ferrara with a six-person cab.

Ladder 3 operates a 2007 Sutphen with a six-person cab.

District 2 operates a 2012 Ford Expedition.

HARTFORD FIRE DEPARTMENT

COMMUNITY RISK ASSESSMENT-STANDARDS OF COVER

Table 11: Service Demand - Engine 2 (2014-2018)

Hazard Class	2014-2018	2018	2017	2016	2015	2014
EMS	7,997	2,200	2,123	1,829	1,845	1,699
Fire	648	154	152	168	174	140
Haz-Mat	192	50	44	51	47	64
Rescue	40	12	8	13	7	16
Total by Class	8,877	2,416	2,327	2,061	2,073	1,919
Total Demand	16,356	3,638	2,692	3,130	3,119	2,937

Table 12: Service Demand - Ladder 3 (2014-2018)

Hazard Class	2014-2018	2018	2017	2016	2015	2014
EMS	1,184	337	303	292	252	176
Fire	388	116	77	89	106	94
Haz-Mat	208	55	43	54	56	90
Rescue	79	29	14	16	20	35
Total by Class	1,859	537	437	451	434	395
Total Demand	6,790	1,622	1,210	1,227	1,336	1,395

Critical Infrastructure:

City of Hartford Public Safety Complex - Emergency Operations Center
 AT&T Cellular Substation
 Lighttower Cellular Fiber Networks
 Numerous High-Rise Structures

Schools:

S.A.N.D. School
 Global Communications Academy
 Capital Preparatory Magnet School
 Capital Community College Academy

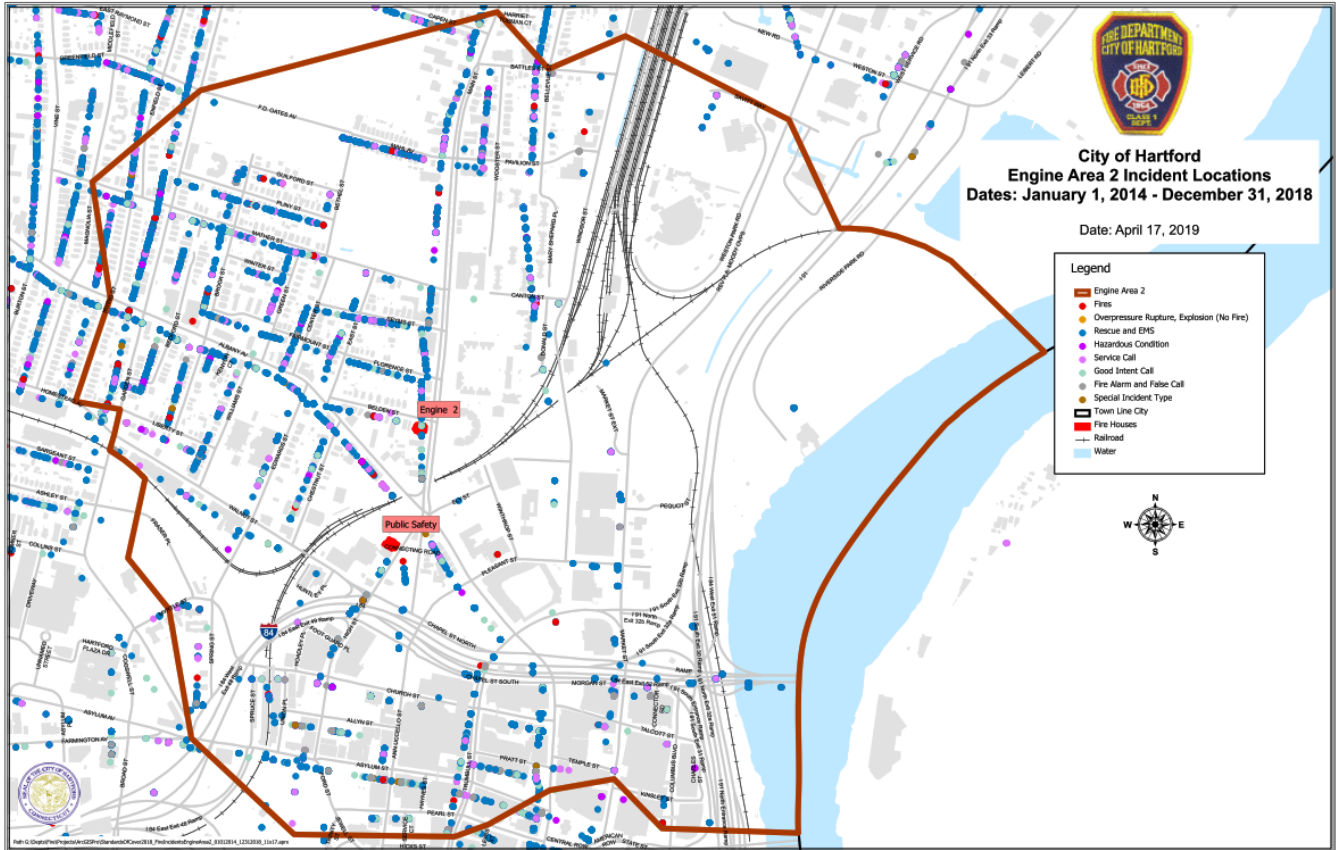
Transportation Risk:

Interstate 84
 Interstate 91
 Connecticut Southern Railroad Service Station
 Rail Transportation
 Union Station Transportation Center
 City Roadways

HARTFORD FIRE DEPARTMENT

COMMUNITY RISK ASSESSMENT-STANDARDS OF COVER

Map 17: Incident Locations - Station 2 (2014-2018)



HARTFORD FIRE DEPARTMENT

COMMUNITY RISK ASSESSMENT-STANDARDS OF COVER

Station 4



Station 4 is a three-story brick structure constructed in 1926. It houses Tactical Unit 1, District 1, Haz-Mat 35 (Hazardous Materials Response Trailer), Marine 1, Rescue Trailer, Prime Mover (Transport Vehicle for both Response Trailers) and Reserve Tactical Unit 2. Station 4 is in the Downtown geographic planning zone. The station contains 34,463 square feet for office space, living quarters, kitchen/dining areas, and equipment storage. Tactical Unit 1 provides Technical Rescue services for the entire city. The demographics for the station area are split between Stations 1 and 2 for risk management planning.

District 1's primary response coverage area is the southern part of the city. The following streets are the defining borders between the north and south districts, from west to east:

Farmington Avenue, Ford Street, Pearl Street, Central Row, American Row, and State Street.

District 1 serves as the citywide tour commander and has the following stations in their primary response coverage area: Stations 1, 4, 8, 9, 10, and 15.

Tactical Unit 1 operates a 2005 Ferrara with a six-person cab.

District 1 operates a 2012 Ford Expedition.

Marine 1 operates a 2005 Sea Ark River Runner Rescue Boat with a 2001 Ford F-250 Tow Vehicle.

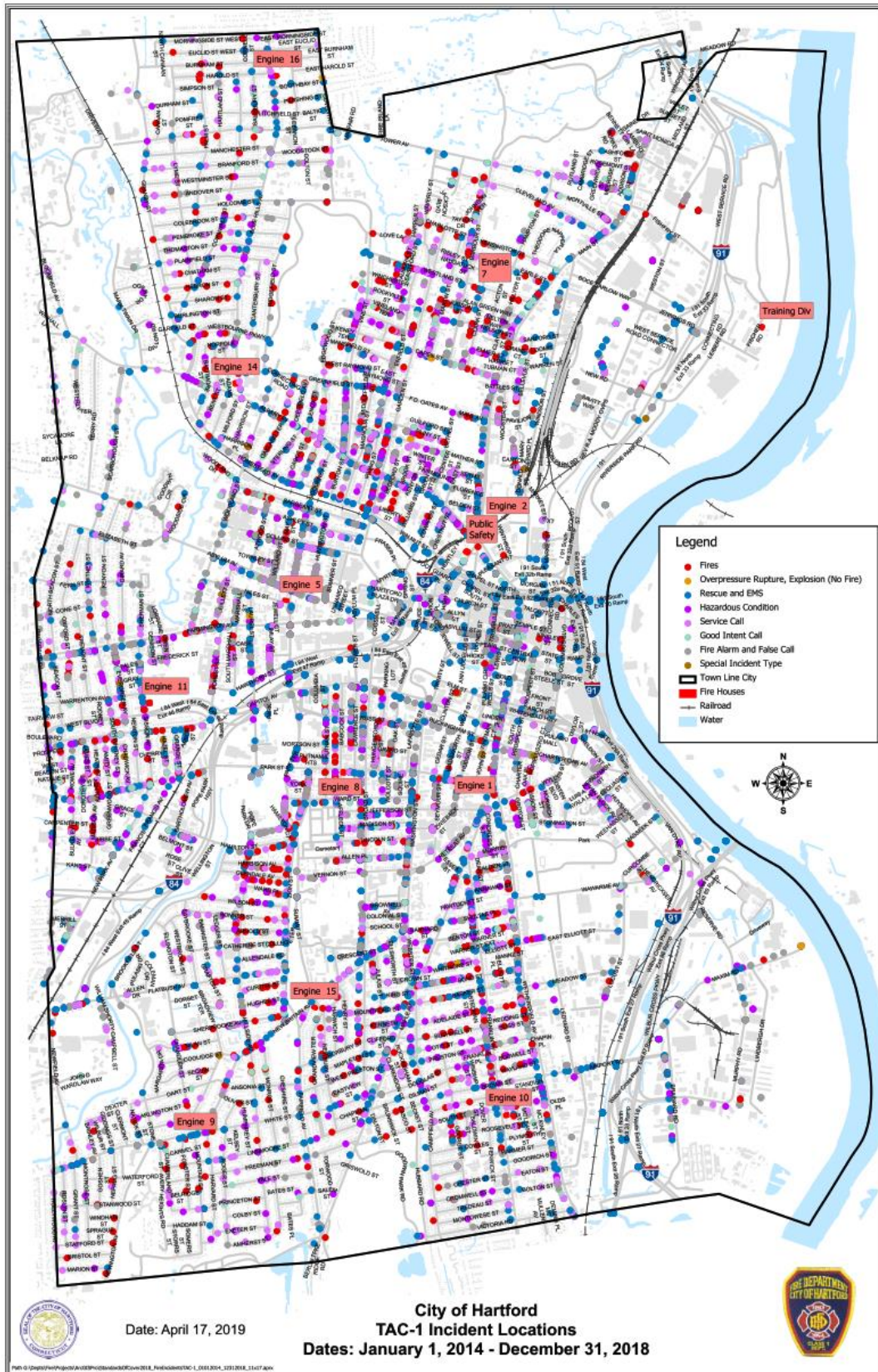
Table 13: Service Demand - Tactical Unit 1 (2014-2018)

Hazard Class	2015-2018	2018	2017	2016	2015	2014
EMS	3,355	789	825	817	924	792
Fire	952	254	222	226	250	213
Haz-Mat	540	145	119	140	136	184
Rescue	243	65	58	58	62	69
Total by Class	5,090	1,253	1,224	1,241	1,372	1,258
Total Demand	15,423	3,170	3,025	2,984	3,180	3,064

HARTFORD FIRE DEPARTMENT

COMMUNITY RISK ASSESSMENT-STANDARDS OF COVER

Map 18: Incident Locations - Tactical Unit 1 (2014-2018)



HARTFORD FIRE DEPARTMENT

COMMUNITY RISK ASSESSMENT-STANDARDS OF COVER

Station 5



Station 5 is a two-story brick structure constructed in 1939. It houses Engine Company 5. Station 5 is in the Asylum Hill geographic planning zone. The station contains 10,220 square feet for office space, living quarters, kitchen/dining areas, and equipment storage. Station 5 is the busiest single company station in the city.

Engine 5's first due area is 1.09 square miles with 19 miles of roadway and is populated by approximately 9,550 residents in 4,762 households; a population density of 8,761 per square mile.

Engine 5 operates a 2003 Ferrara with a six-person cab.

Table 14: Service Demand - Engine 5 (2014-2018)

Hazard Class	2014-2018	2018	2017	2016	2015	2014
EMS	7,943	2,118	2,220	1,973	1,632	1,441
Fire	684	171	159	163	191	127
Haz-Mat	210	56	54	49	51	83
Rescue	27	8	5	9	5	12
Total by Class	8,864	2,353	2,438	2,194	1,879	1,663
Total Demand	17,505	3,896	3,932	3,639	3,151	2,887

HARTFORD FIRE DEPARTMENT

COMMUNITY RISK ASSESSMENT-STANDARDS OF COVER

Critical Infrastructure:

CT Fastrack Station
Saint Francis Hospital

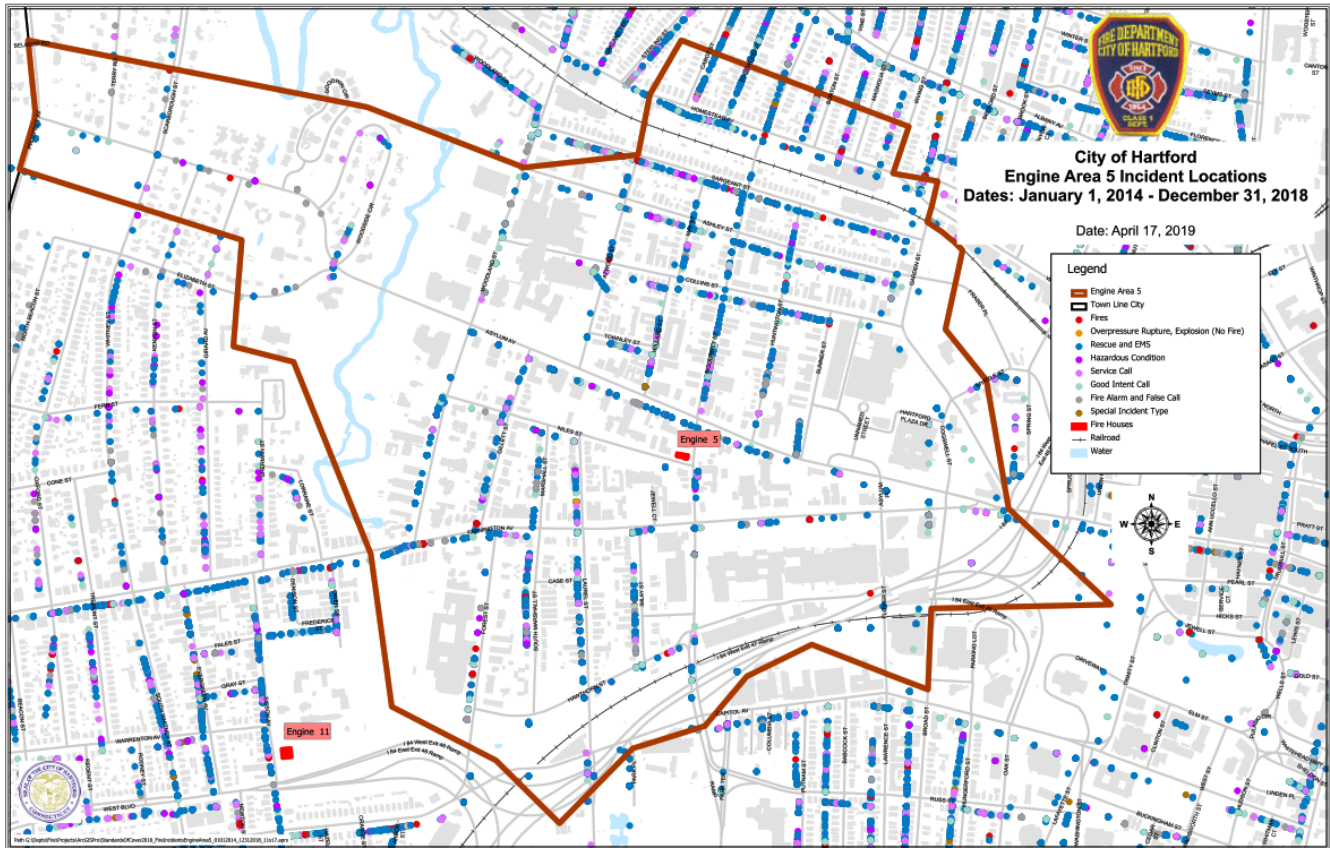
Schools:

Classical Magnet School
West Middle School
Hartford Public High School

Transportation Risk:

Interstate 84
CT Fastrack Busway
Rail transportation
City Roadways

Map 19: Incident Locations - Station 5 (2014-2018)



HARTFORD FIRE DEPARTMENT

COMMUNITY RISK ASSESSMENT-STANDARDS OF COVER

Station 7



Station 7 is a two-story brick structure constructed in 1960. It houses Engine Company 7, Reserve Engine 4, and the Fire Investigation Unit. Station 7 is in the North East/North Meadows geographic planning zone. The station contains 12,726 square feet for office space, living quarters, kitchen/dining areas, and equipment storage. Station 7 has the largest first due response area in the city.

Engine 7's first due area is 3.28 square miles with 40 miles of roadway and is populated by approximately 10,006 residents in 3,190 households; a population density of 3,051 per square mile.

A challenge for the response area is having only one access point to the North Meadows section via Boce Barlow Way.

Engine 7 operates a 2005 Ferrara with a six-person cab.

Table 15: Service Demand - Engine 7 (2014-2018)

Hazard Class	2014-2018	2018	2017	2016	2015	2014
EMS	7,602	1,909	2,097	1,899	1,697	1,512
Fire	482	116	114	128	124	111
Haz-Mat	152	38	31	39	44	46
Rescue	27	11	4	7	5	5
Total by Class	8,263	2,074	2,246	2,073	1,870	1,674
Total Demand	13,675	2,946	3,016	2,764	2,578	2,371

HARTFORD FIRE DEPARTMENT

COMMUNITY RISK ASSESSMENT-STANDARDS OF COVER

Critical Infrastructure:

Windsor Street Electrical Substation
 City of Hartford Public Works Yard
 DPW - North Meadows Pumping Station
 MDC - Hartford Waste Water Pump Station
 CT Transit Center
 CT DOT Facility
 Emergency Shelter - Parker Memorial Recreational Center

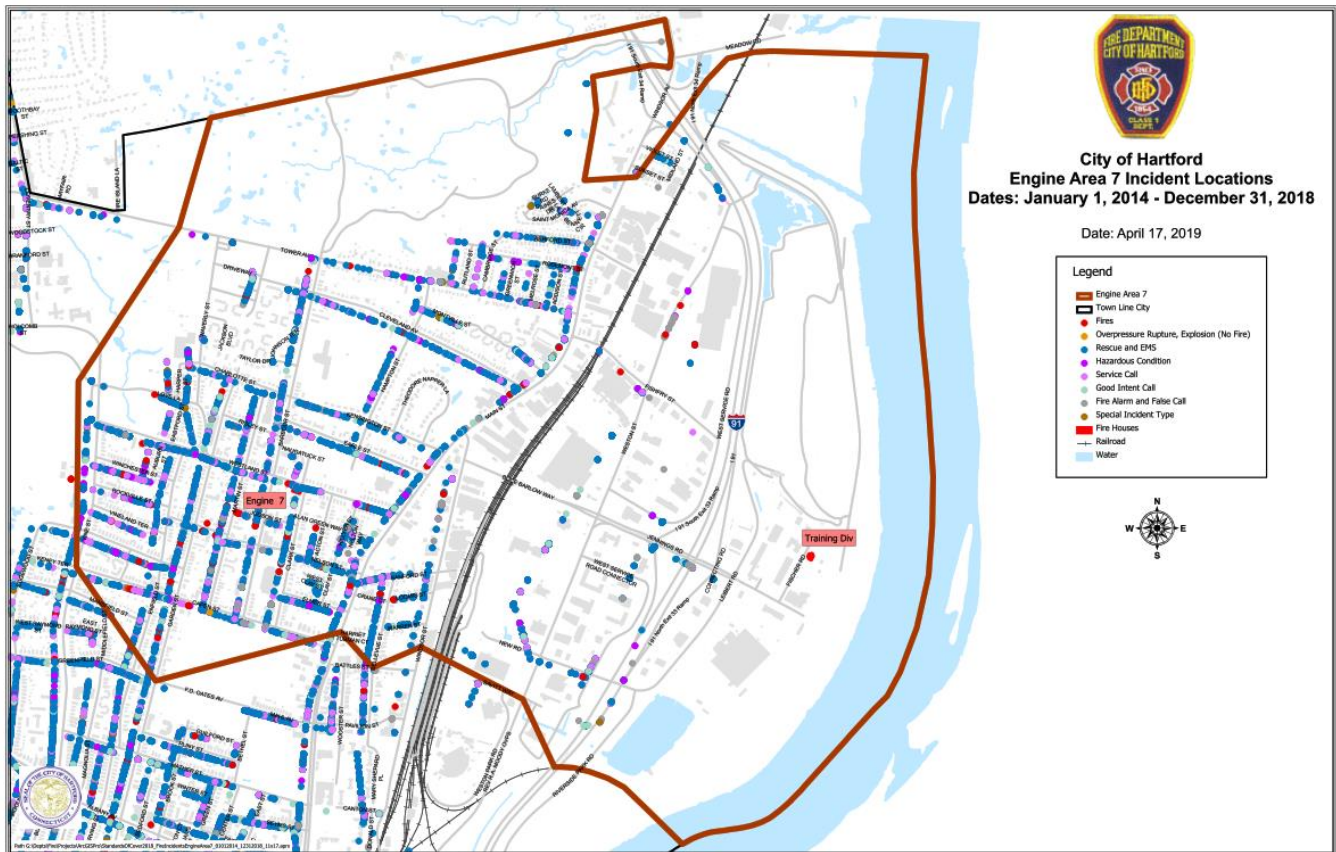
Schools:

Museum Academy at Wish School
 Journalism & Media Academy / High School, Inc.

Transportation Risk:

Interstate 91
 Rail Transportation
 City Roadways

Map 20: Incident Locations - Station 7 (2014-2018)



HARTFORD FIRE DEPARTMENT

COMMUNITY RISK ASSESSMENT-STANDARDS OF COVER

Station 8



Station 8 is a two-story brick structure constructed in 1960. It houses Engine Company 8 and Reserve Engine 6. Station 8 is in the Frog Hollow geographic planning zone. The station contains 8,690 square feet for office space, living quarters, kitchen/dining areas, and equipment storage.

Engine 8's first due area is .83 square miles with 17 miles of roadway and is populated by approximately 11,026 residents in 3,735 households; a population density of 13,284 per square mile.

Station 8 has the smallest response area and the highest population density in the city.

Engine 8 operates a 2014 Sutphen with a six-person cab.

Table 16: Service Demand - Engine 8 (2014-2018)

Hazard Class	2014-2018	2018	2017	2016	2015	2014
EMS	7,025	1,854	1,835	1,868	1,468	1,476
Fire	651	168	170	158	155	143
Haz-Mat	275	81	63	61	70	74
Rescue	20	3	7	5	5	4
Total by Class	7,971	2,106	2,075	2,092	1,698	1,697
Total Demand	16,134	3,750	3,542	3,318	2,779	2,745

HARTFORD FIRE DEPARTMENT

COMMUNITY RISK ASSESSMENT-STANDARDS OF COVER

Critical Infrastructure:

Capital Area System District Heating & Cooling Loop (CAS)
 DPW - Armory Pumping Station
 DPW - Pope Park Pumping Station
 Hartford Armory - CT Emergency Operations Center
 CT State Capitol Building & Legislative Office Building
 Emergency Shelter - Pope Park Recreational Center

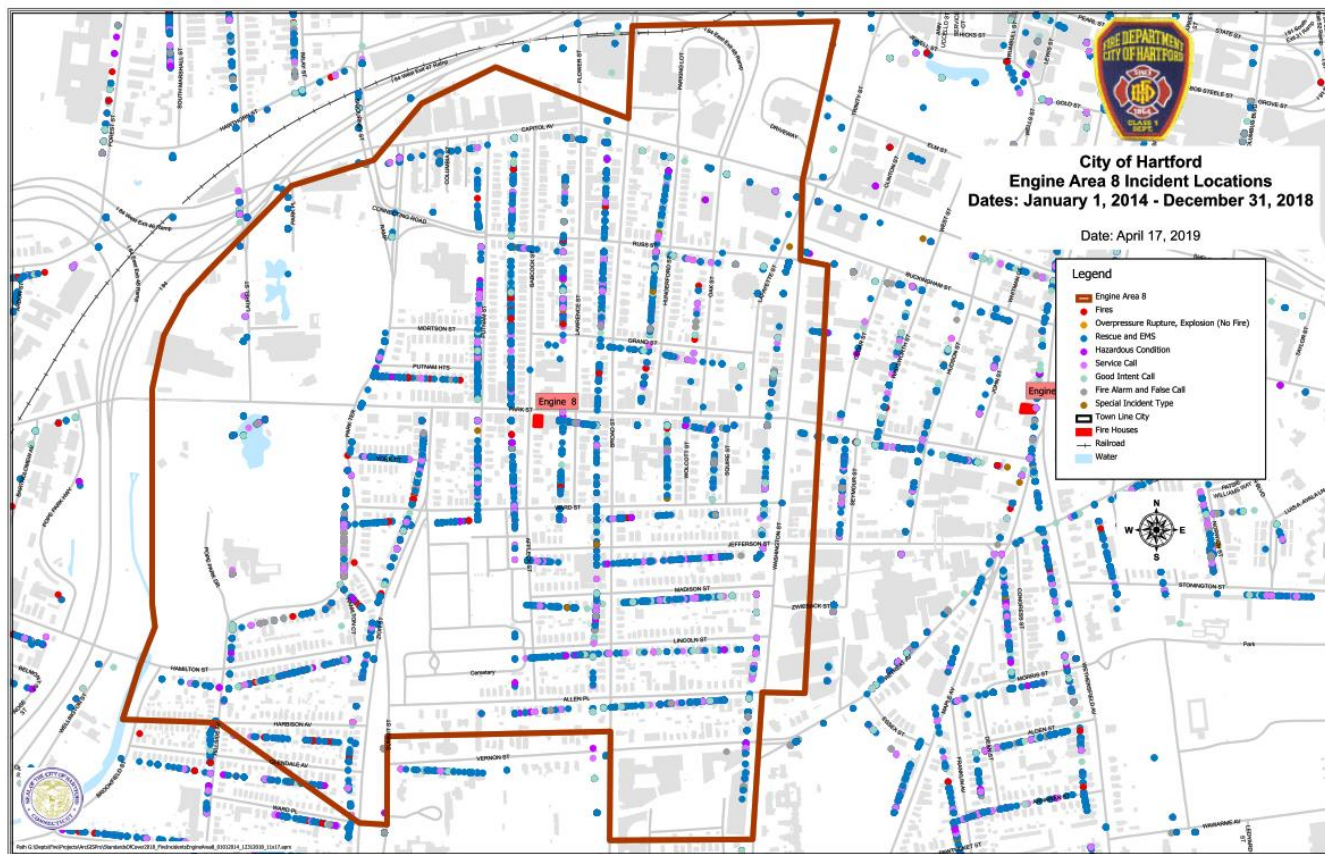
Schools:

Maria Sanchez Elementary School
 Burns Latino Studies Academy
 Hartford Magnet Trinity College Academy
 CREC Montessori Magnet School
 CREC Greater Hartford Academy of the Arts High School

Transportation Risk:

City Roadways

Map 21: Incident Locations - Station 8 (2014-2018)



HARTFORD FIRE DEPARTMENT

COMMUNITY RISK ASSESSMENT-STANDARDS OF COVER

Station 9



Station 9 is a two-story brick structure constructed in 1929. It houses Engine Company 9. Station 9 is in the South West geographic planning zone. The station contains 5,230 square feet for office space, living quarters, kitchen/dining areas, and equipment storage.

Engine 9's first due area is 1.36 square miles with 24 miles of roadway and is populated by approximately 7,858 residents in 2,587 households; a population density of 5,778 per square mile.

Engine 9 operates a 1999 Pierce Saber with a five-person cab.

Table 17: Service Demand - Engine 9 (2014-2018)

Hazard Class	2014-2018	2018	2017	2016	2015	2014
EMS	3,340	919	967	781	673	742
Fire	509	104	80	174	151	90
Haz-Mat	91	21	21	25	24	46
Rescue	9	1	2	4	2	3
Total by Class	3,949	1,045	1,070	984	850	881
Total Demand	6,772	1,502	1,465	1,330	1,220	1,255

Critical Infrastructure:

Cedar Mountain MDC Water Storage Basin (9 billion gallon)

Schools:

Environmental Sciences Magnet School at Mary Hooker
 Montessori Magnet at Batchelder
 A.I. Prince Technical High School

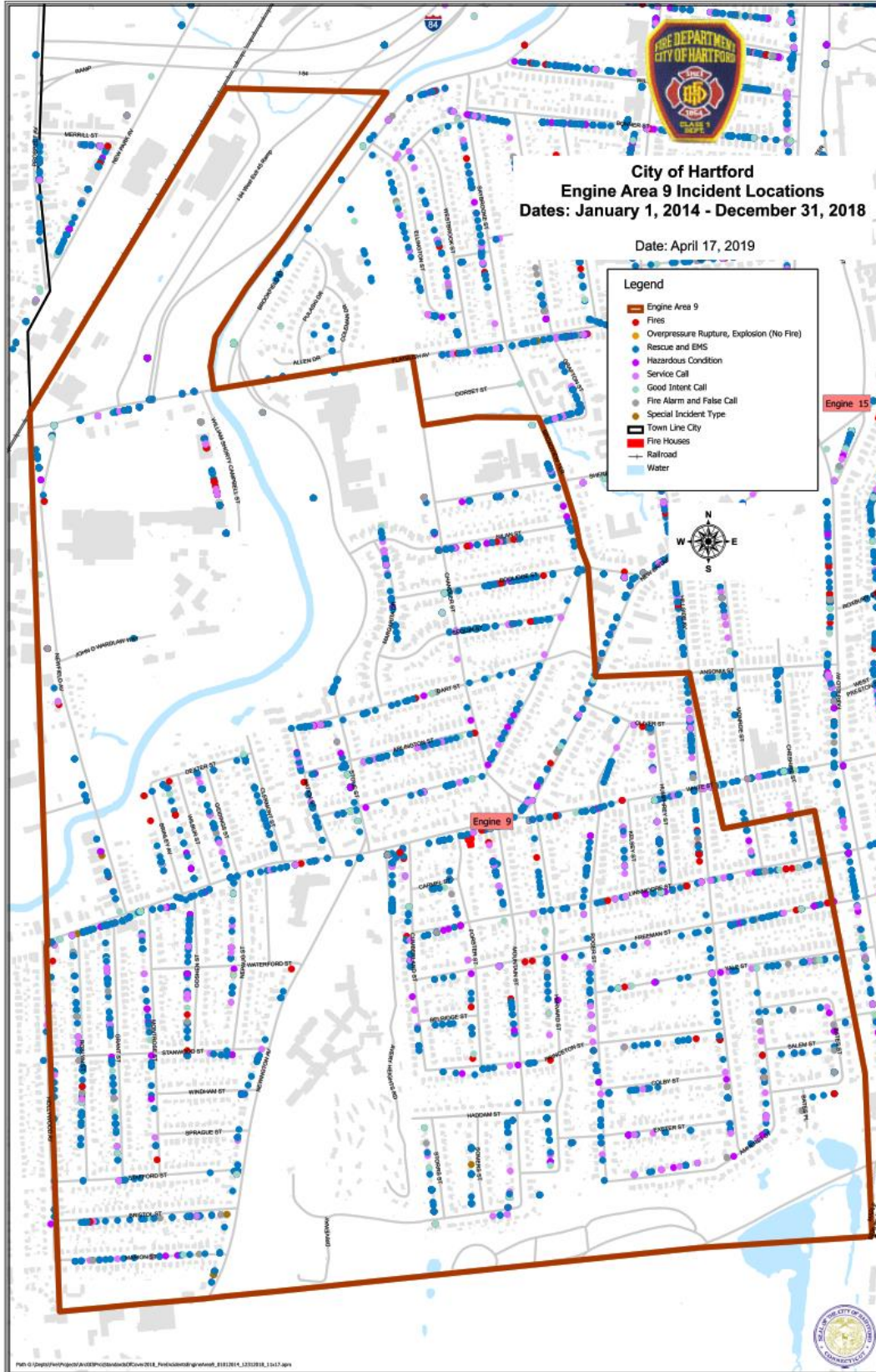
Transportation Risk:

City Roadways

HARTFORD FIRE DEPARTMENT

COMMUNITY RISK ASSESSMENT-STANDARDS OF COVER

Map 22: Incident Locations - Station 9 (2014-2018)



HARTFORD FIRE DEPARTMENT

COMMUNITY RISK ASSESSMENT-STANDARDS OF COVER

Station 10



Station 10 is a two-story brick structure constructed in 1959. It houses Engine Company 10 and Reserve Ladder 1. Station 10 is in the South End/South Meadows geographic planning zone. The station contains 11,443 square feet for office space, living quarters, kitchen/dining areas, and equipment storage.

Engine 10's first due area is the second largest in the city at 3.13 square miles with 43 miles of roadway and a population of approximately 16,896 residents in 5,741 households; a population density of 5,398 per square mile.

Station 10 has the highest amount of total roadway in the city.

A challenge for the response area is a single access point to the South Meadows section via Airport Road.

Engine 10 operates a 2009 Sutphen with a six-person cab.

Table 18: Service Demand - Engine 10 (2014-2018)

Hazard Class	2014-2018	2018	2017	2016	2015	2014
EMS	6,736	1,761	1,759	1,687	1,529	1,256
Fire	407	107	93	94	113	111
Haz-Mat	163	36	48	41	38	54
Rescue	21	9	2	3	7	4
Total by Class	7,327	1,913	1,902	1,825	1,687	1,796
Total Demand	12,397	2,807	2,692	2,505	2,334	2,059

Critical Infrastructure:

South Meadow Electrical Substation 01A
 Eversource South Meadow Storage Facility
 MDC Water Pollution Control Plant

DPW - South Meadow Pumping Station
 MIRA Energy Cogeneration Plant
 MIRA Waste Recycling Facility
 Frontier Cellular Substation #6

MDC Operations Center & Emergency Operations Center

HARTFORD FIRE DEPARTMENT

COMMUNITY RISK ASSESSMENT-STANDARDS OF COVER

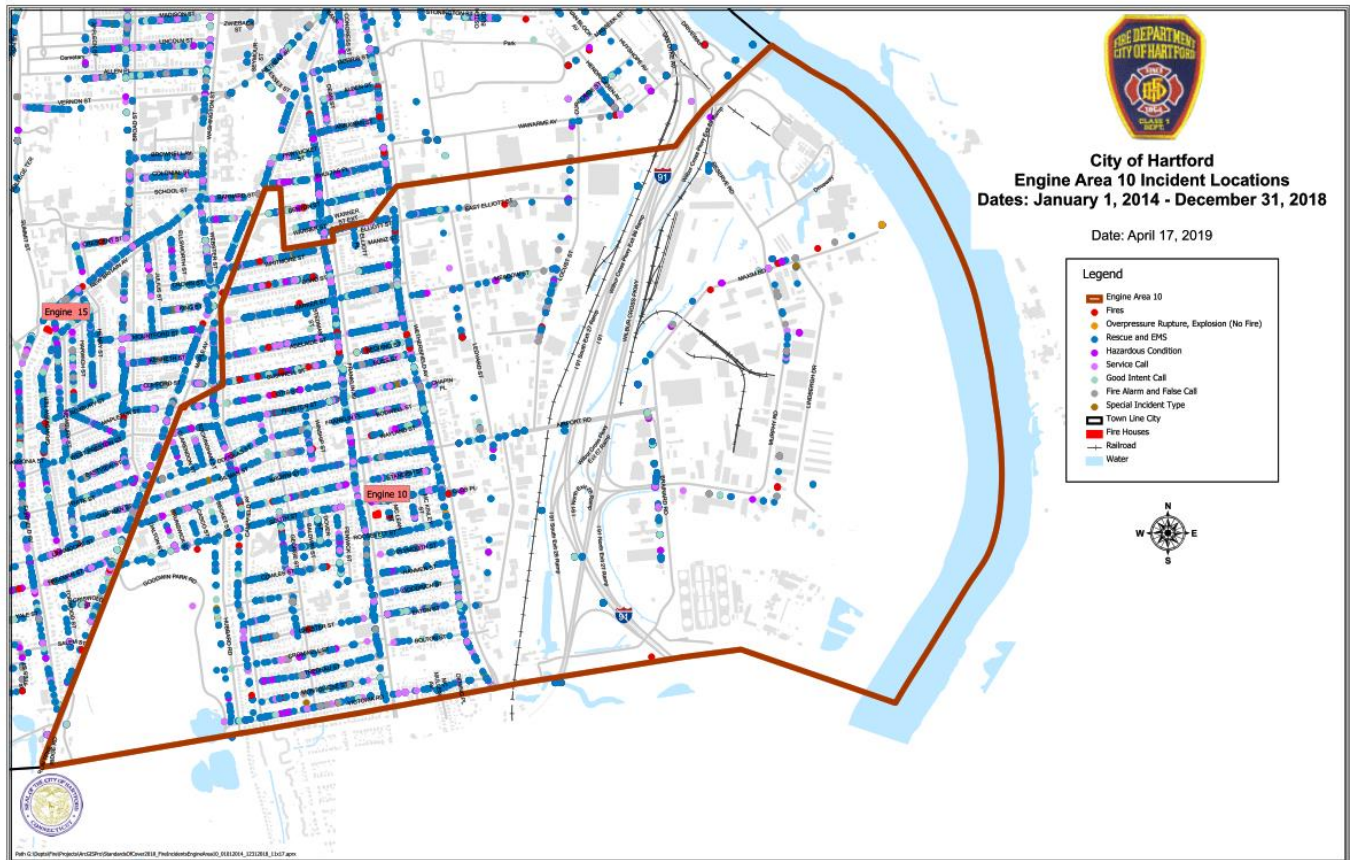
Schools:

James Naylor School / CCSU Leadership Academy
 Betances STEM Magnet School
 MD Fox School
 Alfred Burr Elementary School
 Asian Studies Academy at Bellizi

Transportation Risk:

Interstate 91
 CT Route 5/15
 Rail Transportation
 Brainard Airport
 City Roadways

Map 23: Incident Locations - Station 10 (2014-2018)



HARTFORD FIRE DEPARTMENT

COMMUNITY RISK ASSESSMENT-STANDARDS OF COVER

Station 11



Station 11 is a three-story brick structure constructed in 1960. It houses Engine Company 11, Ladder Company 5, the Rehabilitation Unit, and the Regional Haz-Mat Foam Trailer with the Transport Vehicle. Station 11 is in the Parkville/West End geographic planning zone. The station contains 14,400 square feet for office space, living quarters, kitchen/dining areas, and equipment storage.

Engine 11's first due area is 1.29 square miles with 26 miles of roadway and is populated by approximately 16,329 residents in 7,038 households; a population density of 12,658 per square mile.

Ladder 5's first due is 2.13 square miles with 41 miles of roadway and is populated by approximately 20,042 residents in 9,449 households.

Station 11 has the largest number of nursing homes and elderly facilities in its first due response area in the city; also containing the highest number of households in the city.

Engine 11 operates a 2012 Sutphen with a six-person cab.

Ladder 5 operates a 2004 Sutphen with a six-person cab.

Rehabilitation Unit operates a 2001 Freightliner.

Regional Foam Trailer & Prime Mover 2006 Freightliner M2 tow vehicle.

HARTFORD FIRE DEPARTMENT

COMMUNITY RISK ASSESSMENT-STANDARDS OF COVER

Table 19: Service Demand - Engine 11 (2014-2018)

Hazard Class	2014-2018	2018	2017	2016	2015	2014
EMS	8,009	2,062	2,060	2,117	1,770	1,622
Fire	499	116	112	133	138	117
Haz-Mat	187	45	49	45	48	55
Rescue	15	3	5	4	3	2
Total by Class	8,710	2,226	2,226	2,299	1,959	1,796
Total Demand	15,538	3,400	3,366	3,322	2,802	2,648

Table 20: Service Demand - Ladder 5 (2014-2018)

Hazard Class	2014-2018	2018	2017	2016	2015	2014
EMS	1,269	357	318	344	250	186
Fire	436	115	108	104	109	101
Haz-Mat	275	71	55	70	79	72
Rescue	160	42	29	64	25	28
Total by Class	2,140	585	510	582	463	387
Total Demand	8,632	1,865	1,946	1,939	1,548	1,334

Critical Infrastructure:

Southwest Electrical Substation 47N
Parkville Micro Grid

Schools:

Parkville Community School
Noah Webster MicroSociety Magnet School

Transportation Risk:

Interstate 84
CT Fastrack Busway
Rail Transportation
City Roadways

HARTFORD FIRE DEPARTMENT

COMMUNITY RISK ASSESSMENT-STANDARDS OF COVER

Map 24: Incident Locations - Station 11 (2014-2018)



HARTFORD FIRE DEPARTMENT

COMMUNITY RISK ASSESSMENT-STANDARDS OF COVER

Station 14



Station 14 is a two-story concrete block structure constructed in 1989. It houses Engine Company 14, Ladder Company 4, and the Hazardous-Materials Decontamination unit. Station 14 is in the Upper Albany geographic planning zone. The station contains 12,310 square feet for office space, living quarters, kitchen/dining areas, and equipment storage.

Engine 14's first due area is 2.02 square miles with 26 miles of roadway and is populated by 17,062 residents in 5,211 households; a population density of 8,447 per square mile.

Ladder 4's first due is 3.86 square miles with 54 miles of roadway and populated by approximately 28,545 residents in 9,633 households.

Station 14 has the highest population of the city.

Station 14 is the most recently constructed fire station in the city.

Engine 14 operates a 2010 Sutphen with a six-person cab.

Ladder 4 operates a 2001 Sutphen with a six-person cab.

HARTFORD FIRE DEPARTMENT

COMMUNITY RISK ASSESSMENT-STANDARDS OF COVER

Table 21: Service Demand - Engine 14 (2014-2018)

Hazard Class	2014-2018	2018	2017	2016	2015	2014
EMS	6,106	1,633	1,549	1,578	1,346	1,202
Fire	567	149	120	136	162	131
Haz-Mat	181	50	36	47	48	62
Rescue	12	3	1	6	2	5
Total by Class	6,866	1,835	1,706	1,767	1,558	1,400
Total Demand	13,613	2,923	2,929	2,771	2,608	2,382

Table 22: Service Demand - Ladder 4 (2014-2018)

Hazard Class	2014-2018	2018	2017	2016	2015	2014
EMS	800	192	231	223	154	176
Fire	483	130	106	113	134	112
Haz-Mat	286	86	51	72	77	88
Rescue	51	13	9	16	13	15
Total by Class	1,620	421	397	424	378	391
Total Demand	7,359	1,600	1,485	1,471	1,412	1,391

Critical Infrastructure:

Northwest Hartford Electrical Substation 2N
 Emergency Shelter - 500 Woodland Street

Schools:

Thirman Milner School
 Hartford Pre-K Magnet School
 Martin Luther King Jr. Elementary School
 Achievement First Hartford Academy
 Sarah Rawson Elementary School
 STEM Magnet School / Montessori Magnet School at Annie Fisher
 University High School of Science & Engineering
 Watkinson School
 University of Hartford Campus

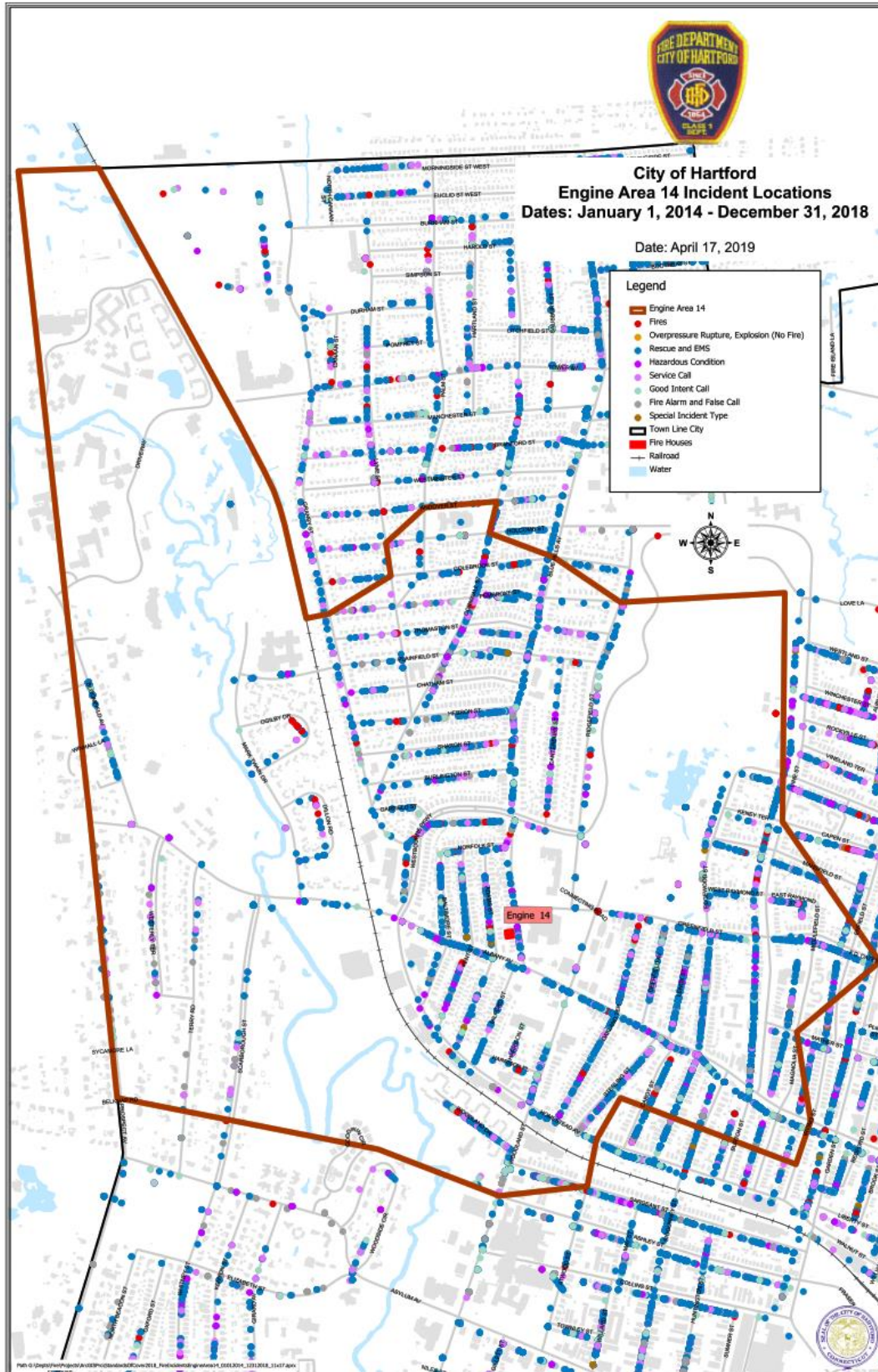
Transportation Risk:

CT Route 44
 CT Route 187
 City Roadways

HARTFORD FIRE DEPARTMENT

COMMUNITY RISK ASSESSMENT-STANDARDS OF COVER

Map 25: Incident Locations - Station 14 (2014-2018)



HARTFORD FIRE DEPARTMENT

COMMUNITY RISK ASSESSMENT-STANDARDS OF COVER

Station 15



Station 15 is a two-story brick structure constructed in 1909. It houses Engine Company 15 and Ladder Company 2. Station 15 is in the Barry Square/Behind the Rocks geographic planning zone. The station contains 8,028 square feet for office space, living quarters, kitchen/dining areas, and equipment storage.

Engine 15's first due area is 1.25 square miles with 24 miles of roadway and is populated by approximately 15,106 residents in 4,862 households; a population density of 12,085 per square mile.

Ladder 2's first due is 3.54 square miles with 66 miles of roadway and populated by approximately 38,196 residents in 12,425 households.

Engine 15 operates a 2011 Sutphen with a six-person cab.

Ladder 2 operates a 2015 Sutphen with a six-person cab.

Table 23: Service Demand - Engine 15 (2014-2018)

Hazard Class	2014-2018	2018	2017	2016	2015	2014
EMS	6,567	1,793	1,655	1,666	1,453	1,420
Fire	606	149	137	154	166	147
Haz-Mat	222	54	49	59	60	76
Rescue	20	8	7	3	2	4
Total by Class	7,415	2,004	1,848	1,882	1,681	1,647
Total Demand	13,698	3,035	2,958	2,809	2,474	2,422

HARTFORD FIRE DEPARTMENT

COMMUNITY RISK ASSESSMENT-STANDARDS OF COVER

Table 24: Service Demand - Ladder 2 (2014-2018)

Hazard Class	2014-2018	2018	2017	2016	2015	2014
EMS	1085	277	316	273	219	198
Fire	431	118	102	109	102	105
Haz-Mat	294	64	65	75	90	109
Rescue	80	26	14	28	12	10
Total by Class	1,890	485	497	485	423	422
Total Demand	7,412	1,658	1,583	1,508	1,309	1,354

Critical Infrastructure:

Frontier Cellular Substation #5
 Frontier Cellular Substation #7
 Emergency Shelter - Southend Senior Wellness Center

Schools:

E.B. Kennelly School
 Breakthrough Magnet School
 Expeditionary Learning Academy at Moylan School
 McDonough Middle School
 Trinity College Campus

Transportation Risk:

City Roadways

HARTFORD FIRE DEPARTMENT

COMMUNITY RISK ASSESSMENT-STANDARDS OF COVER

Map 26: Incident Locations - Station 15 (2014-2018)



HARTFORD FIRE DEPARTMENT

COMMUNITY RISK ASSESSMENT-STANDARDS OF COVER

Station 16



Station 16 is a two-story brick structure constructed in 1927. It houses Engine Company 16. Station 16 is in the Blue Hills geographic planning zone. The station contains 7,218 square feet for office space, living quarters, kitchen/dining areas, and equipment storage.

Engine 16's first due area is 1.05 square miles with 17 miles of roadway and is populated by approximately 4,951 residents in 1,654 households; a population density of 4,715 per square mile.

Engine 16 operates a 2000 Pierce Saber with a five-person cab.

Table 25: Service Demand - Engine 16 (2014-2018)

Hazard Class	2014-2018	2018	2017	2016	2015	2014
EMS	2,376	648	671	528	529	465
Fire	347	92	81	84	90	71
Haz-Mat	94	22	16	31	25	35
Rescue	13	1	7	3	2	3
Total by Class	2,830	763	775	646	646	574
Total Demand	5,317	1,169	1,124	1,025	1,025	974

HARTFORD FIRE DEPARTMENT

COMMUNITY RISK ASSESSMENT-STANDARDS OF COVER

Critical Infrastructure:

Granby Street Electrical Substation 29
 Mount Sinai Rehabilitation Hospital

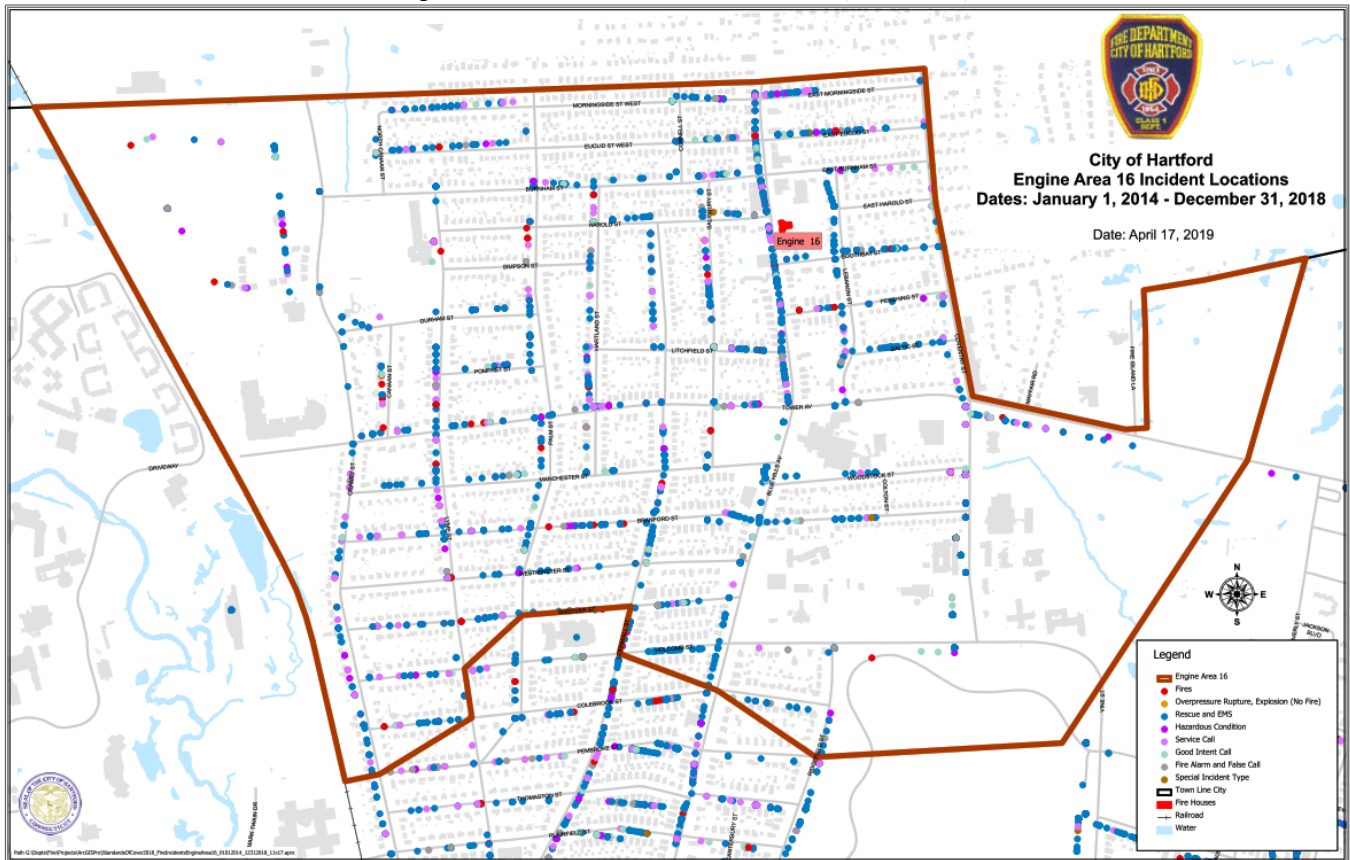
Schools:

Breakthrough Magnet North Campus
 Weaver High School

Transportation Risk:

CT Route 187
 City Roadways

Map 27: Incident Locations - Station 16 (2014-2018)



HARTFORD FIRE DEPARTMENT

COMMUNITY RISK ASSESSMENT-STANDARDS OF COVER

C. Current Descriptions of Levels of Service with Delivery Programs

The Hartford Fire Department (HFD) is an all-hazards emergency response agency. The various hazard classes the agency categorizes in the Standards of Cover (SOC) include fire suppression, emergency medical services (EMS), technical rescue, and hazardous materials (haz-mat). It is helpful to provide basic HFD definitions for the reader in this section.

- Engine – An apparatus with a pump, hose, and equipment to secure/pump water.
- Ladder – An apparatus with various sizes of ladders and tools to assist in rescue, ventilation, and property salvage.
- Tactical Unit 1 – An apparatus with various tools and equipment to assist in technical rescue and Hazardous Materials response.
- District Chief and Aide – A supervisory position tasked with incident management and mitigation. Responsible for the event outcome and safety of civilians/personnel.
- HM35 (Haz-Mat Trailer) – A mobile trailer equipped with various tools and equipment providing for the entrance into a hazardous material atmosphere. The trailer also contains portable outdoor decontamination equipment.
- TRU (Technical Rescue Unit) – A mobile trailer with various tools and equipment for mitigating technical rescue incidents.
- Critical Tasks – The various tasks that MUST be accomplished to mitigate an incident.
- Effective Response Force (ERF) – The minimum personnel required to accomplish the critical tasks in a safe and timely manner.

Fire Suppression

HFD provides fire suppression services for the residents, businesses, and visitors to the city through 17 dedicated companies made up of four rotating shifts with a minimum of 72 personnel 24-hours each day, 365 days each year.



Fire suppression is the basic component of every fire department agency. It can be simply defined as the actions taken to keep an object that is burning from escalating to the involvement of other objects, which includes the initial containment of a fire event to the final extinguishment. Critical tasks are identified and assigned to achieve the desired event outcome. There is always a time component involved as the tasks are essential to the de-escalation of an emerging event. Various response levels include single company responses, box alarm assignments, and fire alarm assignments dependent upon the risk level.

HARTFORD FIRE DEPARTMENT

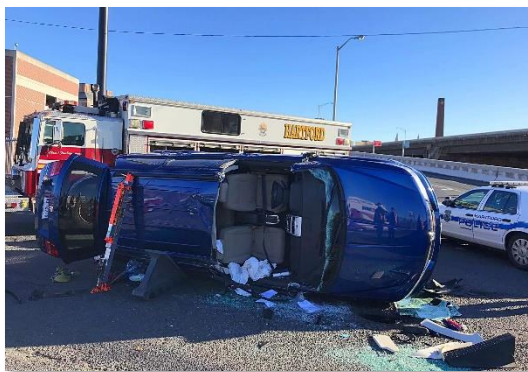
COMMUNITY RISK ASSESSMENT-STANDARDS OF COVER

Emergency Medical Services

The HFD responds to medical emergencies as first responders for the City of Hartford. A typical EMS response is handled by a single engine company or ladder company staffed with a minimum of four personnel. Depending on the situation found, additional companies may be dispatched to assist with escalating or large events. HFD defines large events as such; multi-casualty incident (<10 persons), mass-casualty incident (10-50 persons) and disaster (>50 persons). All members of the department are trained to the Emergency Medical Response level through a curriculum approved by the State of Connecticut Office of Emergency Medical Services (CT OEMS). Department members are certified in CPR through the American Heart Association and are trained to utilize an Automated External Defibrillator (AED) for cardiac emergencies. In addition, HFD is authorized to administer oxygen and Naloxone (NARCAN®). NARCAN® is an emergency treatment for a person experiencing an opioid overdose, which affects the part of the brain that controls breathing. High levels of opioids in the body can slow breathing levels down to dangerous levels, up to death. Common opioids include codeine, oxycodone, hydrocodone, and morphine. Opioid abuse is a national problem at this time.

The department has developed a comprehensive manual of medical protocols and EMS department directives to govern the medical response. HFD works in conjunction with the contracted EMS ambulance transport services (third party vendors at the Emergency Medical Technician and Paramedic level personnel) to provide timely medical care and transport. The vendors are American Medical Response (AMR), Aetna Ambulance Service (Aetna), and Ambulance Service of Manchester (ASM).

HFD responds to a large number of emergency incidents that can be attributed to motor vehicle accidents (MVA). The Effective Response Force (ERF) dispatched is dependent on the type of MVA and the level of risk involved. The tactical unit is equipped with a full complement of vehicle extrication equipment to handle the most complex vehicle extrications. Each ladder company is equipped with one hydraulic spreader and cutter along with assorted cribbing (wood or composite blocks in various sizes) for the stabilization of vehicles.



A motor vehicle accident can present with multiple potential hazards including the need to mitigate technical rescue, provide EMS care, hazardous materials spills, and fire extinguishment. At the discretion of the district chief, incidents involving multiple victims or delayed response by EMS may result in additional resources (additional engine or ladder) being requested for response to the scene.

HARTFORD FIRE DEPARTMENT

COMMUNITY RISK ASSESSMENT-STANDARDS OF COVER

Technical Rescue

The HFD responds to all technical rescue incidents within the city including high angle rescue, rope rescue, water rescue, confined space rescue, trench rescue, industrial accidents, industrial machine extrication, building collapse or any other incident that the responding district chief deems it necessary for a technical rescue response. All members assigned to Tactical Unit 1 are certified rescue technicians in accordance with NFPA 1006 *Standard for Technical Rescue Personnel Professional Qualifications*. Tactical Unit 1 is staffed each shift with a minimum of four rescue technicians to ensure safe and effective operations at technical rescue incidents.

The equipment dedicated for technical rescue incidents includes a staffed heavy rescue (Tactical Unit 1), rescue boat (Marine 1), and Technical Rescue Unit (TRU) rescue trailer. All technical rescue equipment is stored at Station 4 along with Tactical Unit 1.



The Technical Rescue Unit is a regional resource for emergencies requiring technical rescue disciplines. Emergency service organizations throughout the region can contact the Emergency Service & Telecommunications Dispatch Center to request a technical rescue mutual aid response. Fire Alarm Emergency Telecommunications Dispatchers (ETD) contact the Tour Commander with all requests for a mutual aid response of the Technical Rescue Unit.

HFD is the primary emergency responder for all incidents at the state-owned/managed Brainard Airport, which supports small craft and commuter service. HFD does not have dedicated aircraft fire suppression equipment and responds for calls for service within normal department response protocols. If needed, the Incident Commander can request the response of the Regional Foam Trailer housed at Station 11.

The department operates Marine 1, the only marine vessel in the region with fire suppression capability. Marine 1 operates a 2005 Sea Ark River Runner rescue boat with a 2001 Ford F-250 tow vehicle. Members must be both Swimmer & Boat certified by the Training Division on an annual basis to operate in Marine 1. Marine 1 is equipped with a portable pump capable of producing 250 gpm with a 10-foot draft (large diameter hose that suctions water from the river) or 500 gpm connected to a tank.

HARTFORD FIRE DEPARTMENT

COMMUNITY RISK ASSESSMENT-STANDARDS OF COVER

Hazardous Materials

The HFD responds to all hazardous material releases within the City of Hartford upon notification. All members of the department are trained in accordance with OSHA 29 CFR 1910.120 and NFPA 471 *Recommended Practice for Responding to Hazardous Materials Incidents* and are certified to the First Responder-Hazardous Material Operational Level. It is the goal of this department to have all members of the tactical unit and ladder companies, 124 in total, to be certified at the Hazardous Material Technician level per NFPA 472 *Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents* by 2019. Currently, there are 124 total Hazardous Material Technicians, with an additional 24 members scheduled for the training, who are dispersed throughout the city on the tactical unit, ladder companies, and engine companies.

HFD can operate up to the hazardous material technician level. Haz-mat technicians are those persons who respond to releases or potential releases of hazardous material for the purpose of controlling the release while utilizing special chemical clothing and equipment. Hazardous material incidents are classified into four responses; Levels 0, I, II, III.

Level 0 responses are “Minimal Emergency Potential” incidents, such as the everyday petroleum spills, leaks, ruptures, unknown odors, and/or fires involving hazardous materials which can be controlled/contained by personnel trained to hazardous materials operational level. The incident is confined to a small area and does not pose an immediate threat to life or property. Notification of the Department of Energy and Environmental Protection (DEEP) is for precautionary measures only.

Level I responses are for “Potential Emergency Conditions” such as natural gas and LPG spills, leaks, ruptures, and/or fires involving hazardous materials which can be controlled or contained by personnel trained to hazardous materials operational level and does not require evacuation of other than the involved structure or the immediate outdoor area (excluding clean-up activities). The incident is confined to a small area and does not pose an immediate threat to life or property. Notification of the Department of Energy and Environmental Protection (DEEP) is for precautionary measures only.

Level II responses are for “Limited Emergency Conditions” when hazardous materials involve a greater hazard or larger area which poses a potential threat to life or property and which may require a limited evacuation of the surrounding area. These are hazardous materials incidents requiring the use of chemical protective gear and specialized resources to sample, identify, test, contain, extinguish, and/or abate the incident (haz-mat technician level). Further, they may involve hazardous materials fires that are permitted to burn either for controlled periods of time or to consume themselves. Activation of the Capitol Region Haz-Mat Response Team (CR-HMRT) is as needed. Notification/response of the Department of Energy and Environmental Protection (DEEP) required.

HARTFORD FIRE DEPARTMENT

COMMUNITY RISK ASSESSMENT-STANDARDS OF COVER

Level III responses are for “Full Emergency Conditions” such as a hazardous materials incident involving a severe hazard or a large area which poses an extreme threat to life and property and will probably require a large-scale evacuation; or an incident requiring the expertise or resources of mutual components, state, federal, or private agencies/ organizations. Further, Level III type incident factors are fires involving hazardous materials that: Are allowed to burn due to ineffectiveness or dangers of the use of extinguishing agents, or the unavailability of water; Pose a real threat of large container failure; Involve an explosion, detonation or BLEVE (Boiling Liquid Expanding Vapor Explosion - an explosion caused by the rupture of a container with pressurized liquid reaching above its boiling point). Activation of the Capital Region Hazardous Material Response Team (CR-HMRT), and response of Department of Energy and Environmental Protection (DEEP).

HFD maintains two state-provided resources for haz-mat responses. The mass decontamination trailer is a regional asset for decontaminating large numbers of people, 60 per hour, potentially exposed to hazardous material substances. This trailer is equipped with indoor and outdoor showers for privacy. The regional foam trailer is a regional asset for assisting in containing and/or extinguishing large quantities of a flammable/hazardous liquids spill, leak, or fire. This asset would typically be deployed to locations such as highways, railways, and chemical/industrial/manufacturing facilities. The trailer has a 500-gallon foam tank and is equipped with two 120 gpm handlines, one 250 gpm handline, and a 500 gpm foam monitor.

The department is currently a part of the Capital Region Hazardous Material Response Team (CRHMRT), the CRHMRT is a regional hazardous materials response team that consist of members from surrounding fire and police departments. Activation of the team is on an as-needed basis at the discretion of the local Incident Commander. All shifts are staffed with a minimum of five members assigned to the CRHMRT.

HARTFORD FIRE DEPARTMENT

COMMUNITY RISK ASSESSMENT-STANDARDS OF COVER

Community Risk Reduction

Fire Marshal Office - The goal of the Fire Marshal's Office, and the Fire Prevention Division, is to prevent and minimize the loss of life and property from fire and other emergencies through comprehensive inspection/code enforcement, engineering and origin and cause investigations. The Fire Prevention Division is led by a Fire Marshal, two Deputy Marshals (Captains) and twelve Fire Lieutenant Inspectors. The Division is comprised of two units, the Fire Inspection Unit and Fire Investigation Unit. The Captains are responsible for the Lieutenants who perform the daily operations.

Special Services Unit - The Special Services Unit, which reports directly to the Chief of Department, facilitates fire prevention and education activities while also providing post-incident support to the residents of Hartford. Other programs and services that are included under the Special Services Unit are:

- Smoke Alarm programs- Provides smoke alarms to one, two, and owner-occupied three family dwellings in the City of Hartford.
- Community Relations- Acts as intermediary between the fire department and the community.
- Fire Relocation- Assist victims of fire and other natural disasters in relocation and refers to appropriate agencies.
- Fire Cadet Program- A paid part-time position for young men and women between the ages of 16-24 who are preparing for a career in the fire services with the Hartford Fire Department.
- Fire Explorer Program- a volunteer program for young men and women between the ages of 14-21 who want to learn about the fire service.
- Community Emergency Response Team (CERT)- Training citizens in basic disaster response skills and emergency preparedness incidents within the community.
- Youth Fire Setter Intervention Program- Identifies youth with fire setting tendencies and offers specialized fire safety programs and/or refers to other agencies.
- Fire Fighter Recruitment- Attend schools and career fairs to interest future firefighters, fire explorers, and fire cadets.
- Child Passenger Safety Technician Program- Installs child passenger safety seats and educates the community on their proper use.
- Emergency Preparedness Program- Educates on emergency/disaster preparation skills.

The Special Services Unit has a dedicated staff of one captain and two lieutenants.

HARTFORD FIRE DEPARTMENT

COMMUNITY RISK ASSESSMENT-STANDARDS OF COVER

D. Current Deployment and Coverage Areas

Points of Service Delivery

HFD distributes response coverage to the community at 11 distribution points. Each apparatus is staffed with a minimum of four personnel in accordance with 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*. Distribution points are an important component of service delivery as this will directly impact the time required for an apparatus to arrive, assess the situation, and coordinate tasks associated with mitigating the incident. The following table compares the ISO geographical distribution recommendations to the department's actual distribution points. These industry best practice recommendations have been found to provide for the most effective and efficient service delivery to a community with regards to timely incident response, specifically with the goal of a 4-minute travel time for the initial first due company arrival.

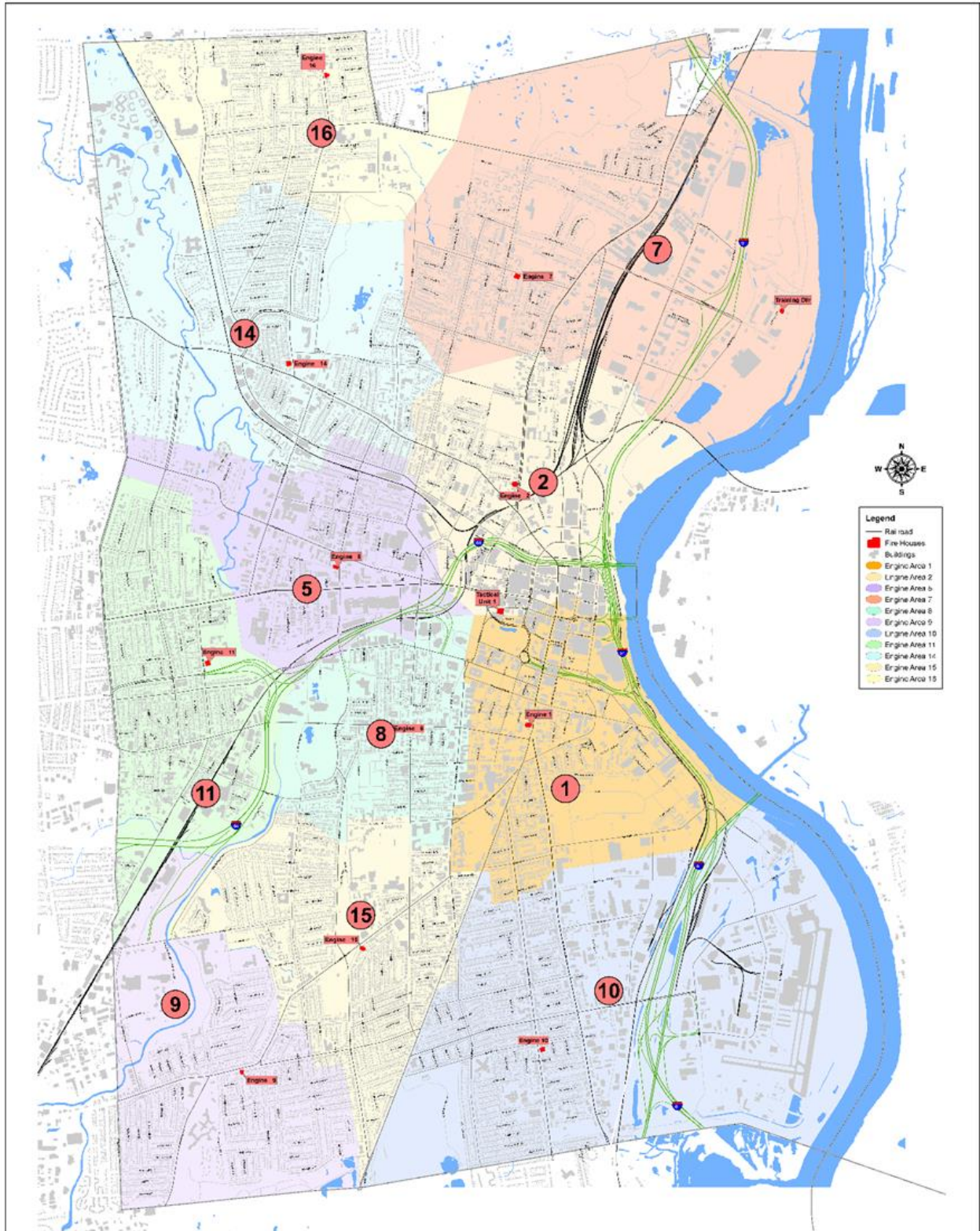
Table 26: ISO Distribution Chart

Resource Type	ISO Recommendation	Hartford Fire Department
Engine	1.5-mile radius	1.64 avg
Ladder	2.5-mile radius	3.62 avg

HARTFORD FIRE DEPARTMENT

COMMUNITY RISK ASSESSMENT-STANDARDS OF COVER

Map 28: Distribution Points



Date: August 17, 2009

City of Hartford
Fire Engine Response Areas



HARTFORD FIRE DEPARTMENT

COMMUNITY RISK ASSESSMENT-STANDARDS OF COVER

Fire House Locations



Station 1 - 197 Main Street
 South Green / Sheldon Charter Oak
 Engine 1: 4,697
 Ladder 6: 2,578
 Total 2018 Calls: 7,275



Station 2 - 1515 Main Street
 Clay Arsenal / Downtown
 Engine 2: 3,742
 Ladder 3: 1,448
 District 2: 4,478
 Total 2018 Calls: 9,668



Station 4 - 275 Pearl St
 TAC Unit: 5,026
 District 1: 4,618
 Total 2018 Calls: 9,644



Station 5 - 129 Sigourney St
 Asylum Hill
 Engine 5
 Total 2018 Calls: 4,191

HARTFORD FIRE DEPARTMENT

COMMUNITY RISK ASSESSMENT-STANDARDS OF COVER



Station 7 - 181 Clark St
Northeast / North Meadows
Engine 7
Total 2018 Calls: 3,163



Station 8 - 721 Park Street
Frog Hollow
Engine 8
Total 2018 Calls: 3,821



Station 9 - 655 New Britain Ave
Southwest
Engine 9
Total 2018 Calls: 1,621



Station 10 - 510 Franklin Ave
South End / South Meadows
Engine 10
Total 2018 Calls: 2,815

HARTFORD FIRE DEPARTMENT

COMMUNITY RISK ASSESSMENT-STANDARDS OF COVER



Station 11 - 150 Sisson Ave
Parkville / West End
Engine 11: 3,551
Ladder 5: 2,284
Total 2018 Calls: 5,835



Station 14 - 25 Blue Hills Ave
Upper Albany
Engine 14: 3,110
Ladder 4: 1,788
Total 2018 Calls: 4,898



Station 15 - 8 Fairfield Ave
Barry Square / Behind the Rocks
Engine 15: 3,212
Ladder 2: 1,839
Total 2018 Calls: 5,051



Station 16 - 636 Blue Hills Ave
Blue Hills
Engine 16
Total 2018 Calls: 1,238

HARTFORD FIRE DEPARTMENT

COMMUNITY RISK ASSESSMENT-STANDARDS OF COVER

Minimum Deployment Resources

HFD minimum deployment resources consist of the following: 11 engine companies, 5 ladder companies, 1 tactical unit, and 2 district chiefs with aides.

Table 27: HFD Resource Deployment

Resource Type	Minimum Capability	Minimum Staffing	Number of Units (Reserve)
Engine Company	1500 gpm pump 1200 feet of Supply Line 1200 feet of Attack Line	4	11 (4)
Ladder Company	95 feet Aerial Ladder 171 feet of Ground Ladders	4	5 (3)
Tactical Unit	Various tools and equipment for technical rescue application	4	1 (1)
District Chief with Aide	Command Vehicle	2	2 (1)
Total	72 Suppression Personnel per Shift (4-Shifts Total: A, B, C, D)		

Reserves are the spare resources used when front line apparatus is out of service due to maintenance or mechanical issues. These are older apparatus that have been retired to back-up status. These resources are also activated for additional personnel manning during storm events, large scale events or events of lengthy durations.

Response Areas

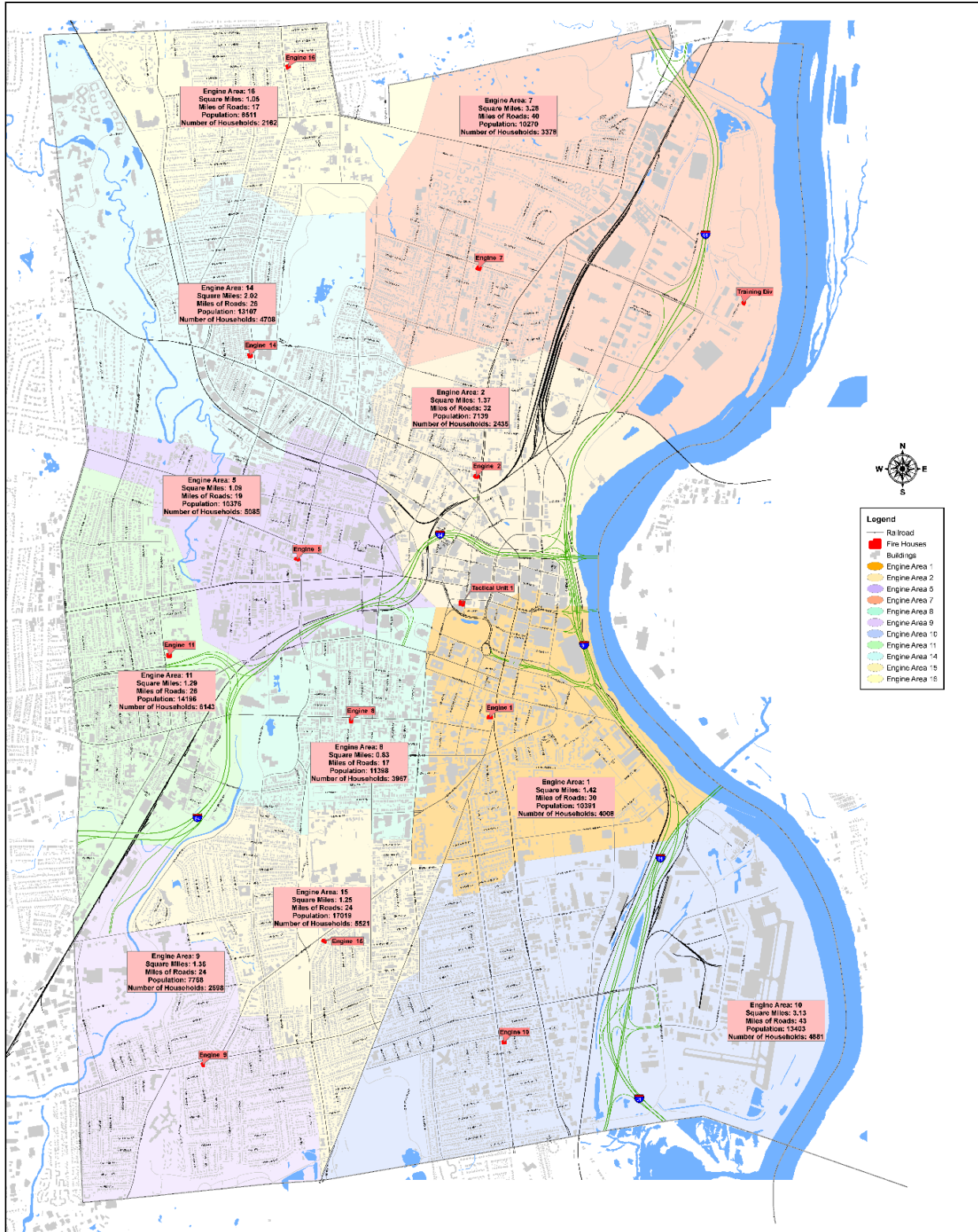
The following three maps will provide visuals for the respective response areas of all engine companies, ladder companies, and district chiefs. Tactical Unit 1 responds as a technical support resource throughout the city, therefore, it has no individual response area. The engine company and ladder company maps provide the following information in each response area:

- Total Population
- Total Number of Households Served
- Total Square Miles
- Total Surface Road Miles
- Population Density

HARTFORD FIRE DEPARTMENT

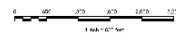
COMMUNITY RISK ASSESSMENT-STANDARDS OF COVER

Map 29: Engine Company Distribution Points



Date: February 22, 2011

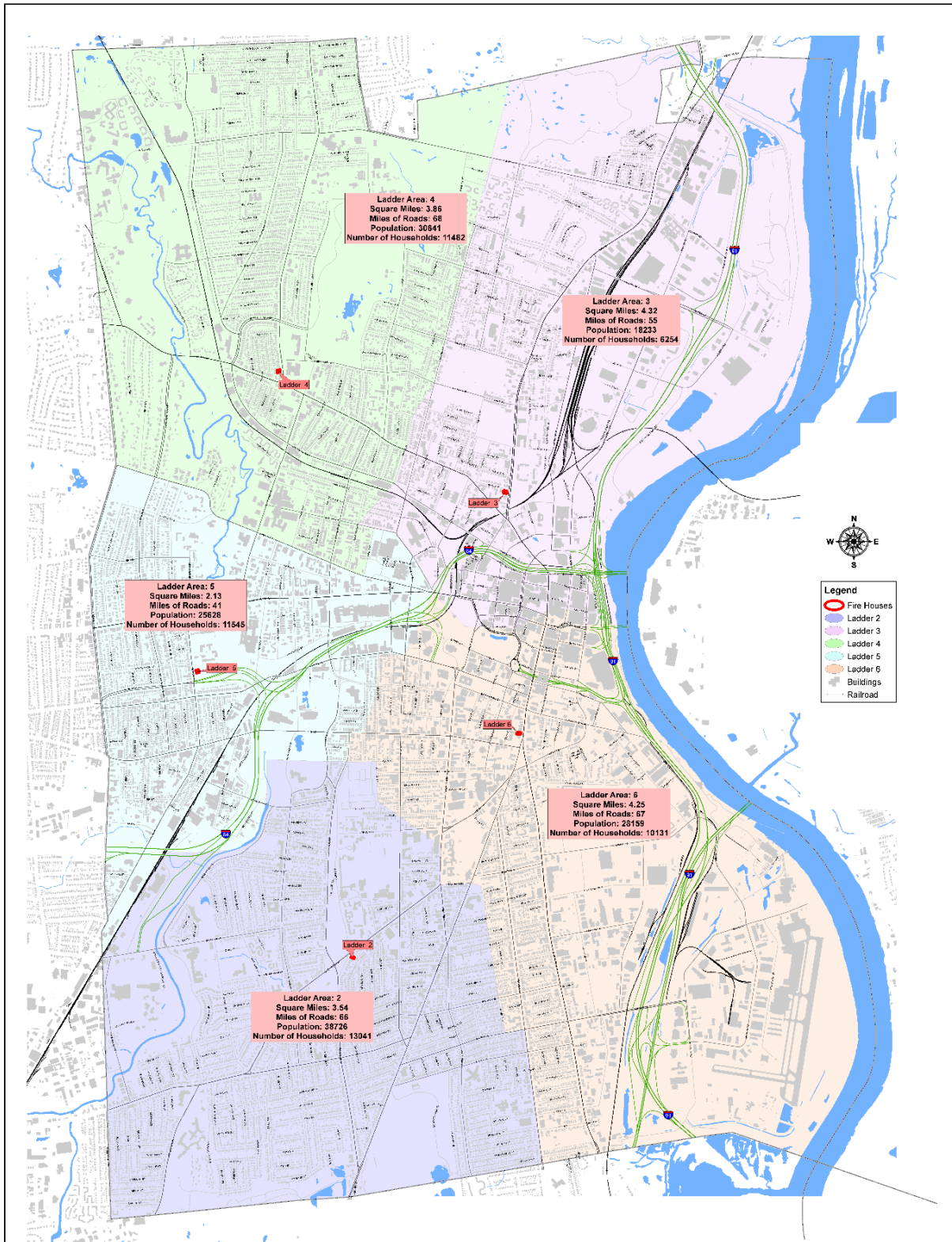
City of Hartford
Fire Engine Response Areas



HARTFORD FIRE DEPARTMENT

COMMUNITY RISK ASSESSMENT-STANDARDS OF COVER

Map 30: Ladder Company Distribution Points



Date: February 18, 2011

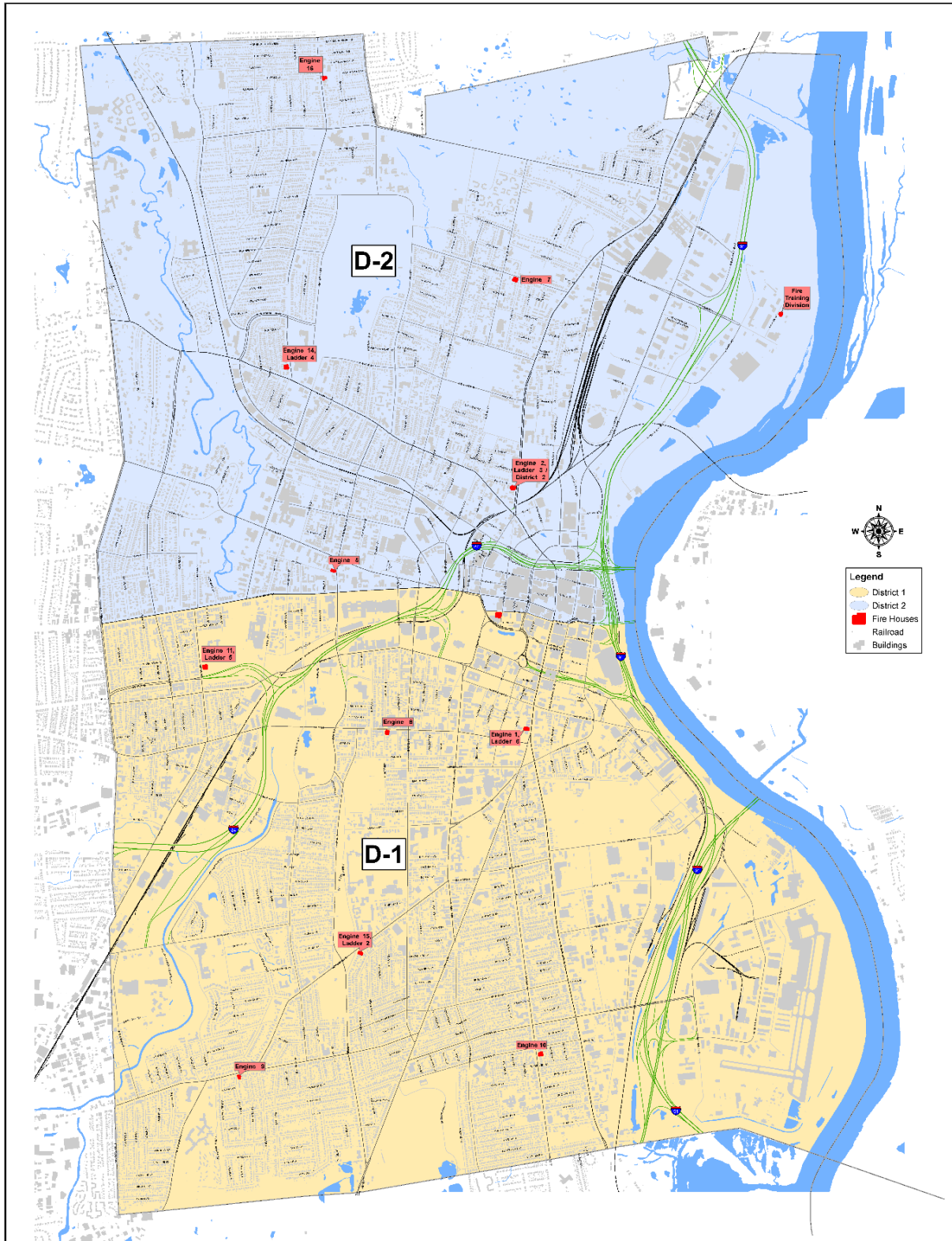
City of Hartford
Ladder Response Areas



HARTFORD FIRE DEPARTMENT

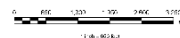
COMMUNITY RISK ASSESSMENT-STANDARDS OF COVER

Map 31: District Chief Distribution Points



Date: September 14, 2009

City of Hartford
Deputy Chief Response Areas
for Two Districts



HARTFORD FIRE DEPARTMENT

COMMUNITY RISK ASSESSMENT-STANDARDS OF COVER

E. Summary of Community Response History

The Hartford Fire Department (HFD) collects and analyzes data for seven response classes utilizing the FIREHOUSE Software® program. The classes include the following: EMS, fire, technical rescue, hazardous materials, service calls, NARCAN® administration, and false alarms. The table below provides the total responses in each class for the three calendar years of 2016-2018. The response summary maps on the following pages will show the total 2018 annual responses in the community for these response classes by the Geographic Planning Zones (GPZ). Performance is evaluated monthly at the GPZ level. The department utilizes these response summary maps within its monthly FIRESTAT report, which it began in 2016. FIRESTAT allows the department to track response trends and measure performance standards towards the department mission. This report is disseminated to the entire department to review. It is also published on the agency website and made available to the community for transparent accountability.

Table 28: Service Demand by Response Class (2016-2018)

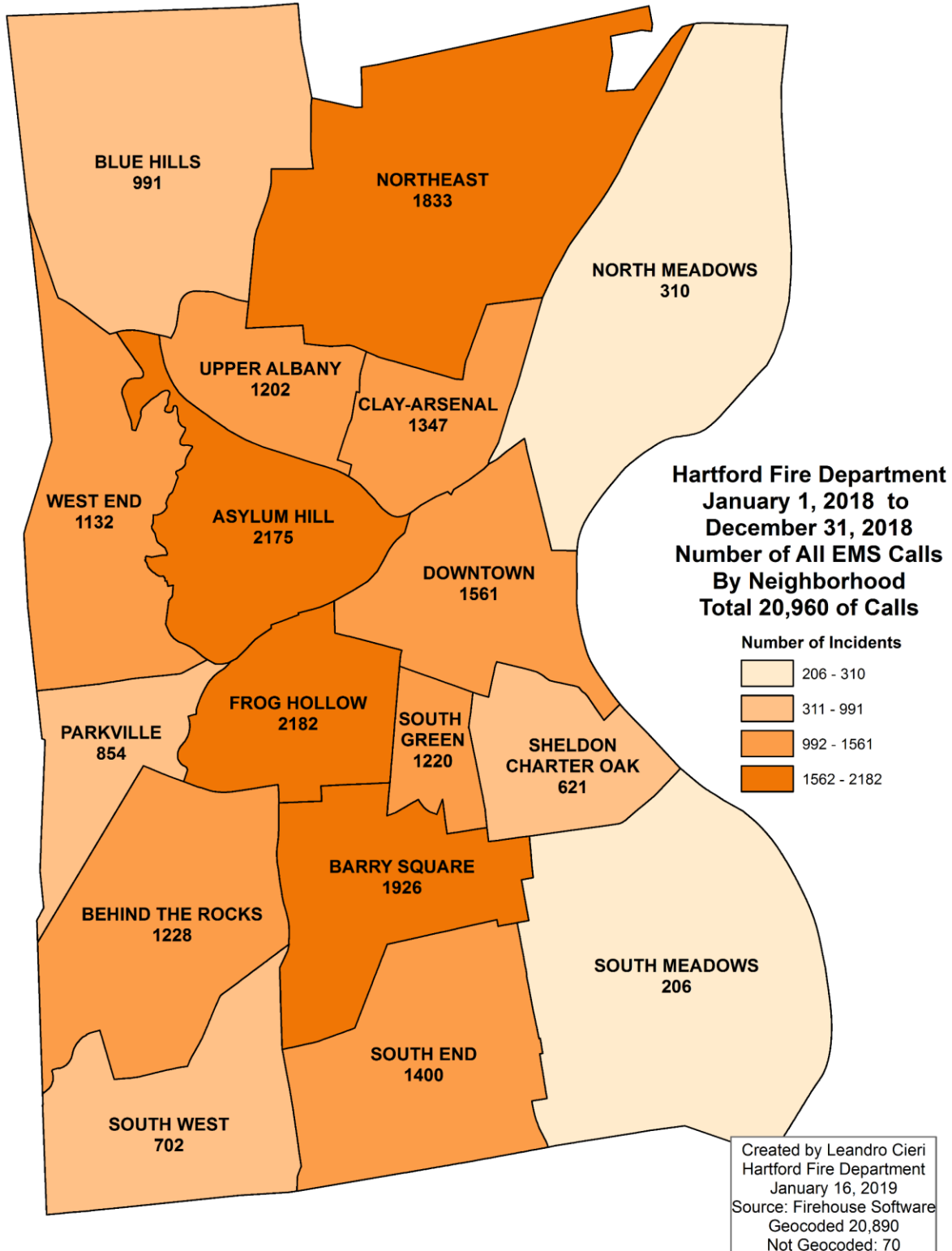
Response Class	2016-2018	2018	2017	2016
EMS	60,836	20,960	20,589	19,287
Fire	1860	551	537	747
Tech Rescue	567	185	170	212
Haz-Mat	908	316	274	318
Service Call	10,450	4,132	3,507	2,811
False Alarm	5,864	2,000	1,874	1,990
Narcans *	752	372	380	N/A
Total Hazard Calls	64,146	22,012	21,570	20,564
Total Annual Calls	87,204	30,469	29,468	27,267

* NARCAN® is not added to the total call responses as it is included in the EMS hazard class.

HARTFORD FIRE DEPARTMENT

COMMUNITY RISK ASSESSMENT-STANDARDS OF COVER

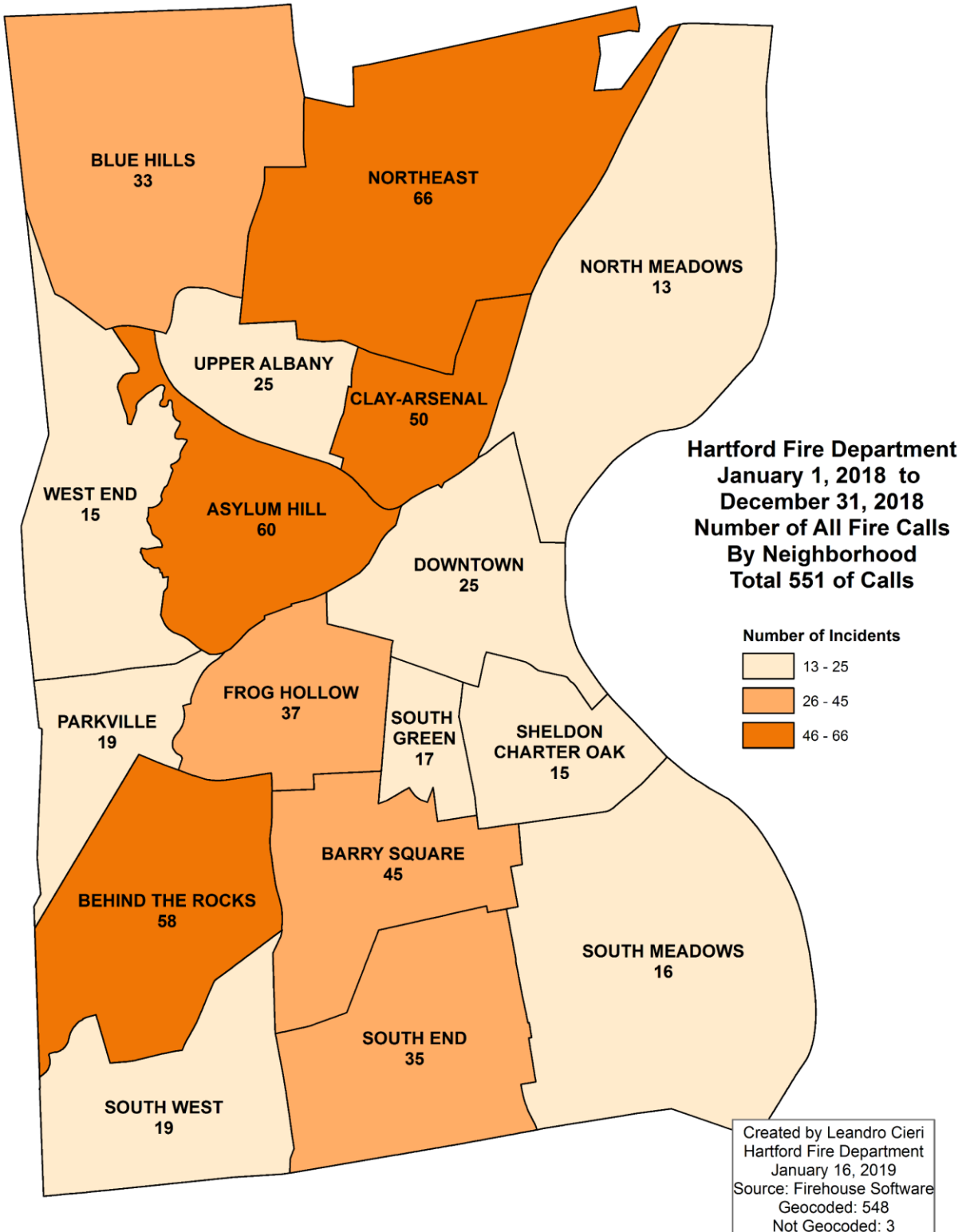
Figure 7: EMS Response Summary (2018)



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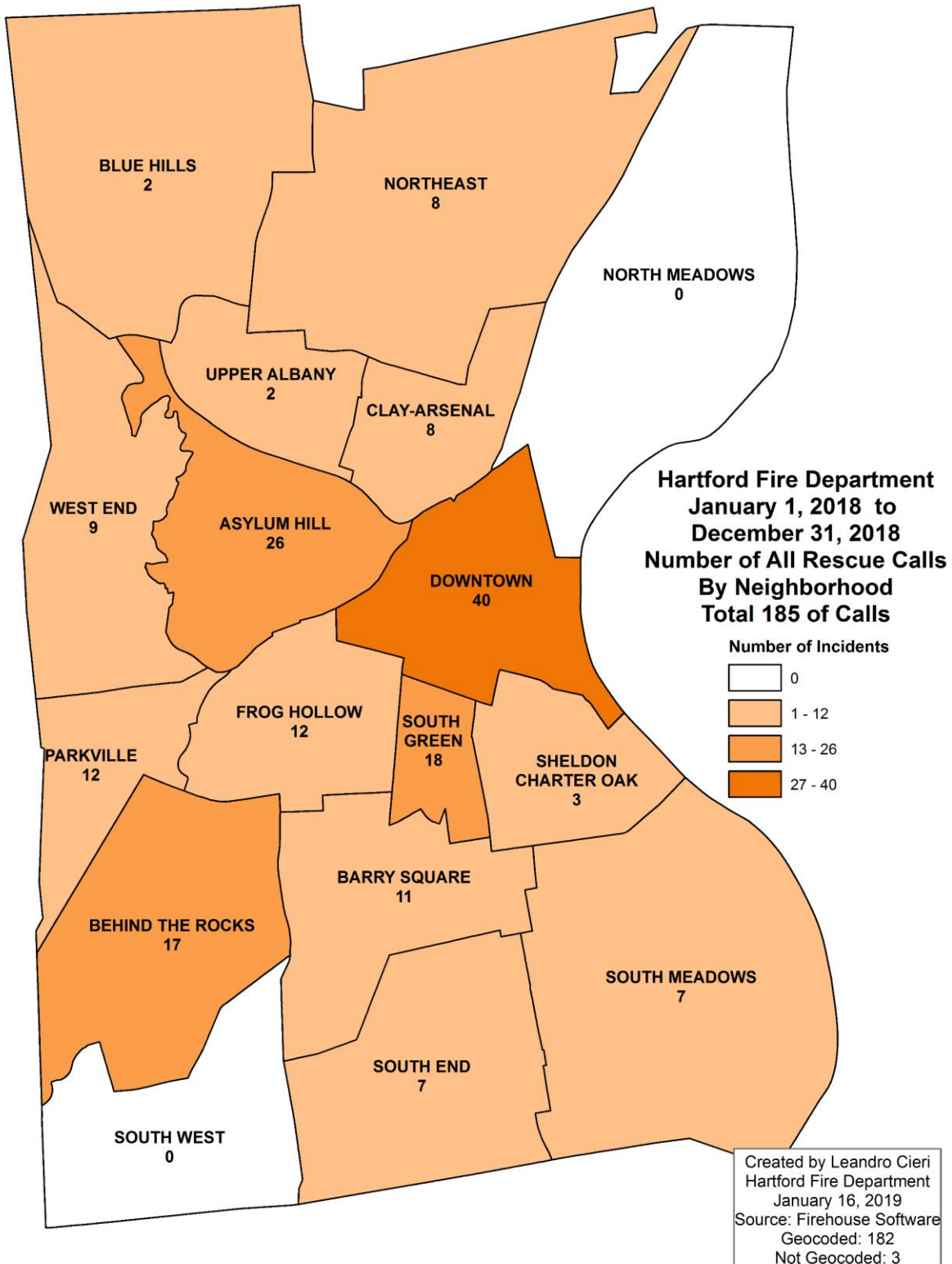
Figure 8: Fire Response Summary (2018)



HARTFORD FIRE DEPARTMENT

COMMUNITY RISK ASSESSMENT-STANDARDS OF COVER

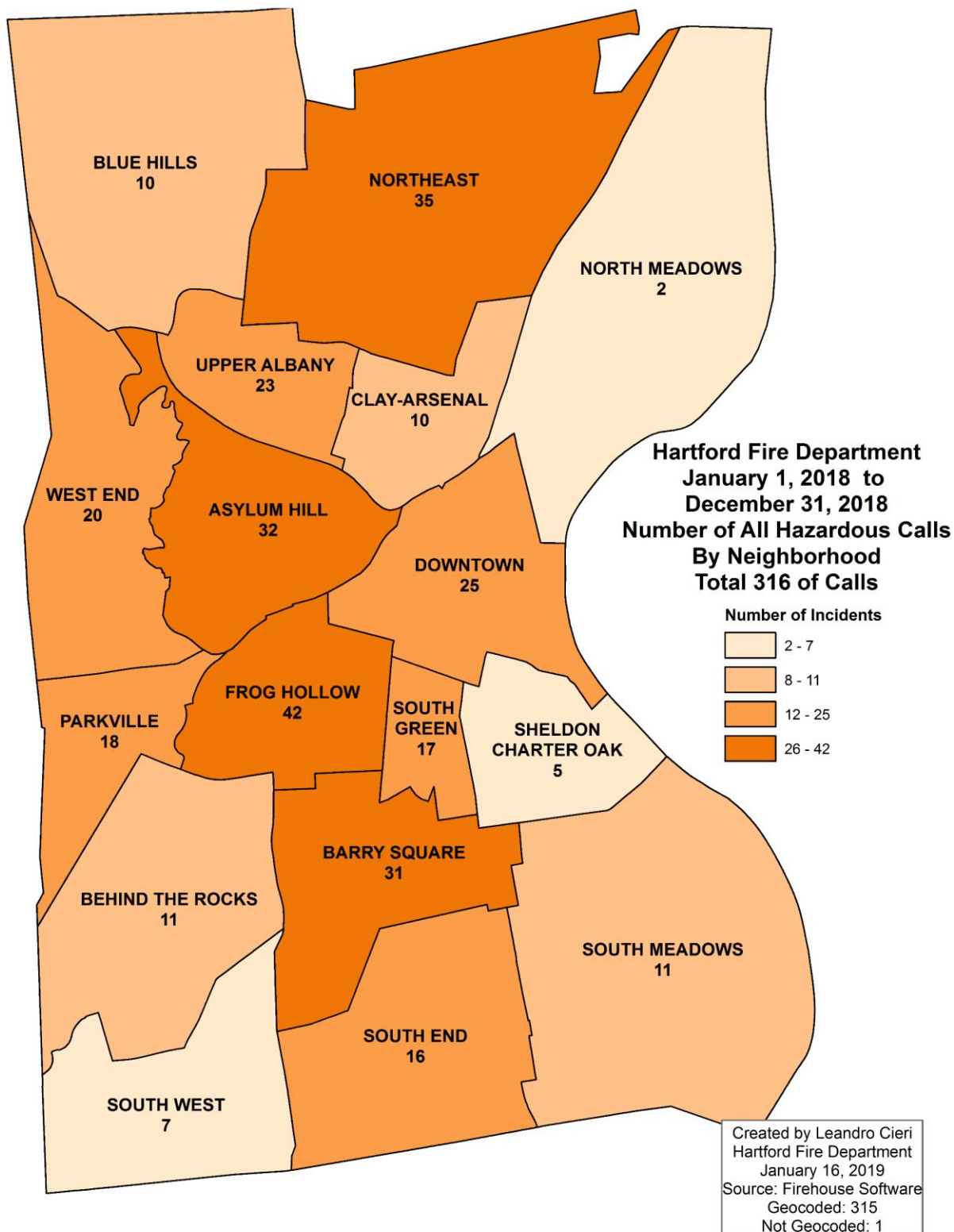
Figure 9: Technical Rescue Response Summary (2018)



HARTFORD FIRE DEPARTMENT

COMMUNITY RISK ASSESSMENT-STANDARDS OF COVER

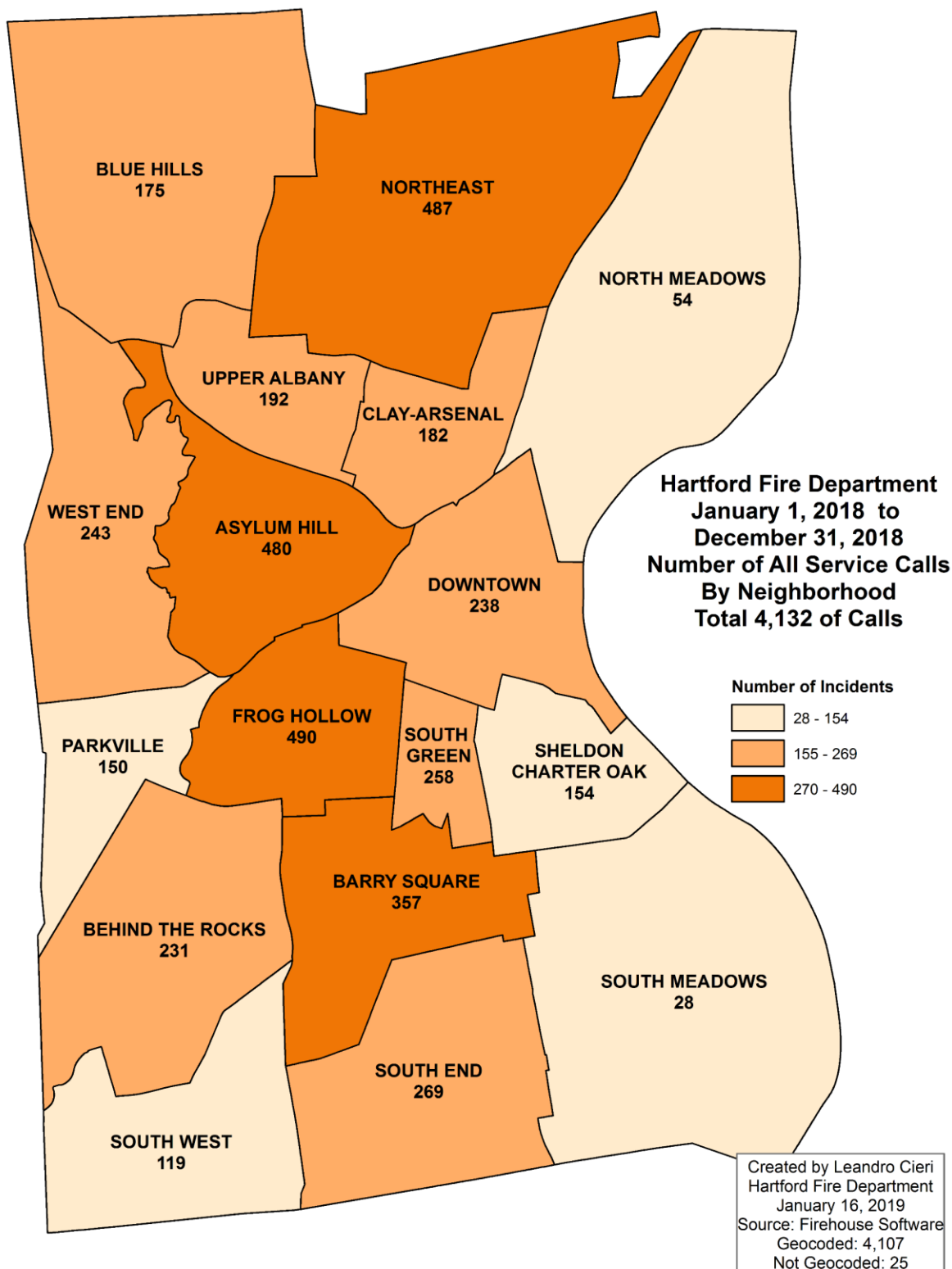
Figure 10: Hazardous Materials Response Summary (2018)



HARTFORD FIRE DEPARTMENT

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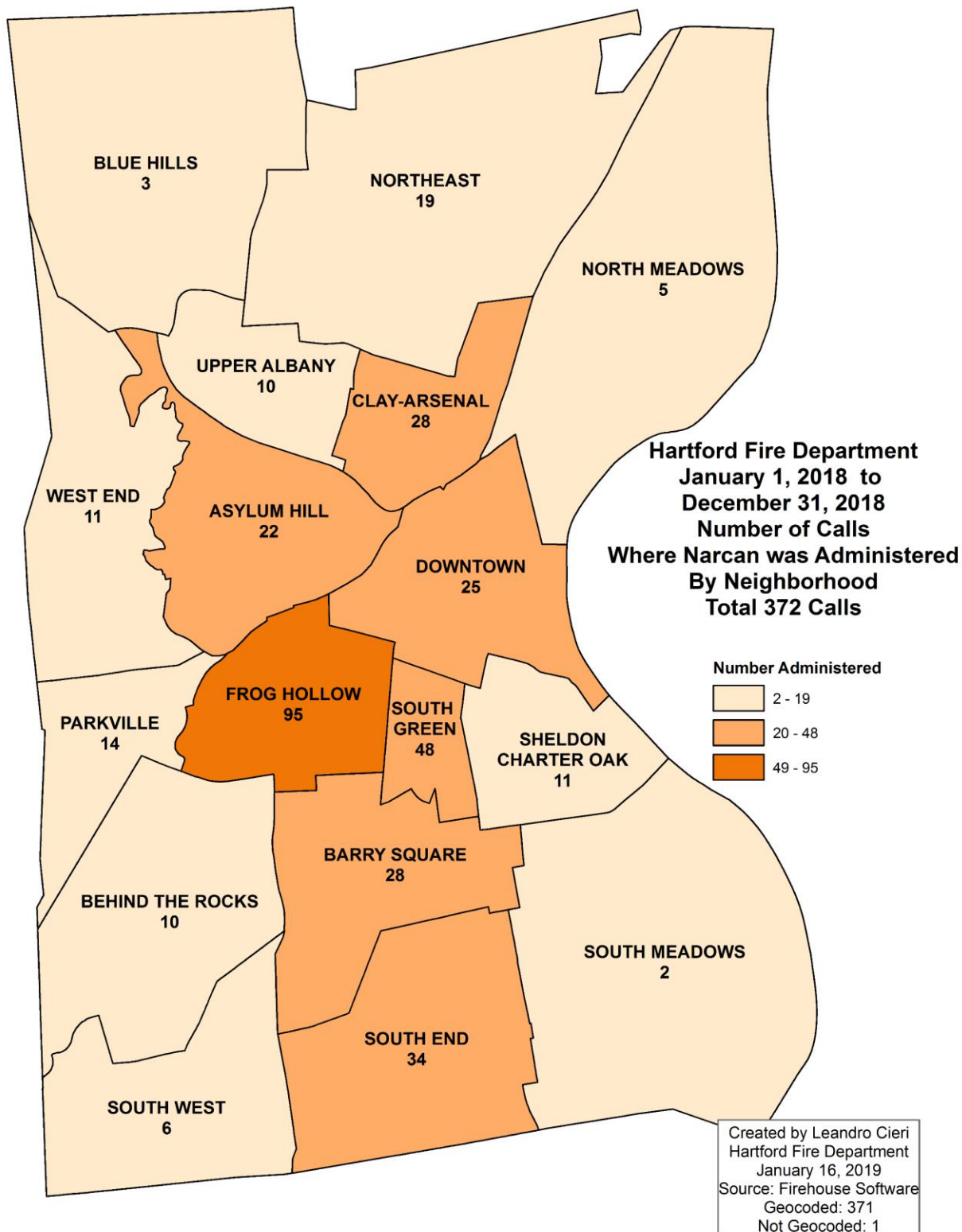
Figure 11: Service Call Response Summary (2018)



HARTFORD FIRE DEPARTMENT

COMMUNITY RISK ASSESSMENT-STANDARDS OF COVER

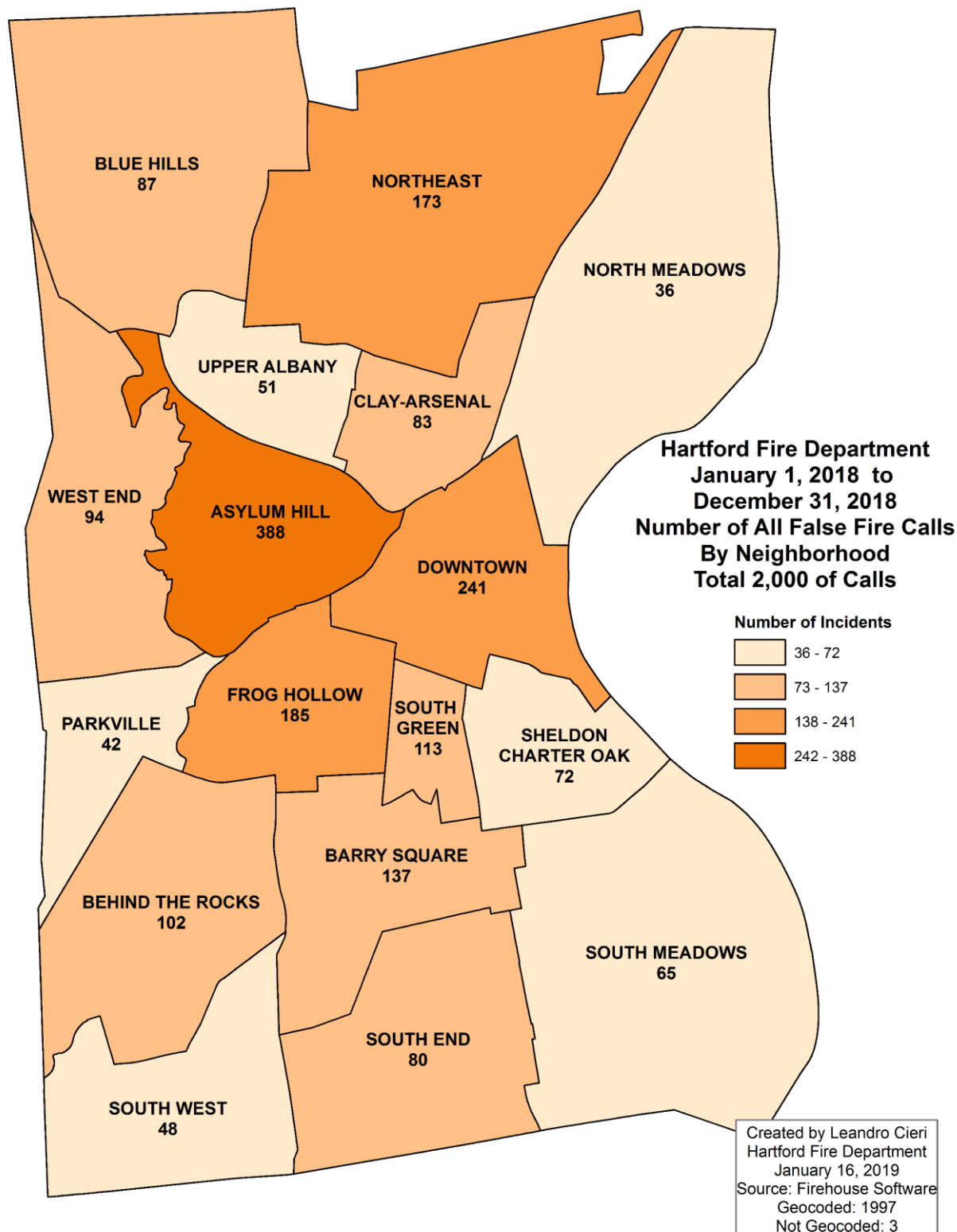
Figure 12: NARCAN® Administration Summary (2018)



HARTFORD FIRE DEPARTMENT

COMMUNITY RISK ASSESSMENT-STANDARDS OF COVER

Figure 13: False Alarm Response Summary (2018)



HARTFORD FIRE DEPARTMENT

COMMUNITY RISK ASSESSMENT-STANDARDS OF COVER

F. Community Priorities, Expectations, and Performance Goals

Mission Statement

In 2009, the Hartford Fire Department (HFD) created its first mission statement with the assistance of the Center for Public Safety Excellence (CPSE) Technical Advisor Program (TAP). It clearly communicated the agency's mission to all stakeholders. In the spring of 2018, a department committee comprised of all ranks met to evaluate and revise if necessary, the agency mission, values, and vision. CPSE TAP assisted again and the following was agreed upon for the agency mission statement, values, and vision going forward.

The Hartford Fire Department is a highly trained, culturally diverse, ISO Class 1 agency dedicated to preventing and minimizing the loss of life and property, for the protection of the residents, business community, visitors of the City of Hartford, and its regions.

We accomplish this through professional, high-quality, efficient response in the areas of fire, EMS, technical rescue, hazardous materials, fire prevention, and public education.

Values

Hartford's Bravest "serve to save" our community through our commitment to duty and the pursuance of excellence, while upholding the highest professional standards.

Vision

Hartford Fire Department's 2023 Vision

is to be widely known as an internationally accredited fire service agency that 'serves to save,' while meeting our mission for our community.

Having realized the highest professional standards we value, we will further meet our mission through enhanced training programs that will increase our readiness now and in the future. We will also bolster our investment in our greatest asset, our members, focusing on their health and wellness that will produce a long-term return for the people of Hartford.

For us to live our commitment to duty, we will show we are good stewards of what is entrusted to us with greater physical resource management. Along with a more defined and improved EMS program, improved ways to communicate between ourselves and our public, we will ensure we are always prepared to serve the people who live, work, and play in our "Capital City."

Dedicated to the pursuance of excellence in all that we do, we will always personify our traditions and our futurity by holding each other accountable for fulfilling our mission, living our values, accomplishing our goals, and making this vision a reality.

HARTFORD FIRE DEPARTMENT

COMMUNITY RISK ASSESSMENT-STANDARDS OF COVER

Community Service Priorities

The HFD recognizes the importance of community satisfaction. In the spring of 2018, the agency invited community representatives (external stakeholders) to provide feedback on services provided. Representatives consisted of corporate partners, neighborhood groups, non-profit agencies, etc. Respondents were asked to provide a prioritized perspective of the programs and services provided by the department. See [Appendix A](#) for a complete list of community findings including expectations, areas of concern, and positive feedback. The results for the community's priorities were as follows:

Table 29: Community's Service Program Priorities

HFD Programs and Services	Ranking	Score
Fire Suppression	1	64
Rescue – Basic and Technical	2	54
Emergency Medical Services	3	49
Domestic Preparedness Planning and Response	4	42
Community Risk Reduction	5	38
Hazardous Materials Mitigation	5	38
Public Fire and Life Safety Education	7	27
Fire Investigation	8	24

Community Service Expectations

Additionally, input was gathered during the meeting that revolved around community expectations. Understanding what the community expects of its fire and emergency services organization is critically important to effect positive customer service and experience. With this knowledge, internal emphasis may need to be changed or bolstered to fulfill the community's expectations.

Respondents were asked to list, in order of priority, up to five subjects relative to the future direction they have for the HFD. Responses were then analyzed for themes and weighted. The weighting of the prioritized responses was as follows: if it was the respondent's first entry, then it received five weighted points. Weighting gradually decreased so that if it was the respondent's fifth entry, then it received one weighted point. The weighted themes were then sorted from the highest cumulative weight to the lowest cumulative weight and listed to follow. The numbers in the parentheses are the cumulative weighted value that correlated with the theme identified. While the themes are listed in prioritized and weighted order, all responses were important in the planning process. The following are the top eight expectations of the community, the agency's external stakeholders. See [Appendix A](#) for the complete listing.

HARTFORD FIRE DEPARTMENT

COMMUNITY RISK ASSESSMENT-STANDARDS OF COVER

Customer Expectations of the Hartford Fire Department (in priority order)

- Rapid response to emergencies. Prompt response to any emergency condition requiring fire department services, i.e. fire, MVA with extrication, haz-mat, medical emergency throughout the city. (51)
- Community engagement; education in the schools and at community events, and for our seniors, access to smoke and carbon monoxide detectors, employment opportunities. (29)
- Trained and experienced with all types of technical rescue. Professionally trained staff and customer friendly. Staffing our fire department with well-trained people. Effective training/ability. (19)
- Fire code enforcement regarding building inspections. Work to prevent fire risk in the community. Fire prevention. (10)
- Customer priority. Customer service at calls. (8)
- Firefighter safety on the job. Make sure our staff have the safe environment to work around. Make sure our firefighters have help and support around (mental health). (8)
- Necessary equipment. Necessary equipment to do the job. Keeping up with advancements in equipment and techniques, procedures. (7)
- The ability for multiple responses at the same time. The ability to respond to multiple events, multiple alarms at the same time. (6)

Historical Performance Goals

NFPA 1710 was instituted in 2001 which outlined designated performance measures for response times to incidents. The HFD adopted the travel time component of 240 seconds (4-minute) as a performance measure. The fire and EMS hazard classes were the only two classes that the department categorized. The technical rescue and haz-mat classes were monitored together in the EMS class. HFD also measured the percentage of fire incidents contained to the room of origin in the fire hazard class. These performance measures were published in the past annual budgets for the community to view. The mayor and City Council did not formally adopt the performance measures as an accountability standard.

In 2016, the department started utilizing the FIREHOUSE Software® program in conjunction with the FIRESTAT accountability system to collect monthly statistical measures on the fire, EMS and haz-mat classes. The FIRESTAT report has been published monthly for the community since then and posted on the HFD website. In mid-2018, the technical rescue hazard class was separated from the EMS hazard class for performance tracking. HFD strongly advocates that the mayor and City Council formally adopt the benchmark performance measures outlined in the SOC as an accountability service standard for the agency to meet in providing service to the community.

HARTFORD FIRE DEPARTMENT

COMMUNITY RISK ASSESSMENT-STANDARDS OF COVER

G. Community Risk Assessment and Risk Levels

Risk Assessment Methodology

Methodology (Probability/Consequence/Impact of Event Risk)

The City of Hartford continues to undergo ongoing development growth and changes that present very dynamic hazards and risks. HFD monitors and analyzes both current and historical service demands in the city to ensure that an adequate level of service is provided, and resources are maintained to protect against and control these risks. In 2018, HFD performed a community-driven risk-based assessment to direct the department in these efforts. This was completed with the expectation that resource deployment would be driven by the actual risks identified in the community. Risk assessment is the systematic process of evaluating the potential for harm from the identified hazards. This section will detail the processes that HFD utilized for this assessment.

CFAI defines the following:

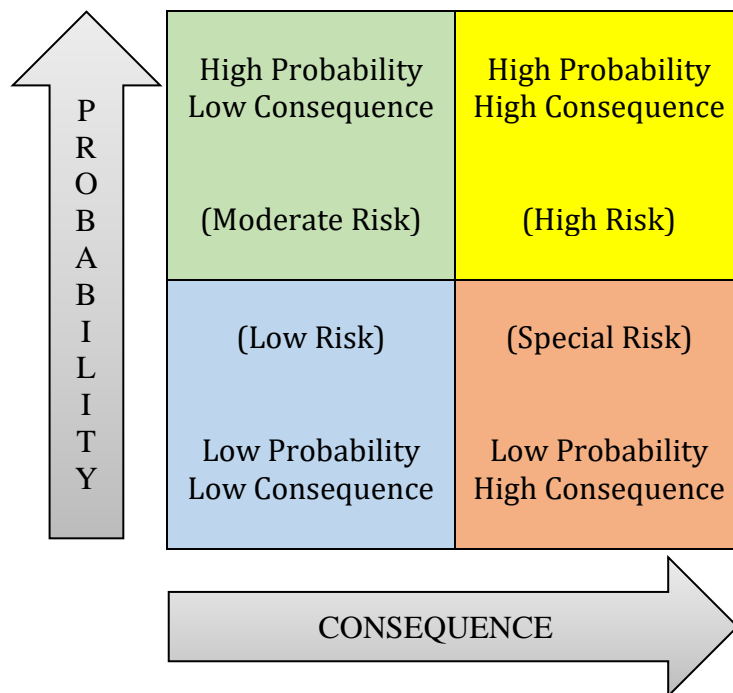
- Hazard: a condition that presents the potential for harm or damage to people, property, or the environment.
- Risk: the exposure or chance of injury or loss from a hazard.
- Probability: the likelihood that an event will occur.
- Consequence: an effect, impact, or outcome of some level of significance.
- Distribution: the geographic location of first due service delivery points.
- Concentration: the cluster of distribution points in a given geographical range to assemble an initial Effective Response Force (ERF) within a given a timeframe with the goal of preventing an emerging incident from becoming a major event.

Risk assessment involved a four-step process: *identification, assessment, categorization, and classification*. HFD identified the hazards present in each Geographic Planning Zone (GPZ) utilizing all the data sets described on the following page. Assessment was accomplished utilizing a two-axis matrix of probability and consequence. Emergent events do occur, and it is only a matter of the likelihood of when. Events can be measured for a low or high probability of occurrence using available response history data. Additionally, an emergent event will create a potential impact. Consequences can, therefore, be measured for the potential of a low or high impact (consequence) according to the factors of life safety, economic impact, and/or environmental losses.

This combination of probability and consequence was the basis for developing risk categories for each of the hazard classes: low, moderate, high, and maximum. It should be noted that events with the highest frequency (semi-daily events) typically result in a low impact while events with the lowest frequency potentially result in a higher impact. A matrix is provided as a visual display of the categorization of risk based on the two-axis system of probability and consequence.

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For risk assessment, the following analytical and statistical data was utilized:

- Building construction type, age, size, and zoning usage from the City Planning and Zoning department.
- Population and demographic data from the US Census Bureau.
- ISO data on structures with fire protection systems and required fire flow ratings.
- FEMA flood plain mapping and City Flood Commission data.
- Hartford Preservation Alliance list of historical preservation properties/districts.
- Water distribution network from MDC, the regional water authority.
- Utility company infrastructure networks. (Eversource, CNG, Hartford Steam, AT&T)
- Hazardous materials storage locations and transportation modes from the CT Departments of Transportation (DOT) and Energy & Environmental Protection (DEEP).
- Community Risk Reduction programming from the Special Services Division.
- Fire marshal inspection data/pre-incident survey data from suppression personnel.

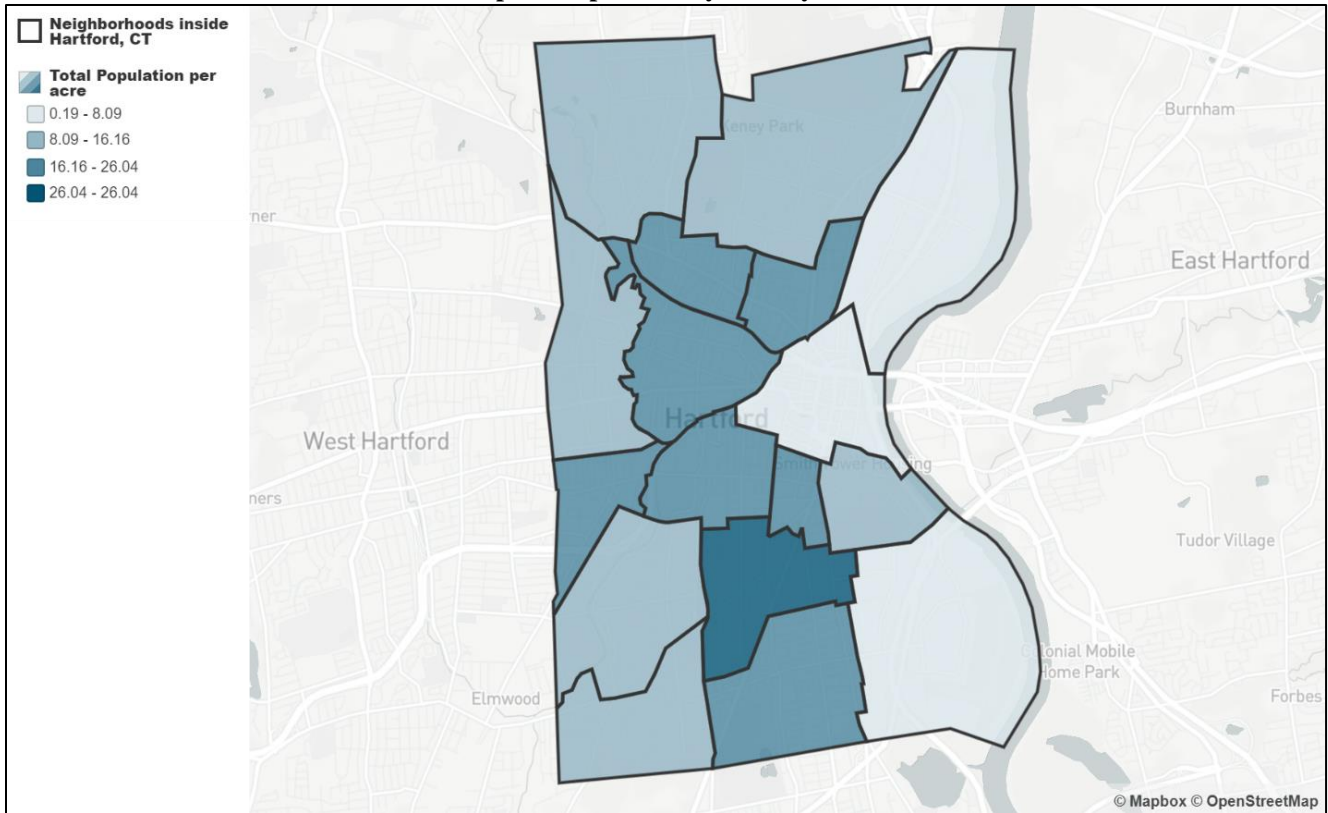
Planning Areas/Zones

For risk assessment purposes, the 17 GPZ's are managed at the 11 first-due engine company district levels and named the Risk Management Zones (RMZ). This allowed for the most efficient and accurate tracking of information and data throughout the city as the various hazards and risks were assessed. Some maps are provided illustrating neighborhood densities of population, poverty level, and housing.

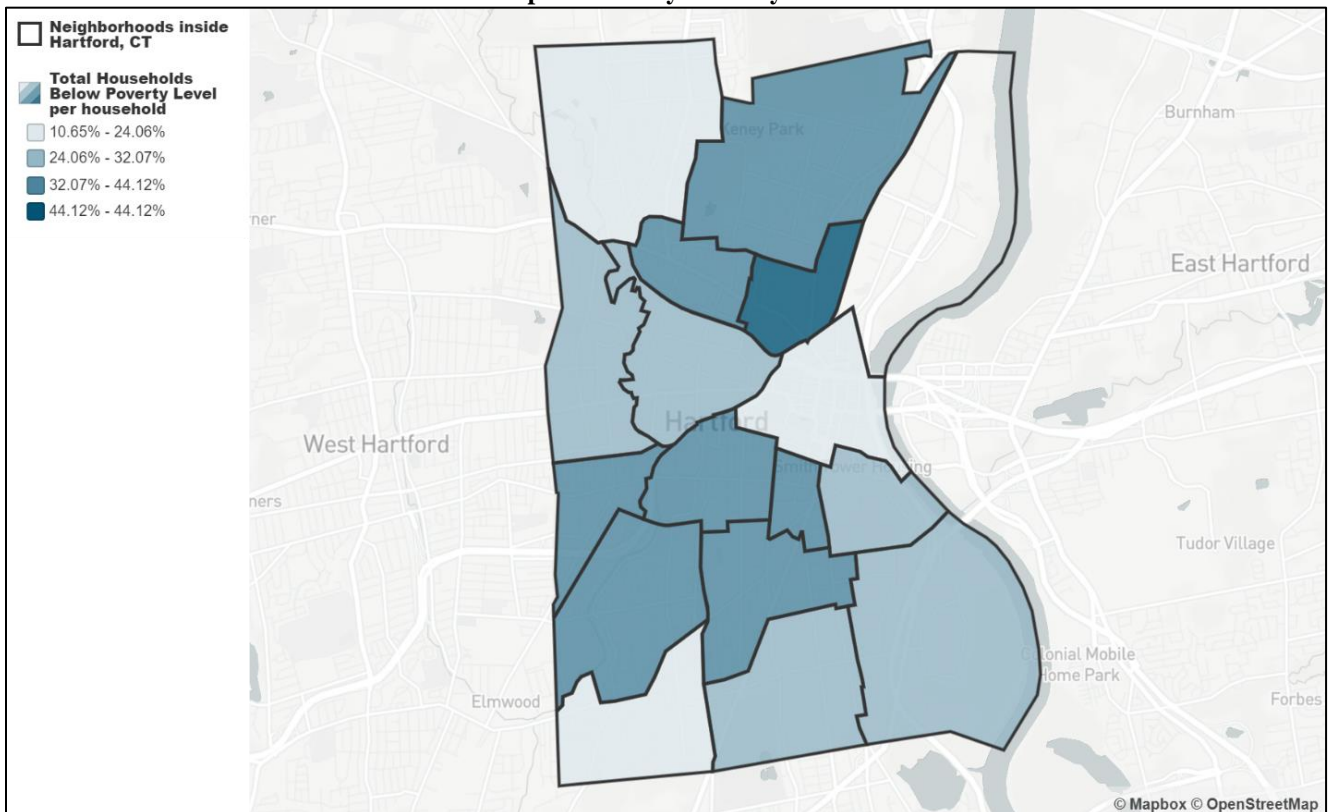
HARTFORD FIRE DEPARTMENT

COMMUNITY RISK ASSESSMENT-STANDARDS OF COVER

Map 32: Population by Acre by GPZ



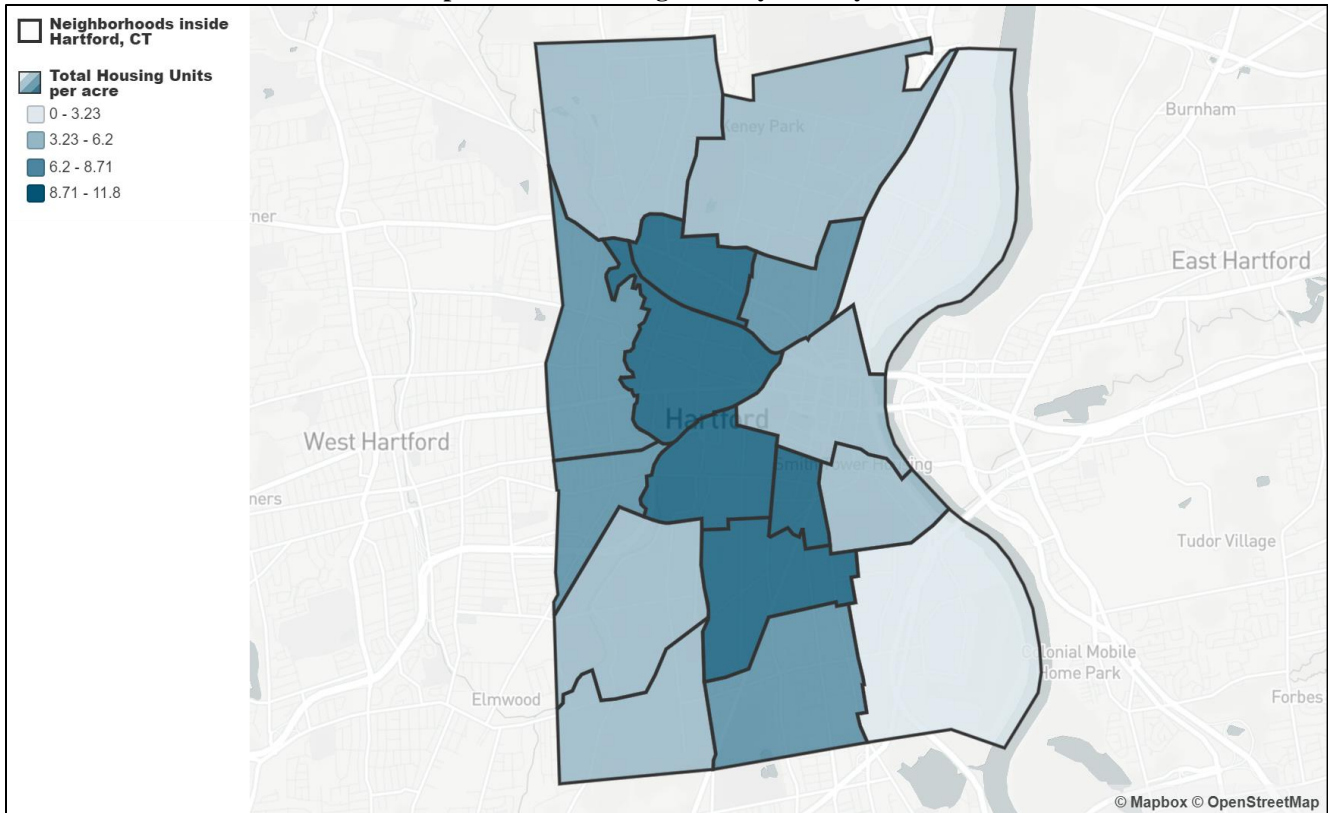
Map 33: Poverty Level by GPZ



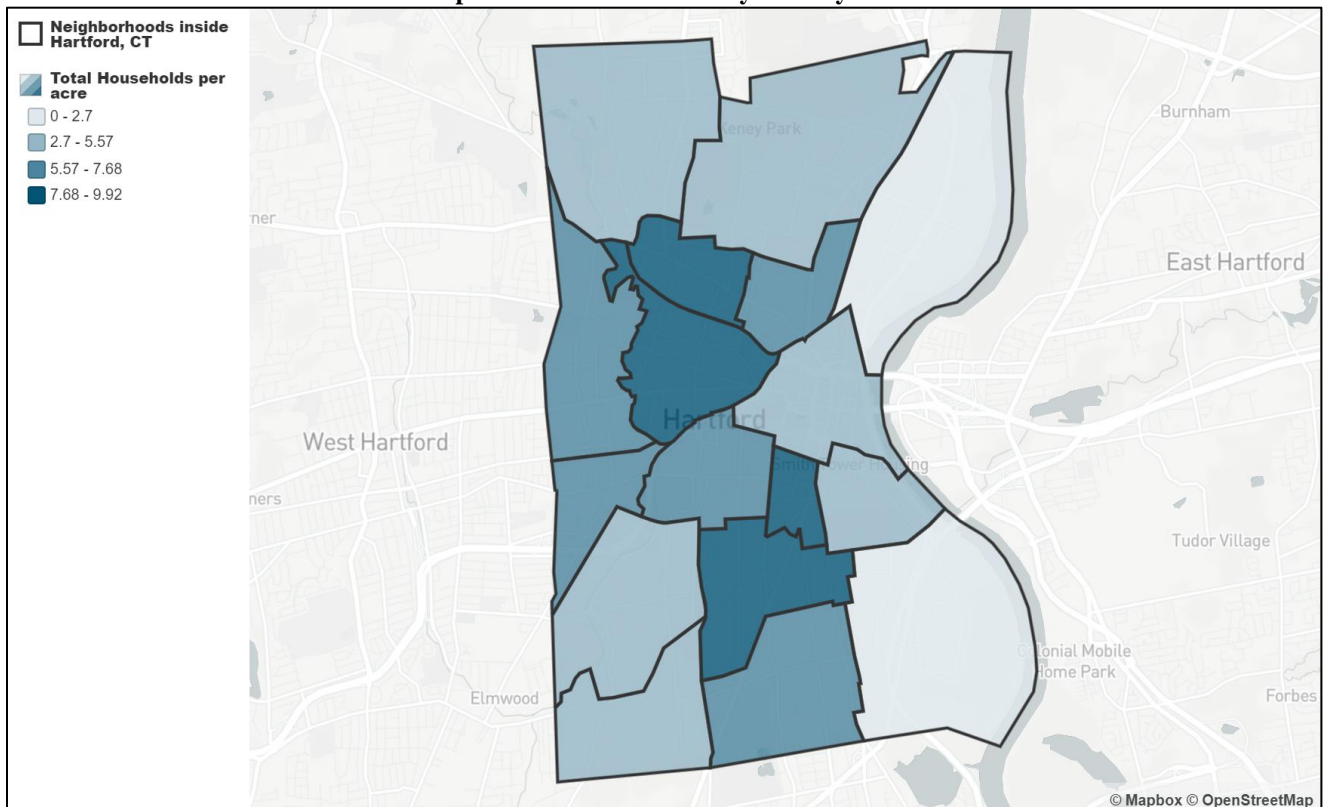
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COMMUNITY RISK ASSESSMENT-STANDARDS OF COVER

Map 34: Total Housing Units by Acre by GPZ



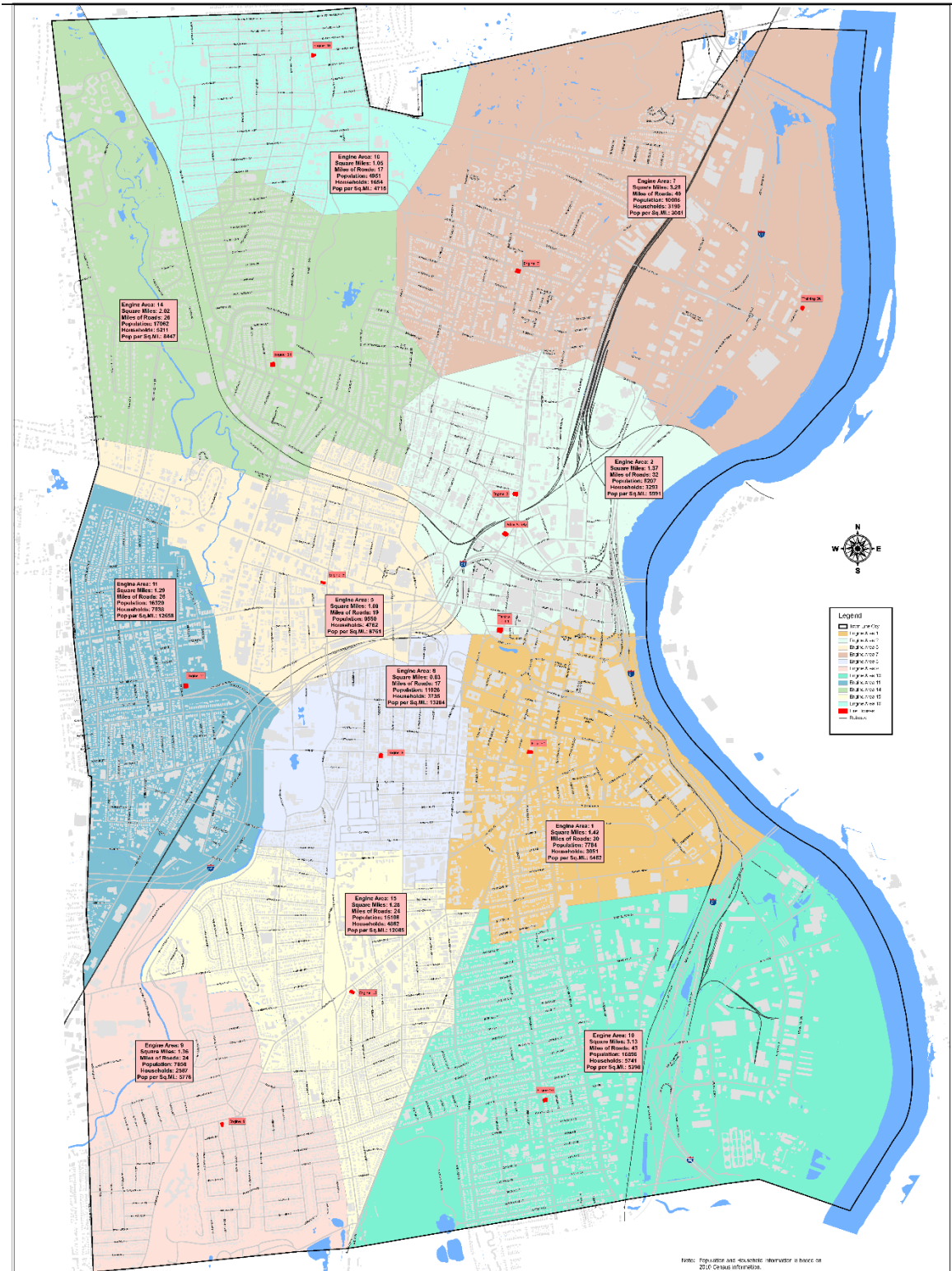
Map 35: Total Households by Acre by GPZ



HARTFORD FIRE DEPARTMENT

COMMUNITY RISK ASSESSMENT-STANDARDS OF COVER

Map 36: Risk Management Zones with Demographics



Date: November 1, 2018

City of Hartford
Fire Engine Response Areas



HARTFORD FIRE DEPARTMENT

COMMUNITY RISK ASSESSMENT-STANDARDS OF COVER

Demographics for each management zone were obtained from census tracts and mapped using GIS software. Information identified for each RMZ included: total square miles, total road miles, total households, total population, and population density.

Table 30: Demographic Data for each RMZ

Risk Management Zone	Square Miles	Road Miles*	Households	Population	Population Density / Sq Mile
Station 1	1.42	30	3,051	7,784	5,482
Station 2	1.37	32	3,293	8,207	5,991
Station 5	1.09	19	4,762	9,550	8,761
Station 7	3.28	40	3,190	10,006	3,051
Station 8	0.83	17	3,735	11,026	13,284
Station 9	1.36	24	2,587	7,858	5,778
Station 10	3.13	43	5,741	16,896	5,398
Station 11	1.29	26	7,038	16,329	12,658
Station 14	2.02	26	5,211	17,062	8,447
Station 15	1.25	24	4,862	15,106	12,085
Station 16	1.05	17	1,654	4,951	4,715
Totals	18.04	217*	45,124	124,775	7,178

*Centerline miles - measured by the middle center lane of the road.

Risk Assessment

An analysis of historical service demand data for calendar years 2014 - 2018 was conducted for the four hazard classes: fire, EMS, technical rescue, and hazardous materials. The process allowed for qualitative and quantitative measurement of the risks. Data from the HEARTBEAT Computer Aided Dispatch (CAD) system and NFIRS (National Fire Incident Reporting System) reports in FIREHOUSE® were utilized for the quantitative section of the analysis. Service demand data included the following: incident identifier, incident type, location, and frequency.

The qualitative analysis included ISO data, property assessment values, historical value, economic impact, and distribution/concentration resource utilization. All the data were analyzed utilizing the two-axis matrix measured against the risks identified in each RMZ. Hazards were evaluated in each RMZ to establish appropriate levels of risk categorization: low, moderate, high, and maximum. HFD also assesses the additional classes of service calls, false alarms, and NARCAN administration, which are included in the monthly FIRESTAT report, albeit they are excluded in the Standards of Cover.

Hartford is vulnerable to many types of disasters including major snowfall, ice storms, blizzards, thunderstorms, tornadoes, hurricanes, flooding, major fires, energy/fuel shortages, levee failures, bridge failures, water contamination, earthquakes, hazardous material incidents/accidents, aircraft accidents, and major highway accidents.

HARTFORD FIRE DEPARTMENT

COMMUNITY RISK ASSESSMENT-STANDARDS OF COVER

Critical Infrastructure

HFD identified critical infrastructure within each RMZ. During a disaster level event, certain minimum services to sustain life are required. These include shelter, food, clean water, energy, fuel, and transportation modes. The agency evaluated protections that are in place from each participating agency as well as the protection that HFD provides. This evaluation will continue to be updated on an annual basis within each RMZ.

Table 31: Critical Infrastructure in each RMZ

RMZ	Critical Infrastructure
Each RMZ	Contain hundreds of Eversource utility poles with associated wiring.
Each RMZ	Contain dozens of miles of MDC water mains and sewer lines.
Each RMZ	Contain dozens of miles of underground natural gas distribution lines.
Station 1	Hartford Steam generation plant, providing heating and cooling service to numerous Downtown high-rise structures; Hartford City Hall; Electrical & (2) Cellular Substations; Flood Control Pumping Station; (2) Hospitals, Eversource Work Center
Station 2	Public Safety Complex / Emergency Operations Center; (2) Cellular Substations
Station 5	Saint Francis Hospital; CT Fastrack Busway
Station 7	Electrical Substation; Public Works Yard; Flood Control Pumping Station; Waste Water Pumping Station; CT DOT Facility; CT Transit Center; Emergency Shelter - Parker Memorial Rec Center
Station 8	Capitol Area System (CAS) District Heating and Cooling Loop servicing 13 state buildings and four private buildings; (2) Flood Control Pumping Stations; Hartford Armory / CT Emergency Operations Center; Emergency Shelter - Pope Park Rec Center
Station 9	Cedar Mountain Water Storage Basin (nine billion gallons)
Station 10	MDC Water Pollution Control Plant; MDC Operations Center / Emergency Operations Center; Flood Control Pumping Station; MIRA Energy Cogeneration Plant, MIRA Waste Processing Facility; Cellular Substation; Electrical Substation; Eversource Storage Facility
Station 11	Electrical Substation; Parkville Micro Grid
Station 14	Electrical Substation; Emergency Shelter - 500 Woodland Street
Station 15	(2) Cellular Substation; Emergency Shelter - Southend Senior Center
Station 16	Electrical Substation; Mount Sinai Rehabilitation Hospital

HARTFORD FIRE DEPARTMENT

COMMUNITY RISK ASSESSMENT-STANDARDS OF COVER

Industrial Hazards

There are significant industrial facilities in the North and South Meadow GPZ's. Station 7 includes a metals processing plant and numerous manufacturing facilities. Station 10 includes numerous manufacturing/industrial facilities, waste processing stations, and the MIRA energy cogeneration plant. These facilities present many risks associated with the potential for hazardous materials spills, leaks, and releases as well as technical rescue scenarios from heavy machinery entrapment. Fires in these facilities would have the potential for lasting consequences to the environment and economic losses to the community due to the loss of jobs and lost revenue to the tax base.

Transportation Hazards

HFD identified transportation hazards within the community. These hazards included transportation modes of road, rail, and air travel. As the state capitol area and regional economic driver, high volumes of commerce and hazardous materials traverse through the community daily. Specific hazards were evaluated within each RMZ.

Table 32: Transportation Risks in each RMZ

RMZ	Transportation Risks
Each RMZ	City roadways
Station 1	Rail Transportation; Interstate 91; Whitehead Highway; Downtown Bus Transit Transfer area
Station 2	Rail Transportation; Railyard Service Station; Union Station Transportation Center; Interstates 84 & 91
Station 5	Rail Transportation; Interstate 84; CT Fastrack Busway
Station 7	Rail Transportation; Interstate 91
Station 10	Brainard Airport; Rail Transportation; CT Route 5/15; Interstate 91
Station 11	Rail Transportation; Interstate 84; CT Fastrack Busway
Station 14	State Route 44, State Route 187
Station 16	State Route 187

HARTFORD FIRE DEPARTMENT

COMMUNITY RISK ASSESSMENT-STANDARDS OF COVER

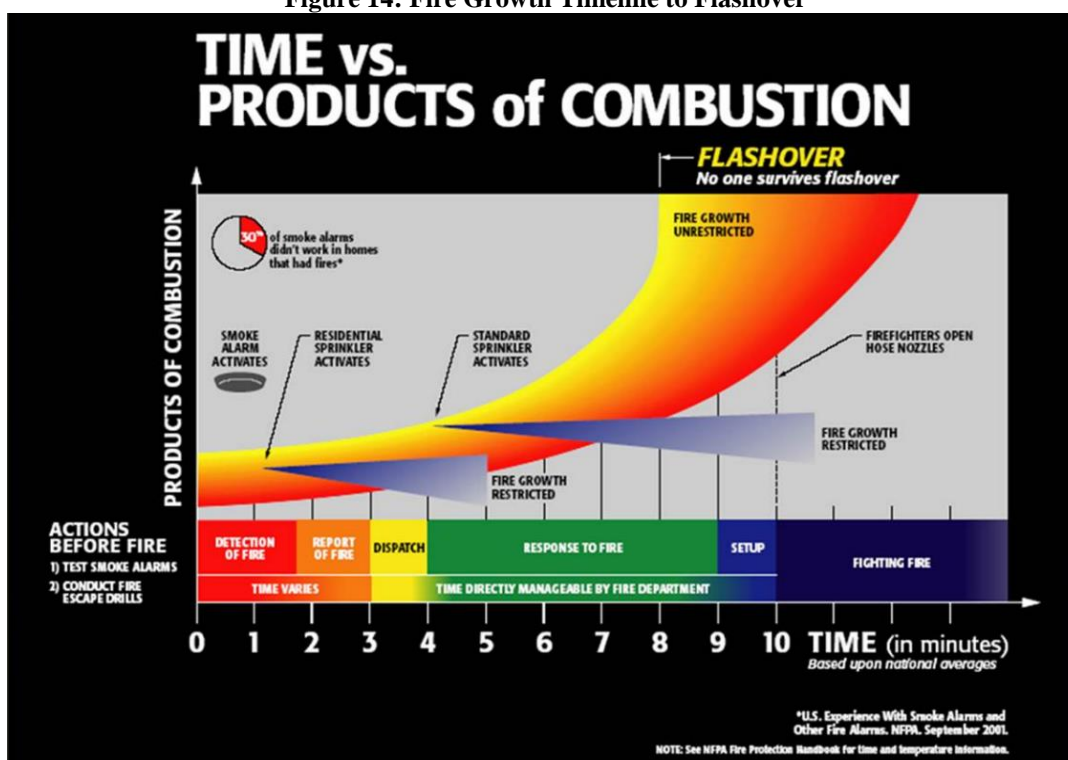
Fire Suppression Services

Flashover

Flashover is the most significant event during a structure fire and is not a stage of fire growth. As combustible gases are produced by the earlier stages, they are not entirely consumed and are therefore available fuels which will rise. In a typical structure fire, the gas layer at the ceiling can quickly reach temperatures of 1,200°F and higher. The superheated gas layer at the ceiling begins to bank down to the floor, heating all objects regardless of their proximity to the burning object. With enough existing oxygen at the floor level, flashover occurs, which is when everything in the room spontaneously ignites at once. The instantaneous eruption of flames generates a tremendous amount of heat, smoke, and pressure with enough force to push fire beyond the room of origin and into the rest of the structure. Flashover is the transition from a developing fire to the fully developed stage in which all available fuel is burning. (NFPA, *Fundamentals of Firefighting Skills*)

The NFPA figure below displays the average eight-minute timeline to flashover. It should be noted there are studies today that show flashover occurring in little as four minutes due to the combustible chemical composition of cheaper building and furnishing materials.

Figure 14: Fire Growth Timeline to Flashover



The following NFPA table displays a loss study showing the consequential loss associated when uncontrolled fire is allowed to escalate due to the lack of effective distribution and concentration of resources to safely mitigate the fire incident. As fire extension increases, civilian injuries, deaths, and dollar losses increase proportionately.

HARTFORD FIRE DEPARTMENT

COMMUNITY RISK ASSESSMENT-STANDARDS OF COVER

Table 33: Fire Loss (2006-2010)

Rate per 1,000 Fires			
Flame Spread:	Civilian Deaths	Civilian Injuries	Average Dollar Loss per Fire
Confined fires (identified by incident type)	0.00	10.29	\$212.00
Confined to object of origin	0.65	13.53	\$1,565.00
Confined to the room of origin, including confined fires by incident type	1.91	25.32	\$2,993.00
Beyond the room, but confined to floor of origin	22.73	64.13	\$7,445.00
Beyond floor of origin	24.63	60.41	\$58,431.00

NFPA Table A.5.2.2.2.1(b). *The above table displays the rates of civilian injuries and deaths per 1,000 fires, as well as the average property damage.*

High-Rise Structures

NFPA 101, Life Safety Code, 2015 Edition and the International Building Code all define a high-rise structure as a building more than 75 feet in height, measured from the lowest level of fire department vehicle access to the bottom of the highest occupied floor, typically six stories and above. High-rises, which are described in NFPA 1710 as high-hazard occupancies, represent an extraordinary challenge to fire departments and are some of the most challenging incidents firefighters encounter.

High-rise buildings may hold thousands of people above the reach of fire department aerial devices and the chance of rescuing victims from the exterior is greatly reduced once a fire has reached flashover. The risk to firefighters and occupants increases in direct proportion to the height of the building and the height of the fire above grade level. This is especially true once firefighters are operating above the reach of aerial ladders on truck companies. In these situations, the only means of ingress or egress is the interior stairs. Therefore, a sound fire department deployment strategy, effective operational tactics, and engineered fire protection systems cannot be separated from firefighter safety.

Because of the amount of time it takes firefighters encumbered with equipment to access the involved floors, the fire may have expanded well past the area of origin. This means firefighters can encounter a large volume of fire and darkened conditions when they arrive on the involved floors. This can be further complicated if the building is not equipped with a sprinkler system, as is presently the case in some community structures. Additionally, open-layout floor plans such as office buildings with cubicles can challenge both the standpipe's flow capacity and fire department resources regarding search, rescue, and hose line deployment.

Although the frequency of fires in high-rise structures is low, they pose a high consequence of loss with regards to personal injury, loss of life, and property damage. As the level of the fire floor gets higher, firefighters are required to carry more equipment further. Moving supplies and staff up 10, 20, 30, or more stories is an arduous task. Additionally, joint use of stairways by firefighters moving upward and occupants

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COMMUNITY RISK ASSESSMENT-STANDARDS OF COVER

attempting to evacuate may increase the overall evacuation time of the occupants, as well as delay firefighting efforts to begin critical tasks such as fire suppression or search and rescue operations. As such, it is important to have appropriate numbers of firefighters to establish an equipment supply chain in managing resource distribution up and down the building.

Staffing

The “2 In/2 Out” regulation is part of paragraph (g)(4) of the United States Occupational Safety and Health Administration’s (OSHA) revised respiratory protection standard, 29 CFR 1910.134. The focus of this important section is the safety of firefighters engaged in interior structural firefighting. OSHA’s requirements for the number of firefighters required to be present when conducting operations in atmospheres that are immediately dangerous to life and health (IDLH) also covers the number of persons who must be on the scene before firefighting personnel may initiate an interior attack on a structural fire. An interior structural fire is an IDLH environment requiring the use of respirators. This means, at least two standby personnel, in addition to the minimum of two personnel inside needed to fight the fire, must be present before firefighters may enter the building.

NFPA Standard 1710 also supports the OSHA regulation by requiring a minimum of four personnel on all suppression apparatus. Portions of the 1710 Standard recommend that “*fire companies whose primary functions are to pump and deliver water and perform basic firefighting at fires, including search and rescue... shall be staffed with a **minimum of four on-duty members**,*” while “*fire companies whose primary functions are to perform the variety of services associated with truck work, such as forcible entry, ventilation, search and rescue, aerial operations for water delivery and rescue, utility control, illumination, overhaul and salvage work... shall [also] be staffed with a **minimum of four on-duty members**.*”

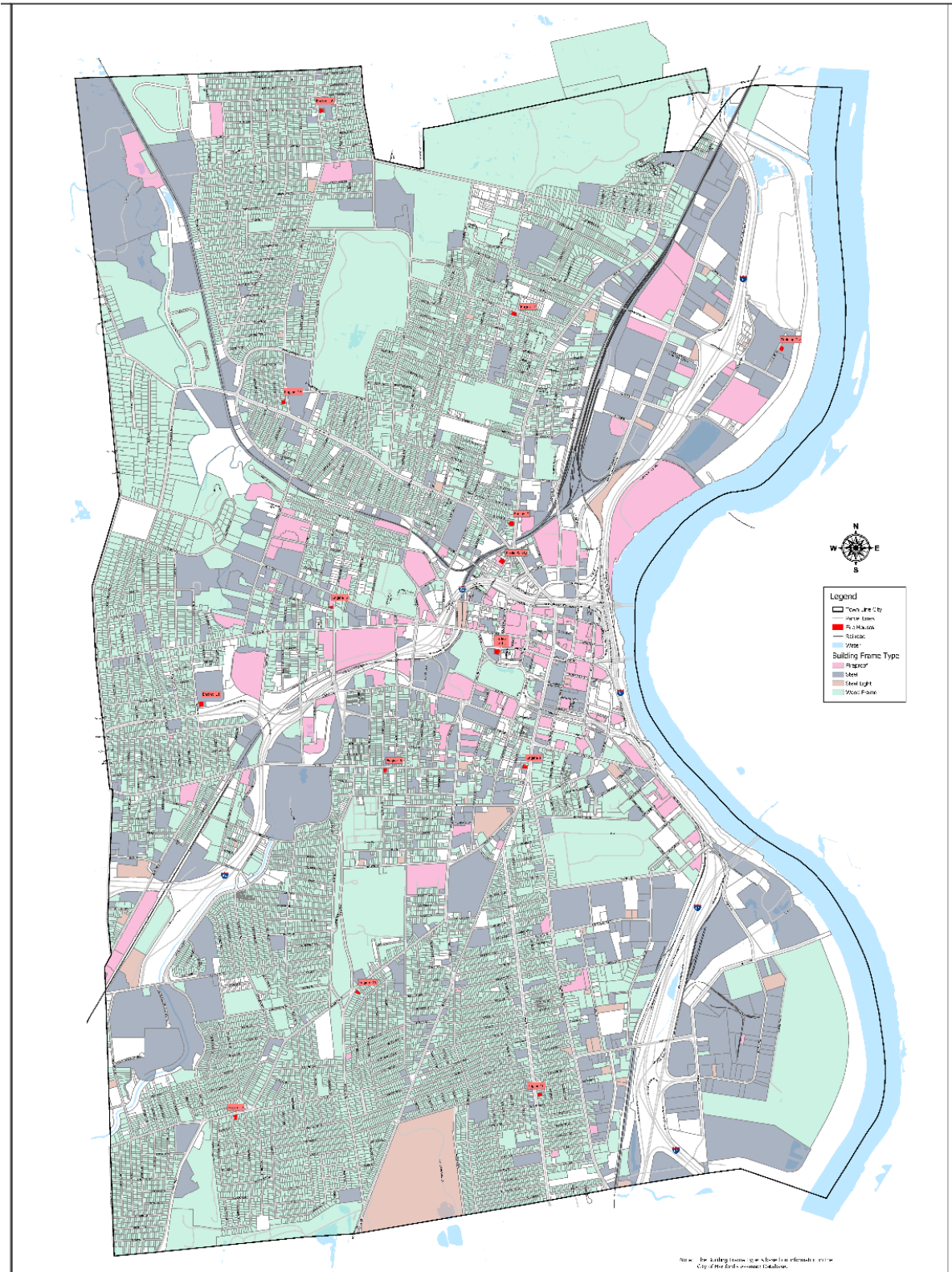
Interestingly, NFPA 1710 states that “*in jurisdictions with tactical hazards, high hazard occupancies, high incident frequencies, geographical restrictions, or other pertinent factors as identified by the authority having jurisdiction, these companies shall be staffed with a **minimum of five or six on-duty members**.*”

The agency categorized the level of fire risk associated with all occupancy types in the city into low, moderate, high and maximum risks. Hartford’s high-density development, 3,135 units per square mile, is comprised predominately of wood frame construction, of which 50.4% were built prior to 1950. This presents a significant risk of potential fire spread resulting from fires, even in a one-story low square footage single-family residence and small structures with limited life safety factors. Other factors taken into consideration for properties included the following: construction type, applicable fire protection systems, ISO fire-flow rating, building height, square footage, and historical designations. There were 147 high-rise structures and 300 mid-rise structures identified. Associated maps follow for illustration.

HARTFORD FIRE DEPARTMENT

COMMUNITY RISK ASSESSMENT-STANDARDS OF COVER

Map 37: Construction Type and Building Density within Hartford



Note: The building frame type information is from the City of Hartford's Building Inventory Database.



Date: November 6, 2018

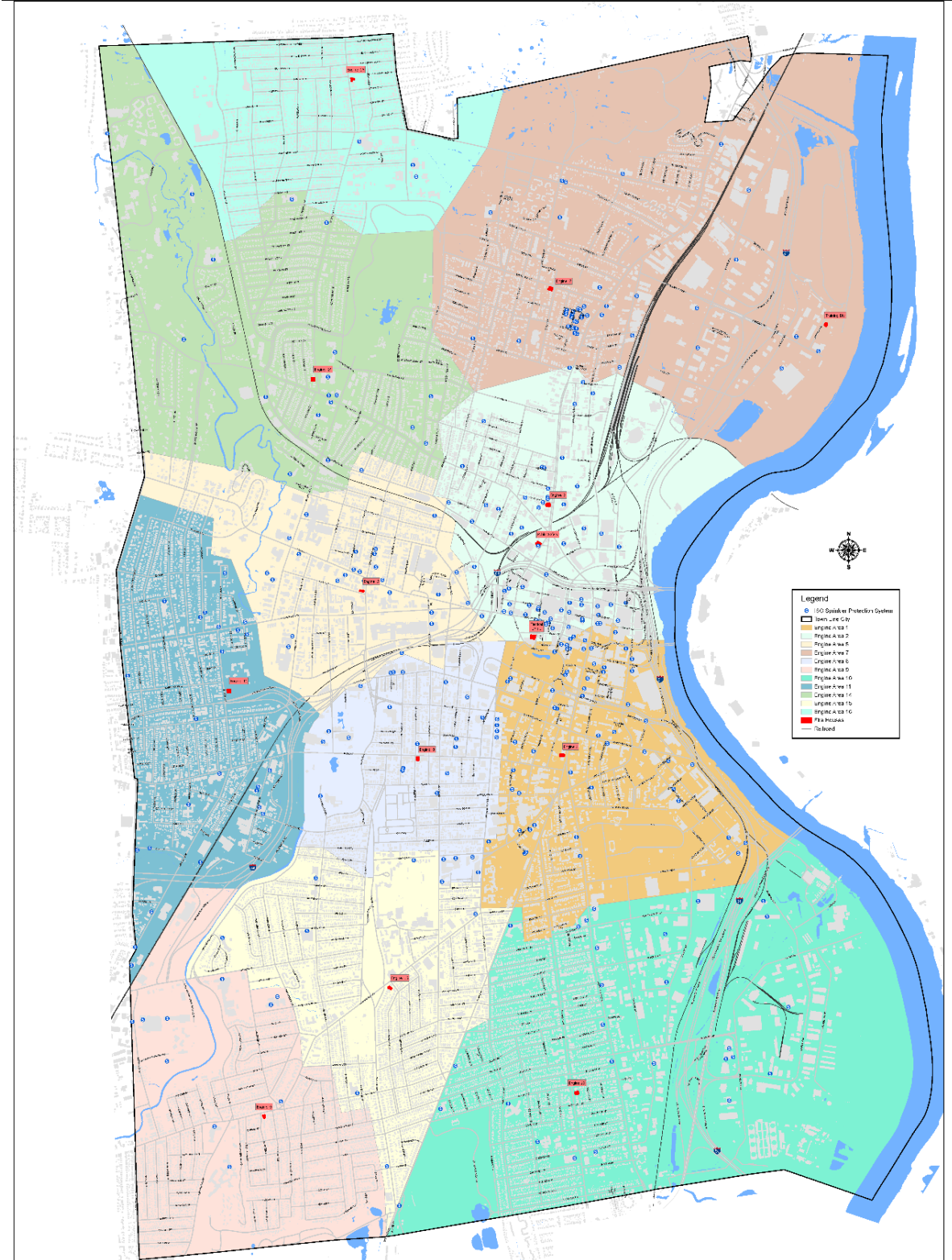
City of Hartford
Properties by Building Frame Type



HARTFORD FIRE DEPARTMENT

COMMUNITY RISK ASSESSMENT-STANDARDS OF COVER

Map 38: Properties with Fire Protection Systems



Date: December 6, 2018

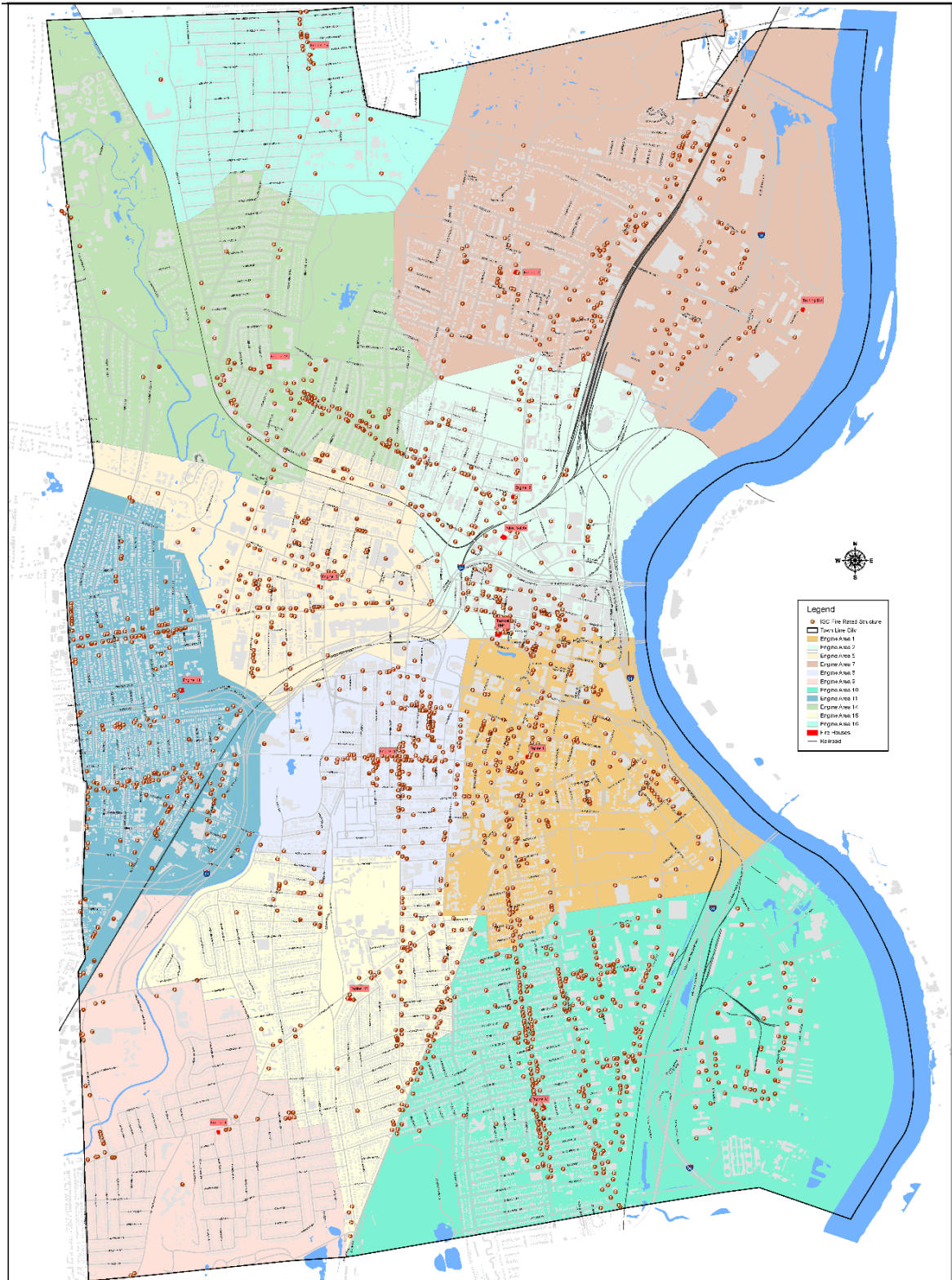
City of Hartford
Structures with Sprinkler
Protection Systems



HARTFORD FIRE DEPARTMENT

COMMUNITY RISK ASSESSMENT-STANDARDS OF COVER

Map 39: Properties with an ISO Fire Flow Rating



Date: December 5, 2018

City of Hartford
Structures with Fire-Rating

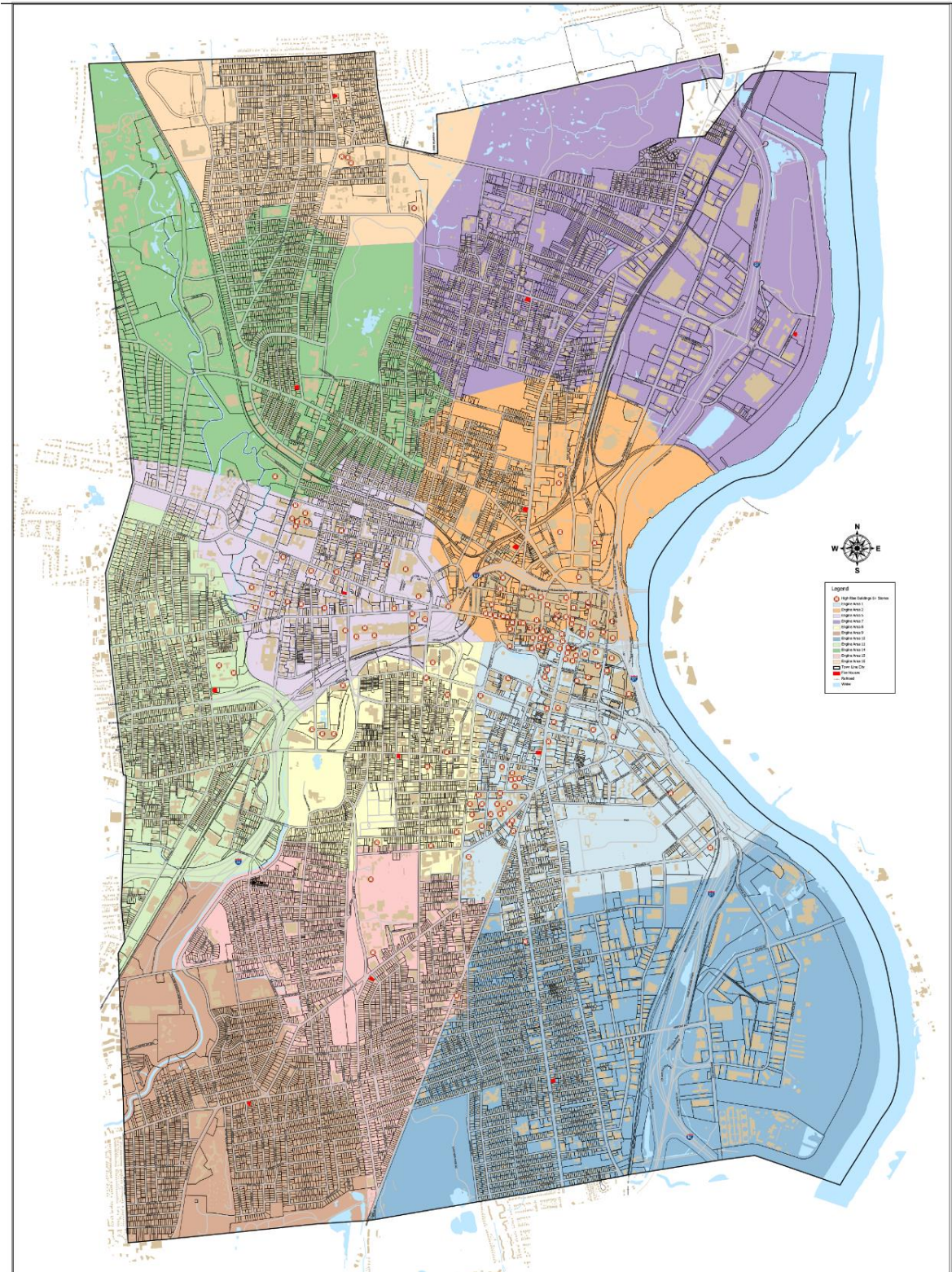
0 500 1000 1500 2000
feet



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COMMUNITY RISK ASSESSMENT-STANDARDS OF COVER

Map 40: Properties Six-Stories and Higher



Date: April 17, 2019

City of Hartford
Properties with High-Rise
Structures 6+ Stories Tall

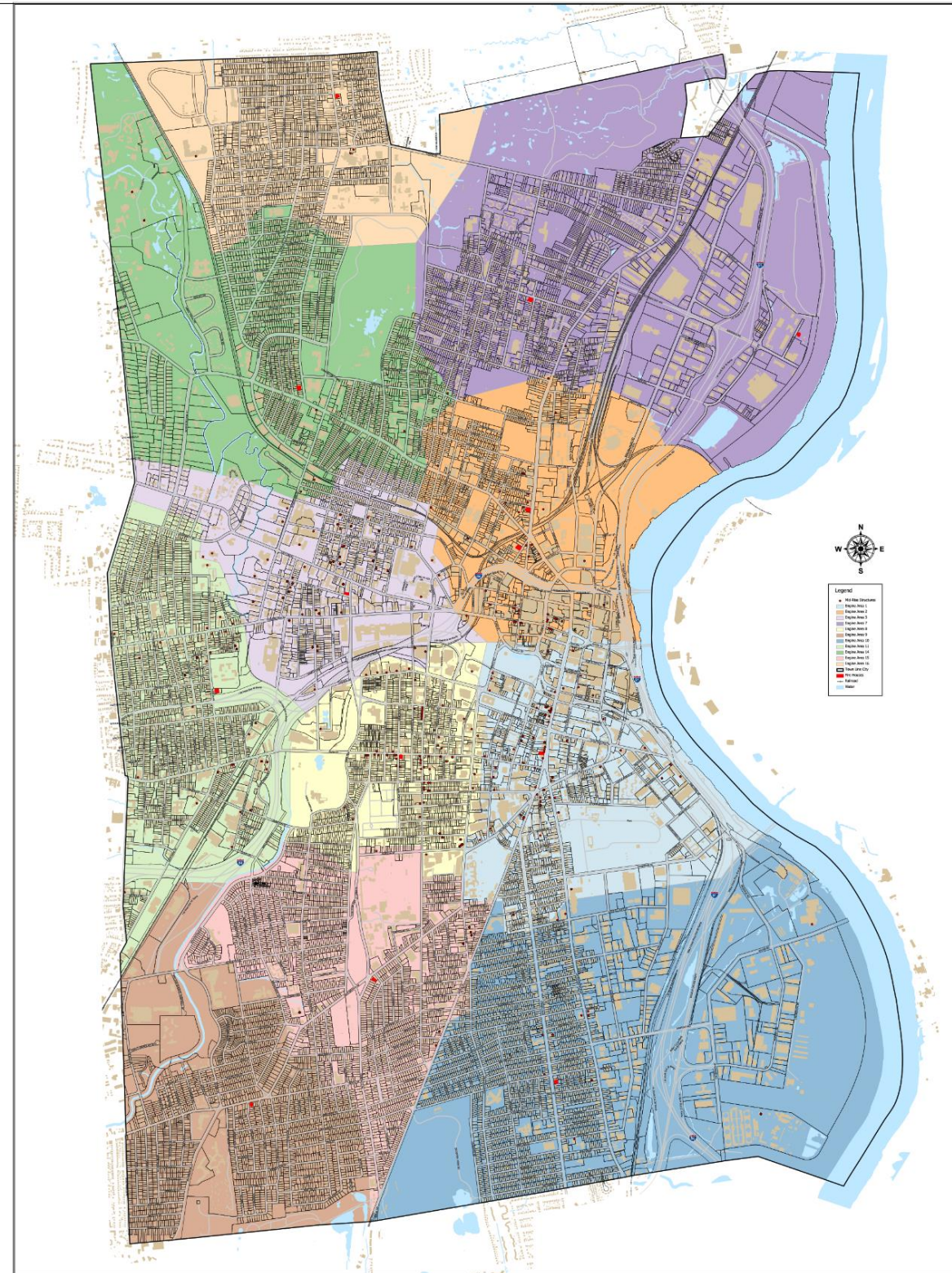
0 500 1,000 2,000 3,000
1 inch = 300 Feet



HARTFORD FIRE DEPARTMENT

COMMUNITY RISK ASSESSMENT-STANDARDS OF COVER

Map 41: Properties Four- to Five-Stories



Date: April 17, 2019

City of Hartford
Properties with Mid-Rise
Structures 4-5 Stories Tall

0 500 1000 2000 3000
1 inch = 500 feet



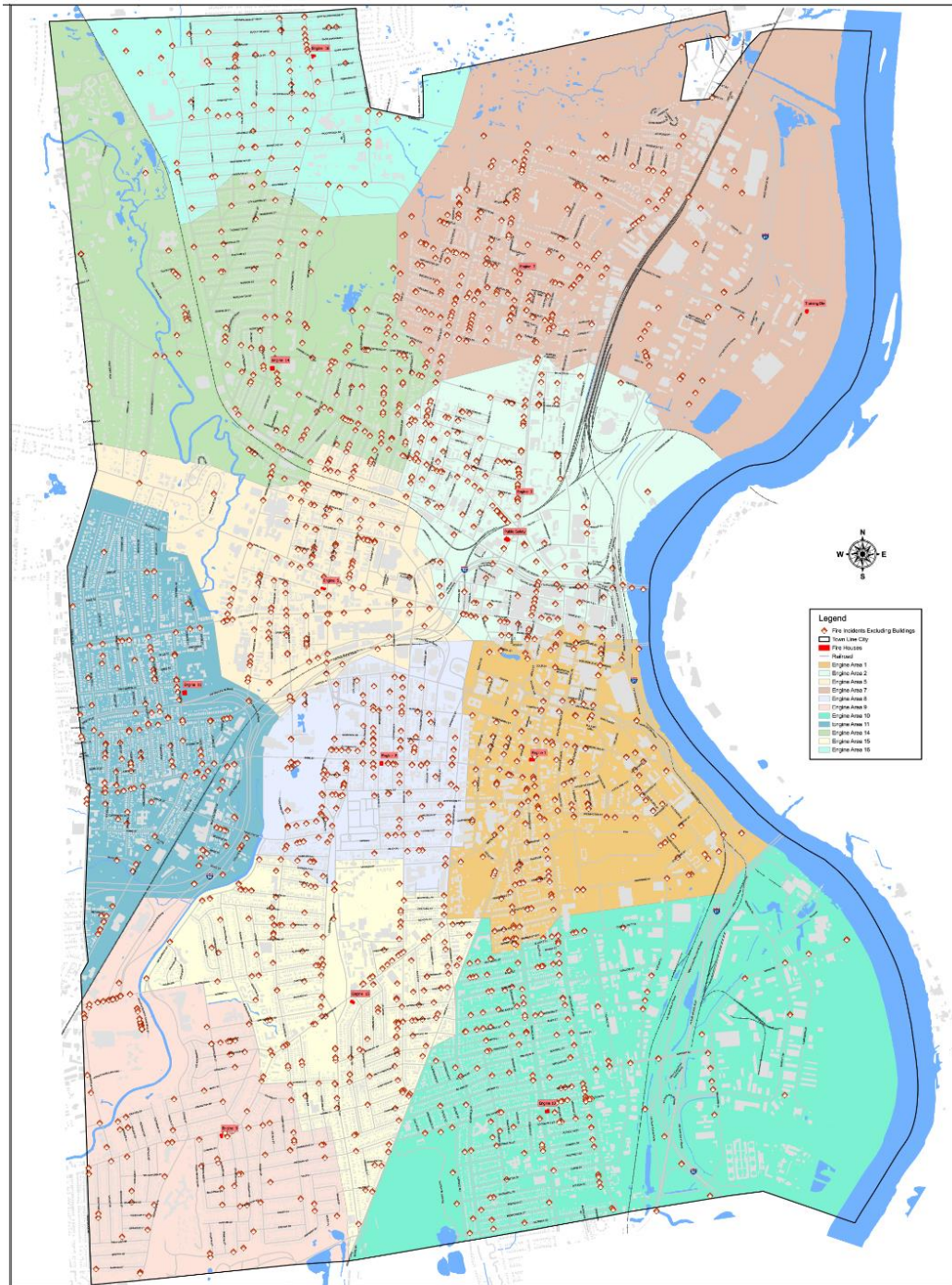
HARTFORD FIRE DEPARTMENT

COMMUNITY RISK ASSESSMENT-STANDARDS OF COVER

Table 34: Total Fire Calls by Category (2018)

Fire Calls	2018	% of Call
Structure & Cooking Fire	256	45.5
Vehicle Fire	142	25.2
Outside Fire	153	29.3
Fire Total	551	100

Map 42: Total Fire Calls, Excluding Structure Fires (2014-2018)



Date: April 16, 2019

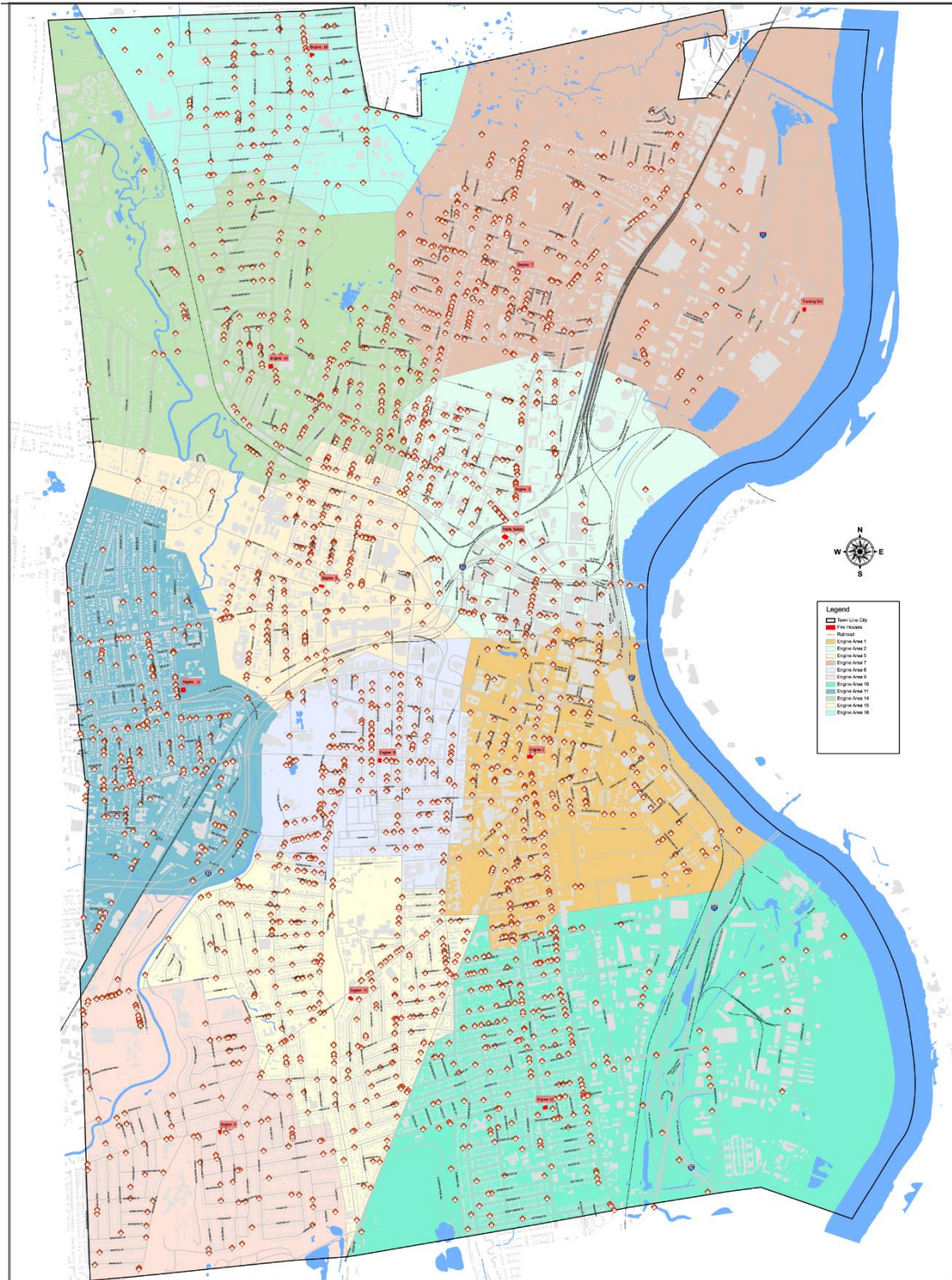
City of Hartford
Fire Incidents Excluding Buildings
Dates: January 1, 2014 - December 31, 2018



HARTFORD FIRE DEPARTMENT

COMMUNITY RISK ASSESSMENT-STANDARDS OF COVER

Map 43: Total Structure Fires (2014-2018)



Date: April 22, 2019

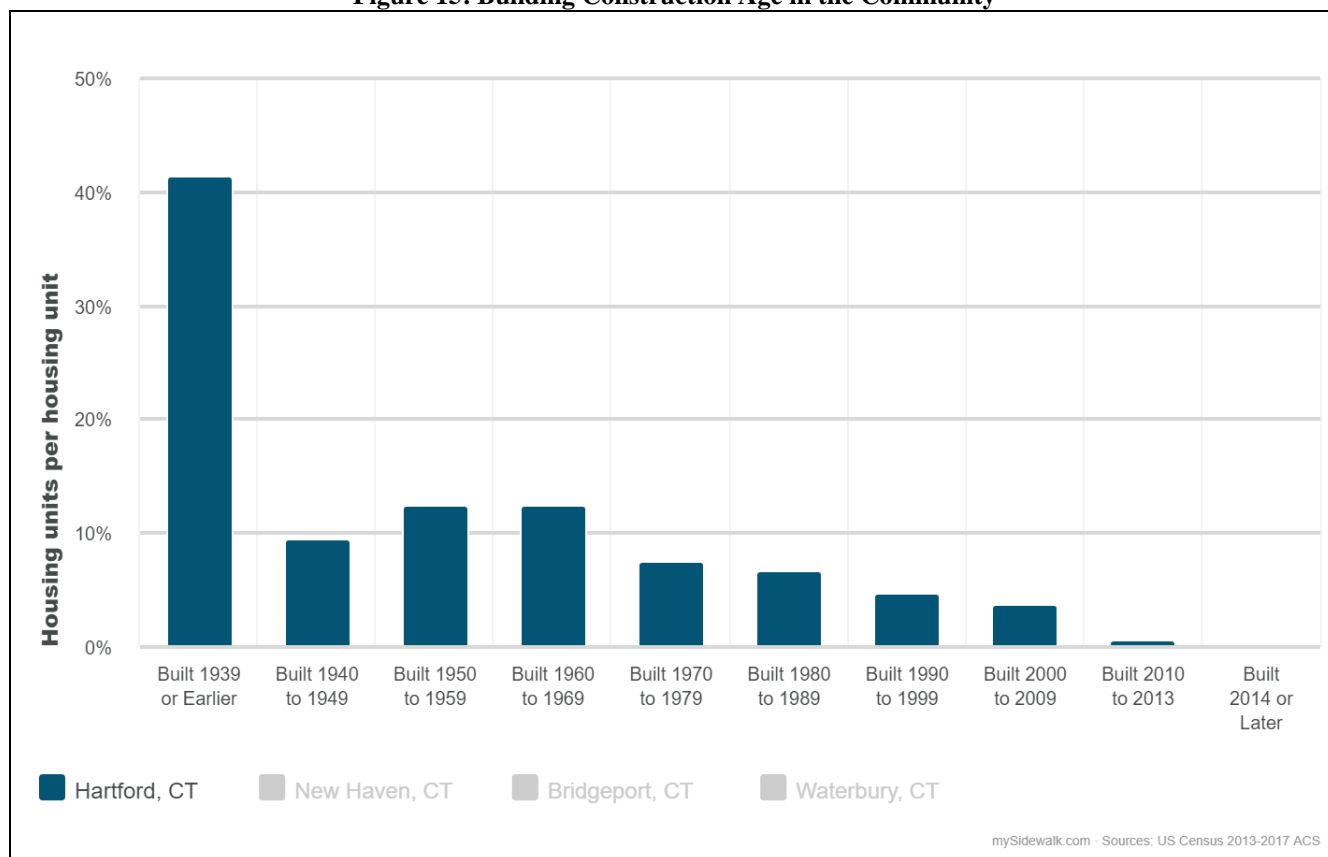
City of Hartford
Fire Incidents Building Fires
Dates: January 1, 2014 - December 31, 2018



HARTFORD FIRE DEPARTMENT

COMMUNITY RISK ASSESSMENT-STANDARDS OF COVER

Figure 15: Building Construction Age in the Community



Fire Risk Levels

Low Risk - incidents that typically involve mobile property (vehicles), rubbish and dumpster fires, grass, brush, and outside fires, and odor investigations.

Moderate Risk - typically detached garages and outbuildings, residential occupancies (1-3 multifamily units), mid-rise apartment buildings, commercial/mercantile occupancies, and places of public assembly.

High Risk - involve all high-rise (six or more story) buildings and certain large places of public assembly.

Maximum Risk - include all hospitals, convalescent, and elderly housing and facilities, air, rail, and bus transit stations, industrial facilities, manufacturing facilities, energy cogeneration plants, and large mercantile locations.

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COMMUNITY RISK ASSESSMENT-STANDARDS OF COVER

Table 35: Categorized Fire Risk Levels

Risk Level	Occupancy Type
Low	Car Fires
	Dumpster/Rubbish Fires
	Grass/Brush Fires
Moderate	Detached Garages & Out-Buildings
	Residential Structures (1-3 Family)
	Mid-Rise Apartment Buildings
	Commercial Occupancies
	Public Assemblies (including Bars and Restaurants)
High	High-Rise (6 Stories and Above)
	Large Public Assembly
Maximum	Hospitals & Convalescent Facilities
	Air, Rail & Bus Transit Facilities
	MIRA Trash to Energy Plant
	Industrial/Manufacturing Facilities

Table 36: Fire Risk by Risk Management Zone

Station Area	Low Risk	Moderate Risk	High Risk	Maximum Risk	Population Density
Station 1	*	713	61	22	5,482
Station 2	*	544	39	8	5,991
Station 5	*	809	29	5	8,761
Station 7	*	1,576	1	37	3,051
Station 8	*	1,051	7	7	13,284
Station 9	*	2,655		14	5,778
Station 10	*	1,739	1	94	5,398
Station 11	*	1,089	2	35	12,658
Station 14	*	1,832	1	9	8,447
Station 15	*	2,170	4	3	12,085
Station 16	*	1,704	3	2	4,715
Totals	*	15,882	148	236	7,178

* Low fire risk is not charted due to being mobile property or an outside fire and not fixed to specific locations. Each RMZ has the potential for Low Risk events at any time.

HARTFORD FIRE DEPARTMENT

COMMUNITY RISK ASSESSMENT-STANDARDS OF COVER

Emergency Medical Services

HFD has averaged almost 20,000 annual service demand calls for the EMS hazard class for calendar years 2014 - 2018. This hazard class accounts for almost 70% of the total response demand for the department. Statistically, the youth and elderly populations are more vulnerable to injury and sickness requiring more service demand in this class. This demographic represents almost 35% of the total population in the community. The city has a poverty rate of over 30%. This population segment typically requires more service demand than those over the poverty threshold.

The department provides EMS service at the BLS (Basic Life Support) level with AED certification, with a minimum of four personnel on each daily staffed apparatus. Paramedic, Advanced Life Support (ALS), service and patient transport is provided by the city's third-party vendors, Aetna and AMR ambulance services.

The City of Hartford Health and Human Services Department (HHS) published the Community Health Improvement Plan (CHIP) in 2015. A part of the plan required a Community Health Needs Assessment (CHNA). The workgroup included representatives from the Connecticut Children's Medical Center, Hartford Hospital, St. Francis Hospital and Medical Center, and the University of Connecticut Health Center. The plan is intended to provide a roadmap for improving the health of Hartford's residents. Research included classifying the top ten causes of mortality in the city. This data provided insight into the potential demand for emergency medical responses within the community.

Table 37: Top 10 Causes of Mortality (2007-2012)

Top Ten Mortality 2007 - 2012	Hartford	State of CT	U.S.
Heart Disease	22.7	24.8	24.4
Cancer	20.3	23.6	23.1
Stroke	4.3	4.8	5.5
Chronic Lower Respiratory Diseases	3.5	4.8	5.3
Accidents (Unintentional Injuries)	5.4	4.5	4.8
Diabetes	2.9	2.2	3.1
Alzheimer's Disease	1.3	2.8	2.9
Influenza / Pneumonia	2.5	2.4	2.2
Kidney Disease	2.5	1.9	1.9
Septicemia	2.3	2.0	1.4

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COMMUNITY RISK ASSESSMENT-STANDARDS OF COVER

HFD assessed the EMS risk according to service demand history (Quantitative) as well as population and demographic data (Qualitative.) While the probability of EMS risk was high, the consequence was typically low due to the call not resulting in death. The total EMS call volume has increased annually in each RMZ, so it should reasonably be expected for the service demand to remain level at a minimum. A table categorizing the 2018 EMS response calls follows as well as two maps for the 2014-2018 calendar period: Total MVA Response Calls and Total EMS Response Calls without MVA.

HFD responded to 20,960 calls for EMS service in 2018 resulting in 28,750 parties treated.

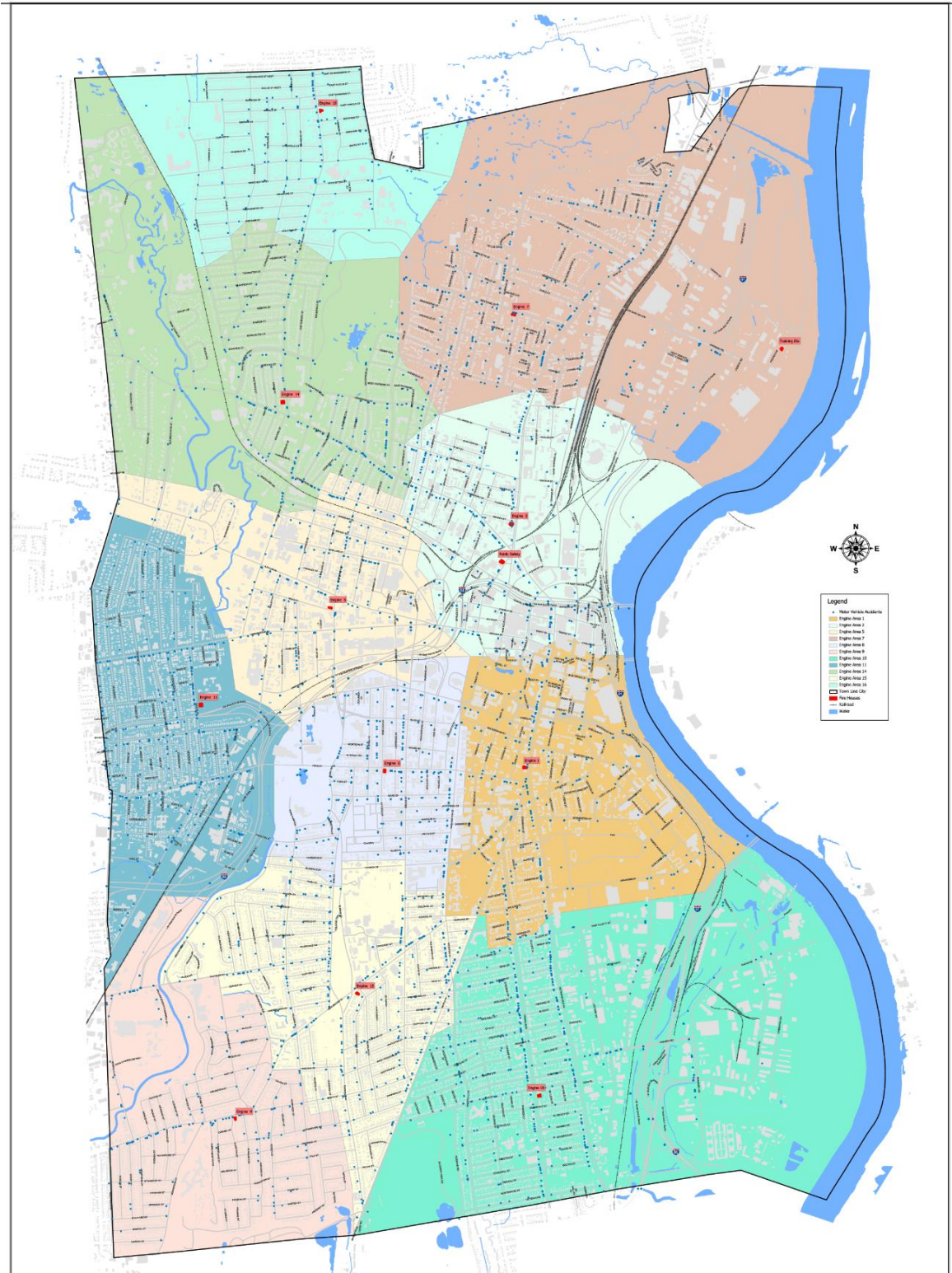
Table 38: Total Parties Treated on EMS Calls, by Category (2018)

EMS Calls	2018	% of Call
Stroke	138	0.4
Trauma/Assault/Bleeding	806	2.8
Motor Vehicle Accident	850	2.9
Fall	1,041	3.6
Cardiac	1,686	5.9
Respiratory	1,957	6.8
Seizure/Unresponsive	1,962	6.8
Overdose/Behavioral	2,465	8.6
General Illness & Other	17,845	62.2
EMS Total	28,750	100

HARTFORD FIRE DEPARTMENT

COMMUNITY RISK ASSESSMENT-STANDARDS OF COVER

Map 44: Total MVA Response Calls (2014-2018)



Date: April 17, 2019

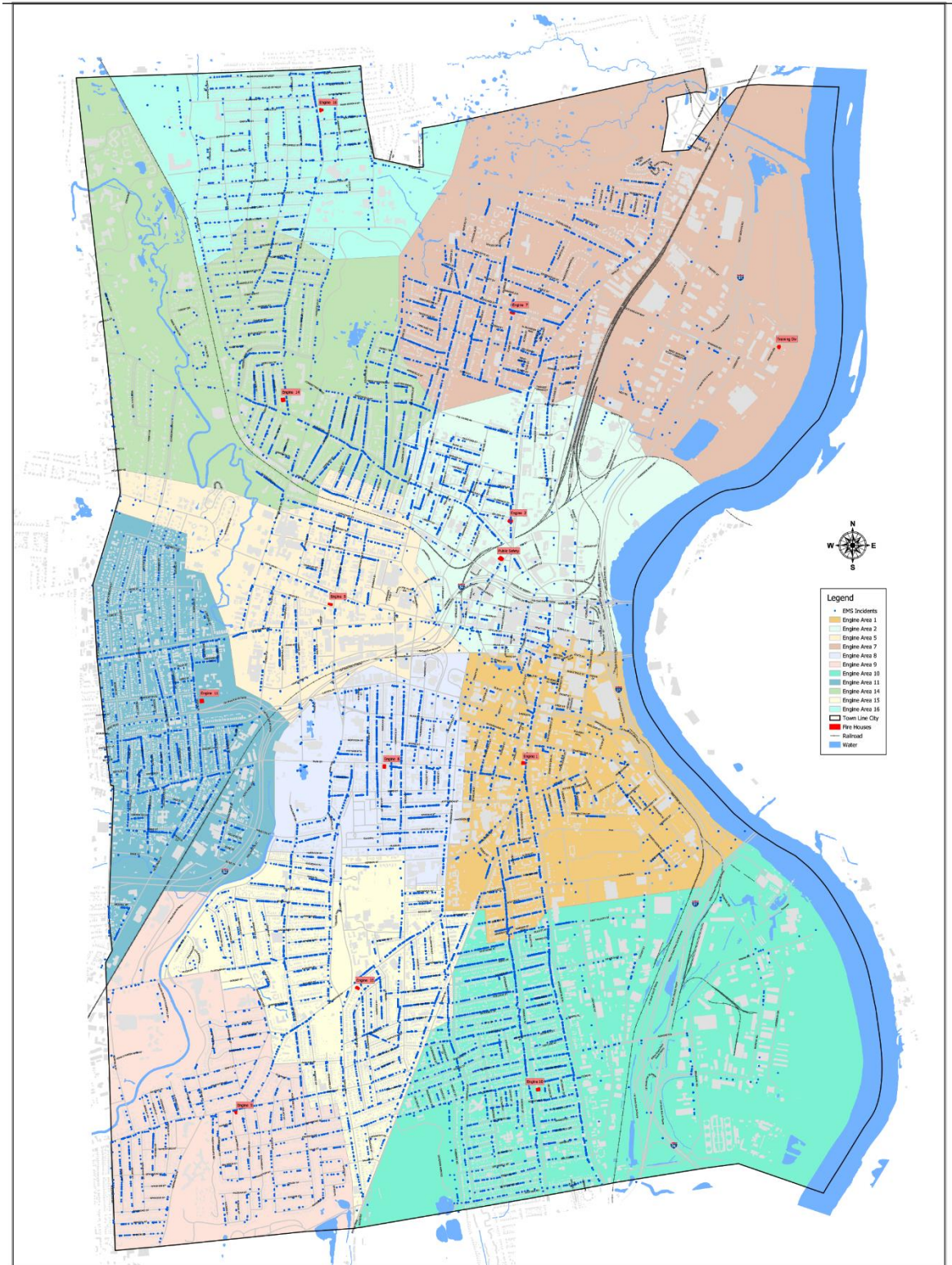
City of Hartford
 Motor Vehicle Accidents
 Dates: January 1, 2014 - December 31, 2018



HARTFORD FIRE DEPARTMENT

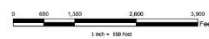
COMMUNITY RISK ASSESSMENT-STANDARDS OF COVER

Map 45: Total EMS Response Calls, Excluding MVA (2014-2018)



Date: April 17, 2019

City of Hartford
 Emergency Medical Calls
 Excluding Motor Vehicle Accidents
 Dates: January 1, 2014 - December 31, 2018



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COMMUNITY RISK ASSESSMENT-STANDARDS OF COVER

EMS Risk Levels

Low Risk - all medical calls involving up to three parties. BLS service level with the potential need for ALS.

Moderate Risk - medical calls involving four to nine parties. Example: motor vehicle accidents.

High Risk - medical calls involving 10-50 parties. Examples include a mass casualty incident, and large transportation accidents: bus, air, or rail.

Maximum Risk - a disaster level event involving more than 50 parties. Examples include large incidents in industrial/manufacturing facilities, elderly housing facilities, and hazardous materials exposures.

Table 39: Categorized EMS Risk Levels

Risk Level	Occupancy Type/Incident Type/Number Involved
Low	BLS/ALS Medical Call 1-3 Parties
Moderate	Motor Vehicle Accidents 4-9 Parties
High	Air, Rail, and Bus Transit Stations Mass Casualty Incidents 10-50 Parties
Maximum	Elderly Housing/Facilities Energy/Industrial/Manufacturing Facilities Hazardous Materials Exposure Disaster Event More than 50 Parties

Table 40: EMS Risk by Risk Management Zone

Station Area	Low Risk	Moderate Risk	High Risk	Maximum Risk	Population Density
Station 1	*	11			5,482
Station 2	*	8			5,991
Station 5	*	4			8,761
Station 7	*	6			3,051
Station 8	*	8			13,284
Station 9	*	5			5,778
Station 10	*	9			5,398
Station 11	*	9			12,658
Station 14	*	13			8,447
Station 15	*	7			12,085
Station 16	*	1			4,715
Totals	*	81			7,178

* Each RMZ has the potential for Low Risk events at any time.

HARTFORD FIRE DEPARTMENT

COMMUNITY RISK ASSESSMENT-STANDARDS OF COVER

Table 41: Specific EMS Location Risks in each RMZ (Moderate Risk)

Station Area	EMS Location Risks
All Areas	BLS, ALS, Motor Vehicle Accidents, All Schools
Station 1	Smith Tower, Bacon Congregate Housing, CT River, UCONN – Hartford, Downtown Bus Transfer Area
Station 2	Union Station Transportation Center, Casa Edad De Oro Apartments, CT River, Yard Goats Stadium
Station 5	Immanuel House
Station 7	Saint Monica’s Elderly Housing, Xfinity Theatre, CT River, Keney Park Pond
Station 8	La Casa Elderly Housing, Capitol Towers, Pope Park Pond
Station 9	Avery Heights Senior Campus, Maple Leaf Manor
Station 10	Brainard Airport, Alberta Manor, Mary Caruso Gables, MIRA Waste Plant
Station 11	Park Place Health Center, Trinity Hill Care Center, Chelsea Place Care Center, Fernwood Manor, Westway Manor, Shephard Park, Underwood Apartments
Station 14	Betty Knox Apartments, Cathedral Manors, Bushnell Congregate Homes, University of Hartford
Station 15	MD Fox Manor, Trinity College
Station 16	None identified except for all Low Risk events.

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COMMUNITY RISK ASSESSMENT-STANDARDS OF COVER

Technical Rescue Services

HFD responds to a variety of significant technical rescue incidents that range in their level of risk and complexity. Personnel are trained and certified in technical rescue disciplines in accordance with NFPA standards regarding technical rescue. Common technical rescue incident types that the HFD responds to are elevator emergencies, vehicle lockouts, and motor vehicle accidents with extrication. Higher risk incidents will usually occur less frequently but have the potential for high consequences. It's important to recognize when little or no service history exists, how critical it is to have a dedicated team of certified and trained responders to mitigate complex rescue situations as safely as possible.

Technical rescue risk was assessed by service demand history (Quantitative) and location (Qualitative) for potential hazards. Utilizing pre-incident survey data, risk was categorized accordingly: low, moderate, high, and maximum. All zones contain the potential for a low risk event. No service demand history exists for the maximum risk of natural disasters. No locations were assigned that risk level, as the entire community would likely be affected. It is understood an event of maximum risk level would potentially exceed the response system resources.

Low Risk - involve removing jewelry from a person or a person from a locked compartment with no medical emergency.

Moderate Risk - involve removing a person from a locked compartment with a medical emergency, transportation accidents with extrication, machine entrapment, rope rescues, and water-related rescues. These incidents require slightly complex techniques and equipment to safely extricate a victim from a hazardous situation.

High Risk - involve tunnel collapse, trench rescue, and confined space rescue. These incidents require complex techniques and equipment to safely extricate a victim from a life-threatening event. Such incidents may involve the lengthy duration of operations due to the complexity of the rescue scenario and/or the scale of the event. The CT Urban Search & Rescue team (CT-USAR) will be activated as needed. A higher number of personnel are required for scene stabilization, setting up equipment, and site preparation.

Maximum Risk - involve disaster level events originating from natural disasters. These incidents require complex techniques and equipment to safely extricate multiple victims from life-threatening situations. Activation of CT-USAR. May require the response/coordination of state and federal agencies.

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COMMUNITY RISK ASSESSMENT-STANDARDS OF COVER

Table 42: Categorized Technical Rescue Risk Levels

Risk Level	Incident Type
Low	Elevator Rescue (without medical emergency) Jewelry Removal Vehicle Lock Out
Moderate	Elevator Rescue (with a medical emergency) Transportation Accident with Extrication Machine Entrapment Rope Rescue Incident Civil Unrest/Protest Water-Related Incident (Ice Rescue, Swift Water Rescue, Boat Rescue)
High	Confined Space Incident Trench Collapse Incident Tunnel Rescue Structural Collapse
Maximum	Natural Disasters

Table 43: Technical Rescue Risk by Risk Management Zone

Station Area	Low Risk	Moderate Risk	High Risk	Maximum Risk	Population Density
Station 1	*	5	3		5,482
Station 2	*	6			5,991
Station 5	*	4	2		8,761
Station 7	*	6	1		3,051
Station 8	*	4	2		13,284
Station 9	*	2			5,778
Station 10	*	8	4		5,398
Station 11	*	3			12,658
Station 14	*	3			8,447
Station 15	*	3			12,085
Station 16	*	2			4,715
Totals	*	46	12		7,178

* Each RMZ has the potential for Low Risk events at any time.

HARTFORD FIRE DEPARTMENT

COMMUNITY RISK ASSESSMENT-STANDARDS OF COVER

Table 44: Technical Rescue Risks in each RMZ

Station Area	Technical Rescue Risk
All Areas	Elevator Emergency Transportation Accident with Extrication Confined Space (Underground utilities)
Station 1	Interstate 91, Whitehead Hwy Confined Space (Hartford Hospital, Hartford Steam, Pump Station) Water Rescue (CT. River, Park River, Bushnell Park Pond) Railway Rescue (CSX Rail Co.) Rope Rescue (Billboards, High-Rise Buildings, Highway Embankments)
Station 2	Interstates 91 & 84 Water Rescue (CT. River) Railway Rescue (Amtrak, CSX Rail Co.) Rope Rescue (Billboards, XL Center Stagehands/Riggers, High-Rise Buildings, Yard Goats Stadium)
Station 5	Interstate 84, CT Fastrack Busway Confined Space (C.A.S., St. Francis Hospital) Railway Rescue (Amtrak) Rope Rescue (Highway Embankments, C.A.S. Smoke Stack)
Station 7	Interstate 91 Confined Space (Pump Station) Machine Entrapment (ELG Utica Alloys - Metal Processing) Water Rescue (CT. River, Keney Park Pond) Railway Rescue (Amtrak, CSX Rail Co.) Rope rescue (Billboards, Comcast Theatre Stagehands/Riggers)
Station 8	Water Rescue (Pope Park Pond, Park River) Rope Rescue (Park Towers High-Rise) Confined Space (2-Pump Stations)
Station 9	Water Rescue (Park River) Rope Rescue (Avery Heights Cliffs)
Station 10	Interstate 91, State Rt. 5/15 Confined Spaces (MDC Waste Water Treatment Plant, Pump Station) Tunnel Rescue (MDC South Hartford Conveyance & Storage Tunnel) Machine Entrapment (Capital Recycling, MIRA Energy Plant, MIRA Waste Recycling Plant) Water Rescue (CT. River, Goodwin Park Pond) Rope Rescue (Billboards) * Special risk (Brainard Airport)
Station 11	Interstate 84 Water Rescue (Park River) Rope Rescue (170 Sisson Ave., highway embankments)
Station 14	Water Rescue (Flooding: Granby St., UHART) Rope Rescue (141 Woodland St.)
Station 15	Water Rescue (Park River) Rope Rescue (Trinity Campus High-Rise, Rocky Ridge Cliffs, Billboards)
Station 16	Water Rescue (Granby St. flooding) Rope Rescue (Mt Sinai High-Rise)

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COMMUNITY RISK ASSESSMENT-STANDARDS OF COVER

Hazardous Materials Services

HFD may be required to respond to any of the following transportation or fixed site incidents involving hazardous materials: highway, waterway, airport, railway, pipeline, bulk storage, industrial or education lab, clandestine drug lab, medical research facility, medical treatment facility, medical laboratory, warehouse, recreation facility, and industrial facility. Hazardous material product spills/releases within the community were as follows: 2016 – 315, 2017 – 246, 2018 – 194.

There are 291 products located in 91 facilities in Hartford that must file annual Tier II reports for registered hazardous material products stored at their locations. Tier II reporting is a federal regulatory requirement according to Section 303 of SARA Title III, *facilities that handle any of the designated Extremely Hazardous Substances must notify the State Emergency Response Commission (SERC) annually.*

The Department of Energy & Environmental Protection (DEEP) provided the necessary facility and product data for the hazardous materials risk assessment. Suppression personnel confirmed the exact locations and amounts stored during site visits. Little to no service demand history existed for the high and maximum categories. HFD used the requirement of the use of Class A protective suits as the threshold between a low and moderate risk versus a high and maximum risk (qualitative). The amount of product involved (quantitative) then allowed for further classification in determining all four risk categories. Due to the nature of volatility, specific products are not identified in this report. The mayor and council have been briefed as to specific risks by the agency administrative leadership.

Low Risk

Low risks involve responses to fluid spills, leaks, and ruptures due to MVA's and/or activated CO alarms which can be controlled/contained by personnel trained to Hazardous Materials Operational Level. Minimal fire risk.

Moderate Risk

Moderate risks present an increased risk level to citizens, infrastructure, and responders with subsequent increased fire risk, due to a larger amount of product. These incidents are generally contained to a slightly larger but still localized area and involve evacuation of the immediate outdoor area or involved structure(s). The incident does not require the use of specialized equipment or chemical protective clothing and is mitigated by responders trained to the Hazardous Materials Operational Level. Low fire risk.

High Risk

High risks involve the use of chemical protective gear and specialized resources to sample, identify, test, contain, extinguish, and/or abate the incident (haz-mat technician). May involve hazardous materials fires that are permitted to burn either for controlled periods of time, or to consume themselves. Activation of CR-HMRT) as needed. Notification/Response of DEEP. Moderate fire risk.

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COMMUNITY RISK ASSESSMENT-STANDARDS OF COVER

Maximum Risk

Maximum risks involve incidents with a severe hazard or a large area which poses an extreme threat to life, property and the environment. Will likely require the large-scale evacuation of a potentially evolving geographical area. Will likely require the expertise or resources of mutual components: state, federal, and/or private agencies (haz-mat specialists, scientists, etc.). Activation of CR-HMRT. Response of DEEP. High fire risk.

Table 45: Categorized Hazardous Materials Risk Levels

Risk Level	Incident Type
Low	Petroleum Spills less than 25 Gallons General Odor Investigation (No Illness)
Moderate	Petroleum Spills more than 25 Gallons General Odor Investigation (with Illness)
High	Releases of High Hazardous and/or Toxic Products (typically via Road or Rail)
Maximum	Industrial Manufacturing Releases affecting High Population Areas WMD Incident

Table 46: Hazardous Materials Risk by Risk Management Zone

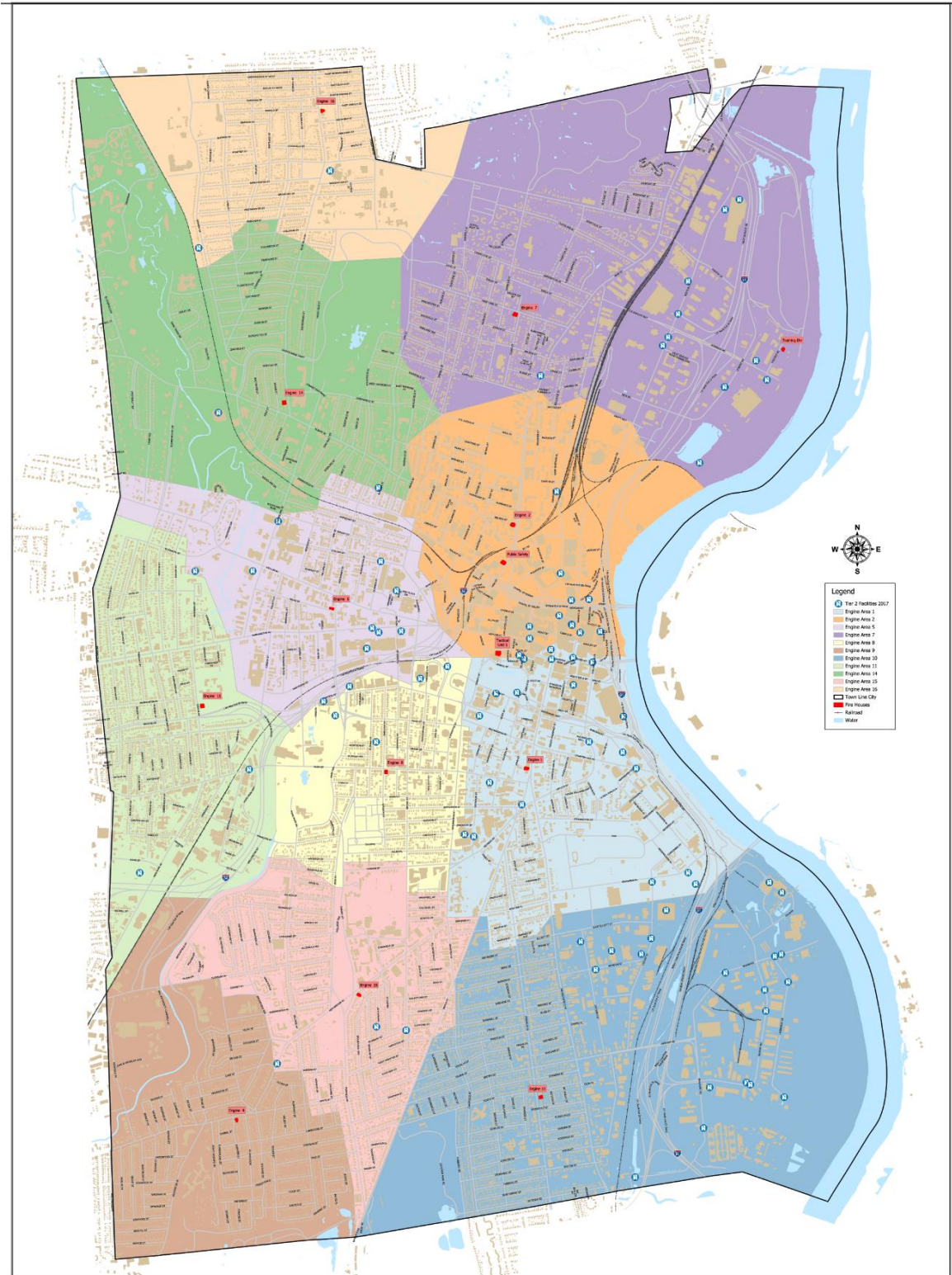
Station Area	Low Risk	Moderate Risk	High Risk	Maximum Risk	Population Density
Station 1	*	13	2		5,482
Station 2	1	12	5		5,991
Station 5	*	8	3		8,761
Station 7	*	9	1	1	3,051
Station 8	*	2	3		13,284
Station 9	*				5,778
Station 10	*	13	9	1	5,398
Station 11	*		1		12,658
Station 14	*	1	1		8,447
Station 15	*	2	1		12,085
Station 16	*	2			4,715
Totals	1	62	26	2	7,178

* Each RMZ has the potential for Low Risk events at any time.

HARTFORD FIRE DEPARTMENT

COMMUNITY RISK ASSESSMENT-STANDARDS OF COVER

Map 46: Tier II Properties



Date: January 3, 2019

City of Hartford
Tier II Facilities



HARTFORD FIRE DEPARTMENT

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Critical Task Analysis

Critical tasks will be defined as the minimum tasks required to start initial mitigation efforts for life-saving measures and incident containment. They are not to be confused with all the required tasks necessary to completely mitigate an emergent event. A critical task analysis was completed for the four hazard classes to assist in risk categorization. HFD often deploys a higher number than the ERF identified in the analysis due to the identified risks associated with Hartford’s high population density and building density, 7,178 per square mile and 3,135 units per square mile respectively.

Required tasks were identified in accordance with HFD directives (SOP’s) in comparison to NFPA 1710. Where department directives did not exist, these tables will act as the guidelines for their development with a target completion date of year-end 2019. This section will outline the critical tasking associated with each risk category level.

Low Risk Fire Incidents

Low risk incidents typically involve grass, refuse, and vehicle fires. Typically mitigated with a single engine response.

Table 47: Critical Tasks - Low Risk Fire

Critical Tasks	Minimum Personnel	Resources	Personnel
Command / Safety	1	1 Engine	4
Pump / Water Supply	1		
Fire Attack - 1 Line	2		
Total ERF Required	4	Total Deployment	4

Moderate Risk Fire Incidents

Moderate risk incidents typically involve detached structures, 1-3 family homes, mid-rise apartment buildings, strip mall commercial occupancies, and public assembly occupancies. Moderate risk incidents are initially dispatched as a box alarm assignment with an additional engine company automatically assigned as the RIT team. An additional engine company and district chief with aide are added upon confirmation of a working fire.

Table 48: Critical Tasks - Moderate Risk Fire

Critical Tasks	Minimum Personnel	Resources	Personnel
Command / Safety	2	4 Engines	16
Pump / Water Supply	4	2 Ladders	8
Attack Line	4	1 Tactical Unit	4
Backup Line	4	1 District Chief w/Aide	2
Rescue	4		
Ventilation / Ladders	4		
Forcible Entry / Utilities	3		
RIT Team	4		
Total ERF Required	29	Total Deployment	30

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High Risk Fire Incidents

High risk incidents typically involve high-rise structures (residential and commercial) and large places of public assembly. Initially dispatched as a moderate risk event. Automatic second alarm is dispatched upon confirmation of a working fire. Additional alarms will bring three engines, one ladder, and district chief with an aide for an additional 18 personnel.

Table 49: Critical Tasks - High Risk Fire

Critical Tasks	Minimum Personnel	Resources	Personnel
Command	2	4 Engines	16
Safety	2	2 Ladders	8
Pump / Water Supply	4	1 Tactical Unit	4
Fire Attack - 3 Lines	6	2 District Chief w/Aide	4
Forcible Entry / Utilities	3		
Search & Rescue	4		
Ventilation / Ladders	4		
RIT Team	4		
Aerial Operator	1		
EMS / Rehab	2		
Total ERF Required	32	Total Deployment	32

Maximum Risk Fire Incidents

Maximum risk incidents typically involve hospitals, convalescent and elderly facilities, air, rail and bus transit facilities, industrial/manufacturing facilities, and the MIRA Trash to Energy Plant. Initially dispatched as a moderate risk event. Automatic second alarm is dispatched upon confirmation of a working fire. Additional alarms will bring three engines, one ladder, and district chief with an aide for an additional 18 personnel.

Table 50: Critical Tasks - Maximum Risk Fire

Critical Tasks	Minimum Personnel	Resources	Personnel
Command	2	6 Engines	24
Safety	2	3 Ladders	12
Operations	2	1 Tactical Unit	4
Pump / Water Supply	6	2 District Chief w/Aide	4
Fire Attack - 3 Lines	6		
Search & Rescue	4		
Evacuations	4		
Ventilation / Ladders	4		
Elevator Control	1		
Staging	1		
Lobby Control	2		
Equipment Supply	2		
RIT Team	4		
EMS / Rehab	4		
Total ERF Required	44	Total Deployment	44

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Low Risk EMS Incidents

Low risk incidents typically involve medical calls that may present one to three injured parties. An example would be a simple BLS incident. Typically mitigated with a single resource.

Table 51: Critical Tasks - Low Risk EMS

Critical Tasks	Minimum Personnel	Resources	Personnel
Command / Safety	1	1 Engine or Ladder	4
Documentation	1		
Patient Care	2		
Total ERF Required	4	Total Deployment	4

Moderate Risk EMS Incidents

Moderate risk incidents typically involve motor vehicle accidents and medical calls that may present four to nine parties. More personnel are required to treat the number of parties affected. Typically mitigated with two to three resources.

Table 52: Critical Tasks - Moderate Risk EMS

Critical Tasks	Minimum Personnel	Resources	Personnel
Command / Safety	1	1 Engine	4
Documentation	1	1 Tactical Unit	4
Patient Care	2	1 District Chief w/Aide	2
Extrication (if required)	4		
Total ERF Required	8	Total Deployment	10

High Risk EMS Incidents

High risk incidents will involve a Mass Casualty Incident (MCI), involving 10-50 parties that will require a larger response of personnel. Will require a box alarm assignment to treat the high number of injured parties. Additional alarm assignments may be required.

Table 53: Critical Tasks - High Risk EMS

Critical Tasks	Minimum Personnel	Resources	Personnel
Command	2	3 Engines	12
Safety	2	2 Ladders	8
EMS Branch	1	1 Tactical Unit	4
Triage	4	1 District Chief w/Aide	2
Treatment	12		
Documentation	2		
Staging	1		
Total ERF Required	24	Total Deployment	26

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Maximum Risk EMS Incidents

Maximum risk incidents will be a disaster level event (more than 50 injured parties) and would likely overwhelm the response system beyond capacity due to the number of parties affected and disruption to the community. Will require a box alarm assignment to treat the high number of injured parties. Additional alarm assignments would likely be required. Typically, these incidents will require the potential response/coordination of state and federal agencies.

Table 54: Critical Tasks - Maximum Risk EMS

Critical Tasks	Minimum Personnel	Resources	Personnel
Command	2	3 Engines	12
Safety	2	2 Ladders	8
EMS Branch	1	1 Tactical Unit	4
Triage	6	1 District Chief w/Aide	2
Treatment	12		
Documentation	2		
Staging	1		
Total ERF Required	26	Total Deployment	26

Low Risk Technical Rescue Incidents

Low risk incidents typically involve a party trapped in an elevator, motor vehicle lockout, and jewelry removal. A ladder or tactical unit is deployed dependent on the call type.

Table 55: Critical Tasks - Low Risk Technical Rescue

Critical Tasks	Minimum Personnel	Resources	Personnel
Command / Safety	1	1 Ladder or	4
Rescue Team	3	1 Tactical Unit	
Total	4	Total Deployment	4

Moderate Risk Technical Rescue Incidents

Moderate risk incidents typically involve MVA's with extrication, rope rescues, and water rescues. These incidents are typically mitigated with three to four resources.

Table 56: Critical Tasks - Moderate Risk Technical Rescue (MVA with Extrication)
Resource package as defined by D.D 3.9 & 3.10

Critical Tasks	Minimum Personnel	Resources	Personnel
Command / Safety	1	1 Engine	4
Pump / Water Supply	1	1 Ladder	4
Attack Line	2	1 Tactical Unit	4
Extrication Team	4	1 District Chief w/Aide	2
EMS	4		
Total ERF Required	12	Total Deployment	14

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Table 57: Critical Tasks - Moderate Risk Technical Rescue (Man vs Machine Entrapment)
No resource package defined by D.D.

Critical Tasks	Minimum Personnel	Resources	Personnel
Command	1	1 Engine	4
Safety	1	1 Ladder	4
Lock-out / Tag-out	2	1 Tactical Unit	4
Extrication Team	4	2 Deputy Chief w/Aide	4
Treatment	4		
Total ERF Required	12	Total Deployment	16

Table 58: Critical Tasks - Moderate Risk Technical Rescue (Elevator Emergency)
Resource package as defined by D.D 6.3

Critical Tasks	Minimum Personnel	Resources	Personnel
Command	1	1 Engine	4
Safety	1	1 Ladder	4
Lock-out / Tag-out	2	1 Tactical Unit	4
Rescue / Extrication Team	4	1 Deputy Chief w/Aide	2
EMS	4		
Total ERF Required	12	Total Deployment	14

Table 59: Critical Tasks - Moderate Risk Technical Rescue (Rope Rescue)
No resource package defined by D.D.

Critical Tasks	Minimum Personnel	Resources	Personnel
Command	1	1 Engine	4
Safety	1	1 Ladder	4
Edge Attendant	1	1 Tactical Unit	4
Rescue Team	2	2 Deputy Chief w/Aide	4
Back-up Team	2		
Rigging Team	4		
Line Tenders	4		
Total ERF Required	15	Total Deployment	16

Table 60: Critical Tasks - Moderate Risk Technical Rescue (Water Rescue - Boat Emergency)
Resource package as defined by D.D 6.1

Critical Tasks	Minimum Personnel	Resources	Personnel
Command	1	1 Engine	4
Safety	1	1 Ladder	4
Boat Crew	4	1 Tactical Unit	4
Shore Operations	2	1 Deputy Chief w/Aide	2
EMS	4		
Total ERF Required	12	Total Deployment	14

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Table 61: Critical Tasks - Moderate Risk Technical Rescue (Water Rescue - Ice Emergency)
Resource package as defined by D.D 6.2

Critical Tasks	Minimum Personnel	Resources	Personnel
Command	1	1 Engine	4
Safety	1	1 Ladder	4
Rescue Team	1	1 Tactical Unit	4
Back-up Team	1	1 Deputy Chief w/Aide	2
Line Tenders	4		
Shore Operations	2		
EMS	4		
Total ERF Required	14	Total Deployment	14

Table 62: Critical Tasks - Water Rescue (Swiftwater)
No resource package defined by D.D.

Critical Tasks	Minimum Personnel	Resources	Personnel
Command	1	1 Engine	4
Safety	1	1 Ladder	4
Rescuer	1	1 Tactical Unit	4
Belay Team	2	1 Deputy Chief w/Aide	2
Down Stream Safety	1		
Up Stream Safety	1		
Shore Operations	2		
EMS	4		
Total ERF Required	13	Total Deployment	14

* If boat operation is necessary upgrade assignment to fill Boat Emergency ERF.

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High Risk Technical Rescue Incidents

High risk incidents typically involve tunnel collapse, trench rescue, confined space rescue, and structural collapse. Will require a box alarm assignment due to the complexity of the incident requiring specialized equipment. Additional alarm assignments will bring an additional three engines, one ladder, and district chief with an aide for an additional 18 personnel.

Table 63: Critical Tasks - High Risk Technical Rescue

Critical Tasks	Minimum Personnel	Resources	Personnel
Command	1	3 Engines	12
Safety	1	2 Ladders	8
Rescue Branch	1	1 Tactical Unit	4
Lock-out / Tag-out	2	2 District Chief w/Aide	4
(2) Entry Team	4		
Metering / Air Monitoring	2		
Ventilation	2		
Scene Support	4		
Decontamination	4		
EMS	4		
Total ERF Required	25	Total Deployment	28

Maximum Risk Technical Rescue Incidents

Maximum risk incidents will be a disaster level event including natural disasters that would likely overwhelm the response system beyond capacity due to the number of parties affected and disruption to the community. Will initially require a box alarm assignment with an additional engine company to treat the high number of trapped/injured parties. Additional alarm assignments will bring an additional three engines, one ladder, and district chief with an aide for an additional 18 personnel. Activation of CT-USAR1 as needed. May require the response/coordination of state and federal agencies.

Table 64: Critical Tasks - Maximum Risk Technical Rescue

Critical Tasks	Minimum Personnel	Resources	Personnel
Command	1	4 Engines	16
Safety	1	2 Ladders	8
Rescue Branch	1	1 Tactical Unit	4
Communications	1	2 District Chief w/Aide	4
Recon Team	4		
Entry Team	4		
Backup Team	4		
Metering / Air Monitoring	2		
Ventilation	2		
Scene Support	4		
Decontamination	4		
EMS	4		
Total ERF Required	32	Total Deployment	32

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Low Risk Haz-Mat Incidents

Low risk incidents involve emergency responses to spills, leaks, ruptures, and/or fires involving hazardous materials, due to MVA's and/or activated CO alarms, which can be controlled/contained by personnel trained to the Hazardous Materials Operational Level. The incident is contained to a localized area, involves minimal evacuation of the immediate outdoor area or involved structure, and does not require the use of specialized equipment or chemical protective clothing. These incidents are typically mitigated with a single unit resource.

Table 65: Critical Tasks - Low Risk Haz-Mat

Critical Tasks	Minimum Personnel	Resources	Personnel
Command / Safety	1	1 Engine	4
Pump / Water Supply	1	1 Ladder or Tactical Unit	4
Mitigation	2	1 District Chief w/ Aide	2
Total ERF Required	4	Total Deployment	10

Note: HFD only classifies carbon monoxide calls (with no EMS) and motor vehicle accidents with fluid spills (with no EMS). Accordingly, the deployment is greater than the critical tasking, to account for the latter response type.

Moderate Risk Haz-Mat Incidents

Moderate risk incidents present an increased risk level to citizens, infrastructure, and responders with subsequent increased fire risk, due to a larger amount of product. These incidents are generally contained to a slightly larger but still localized area and involve evacuation of the immediate outdoor area or involved structure(s). The incident does not require the use of specialized equipment or chemical protective clothing and is mitigated by responders trained to the Hazardous Materials Operational Level, utilizing standard equipment carried on front line apparatus, including atmospheric metering/monitoring devices. Typically mitigated with a box alarm assignment.

Table 66: Critical Tasks - Moderate Risk Haz-Mat

Critical Tasks	Minimum Personnel	Resources	Personnel
Command / Safety	1	3 Engines	12
Accountability	1	2 Ladders	8
Pump / Water Supply	2	1 Tactical Unit	4
Air Monitoring	2	1 District Chief w/ Aide	2
Primary Attack Line	2		
Backup Line	2		
Evacuation	4		
RIT	4		
EMS / Rehab	4		
Total ERF Required	23	Total Deployment	26

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High Risk Haz-Mat Incidents

High risk incidents involve greater risk to citizens, infrastructure, and responders, with subsequent high fire risk. These incidents may require limited evacuation of the surrounding area involving a greater hazard or larger area, posing a threat to life, property, and the environment. These incidents require the use of chemical protective clothing and specialized equipment to monitor/meter, sample, identify, test and contain products at the Hazardous Materials Technician level. May involve hazardous materials fires that are allowed to burn in a controlled manner for self-consumption. Activation of the CR-HMRT as needed, and response of the DEEP is required. Initially dispatched as a moderate risk event. Automatic second alarm is dispatched upon confirmation of a hazardous materials release. Additional alarms will bring three engines, one ladder, and district chief with an aide for an additional 18 personnel.

Table 67: Critical Tasks - High Risk Haz-Mat

Critical Tasks	Minimum Personnel	Resources	Personnel
Command	1	3 Engines	12
Incident Safety	1	2 Ladders	8
Accountability	1	1 Tactical Unit	4
Operations	1	2 District Chief w/ Aide	4
Haz-Mat Branch	1		
ASO Haz-Mat	1		
Research	1		
Entry	2		
Backup Entry	2		
Decontamination	4		
Pump / Water Supply	3		
Primary Attack Line	2		
Backup Line	2		
RIT	4		
EMS / Rehab	2		
Total ERF Required	28	Total Deployment	28

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Maximum Risk Haz-Mat Incidents

Maximum risk incidents will be a disaster level event with emergency conditions involving a severe hazard or a large area which poses an extreme threat to life, property, and environment, with the potential of high fire risk. Will likely overwhelm the response system beyond capacity due to the number of parties affected and disruption to the community. An example would include industrial manufacturing releases affecting high population areas. These events will require the large-scale evacuation of a potentially evolving geographical area. Activation and response of the CR-HMRT is required as is the response of the DEEP. Will require the response/coordination of state and federal agencies as needed. Initially dispatched as a moderate risk event. Automatic second alarm is dispatched upon confirmation of a hazardous materials release. Additional alarms will bring three engines, one ladder, and district chief with an aide for an additional 18 personnel.

Table 68: Critical Tasks - Maximum Risk Haz-Mat

Critical Tasks	Minimum Personnel	Resources	Personnel
Command	1	6 Engines	24
Safety	1	3 Ladders	12
Accountability	1	1 Tactical Unit	4
Operations	1	2 District Chief w/ Aide	4
Logistics	1	Training Staff	3
Planning	1	Command Staff	3
Haz-Mat Branch	1		
Haz-Mat Safety Officer	1		
Research	1		
Entry Recon	2		
Entry Mitigation Team 1	2		
Entry Mitigation Team 2	2		
Haz-Mat RIT	2		
Decontamination	8		
Pump / Water Supply	3		
Primary Attack Line	2		
Backup Line	2		
RIT	4		
EMS / Rehab	4		
Civilian Decontamination	8		
Total ERF Required	48	Total Deployment	50

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H. Historical Perspective and Summary of System Performance

HFD is an all-hazards emergency response agency with a goal of providing exceptional service to the residents, visitors, and businesses within the City of Hartford and its regional partners. This service can be measured for efficiency within the agency deployment model.

The first portion of the analysis began with the system response network. The analysis was completed for total service demand by risk classification and then by risk category. Data were utilized from NFIRS for the 2014-2018 calendar period. Under HFD risk categorization, only the fire and haz-mat primary hazard classes contained service demand above the moderate risk level. Results are provided below.

Table 69: System Service Demand (2014-2018)

Hazard Class	2014-2018	2018	2017	2016	2015	2014
EMS	92,869	20,960	20,589	19,287	16,643	15,390
Fire	3,075	551	537	747	696	544
Haz-Mat	1,608	316	274	318	332	368
Rescue	894	185	170	212	154	173
Total by Class	98,446	22,012	21,570	20,564	17,825	16,475
Total Demand	133,177	30,469	29,457	27,254	23,283	22,174

Table 70: System Service Demand with Risk Categories (2014-2018)

Hazard Class	2014-2018	2018	2017	2016	2015	2014
EMS						
Low	83,641	18,925	18,521	17,286	14,955	13,954
Moderate	9,228	2,035	2,068	2,001	1,688	1,436
EMS Total	92,869	20,960	20,589	19,287	16,643	15,390
Fire						
Low	2,189	348	366	569	507	397
Moderate	886	203	171	178	189	147
High **	64	10	17	4	20	13
Fire Total	3,075	551	537	747	696	544
Haz-Mat						
Low	761	151	140	159	151	173
Moderate	816	154	134	159	180	189
High	31	11	5	8	1	6
Haz-Mat Total	1,608	316	274	318	332	368
Rescue						
Low	684	135	132	159	122	136
Moderate	210	50	38	53	32	37
Rescue Total	894	185	170	212	154	173
Total by Class	98,446	22,012	21,570	20,564	17,825	16,475
Total Demand	133,177	30,469	29,457	27,254	23,283	22,174

**High risk fire incidents are initially dispatched as moderate risk incidents and are therefore included with the moderate risk count.

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The next portion of analysis entailed a complete breakdown of the 30,469 total responses by classification codes for the calendar year 2018. Results indicated 563 fire incidents; 20,960 EMS incidents including 2,034 MVA's; 185 Rescue incidents; and 316 hazardous materials incidents. The total call classification results are provided in the following table.

Table 71: 2018 Response Summary

NFIRS Incident Type	Total Calls	Call Percentage
100 - Fire, Other	16	0.05%
111 - Building fire	133	0.44%
112 - Fires in structure other than in a building	5	0.02%
113 - Cooking fire, confined to container	57	0.19%
116 - Fuel burner/boiler malfunction, fire confined	7	0.02%
117 - Commercial Compactor fire, confined to rubbish	2	0.01%
118 - Trash or rubbish fire, contained	36	0.12%
120 - Fire in mobile prop used as a fixed structure Other	1	0.00%
130 - Mobile property (vehicle) fire, Other	24	0.08%
131 - Passenger vehicle fire	115	0.38%
132 - Road freight or transport vehicle fire	2	0.01%
140 - Natural vegetation fire, Other	12	0.04%
141 - Forest, woods or wildland fire	2	0.01%
142 - Brush or brush-and-grass mixture fire	37	0.12%
143 - Grass fire	10	0.03%
150 - Outside rubbish fire, Other	21	0.07%
151 - Outside rubbish, trash or waste fire	49	0.16%
152 - Garbage dump or sanitary landfill fire	1	0.00%
154 - Dumpster or other outside trash receptacle fire	23	0.08%
160 - Special outside fire, Other	7	0.02%
162 - Outside equipment fire	2	0.01%
173 - Cultivated trees or nursery stock fire	1	0.00%
210 - Overpressure rupture from steam, Other	1	0.00%
211 - Overpressure rupture of steam pipe or pipeline	2	0.01%
213 - Steam rupture of pressure or process vessel	1	0.00%
220 - Overpressure rupture from air or gas, Other	1	0.00%
222 - Overpressure rupture of boiler from air or gas	1	0.00%
240 - Explosion (no fire), Other	4	0.01%
251 - Excessive heat, scorch burns with no ignition	2	0.01%
300 - Rescue, EMS incident, other	865	2.84%
311 - Medical assist, assist EMS crew	7,186	23.58%
320 - Emergency medical service, other	21	0.07%
321 - EMS call, excluding vehicle accident with injury	10,854	35.62%
322 - Motor vehicle accident with injuries	1,091	3.58%
323 - Motor vehicle/pedestrian accident (MV Ped)	100	0.33%
324 - Motor Vehicle Accident with no injuries	843	2.77%
331 - Lock-in (if lock out , use 511)	22	0.07%
341 - Search for person on land	1	0.00%
350 - Extrication, rescue, Other	5	0.02%
351 - Extrication of victim(s) from building/structure	1	0.00%

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352 - Extrication of victim(s) from vehicle	36	0.12%
353 - Removal of victim(s) from stalled elevator	111	0.36%
356 - High-angle rescue	1	0.00%
357 - Extrication of victim(s) from machinery	4	0.01%
363 - Swift water rescue	1	0.00%
365 - Watercraft rescue	1	0.00%
371 - Electrocuting or potential electrocuting	1	0.00%
381 - Rescue or EMS standby	1	0.00%
400 - Hazardous condition, Other	98	0.32%
410 - Combustible/flammable gas/liquid condition, other	5	0.02%
411 - Gasoline or other flammable liquid spill	23	0.08%
412 - Gas leak (natural gas or LPG)	104	0.34%
413 - Oil or other combustible liquid spill	11	0.04%
421 - Chemical hazard (no spill or leak)	3	0.01%
422 - Chemical spill or leak	2	0.01%
424 - Carbon monoxide incident	32	0.11%
440 - Electrical wiring/equipment problem, Other	87	0.29%
441 - Heat from short circuit (wiring), defective/worn	12	0.04%
442 - Overheated motor	31	0.10%
443 - Breakdown of light ballast	1	0.00%
444 - Power line down	165	0.54%
445 - Arcing, shorted electrical equipment	22	0.07%
460 - Accident, potential accident, Other	4	0.01%
461 - Building or structure weakened or collapsed	11	0.04%
462 - Aircraft standby	2	0.01%
463 - Vehicle accident, general cleanup	20	0.07%
480 - Attempted burning, illegal action, Other	1	0.00%
500 - Service Call, other	873	2.87%
510 - Person in distress, Other	328	1.08%
511 - Lock-out	116	0.38%
512 - Ring or jewelry removal	7	0.02%
520 - Water problem, Other	355	1.17%
521 - Water evacuation	3	0.01%
522 - Water or steam leak	42	0.14%
531 - Smoke or odor removal	616	2.02%
540 - Animal problem, Other	1	0.00%
542 - Animal rescue	1	0.00%
550 - Public service assistance, Other	192	0.63%
551 - Assist police or other governmental agency	38	0.12%
552 - Police matter	878	2.88%
553 - Public service	293	0.96%
553A - Shutoff Open Hydrant	1	0.00%
554 - Assist invalid	36	0.12%
555 - Defective elevator, no occupants	11	0.04%
561 - Unauthorized burning	10	0.03%
571 - Cover assignment, standby, moveup	13	0.04%
600 - Good intent call, Other	24	0.08%
611 - Dispatched & cancelled en route	52	0.17%

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621 - Wrong location	47	0.15%
622 - No Incident found on arrival at dispatch address	1,881	6.17%
631 - Authorized controlled burning	1	0.00%
641 - Vicinity alarm (incident in other location)	2	0.01%
650 - Steam, Other gas mistaken for smoke, Other	7	0.02%
651 - Smoke scare, odor of smoke	32	0.11%
652 - Steam, vapor, fog or dust thought to be smoke	17	0.06%
653 - Smoke from barbecue, tar kettle	4	0.01%
661 - EMS call, party transported by non-fire agency	182	0.60%
671 - Haz-Mat release investigation w/no haz-mat	1	0.00%
672 - Biological hazard investigation	1	0.00%
700 - False alarm or false call, Other	51	0.17%
710 - Malicious, mischievous false call, Other	147	0.48%
711 - Municipal alarm system, malicious false alarm	9	0.03%
712 - Direct tie to FD, malicious false alarm	2	0.01%
713 - Telephone, malicious false alarm	1	0.00%
714 - Central station, malicious false alarm	13	0.04%
715 - Local alarm system, malicious false alarm	11	0.04%
721 - Bomb scare - no bomb	3	0.01%
730 - System malfunction, Other	85	0.28%
731 - Sprinkler activation due to malfunction	35	0.11%
732 - Extinguishing system activation due to malfunction	1	0.00%
733 - Smoke detector activation due to malfunction	96	0.32%
734 - Heat detector activation due to malfunction	13	0.04%
735 - Alarm system sounded due to malfunction	298	0.98%
736 - CO detector activation due to malfunction	35	0.11%
740 - Unintentional transmission of alarm, Other	164	0.54%
741 - Sprinkler activation, no fire - unintentional	33	0.11%
742 - Extinguishing system activation	1	0.00%
743 - Smoke detector activation, no fire - unintentional	297	0.97%
744 - Detector activation, no fire - unintentional	61	0.20%
745 - Alarm system activation, no fire - unintentional	637	2.09%
746 - Carbon monoxide detector activation, no CO	7	0.02%
814 - Lightning strike (no fire)	1	0.00%
900 - Special type of incident, Other	41	0.13%
901 - Special Events Response	6	0.02%
911 - Parent/Guardian Walk-in Complaint of Fireplay	4	0.01%
Total Incidents	30,469	100%

The next portion of the evaluation entailed an analysis of fire loss. Fire loss can be measured by the amount of financial damage experienced, the amount of injuries sustained, and the number of fatalities suffered. Another factor that needs to be understood is that economic losses can result from fire damages to employment centers causing a loss in personal wages, business recovery, and the community tax base. Recovery from a fire incident takes time. The most recent fire report by NFPA provides key information on the destruction caused by fire for the 2017 calendar year.

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Key findings:

- Public fire departments responded to 1,319,500 fires in 2017, a slight decrease of 2% from the previous year.
- Every 24 seconds, a fire department in the United States responds to a fire somewhere in the nation. A fire occurs in a structure at the rate of one every 63 seconds, and a home fire occurs every 88 seconds.
- Seventy-seven percent of all fire deaths occurred in the home, a decrease of 4% compared to 2016.
- Home fires were responsible for 10,600 civilian injuries, or 72% of all civilian injuries, in 2017.
- An estimated \$23 billion in property damage occurred as a result of fire in 2017, a large increase, as this number includes a \$10 billion loss in wildfires in Northern California.
- An estimated 22,500 structure fires were intentionally set in 2017, an increase of 13% over the year before.

(NFPA, *Fire Loss in the United States During 2017*)

Hartford averaged 615 fire events in the 2014-2018 calendar period. The analysis indicated property damage loss, property saved, injuries, and fatalities to both the community served and the department sworn to protect it. There were no fatalities due to fire loss reported in 2017 and 2018.

Table 72: Fire Loss (2014-2018)

Fire Loss	Total	2018	2017	2016	2015	2014
Property Damage	26,144,412	2,185,352	5,244,250	4,833,272	7,569,294	6,312,244
Property Saved	350,673,869	108,170,248	134,750,160	66,162,905	23,999,966	17,590,590
Civilian Injury	50	8	14	16	3	9
Civilian Fatality	5	0	0	1	2	2
Firefighter Injury	129	12	9	23	43	42
Firefighter Fatality	1	0	0	0	0	1
Total Fire Incidents	3,075	551	537	747	696	544

The agency analyzed its performance in the containment of fires within buildings for the 2014-2018 calendar period. Ideally, a fire would be confined to the object or room where it originated. However, this is totally dependent upon a sufficient amount of personnel and resources. The data revealed HFD confined within the structure of origin 97.02% of the time over the five-year period. While commendable on overall performance, the agency identified an area for improvement; there was a 1.7% increase in fire extending beyond the building of origin from 2017 to 2018. HFD will monitor closely for performance trends.

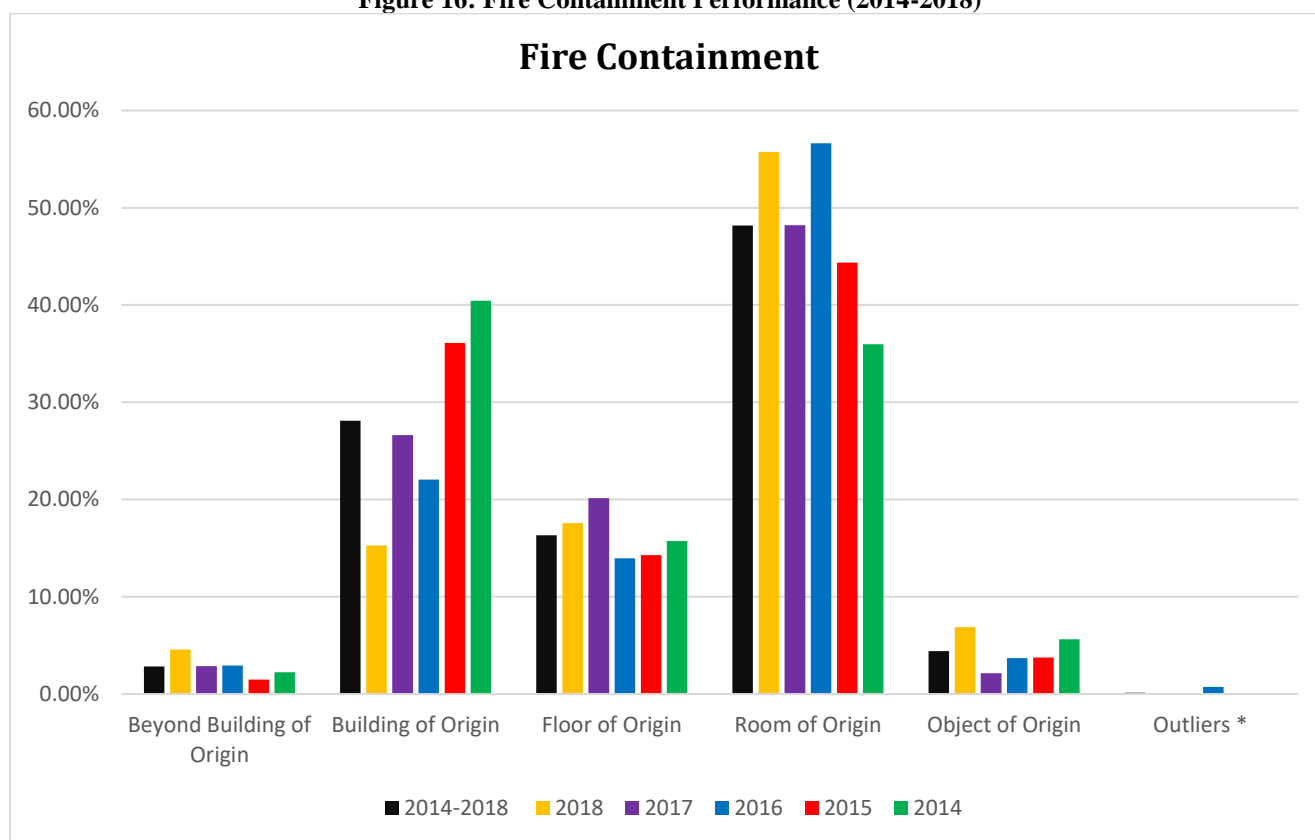
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Table 73: Fire Containment Performance (2014-2018)

Fire Confined To:	2014-2018	2018	2017	2016	2015	2014
Beyond Building of Origin	2.83%	4.58%	2.88%	2.94%	1.50%	2.25%
Building of Origin	28.10%	15.27%	26.62%	22.06%	36.09%	40.45%
Floor of Origin	16.34%	17.56%	20.14%	13.97%	14.29%	15.73%
Room of Origin	48.17%	55.73%	48.20%	56.62%	44.36%	35.96%
Object of Origin	4.41%	6.87%	2.16%	3.68%	3.76%	5.62%
Outliers *	0.15%	0.00%	0.00%	0.74%	0.00%	0.00%
Total Incidents	628	131	139	136	133	89

Figure 16: Fire Containment Performance (2014-2018)



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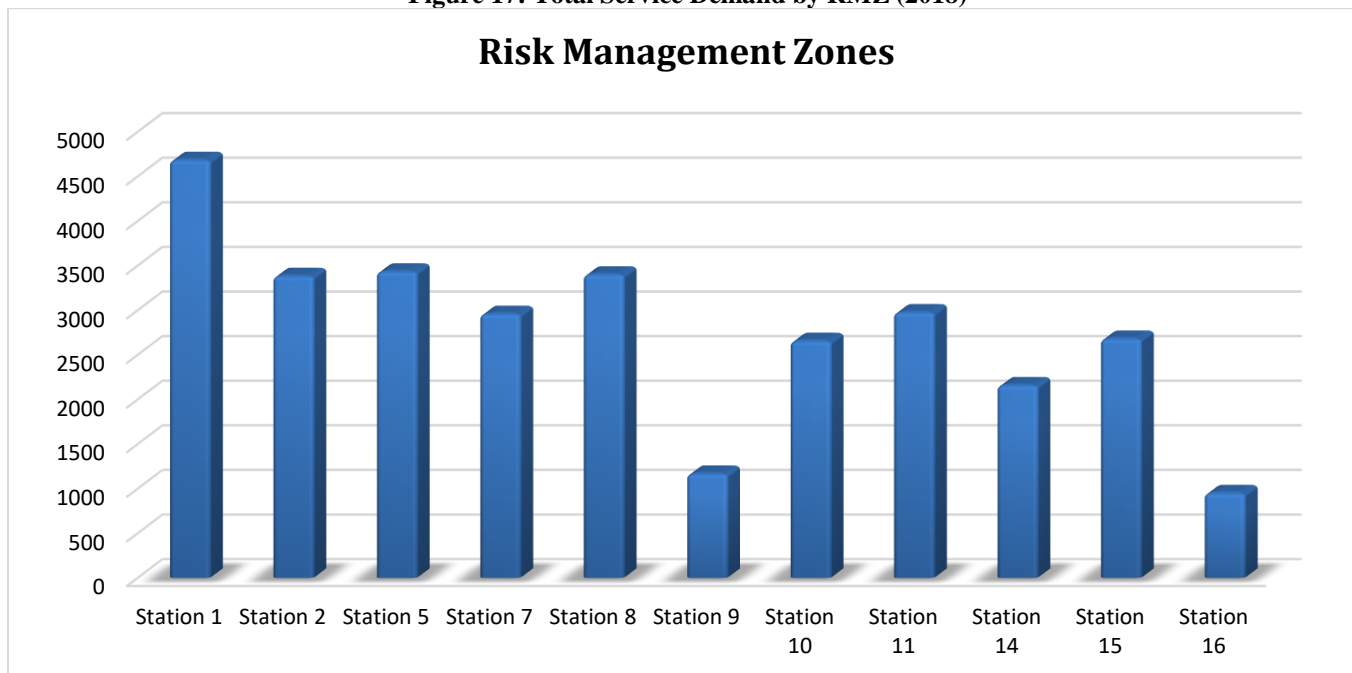
Distribution Factors

HFD responded to 30,469 calls for service in 2018. An analysis of each risk management zone (RMZ) was conducted to measure the efficiency of the distribution system; the fixed geographical service points. 0.13% of data served as outliers; incomplete or improperly inputted data. Results indicated Station 1 had the heaviest demand and Stations 9 and 16 had the lightest demand. The rest of the demand was distributed with slight variances indicating that the current deployment model is effectively distributed in meeting the service demand.

Table 74: Total Service Demand, by Station Area (2018)

RMZ	Total Demand	Percent of Demand
Station 1	4,683	15.37
Station 2	3,382	11.10
Station 5	3,432	11.26
Station 7	2,957	9.70
Station 8	3,399	11.16
Station 9	1,166	3.83
Station 10	2,654	8.71
Station 11	2,975	9.76
Station 14	2,158	7.08
Station 15	2,679	8.79
Station 16	949	3.11
Total	30,469	99.87

Figure 17: Total Service Demand by RMZ (2018)



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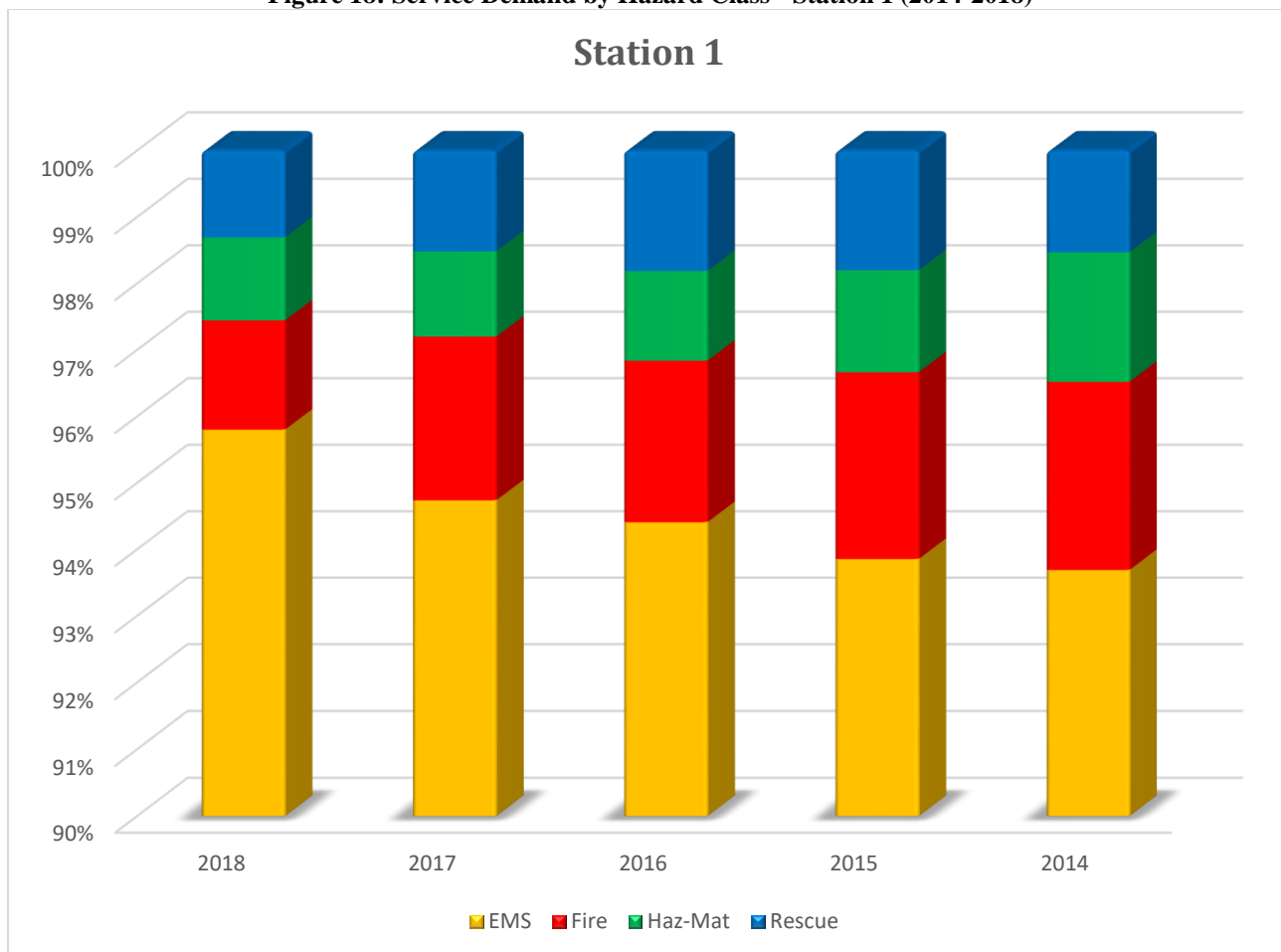
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The next portion of distribution evaluation entailed analysis of service demand within each RMZ by the primary hazard classes for the 2014-2018 period.

Table 75: Service Demand by Hazard Class - Station 1 (2014-2018)

Hazard Class	2014-2018	2018	2017	2016	2015	2014
EMS	8,404	3,148	2,808	2,448	2,138	2,019
Fire	190	54	73	63	64	61
Haz-Mat	114	41	38	35	35	42
Rescue	135	43	45	47	41	33
Total by Class	13,276	3,286	2,964	2,593	2,278	2,155
Total Demand	18,625	4,683	4,165	3,578	3,212	2,987

Figure 18: Service Demand by Hazard Class - Station 1 (2014-2018)



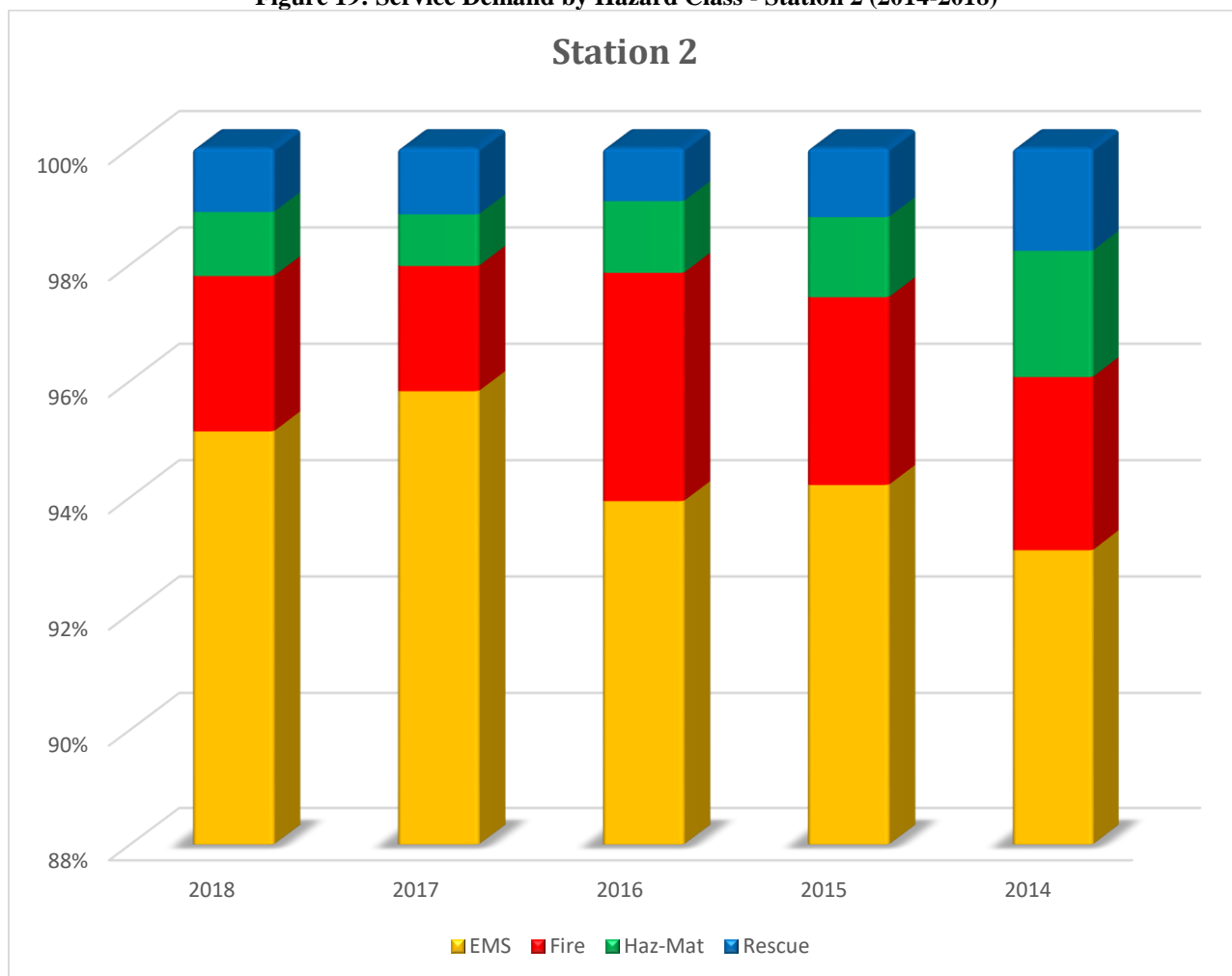
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Table 76: Service Demand by Hazard Class - Station 2 (2014-2018)

Hazard Class	2014-2018	2018	2017	2016	2015	2014
EMS	6,753	2,423	2,271	2,059	1,985	1,845
Fire	205	68	51	86	68	59
Haz-Mat	76	28	21	27	29	43
Rescue	75	28	27	20	25	35
Total by Class	11,198	2,547	2,370	2,192	2,107	1,982
Total Demand	14,861	3,382	3,187	2,915	2,752	2,625

Figure 19: Service Demand by Hazard Class - Station 2 (2014-2018)



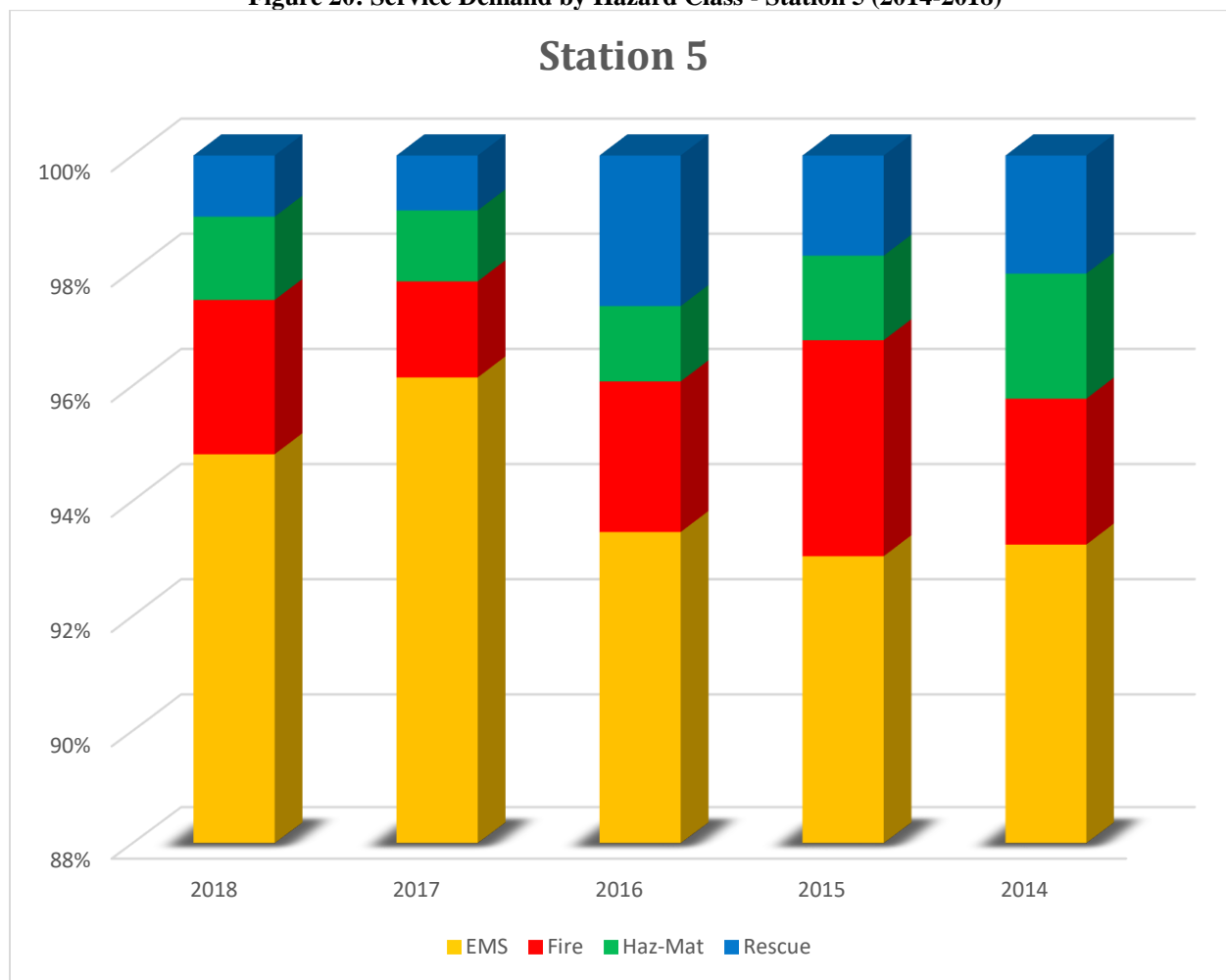
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Table 77: Service Demand by Hazard Class - Station 5 (2014-2018)

Hazard Class	2014-2018	2018	2017	2016	2015	2014
EMS	6,720	2,229	2419	2,072	1,711	1,545
Fire	163	63	42	58	69	42
Haz-Mat	94	34	31	29	27	36
Rescue	107	25	24	58	32	34
Total by Class	10,580	2,351	2,516	2,217	1,839	1,657
Total Demand	15,335	3,433	3,653	3,222	2,614	2,413

Figure 20: Service Demand by Hazard Class - Station 5 (2014-2018)



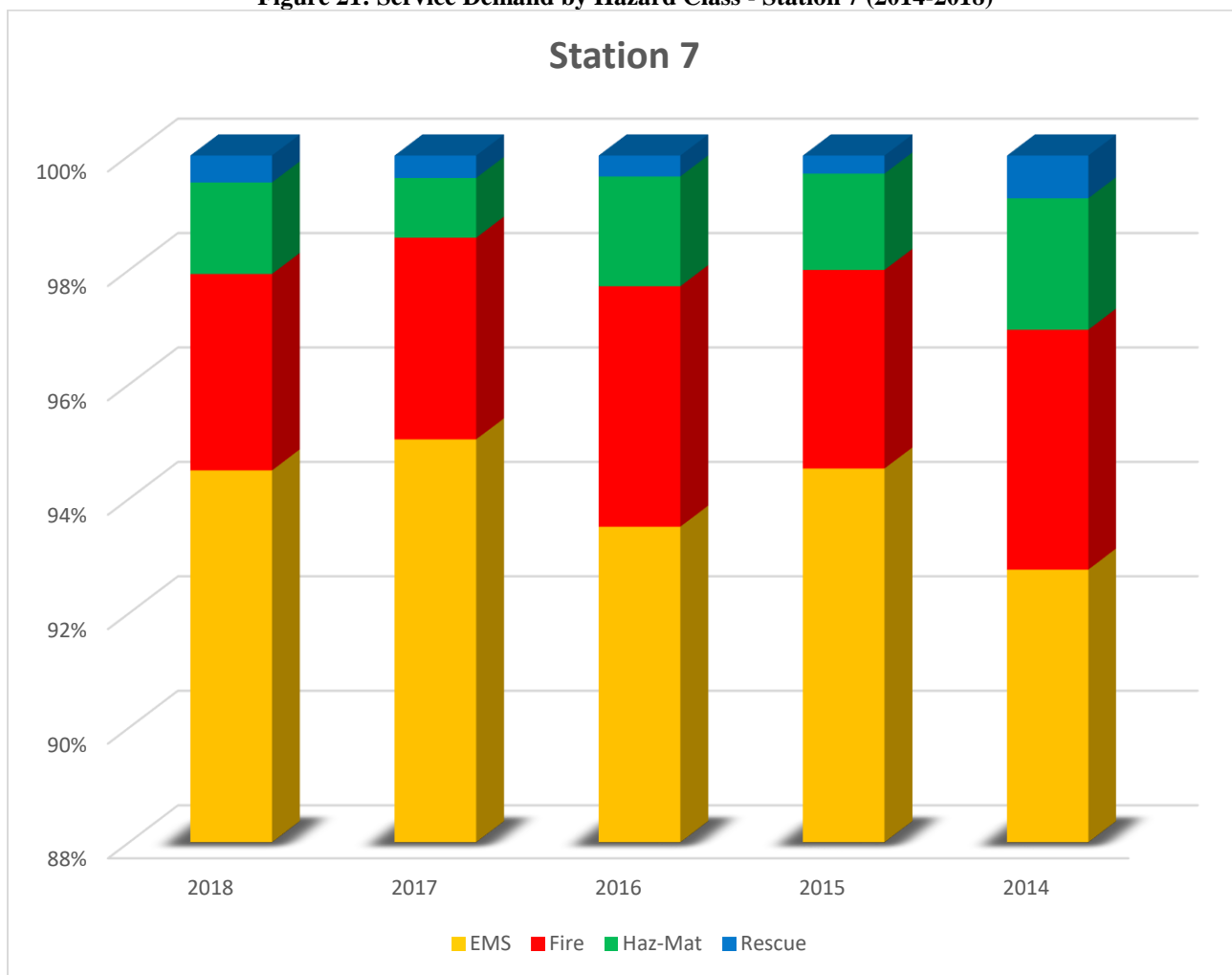
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Table 78: Service Demand by Hazard Class - Station 7 (2014-2018)

Hazard Class	2014-2018	2018	2017	2016	2015	2014
EMS	6,240	2,009	2,184	2,047	1,797	1,615
Fire	246	73	81	92	66	73
Haz-Mat	100	34	24	42	32	40
Rescue	27	10	9	8	6	13
Total by Class	10,255	2,126	2,298	2,189	1,901	1,741
Total Demand	13,841	2,957	3,048	2,840	2,563	2,433

Figure 21: Service Demand by Hazard Class - Station 7 (2014-2018)



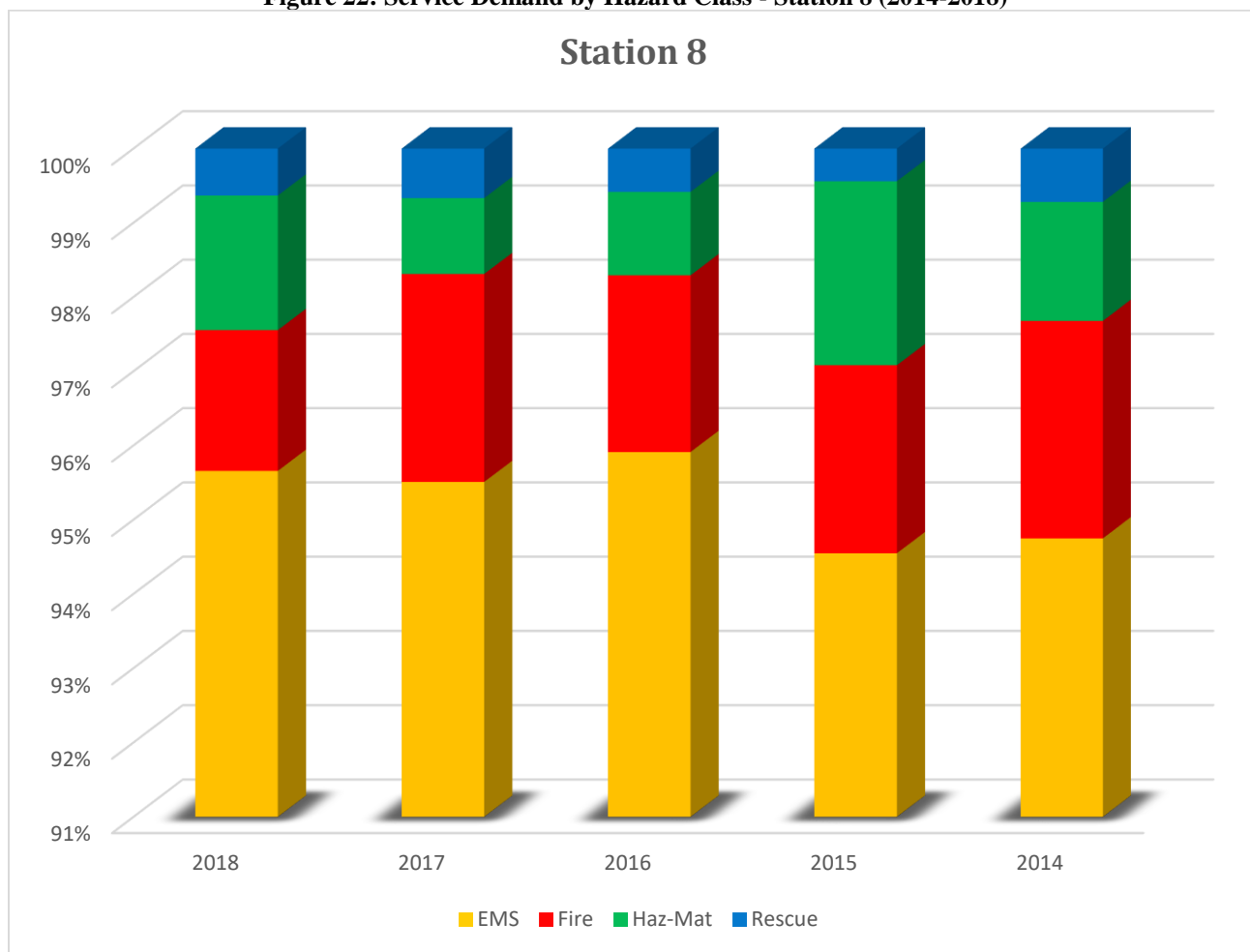
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COMMUNITY RISK ASSESSMENT-STANDARDS OF COVER

Table 79: Service Demand by Hazard Class - Station 8 (2014-2018)

Hazard Class	2014-2018	2018	2017	2016	2015	2014
EMS	6,552	2,269	2,148	2,135	1,717	1,714
Fire	161	45	63	53	46	53
Haz-Mat	91	43	23	25	45	29
Rescue	43	15	15	13	8	13
Total by Class	10,472	2,372	2,249	2,226	1,816	1,809
Total Demand	13,956	3,399	3,149	2,872	2,293	2,243

Figure 22: Service Demand by Hazard Class - Station 8 (2014-2018)



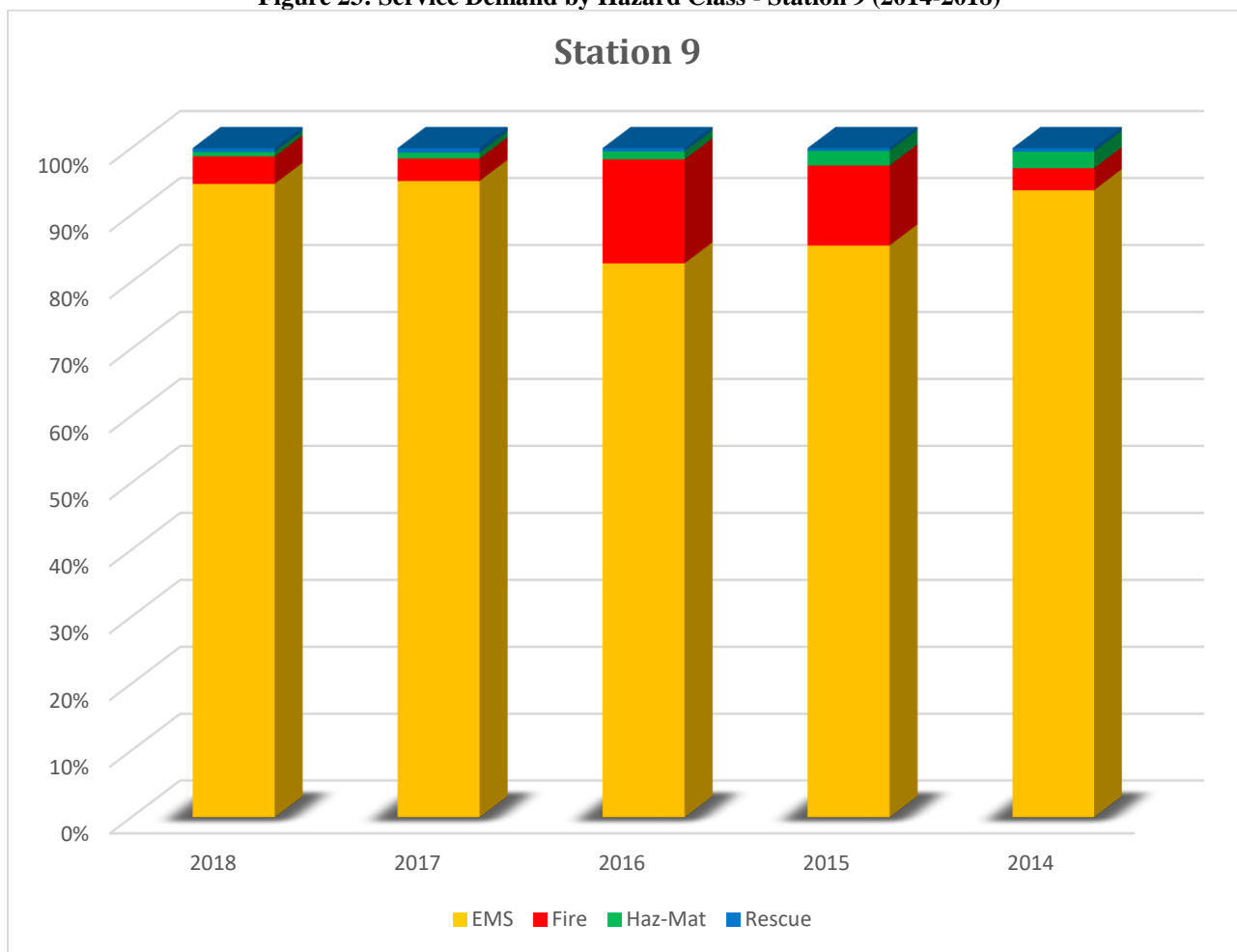
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Table 80: Service Demand by Hazard Class - Station 9 (2014-2018)

Hazard Class	2014-2018	2018	2017	2016	2015	2014
EMS	2,372	832	852	688	623	685
Fire	195	36	30	129	87	24
Haz-Mat	24	6	8	10	16	18
Rescue	15	5	6	4	3	4
Total by Class	4,066	879	896	831	729	731
Total Demand	5,233	1,116	1,125	1,045	960	937

Figure 23: Service Demand by Hazard Class - Station 9 (2014-2018)



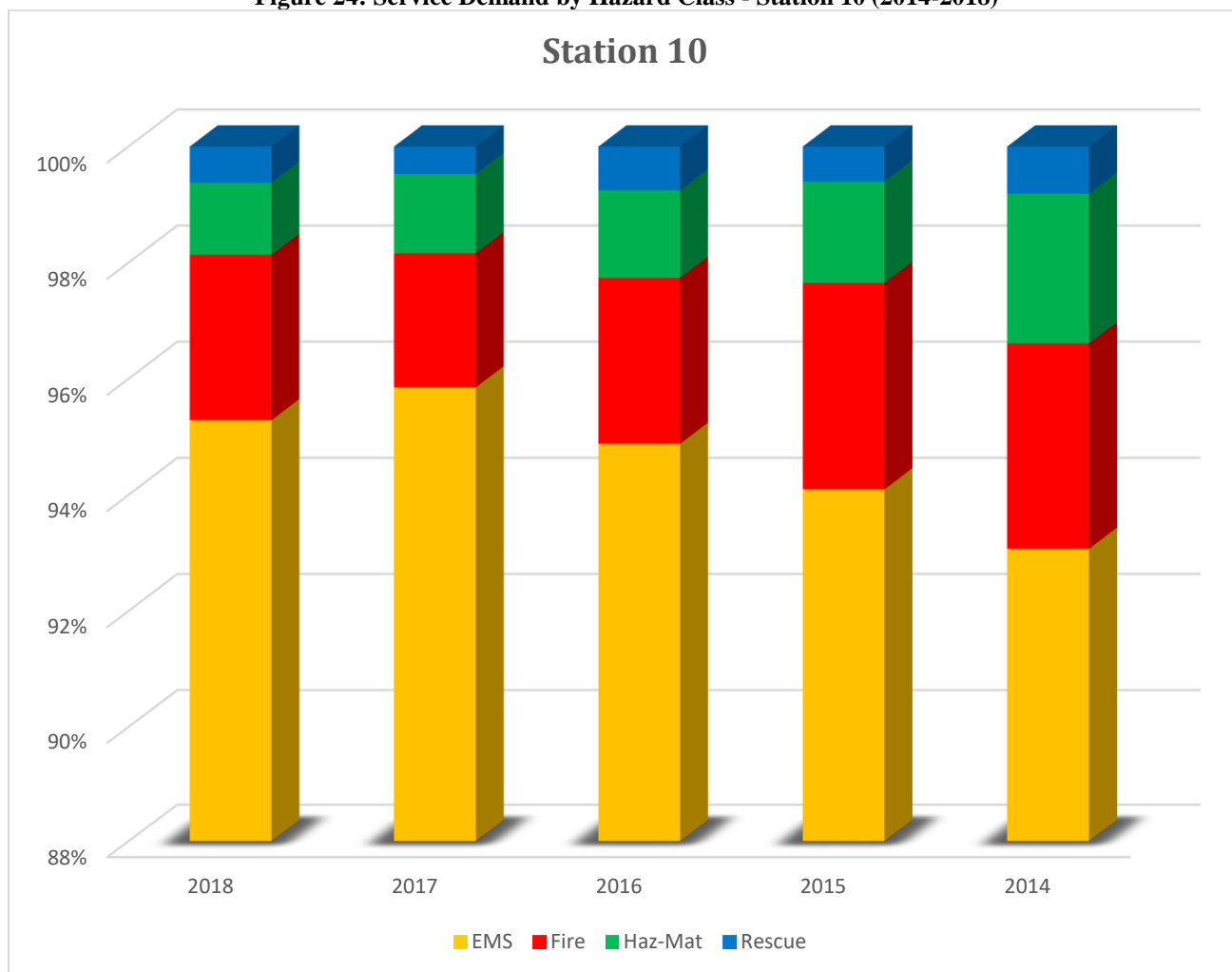
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Table 81: Service Demand by Hazard Class - Station 10 (2014-2018)

Hazard Class	2014-2018	2018	2017	2016	2015	2014
EMS	5,427	1,840	1,826	1,761	1,562	1,263
Fire	152	55	44	53	59	48
Haz-Mat	78	24	26	28	29	35
Rescue	35	12	9	14	10	11
Total by Class	8,709	1,931	1,905	1,856	1,660	1,357
Total Demand	11,575	2,654	2,503	2,458	2,129	1,831

Figure 24: Service Demand by Hazard Class - Station 10 (2014-2018)



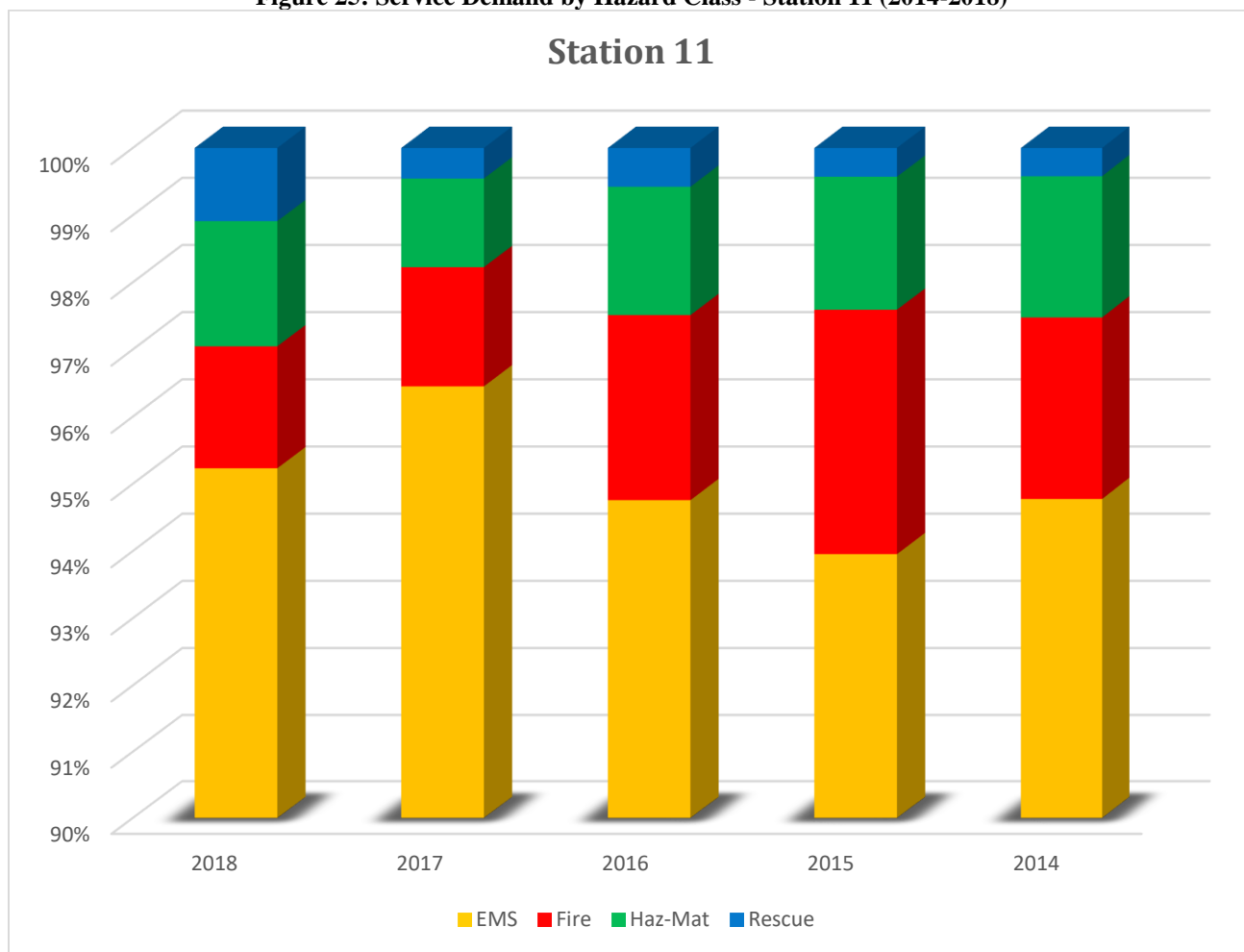
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Table 82: Service Demand by Hazard Class - Station 11 (2014-2018)

Hazard Class	2014-2018	2018	2017	2016	2015	2014
EMS	6,350	2,097	2,120	2,133	1,756	1,578
Fire	141	40	39	62	68	45
Haz-Mat	113	41	29	43	37	35
Rescue	47	24	10	13	8	7
Total by Class	10,185	2,202	2,198	2,251	1,869	1,665
Total Demand	13,261	2,975	2,890	2,845	2,425	2,126

Figure 25: Service Demand by Hazard Class - Station 11 (2014-2018)



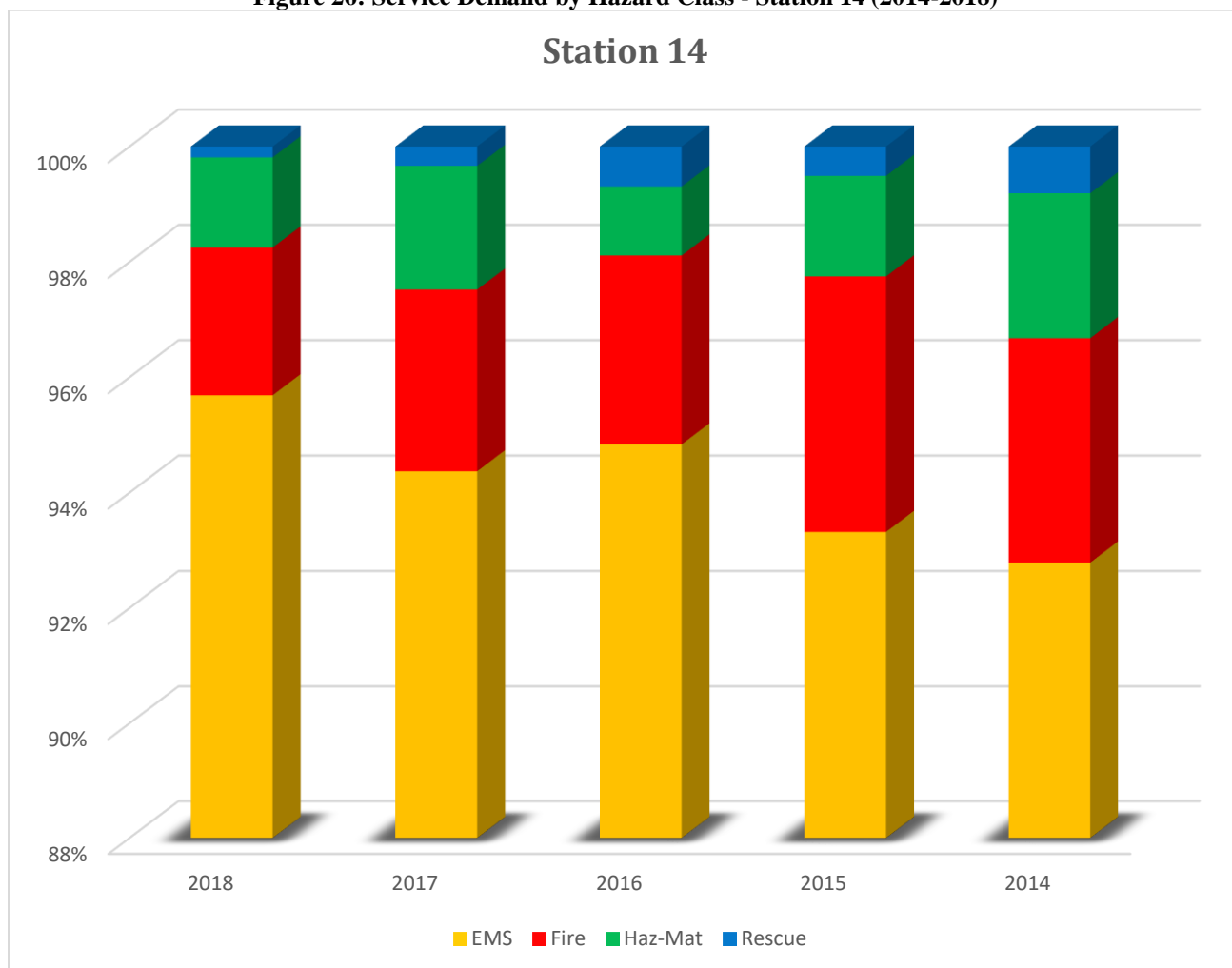
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Table 83: Service Demand by Hazard Class - Station 14 (2014-2018)

Hazard Class	2014-2018	2018	2017	2016	2015	2014
EMS	4,445	1,531	1,408	1,506	1,285	1,145
Fire	140	41	47	52	61	48
Haz-Mat	76	25	32	19	24	31
Rescue	19	3	5	11	7	10
Total by Class	7,291	1,600	1,492	1,588	1,377	1,234
Total Demand	9,833	2,158	2,103	2,023	1,874	1,675

Figure 26: Service Demand by Hazard Class - Station 14 (2014-2018)



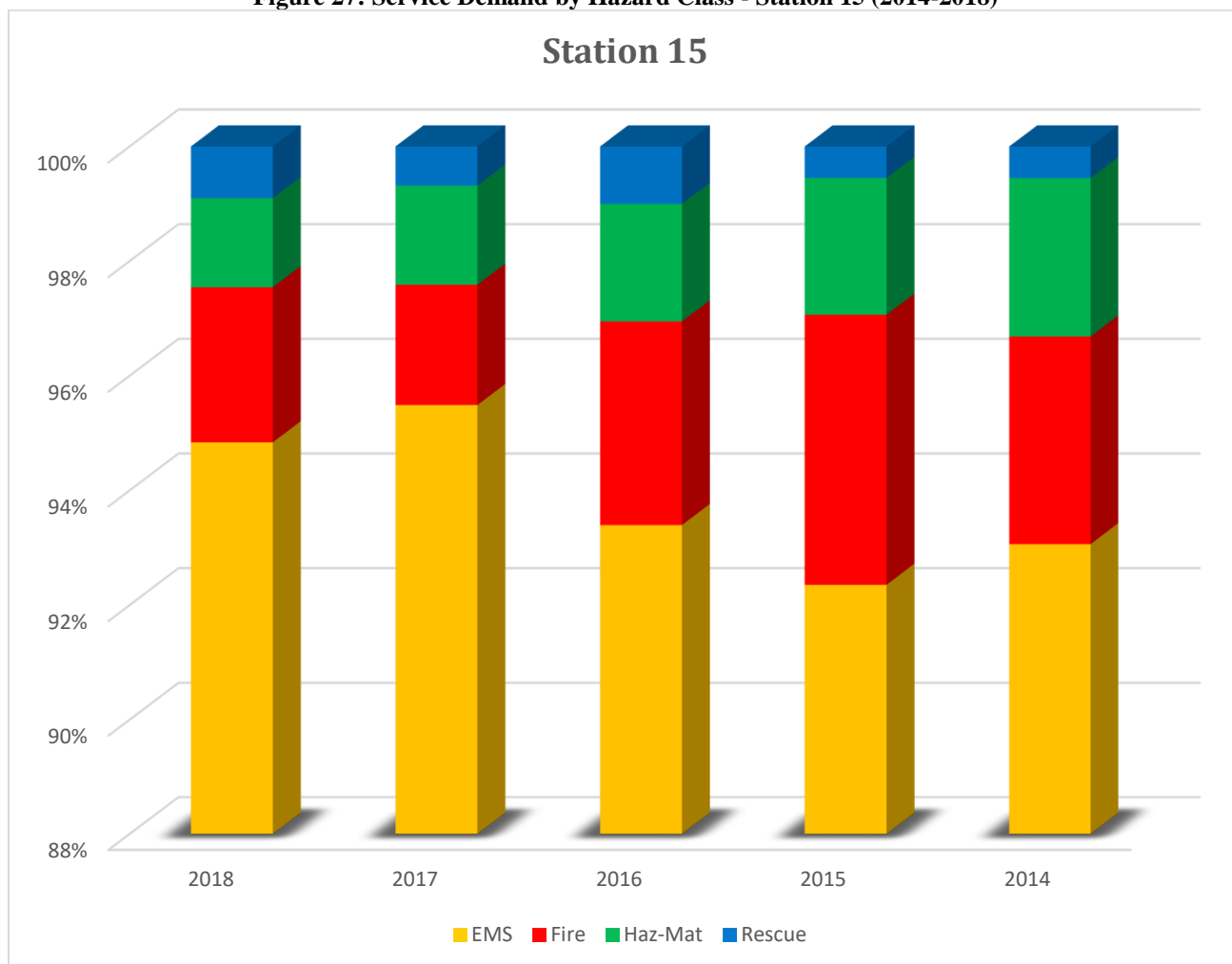
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COMMUNITY RISK ASSESSMENT-STANDARDS OF COVER

Table 84: Service Demand by Hazard Class - Station 15 (2014-2018)

Hazard Class	2014-2018	2018	2017	2016	2015	2014
EMS	5,581	1,893	1,821	1,867	1,510	1,516
Fire	165	54	40	71	77	59
Haz-Mat	105	31	33	41	39	45
Rescue	51	18	13	20	9	9
Total by Class	9,166	1,996	1,907	1,999	1,635	1,629
Total Demand	12,194	2,679	2,635	2,580	2,154	2,146

Figure 27: Service Demand by Hazard Class - Station 15 (2014-2018)



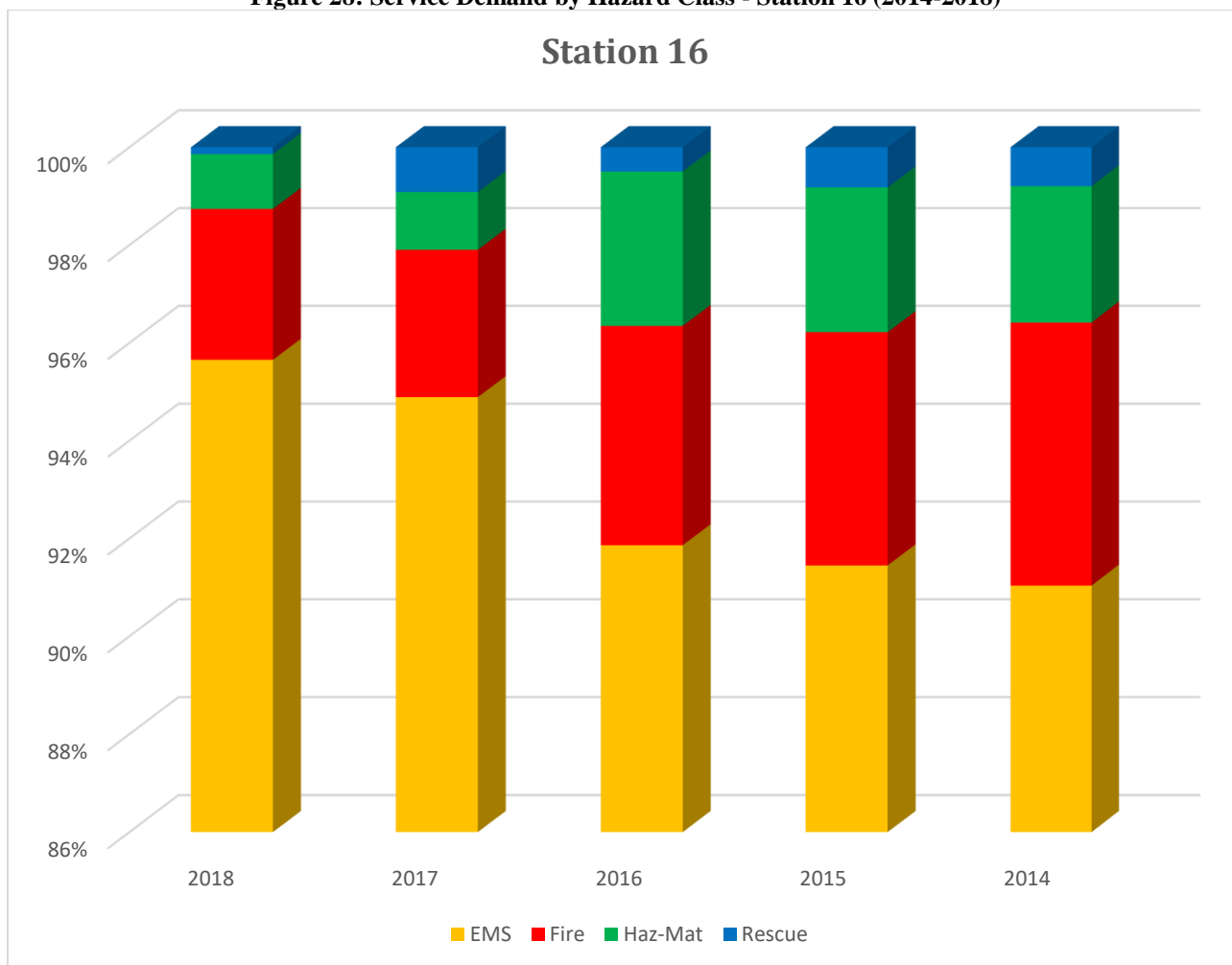
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Table 85: Service Demand by Hazard Class - Station 16 (2014-2018)

Hazard Class	2014-2018	2018	2017	2016	2015	2014
EMS	1,959	682	724	553	556	457
Fire	72	22	23	27	29	27
Haz-Mat	36	8	9	19	18	14
Rescue	11	1	7	3	5	4
Total by Class	3,188	713	763	602	608	502
Total Demand	4,294	949	963	834	825	723

Figure 28: Service Demand by Hazard Class - Station 16 (2014-2018)



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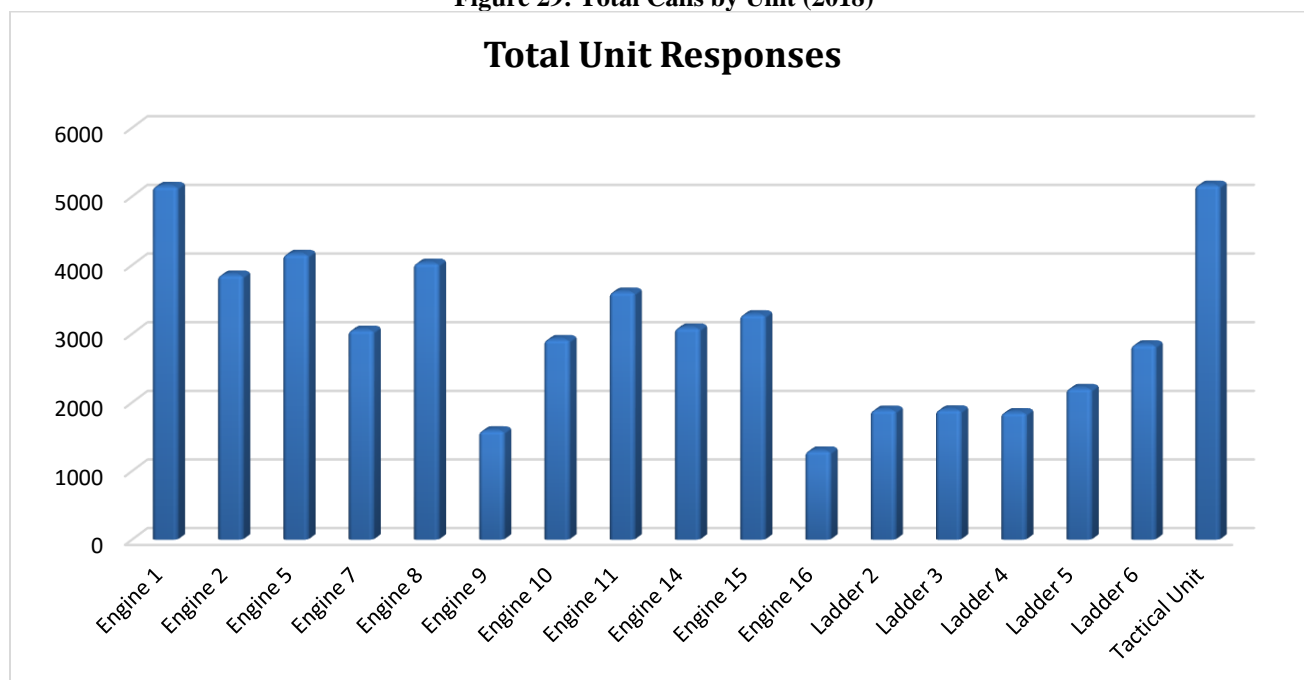
COMMUNITY RISK ASSESSMENT-STANDARDS OF COVER

An analysis followed for total unit responses. This identified the actual work volume completed by the entire response system. All units were dispatched for a total of 51,943 responses in 2018. These included both single unit and multiple unit calls for service. The district chiefs were excluded as they are supervisory in nature. Distribution was found to be even for the most part. Engine 1 and the Tactical Unit accounted for the highest percentage of responses. Ladder companies are expectedly lower as they are specialized units. Only two engine companies accounted for notably less than 10% of total call responses, once again validating the system distribution model.

Table 86: Total Responses by Unit (2018)

Unit	Total Responses	% of Responses	Unit	Total Responses	% of Responses
Engine 1	5,152	16.91	Ladder 2	1,894	6.22
Engine 2	3,861	12.67	Ladder 3	1,898	6.23
Engine 5	4,163	13.66	Ladder 4	1,858	6.10
Engine 7	3,059	10.04	Ladder 5	2,210	7.25
Engine 8	4,034	13.24	Ladder 6	2,845	9.34
Engine 9	1,593	5.23	Tac Unit	5,169	16.96
Engine 10	2,922	9.59			
Engine 11	3,613	11.86			
Engine 14	3,090	10.14			
Engine 15	3,283	10.77			
Engine 16	1,299	4.26			
Total	51,943				

Figure 29: Total Calls by Unit (2018)



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COMMUNITY RISK ASSESSMENT-STANDARDS OF COVER

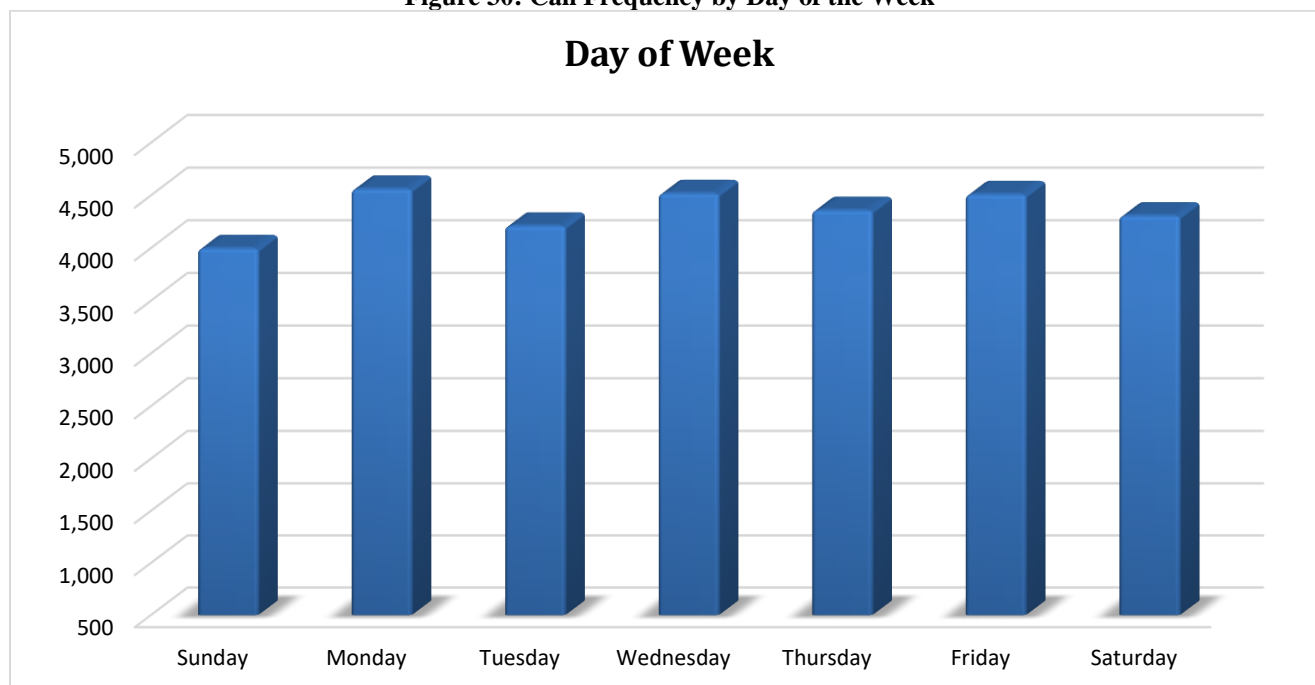
It is important for the agency to understand when resources are most utilized in the emergency response system. Higher demand will typically indicate if the response system is efficiently being utilized at each distribution point. The analysis was completed for the frequency of service delivery by month, day of week and time of day.

Daily service delivery was consistent and did not indicate much variance with Sunday having the lowest demand.

Table 87: Call Frequency by Day of the Week

Day of Week	Number of Calls	Call Percentage
Sunday	3,998	13.12
Monday	4,562	14.97
Tuesday	4,211	13.82
Wednesday	4,520	14.84
Thursday	4,360	14.31
Friday	4,510	14.80
Saturday	4,308	14.14
Total	30,469	100%

Figure 30: Call Frequency by Day of the Week



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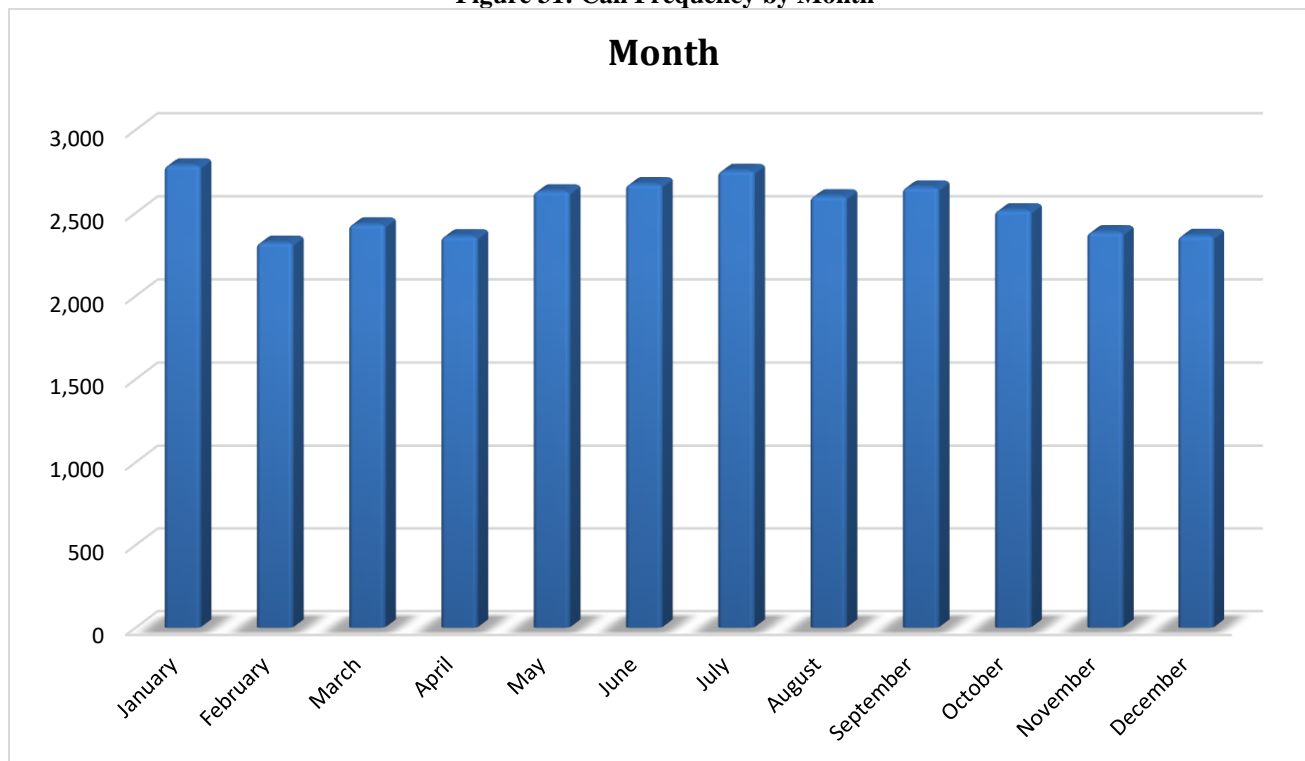
COMMUNITY RISK ASSESSMENT-STANDARDS OF COVER

Monthly service delivery was consistent and did not indicate much variance with January and July having the highest demand.

Table 88: Call Frequency by Month

Month	Number of Calls	Call Percentage
January	2,786	9.14
February	2,321	7.62
March	2,431	7.98
April	2,360	7.75
May	2,630	8.63
June	2,673	8.77
July	2,753	9.04
August	2,600	8.53
September	2,653	8.71
October	2,516	8.26
November	2,384	7.82
December	2,362	7.75
Total	30,469	100%

Figure 31: Call Frequency by Month



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Hourly service delivery indicated an escalation in service demand between 8:00 am and midnight. Peak demand for service delivery was between 3:00 to 5:00 pm. Lowest demand for service delivery was between 1:00 to 7:00 am.

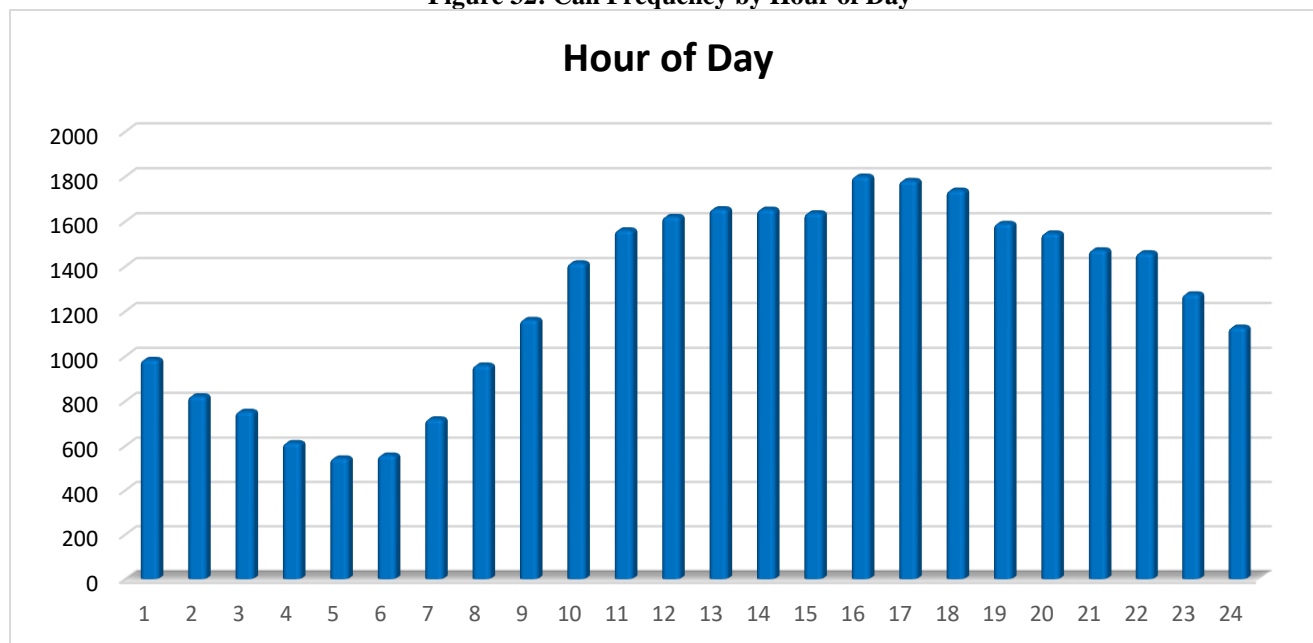
Table 89: Call Frequency by Hour of Day

Hour of Day	Number of Calls	Call Percentage
1	985	3.23
2	823	2.70
3	754	2.47
4	614	2.02
5	545	1.79
6	558	1.83
7	720	2.36
8	960	3.15
9	1,163	3.82
10	1,415	4.64
11	1,562	5.13
12	1,622	5.32
13	1,656	5.44
14	1,654	5.43
15	1,638	5.38
16	1,801	5.91
17	1,782	5.85
18	1,739	5.71
19	1,591	5.22
20	1,548	5.08
21	1,473	4.83
22	1,460	4.79
23	1,277	4.19
24	1,129	3.71
Total	30,469	100%

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Figure 32: Call Frequency by Hour of Day



Travel Time

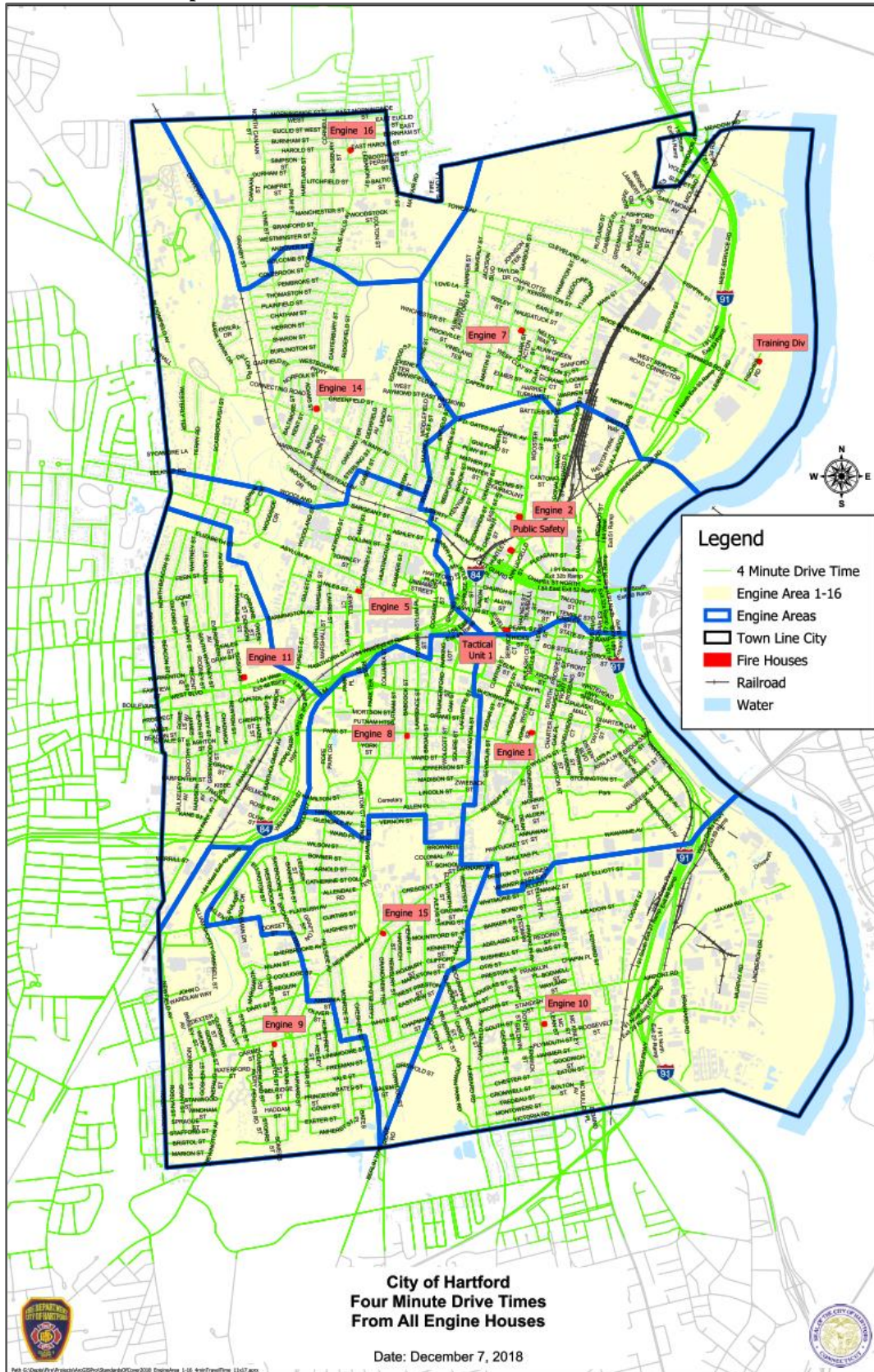
The next portion of distribution analysis pertained to travel time. NFPA recommends a four-minute travel time for the first arriving company. HFD mapped out four-minute travel times for each RMZ, utilizing ESRI ArcGIS version 10.5.1, using a 35mph travel speed with no traffic congestion effects. District 1 and District 2 were not included due to being supervisory in nature. Results indicated current HFD distribution points meet the four-minute travel time in ideal conditions with some overlap between distribution points. Some considerations are noted for potential delays that need to be understood and are not considered in the analysis:

- Construction work zones causing delays or re-routing
- Weather issues causing visibility issues or slick road conditions
- Vehicle accidents causing delays or re-routing
- Special events causing delays or re-routing; concerts, sporting events, civil protests, etc.

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Map 47: Four-Minute Travel Time for all Distribution Points



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Concentration Factors

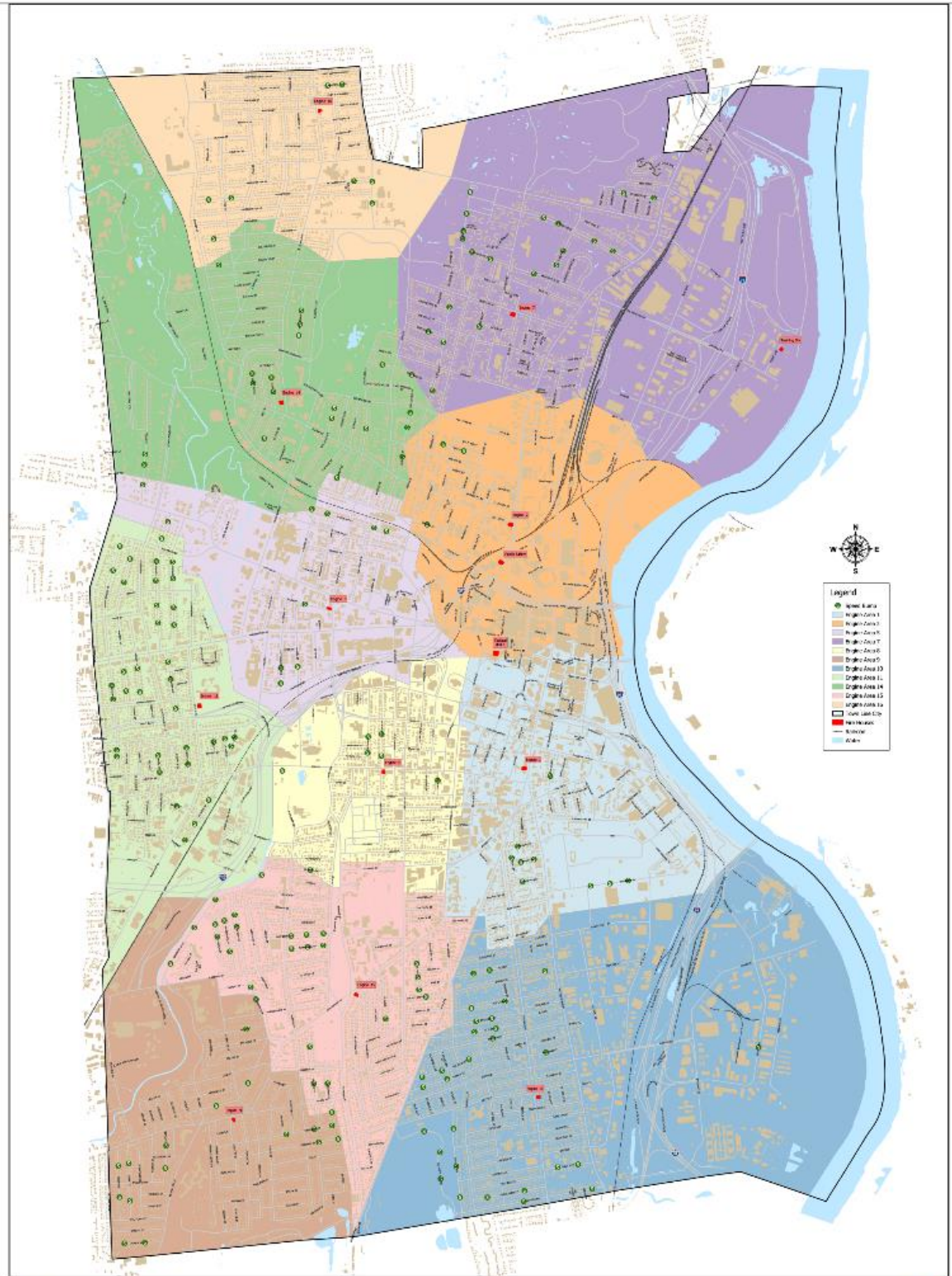
Concentration of resources deals with the capacity of assembling resources within a geographical area to effect emergent incident mitigation efforts. Critical tasks associated within the primary hazard classes require an appropriate number of personnel to accomplish these mitigation efforts. While a majority of incidents are handled with a single resource, larger risk level and escalating incidents will take the combined efforts of higher numbers of resources. HFD analyzed its concentration of resources around the community in meeting the demand. This comprised a review of travel time analysis and the identification of known or potential obstacles to quick emergency response.

The roadway network is a critical component of resource concentration, as an unfinished road could have a significant negative effect on the assembly of resources at a fire event. Multiple direct surface roads into an area provide optimal response.

The City of Hartford installed 185-speed bumps for traffic calming efforts. This is a natural challenge the agency must plan for in emergent response. As discussed earlier, fire intensity increases to flashover within eight-minutes, in as little as three-minutes in light weight construction, and medical survivability decreases for a cardiac event by 10% with every passing minute. Studies conducted nationwide have revealed speed bumps can cause delays of three to nine seconds for fire suppression vehicles, dependent upon vehicle size and weight. Traversing multiple speed bumps, as is the case on multiple streets in the city, during emergency response can significantly contribute towards a negative outcome due to delayed response. HFD utilized GIS services to map out the entire layout of speed bump installations.

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Map 48: Speed Bump Installation in the Community



Date: December 28, 2018

City of Hartford
Speed Bumps



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The next portion of concentration analysis pertained to travel times. NFPA recommends an eight-minute travel time to complete the Effective Response Force (ERF). HFD mapped out eight-minute travel times for all daily staffed units, utilizing ESRI ArcGIS version 10.5.1, using a 35mph travel speed with no traffic congestion effects. Some considerations for potential delays that need to be understood and are not considered in the analysis:

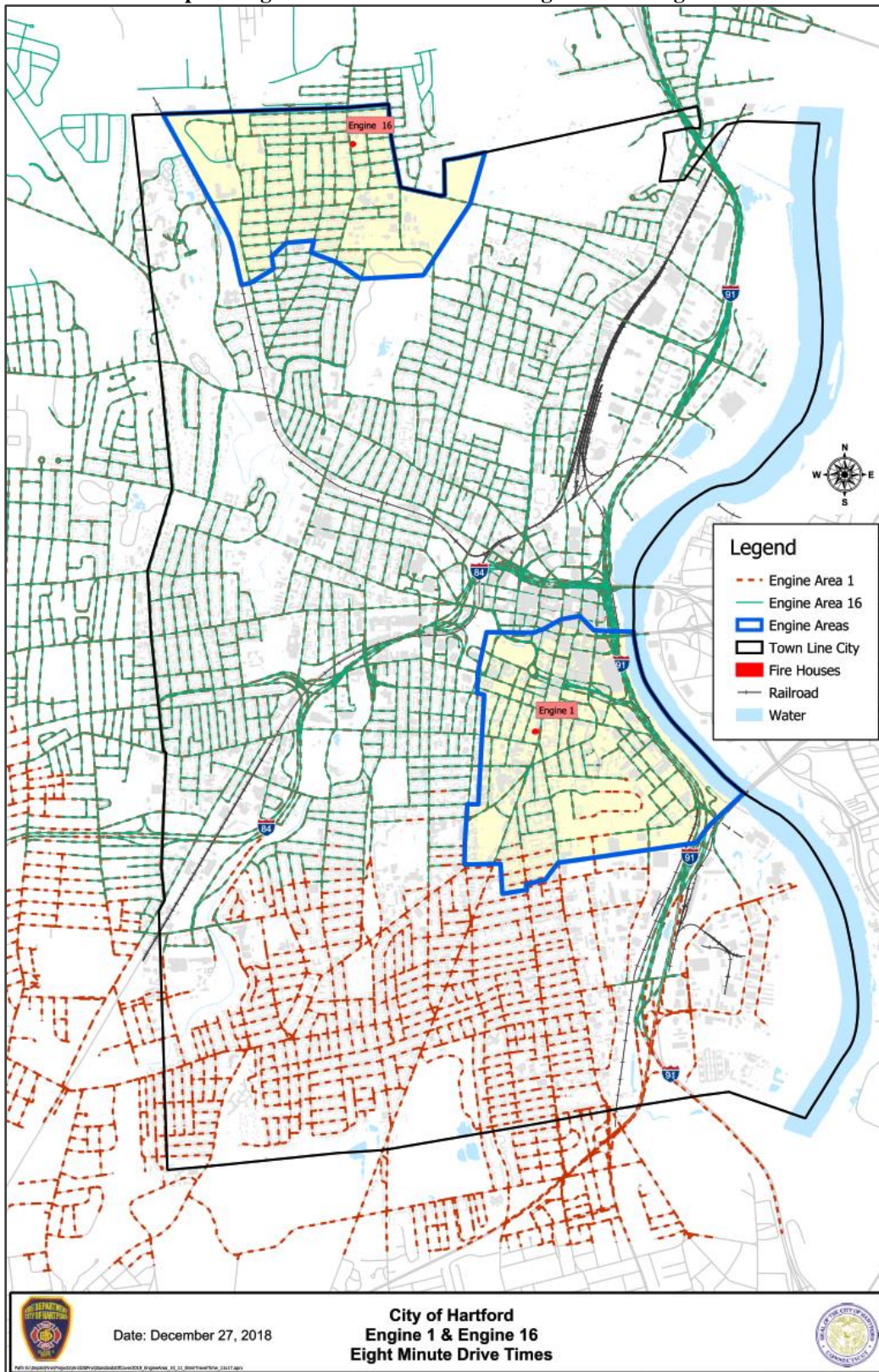
- Construction work zones causing delays or re-routing
- Weather issues causing visibility issues or slick road conditions
- Vehicle accidents causing delays or re-routing
- Special events causing delays or re-routing; concerts, sporting events, civil protests, etc.

Results indicated units at Stations 1, 5, 8 and 11 could achieve the eight-minute travel time for the ERF target goal. Stations 9 and 16 could achieve over 60% of city roads at an eight-minute travel time. All other units were able to achieve over 90% of city roads at an eight-minute travel time. The following maps display the eight-minute travel time for the community.

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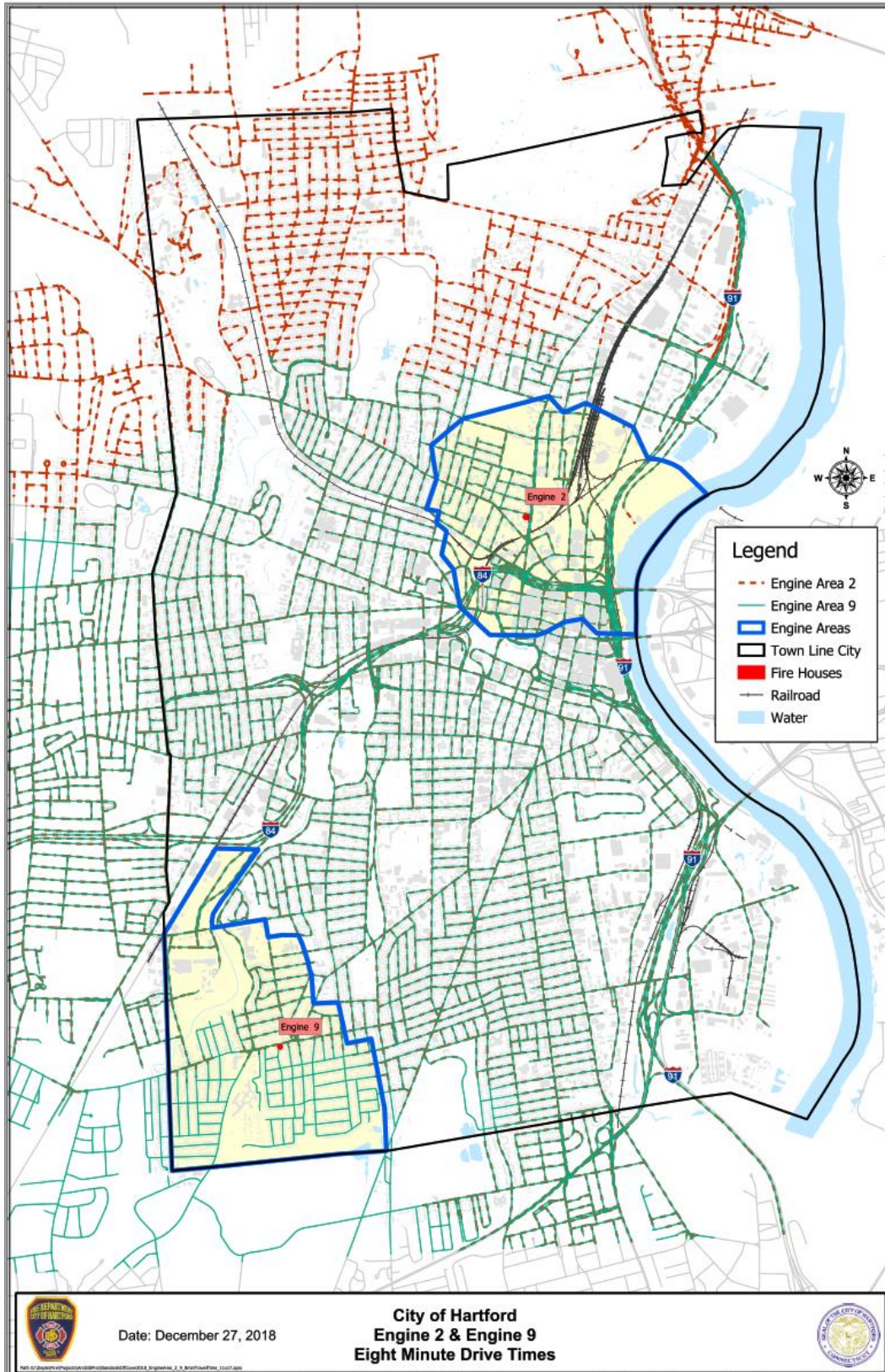
Map 49: Eight-Minute Travel Time - Engine 1 and Engine 16



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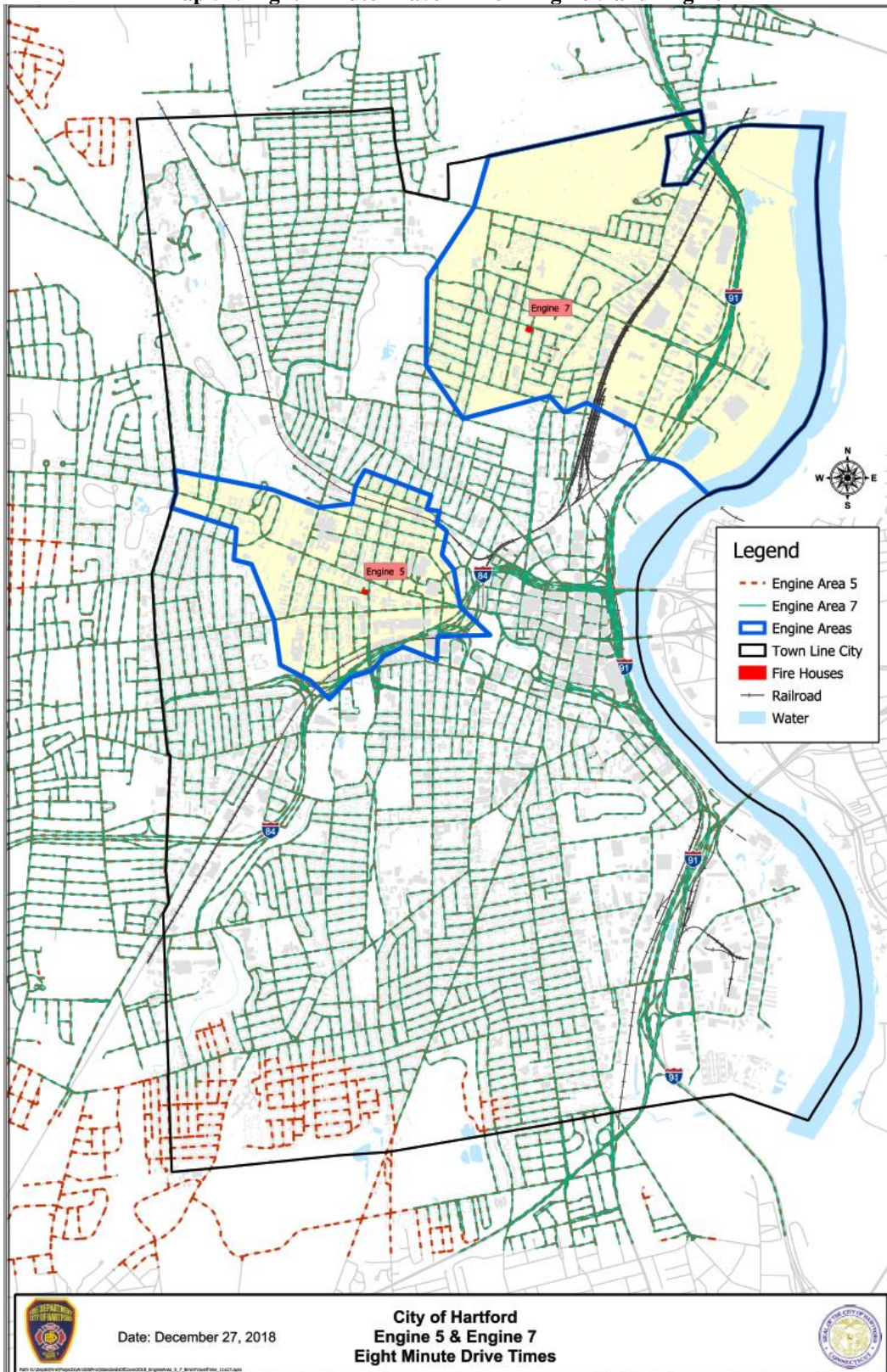
Map 50: Eight-Minute Travel Time - Engine 2 and Engine 9



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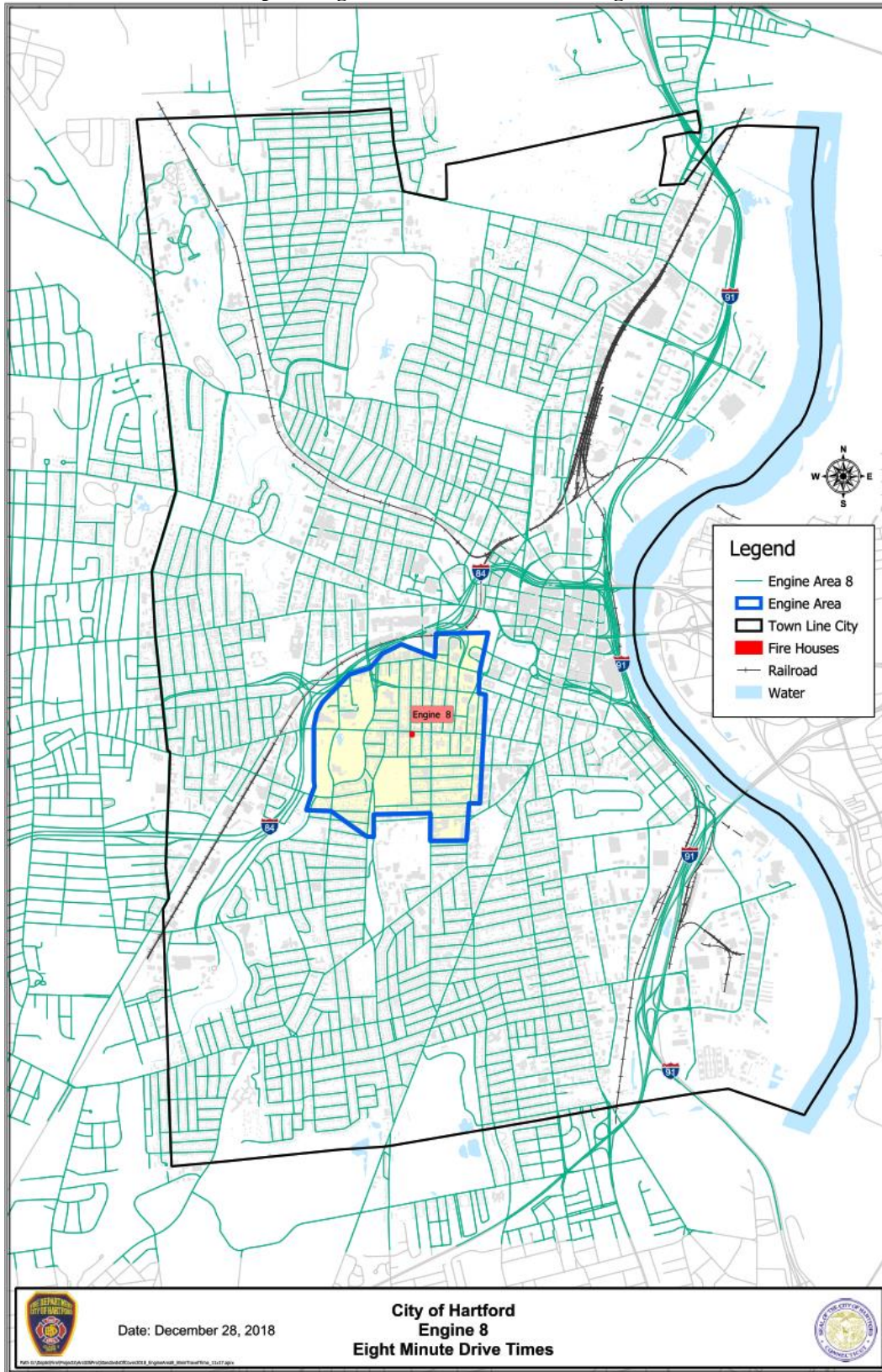
Map 51: Eight-Minute Travel Time - Engine 5 and Engine 7



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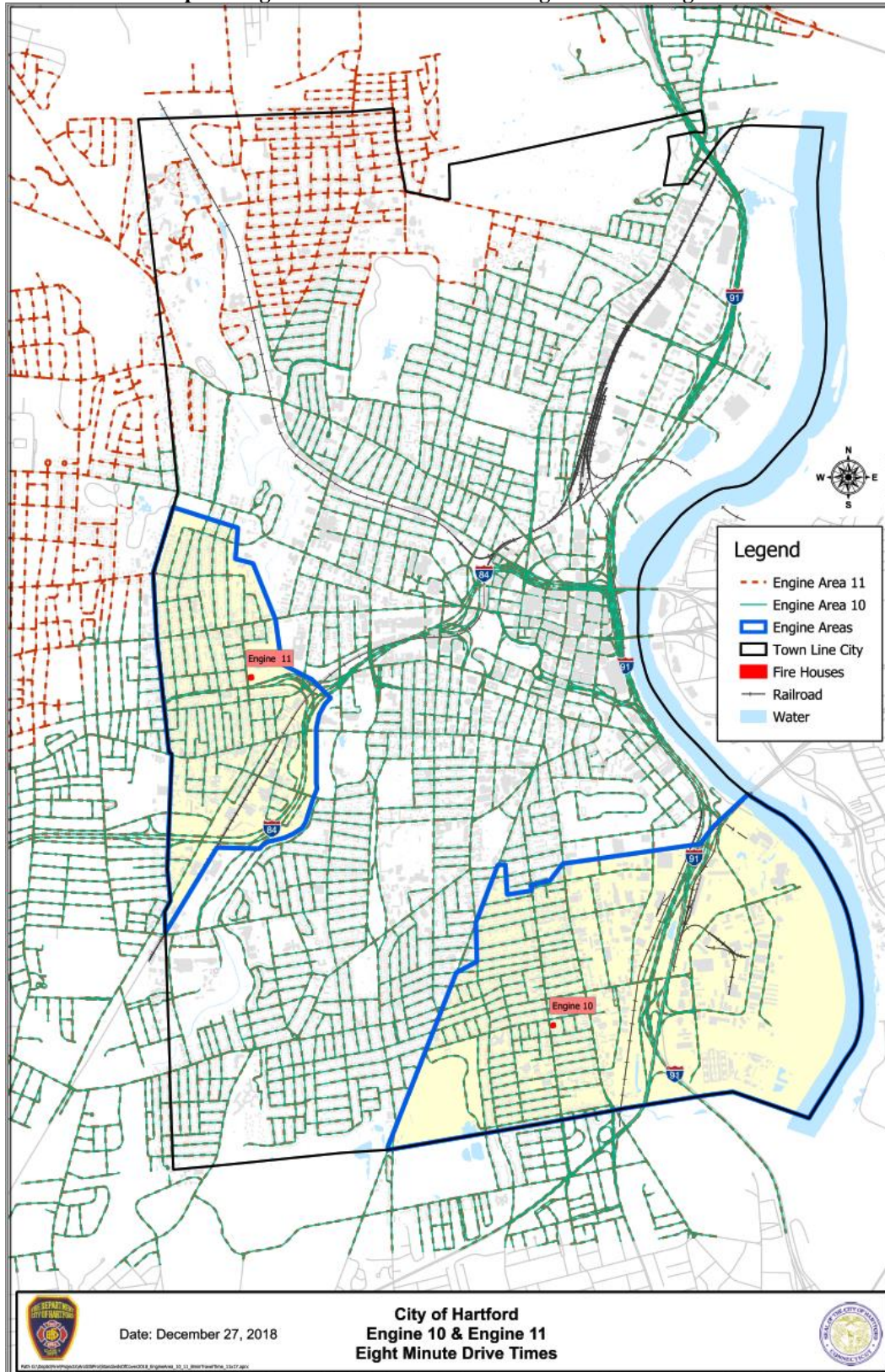
Map 52: Eight Minute Travel Time - Engine 8



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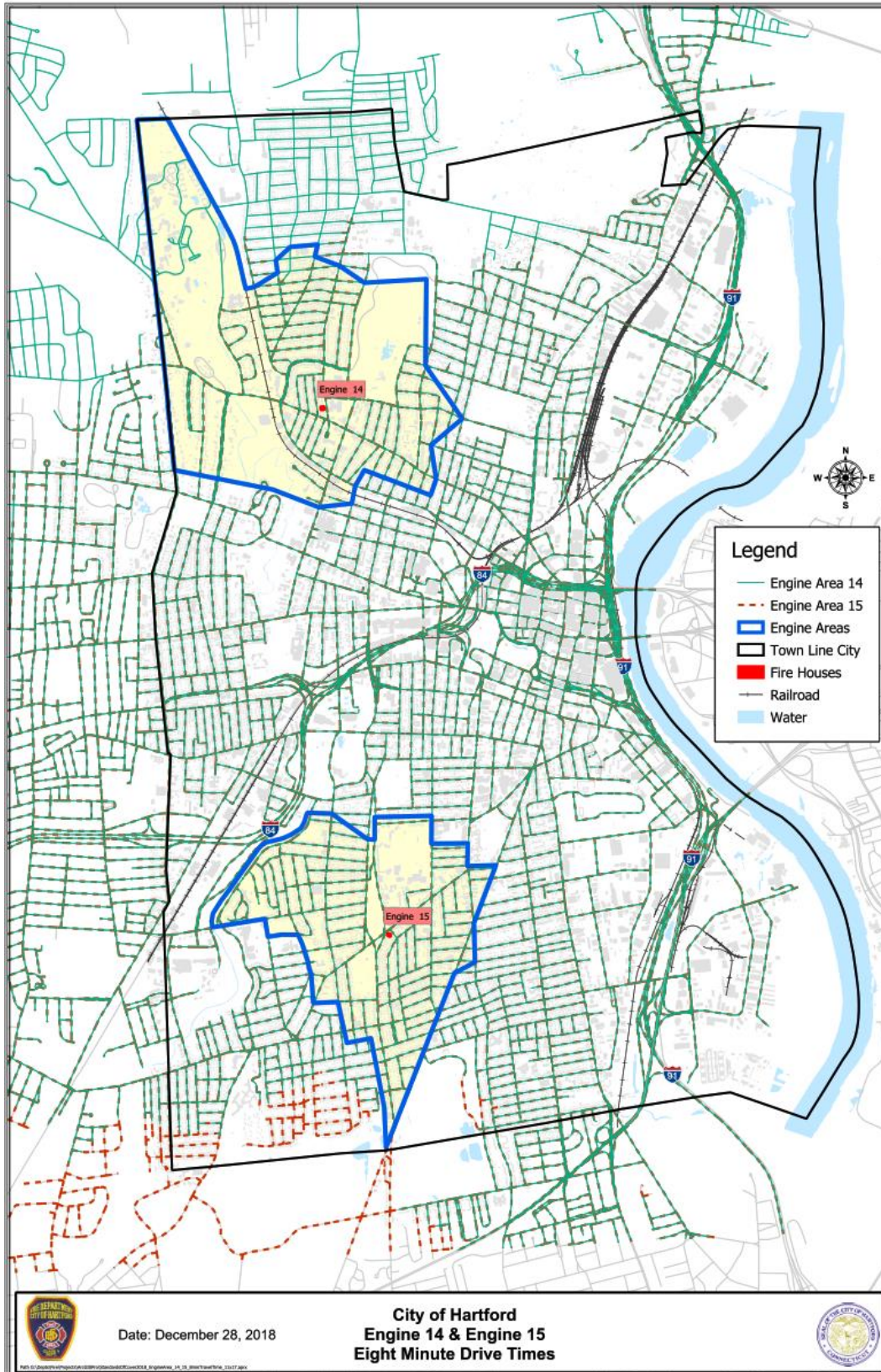
Map 53: Eight-Minute Travel Time - Engine 10 and Engine 11



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Map 54: Eight-Minute Travel Time - Engine 14 and Engine 15



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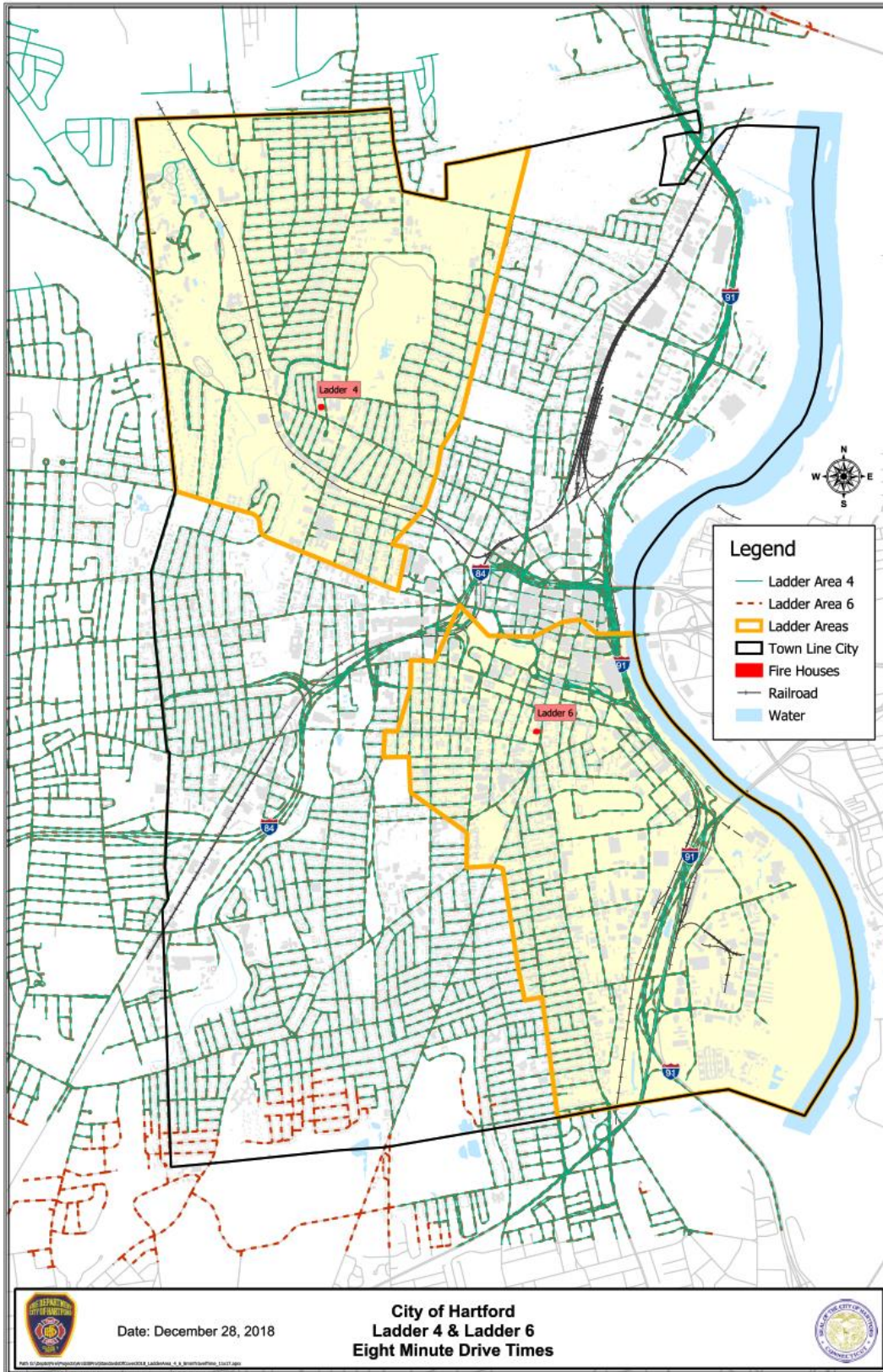
Map 55: Eight-Minute Travel Time - Ladder 2 and Ladder 3



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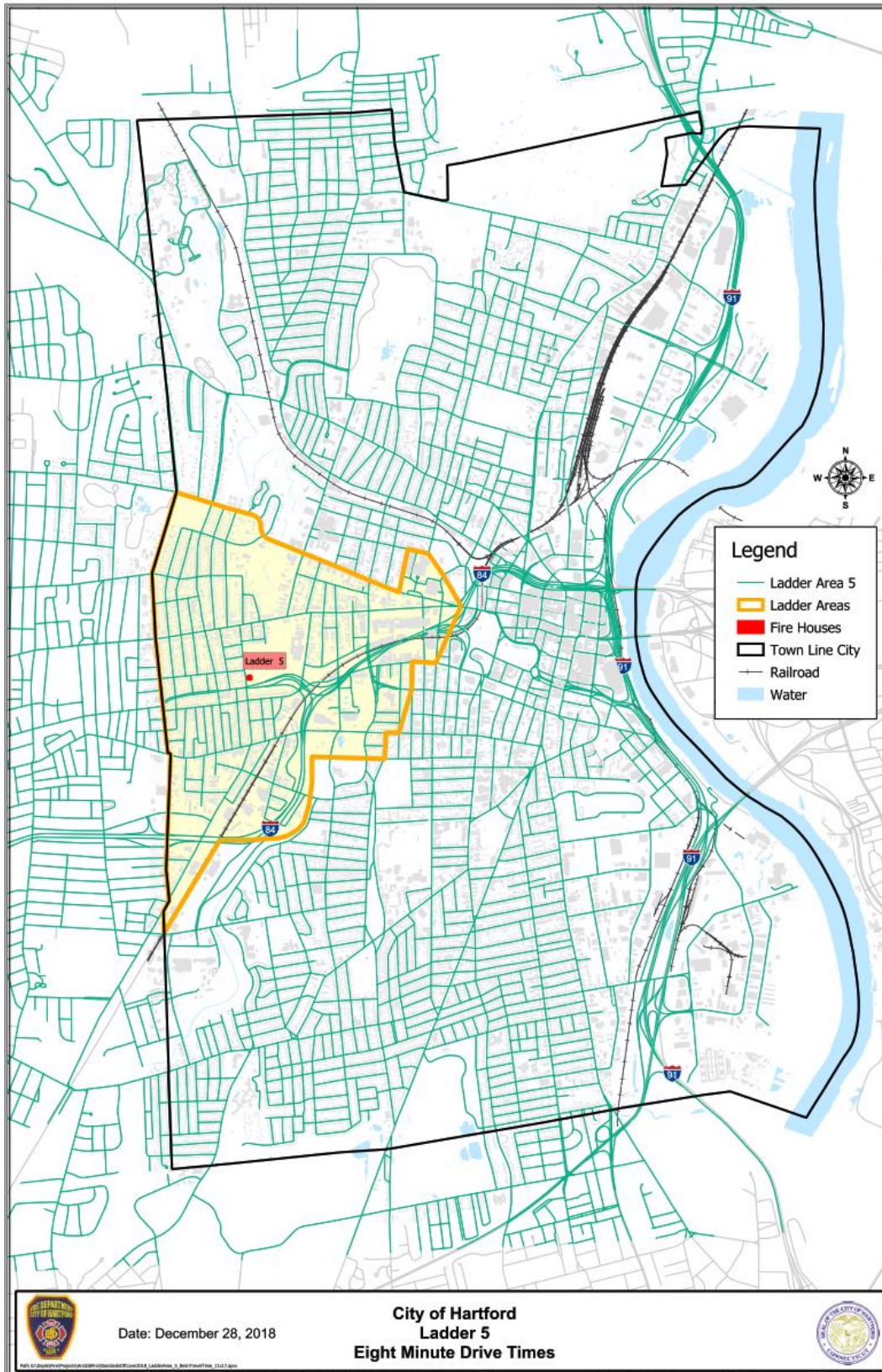
Map 56: Eight-Minute Travel Time - Ladder 4 and Ladder 6



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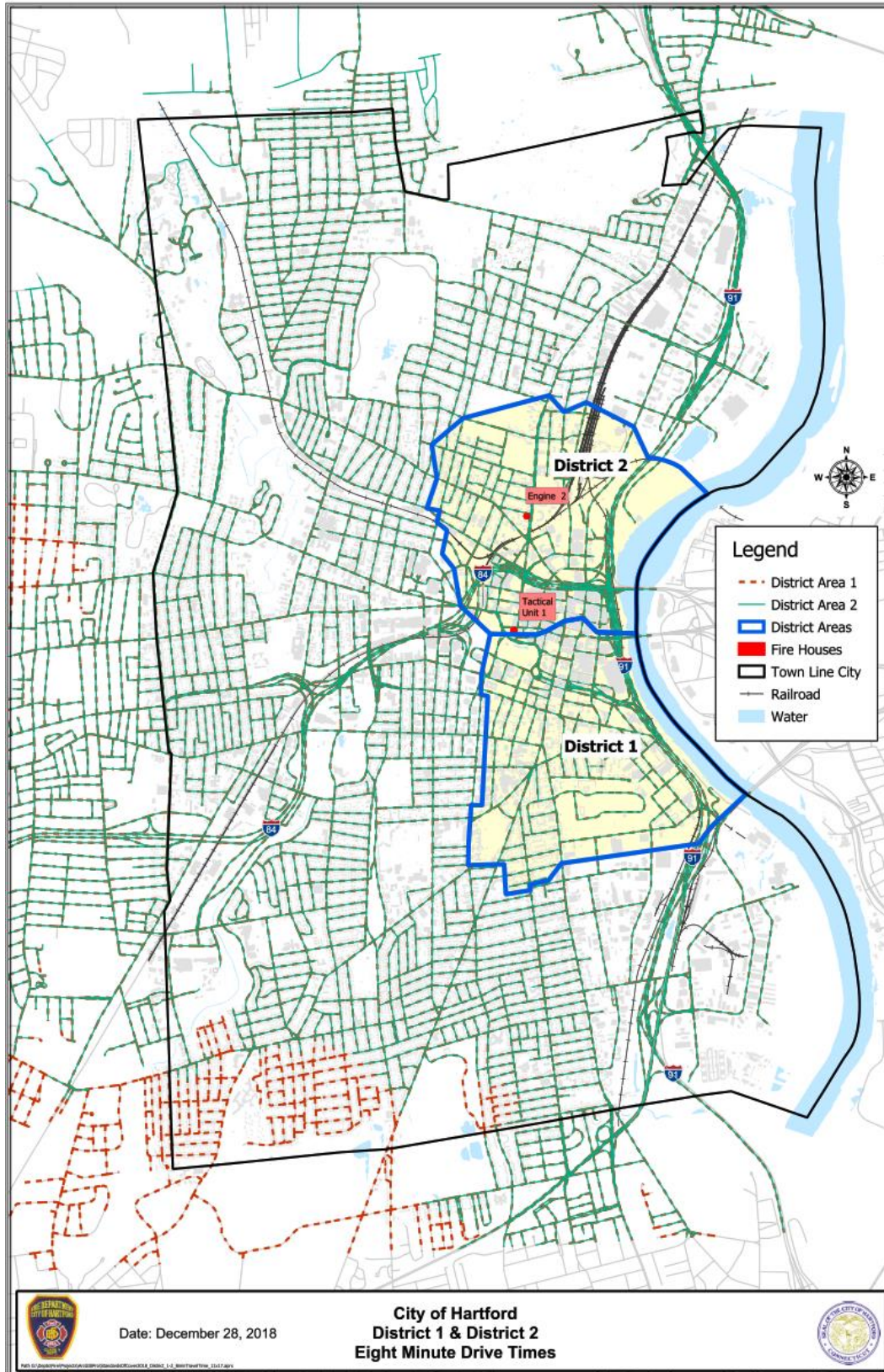
Map 57: Eight-Minute Travel Time - Ladder 5



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Map 58: Eight-Minute Travel Time - District 1 and District 2



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Reliability Factors

Reliability will be defined as agency resource availability to respond for service within the network on a consistent basis. Units can only effect incident mitigation efforts when they are available to respond. As workload demand increases, units become less reliable to provide emergency services within an assigned RMZ. Industry best practices suggest additional resources within a protection zone as reliability reaches 25 - 30% of service demand time commitment.

CFAI defines Resiliency as the ability to recover from demand upon the capabilities and capacity of the agency. Some definitions are provided from CFAI for an agency to consider towards resiliency analysis:

- Resistance: ability to control resources through appropriate levels of response.
- Absorption: ability to add resources due to higher demand upon the response system.
- Restoration: ability to return to a state of normalcy and a state of response readiness.

HFD addresses *resistance* through critical task analysis for the hazard classes to assure only the proper number of resources are utilized for service response.

HFD addresses *absorption* through the policy of adding reserve apparatus and personnel in times of special activity; storms, unusually high service demand, etc. Reserve apparatus are designated Engine 4, Engine 6, Ladder 1 and District 3. These units are housed in Stations 4, 7, 8, and 10. Personnel are added through a call-back system. The agency utilizes the Everbridge system, an online vendor, for electronic notifications to personnel through phone and text. Personnel are informed and provided with directions to follow.

HFD addresses *restoration* through agency policy on units returning to service promptly upon incident mitigation and equipment decontamination/replenishment.

HFD conducted a reliability study for 2018 comprised of three components:

- Number of concurrent or simultaneous calls in the same RMZ on an hourly basis.
- Number of calls units were unable to respond to within the RMZ due to another call.
- Number of responses a unit responded to in another RMZ.

Calls for service requiring only a Ladder or Tactical Unit response were excluded due to typically being a non-emergent response, without emergency lights and sirens. A party locked in a vehicle or elevator, power lines down in the street, and water problems are common examples of such calls. This allowed for 91.47% of the 30,469 service responses to be evaluated. The tables and charts that follow provide the results of all three study components.

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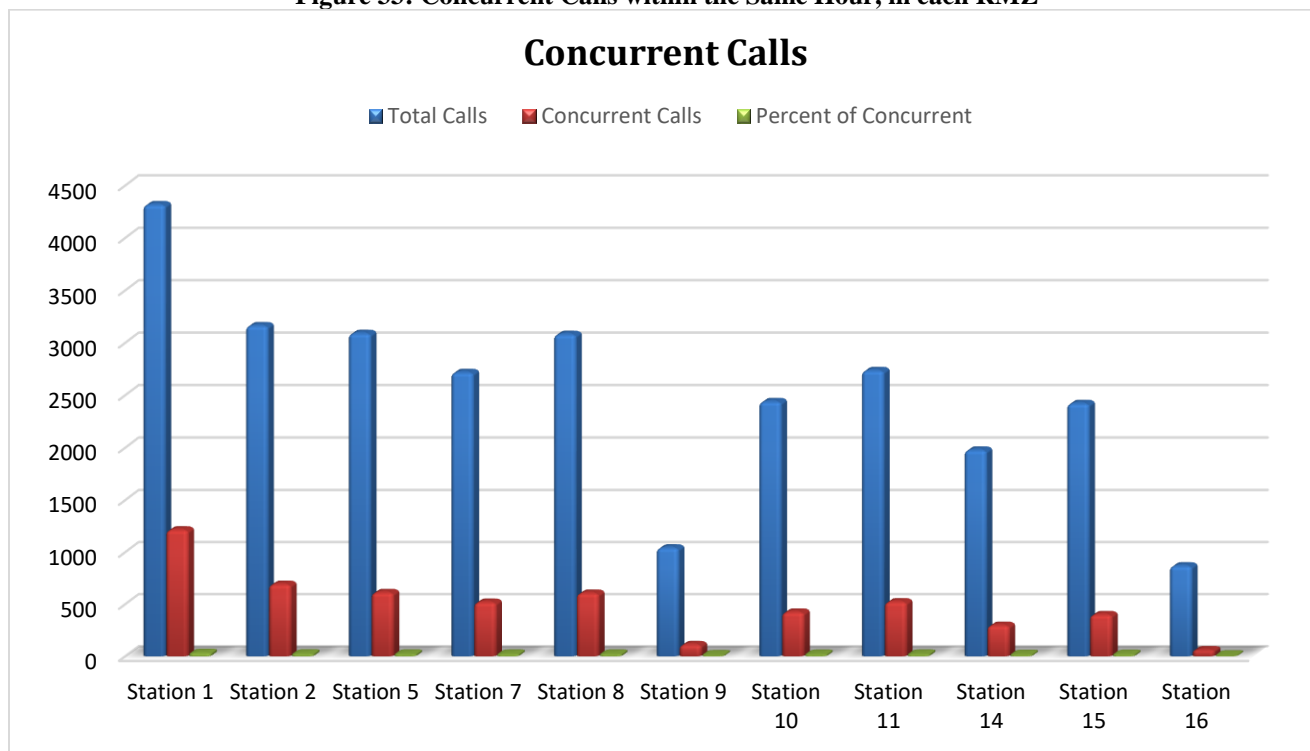
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The first reliability component indicated there were 5,479 concurrent (or simultaneous) calls for service within the same RMZ and during the same hour in 2018. This indicated the number of service requests that occurred while a unit was already committed to another call for service. Overall, the system experienced concurrent calls almost 20% of the time.

Table 90: Concurrent Calls within the Same Hour, in each RMZ

RMZ	Total Calls	Concurrent Calls	Percent of Concurrent
Station 1	4,319	1,216	28.15
Station 2	3,165	693	21.89
Station 5	3,091	614	19.86
Station 7	2,719	521	19.16
Station 8	3,082	608	19.73
Station 9	1,043	114	10.93
Station 10	2,441	426	17.45
Station 11	2,737	525	19.18
Station 14	1,979	299	15.11
Station 15	2,423	402	16.59
Station 16	870	61	7.01
Total	27,869	5,479	19.66

Figure 33: Concurrent Calls within the Same Hour, in each RMZ



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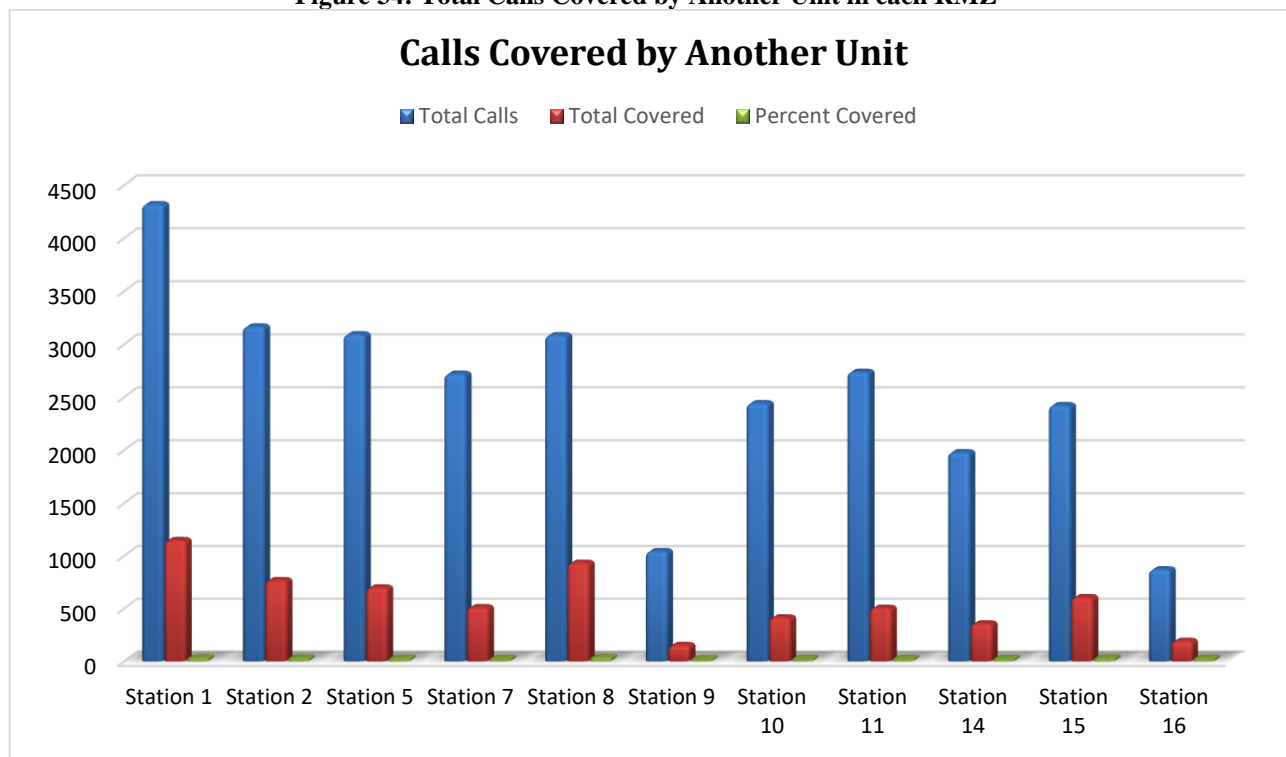
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The second reliability component measured the number of calls for service in an RMZ that had to be covered by a unit from another RMZ. This measures the amount of time a zone is in an unprotected state from its designated distribution resource. Results indicated six station zones were covered more than 20% of the time in 2018. Station 8 was covered the highest amount at over 30% of the time.

Table 91: Total Calls Covered by Another Unit in each RMZ

RMZ	Total Calls	Total Covered	Percent Covered
Station 1	4,319	1,148	26.58
Station 2	3,165	768	24.26
Station 5	3,091	698	22.58
Station 7	2,719	511	18.79
Station 8	3,082	932	30.24
Station 9	1,043	152	14.57
Station 10	2,441	414	16.96
Station 11	2,737	505	18.45
Station 14	1,979	357	18.04
Station 15	2,423	607	25.05
Station 16	870	191	21.95
Total	27,869	6,283	22.54

Figure 34: Total Calls Covered by Another Unit in each RMZ



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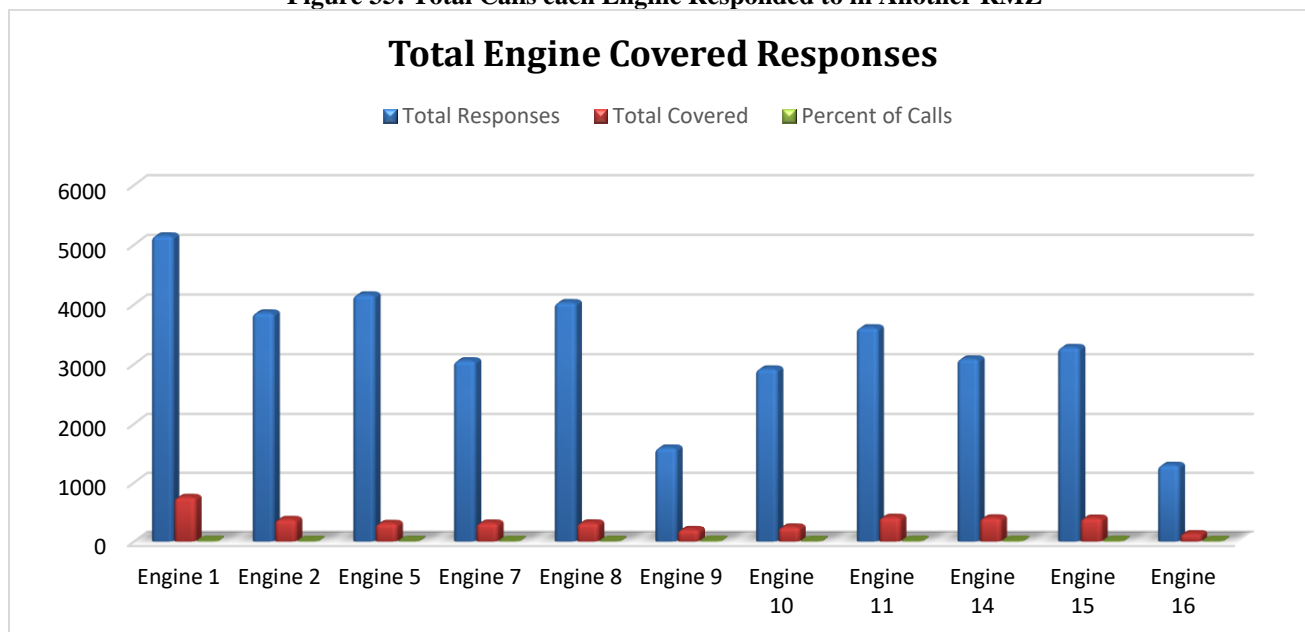
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The third reliability component measured the number of calls each unit covered another unit in a different RMZ. This measures the amount of time the covering resource leaves its own RMZ in an unprotected state. Overall, the entire system had to respond out of their assigned RMZ to cover another unit more than 11% of the time in 2018.

Table 92: Total Calls each Unit Responded to in Another RMZ

RMZ	Total Responses	Total Covered	Percent of Responses
Engine 1	5,152	752	14.60
Engine 2	3,861	377	10.00
Engine 5	4,163	310	7.45
Engine 7	3,059	316	10.33
Engine 8	4,034	318	7.88
Engine 9	1,593	206	12.93
Engine 10	2,922	248	8.49
Engine 11	3,613	414	11.46
Engine 14	3,090	403	13.04
Engine 15	3,283	400	12.18
Engine 16	1,299	132	10.16
Ladder 2	1,894	346	18.27
Ladder 3	1,898	366	19.28
Ladder 4	1,858	279	15.02
Ladder 5	2,210	422	19.09
Ladder 6	2,845	742	26.08
Total	51,943	6,031	11.61

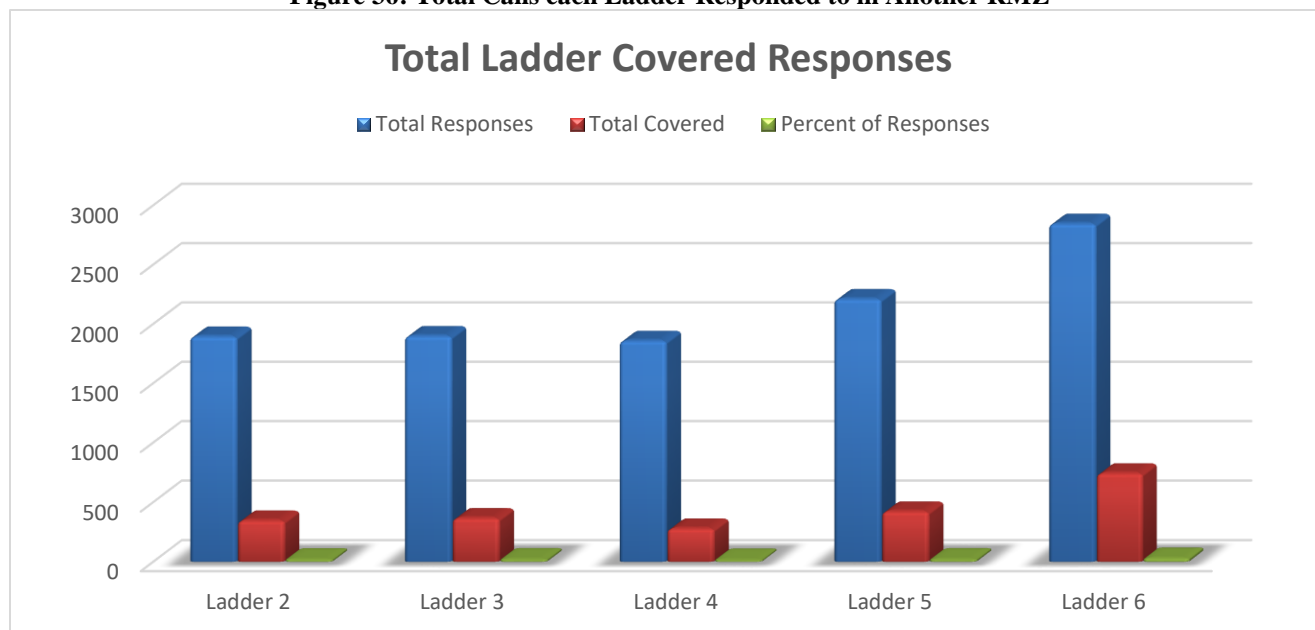
Figure 35: Total Calls each Engine Responded to in Another RMZ



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Figure 36: Total Calls each Ladder Responded to in Another RMZ



Mutual Aid

The City of Hartford participates in the Connecticut Intra-State Mutual Aid Compact; a state level coordination mechanism for intra- and inter-regional resources during escalating events. It is a frequent occurrence across the nation that an emergent event escalates beyond the resources of a local community. During these events, regional resources are requested to assist in bringing the incident under control. HFD analyzed the agency demand for mutual aid assistance from the regional community partners for the calendar period of 2014-2018. HFD responded for a total of 105 aid requests during the period or an average of 21 times annually. HFD did not request mutual aid into the community within the same period.

Table 93: Mutual Aid Demand (2014-2018)

Community Partner	2014-2018	2018	2017	2016	2015	2014
Bloomfield	3	1			1	1
East Hartford	29	6	7	5	6	5
Enfield	1	1				
Farmington	1	1				
Manchester	1			1		
Meriden	1				1	
New Britain	25	6	6	6	4	3
Newington	1				1	
Torrington	1					1
West Hartford	35	5	10	7	4	9
Wethersfield	1		1			
Windsor	6	2	2	1	1	
Total Aid Demand	105	22	26	20	18	19

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Comparability Factors

Comparability is a review of the agency in comparison to industry standards. It is important to set goals according to a standard to meet or guide towards progress. HFD utilizes ISO and NFPA for response guidelines concerning the four primary response classes; fire, EMS, hazardous materials, and technical rescue. AHA provides additional EMS guidance.

Insurance Services Organization (ISO)

ISO evaluates fire protection in communities throughout the country. The evaluation comprises a weighted system against three components:

- 10% - Emergency Communications
- 50% - Fire Department
- 40% - Water Supply
- Community Risk Reduction - 5.5 bonus points for community recognition in the efforts of fire prevention, public safety education, and fire investigations.

An agency is measured according to established criteria within each component and given a rating classification of 10 to 1. A Class rating of 10 indicates no fire protection level available while a Class 1 rating is the best achievable. The Hartford Fire Department has been an ISO Class 1 rated agency since 1994.

National Fire Protection Agency (NFPA)

NFPA is a codes and standards organization dedicated to saving life and property through education, research, and training. Though these standards are voluntary, OSHA bases decisions upon them for investigative purposes. 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* is the model benchmark HFD aspires to meet. The standard provides the outline for an organizational model for staffing, deployment, and levels of service. It states the following:

- call processing time: not more than 64 seconds for at least 90 percent of the alarms
and not more than 106 seconds for at least 95 percent of the alarms
- turnout time: 80 seconds for fire and special operations response and
60 seconds turnout time for EMS response
- travel time: *240 seconds or less for the arrival of the first arriving engine company
 - For other than high-rise, 480 seconds or less travel time for the deployment of an initial full alarm assignment at a fire suppression incident.
 - For high-rise, 610 seconds or less travel time for the deployment of an initial full alarm assignment at a fire suppression incident.

(NFPA, 1710)

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American Heart Association (AHA)

AHA is the organization that sets the standard guidelines for CPR and emergency defibrillation. AHA asserts the following:

- For every minute without CPR, the chance of death increases by 10 percent
- The brain begins to die within 4 - 6 minutes without oxygen
- Irreversible brain damage occurs after ten minutes
- No CPR and delayed defibrillation (after ten minutes), the survival rate drops below two percent.

Dataset Qualification

Baseline analysis is the measurement of actual organizational performance. It is important for any service agency to understand what level of performance it is operating at, as there is always room for improvement within an organization. For this section, HFD measured response system performance utilizing incident response times.

The agency is dispatched to calls for service by the Hartford Public Safety Dispatch Center. This center is operated by the City of Hartford Department of Emergency Services and Telecommunications (ES&T), a city agency separate from the department which serves as a Public Safety Answering Point (PSAP). PSAP's function as the first line in the emergency response notification system. A PSAP receives the initial emergency call, makes the decision for which public safety service agencies are required based on obtained information/protocols, and then forwards to the appropriate public safety dispatchers (fire, police, and ambulance).

It is important to understand that the response time data provided is not fully accurate at this time. The PSAP is unable to capture the initial time of the emergency call taken at entry into the center. This portion of alarm handling time is therefore unaccounted for due to limitations of the current HEARTBEAT CAD system. HFD is presently only able to accurately track response time data from the time the emergency call is transferred to the fire dispatcher from the call intake dispatcher, to the time that department units arrive at the incident scene. This issue will be rectified upon the replacement of the current CAD system to a new replacement system planned for by year end 2020.

HFD measured performance for calendar years 2014-2018 utilizing a fractal measurement rather than the mean (average). An example of analysis at an average six-minute total response time would indicate that the agency arrived 50% of the time in less than six minutes and over six minutes the other 50% of the time. Fractal measurement is an industry best practice as it shows what an organization is doing most of the time; specifically using the 90th percentile. This method provides for classifying 10% of the data as outliers; incomplete or corrupted data that is unusual in normal operating conditions. Measuring at the 90th percentile allows the agency to see how it is performing 90% of the time rather than half of the time (the mean average).

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Outliers

Outliers will be defined as incomplete data or data that contains errors, of which inclusion of such data would skew the evaluation of performance measurements. It can also be attributed to inconsistencies during unusual operating conditions such as storm coverage and extreme service demand. The agency did not establish time thresholds for the initial baseline analysis. Outlier time thresholds will be established by department directive (SOP) with a timeline of calendar year end 2019 and then added to the SOC in the next annual update. HFD policy will be to address outlier data with exception reporting; follow-up by the respective district chief as to the root cause and forwarded to the accreditation manager. The agency established the following thresholds for classifying outliers in this SOC:

- Only daily staffed front-line units were used in the analysis.
- All non-emergency responses were excluded.
- All mutual aid responses were excluded.

Baseline Performance Tables

A baseline analysis was completed for each of the four primary hazard classes: fire, EMS, hazardous materials, and technical rescue for the 2014-2018 calendar period. The tables that follow will identify HFD baseline performance for the risk categories within the four primary hazard classes. Only the fire and haz-mat hazard classes provided a high risk analysis. Maximum risk categories contained no historical data for further evaluation. Hartford is classified as Urban according to the US Census Bureau with an overall population density of 7,178 people per square mile. The “n” value represents the number of incidents used in the analysis.

Table 94: Baseline Performance - Fire Suppression - Low Risk

Fire - 90th Percentile Times Baseline Performance - Urban (Low Risk)		2014 / 2018	2018	2017	2016	2015	2014
Alarm Handling	Pick-up to Dispatch	00:47	00:50	00:40	00:47	00:53	00:44
Turnout Time	Turnout Time 1 st Unit	3:11	2:54	3:09	3:17	3:16	3:13
Travel Time	Travel Time - 1 st Unit Distribution	4:47	4:23	4:21	5:02	4:53	4:55
Total Response Time	Total Response Time 1 st Unit Distribution	7:21	6:42	7:02	7:53	7:20	7:52
		n= 2,193	n= 352	n= 367	n= 570	n= 507	n= 397

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Table 95: Baseline Performance - Fire Suppression - Moderate Risk

Fire - 90th Percentile Times Baseline Performance - Urban (Moderate Risk)		2014 / 2018	2018	2017	2016	2015	2014
Alarm Handling	Pick-up to Dispatch	00:42	00:31	00:56	00:35	1:25	00:36
Turnout Time	Turnout Time 1 st Unit	3:07	2:47	3:05	3:04	3:11	3:23
Travel Time	Travel Time - 1 st Unit Distribution	3:12	3:19	2:57	3:00	3:17	3:10
	Travel Time - ERF Concentration	5:10	4:49	5:01	5:10	5:02	5:19
Total Response Time	Total Response Time 1 st Unit Distribution	5:39	5:32	5:20	5:38	5:55	5:38
		n= 904	n= 203	n= 173	n= 183	n= 194	n= 151
	Total Response Time ERF Concentration	8:00	7:43	7:26	8:27	8:20	8:34
		n= 848	n= 198	n= 162	n= 173	n= 177	n= 138

Table 96: Baseline Performance - Fire Suppression - High Risk

Fire - 90th Percentile Times Baseline Performance - Urban (High Risk)		2014 / 2018	2018	2017	2016	2015	2014
Alarm Handling	Pick-up to Dispatch **	25:19	22:11	16:03	1:09:56	30:16	22:31
Turnout Time	Turnout Time 1 st Unit	4:03	4:32	3:34	02:14	4:05	4:23
Travel Time	Travel Time - 1 st Unit Distribution	*	*	*	*	*	*
	Travel Time - ERF Concentration	7:40	7:11	6:48	4:26	7:05	8:04
Total Response Time	Total Response Time 1 st Unit Distribution	*	*	*	*	*	*
		35:48	33:46	23:45	1:11:25	35:37	35:46
	Total Response Time ERF Concentration	n = 64	n = 10	n = 17	n = 4	n = 20	n = 13

* High Risk Fire incidents do not utilize the 1st Unit measurement. These are additional alarm assignments added to an initial Moderate Risk Fire Incident. The alarm handling time is excessive due to the fact it originates from the initial call at the Moderate Fire Risk level. The PSAP is currently unable to capture the separated time component. This will be rectified upon the CAD system replacement in 2020.

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Table 97: Baseline Performance - EMS - Low Risk

EMS - 90th Percentile Times Baseline Performance - Urban (Low Risk)		2014 / 2018	2018	2017	2016	2015	2014
Alarm Handling	Pick-up to Dispatch	00:39	00:37	00:42	00:41	00:41	00:35
Turnout Time	Turnout Time 1 st Unit	3:00	2:42	2:56	3:05	3:11	3:04
Travel Time	Travel Time - 1 st Unit Distribution	3:57	3:50	3:57	3:52	4:05	4:03
Total Response Time	Total Response Time 1 st Unit Distribution	6:23	5:59	6:18	6:25	6:45	6:31
		n= 83,569	n= 18,910	n= 18,501	n= 17,274	n= 14,943	n= 13,941

Table 98: Baseline Performance - EMS - Moderate Risk

EMS - 90th Percentile Times Baseline Performance - Urban (Moderate Risk)		2014 / 2018	2018	2017	2016	2015	2014
Alarm Handling	Pick-up to Dispatch	1:01	00:52	1:08	1:08	1:03	00:53
Turnout Time	Turnout Time 1 st Unit	2:58	2:41	2:52	3:03	3:08	3:02
Travel Time	Travel Time - 1 st Unit Distribution	4:23	4:23	4:15	4:30	4:22	4:17
	Travel Time - ERF Concentration	7:09	7:40	7:28	7:05	6:44	6:22
Total Response Time	Total Response Time 1 st Unit Distribution	6:56	6:46	6:48	7:08	7:10	6:49
		n= 9,224	n= 2,033	n= 2,068	n= 2,000	n= 1,688	n= 1,435
	Total Response Time ERF Concentration	10:08	10:02	10:30	10:15	10:08	9:33
		n= 5,010	n= 1,006	n= 1,065	n= 1,013	n= 1,066	n= 860

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Table 99: Baseline Performance - Technical Rescue - Low Risk

Rescue - 90th Percentile Times Baseline Performance - Urban (Low Risk)		2014 / 2018	2018	2017	2016	2015	2014
Alarm Handling	Pick-up to Dispatch	00:50	00:37	1:04	00:42	00:50	00:45
Turnout Time	Turnout Time 1 st Unit	3:22	2:54	3:04	3:23	3:37	3:32
Travel Time	Travel Time - 1 st Unit Distribution	7:39	7:23	6:20	7:32	8:33	8:43
Total Response Time	Total Response Time 1 st Unit Distribution	10:35	9:29	9:18	10:27	11:36	11:14
		n= 679	n= 135	n= 132	n= 157	n= 121	n= 134

Table 100: Baseline Performance - Technical Rescue - Moderate Risk

Rescue - 90th Percentile Times Baseline Performance - Urban (Moderate Risk)		2014 / 2018	2018	2017	2016	2015	2014
Alarm Handling	Pick-up to Dispatch	1:12	1:39	00:39	00:58	2:31	00:33
Turnout Time	Turnout Time 1 st Unit	3:14	2:46	3:16	3:24	3:09	3:14
Travel Time	Travel Time - 1 st Unit Distribution	5:00	5:06	3:30	4:50	5:39	5:57
	Travel Time - ERF Concentration	7:50	7:44	7:02	9:15	7:40	8:53
Total Response Time	Total Response Time 1 st Unit Distribution	8:27	8:30	5:58	7:57	9:33	8:22
		n= 212	n= 51	n= 39	n= 53	n= 32	n= 37
	Total Response Time ERF Concentration	15:20	14:44	11:04	15:25	17:36	15:51
		n= 137	n= 41	n= 24	n= 31	n= 19	n= 22

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Table 101: Baseline Performance – Haz-Mat - Low Risk

Haz-Mat - 90th Percentile Times Baseline Performance - Urban (Low Risk)		2014 / 2018	2018	2017	2016	2015	2014
Alarm Handling	Pick-up to Dispatch	1:36	1:24	2:06	00:43	2:03	1:38
Turnout Time	Turnout Time 1 st Unit	3:18	3:09	2:53	3:25	3:19	3:21
Travel Time	Travel Time - 1 st Unit Distribution	6:18	6:29	6:07	4:53	6:21	6:38
Total Response Time	Total Response Time 1 st Unit Distribution	9:36	9:05	10:11	8:03	9:39	10:02
		n= 788	n= 164	n= 140	n= 155	n= 152	n= 177

Table 102: Baseline Performance – Haz-Mat - Moderate Risk

Haz-Mat - 90th Percentile Times Baseline Performance - Urban (Moderate Risk)		2014 / 2018	2018	2017	2016	2015	2014
Alarm Handling	Pick-up to Dispatch	00:49	00:40	00:53	00:40	00:53	00:53
Turnout Time	Turnout Time 1 st Unit	3:15	2:58	2:58	3:14	3:38	3:11
Travel Time	Travel Time - 1 st Unit Distribution	4:51	4:36	4:12	5:42	5:27	4:08
	Travel Time - ERF Concentration	5:14	5:08	5:15	5:01	5:21	5:25
Total Response Time	Total Response Time 1 st Unit Distribution	7:52	7:29	6:37	8:32	9:02	7:14
		n= 821	n= 156	n= 135	n= 160	n= 181	n= 189
	Total Response Time ERF Concentration	8:32	8:29	8:37	8:25	8:54	8:29
		n= 543	n= 106	n= 97	n= 91	n= 106	n= 143

Table 103: Baseline Performance – Haz-Mat - High Risk

Haz-Mat - 90th Percentile Times Baseline Performance - Urban (High Risk)		2014 / 2018	2018	2017	2016	2015	2014
Alarm Handling	Pick-up to Dispatch	0:43	0:38	1:08	0:36	0:11	1:19
Turnout Time	Turnout Time 1 st Unit	3:11	2:22	3:08	3:11	0:13	3:04
Travel Time	Travel Time - 1 st Unit Distribution	4:11	3:45	1:35	4:08	4:11	3:59
Total Response Time	Total Response Time 1 st Unit Distribution	6:35	6:13	5:45	6:12	4:35	6:35
		n= 30	n= 11	n= 5	n= 7	n= 1	n= 6

* The ERF was never reached on any of the limited incidents for the high risk category. Response was downgraded or mitigated by the first arriving unit.

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I. Evaluation of Service Delivery

It is important for any service agency to understand what level of performance it is operating at, as there is always room for improvement within an organization. The Hartford Fire Department (HFD) is an all-hazards emergency response agency with a goal of providing exceptional service to the residents, visitors, and businesses within the City of Hartford and its regional partners. This service can be measured for determining the strengths and weaknesses within the department regarding performance to the community.

This section will provide information identifying HFD performance goals and the actual historical performance for calendar years 2014 - 2018. Benchmarks are defined as the target goals that HFD has established as the criteria for performance evaluation. Baselines are defined as the actual performance results that HFD achieved. The department evaluated system response performance based on the four incident response time components; call processing, turnout, travel, and aggregate (total) response time.

- Call Processing: total time of receiving an emergency call, determining the appropriate response of personnel, and notifying the designated response personnel.
- Turnout: total time of personnel receiving the notification call for service, preparation into the emergency vehicle, and beginning of travel response.
- Travel: total time between beginning of travel response to the arrival of the response unit.
- Aggregate (Total) Response: total time from receiving the initial emergency call, until the arrival of the response unit(s).

The agency utilized National Fire Protection Association (NFPA) 1710 as the standard to establish benchmark target goals for the four primary risk classifications with respect for response measurements against baselines.

The standard states the following:

- Call processing time: not more than 64 seconds for at least 90 percent of the alarms and not more than 106 seconds for at least 95 percent of the alarms.
- Turnout time: 80 seconds for fire and special operations response and 60 seconds turnout time for EMS response.
- Travel time: *240 seconds or less for the arrival of the first arriving engine company.
 - For other than high-rise, 480 seconds or less travel time for the deployment of an initial full alarm assignment at a fire suppression incident.
 - For high-rise, 610 seconds or less travel time for the deployment of an initial full alarm assignment at a fire suppression incident.

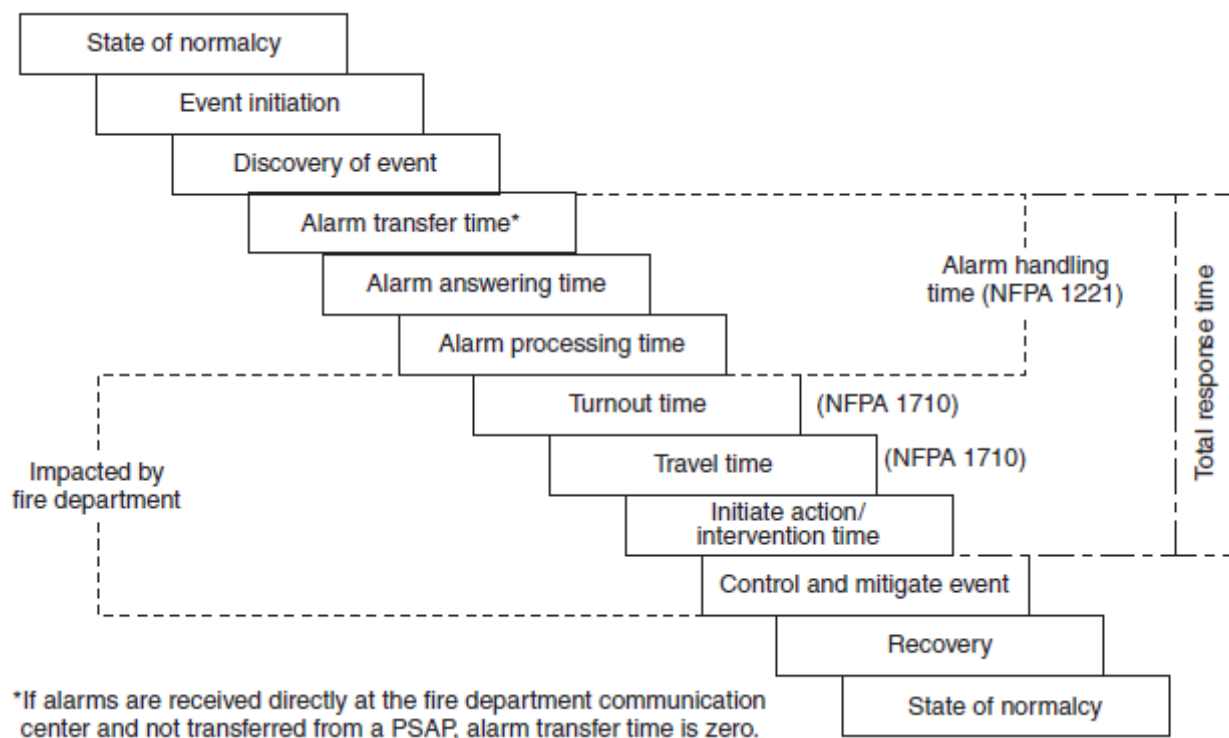
(NFPA, 1710)

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NFPA has developed a timeline process referred to as the cascade of events. This is to better understand the multiple time components of emergency response and mitigation. The state of normalcy is the ideal a person has of experiencing a certain expectation at any given moment. This is followed by the initiation of an emergent event; a fire event, physically traumatic event, or respiratory/cardiac medical event are some examples. This is followed by the discovery of the event with the subsequent notification to emergency services for a response. As explained in Section I, alarm handling time is under the control of ES&T. The time components within the direct control of the department are the turnout time and travel time. Upon arrival, emergency responders are then able to assess the situation, initiate mitigation actions and bring the customer back to a state of normalcy again. As shown in the visual provided, HFD can only control a small portion of the entire cascade of events.

Figure 37: Cascade of Events



Source: NFPA Figure A.3.3.53.6

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Performance Objectives – Benchmarks

Fire Suppression Services Program

For 90 percent of all low risk fire suppression incidents, the total response time for the arrival of the first due unit, staffed with four personnel, shall be: 6 minutes and 20 seconds. The first due unit shall be capable of: providing 500 gallons of water and 1,500 gallons per minute (gpm) pumping capacity, initiating command, requesting additional resources, establishing and advancing an attack line flowing a minimum of 150 gpm, establishing an uninterrupted water supply, containing the fire, rescuing at-risk victims, and performing salvage operations. These operations shall be done in accordance with departmental standard operating procedures while providing for the safety of responders and the general public.

For 90 percent of all moderate risk fire suppression incidents, the total response time for the arrival of the Effective Response Force (ERF), staffed with a minimum of 15 personnel, shall be: 10 minutes and 20 seconds. The ERF shall be capable of: establishing command, providing an uninterrupted water supply, advancing an attack line and a backup line for fire control, complying with the Occupational Safety and Health Administration (OSHA) requirements of two-in/two-out, completing forcible entry, searching and rescuing at-risk victims, ventilating the structure, controlling utilities, and performing salvage and overhaul. These operations shall be done in accordance with departmental standard operating procedures while providing for the safety of responders and the general public.

For 90 percent of all high risk fire suppression incidents, the total response time for the arrival of the ERF, staffed with a minimum of 29 personnel, shall be: 12 minutes and 30 seconds. The ERF shall be capable of: establishing command, providing an uninterrupted water supply, advancing an attack line and a backup line for fire control, complying with the Occupational Safety and Health Administration (OSHA) requirements of two-in/two-out, completing forcible entry, searching and rescuing at-risk victims, ventilating the structure, controlling utilities, performing salvage and overhaul, and placing elevated streams into service from aerial ladders. These operations shall be done in accordance with departmental standard operating procedures while providing for the safety of responders and the general public.

For 90 percent of all maximum risk fire suppression incidents, the total response time for the arrival of the ERF, staffed with a minimum of 43 personnel, shall be: 12 minutes and 30 seconds. The ERF shall be capable of: establishing command, providing an uninterrupted water supply, advancing an attack line and a backup line for fire control, complying with the Occupational Safety and Health Administration (OSHA) requirements of two-in/two-out, completing forcible entry, searching and rescuing at-risk victims, ventilating the structure, controlling utilities, performing salvage and overhaul, and placing elevated streams into service from aerial ladders. These operations shall be done in accordance with departmental standard operating procedures while providing for the safety of responders and the general public.

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Emergency Medical Services Program

For 90 percent of all low risk EMS incidents, the total response time for the arrival of the first-due unit, staffed with a minimum of four personnel, shall be: 6 minutes and 20 seconds. The first due unit shall be capable of: assessing scene safety and establishing command, sizing-up the situation, conducting an initial patient assessment, obtaining vitals and patient's medical history, initiating mitigation efforts within one minute of arrival, providing first responder medical aid including Automatic External Defibrillation (AED), and assisting transport personnel with packaging the patient.

For 90 percent of all moderate risk EMS incidents, the total response time for the arrival of the ERF, with a minimum of eight personnel, shall be: 10 minutes and 20 seconds. The ERF shall be capable of providing incident command and producing related documentation, appointing a site safety officer, completing patient assessment, providing appropriate treatment, performing AED, initiating CPR, and assisting transport personnel with packaging patients. Operations shall be done in accordance with departmental standard operating procedures while providing for the safety of responders and the general public.

For 90 percent of all high and maximum risk EMS incidents, the total response time for the arrival of the ERF, with a minimum of 20 personnel, shall be: 12 minutes and 30 seconds. The ERF shall be capable of: providing incident command and producing related documentation, appointing a site safety officer, appointing an EMS Branch, assigning Triage/Treatment/Transport Sectors, completing patient assessments, providing appropriate treatments, performing AED, initiating CPR, assisting transport personnel with packaging patients, and providing EMS expertise, knowledge, skills, and abilities during MCI incidents. Operations shall be done in accordance with departmental standard operating procedures while providing for the safety of responders and the general public.

Technical Rescue Services Program

For 90 percent of all low risk technical rescue incidents, the total response time for the arrival of the first due unit, staffed with a minimum of four personnel, shall be: 6 minutes and 20 seconds. The first due unit shall be capable of: establishing command, sizing up to determine if a technical rescue response is required, requesting additional resources, and providing basic life support to any victim without causing further harm. Operations shall be done in accordance with departmental standard operating procedures while providing for the safety of responders and the general public.

For 90 percent of all moderate risk technical rescue incidents, the total response time for the arrival of the ERF including the technical response team, staffed with a minimum of 12 personnel, shall be: 10 minutes and 20 seconds. The ERF shall be capable of appointing a site safety officer establishing patient contact, staging and apparatus set up, providing technical expertise, knowledge, skills, and abilities during technical rescue incidents, and providing first responder medical support. Operations shall be done in accordance with departmental standard operating procedures while providing for the safety of responders and the general public.

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For 90 percent of all high risk technical rescue incidents, the total response time for the arrival of the ERF including the technical response team, staffed with a minimum of 25 personnel, shall be: 12 minutes and 30 seconds. The ERF shall be capable of: appointing a site safety officer, appointing a Rescue Branch, confirming lock-out/tag-out, establishing patient contact, providing atmospheric monitoring and ventilation, staging and apparatus set up, providing technical expertise, knowledge, skills, and abilities during technical rescue incidents, and providing first responder medical support. Operations shall be done in accordance with departmental standard operating procedures while providing for the safety of responders and the general public.

For 90 percent of all maximum risk technical rescue incidents, the total response time for the arrival of the ERF including the technical response team, staffed with a minimum of 32 personnel, shall be: 12 minutes and 30 seconds. The ERF shall be capable of: appointing a site safety officer, appointing a Rescue Branch, confirming lock-out/tag-out, establishing patient contact, providing atmospheric monitoring and ventilation, staging and apparatus set up, providing technical expertise, knowledge, skills, and abilities during technical rescue incidents, and providing first responder medical support. Operations shall be done in accordance with departmental standard operating procedures while providing for the safety of responders and the general public.

Hazardous Materials Services Program

For 90 percent of all low risk hazardous materials incidents, the total response time for the arrival of the first due unit, staffed with a minimum of four personnel, shall be: 6 minutes and 20 seconds. The first due unit shall be capable of: establishing command, sizing up and assessing the situation to determine the presence of a potential hazardous material or explosive device, determining the need for additional resources, estimating the potential harm without intervention, and begin establishing a hot, warm, and cold zone. Operations shall be done in accordance with departmental standard operating procedures while providing for the safety of responders and the general public.

For 90 percent of all moderate risk hazardous materials incidents, the total response time for the arrival of the ERF including the hazardous materials response team, staffed with a minimum of 15 personnel, shall be: 10 minutes and 20 seconds. The ERF shall be capable of providing the equipment, technical expertise, knowledge, skills and abilities to mitigate a hazardous materials incident. Operations shall be done in accordance with departmental standard operating procedures while providing for the safety of responders and the general public.

For 90 percent of all high risk hazardous materials incidents, the total response time for the arrival of the ERF including the hazardous materials response team, staffed with a minimum of 28 personnel, shall be: 12 minutes and 30 seconds. The ERF shall be capable of providing the equipment, technical expertise, knowledge, skills and abilities to mitigate a hazardous materials incident. Operations shall be done in

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accordance with departmental standard operating procedures while providing for the safety of responders and the general public.

For 90 percent of all maximum risk hazardous materials incidents, the total response time for the arrival of the ERF including the hazardous materials response team, staffed with a minimum of 48 personnel, shall be: 12 minutes and 30 seconds. The ERF shall be capable of providing the equipment, technical expertise, knowledge, skills and abilities to mitigate a hazardous materials incident. Operations shall be done in accordance with departmental standard operating procedures while providing for the safety of responders and the general public.

Performance Objectives – Baselines

Fire Suppression Services Program

The department's baseline statements reflect actual performance during 2014 to 2018. The department does not rely on the use of automatic aid or mutual aid from neighboring fire departments to provide its ERF complement of personnel. The department's actual baseline service level performance is as follows:

For 90 percent of all low risk fire suppression incidents, the total response time for the arrival of the first due unit, staffed with a minimum of four personnel, is: 7 minutes and 21 seconds, and 5 minutes and 39 seconds for moderate risk events. The first due unit for all risk levels is capable of: providing 500 gallons of water and 1,500 gpm pumping capacity, initiating command, requesting additional resources, establishing and advancing an attack line flowing a minimum of 150 gpm, establishing an uninterrupted water supply, containing the fire, rescuing at-risk victims, and performing salvage operations. These operations are done in accordance with departmental standard operating procedures while providing for the safety of responders and the general public.

For 90 percent of all moderate risk fire suppression incidents, the total response time for the arrival of the ERF, staffed with a minimum of 15 personnel, is: 8 minutes and 0 seconds. The ERF for moderate risk fires is capable of: establishing command, providing an uninterrupted water supply, advancing an attack line and a backup line for fire control, complying with the OSHA requirements of two-in/two out, completing forcible entry, searching and rescuing at-risk victims, ventilating the structure, controlling utilities, and performing salvage and overhaul. These operations are done in accordance with departmental standard operating procedures while providing for the safety of responders and the general public.

For 90 percent of all high risk fire suppression incidents, the total response time for the arrival of the ERF, staffed with a minimum of 29 personnel, is: 35 minutes and 48 seconds. The ERF for moderate risk fires is capable of: establishing command, providing an uninterrupted water supply, advancing an attack line and a backup line for fire control, complying with the OSHA requirements of two-in/two out, completing forcible entry, searching and rescuing at-risk victims, ventilating the structure, controlling utilities, performing salvage and overhaul, and placing elevated streams into service from aerial ladders. These

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operations are done in accordance with departmental standard operating procedures while providing for the safety of responders and the general public.

Maximum risk fire incidents have no historical data so there was no further evaluation.

Emergency Medical Services Program

The department's baseline statements reflect actual performance during 2014 to 2018. The department does not rely on the use of automatic aid or mutual aid from neighboring fire departments to provide its ERF complement of personnel. The department's actual baseline service level performance is as follows:

For 90 percent of all low risk EMS incidents, the total response time for the arrival of the first due unit, staffed with a minimum of four personnel, is: 6 minutes and 23 seconds, and 6 minutes and 56 seconds for moderate risk events. The first due unit is capable of: assessing scene safety and establishing command, sizing-up the situation, conducting an initial patient assessment, obtaining vitals and patient's medical history, initiating mitigation efforts within one minute of arrival, providing first responder medical aid including AED, and assisting transport personnel with packaging the patient.

For 90 percent of all moderate risk EMS incidents, the total response time for the arrival of the ERF, staffed with a minimum of eight personnel, is: 10 minutes and 08 seconds. The ERF is capable of providing incident command and producing related documentation, appointing a site safety officer, completing patient assessment, providing appropriate treatment, performing AED, initiating CPR, and assisting transport personnel with packaging the patients. These operations are done in accordance with departmental standard operating procedures while providing for the safety of responders and the general public.

High and maximum risk EMS incidents have no historical data so there was no further evaluation.

Technical Rescue Services Program

The department's baseline statements reflect actual performance during 2014 to 2018. The department does not rely on the use of automatic aid or mutual aid from neighboring fire departments to provide its effective response force complement of personnel. The department's actual baseline service level performance is as follows:

For 90 percent of all low risk technical rescue incidents, the total response time for the arrival of the first due unit, staffed with a minimum of four personnel, is: 10 minutes and 35 seconds, and 8 minutes and 27 seconds for moderate risk events. The first due unit is capable of: establishing command, sizing up to determine if a technical rescue response is required, requesting additional resources, and providing basic life support to any victim without causing further harm. Operations are done in accordance with departmental standard operating procedures while providing for the safety of responders and the general public.

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For 90 percent of all moderate risk technical rescue incidents, the total response time for the arrival of the ERF, staffed with a minimum of 12 personnel including the technical response team, is: 15 minutes and 20 seconds. The ERF is capable of appointing a site safety officer, establishing patient contact, staging and apparatus set up, providing technical expertise, knowledge, skills, and abilities during technical rescue incidents, and providing first responder medical support. Operations are done in accordance with departmental standard operating procedures while providing for the safety of responders and the general public.

High and maximum risk technical rescue incidents have no historical data so there was no further evaluation.

Hazardous Materials Services Program

The department's baseline statements reflect actual performance from 2014 to 2018. The department does not rely on the use of automatic aid or mutual aid from neighboring fire departments to provide its ERF complement of personnel. These resources are immediately available as part of a seamless response system. The department's actual baseline service level performance is as follows:

For 90 percent of all low risk hazardous materials incidents, the total response time for the arrival of the first due unit, staffed with a minimum of four personnel, is: 9 minutes and 36 seconds, and 7 minutes and 52 seconds for moderate risk events. The first due unit is capable of: establishing command, sizing up and assessing the situation to determine the presence of a potential hazardous material or explosive device, determining the need for additional resources, estimating the potential harm without intervention, and begin establishing a hot, warm, and cold zone. Operations are done in accordance with departmental standard operating procedures while providing for the safety of responders and the general public.

For 90 percent of all moderate risk hazardous materials incidents, the total response time for the arrival of the ERF, staffed with a minimum of 15 personnel including the hazardous materials response team, is: 8 minutes and 32 seconds. The ERF is capable of providing the equipment, technical expertise, knowledge, skills and abilities to mitigate a hazardous materials incident. Operations are done in accordance with departmental standard operating procedures while providing for the safety of responders and the general public.

For 90 percent of all high risk hazardous materials incidents, the total response time for the arrival of the ERF, staffed with a minimum of 28 personnel including the hazardous materials response team, is: 6 minutes and 35 seconds. The ERF is capable of providing the equipment, technical expertise, knowledge, skills and abilities to mitigate a hazardous materials incident. Operations are done in accordance with departmental standard operating procedures while providing for the safety of responders and the general public.

Maximum risk hazardous materials incidents have no historical data so there was no further evaluation.

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Performance Gaps – Baseline to Benchmark Time Gap

The department compared the baseline performance for the 2014-2018 period to the established agency benchmarks. Gaps in performance were identified to provide a number of opportunities for improvement. The concentration benchmarks for the fire, EMS, and haz-mat moderate risk categories were exceeded and will be adjusted accordingly with the goal for continuous improvement. The hazardous materials high risk category had very little service demand history and subsequent data. The concentration of resources was never reached as the incident was mitigated or the response was downgraded by the first unit on scene.

Table 104: Performance Gaps for Four Primary Hazard Classes and Risk Classifications (2014-2018)

Performance Summary	Alarm	Turnout	Travel	Total	Benchmark
Benchmarks	0:60	1:20	4:00		Total
Fire					
Low Risk	0:47	3:11	4:47	7:21	6:20
Gap	-0:13	1:51	0:47	1:01	
Moderate Risk	0:42	3:07	5:10	8:00	10:20
Gap	-0:18	1:47	1:10	-2:20	
High Risk	25:19	4:03	7:40	35:48	12:30
Gap	*	2:43	3:40	*	
EMS	0:60	1:20	4:00		
Low Risk	0:39	3:00	3:57	6:23	6:20
Gap	-0:21	1:40	-0:03	0:03	
Moderate Risk	1:01	2:58	7:09	10:08	10:20
Gap	0:01	1:38	3:09	-0:12	
High Risk	n/a	n/a	n/a	n/a	12:30
Gap					
Technical Rescue	0:60	1:20	4:00		
Low Risk	0:50	3:22	7:39	10:35	6:20
Gap	-0:10	2:02	3:39	4:15	
Moderate Risk	1:12	3:14	7:50	15:20	10:20
Gap	0:12	1:54	3:50	5:00	
High Risk	n/a	n/a	n/a	n/a	12:30
Gap					
Haz-Mat	0:60	1:20	4:00		
Low Risk	1:36	3:18	6:18	9:36	6:20
Gap	0:36	1:58	2:18	3:16	
Moderate Risk	0:49	3:15	5:14	8:32	10:20
Gap	-0:11	1:55	1:14	-2:12	
High Risk	0:43	3:11	4:11	6:35	12:30
Gap	-0:17	1:51	-8:19	-5:55	

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* High Risk Fire incidents do not utilize the 1st Unit measurement. These are additional alarm assignments added to an initial Moderate Risk Fire Incident. The alarm handling time is excessive due to the fact it originates from the initial call at the Moderate Fire Risk level. The PSAP is currently unable to capture the separated time component as explained in Table 96. This issue will be rectified upon the CAD system replacement in 2020.

Community Areas for Program Delivery and Coverage Improvement

Each Geographic Planning Zone (GPZ) in the community has received ample response service. The North and South Meadows are a cause for concern due to each containing one primary access point from the distribution point. The department will continue to monitor both areas for negative trending.

Performance analysis indicated the following areas for improvement:

- Distribution points in all areas of the community were near benchmark levels, with the exception of the technical rescue program. Limited access points on both interstate highways and the Whitehead Highway with the resultant congestion provides an obstacle for swift emergency response to these locations.
- Concentration benchmarks were exceeded in the fire, EMS, and haz-mat moderate risk categories. The benchmarks will be adjusted accordingly for continuous improvement.

Recommendations for Improved Effectiveness in Deployment and Coverage

HFD serves the community with a goal of continuous improvement in service delivery. The recommendations for improvement are as follows:

1. Utilizing the FIREHOUSE Software® program for risk assessment purposes will allow for a more thorough and robust risk assessment program that should be thoroughly explored for maximizing property data collection and migration during company pre-incident planning activities.
2. Replacement of the outdated HEARTBEAT CAD system with a new system will allow the department to capture the complete alarm handling time component, thus providing for more accurate performance measuring of the response system.
3. Service demand on both interstates and limited access highways contribute to lengthy travel times. These locations affect the EMS, technical rescue, and hazardous materials moderate risk categories for travel times. Consideration should be given to separating incidents in these locations for their own baseline measuring.
4. Tracking individual unit aggregate response times in the four primary risk classifications will allow for greater accountability in service performance.

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J. Performance Maintenance and Improvement Plans

The Hartford Fire Department (HFD) is committed to a goal of continuous improvement in providing service to the community. This Standards of Cover (SOC) document is intended to be a living document that will clearly define the department deployment model, measure system performance and identify areas for agency improvement.

Compliance Team / Responsibility

The Compliance Team will be responsible for the continual evaluation of a dynamic risk environment, service demand to the community and the measurement of agency performance. The HFD Compliance Team will consist of the following department members:

- Accreditation Manager - Strategic Planning Manager
- Member - Senior Tour Commander
- Member - Executive Officer
- Member - Chief's Aide
- Member - Fire Marshal
- Member - Captain SSU (Community Risk Reduction)
- Member - Training EMS Coordinator.

Performance Evaluation and Compliance Strategy

The Compliance Team will update the community risk assessment on an annual basis. This will be completed within each RMZ according to critical infrastructure, service demand needs, and changes in population demographics.

HFD will continually evaluate the following outcomes: total response times, fire suppression effectiveness in both fire containment and human loss, and property loss/saved. Response times will also be evaluated by the primary hazard classes: fire, EMS, hazardous materials, and technical rescue.

The department will continue to utilize NFPA 1710 for benchmarking total response times for the first due unit of 6 minutes and 20 seconds, 90 percent of the time for all calls for service.

Performance will be reviewed on a monthly basis. The review will include the compilation and evaluation of the relevant data. Performance data will then be inputted into the project tasker system, an Excel-driven organizational management tool. The accreditation manager or designated representative will present the previous monthly performance at the department's weekly staff meeting on the first Thursday of each month. This will provide senior leadership with the data-driven tools necessary for community-driven, risk-based decision making in meeting the HFD's mission and goals. If a deficiency in resource levels are identified, the SOC will provide guidance for budget preparations in future planning to address community risk.

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HFD will continually evaluate the effectiveness of the response system on a quarterly basis. As deficiencies are identified, a corrective plan will be enacted. This process will entail the following:

- Identify deficiency as either policy driven or personnel driven
- Revise policy if need is determined
- Personnel deficiency will include an interview between tour commanders and responsible units to gain mission commitment
- Agency commitment using internal training and communications as necessary
- Progressive discipline will be initiated, as warranted.

Compliance Verification Reporting

HFD will continue to utilize the monthly FIRESTAT reporting tool for accountability to the community. The FIRESTAT meeting is held on the third Thursday of each month. FIRESTAT provides a performance review of the entire response system on a city-wide basis, both District 1 and 2 assigned areas, and for each individual tour. FIRESTAT reports are disseminated through department email to all members to review and reports are made available to the community on the department website and GPZ meetings on a monthly basis.

Annual reports are prepared at the end of the calendar year and presented to the Mayor's Office and the City Council in the month of January for the preceding year. The annual report is disseminated to all members of the HFD to review and are made available to the community on the department website.

The Compliance Team will make recommendations for strategies or options to the fire chief when deficiencies are identified within the deployment model, community risk environment, or other external factors. Recommendations will be made according to the HFD Community Risk Assessment, Standards of Cover, and Strategic Plan.

Consideration and implementation of any recommendations will be at the discretion of the chief in conjunction with the Joint Health and Safety Committee, comprised of both members of management and labor. The goal will always be for the agency to improve the ability to provide service to the community and all stakeholders.

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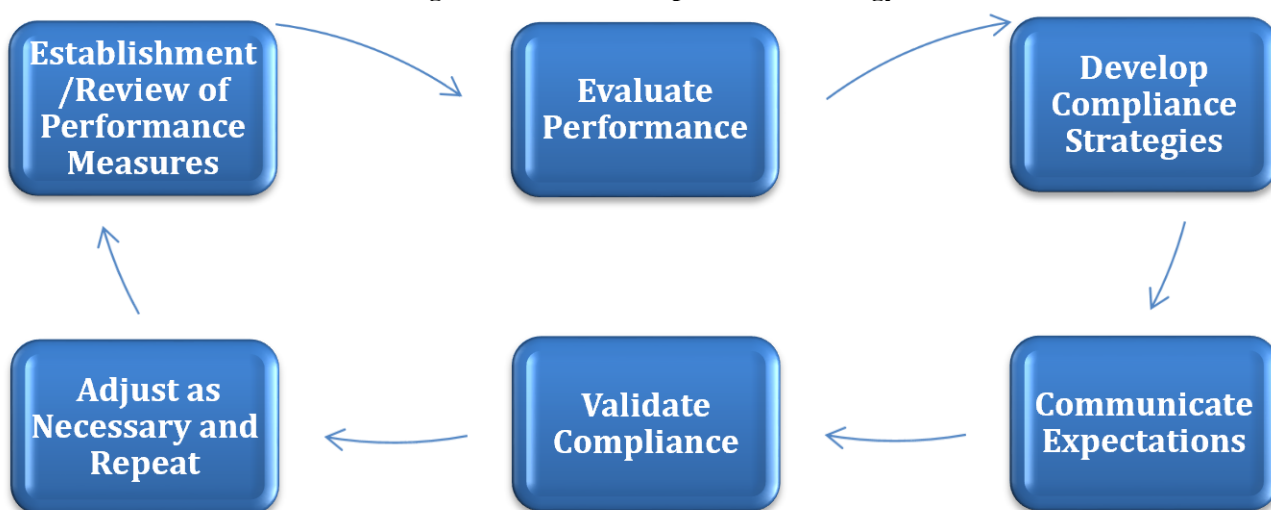
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Continuous Improvement Strategy

HFD will follow a continuous improvement strategy that will incorporate a six-step process. The process will provide direction to follow for each step.

The first step will be the establishment or review of performance measures followed by an evaluation of the performance measures in step two. Noted deficiencies will require the development of strategies towards achieving department compliance in step three. Step four will require department expectations to be communicated through training opportunities and administration communication to the entire department. Step five will incorporate monthly and annual reviews to identify compliance achievement or if adjustments will need to be made. Step six will be the process continually being repeated with the goal of improvement in service to the community. A chart is provided for visual clarity of the improvement strategy.

Figure 38: Constant Improvement Strategy



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K. Appendices

Appendix A: Community Feedback Results

Community Priorities

To best dedicate time, energy, and resources to services most desired by its community, the Hartford Fire Department's community stakeholders were asked to prioritize the department's programs through a process of direct comparison. The results were as follows:

Programs	Ranking	Score
Fire Suppression	1	64
Rescue – Basic and Technical	2	54
Emergency Medical Services	3	49
Domestic Preparedness Planning and Response	4	42
Community Risk Reduction	5	38
Hazardous Materials Mitigation	5	38
Public Fire and Life Safety Education	7	27
Fire Investigation	8	24

Community Expectations

Understanding what the Hartford community expects of its fire and emergency services organization is critically important to developing a long-range perspective. With this knowledge, internal emphasis may need to be changed or bolstered to fulfill the community needs.

Respondents were asked to list, in priority order, up to five subjects relative to the career field future direction they have for the Hartford Fire Department. Responses were then analyzed for themes and weighted. The weighting of the prioritized responses was as follows: if it was the respondent's first entry, then it received five weighted points. Weighting gradually decreased so that if it was the respondent's fifth entry, then it received one weighted point. The weighted themes were then sorted from the highest cumulative weight to the lowest cumulative weight and listed on the following page. The numbers in the parentheses are the cumulative weighted value that correlated with the theme identified. While the themes are listed in prioritized, weighted order, all responses were important in the planning process.

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The following are the career field future direction responses of the key stakeholders:

Community Expectations of the Hartford Fire Department (in priority order)

1. Rapid response to emergencies. Rapid response to 911 calls as related to fires and dangerous materials. Rapid comprehensive response to EMS calls. Prompt response to any emergency condition requiring fire department services, i.e. fire, MVA with extrication, HazMat, medical emergency throughout the city. Timely and successful response in suppressing a fire. Timely and successful response to other emergency situations where life and welfare are at risk. Prompt services to the community. Improving response times to calls. Timely response. Response times to calls. (51)
2. Community engagement; education in the schools and at community events, and for our seniors, access to smoke and carbon monoxide detectors, employment opportunities. Community engagement. Community outreach. Fire safety training and education for residents. Community engagement. Community education. Community involvement. Provide safety information to the public. (29)
3. Trained and experienced with all types of technical rescue. Training/education/qualifications of staff. Personnel that are well-trained, reflective of the Hartford community and deeply committed to the HFD mission. Continuous improvement - training and drills within professional development. Professionally trained staff and customer friendly. Staffing our fire department with well-trained people. Effective training/ability. (19)
4. Fire code enforcement regarding building inspections. Work to prevent fire risk in the community. Fire prevention. (10)
5. Customer priority. Customer service at calls. (8)
6. Firefighter safety on the job. Make sure our staff have the safe environment to work around. Make sure our firefighters have help and support around (mental health). (8)
7. Necessary equipment. Necessary equipment to do the job. Keeping up with advancements in equipment and techniques, procedures. (7)
8. The ability for multiple responses at the same time. The ability to respond to multiple events, multiple alarms at the same time. (6)
9. The ability to work with fire/EMS in relation to the ALS plan. Provide emergency medical care in collaboration with other agencies to provide better patient outcomes for those who are in need of medical treatment within the community. (5)
10. Would hope that the HFD direct North End homeowners to services, grants, and other resources to help bring homes up to code. (5)

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11. Recruit strongly for cadets to the department from area high schools early; providing in-school classes. (4)
12. Show community cohesiveness. (4)
13. Professional - treat others with respect. (4)
14. Resource management. (3)
15. Staying apprised of conditions in the community that require proactive responses. (3)
16. Partnerships with local community area employers and other towns to ensure swift, effective, and successful services. Foster stronger community partnerships. (3)
17. Show productiveness of personnel. (3)
18. Information dissemination, as far as having the ability to answer questions at fire of general information. (3)
19. Show how we the community can be of help. (2)
20. Performance - some of the firefighters don't look like they can perform rescue. (2)
21. A culturally diverse workforce. (1)
22. Respond to and mitigate HazMat incidents. (1)
23. Emergency preparedness. (1)
24. Collectively provide an overall assurance of public safety. (1)
25. Manage taxpayers' costs most effectively. (1)
26. Pipeline of potential staff to ensure retirements don't leave the department shorthanded. (1)

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Areas of Community Concern

The planning process would be incomplete without an expression from the community stakeholders regarding concerns about the organization. Some areas of concern may in fact be a weakness within the delivery system, while some weaknesses may also be misperceptions based upon a lack of information, understanding, or incorrect information.

Respondents were asked to list, in priority order, up to five concerns they have about or for the department. Responses were then analyzed for themes and weighted. The weighting of the prioritized concerns was as follows: if it was the respondent's first entry, then it received five weighted points. Weighting gradually decreased so that if it was the respondent's fifth entry, then it received one weighted point. The weighted themes were then sorted from the highest cumulative weight to the lowest cumulative weight and listed below. The numbers in the parentheses are the cumulative weighted value that correlated with the theme identified. While the themes are listed in prioritized, weighted order, all responses were important in the planning process. The following are the concerns of the key stakeholders prioritized and weighted accordingly:

Areas of Community Concern about the Hartford Fire Department (verbatim, in priority order)

1. How do you ensure you are providing the highest level of service in all areas of emergency services to our citizens? Multi-specialty training each type of service provided requires extensive training. Education and quality review. How will you, through attrition, keep your ranks qualified? Mental health training - ability to support mentally disabled. (22)
2. Primary concern is the plan to have paramedic providers in the fire department. This will reduce or eliminate the need for private paramedics and will damage the private companies. Effect on private agencies who staff for and maintain EMTs and paramedics with regional-type response requirements. Relationship with private ambulance services. (13)
3. Ability to perform advanced life support. Moving to ALS/transport with regard to EMS. (10)
4. Faulty equipment. Aging apparatus. Equipment - the cops have some of everything, are the firefighters getting everything they need? (10)
5. Health and wellness of the firefighters. Staff burnout (stress). (10)
6. Aged workforce. Average years of service of firefighters. (9)
7. Cost to the taxpayer - ability to provide all services effectively with low cost to the taxpayer. (5)
8. Keney Park - North End sector - needs water supply within the park to address fires. (5)
9. That time not always well spent - would more training, outreach, and other helpful activities be done while "waiting for the next call?" (5)
10. Continued training and financial support for new recruits. (5)

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11. Pay - they do very dangerous work and want to make sure they are compensated for such. (5)
12. Budget cuts affecting the ability to do the job properly. (5)
13. The fire department does not regularly meet with its partners for coordinated response/training for large events. (4)
14. Services to senior single-family homeowners to address the high call volume for EMS. (4)
15. Fire department should be able to work with DPW during winter plow season; particularly in the north end to plow streets for access to homes, which would need EMS or fire details. (4)
16. Not sure the force reflects the community it serves. (4)
17. Hiring process - too long between classes. (4)
18. How do you provide safety information for businesses? (4)
19. Lack of potential candidates in the city. (4)
20. The rollover response for low priority calls - the department could consider the use of a SUV on cold response to save manpower. (3)
21. Perhaps their time is better utilized by leaving emergency services to ambulance companies. (3)
22. Current call volume and how it affects the firefighters' response. (3)
23. Not sure that enough is being done to acquaint staff with the community its members are sworn to protect. (3)
24. The rapid loss of experienced personnel - changing command structure/officers. (2)
25. Fire department's ability to respond to and manage an active assailant-type of event. As well as intra-agency coordination. (2)
26. Is enough being done to develop the leadership of the future? (2)
27. Responding to aging housing stock. (2)
28. Why not train citizens to participate in safety drills in their community? (2)
29. Logistics of getting through the city to respond to calls. (2)
30. The ability to operate within a budget after grant money is spent. (1)
31. How will you manage the everchanging world of the city - call volume, services, etc.? (1)
32. Are Hartford and its surrounding towns pursuing all areas of collaboration? (1)
33. High demand due to opioid crisis. (1)
34. How can I as a business owner be of assistance even though I have no training in saving lives or property - other than being a watchful eye? (1)
35. Aging infrastructure in the city. (1)

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Positive Community Feedback

The CPSE promotes the belief that, for a strategic plan to be valid, the community's view on the organization's strengths must be established. Needless efforts are often put forth in over-developing areas that are already successful. However, proper utilization and promotion of the strengths may often help the organization overcome or offset some of the identified weaknesses.

Positive Community Comments about the Hartford Fire Department (verbatim, in no particular order)

- Excellent community relations.
- The work the men and women of the Hartford Fire Department provides to the citizens of Hartford is amazing, keep up the good work.
- Rapid response to fires and emergency medical services.
- The community/lay organization that works with HFD (I can't remember the name).
- Positive community image.
- Strong leadership.
- Outstanding response times.
- Responsive officers.
- Great reputation for excellence.
- Large number of applicants for available spots.
- Chief Freeman is a distinguished leader.
- Respectful.
- The HFD has an excellent representation in the north end community.
- HFD is dependable and timely with excellent trained personnel who are culturally competent.
- Relationships with other agencies.
- Achieving and maintaining Class 1 status.
- Fire department leadership.
- Accessibility of staff at all times.
- Community outreach.
- Strong leadership.
- Dedicated workforce = currently.
- City support – funding.
- Community presence in schools.

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- Mutual aid with other towns.
- The fire department are very good about getting their staff to go out in the neighborhood to volunteer with the NRZ meetings, clean up, and other events.
- They are very friendly.
- They are the first responders.
- They love the community.
- Professional and courteous staff.
- Strong leadership in place.
- Culture of service.
- Efforts to increase student education in all schools.
- Wonderful diversity within the department – representative of the community.
- Clear, strong desire to partner with the community.
- Very diverse group of people.
- Polite for the most part.
- As of late they look professional, all dresses the same.
- High quality leadership.
- Dedicated personnel.
- Supportive mayor and community.
- Progressive forward-thinking leadership.
- Sufficient funding to provide the resources to be a world class department.
- In terms of emergency response...all too often fire departments can develop an “you are bothering us” attitude to facilities with an above average false alarm rate. This is opposite with HFD, the crews that we work with at H.H/106 are always “top notch.”

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Appendix B: HFD SWOT Results

Strengths

It is important for any organization to identify its strengths to ensure that it can provide the services requested by the community, and that strengths are consistent with the issues facing the organization. Often, identification of organizational strengths leads to the channeling of efforts toward primary community needs that match those strengths. Programs that do not match organizational strengths, or the primary function of the organization, should be seriously reviewed to evaluate the rate of return on staff time and allocated funds.

Through a consensus process, the department stakeholders identified the department's strengths as follows:

Strengths of the Hartford Fire Department	
Union – CBA	Personnel – diversity, KSAs
Small metro department – know everyone, community involvement, immediate response	Aggressive suppression division – life safety, property conservation
City support – increased budget	Water supply – MDC, hydrant on every corner
Networking – working with other departments, citywide resources	Youth of the department – willingness to change, learn, evolve
Staffing levels – able to handle multiple issues	ISO Class 1 department
Response time – ISO	EMD/FACT – keep equipment and apparatus working
Data collection – FireStat, budget, resources	Support divisions – staffing, community connection
Refusal to accept previous “status quo”	New dedication to professional development
Renewed sense of discipline	Collaborative effort between management and labor
Pride and ownership of membership	Focus on the future
Our own training division	Working knowledge of equipment
Schedule “recovery time”	Exposure to experiences
Currently receiving additional training	Our public education programs
Fire Explorer/Cadet programs	Professional development plan
Strong recruitment/retention programs	Great leadership – Chief Freeman
Collaborative effort to increase member health and safety (systemic)	

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Weaknesses

For any organization to either begin or to continue to move progressively forward, it must not only be able to identify its strengths, but also those areas where it functions poorly or not at all. These areas of needed enhancements are not the same as threats to be identified later in this document, but rather those day-to-day issues and concerns that may slow or inhibit progress. The following items were identified by the department stakeholders as weaknesses:

Weaknesses of the Hartford Fire Department	
Inexperience – new officers and personnel	Absorption of new material/education
Finance – lack of funding for new initiatives and equipment	Past practices – decision making/adapting to new changes
EMR – at the lowest level of EMS care	Age of equipment/apparatus/firehouses
Contract (morale) – lesser pay for more work	Support Services – low staffing
Consistency – across firehouses/lack of adaptation, certifications, and training levels	Current focus – a lot of new opportunities/losing focus on basics
Lack of experienced personnel	Outside perceptions due to lack of information
Fitness	Overtime – fatigue leading to injuries
Lack of work ethic – mechanical ability “soft”	Lack of accountability – equipment/actions
Lack of camaraderie – shift change	Lack of experience at all levels and all divisions
The 24-hour schedule (death of the profession and birth of the part-time)	Internal stakeholder involvement in internal policy development
Technology – hard to keep up with, dependence	Resistance to change
Overall behavioral and mental wellness – lack of formal program	Number of firehouses – not enough firehouse to cover certain areas of the city

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Opportunities

The opportunities for an organization depend on the identification of strengths and weaknesses and how they can be enhanced. The focus of opportunities is not solely on existing service, but on expanding and developing new possibilities both inside and beyond the traditional service area. The department stakeholders identified the following potential opportunities:

Opportunities for the Hartford Fire Department	
Assume some services delivery currently provided by outside agencies	Increase outside instructor opportunities for HFD members
Formulating stronger partnerships with EMS providers	Pursue certification and accreditation opportunities where applicable
Grants	Enhanced public relations
Comprehensive wellness program	Fire service legal issue training for all officers
Improve the use of latest technology	Embrace diversity and inclusion opportunities
Researching regulation opportunities to leverage training and equipment requests	Legislative changes that impact the department positively
Use community groups to improve customer service through feedback	New equipment (computer simulations, tools, apparatus)
Increase staffing for support services (to enhance public relations)	Increase opportunities for specialized training for everyone, i.e. elevator rescues, powerlines
Opportunities to sit on all fire-related committees	Opportunity to receive bonus for education
Community education on all services provided	Allowing public access through social media
Advancement opportunities beyond Hartford	Building relationships with other departments
To increase training with outside sources	Pursue corporate partnerships

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Threats

By recognizing possible threats, an organization can reduce the potential for loss. Fundamental to the success of any strategic plan is the understanding that threats are not completely and/or directly controlled by the organization. Some of the current and potential threats identified by the department stakeholders were as follows:

Potential Threats to the Hartford Fire Department	
Funding	Political pressure
Changes in service demand (suppression and support)	Lack of comparative contemporary services – keeping up with other departments
Disaster preparedness based on national trends	Legal mandates
Personal accountability while off duty – threatens our image	Dependence on external agencies to complete the mission
Dispatch center (no control over them)	External involvement in decision making bodies
Media	Outside organizations trying to do our work
Weather	Unrealistic expectations
Building degradation	Public perception
Job impact on family/personal life	Terrorism
Future contract negotiations	Bankruptcy
Oversight committee- MARB	Changes in building construction
Surrounding volunteer departments (always volunteer fire department, never police department)	Social media – things taken out of context, negative perceptions
Cancer risks from newer materials	Reduction of companies and/or personnel
City government cutting fire department services to balance the budget rather than creating revenue	

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