



West Haven

Connecticut

FIRE SERVICE CONSOLIDATION STUDY

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EXECUTIVE SUMMARY

In January 2019, the City of West Haven, Connecticut contracted ESCI to provide a Fire Department Consolidation Study. The purpose of the study was twofold:

1. To evaluate the feasibility of consolidating the three fire departments that serve the citizens of West Haven into a single operation.
2. To compare the operational and financial aspects of the proposed consolidated system to the current system.

This report is structured to provide an evaluation of the current conditions, financial analysis, service delivery, future options for cooperative services and general partnering strategies.

Overview

An extensive financial analysis of each fire department was conducted analyzing each agency's current operating costs, debt services, pension liabilities, and other pension employee benefits (OPEB) liabilities. The financial state of each of the three fire districts has reached a critical point. Failure to properly address financial issues will result negative consequences for the community and its firefighters. Pension and OPEB liabilities for each fire district are significantly unfunded and inefficiencies related to budgeting, financial reporting, accounting controls, actuarial analysis, labor negotiations, procurement, pension fund investment allocation, and data driven decision-making are present. The City of West Haven has significant financial concerns of its own and the potential consolidation of the fire departments into West Haven's operation would place a significant strain on the City.

Summary Findings

- There are no material expense savings in consolidating the three fire districts, however there are operational efficiencies that can be realized.
- The three fire districts within the City of West Haven have combined total pension and OPEB unfunded liabilities of more than \$253 million.

Entity	Pension	OPEB	Total
Allingtown	\$23,014,226	\$25,312,009	\$48,326,235
West Haven	\$68,734,099	\$39,396,462	\$108,130,561
West Shore	\$58,243,937	\$38,381,930	\$96,625,867
Total	\$149,992,262	\$103,090,401	\$253,082,663

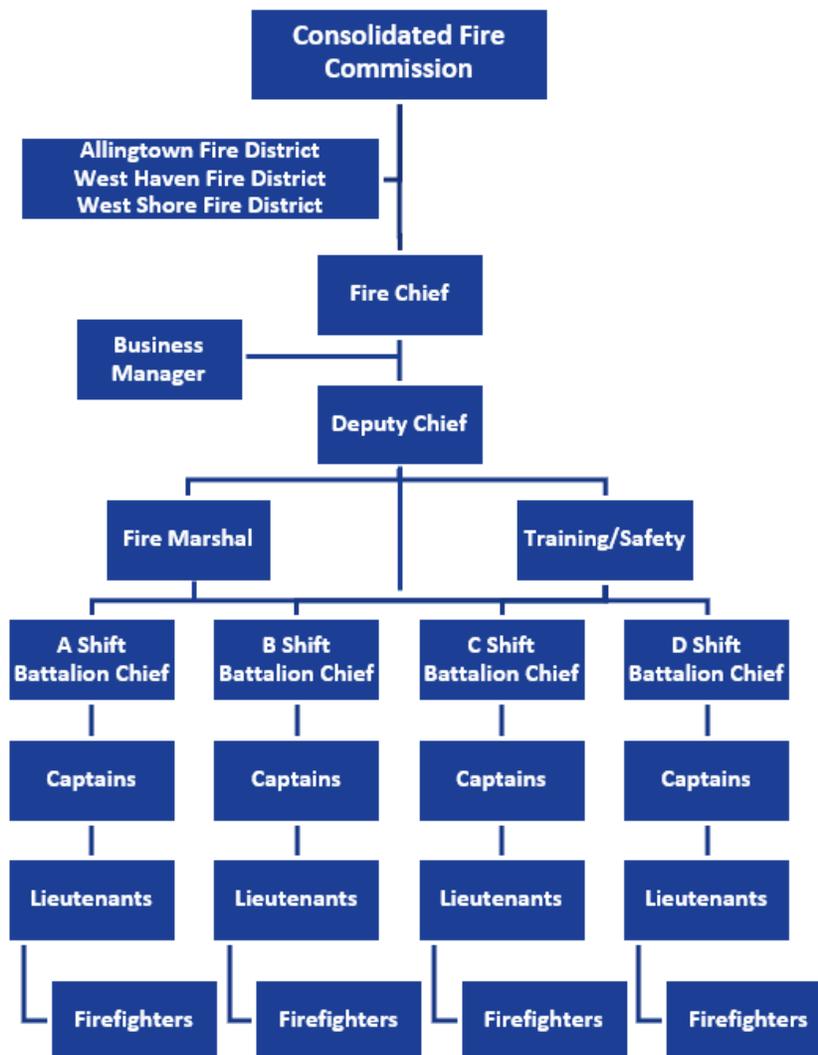
- If revenue is not increased to fully fund the pensions, ESCI predicts the citizens of West Haven will be faced with a critical situation when the independent fire districts are no longer sustainable.
 - Short Term: Annual budgets will become more volatile.
 - Long Term: The fire districts could face the prospect of insolvency if steps are not taken to aggressively stabilize the finances of the fire districts.

ESCI Preferred Recommendation:

Operationally consolidate the three fire districts under the authority of a new fire commission while maintaining the three independent revenue structures.

- This option maintains each district’s authority to manage its own collective bargaining agreements and unfunded liabilities, in addition to allowing the fire districts to remain independent of the City.
- It further protects the City of West Haven from incurring the additional unfunded liabilities associated with the West Haven and West Shore fire districts.
- The new commission would be representative of each district. The current respective boards or fire commissions for each district would have to enter into an interlocal agreement to create unified governance.

Figure 1: Organizational Chart Example



This recommendation is based upon the totality of factors evaluated within this report. This option provides the foundation for each fire district to:

1. Alter the trajectory of the current financial crisis
2. Eliminate duplication of effort within each district
3. Strengthen its financial standing
4. Maintain independent control of the districts within a 25 to 30-year horizon to eliminate the collective quarter billion dollars in liabilities they currently face

It is outside of the scope of this study for ESCI to dictate precisely how a future consolidated district may govern or the legal implications involved. ESCI recommends that the general steps listed below should be taken for this process to succeed:

- An inter-local agreement or memorandum of understanding should be created in accordance with Connecticut General Statutes to operationally consolidate the three independent districts in to one district for operational, administrative and financial functions.
- Determine the composition and structure of the consolidated fire commission.
- Fiscal controls should be established to ensure checks and balances within the new district.
- Some form of over oversight should be provided through the State of Connecticut.
- Each district should evaluate modifications to current charter amendments to ensure that annual budgets and tax or fee increases can be approved as recommended to fund operations and liabilities.
- Phase in tax/fee increases accordingly by district over a three-year period.
- If, after 24 months, the districts have not stabilized and taken steps to begin to improved their financial situation, MARB should consider seeking enabling legislation to have the authority to assist the fire districts with their financial challenges.

ESCI recognizes that although this is the preferred recommendation, the ultimate decision on how this process will proceed is the purview of the citizens of each fire district.

The following table is a summary of the preferred option, as well as three alternative options that ESCI has identified in the event that the primary recommendation is not pursued. These options are presented as alternatives, but they are not preferred options for the reasons explained as follows.

Options Available to the City of West Haven and the Fire Districts:

Options	Description
<p>Option 1: Operationally consolidate the three fire districts under the authority of a new fire commission while maintaining the three independent revenue structures.</p>	<ul style="list-style-type: none"> • Option 1 is ESCI’s preferred option. • This option allows the fire districts to remain independent of the City and maintains each district’s authority to manage its own collective bargaining agreements and unfunded liabilities. • It further protects the City of West Haven from incurring the additional unfunded liabilities associated with the West Haven and West Shore fire districts. • The new commission would be representative of each district. The current respective boards or fire commissions for each district would have to enter into an interlocal agreement to create unified governance.
<p>Option 2: The districts and/or City seek a full merger.</p>	<ul style="list-style-type: none"> • ESCI does not recommend Option 2 because the City of West Haven is not in a position to absorb the significant liabilities incurred by the fire districts. • Consolidating the fire districts under the authority of the City of West Haven will increase the City’s liabilities by \$253 million or 224 percent, to a total of \$457 million. • ESCI further recommends against Option 2 because it subjects the vital service of fire suppression to a political process with an unknown outcome. Accordingly, there is a very high risk of failure should one or more of the districts fail to pass the measure.
<p>Option 3: MARB should consider seeking enabling legislation to have the authority to assist the fire districts with their financial challenges.</p>	<ul style="list-style-type: none"> • Option 3 provides MARB assistance to the three fire districts. • ESCI recommends that if, after 24 months, the outcome of the execution of Option 1 is not progressing satisfactorily, MARB should consider seeking enabling legislation to have the authority to assist the fire districts with their financial challenges.
<p>Option 4: No action.</p>	<ul style="list-style-type: none"> • ESCI does not recommend Option 4 because it will create a critical situation when the independent fire districts are no longer financially sustainable. • ESCI estimates that, in the short term, the annual budget will become more volatile, and in the long term, the fire districts could face the prospect of insolvency if steps are not taken to aggressively stabilize the finances of the fire districts.

EVALUATION OF CURRENT CONDITIONS

Organizational Overview

The Organizational Overview section provides a summary of each agency’s composition and discusses its configuration and the services provided. Data provided by the West Haven, West Shore and Allingtown fire departments’ respective administrative and management staffs, as well as both internal and external stakeholders, was combined with information collected during ESCI’s fieldwork to develop the following overview.

The purpose of this section is two-fold. First, it verifies ESCI’s understanding of each agency’s composition. This provides the foundation from which the study is developed. Second, the overview serves as a reference for the reader who may not be familiar with the details of each agency’s operations. Where appropriate, ESCI includes recommended modifications to current observations based on industry standards and best practices.

Service Area Population and Demographics

According to the U.S. Census Bureau, West Haven experienced significant growth from 1960 to 1970, nearly a 23 percent increase. However, since 1970 the city’s population increase has remained relatively flat with an annual population increase of less than one percent. The following figure provides a graphical understanding of the population changes having occurred from 1960 to 2010. The City of West Haven is considered to be entirely urbanized at an average population density exceeding 3,000 people per square mile.

Figure 2: West Haven Population, 1960–2010 (U.S. Census Bureau)

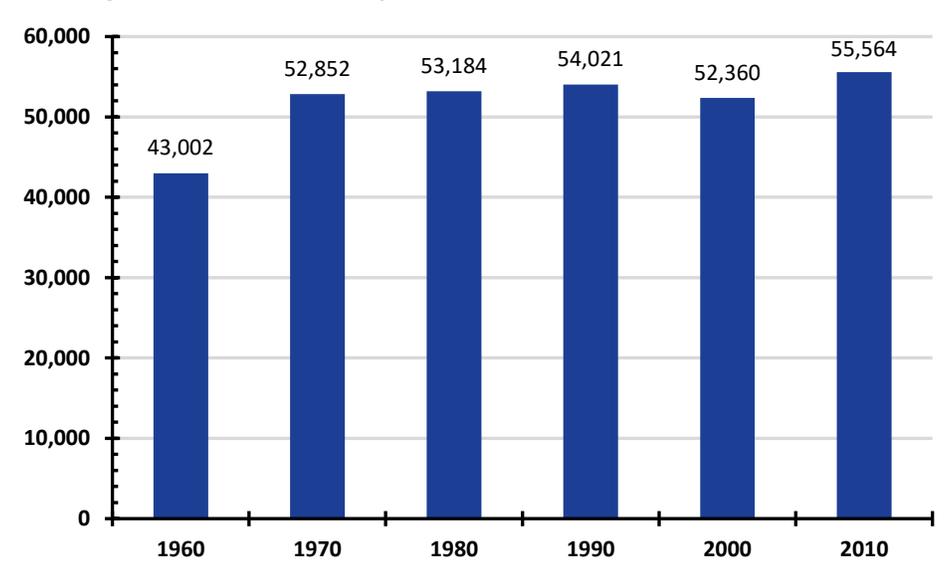
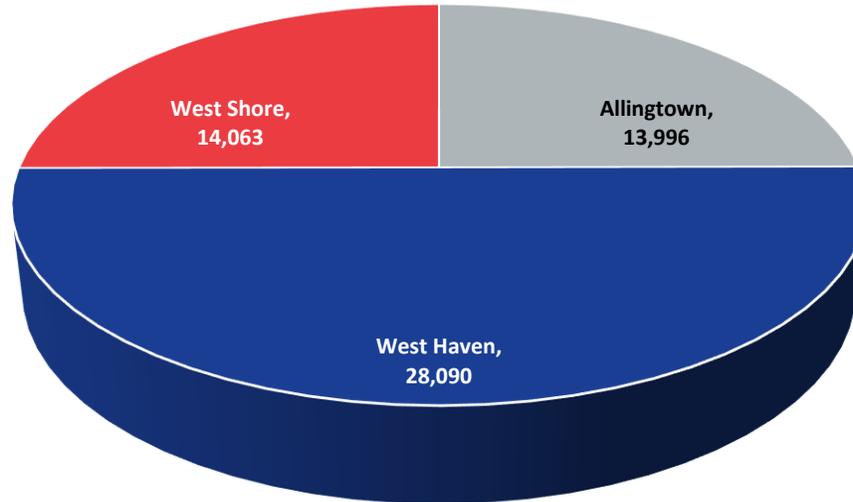


Figure 3: Population by Fire Department (2010 U.S. Census)

History, Formation, and General Description of Each Fire Department

Historically, the three fire departments that serve the City of West Haven have operated as independent fire districts within West Haven's municipal limits. Each fire department was established as a legal entity in accordance with the Connecticut General Statutes. As such, the departments have the ability to assess and collect taxes for the delivery of emergency services to the citizens of their respective districts. At the time of this study, the Allingtown Fire Department is part of the City of West Haven's operations. Under this arrangement, the actual taxing district established to fund the operations of Allingtown remains in place and is fully functional relative to the assessment and collection of taxes. The Board of Fire Commissioners are appointed by the Mayor and approved by the City Council. The West Haven and West Shore fire departments continue to operate independently of the City. Both of the fire districts are governed by a Board of Fire Commissioners that is elected by the citizens of the respective fire district. All three fire districts each employ a Fire Chief to oversee the daily operations of their respective department.

The Allingtown, West Haven and West Shore Fire Departments are all staffed with full time fire fighters. While each organization does have volunteer fire fighters, the activity level of the of volunteer firefighters is limited.

The three fire departments have implemented common emergency response procedures and function as a single entity at emergency scenes. Administratively, the departments operate as separate entities, but have begun to take advantage of limited group purchasing initiatives.

Description of the Current Service Delivery Infrastructure

The three fire departments operate eight fire stations. Of these eight stations, five are staffed with career personnel and emergency response apparatus. The three remaining stations function as volunteer fire stations as well as administrative offices and/or storage for reserve apparatus and an assortment of department equipment.

Governance and Lines of Authority

The City of West Haven was established in 1921 and is a legally established unit of local government in accordance with Connecticut General Statutes. Legislatively, the City is governed by a thirteen-member council (Council). Each member of the Council is elected by district. Only the operation of Allingtown Fire Department is under the direct purview of the City Council.

Organizational Design

The organizational structure of an emergency services agency establishes the framework to safely and effectively deliver service to the community. The principals of effectiveness, timeliness, and safety are universal among all emergency services providers, whether career, paid-on-call, or volunteer. During an emergency event, a supervisor's span of control should be between three and seven people, with an optimum number of five. as recommended by national safety standards. This is a recommendation carried forward from military history and has shown to be effective in emergency service situations.

Employees tend to be more efficient when they have a single point of contact for supervision and direction. A research project conducted jointly by Columbia University, Northwestern University, and University of Queensland, Australia, found that:

When there are tasks that require teamwork, people get more done when there are leaders and followers. Without a clear chain of command, members often become sidetracked with grabbing power and lose track of the task at hand.¹

Organizational Structure

To operate effectively, the structure of a fire department must be clearly defined. This is often illustrated in an organizational chart that institutionalizes the agency's hierarchy, identifies roles, and most importantly, reporting authority. The following three figures illustrate the organizational structures for the Allingtown, West Haven and West Shore Fire Departments.

¹ "Why Hierarchies are Good for Productivity," Inc. September 2012, p 26.

Figure 4: Allingtown Fire Department Organizational Chart

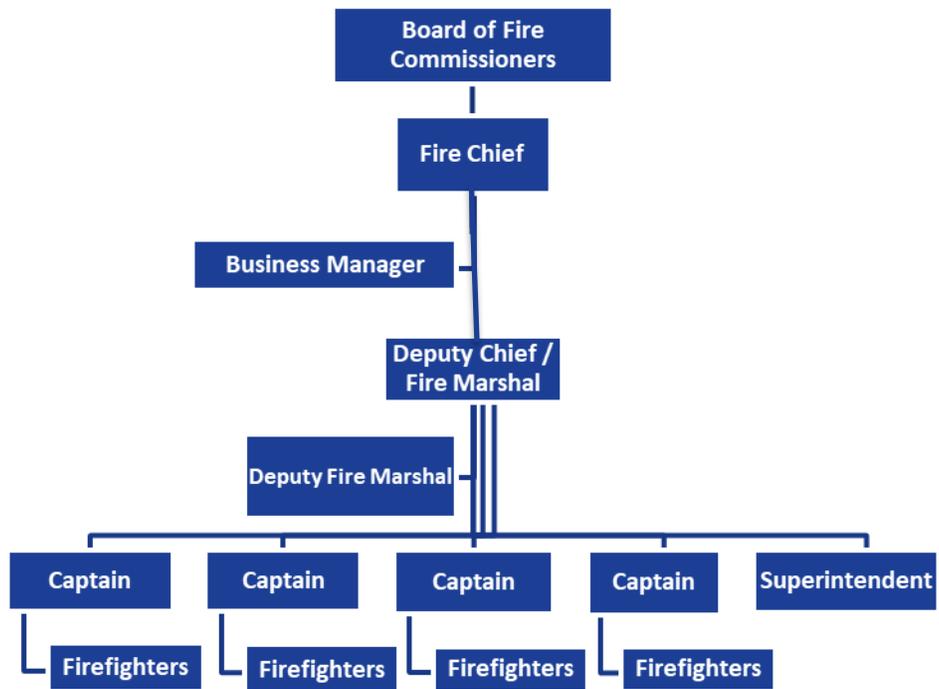


Figure 5: West Haven Fire Department Organizational Chart

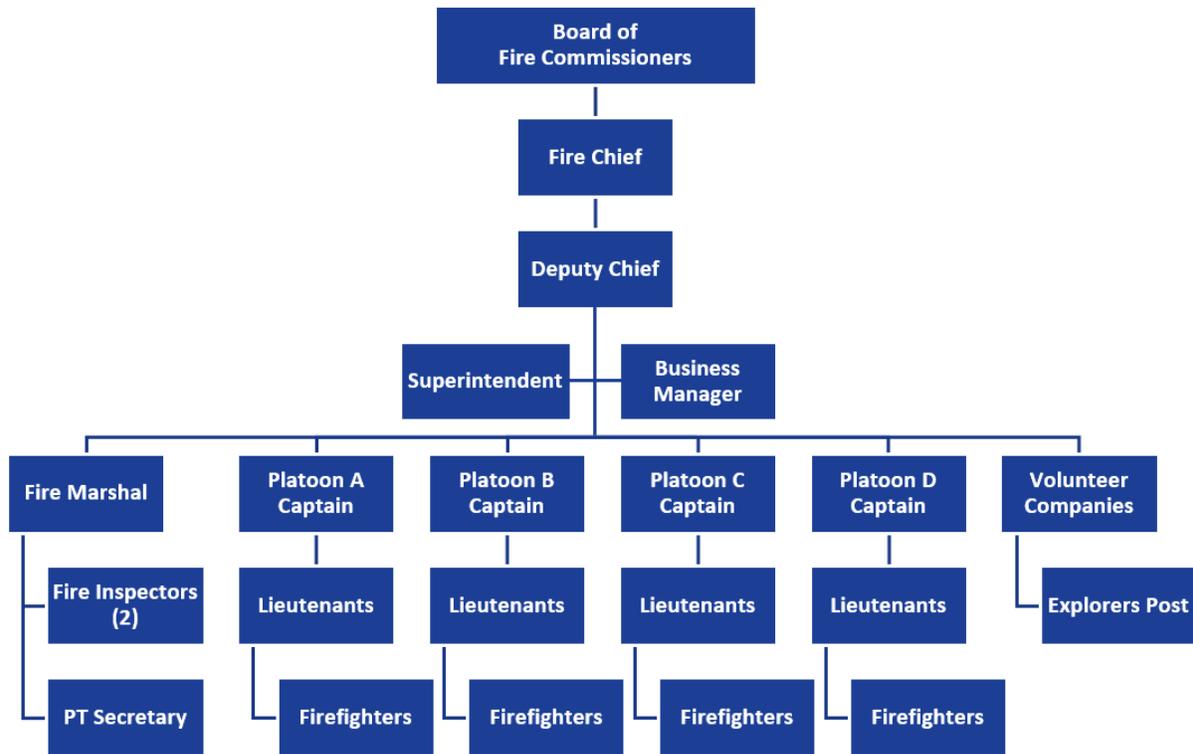
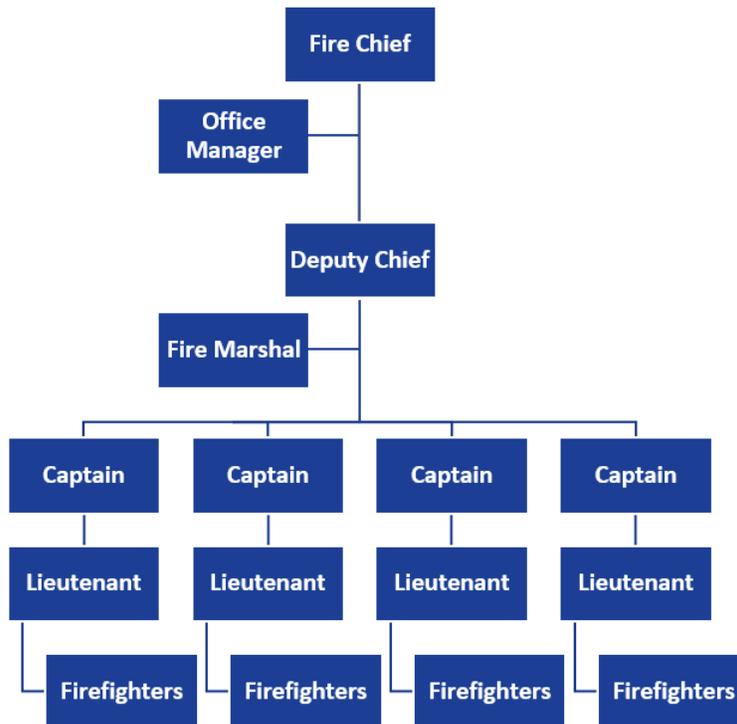


Figure 6: West Shore Fire Department Organizational Chart



Operating Budget and Funding

Considerable financial information and background data was provided by officials from the City of West Haven, the Allintown Fire Department, the First Fire Taxation District Fire Department (also known as the West Haven Fire Department), and by the West Shore Fire Department. The cooperation of each of the entities was noteworthy and the information provided allowed ESCI to make fully informed recommendations which are provided in later sections of this study.

The financial analysis begins with a general discussion of the City of West Haven’s difficult financial situation in order to provide a context for further discussion and analysis of each individual fire district. Discussion of the separate entities providing fire protection services to various parts of the city provides a framework against which to judge future strategies.

As part of the comprehensive review of the City’s two independent fire departments and the one City-operated fire department, a financial analysis of the viability of the current organizational model, including governance and accountability with recommendations to stabilize the long-term impact on City finances is provided.

The West Haven Fire Department and the West Shore Fire Department are separate fire districts that set their own mill rate, issue their own tax bills, negotiate their own labor and pension contracts, and provide the general administration to operate each district. The Allington Fire Department submits their budget with a recommended mill rate to the Mayor who then reviews it and submits it to the City Council with any recommended changes. The labor contract is negotiated by the City of West Haven. Taken as a whole, the three entities are the first responders for fire and paramedic services provided to the City of West Haven's residents and businesses.

The information provided by City and fire department officials was reviewed in detail along with the Comprehensive Annual Financial Report for the City of West Haven for the period ended June 30, 2018. A host of other financial reports including budgets, audits, and actuarial and pension valuations from various fiscal periods were also used in this study. Additionally, the City of West Haven Fire Services Study was reviewed.²

Finally, Connecticut Office of Policy and Management Municipal Fiscal Indicators dated January 2019 were used as statistical indicators to provide a complete picture of the financial and fiscal capabilities of the City of West Haven as this study reviews these capabilities in the event a consolidation of the various fire districts occurs.

City of West Haven Financial Overview

The City of West Haven, since a referendum vote in 1961, operates under the Mayor/Council form of government with the Mayor serving as the Chief Elected Official and Operating Officer with the Council, having the powers to set the budget as recommended by the Mayor. There are 13 elected City Council members and nine votes are needed to effectuate changes in the Mayor's Recommended Budget. The City uses a modified accrual basis to account for revenues and expenditures and operates on a July 1 to June 30 fiscal year.

Trend of Key Indicators

Compared to other Connecticut municipalities, the City of West Haven shows below average indices of wealth as seen in the following figures. The City of West Haven has income per capita at a level that is 67.6 percent of the State of Connecticut average. Additionally, median household income is at 75.0 percent of the State average.

Figure 7: West Haven Income Per Capita and Household Income Comparison

Category	City of West Haven	State of Connecticut	% of State Average
Income Per Capita	27,968	41,365	67.6
Median Household	55,299	73,781	75.0

² The City of West Haven Fire Services Study compiled by MMA Consulting Group, Inc., May 1996.

Figure 8: West Haven Statistical Measures, 2013–2017

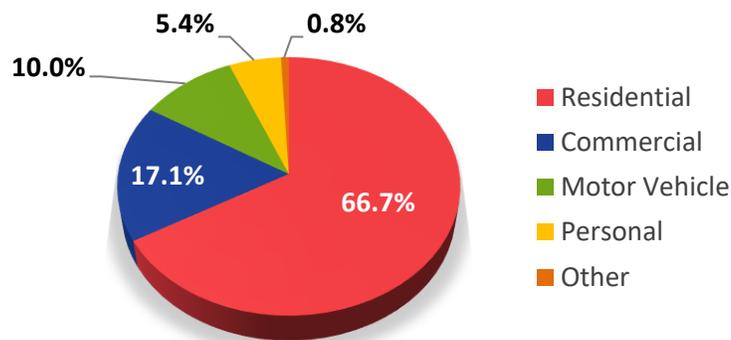
Measure	2013	2014	2015	2016	2017
Population	55,046	54,905	54,927	54,516	54,843
School Enrollment	7,224	7,195	7,081	7,017	6,971
Net Grand list \$	2.82 billion	2.82 billion	2.82 billion	2.85 billion	2.62 billion
Mill Rate	31.25	31.25	31.25	31.25	35.26/37.00
Fund Balance Change	\$2,760,017	\$(717,346)	\$(1,703,102)	\$(6,538,967)	\$(1,402,610)
Fund Balance	\$(7,776,649)	\$(8,493,995)	\$(10,197,097)	\$(16,736,064)	\$(18,138,674)
Debt	\$149,236,966	\$141,191,281	\$133,611,683	\$120,367,619	\$115,521,024
Annual Debt Service	\$18,017,395	\$20,825,627	\$25,073,237	\$17,688,591	\$18,666,440

The gross grand list of any town or city in Connecticut is the value of all real estate, personal property, and motor vehicles at 70 percent of the estimated market value as of October 1 of any year as compiled by the local Assessor.

The net grand list is the gross grand list reduced by the value of exempt properties like those owned by government entities, colleges, or non-profits like churches. The net grand list is used by the local Tax Collector as the basis to levy an annual tax bill based on the locally approved mill rate. The mill rate is further defined as the tax raised per \$1,000 of assessed net grand list value.

Several key fiscal indicators for the City of West Haven are shown in the previous figure for the period 2013–2017.³ Overall, population has declined slightly, and the number of school-aged children has been steadily declining. As shown in the following figure, the City’s net grand list for FY 2017, which serves as the economic engine to produce the bulk of City revenue to pay for the cost of the services it provides its citizens, is not growing sufficiently to pay for the rising cost of government services without tax increases.

Figure 9: West Haven Net Grand List, 2017

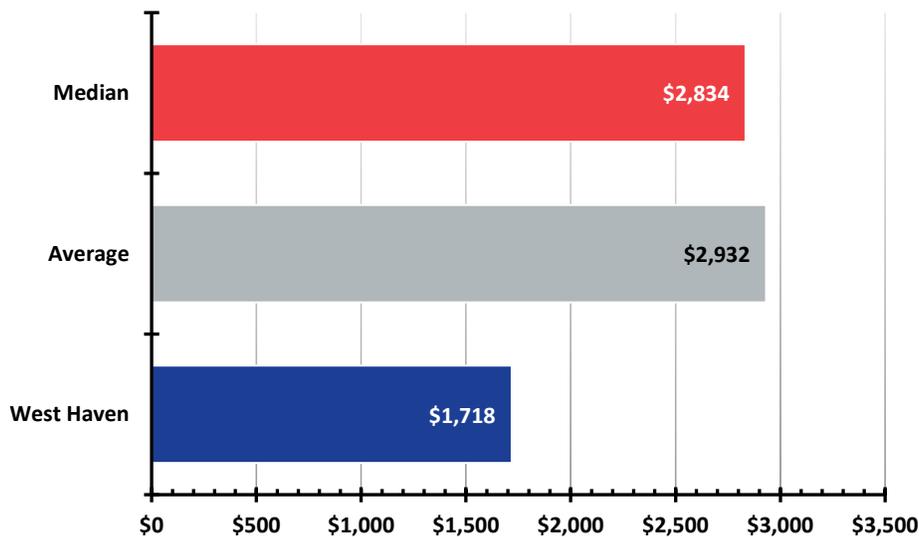


³ Connecticut Office of Policy and Management Municipal Fiscal Indicators for the fiscal years ended 2013–17, January 2019.

The City completed a State mandated revaluation as of October 1, 2015, and will again for the October 1, 2020, grand list year. Notably, exempt property within the City of West Haven, which includes colleges, churches and other exempt property, was 25.1 percent of the total October 1, 2016, grand list which is almost double the State average of 13.9 percent. As a result of revaluation, the net grand list has declined, meaning revenue is not able to keep pace with the rising costs associated with providing municipal services, including collectively bargained labor and pension agreements. Except for 2017 when the mill rate was bifurcated between Real Estate/Personal Property and motor vehicles due to a State mandated cap on motor vehicles, the City of West Haven has not raised the mill rate to keep pace with the rising cost of government.

In 2017, the City of West Haven had an adjusted per capita tax levy of \$1,718, which ranks the City at 163 of 169 Connecticut municipalities. For the same year, the overall State of Connecticut average per capita tax levy was \$2,932 and the median was \$2,834.

Figure 10: Comparison of West Haven Annual Per Capita Tax Levy, 2017



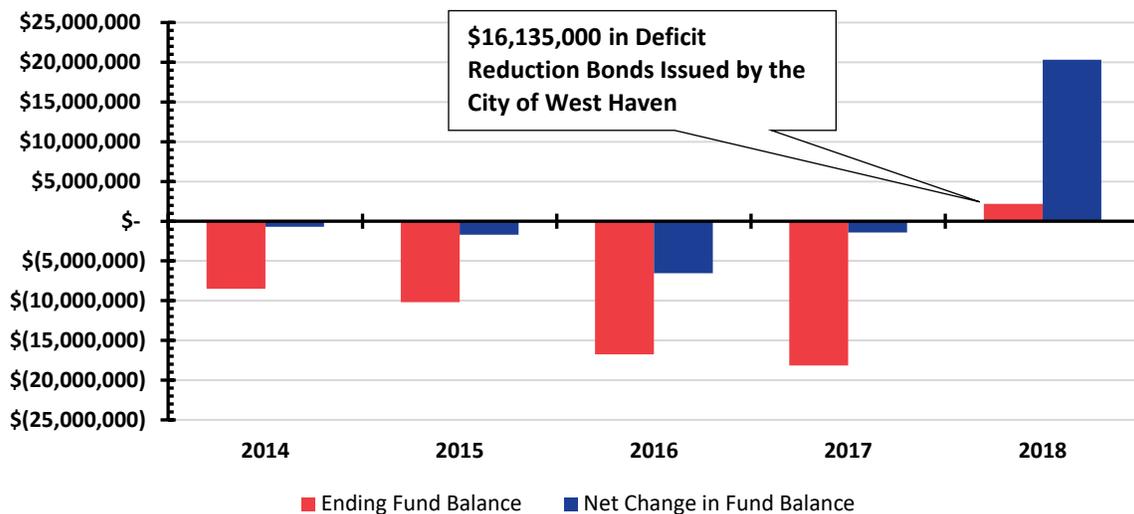
The annual per capita levy shown in the preceding figure does not include the individual fire district levies. However, based on a consolidated \$25.4 million fire department budget, an additional \$464 of per capita tax levy would be attributable to the delivery of fire services, resulting in a total annual City of West Haven per capita tax levy of \$2,182, which compared to the State average of \$2,932, results in the City of West Haven having a lower annual per capita tax burden of \$750, which is 25.5 percent lower than the State average.

Annual Operating Deficit and Impact on Fund Balance

As a result of the historically static mill rate and declining grand list in conjunction with rapidly increasing personnel and operating expenses, the City has used Fund Balance to pay recurring costs leading to a year-over-year decline in Fund Balance (red bars), as shown in the following figure, which points to a succession of annual operating deficits since the 2014 fiscal year. Annual operating/structural deficits have resulted in a growing deficit Fund Balance position that is unsustainable. As of June 30, 2017, the deficit Fund Balance of the City of West Haven sat at just over \$18 million.

It should be noted that the issuance of \$16,135,000 in Deficit Reduction Bonds by the City during FY 2018, combined with a small operating surplus, resulted in a slightly positive Fund Balance at year end. However, while the issuance of the FY 2018 Deficit Reduction Bond had a short-term material effect on final Fund Balance for FY 2018, the ultimate, negative financial trajectory remains to be addressed.

Figure 11: West Haven Ending Fund Balance and Net Change in Fund Balance, FY 2014–2018



Total Debt/Annual Debt Service and Bond Rating

Total debt issued by the City of West Haven has decreased from just under \$150 million in FY 2014 to approximately \$115.5 million by the end of FY 2017. Annual debt service payments of \$18,666,440 required a significant portion of the City’s recurring revenues. By any statistical measure, the City of West Haven carries a high debt load and a correspondingly high annual debt service burden.

The City’s FY 2018 outstanding debt had increased to \$116,776,465 as of June 30 and included General Obligation Bonds, Pension Obligation Bonds, and Clean Water Notes as well as the \$16,135,000 of Deficit Reduction Bonds. Finally, the City also has authorized but not yet issued debt of \$143,220,035.

The City was in receipt of \$8,000,000 of restructuring funds from the State of Connecticut during the fiscal year ended June 30, 2018.

The combination of a stagnant grand list, a flat mill rate, annual budgets with built in structural deficits producing deficit fund balances, and a high outstanding total debt load and annual debt service have stressed the City of West Haven's bond rating to the point that it is one of the lowest in the State. The City currently carries a Baa3 bond rating from Moody's and a BBB bond rating from Standard and Poor's. Both ratings are considered lower medium on the bond rating scale and only one Connecticut municipality has a lower bond rating.

Pension Agreements, Other Post-Employment Benefits (OPEB), and Unfunded Liabilities

A major factor contributing to the City's difficult financial position is its current and future pension obligation, not only firefighters but also other City employees. The City maintains two defined benefit pension plans and one defined contribution plan. One of the defined benefit pension plans is titled "City of West Haven Allintown Fire District" which will be discussed in more detail as part of the Allintown Fire Department narrative that follows.

The second defined benefit pension plan is titled "City of West Haven Police Pension Fund" which has 238 members. The last valuation on the plan is dated January 1, 2016, which noted it was 85 percent funded with an annual actuarially determined contribution totaling \$1,861,931 and a total unfunded pension liability of \$21,280,065. The City of West Haven issued \$67,000,000 of Pension Obligation Bonds in September 2002 for the Police Pension Fund. Both plans were closed to new members as of July 1, 2013.

The City of West Haven provides Other Post-Employment Benefits (OPEB) by way of collective bargaining labor agreements for both general government employees and certain Board of Education employees. The general government plan is entitled City of West Haven OPEB Plan and has 1,565 members, including both Town and Board of Education employees. The last valuation of the plan is dated July 1, 2017, and noted the plan was 0 percent funded which also is known as "pay as you go" funding.

Based on the valuation, payments from the City for OPEB related costs in FY 2019 are expected to be \$6,797,571 and steadily increase through 2028 when the annual payout is calculated at \$9,925,719.⁴ Total OPEB plan liabilities are \$183,170,127 as of June 30, 2018, which is expected to grow to \$240,000,000 by 2026.

There is also an OPEB liability for the Allintown Fire Department employees which will be discussed as part of the Allintown narrative.

⁴ City of West Haven Other Post-Employment Benefits Program July 1, 2017, Actuarial Valuation, Page 7.

Internal Service Fund—Deficit Balance

Another factor contributing to the City's financial difficulty is its failure to adequately fund its internal service fund operating costs. Beside the General Fund, the City has three Internal Service funds which are used to account for services provided by one department to other City departments on a cost reimbursement basis and to account for risk retention which can be seen in the variability of claims costs from year-to-year.

The three funds the City accounts for include a Medical Fund to provide accounting for the self-insured medical benefits provided to employees, a General Liability Fund to account for self-insured liability, automobile, and property claims, and a Workers' Compensation Fund to be used to pay workers' compensation claims.

Each of the internal service funds used by the City are currently in a deficit position with the Medical Fund at (\$1,974,775), the General Liability Fund at (\$625,599), and the Workers' Compensation Fund at (\$7,297,119). In total, all reserve funds have a combined deficit of (\$9,897,493) which is another indicator that insufficient budget resources are being dedicated to extinguishing structurally unbalanced budgets.

ESCI recommends that the City make regular contributions from the operating budget into the individual reserve funds so that projected annual activity, which from time to time can cause budget fluctuations, can be effectively managed. The overarching goal of an individual Internal Service fund is to build a sufficient and appropriate reserve so that when year-to-year anomalies are confronted by the City, sufficient resources are available to pay for them.

Based on a trend of structurally unbalanced budgets, a low bond rating, a recurring deficit fund balance and deficit internal reserve funds among other things, the State of Connecticut identified the City of West Haven as in need of financial oversight. Accordingly, the State of Connecticut stepped in and based on authority granted to them under Connecticut General Statutes, continues to work with the administration of West Haven to establish a series of financial improvements to put the City of West Haven on better financial footing going forward.

Financial Standing and the Municipal Accountability Review Board (MARB)

According to the Connecticut Office of Policy and Management, the Municipal Accountability Review Board (MARB) was established in 2017 by the State Legislature in Section 367 of Public Act 17-2 as a State Board to assist municipalities experiencing various stages of financial distress.⁵ The MARB was part of the statutory provisions contained in Section 349 to 376 of the Act for the purpose of providing technical, financial, and other assistance and related accountability for municipalities. The Act provides for eligible municipalities to seek designation in one of four tiers whose criteria are listed in Appendix A. The higher numbered tiers are associated with higher levels of fiscal distress, with Tiers III and Tier IV involving the highest level of distress and oversight.

⁵ <https://portal.ct.gov/OPM/Marb/Municipal-Accountability-Review-Board>.

The City of West Haven has recently been assisted by the State of Connecticut Municipal Accountability Review Board (MARB) with respect to the ongoing operations of the City based upon its difficult financial position.

As stated by the chairman of the MARB, “There are no clear solutions to fix the structural issues that the City of West Haven faces.”⁶ At the time of this study, the City of West Haven is classified as a Tier III municipality subject to a series of MARB actions as outlined in Appendix A. The Ad Hoc committee, a subgroup of the larger MARB Board focusing on the City of West Haven issues, suggested the following specific steps be taken by the City of West Haven:

- The FY 2019 budget needs be in agreement with a 5-year plan.
- There are structural issues with the way services are provided in the City.
- The City needs to retain consulting services to address employee and retiree health benefits.
- Consider an adjustment to the mill rate.
- Achieving Long-Term Financial Sustainability—Potential Recommendations for Review and Study:
 - Revenues-Property Taxes, State Aid, Other Revenues
 - Health Insurance
 - Fire Districts
 - Refuse Collection and Disposal
 - Debt Service
 - Administrative infrastructure
 - Others

Discussion of the Individual Fire Districts

Allingtown Fire Department—3rd District

The Allingtown Fire Department provides both fire and paramedic services to a portion of West Haven. The City of West Haven took over control of the Allingtown Fire District on July 1, 2012, and assumed their Pension and OPEB liabilities. Accordingly, the activities of the Allingtown Fire Department are required by Connecticut General Statute to be accounted for separately since the City has two other fire departments that are legally separate taxing districts. As a result, the Allingtown Fire Department is accounted for by using an Enterprise Fund and is reported as part of the financial statements of the City of West Haven. The budget for the Allingtown Fire Department is set by the Mayor with review and approval by the City Council.

⁶ OPM Secretary Barnes, April 5, 2018, MARB Minutes.

Revenue

The Allingtown Fire Department issues a separate tax bill based on the following mill rate for the purpose of providing fire services to its members.

Figure 12: Allingtown Fire Department FY 19 Mill Rate

Entity	Mill Rate FY 19
Allingtown Fire Department	14.00

Figure 13: Allingtown Fire Department October 1, 2018, Net Grand List

Allingtown Fire	Assessed Value	Sq. Miles	Assessed Value per Sq. Mile
Real Estate	\$444,496,278		
Motor Vehicles	\$53,128,800		
Personal Property	\$35,086,245		
TOTAL	\$532,711,323	3.2	\$166,472,288

Figure 14: Allingtown Fire Department Revenue Trend, Last Four Audited Fiscal Years

Revenues	2018	2017	2016	2015
Property Taxes	6,039,369	5,295,077	5,522,763	4,918,971
Intergovernmental Grants	386,728	918,904	393,574	426,081
Charges for Services	246,357	67,663	115,698	275,574
Contributions	100,000	100,000	178,811	106,568
Investment Income	–	–	–	–
Other	11,399	18,245	–	–
Total Revenue	\$6,783,853	\$6,399,889	\$6,210,846	\$5,727,194

Expense

Personnel costs in the form of wages, medical costs, and pension benefits provided to the employees of the Allingtown Fire Department represent nearly 90 percent of the total expenditures of the district for the period ended June 30, 2018. Labor and Pension contract negotiations for the Allingtown Fire Department are handled by the City's Human Resources Department.

The collective bargaining labor agreement covering the period of July 1, 2013, through June 30, 2017, was provided for analysis. While the collective bargaining labor agreement of the Allingtown Fire Department included many and varied provisions, it was noted that an inefficient Preferred Provider Organization (PPO) was used to deliver coverage and a premium share based on a percent of pay that was diminished by an overriding cap or ceiling on the cost of the medical benefit provided to the employee was in force.

For instance, for employees hired before 1998, a \$35 per week flat dollar amount was the premium cost share to employees while the remainder of the cost of medical insurance was provided by the district.

Another noteworthy item in the collective bargaining labor agreement was the level of lifetime health benefits provided to retirees, including spouses, after they retire from the district.

For retirees and spouses, the district will continue to provide active medical insurance until Medicare becomes their primary coverage. When Medicare becomes their primary coverage, the District will also provide a supplemental plan with a \$1,500 annual cost share for single and a \$2,500 annual cost share for retirees plus their spouse.

The cost to the retiree of this benefit is the same premium share paid at the time of retirement and frozen moving forward. The provision of this type of benefit is called an Other Post Employment Benefit and will be quantified in more detail in the following figures.

A new labor agreement dated February 28, 2019, was also provided for analysis. Substantial changes to the existing medical insurance plans including the implementation of a \$2,000/\$4,000 High Deductible Health plan attached to a Health Savings Account were noted. Other positive changes noted included higher employee premium share, an insurance opt out payment and a partial restructuring of retiree medical insurance to age 65 and the provision of supplemental coverage when the retiree turns 65.

Also covered in the collective bargaining labor agreement is the provision of a defined benefit pension plan for firefighters who were members of the plan as of June 30, 2013. This plan is now closed to new members and was replaced with a defined contribution administered by the City of West Haven. It should be noted that the Allingtown Fire District Pension Plan is not fully funded, and the unfunded liabilities related to this plan will be discussed in more detail in the following figures.

Management of the Allingtown Fire District Pension Plan includes two active employee representatives, the Fire Chief, three members of the Board of Fire Commissioners, and the investment advisor who meet quarterly to review the investment allocations and returns as well as disability retirement requests that may occur.

After the Defined Benefit Pension plan was closed to new hires, a defined contribution pension plan was created for new hires after July 1, 2013. This defined contribution plan includes a social security component with City of West Haven provided disability coverage.

Figure 15: Allingtown Fire Department Expenditures Trend, Last Four Audited Fiscal Years

Expenditures	2018	2017	2016	2015
Public Safety	6,163,501	6,289,029	6,388,946	6,483,261
Capital Outlays			15,476	16,563
Debt Services	80,943	80,943	80,943	
Total Expenditures	\$6,244,444	\$6,369,972	\$6,485,365	\$6,499,824

Fund Balance/Financial Trajectory

The district does not have a history of balanced budgets and as a result, they present with a recurring deficit Fund Balance. Additionally, Allington Fire Department has not provided for a stable funding source for both the unfunded pension liabilities and the unfunded Other Post Employment Benefit (OPEB) liabilities. As a result, the liabilities are substantial.

Figure 16: Allington Fire Department Fund Balance Trend, Last Four Audited Fiscal Years

Other Financing Sources	2018	2017	2016	2015
Issuance of Capital Leases				371,754
Proceeds from the Sale of Assets				528,000
Transfers in (write off from GF)			1,358,437	
Net Change in Fund Balance	\$539,409	\$29,917	\$1,083,918	\$127,124
Fund Balance—Beginning of Year	(\$658,268)	(\$688,185)	(\$1,772,103)	(\$1,899,227)
Fund Balance—End of the Year	(\$118,859)	(\$658,268)	(\$688,185)	(\$1,772,103)

West Haven Fire Department — 1st Fire District

The West Haven Fire Department provides fire protection and paramedic services in the 1st District of the City of West Haven, Connecticut. The district operates under the provisions of the Connecticut General Statutes and the District's Home Rule Ordinance. The district is governed by an elected three-member Board of Fire Commissioners.

The 1st Fire Taxation District budget is set through a process whereby an annual meeting is held in the spring and the budget is presented at a public meeting, questions on the budget are taken and answered and the budget is voted upon.

This form of budget adoption is sometimes called direct democracy. Over time, when annual budgets are not approved because residents turn out to vote down tax increases or when prepared budgets do not reflect the entire cost of providing fire services, there becomes a disjoint between the labor and pension contracts approved by the district and annual budgets incorporating those costs being approved by the residents. Such is the case with the 1st Fire District.

Revenue

The 1st Fire Taxation District issues a separate tax bill based on the following mill rate for the purpose of providing fire services to its members.

Figure 17: 1st Fire District FY 19 Mill Rate

Entity	Mill Rate FY 19
First Fire District	11.99

Figure 18: 1st Fire District, October 1, 2018, Net Grand List

First Fire District	Assessed Value	Sq. Miles	Assessed Value per Sq. Mile
Real Estate	\$1,025,579,830		
Motor Vehicles	\$129,111,690		
Personal Property	\$55,023,013		
TOTAL	\$1,209,714,533	4.4	\$274,935,121

Figure 19: 1st Fire District Revenue Trend, Last Four Audited Fiscal Years

Revenues	2018	2017	2016	2015
Property Taxes	11,582,405	11,081,779	11,880,362	11,394,753
Interest and Lien Fees	99,283	84,975	114,222	125,420
PILOT—State Grant	736,175	864,932	941,376	920,906
Other State and Federal Grants	443,236	1,051,432	83,426	34,824
Investment Income	28,933	103,957	44,557	27,561
Other	220,318	103,400	158,197	130,269
Total Revenue	\$13,110,350	\$13,290,475	\$13,222,140	\$12,633,733

Expense

Personnel costs in the form of wages, medical costs, and pension benefits provided to the employees of the 1st Fire District represent nearly 90 percent of the total expenditures of the district for the period ended June 30, 2018. Labor and Pension contract negotiations for the 1st Fire District are handled by the district.

The collective bargaining labor agreement covering the period of July 1, 2011, through June 30, 2016, was provided for analysis. While the collective bargaining labor agreement of the West Haven Fire Department (1st Fire Taxation District) included many and varied provisions, it was noted that an inefficient Preferred Provider Organization (PPO) was used to deliver coverage and a premium cost share based on 15 percent of the annual cost of medical benefits provided was diminished by an overriding \$2,000 annual cap or ceiling on the total cost of the medical benefit paid by the employee.

For retirees and spouses, the district will continue to provide active medical insurance until Medicare becomes their primary coverage. When Medicare becomes their primary coverage, the district will also provide a supplemental plan for retirees plus their spouse.

The cost to the retiree of this benefit is the same premium share paid at the time of retirement and frozen moving forward. The provision of this type of benefit is called an Other Post Employment Benefit and will be quantified in more detail in the following figures.

Also covered in the collective bargaining labor agreement is the provision of a defined benefit pension plan for firefighters. The West Haven Fire Department (1st Fire Taxation District) administers a single employer, defined benefit public employee's retirement system (PERS) plan to provide pension benefits to substantially all District employees hired prior to July 1, 2008.

The PERS is considered part of the district's reporting entity and is enclosed in the district's financial statements as a pension trust fund. There is no standalone report available for this plan. This plan is now closed to new members with employees hired on or after July 1, 2008, moved into the Connecticut Municipal Employee Retirement System.

The management of the West Haven Fire Department Pension Plan includes the elected Fire District Commissioners and employee representatives from the Fire District and the Chief of the department who meet monthly to review the investment allocations and returns as well as disability retirement requests that may occur.

The asset allocation for invested funds includes a 75 percent Fixed Income component, a 20 percent Domestic Equity component, and a 5 percent in commodities component. The over-weighted position in Fixed Income, depending on how long it was deployed, resulted in a missed opportunity as the U. S. Equity market over the last two years has registered record highs. Accordingly, a well-diversified portfolio investing in many asset classes over the broad market including an appropriate international component would better serve this district.

It should be noted that the West Haven Fire Department (1st Fire Taxation District) is not fully funded and the unfunded liabilities related to this plan will be discussed in more detail in the following figures.

Figure 20: 1st Fire District Expenditure, Last Four Audited Fiscal Years

Expenditures	2018	2017	2016	2015
Salaries	5,419,892	5,503,687	5,666,791	5,466,151
Employee Expense	5,955,424	6,671,551	6,754,276	6,144,583
Apparatus Equipment, Repairs, Tests	823,643	236,078	269,466	249,264
Firehouse Operations	394,298	204,235	349,707	198,488
Outside Services	414,443	365,333	327,150	368,346
District Expense	285,909	288,556	269,893	275,406
Total Expenditures	\$13,293,609	\$13,269,440	\$13,637,283	\$12,702,238

Fund Balance/Financial Trajectory

The district has an inconsistent history of balanced budgets, but presents a positive Fund Balance; however, the district has not provided for a stable funding source for both their unfunded pension liabilities and the unfunded Other Post Employment Benefit (OPEB) liabilities. As a result, the liabilities are substantial.

Figure 21: 1st Fire District Fund Balance Trend, Last Four Audited Fiscal Years

Other Financing Sources	2018	2017	2016	2015
Proceeds Capital Lease Obligations	\$204,376			
Net Change in Fund Balance	\$21,117	\$21,035	(\$415,143)	(\$68,505)
Fund Balance—Beginning of Year	\$1,450,191	\$1,429,156	\$1,844,299	\$1,912,804
Fund Balance—End of the Year	\$1,471,308	\$1,450,191	\$1,429,156	\$1,844,299

West Shore Fire District—2nd District

The West Shore Fire Department (2nd District) operates within the City of West Haven and provides fire and paramedic services to the citizens of the West Shore Fire District. Under the home rule provisions of the State of Connecticut General Statutes, the district formed in 1918 with the main source of revenue the issuance of an annual tax bill.

The West Shore Fire District budget is set through a process whereby an annual meeting is held and the budget is considered. Thirty-five electors shall constitute a quorum at the annual meeting and can provide feedback on the budget. The Board then has seven days to amend the budget based on the annual meeting feedback. The budget will then be submitted for approval 22 days after the annual meeting. It becomes effective if it is approved by voters, but if it is rejected, the district would maintain the previous year's budget. Such an adoption process can result in a budget that reflects the resident's desire for low taxation rather than the necessary source of funding to provide a vital community service like fire protection.

Revenue

The West Shore Fire District issues a separate tax bill based on the following mill rate for the purpose to providing fire services to its members.

Figure 22: West Shore Fire District FY 19 Mill Rate

Entity	Mill Rate FY 19
West Shore Fire District	10.129

Figure 23: West Shore Fire District October 1, 2018, Net Grand List

West Shore	Assessed Value	Sq. Miles	Assessed Value per Sq. Mile
Real Estate	\$795,896,906		
Motor Vehicles	\$84,680,250		
Personal Property	\$60,125,077		
TOTAL	\$940,702,233	3.4	\$276,677,127

Figure 24: West Shore Fire District Revenue Trend

Revenues	2017	2016	2015	2014
Property Taxes	7,818,645	8,593,869	8,484,001	8,254,817
Interest and Lien Fees	27,830	40,378	54,061	59,564
Intergovernmental Grants	949,116	264,150	283,887	286,799
Investment Income	1,949	2,843	3,209	3,909
Other	274,717	339,754	366,994	366,690
Total Revenue	\$9,072,257	\$9,240,994	\$9,192,152	\$8,971,779

Expense

Personnel costs in the form of wages, medical costs, and pension benefits provided to the employees of the West Shore Fire District represent nearly 99 percent of the total expenditures of the district for the period ended June 30, 2018.

Labor and Pension contract negotiations for the West Shore Fire District are handled by the district. The collective bargaining labor agreement covering the period of July 1, 2016, through June 30, 2020, was provided for analysis.

While the collective bargaining contract for the West Shore Fire District included many and varied provisions, it was noted that on July 1, 2017, district employees were switched to the High Deductible Health Plan including \$2,000/\$4,000 employee first dollar deductibles. The district also included a Health Savings Account deposit of 50 percent of the annual deductible as a means to smooth the transition into this newer type of medical delivery network. Another noteworthy item in the collective bargaining labor agreement was the level of lifetime health benefits provided to retirees and including spouses after they retire from the district.

For retirees and spouses, the district will continue to provide active medical insurance until Medicare becomes their primary coverage. When Medicare becomes their primary coverage, the district will also provide a supplemental plan for retirees and their spouses.

The cost to the retiree of this benefit is the same premium share paid at the time of retirement and frozen moving forward. The provision of this type of benefit is called an Other Post Employment Benefit and will be quantified in more detail in the following figures.

Also covered in the collective bargaining labor agreement is the provision of a defined benefit pension plan for firefighters. The West Shore Fire District administers a single employer, defined benefit public employee's retirement system (PERS) plan to provide pension benefits to substantially all District employees who were members of the plan at June 30, 2007. In its place, the West Shore Fire District provides new hires after July 1, 2008, with pension coverage from the State of Connecticut Municipal Employment Retirement System (CMERS).

The management of the West Shore Pension Plan includes the elected Fire District Commissioners and employee representatives from the fire district and the Chief of the department who meet monthly to review the investment allocations and returns as well as disability retirement requests that may occur.

Figure 25: West Shore Fire District Expenditure Trend

Expenditures	2017	2016	2015	2014
Public Safety	9,331,615	9,233,960	9,055,963	8,949,688
Capital Outlays	90,051			
Total Expenditures	\$9,421,666	\$9,233,960	\$9,055,963	\$8,949,688

Fund Balance/Financial Trajectory

The district has a history of a balanced budgets and positive Fund Balance; however, it has not provided for a stable funding source for both its unfunded pension liabilities and the unfunded Other Post Employment Benefit (OPEB) liabilities. As a result, the liabilities are substantial.

Figure 26: West Shore Fund Balance Trend, Last Four Audited Fiscal Years

Other Financing Sources	2017	2016	2015	2014
Net Change in Fund Balance	(\$349,409)	\$7,034	\$136,189	\$22,091
Fund Balance—Beginning of Year	\$1,965,170	\$1,958,136	\$1,821,947	\$1,799,856
Fund Balance—End of the Year	\$1,615,761	\$1,965,170	\$1,958,136	\$1,821,947

Financial Comparison—All West Haven Fire Districts

Figure 27: All West Haven Fire District Revenue, Expense, and Fund Balance, FY 2017/18

Category	Allingtown	First Fire	West Shore	Combined
	(6/30/18 Actual)	(6/30/18 Actual)	(6/30/17 Actual)	
Revenues				
Property Taxes	\$6,039,369	\$11,582,405	\$7,818,645	\$25,440,419
Intergovernmental	\$386,728	\$1,179,411	\$949,116	\$2,515,255
Charges for Services	\$246,357	\$0	\$0	\$246,357
Other	\$111,399	\$348,534	\$304,496	\$764,429
Total Revenues	\$6,783,853	\$13,110,350	\$9,072,257	\$28,966,460
Expenditures				
Personnel	\$5,473,816	\$5,419,892	\$9,331,615	\$20,225,323
Employee Expenses	\$0	\$5,955,424	\$0	\$5,955,424
All Else	\$770,628	\$1,713,917	\$90,051	\$2,574,596
Total Expenditures	\$6,244,444	\$13,089,233	\$9,421,666	\$28,755,343
Net Surplus (Deficit)	\$539,409	\$21,117	-\$349,409	\$211,117
Fund Balance BOY	-\$658,268	\$1,450,191	\$1,965,170	\$2,757,093
Fund Balance EOY	-\$118,859	\$1,471,308	\$1,615,761	\$2,968,210

It should be noted that the cost to provide fire service in 1996 according to the MMA study for the City of West Haven was \$12.7 million which has grown to \$28.8 million in FY 2017/2018.⁷ Then, and still today, the lion's share of revenue to operate the district is generated from property taxes and the bulk of expenditures for the district are spent on personnel and personnel related medical, pension, and OPEB costs.

Figure 28: Discount Rate Used, Unfunded Pension Liability, Pension Plan Funded % by Fire District, FY 2017/18

Entity	Discount Rate	Unfunded	% Funded
Allingtown (6/30/2018)	6.75%	23,014,226	21.9
First Fire (6/30/2018)	Undetermined	68,734,099	15.6
West Shore (7/1/2017)	3.58%	58,243,937	11.6
Total		149,992,262	

⁷ The City of West Haven Fire Services Study compiled by MMA Consulting Group, Inc., May 1996, Exhibit III-12.

Figure 29: Pension Assets Available for Investment by Fire District, FY 2017/18

Entity	Unfunded
Allingtown (6/30/2018)	7,262,379
First Fire (6/30/2018)	12,711,229
West Shore (7/1/2017)	7,856,327
Total	\$27,829,935

Figure 30: Pension Asset Allocation by Fire District, FY 2017/18

Entity	Asset Class	Target Allocation %
Allingtown (6/30/2018)	Cash	2.13
	Large Credit Bonds	65.65
	Large Cap	28.30
	Real Estate (REITS)	3.92
First Fire (6/30/2018)	Fixed Income	75.00
	Domestic Equity	20.00
	Commodities	5.00
West Shore (7/1/2017)	Cash	18.33
	U.S. Core Fixed Inc.	12.40
	U.S. Equity	58.30
	Emerging Markets	0.28
	Hedge Funds	10.69

Figure 31: Actuarially Determined Pension Contribution by Fire District, FY 2017/18

Entity	Unfunded
Allingtown (FY 2019)	2,174,625
First Fire (FY 2018)	4,591,967
West Shore (FY 2018)	3,297,442
Total	\$10,064,034

Figure 32: ADC Pension Compared to Actual Contribution by Fire District, FY 2017/18

Entity/ADC Source/Actual Contrib. Source	Pension ADC	Actual Contrib.	Annual Budget	% Contrib.
			Deficiency	Made
Allingtown (FY 2019 Valuation/FY 2018 Audit)	2,174,625	1,894,851	279,774	87.1%
First Fire (FY 2018 Audit/FY 2018 Audit)	4,591,967	2,420,507	2,171,460	52.7%
West Shore (FY 2018 Valuation/FY 2017 Audit)	3,297,442	2,976,000	321,442	90.3%
Total	10,064,034	7,291,358	2,772,676	72.4%

Figure 33: Unfunded OPEB Liability by Fire District FY 2017/18

Entity	Unfunded
Allingtown (6/30/2018)	25,312,009
First Fire (6/30/2018)	39,396,462
West Shore (6/30/2017)	38,381,930
Total	\$103,090,401

Figure 34: ADC OPEB Compared to Actual Contribution by Fire District FY 2017/18

Entity/ADC Source/Actual Contrib. Source	OPEB ADC	Actual Contrib.	Annual Budget Deficiency	% Contrib. Made
Allingtown (Estimated/FY 2018 Audit)	3,533,723	688,973	2,844,750	19.5%
First Fire (Estimated/FY 2018 Audit)	5,500,000	1,200,868	4,299,132	21.8%
West Shore (FY 2017 Audit/FY 2017 Audit)	5,354,125	1,303,243	4,050,882	24.3%
Total	\$14,387,848	\$3,193,084	\$11,194,764	22.2%

Figure 35: Total Pension and OPEB Unfunded Liabilities by Fire District FY 2017/18

Entity	Pension	OPEB	Total
Allingtown	\$23,014,226	\$25,312,009	\$48,326,235
First Fire	\$68,734,099	\$39,396,462	\$108,130,561
West Shore	\$58,243,937	\$38,381,930	\$96,625,867
Total	\$149,992,262	\$103,090,401	\$253,082,663

Figure 36: Total Pension and OPEB ADC Compared to Actual Contribution by Fire District FY 2017/18

Entity	Total Pension and OPEB ADC	Total Pension and OPEB Actual Contrib.	Total Pension and OPEB Annual Budget Deficiency	% Contrib. Made
Allingtown	5,708,348	2,583,824	3,124,524	45.3%
First Fire	10,091,967	3,621,375	6,470,592	35.9%
West Shore	8,651,567	4,279,243	4,372,324	49.5%
Total	\$24,451,882	\$10,484,442	\$13,967,440	42.9%

Sensitivity of the Analysis

The Pension and OPEB analysis, which produced the calculation of the unfunded liabilities as detailed in the previous figures, are prepared by external, independent actuaries using uniform rules promulgated by their professional organization and using employee census data provided directly by each district.

A series of actuarial assumptions are then applied to the data including mortality, expected inflation, and a projected interest rate return for invested assets based on a predetermined asset allocation.

Because the Pension and OPEB liabilities are substantial and each district is not funding the actuarial determined contribution (ADC), the discount rate used to calculate the magnitude of the liabilities is low, increasing the size of the liabilities. Prefunding the liability through the complete funding of the Pension Trust or creating an OPEB Trust and prefunding the full ADC and investing those funds in a well-diversified set of investments governed by an investment policy statement using a long-term investment horizon will save approximately 40 percent of the lifetime cost of providing the benefit compared to pay as you go funding as the market returns from the investment assets will reduce the cost to the taxpayers. In West Haven's case with respect to the fire districts and the OPEB liability, this savings is estimated to be \$40 million.

As a result of the variety of variables that go into the calculation of the unfunded liabilities, it should be noted that while the projections are highly reliable, they can be materially different over the long-term as changes in interest assumptions or mortality fluctuations in a small population can move the projections higher or lower. Because of the size and possible variability of the projections, it is recommended to update the Pension and OPEB valuations on a regular schedule with a valuation every other year advisable.

Municipal Employee Relations Act (MERA)

All three fire districts are required by Connecticut State law to negotiate labor and pension contracts under the rules of the Municipal Employee Relations Act (MERA). While the law has many provisions, a basic summary would include the need for both labor and management to bargain in good faith with consideration of the financial capabilities of the City, closely followed by employee compensation compared to other similarly situated employees in surrounding and comparable municipalities.

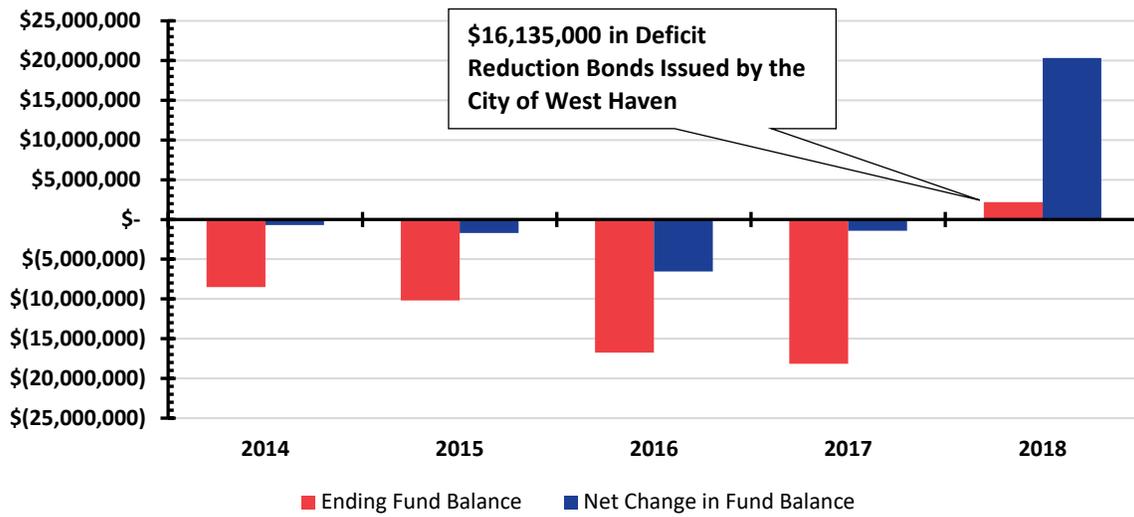
Observations

This analysis of the financial and administrative operations of the three fire districts understands that the continued delivery of an important community service like fire and paramedic response needs to continue at a high level with the financial and administrative operations supporting that delivery in an efficient and transparent manner. Further, the City of West Haven and each individual fire district struggle with an increasing burden to balance the cost of all services provided to the community against the community's ability and willingness to pay for those services.

Historically, the districts have been forced to produce budgets that better represent the community's ability to pay rather than the actual cost of providing those services. For many budget years at both the City level and fire district level, the rising cost of providing municipal government services has outpaced the community's desire to raise taxation to balance the annual budget which has left the City and fire districts in what can only be described as a severely weakened financial position that if left unattended will result in eventual insolvency.

On the City level, this in turn has resulted in a near perpetual cycle of annual budgets that are structurally unbalanced which has caused the fund balance to end most recent years in a deficit position.

Figure 37: City of West Haven Deficit Fund Balance Trend by Year



Superficially on a fire district level, most budgets are thought to be balanced, but when the complete cost of pensions and OPEB are factored in, most annual budgets produced by the fire districts are in fact unbalanced related to large, unsustainable unfunded costs. Further, even on a year-to-year level, there is insufficient funding for routine operating and capital replacement costs.

Presented in the following figure is an illustration of each fire district including the most recent audited financial statement with a projected FY 2021 budget that more accurately reflects the cost of providing fire service to the district by contributing the full ADC on the pension and a partial OPEB contribution (\$250,000) over and above the pay as you go basis now funded. The projection also budgets for a modest funding source (\$150,000) for capital equipment replacement. At the end of each projection for each fire district, the necessary mill rate increase and impact to the average taxpayer is also projected.

Figure 38: Allingtown Fire Department Statement of Changes & FY 2021 Budget Projections

Statement of Changes in Revenues, Expenditures, and Changes in Fund Balance For the Fiscal Years Ended June 30, 2018, and Projected			
	Actual 2018	Budget 2021	Increase
Revenues:			
Property Taxes	6,039,369	6,298,593	259,224
Intergovernmental Grants	386,728	386,728	
Charges for Services	246,357	246,357	
Contributions	100,000	100,000	
Investment Income			
Other	11,399	11,399	
Total Revenue	\$6,783,853	\$7,043,077	\$259,224
Expenditures:			
Public Safety	6,163,501	6,163,501	–
Additional Pension ADC	–	279,774	279,774
Additional OPEB Contrib. Above Paygo	–	250,000	250,000
Contrib. to Cap. Reserve—Equipment	–	150,000	150,000
Capital Outlays	–	–	–
Debt Services	80,943	80,943	–
Total Expenditures	\$6,244,444	\$6,924,218	\$679,774
Other Financing Sources:			
Issuance of Capital Leases	–	–	–
Proceeds from the Sale of Assets	–	–	–
Transfers in (write off from GF)	–	–	–
Net Change in Fund Balance	\$539,409	\$118,859	(\$420,550)
Fund Balance—Beginning of Year	(658,268)	(118,859)	
Fund Balance—End of the Year	(118,859)	–	
Fund Balance % of Budget	-1.9%	0.0%	
Mill Rate FY 19 and Projected	14.00	14.6	0.60
Approximate Value of One Mill	431,384	431,410	
% of Tax Increase—Sustainability		4.3%	
Home—Assessed at \$115,500	1,617	1,686	69
Car—Assessed at \$7,500	105	110	5
Annual Fire District Tax Bill	1,722	1,796	74

Figure 39: First Fire District Statement of Changes & FY 2021 Budget Projections

Statement of Changes in Revenues, Expenditures, and Changes in Fund Balance For the Fiscal Years Ended June 30, 2018 and Projected			
	Actual 2018	Budget 2021	Increase
Revenues:			
Property Taxes	11,582,405	14,337,124	2,754,719
Interest and Lien Fees	99,283	99,283	–
PILOT—State Grant	736,175	736,175	–
Other State and Federal Grants	443,236	443,236	–
Investment Income	28,933	28,933	–
Other	220,318	220,318	–
Total Revenue	\$13,110,350	\$15,865,069	\$2,754,719
Expenditures:			
Salaries	5,419,892	5,419,892	–
Employee Expense	5,955,424	5,955,424	–
Additional Pension ADC	–	2,171,460	2,171,460
Additional OPEB Cont. Above Paygo	–	250,000	250,000
Contrib. to Cap. Reserve—Equipment	–	150,000	150,000
Apparatus Equipment, Repairs, Tests	823,643	823,643	–
Firehouse Operations	394,298	394,298	–
Outside Services	414,443	414,443	–
District Expense	285,909	285,909	–
Total Expenditures	\$13,293,609	\$15,865,069	\$2,571,460
Other Financing Sources:			
Proceeds from Capital Lease Obligations	204,376	–	–
Net Change in Fund Balance	\$21,117	–	\$183,259
Fund Balance—Beginning of Year	1,450,191	1,471,308	
Fund Balance—End of the Year	1,471,308	1,471,308	
Fund Balance % of Budget	11.1%	9.3%	
Mill rate FY 19 and Projected	11.99	14.84	2.85
Approximate Value of One Mill	966,005	966,113	
% of Tax Increase—Sustainability		23.8%	
Home—Assessed at \$115,500	1,385	1,714	329
Car—Assessed at \$7,500	90	111	21
Annual Fire District Tax Bill	1,475	1,825	351

Figure 40: West Shore Fire District Statement of Changes & FY 2021 Budget Projections

Statement of Changes in Revenues, Expenditures, and Changes in Fund Balance For the Fiscal Years Ended June 30, 2017 and Projected			
	Actual 2018	Budget 2021	Increase
Revenues:			
Property Taxes	7,818,645	8,889,496	1,070,851
Interest and Lien Fees	27,830	27,830	–
Intergovernmental Grants	949,116	949,116	–
Investment Income	1,949	1,949	–
Other	274,717	274,717	–
Total Revenue	\$9,072,257	\$10,143,108	\$1,070,851
Expenditures:			
Public Safety	9,331,615	9,331,615	–
Additional Pension ADC	–	321,442	321,442
Additional OPEB Contrib. Above Paygo	–	250,000	250,000
Contrib. to Cap. Reserve—Equipment	–	150,000	150,000
Capital Outlays	90,051	90,051	–
Total Expenditures	\$9,421,666	\$10,143,108	\$721,442
Net Change in Fund Balance	(\$349,409)	–	\$349,409
Fund Balance—Beginning of Year	1,965,170	1,615,761	
Fund Balance—End of the Year	1,615,761	1,615,761	
Fund Balance % of Budget	17.1%	15.9%	
Mill Rate FY 19 and Projected	10.129	11.516	1.39
Approximate Value of One Mill	771,907	771,926	
% of Tax Increase—Sustainability		13.7%	
Home—Assessed at \$115,500	1,170	1,330	160
Car—Assessed at \$7,500	76	86	10
Annual Fire District Tax Bill	1,246	1,416	171

While three separate fire districts, in particular the administrative and financial functions, at one time may have been an optimal way to localize the delivery of fire and paramedic services, it now unfortunately has become an impediment to the following:

1. Efficient and consistent budgeting across entities.
2. Consistent financial reporting across entities.
3. Consistent accounting controls across entities.
4. Consistent actuarial analysis of both the pension and OPEB valuations across entities.
5. Consistent labor and pension negotiations across entities.
6. Consistent procurement across entities.
7. Consistent pension fund investment allocation, custody, and cost across entities.
8. Data driven decision making to support the entire fire operation across entities.

Just as important, based on the following figure, separate fire districts funded by separate grand lists have varying mill rates based both on the needs of each fire district and the district's wealth capabilities. The variability of both the mill rates and the assessed value per square mile between districts is of significant concern.

Figure 41: Grand Lists Summary, By Department

Allingtown Fire	Assessed Value	Sq. Miles	Assessed Value per Sq. Mile
Real Estate	\$444,496,278		
Motor Vehicles	\$53,128,800		
Personal Property	\$35,086,245		
TOTAL	\$532,711,323	3.2	\$166,472,288
First Fire District	Assessed Value	Sq. Miles	Assessed Value per Sq. Mile
Real Estate	\$1,025,579,830		
Motor Vehicles	\$129,111,690		
Personal Property	\$55,023,013		
TOTAL	\$1,209,714,533	4.4	\$274,935,121
West Shore	Assessed Value	Sq. Miles	Assessed Value per Sq. Mile
Real Estate	\$795,896,906		
Motor Vehicles	\$84,680,250		
Personal Property	\$60,125,077		
TOTAL	\$940,702,233	3.4	\$276,677,127

Finally, decentralized and duplicative individual operations, considering the very large unfunded pension and OPEB liabilities, require a single centralized financial and administrative support operation dedicated to controlling costs moving forward and to creating a system whereby the costs that are currently unfunded are systematically addressed.

To that end, there is no single solution to the myriad of financial challenges facing the City of West Haven and the individual fire districts. In 1996, the MMA Study recommended a consolidation of the three fire districts with an emphasis on addressing unfunded pension liabilities. For the most part, the recommendations in that report were not implemented.

Today, 23 years later, the unfunded pension liabilities have substantially increased, and a new unfunded liability called Other Post-Employment Benefits (OPEB) has been quantified and in and of itself is substantial. Taken together, they are crippling for the City as a whole and each of the fire districts. These liabilities need to be addressed both from a moderation perspective but also from a budget funding perspective.

Service Delivery and Performance

Service delivery is the foundation of any service-oriented organization. Without an understanding of how services are organized, deployed, and managed, efficiency and effectiveness cannot be quantified. This section of the report will analyze multiple facets of the current delivery of fire services in the City of West Haven, including the identification of incidents by type and frequency, population demographics, deployment analysis, system reliability, and a summary of performance. By understanding current performance and how the system functions, goals and objectives for future performance improvements can be established and implemented.

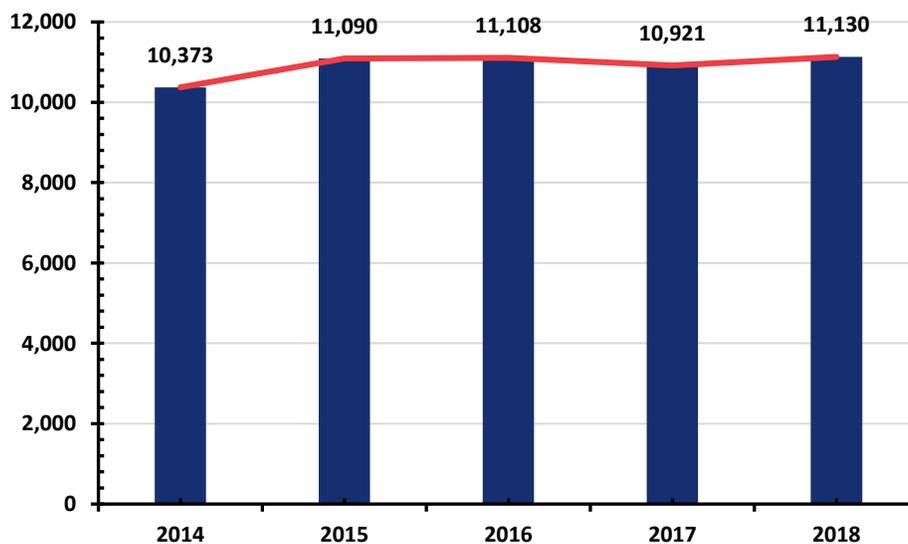
Demand Summary

Incidents by Frequency and Type

The ways in which demand for service occur often follow predictable patterns over time. To provide an overall analysis how these patterns occur in the City of West Haven, incident data provided by the three fire departments serving the City were combined, then processed to produce a count by discrete incident.

Data for 2014 and 2015 is included, but it should be noted that for these years, incident types related to a Smoke Detector Installation program funded by a FEMA Grant was excluded to provide an accurate year to year comparison of how service demand in West Haven changed. Overall, demand for services remained relatively constant with a 7.3 percent increase from 2014 to 2018 or a compound annual growth rate of 1.4 percent.

Figure 42: City of West Haven Overall Service Demand, 2014–2018



Incident typing used in this section follows the National Fire Incident Reporting System (NFIRS) classification schema and was applied to the initial classification applied by the communications center.

Figure 43: Allingtown Fire Department Service Demand by Incident Type

Incident Type	2014	2015	2016	2017	2018
Fire	64	82	50	75	75
Overpressure	0	1	1	5	2
EMS	1,266	1,432	1,336	1,513	1,503
Hazardous Condition	68	72	70	50	60
Service Call	307	321	319	342	316
Good Intent	138	128	144	112	120
False Alarm	275	286	252	248	315
Severe Weather	1	0	3	1	1
Special Incident	1	0	0	1	2
Total	2,120	2,322	2,175	2,347	2,394

When annual service demand in Allingtown is compared by total volume and by incident type, the number of calls occurring within Allingtown's district increased 12.9 percent from 2014 to 2018. While some fluctuations occurred year to year, overall the trend displays a compound annual growth rate of 2.5 percent. Next, West Haven Fire's data is analyzed for patterns within the data.

Figure 44: West Haven Fire Department Service Demand by Incident Type

Incident Type	2014	2015	2016	2017	2018
Fire	165	198	157	138	124
Overpressure	8	5	8	9	6
EMS	4,251	4,406	4,738	4,441	4,342
Hazardous Condition	133	118	119	118	127
Service Call	683	700	656	607	653
Good Intent	409	438	455	459	478
False Alarm	379	353	362	371	422
Severe Weather	1	1	1	4	5
Special Incident	0	0	3	2	13
Total	6,029	6,219	6,499	6,149	6,170

Incident demand for the WHFD displays some variation year to year with a 7.8 percent difference in demand when comparing 2016 to 2014 incident totals. Overall, WHFD experienced a 2.3 percent increase in service demand from 2014 to 2018, with a compound annual growth rate of 0.5 percent. Finally, incident totals by year are examined for West Shore Fire Department.

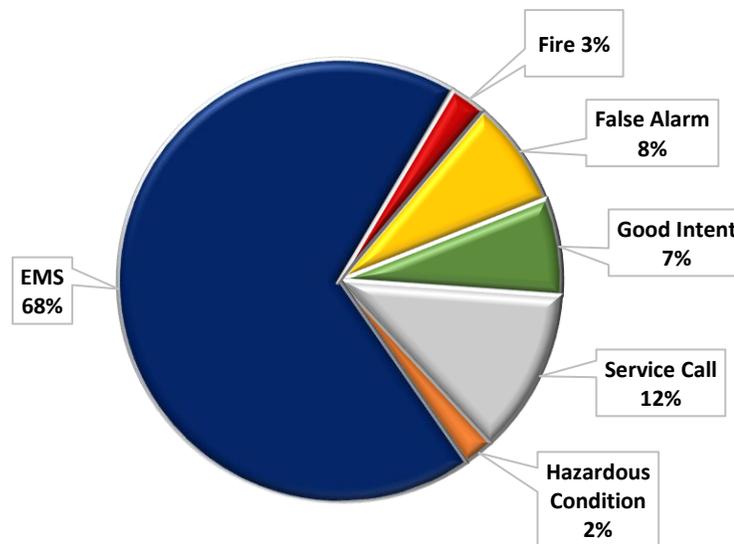
Figure 45: West Shore Fire Department Service Demand by Incident Type

Incident Type	2014	2015	2016	2017	2018
Fire	53	57	53	46	58
Overpressure	4	0	2	2	1
EMS	1,506	1,654	1,568	1,632	1,630
Hazardous Condition	57	50	52	55	53
Service Call	302	349	321	299	375
Good Intent	150	194	248	203	229
False Alarm	145	242	187	184	218
Severe Weather	4	1	0	3	1
Special Incident	3	2	2	1	1
Total	2,224	2,549	2,433	2,425	2,566

West Shore Fire also displays year to year fluctuations in demand and had the greatest growth from 2014 to 2018 at 15.4 percent. The compound annual growth rate for WSFD was 2.9 percent.

Next, total demand for the City of West Haven is displayed by the frequency in which calls occurred and is classified by incident type.

Figure 46: Overall West Haven Incident Type by Frequency



The majority of service demand across the City of West Haven is for emergency medical services, followed by service calls and false alarms. This distribution of service demand can be categorized as normal, and is similar to that found in many urbanized areas across the country with staffed fire stations.

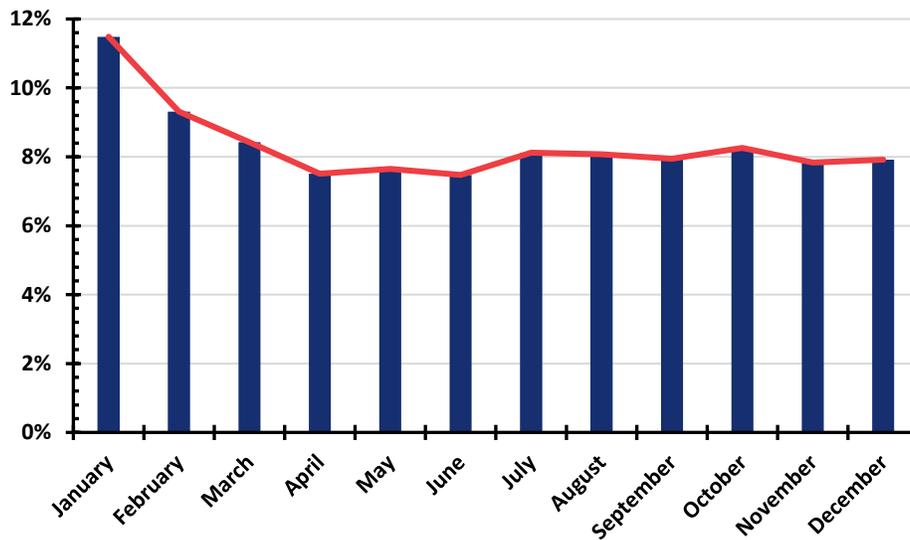
Service demand in West Haven appears to be fairly regular and consistent and the departments should anticipate similar demand in the future, assuming conditions within the City remain the same. Next, the patterns of service demand over time are analyzed and discussed.

Temporal Analysis

In addition to knowing the types and frequency of service demand, the timing of these events is critical to understanding when system demand will most likely be at its greatest. Knowing when high demand periods occur will assist administrators in determining whether staffing levels are sufficient for the demand and also in scheduling additional duties such as training, fire safety inspections, and vehicle maintenance.

The following figure provides an illustration of service demand by month from 2014 through 2018.

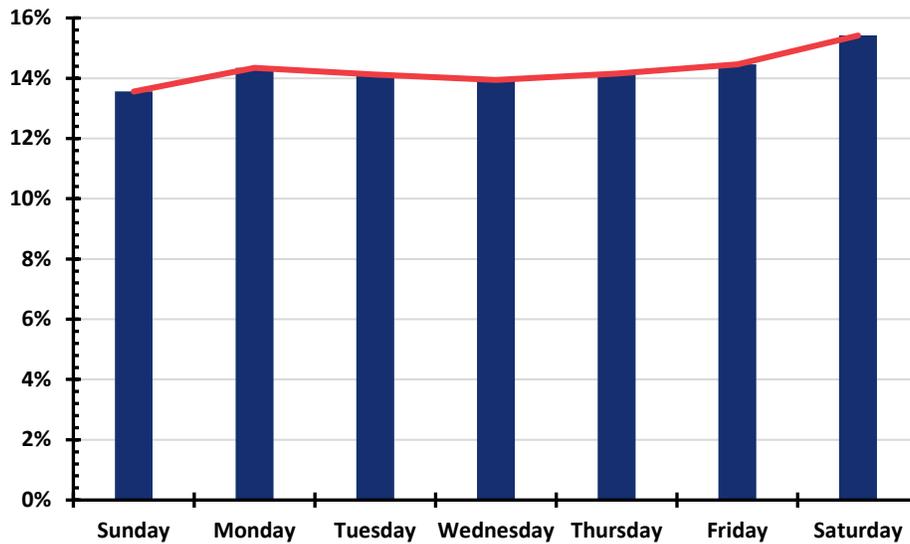
Figure 47: Incident Frequency by Month of Year (City of West Haven, 2014–2018)



In this figure, demand by month is displayed for the five-year period from 2014 to 2018. It illustrates a sharp increase in demand occurring in January, which then tapers off after March, then remains relatively consistent. To determine what may have caused the increase in January, this analysis was conducted for each year independently; however, the results were consistent. The three fire departments within the City may consider further investigation in to what may be causing this spike in demand and prepare accordingly.

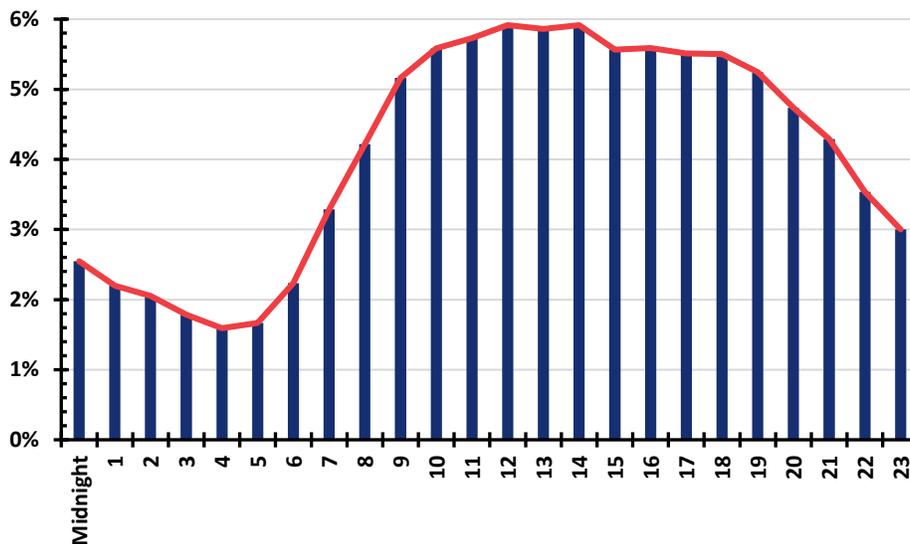
Next, temporal variation by day of week is examined.

Figure 48: Incident Frequency by Day of Week (City of West Haven, 2014–2018)



Service demand by day of week is stable during the work week with a peak in demand on Saturdays and the lowest level of demand on Sundays. Finally, demand by hour of day is presented.

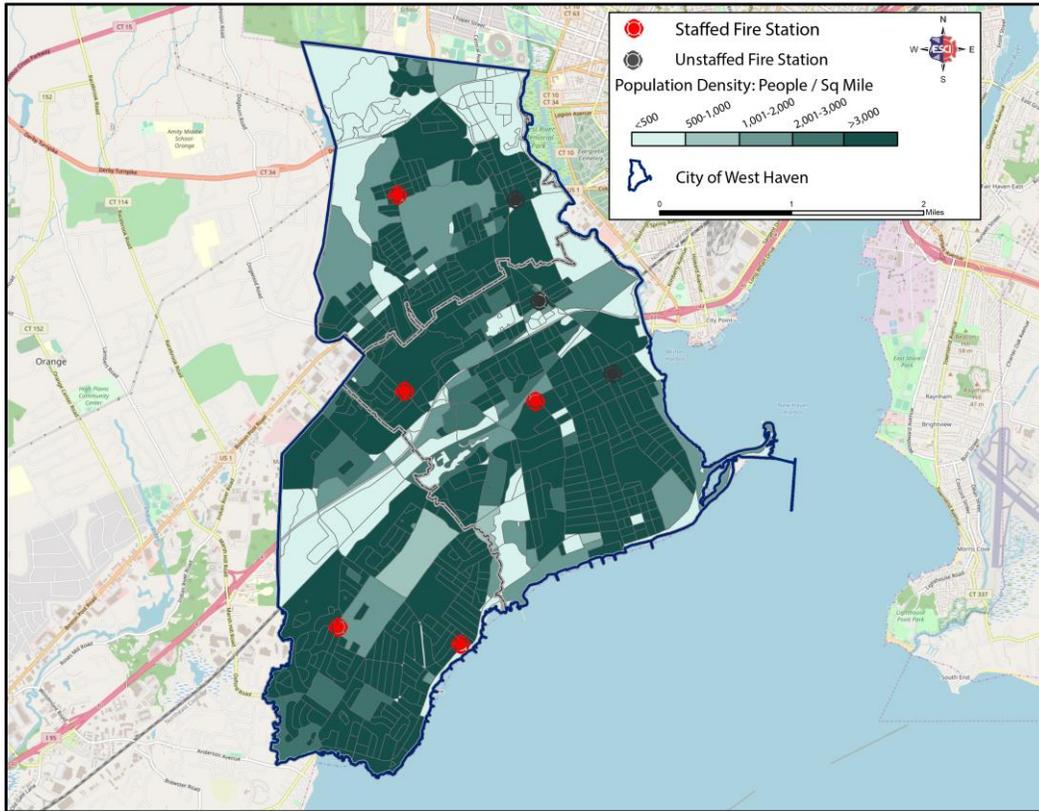
Figure 49: Incident Frequency by Hour of Day (City of West Haven, 2014–2018)



When temporal variation by hour of day is examined, a common pattern emerges as demand for services is tied to the activity levels of the community. Demand begins to increase in the mornings and declines after 6 pm. Just as service levels tend to increase when people are most active, demand can also be expected at higher levels in areas where more people live. The following figure displays the population density of West Haven by census block, which is the smallest division provided by the Census Bureau. Using population density, inferences can be generated on where to anticipate the greatest levels of activity.

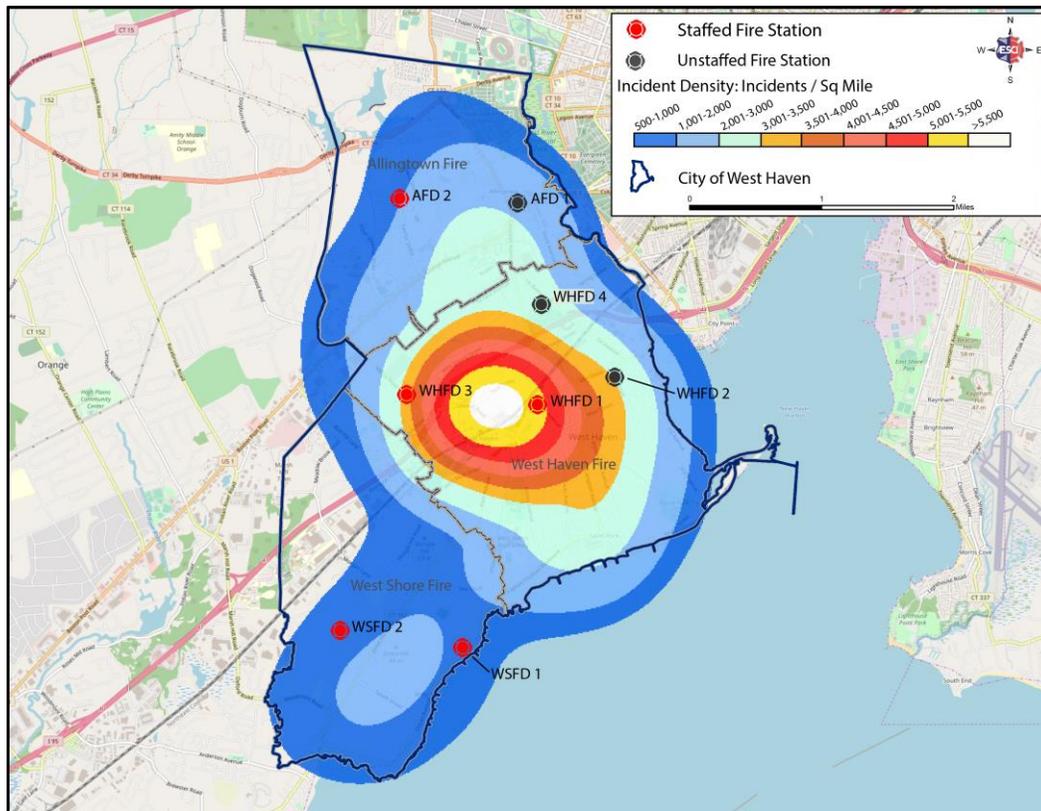
Geographic Distribution

Figure 50: Population Density, 2010 Census Blocks



Much of the City of West Haven possesses a population density of 3,000 people per square mile or greater. The classification used in this figure was derived from NFPA 1720: *Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Volunteer Fire Departments* as it provides a methodology for defining populated areas. To provide additional insights in to where demand is likely to occur or continue to occur, a Hot Spot Analysis is provided in the following figure to identify areas where incidents are generated in close proximity to one another.

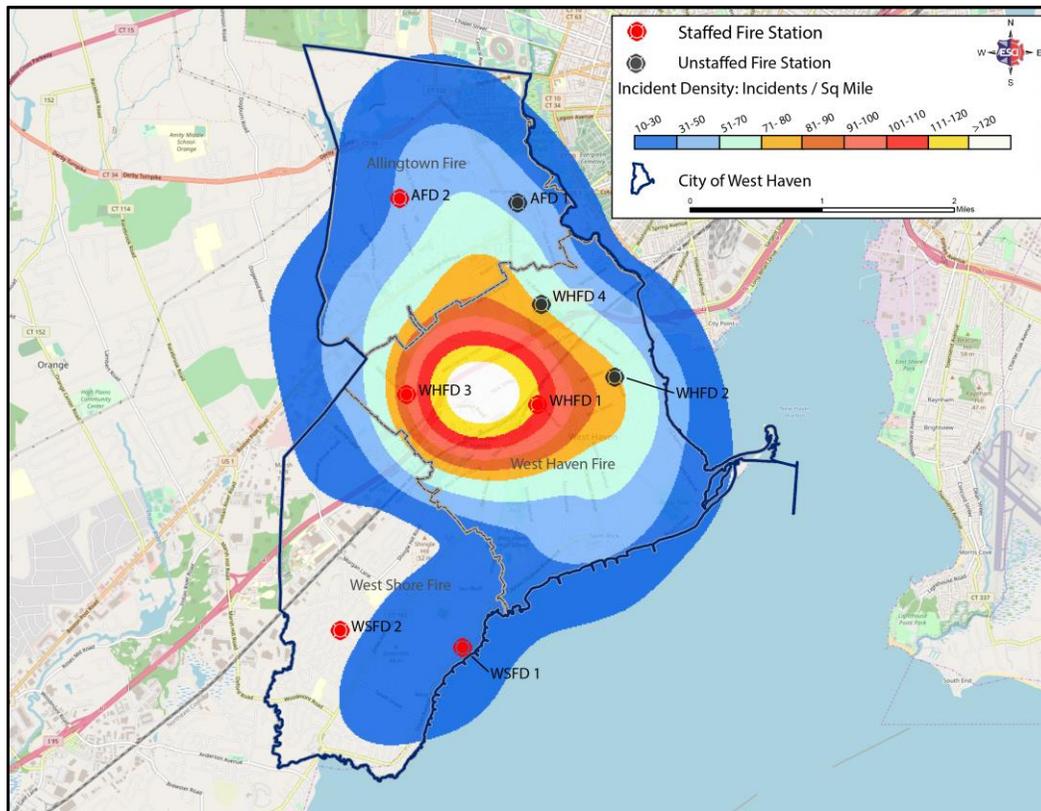
Figure 51: Hot Spot Analysis, All Incidents 2017–2018



In this figure, incident density is displayed using calculated incident density, or hot spot analysis. This analysis compares incident points based on their locations relative to each other and generates a range of densities that would occur should those density patterns extend over a square mile. This type of analysis provides insights in to where areas of high and low incident frequency are located and helps the reader understand where to focus resources. This figure was generated using all incidents to which the fire department responded.

Generally speaking, the center of West Haven possesses the greatest amount of incident concentration, based on the relative closeness of where these incidents occur, and this spreads outward from the center. Based on this analysis, it should not be surprising that the West Haven Fire Department also possesses the greatest amount of service demand in the city. Next, the same type of analysis is applied to fire calls across West Haven.

Figure 52: Hot Spot Analysis, Fires 2017–2018

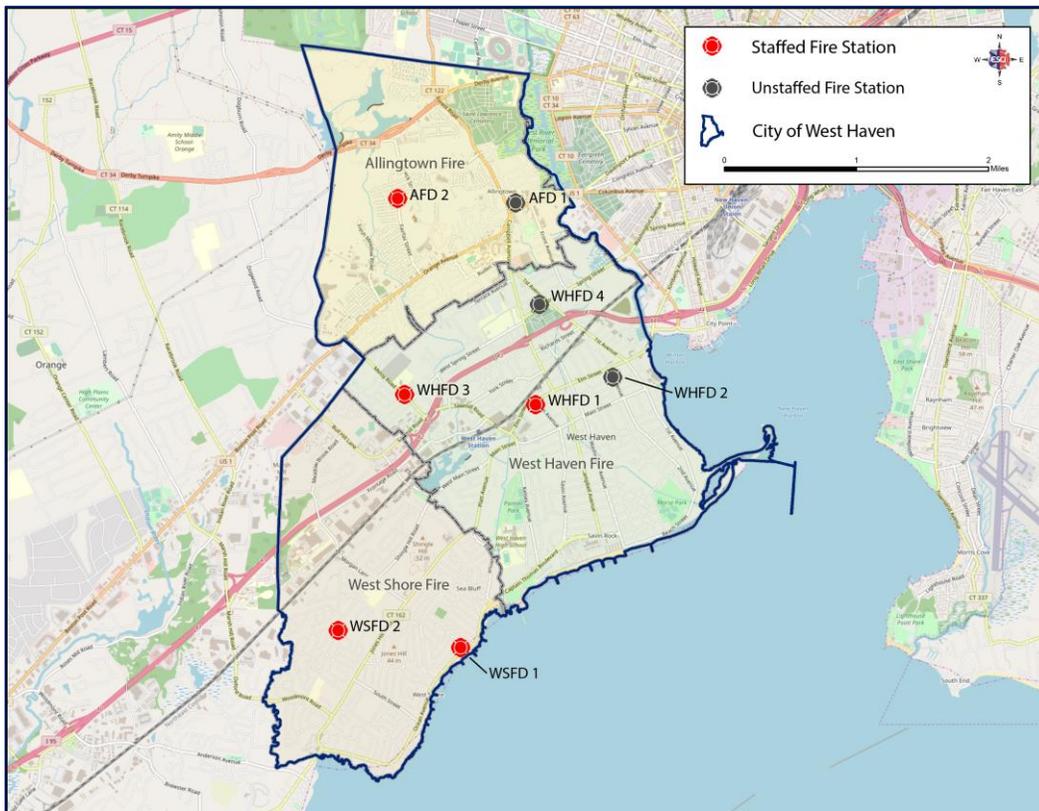


Similar to the previous analysis, the densest levels of fire activity are located in the center of West Haven and radiate outwards.

Distribution Analysis

Next, an overview of the current deployment strategy, which includes facility and apparatus locations, was analyzed using Geographic Information Systems (GIS) software to identify potential service gaps and redundancies of resources. For fire service organizations, system redundancy is critical as staffing needs for moderate risk incidents, such as a 2,000-square foot residential structure fire and greater, will require at least 13 to 15 firefighters on scene to effectively and safely mitigate the incident. Without overlapping coverage by stations and units available for response, it is not possible to assemble enough firefighters to achieve positive outcomes for these types of risks without posing significant risk to the firefighters on scene. In the following figure, an overview of the City of West Haven’s service area is presented with the City boundaries, fire stations, and district boundaries displayed.

Figure 53: Service Area



The current fire rescue deployment configuration for the city includes five staffed fire stations and three unstaffed fire stations, the latter located on the eastern side of the city. The districts serving West Haven should consider whether or not there is continuing value in maintaining these unstaffed facilities and if costs savings are available without sacrificing the fire department’s ability to deliver services.

ISO Distribution

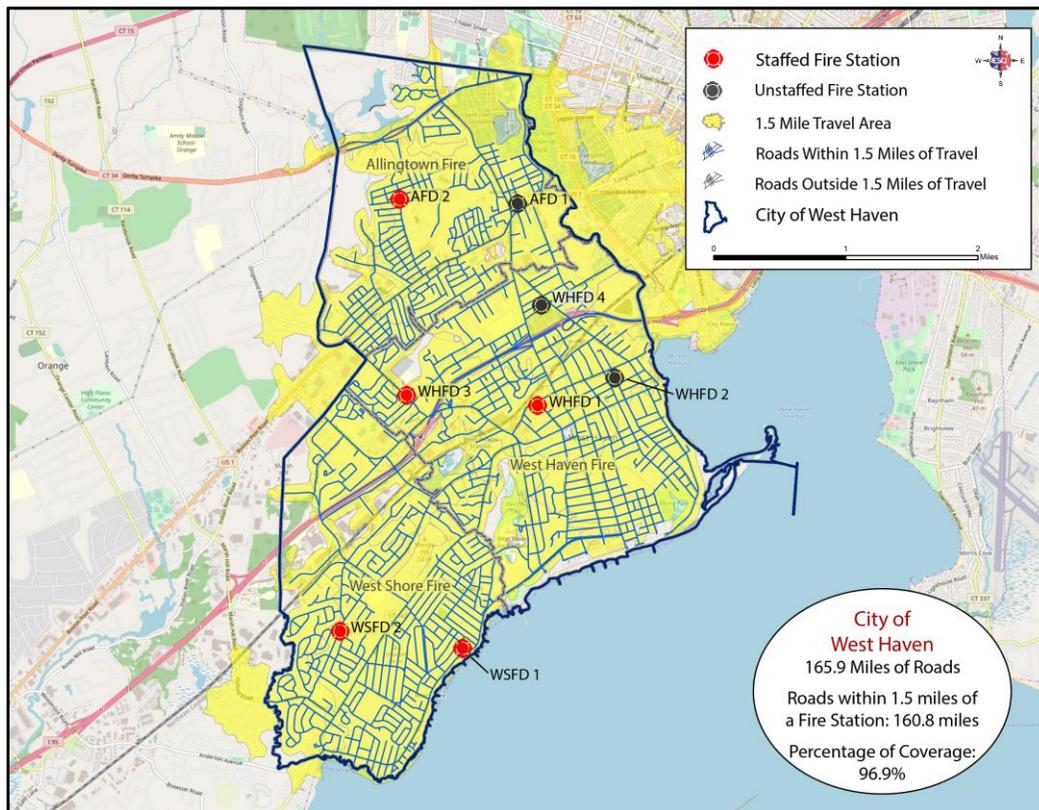
The ISO Public Protection Classification (PPC®) score was developed for communities to provide recommendations for key areas of improvement. The PPC® system is a national system used by the New Jersey-based advisory organization Insurance Services Office (ISO) to provide insurance providers with a classification rating of a local community’s fire protection. The PPC® score classifies communities based upon a rating scale of 1 (best protection) to 10 (no protection) and assesses all areas related to fire protection broken into four major categories which include; emergency dispatch and communications (10 points), water system supply and distribution capabilities (40 points), the fire department (50 points), and Community Risk Reduction (5.5 points). The PPC® score is developed using the Fire Suppression Rating Schedule (FSRS), which outlines sub-categories and the detailed requirements for each area of the evaluation.

Presently, Allingtown has an ISO Rating of 3, West Haven is a 2, and West Shore is a 3.

The first component of ISO distribution is the ability of a fire department to arrive on scene equipped with personnel, equipment, and water sufficient to effectively mitigate a fire. To determine whether or not a structure is eligible to receive a PPC rating better than 10, indicating that the fire department does not meet minimum ISO criteria for the structure to receive a rating, a service area of five road miles from the fire station is generally used. Additionally, the baseline criteria used by ISO for engine company travel is 1.5 road miles away from the facility where the engine company is housed.

The following figure presents each station with both a 1.5 road-mile radius extending outward from each fire station.

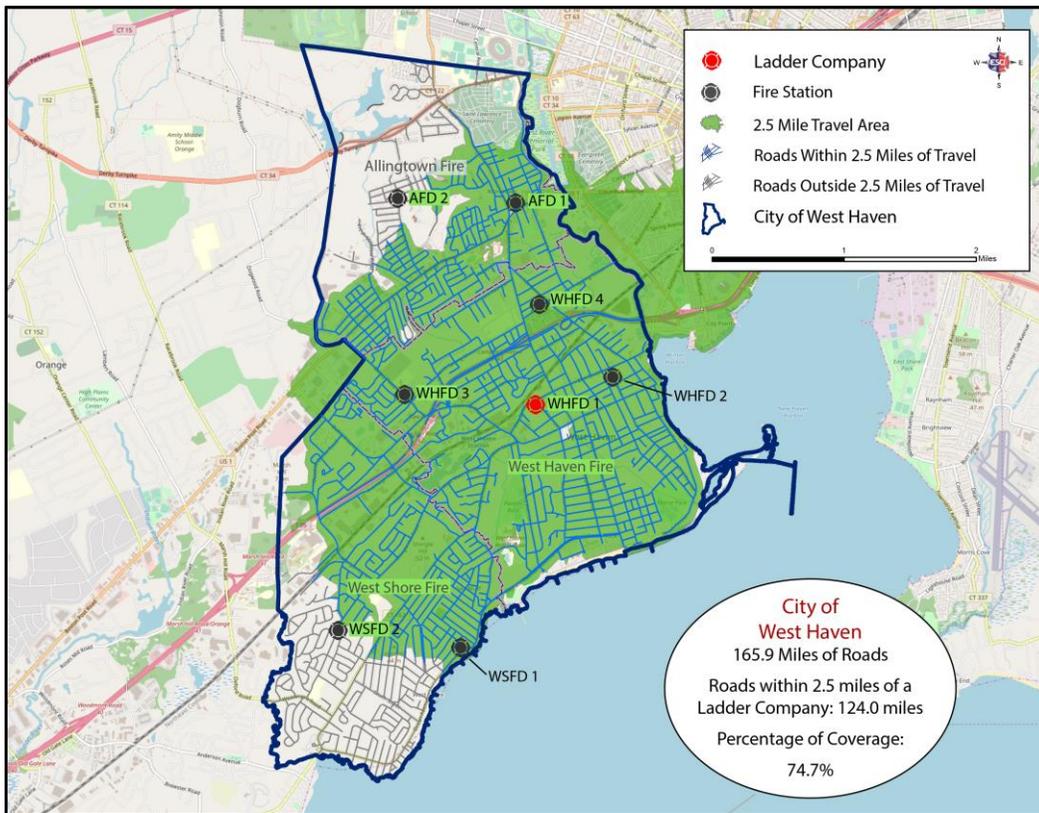
Figure 54: Fire Station Distribution, 1.5-Mile ISO Engine Company Criteria



Based on the location of current fire stations, the vast majority of West Haven is located within 1.5 road miles of a fire station. Generally speaking, ISO is concerned with the provision of fire suppression services to contiguously built upon areas, meaning that ISO is unconcerned with the protection of unpopulated regions of a service area or those areas that lack permanent structures.

ISO assigns engine companies a 1.5-road-mile service area, while ladder companies are assigned a 2.5-road-mile service area. The extended service area for ladder companies is due to ISO requirements for additional staff present on a ladder company to receive full credit. The next figure illustrates ladder company cover throughout the city.

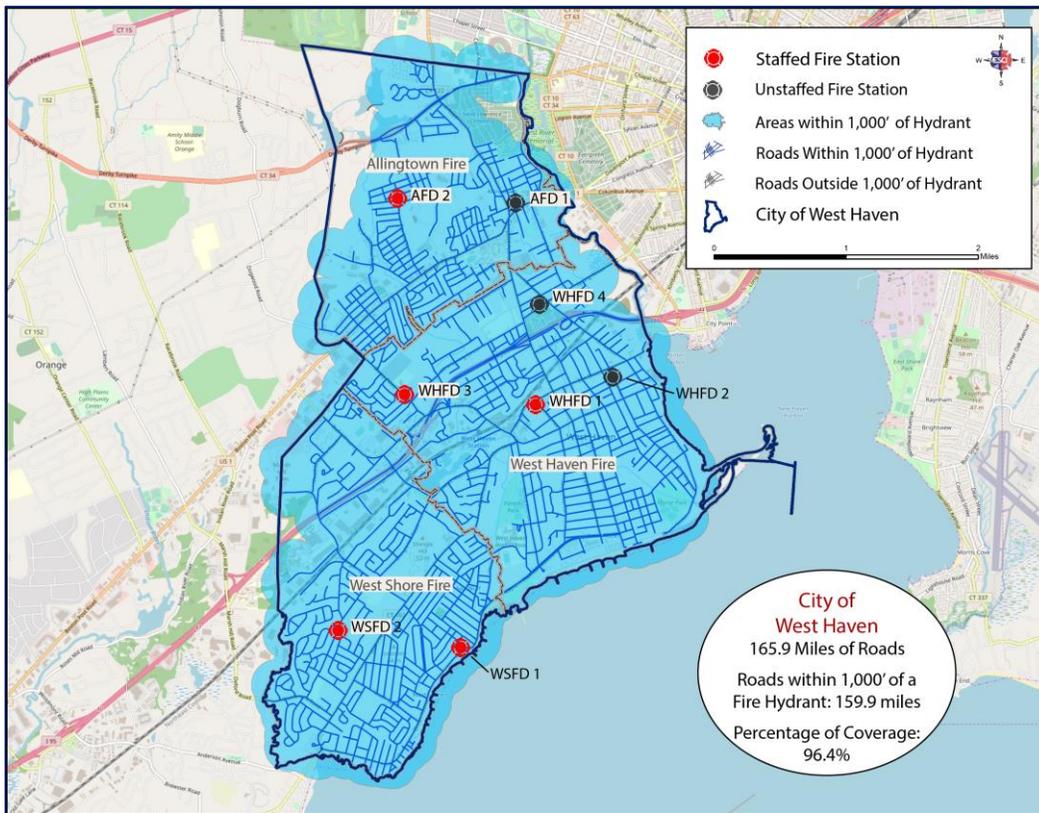
Figure 55: Fire Station Distribution, 2.5-Mile ISO Ladder Company Criteria



Given the current configuration and location of the ladder company, the fire departments can provide the City with strong ladder company coverage across the entire city based on ISO criteria. Additionally, reserve ladder companies are also housed within Allingtown and West Shore, but are staffed as engine companies. This decision represents a deployment strategy agreed upon by the three fire departments working together to develop a consolidated response matrix based upon resources within the city as a whole.

The ability of a fire department to arrive on scene of a fire within a given time or distance represents only part of the ISO classification. Other elements include the ability to assemble personnel, resources, and water sufficient to put the fire out. The next figure illustrates the areas that are 1,000 feet from a fire hydrant.

Figure 56: West Haven Hydrant Coverage, ISO 1,000-Foot Criteria



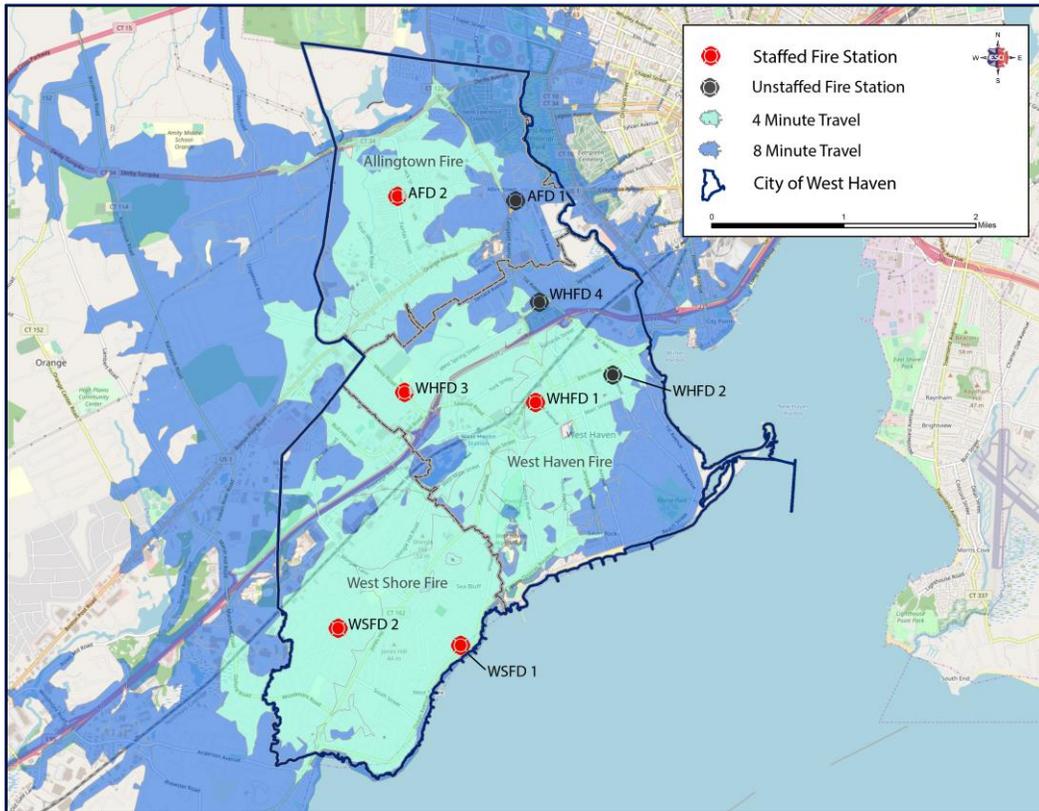
As illustrated, very few areas of the city are outside of the 1,000-foot radius from a fire hydrant. Due to the minimal gap in hydrant coverage, it is anticipated that ISO would provide a single rating for the entire city, as opposed to a split rating.

In closing, it bears mentioning that the addition of fire stations or changes to type of apparatus deployed can have negative impacts to the overall ISO rating if personnel are insufficient to staff those locations based on ISO minimum criteria. Finally, prior to implementing new deployment strategies, the ISO regional representative should be consulted to assess the potential impacts of changes to the deployment strategy.

NFPA Distribution

Because not all fire stations are staffed and some period of time is needed for volunteer responders to travel to a fire station from work or home, the next figure provides an illustration of the fire departments predicted response capabilities using only staffed fire stations.

Figure 57: 4- and 8-Minute Travel Staffed Stations, NFPA Distribution



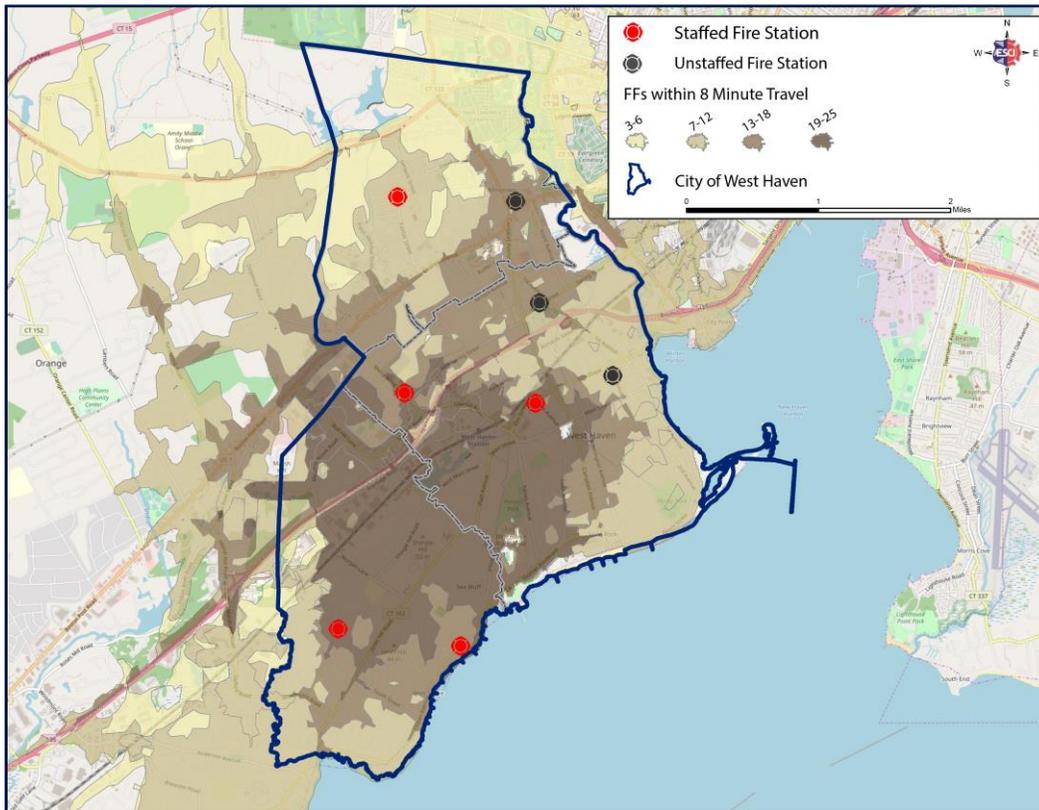
When only staffed fire stations are considered, fire department coverage within a 4-minute travel from a staffed station illustrates gaps within the eastern and central areas of the city, but still provides adequate coverage citywide. Areas of greatest call density, from a previous figure, are generally located within these 4-minute travel areas and all of West Haven’s road base falls within an 8-minute predicted travel.

Concentration Analysis

Accepted firefighting procedures call for the arrival of the entire initial assignment—sufficient apparatus and personnel to effectively deal with an emergency based on its level of risk—within a reasonable amount of time. This is to ensure that enough people and equipment arrive soon enough to safely control a fire or mitigate any emergency before there is substantial additional damage or injury.

Concentration of resources is defined as “spacing of multiple resources arranged so that an initial ‘effective response force’ can arrive on scene within the time frames outlined in the on-scene performance expectations.” An effective response force (ERF) is defined as “the minimum amount of staffing and equipment that must reach a specific emergency zone location within a maximum prescribed total response time and is capable of initial fire suppression, EMS, and/or mitigation. The ERF is the result of the critical tasking analysis conducted as part of a community risk assessment.”

Figure 58: Effective Response Force, 8-Minute Travel



As illustrated in Figure 58, using staffing from the three fire departments, the City of West Haven has the ability to provide firefighters in sufficient number to the majority of the central and southern areas of the city, assuming all units are in quarters and available.

Reliability Analysis

The percentage of time that a unit is committed to an incident affects its availability to respond to other incidents as they occur. For example, if a unit is committed to calls 30 percent of the time, they cannot be reasonably expected to meet 90th percentile goals as other units must travel into the area to pick up the additional workload. Additionally, when multiple incidents, or concurrent calls, occur simultaneously, it can create a strain on department resources and affect a jurisdiction’s ability to muster sufficient resources to respond to additional emergencies.

Unit hour utilization (UHU) analyzes the amount of time that a unit is not available for response because it is already committed to another incident. The larger the number, the greater its utilization and the less available it is for assignment to subsequent calls for service. Although this analysis is useful in determining workload for individual units, it requires that unit numbers be included within the dataset. Since unit numbers were not included in the dataset provided for this analysis, it is not possible to conduct a unit hour utilization analysis at this time. The West Haven fire departments may consider working with their communications center to begin capturing this information for future use.

Next, the call concurrency will be examined. As mentioned previously, call concurrency measures the frequency of simultaneous incidents within a jurisdiction.

The following figure presents the analysis of call concurrency within the City of West Haven for 2014 through 2018.

Figure 59: Call Concurrency, 2014–2018

Concurrent Calls	Percentage
1	43.10%
2	32.20%
3	14.60%
4	5.60%
5	2.00%
6 or more	2.50%

Over a five-year period, the majority of incidents within the City of West Haven occurred without additional concurrent incidents. Approximately one-third of the time, two calls occurred simultaneously, and 25 percent of the time three or more incidents were reported concurrently. This is an important consideration for the fire departments to monitor as concurrent incidents decrease a fire department's ability to effectively respond and can lead to momentary system failure if no units are available to respond. To assist in preventing system failure, many fire departments across the nation use mutual and automatic aid agreements with neighboring fire departments to support one another during periods of high demand.

Performance Analysis

In the performance summary, ESCI examined emergency response performance for the City of West Haven's service area using incident data from January 2017 through December 2018. Data outliers, and invalid data were removed from the data set whenever possible. ESCI generated 90th percentile performance citywide and compared this performance to NFPA 1710.

In analyzing response performance, ESCI measured response time from the time that an incident was received to when the first apparatus arrived on the scene of the emergency. ESCI generated 90th percentile response data for these incidents. The use of percentile measurement of all the components of total response time performance follows the recommendations of the National Fire Protection Association (NFPA 1710) standard. However, due to limitations in the data provided, only response and time committed performance were possible to calculate. The fire departments may consider working with the communications center to capture all metrics of the total response continuum for future performance evaluation. A description of these metrics follows.

Performance at the 90th Percentile

Fire department leaders and policy makers often use average response performance measures, since the term is commonly used and widely understood. The most important reason for not using the “average” for performance standards is that it may not accurately reflect the performance for the entire data set and may be skewed by data outliers. One extremely good or bad value can skew the “average” for the entire data set. Percentile measurements are a better measure of performance since they show that the majority of the data set has achieved a particular level of performance. The 90th percentile means that 10 percent of the values are greater than the value stated, and all other data is at or below this level. This can be compared to the desired performance objective to determine the degree of success in achieving the goal.

The total response time for the City of West Haven is comprised of several different components to achieve the overall response time, or how much time will elapse between a caller dialing 911 until the first unit arrives on scene 90 percent of the time or better. Response time components are described as follows:

- **Call Processing Time:** The amount of time between when a dispatcher answers the 911 call and resources are dispatched.
- **Turnout Time:** The time interval between when units are notified of the incident and when the apparatus are enroute.
- **Travel Time:** The amount of time the responding unit spends traveling to the incident.
- **Total Response Time:** Total Response Time equals the combination of “Call Processing Time,” “Turnout Time,” and “Travel Time.”

Tracking the individual pieces of total response time facilitates identifying deficiencies and areas for improvement. Both the NFPA 1710 standard and the CPSE/CFAI Standards of Cover, 6th Edition recommend that fire jurisdictions monitor and report the components of total response time listed above. Response time is the only component of response performance specifically addressed in the NFPA 1710 standard and for which the fire department can be benchmarked against.

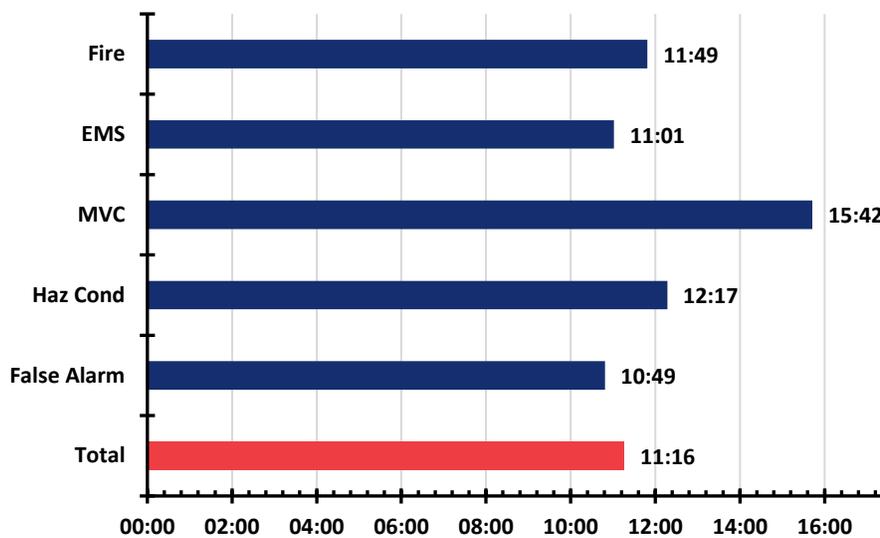
To date, none of the fire departments in West Haven have established performance standards for response time or any component of total response time. Developing performance goals and a methodology for monitoring the individual components of response performance provides an opportunity to improve overall response performance.

As this report progresses through the performance analysis, it is important to keep in mind that each component of response performance is not cumulative. Each is analyzed as an individual component and the point at which the fractile percentile is calculated exists in a set of data unto itself.

The next figure summarizes the response performance citywide at the 90th percentile for the period January 2017 through December 2018 and includes only emergency incidents.

Interviews with the Fire Chiefs revealed that there are concerns about the way fire department response benchmarks are tracked which could contribute to these times not being an accurate representation of the fire department performance. ESCI recommends that the tracking of times be evaluated and modified as necessary to assure that the data accurately capture these metrics.

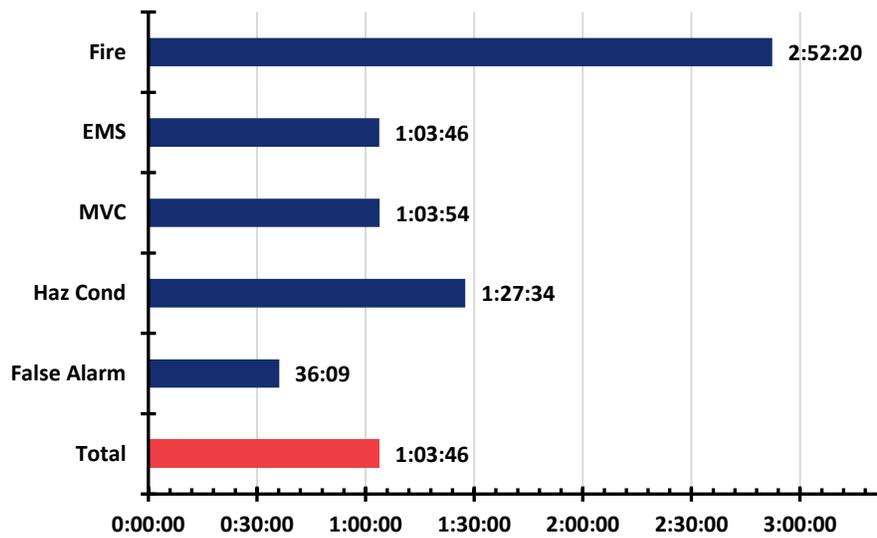
Figure 60: Response Performance, 90th Percentile, 2017–2018



The response performance in West Haven, the time from initial notification until the first unit arrives, at the 90th percentile is displayed in Figure 60. When observed as a citywide system, all categories of incident performance and total performance exceed NFPA 1710 standards. Because turnout time was not available within the data provided, it is not possible to determine whether turnout time, travel time, or a combination of both are the major contributors to excessive response times across the city.

Next, the total time a unit was committed to an incident at the 90th percentile is displayed. Although this is not an NFPA performance metric, it does provide additional insight into the operations of the departments.

Figure 61: Time Committed, 90th Percentile, 2017–2018



Overall, the fire departments can expect to have a unit committed for up to an hour each time a call for service is received 90 percent of the time. The amount of time a unit remains committed to an incident affects call concurrency, first due unit availability, and system reliability.

Mutual and Automatic Aid Systems

Mutual aid is typically employed on an as needed basis where units are called for and specified through an Incident Commander. Automatic aid differs from mutual aid in that under certain mutually agreed upon criteria, resources from the assisting agency are automatically dispatched as part of the initial response. These agreements facilitate the necessary number of personnel and the right number of appropriate apparatus responding to a specific incident. Automatic aid response resources are often defined in the dispatch run cards for the participating agencies. Mutual and automatic aid operations are an integral part of emergency operations.

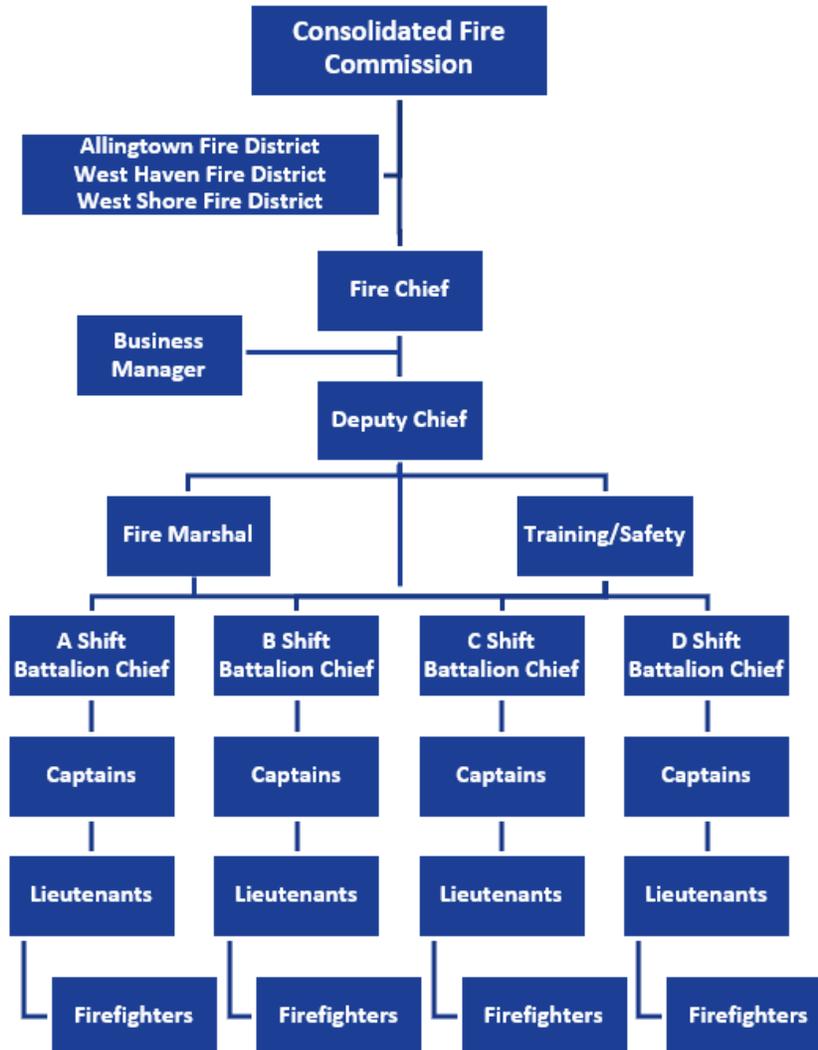
Automatic aid is used to immediately dispatch firefighters from all three fire districts to reported structure fires without consideration for district lines. Mutual aid companies can allow for a significant support response to many of the incidents to which the departments respond. All three fire districts in West Haven have mutual aid agreements in place with their neighboring fire departments.

FUTURE OPTIONS FOR COOPERATIVE EFFORTS

ESCI’s assessment is that future operational consolidation of the three fire districts in West Haven does not lend itself to reductions in the fire service workforce. To the contrary, fire department staffing throughout the entire city is lean. While there is absolutely a need for additional fire service staffing within the City of West Haven, it would not be responsible to increase staffing until the current financial situation is stabilized.

The operational consolidation of the three fire districts does lend itself to efficiencies that would better deploy the existing fire service resources. The following recommendation is made to demonstrate improvements to service that can be realized. Changes to the current organizational structure must be negotiated through the Collective Bargaining Process. Three functional areas that can be better supported by a redeployment of resources are Operations, Training, and the Fire Marshal’s Office.

Figure 62: Proposed Consolidated Staffing Plan



Operations

The organizational chart illustrates a proposed chain of command with a single Fire Chief, a single Deputy Fire Chief, and a single Business Manager. This hierarchy puts a Battalion Chief/Shift Commander on every shift.

Training

There is a formal consolidated tri-district training program in place. This program includes Live Fire Training, Bail-Out Training, RIT Training, OSHA requirements (Hazardous Materials, Bloodborne/Airborne Pathogens, and Fit Testing), Cancer Prevention, EVOC Training, Ice Rescue, EMT Refresher, most recently a very broad training exercise with several agencies for an active shooter involving PD, EMS, Dispatch, the local school system, and the SHARPs teams from the Sponsor Hospital.

Shifts also train at the company level with notification to the Deputy Chief. This allows shifts to focus on topics that are specific to their needs including working with new recruits, new drivers, district familiarization, etc.

The proposed organizational structure includes a Training Captain to oversee all fire and emergency medical services training citywide.

Fire Marshal's Office

The third operational area that would be well-served by the proposed organizational structure is the Fire Marshal's Office. Presently, Allingtown is served by a Deputy Chief/Fire Marshal and Deputy Fire Marshal; West Haven is served by a Fire Marshal and two full-time Fire Inspectors, and West Shore is served by a Fire Marshal. Each Fire Marshal's Office is located within its fire district headquarters.

ESCI recommends relocating all of the Fire Marshal personnel at West Haven City Hall adjacent to the Building Department. Presently, in order to obtain a building permit, applicants must go to both the Building Department at City Hall as well as to the Fire Marshal's Office within the appropriate fire district, and then back to the Building Department. The Building Department is only open to accept permits from 9 am to 11:30 am each day which further complicates the situation. It is reasonable to assume that because of the complexity of this situation, work is likely done within the City of West Haven without building permits, thus resulting in lost revenue for the City. The relocation of the Fire Marshal's Office personnel can be used to staff expanded hours for building permits. ESCI recommends that the fees for building permits, plan reviews, inspections, and re-inspections be increased to further increase revenue. The fire districts have recently partnered on a new Revenue Recovery Program for Emergency Medical Services. ESCI recommends evaluating the feasibility of using this Revenue Recovery Program to collect unpaid fees for permits, plan reviews, inspections, and re-inspections.

GENERAL PARTNERING STRATEGIES

ESCI's staffing evaluation of the three fire districts in West Haven demonstrated that the City would benefit from additional firefighters. ESCI does not recommend hiring additional firefighters until the current financial situation is stabilized.

There have been a number of "Intern," "Live In," and "Bunkee" Programs where University of New Haven Fire Science Students responded to emergency calls in return for the opportunity to live in a fire station while attending the school. West Haven and West Shore also staff paid "Utility Fire Fighters" on Friday and Saturday nights. These arrangements have met varying degrees of success in recent years. At the time of ESCI's site visit in April 2019, Allingtown had one student living in its Admiral Street Fire Station.

In his article, "Military Model Provides Cost Efficiency + Adequate Manpower," Patrick Coughlin suggests a model for staffing that is used by the U.S. Military could be used to provide additional staffing for fire departments.⁸ ESCI suggests the three fire districts in West Haven could meet with success by partnering with University of New Haven Fire Science students in this way.

The concept is very straight forward. The armed forces augment their cadres of career personnel with individuals who sign up to serve for a limited time. The military attracts them by offering valuable incentives. According to Coughlin, more than 350 fire departments across the country now use the military staffing model and augment smaller crews with firefighters who sign up for a specific time period; the typical commitment is four years. The most popular incentive is a paid college education; other options include free housing.

Coughlin reports that the cost savings can be substantial. His research indicates that average fire departments can fill two firefighter positions for the cost of one career firefighter. In addition to lower salary costs, the staffing model reduces pension burdens. One half of the firefighters in these programs choose other careers after finishing their service.

Temporary service periods can be for any established time period but commonly range from two to six years and average four years. The six-year term allows firefighters to stay in the program long enough to complete graduate school.

Auburn, Alabama, adopted this model in 1989 and continues to use it today. The department began by augmenting its staff of 50 career firefighters with nine temporary firefighters. Today, the division employs 100 firefighters, 60 of which are temporary.

⁸ *Military Model Provides Cost Efficiency + Adequate Manpower, Patrick Coughlin; June 27, 2016. Retrieved from <https://icma.org/articles/pm-magazine/fire-department-staffing-dilemma>.*

The cost savings from hiring temporary firefighters allows Auburn to staff each of its apparatus with five-person crews. Career members fill two of the positions, and temporary firefighters fill the remaining three. According to Coughlin, Auburn requires that its temporary firefighters have the same qualifications as its career counterparts. They must pass the same physical ability test and complete the same basic training before being assigned to an engine or ladder company.

The Auburn Fire Division provides free living quarters in three of its five stations. It pays full tuition for firefighters who maintain a 2.5 grade point average. The division also pays the firefighters a modest hourly wage when they are on duty, and their benefit package is similar to that of the career members.

Auburn's compensation plan makes it the most robust military-model staffing program in the country. Auburn Fire Division Chief John Lankford said that internal analysis showed that the division operates for 20 percent less than if it employed all career firefighters.

ESCI suggests that there may be an opportunity to augment the career firefighters in all three of the West Haven fire districts by implementing a variation of the military staffing model presented by Coughlin.

FINDINGS AND RECOMMENDATIONS

ESCI has conducted a thorough analysis of the financial and operational performance of the fire departments serving the City of West Haven. Based on the results of analysis, financial and political constraints, as well as the need to maintain the integrity of the fire departments' current and future liabilities, the following options are presented as available paths for future action.

Option 1: Operationally consolidate the three fire districts under the authority of a new fire commission while maintaining the three independent revenue structures.

Option 1 is ESCI's preferred option. This option maintains each district's authority to manage its own collective bargaining agreements and unfunded liabilities in addition to allowing the fire districts to remain independent of the City. It further protects the City of West Haven from incurring the additional unfunded liabilities associated with the West Haven and West Shore Fire Districts. The new commission would be representative of each district. The current respective boards or fire commissions for each district would have to enter into an interlocal agreement to create unified governance.

Option 2: The districts and/or City seek a full merger.

Option 2 provides for the dissolution of the independent fire districts and the legislative recreation of a new district or absorption of the Districts into West Haven's general fund. ESCI does not recommend Option 2 because the City of West Haven itself is not in a position to absorb the significant liabilities incurred by the fire districts. Consolidating the fire districts under the authority of the City of West Haven will increase the City's liabilities by \$253 million or 224 percent, to a total of \$457 million.

ESCI further recommends against Option 2 because it subjects the vital service of fire suppression to a political process with an unknown outcome. Accordingly, there is a very high risk of failure should one or more of the districts fail to pass the measure.

Option 3: MARB should consider seeking enabling legislation to have the authority to assist the fire districts with their financial challenges.

Option 3 provides MARB assistance to the three fire districts.

ESCI recommends that if, after 24 months, the outcome of the execution of Option 1 is not progressing satisfactorily, MARB should consider seeking enabling legislation to have the authority to assist the fire districts with their financial challenges.

Option 4: No action.

Option 4 is to maintain the status quo until this arrangement is no longer financially sustainable for the two independent fire districts. ESCI does not recommend Option 4 because it will create an exigent situation when the independent fire districts are no longer financially sustainable. ESCI estimates that in the short term, the annual budget will become more volatile and in the long term, the fire districts could face the prospect of insolvency if steps are not taken to aggressively stabilize the finances of the fire districts.

The following figures provides a summary of recommendations compiled throughout the report.

Figure 63: Financial Recommendations*Recommendations:*

- Operationally consolidate the three fire districts under the authority of a new fire commission while maintaining the three independent revenue structures.
- Realign labor contracts with an eye on cost savings including:
- Movement of active and future retired employees to a High Deductible Health Plan with \$2,000/\$4,000 employee first dollar coverage.
- Structured elimination of Health Savings Account seed money.
- Higher premium cost share.
- The creation of an OPEB Trust.
- The addition of a 3 percent of employee wages deduction to fund OPEB benefits provided.
- If insurance is to be extended to spouses or dependents in retirement, to charge 100 percent of the City cost to provide that benefit.
- In order to consistently and more efficiently handle the administrative functions currently completed in each individual fire district, these functions should be collapsed into effectively what would be considered one managing fire district issuing three individual fire district tax bills to include all fire service.
- Compiling three budgets for the individual fire district operations.
- Producing uniform and consistent financial statements regularly for all three fire districts.
- Hire one outside attorney to standardize wages, benefits, and management rights that currently exist in three individual contracts.
- Hire one actuary to regularly measure all pension plans and OPEB liabilities.
- Hire one auditor to examine all internal controls and financial reports.
- Hire one organization to custody pension funds, to develop one asset allocation strategy for investments, and to carry out a well-diversified systematic investment of all assets based on a long-term investment horizon.
- Hire one medical insurance broker to create one high deductible health plan attached to a health savings account.
- EMS billing should be centralized, and a single citywide vendor should be selected to maximize annual revenue available to balance the budget.
- Increased Fire Marshal fees must be adopted citywide.
- Through increased taxation, begin the process of funding unfunded legacy pension benefit costs and currently provided OPEB benefits costs which are provided by collectively bargained labor contracts negotiated under the Municipal Employee Relations Act.
- A Balanced Budget Ordinance requiring the annual actuarially determined contribution (ADC) for the pension plan to be budgeted plus 0.25 percent of the unfunded OPEB liability above the annual “pay go” contribution increased by 0.25 percent annually.
- One Pension Board, one investment strategy deployed by one Investment Manager based on a long-term investment horizon with the investable assets handled by one custodial firm should be pursued.

- A single financial platform including automation like MUNIS to provide consistency in Payroll, Purchasing, Accounts Payable, Financial Reporting, and data generation should be a goal of the City and of the individual fire districts through this consolidation.

Figure 64: Service Delivery Recommendations

Recommendations:

- Capture and monitor all response performance metrics.
- Develop response performance goals for all aspects of the Total Response continuum for both the City and districts.
- Assigned and capture a unique CAD identifier for each incident and document this item within each department's internal records management system.
- Create a quality assurance program to ensure incident information is documented accurately.
- Consider training available through the National Fire Academy related to the documentation of NFIRS data.
- Develop performance thresholds that will require administrative review should a metric exceed the threshold.
- Capture individual unit performance metrics and unit identifiers at the time of dispatch.
- Review current practices for how performance metrics are captured by individual units or the communications center and develop policies to improve data capture performance.
- Form a committee of fire and communications center staff to examine possible options to improve performance and efficiency.

CONCLUSION

ESCI would like to thank the City of West Haven, the members and commissioners of the districts of Allingtown, West Haven, and West Shore, as well as the members of the State of Connecticut Municipal Accountability Review Board (MARB) for the opportunity to assist with this project and for all of the support provided to ESCI during this process. Julian Freund and Frank Cieplinski were particularly helpful to ESCI during the course of this study.

ESCI would also like to extend a special thank you to Chief James O'Brien, Chief Michael Esposito, Chief Stephen Scafariello, Deputy Chief Dickson Dugan, Deputy Chief Edward Sweeney, Local 1198 President William Willson and Local 1198 Vice President John Perry for their time and assistance in touring the three fire districts and assuring the accuracy of this report.

APPENDICES

Appendix A: Municipal Accountability Review Board (MARB) Eligibility Requirements

The State of Connecticut Municipal Accountability Review Board (MARB) was established by the legislature to assist local municipalities that are experiencing various levels of financial distress. The MARB sets criteria for municipalities to be designated on one of four tiers based upon degree of fiscal distress.

The MARB is housed in the Office of Policy and Management (OPM) for administrative purposes only and is comprised of 11 members, appointed as follows:

- Secretary of OPM or designee, Chairperson (Ex-Officio).
- State Treasurer, or designee, Co-chairperson (Ex-Officio).
- Five members appointed by the Governor, including:
 - A municipal Finance Director
 - A municipal bond or bankruptcy attorney
 - A Town Manager
 - A member with experience representing organized labor from a list of three recommendations by AFSCME
 - A member having experience as a teacher or representing a teacher's organization selected from a list of three recommendations submitted jointly by CEA and AFT-CT
- One member appointed by the President Pro Tempore of the Senate.
- One member appointed by the Speaker of the House.
- One by Minority Leader of the Senate.
- One member appointed by the Minority Leader, each of whom must have experience in business, finance, or municipal management.

Terms are six years, with the exception of two of the Governor's appointees, which are for three years. MARB members serve without compensation but can be reimbursed for expenses.

For Tier III and Tier IV municipalities, staff, consultants and other expenses may be charged to the municipality. Expenses may be funded through a municipality's re-funding bonds or deficit bonds. These costs would be determined in consultation with the affected municipality.

The Act also states that designated municipalities must provide audits, budgets, actuary reports, debt service schedules, and such other relevant information the MARB may reasonably require in order to carry out its duties.

The eligibility criteria for designation include bond ratings, fund balance, percentage of revenues that are State aid, equalized mill rate, and increase in state aid. Based on these criteria, a municipality would be in one of four tiers as discussed below:

Tier I

For municipalities exhibiting fiscal distress, but lower levels of distress and the municipal Chief Executive Officer can apply for Tier I designation. Designated Tier I municipalities are referred to the Municipal Finance Advisory Commission (MFAC)

- The MFAC may require the municipality to submit remedial plans related to their finances and require the local chief executive officer to report on those plans.
- A three-year plan is required to be submitted to the MFAC.
- Designation as a Tier I municipality typically would last until the municipality has two consecutive operating surpluses, no general fund deficit and the MARB approves the municipality's most recent three-year plan.

Tier II

The Chief Elected Official or Chief Executive Officer may apply, if eligible, for designation as a Tier II municipality. Tier II municipalities are referred to the MARB.

- Tier II municipalities are required to file monthly financial reports to the MARB, submit a three-year plan and must have the assumptions regarding state revenues and property taxes collections used in their annual budget approved by MARB.
- If a municipality receives Municipal Restructuring Funds under the Act, the MARB would have to approve their annual budget.
- Term (length) of designation is the same as Tier I.
- Tier II is eligible to apply for Municipal Restructuring Funds under the Act.

Tier III

Where either the local chief elected official or the legislative body, by majority vote, can apply for Tier III designation. If the Chief elected official applies, such official must inform the legislative body and give the body 30 days to approve or reject the application. If the 30 days expires, the application is deemed approved. The Secretary of OPM has the ability, as of July 1, 2018, to designate a municipality as Tier III if they meet the designation criteria and other conditions, as outlined in the Act. The issuance of a deficit obligation involves an automatic designation as a Tier III municipality. MARB powers regarding Tier III municipalities powers include:

- Review and comment on annual budget prior to its adoption by legislative body.
- Municipalities shall only include assumptions regarding state revenues and property tax revenues and a mill rate that are approved by the MARB.

- Approve debt service obligations involving a State SCRF or the issuance of refunding bonds by a vote of five or more of its members.
- Review and comment on proposed debt obligations not involving refunding bonds or use of the SCRF.
- Can require municipality or its Board of Education (BOE) to submit to the Board for its review and comment proposed non-collective bargaining contracts over \$50,000 for municipalities with a population under 70,000, and over \$100,000 for municipalities with a population 70,000 or more.
- Authority to approve or reject, on not more than two occasions, proposed collective bargaining agreements or arbitration awards related to the municipality or its board of education, with the exception of arbitration awards involving a teachers' unit.
- Monitor the municipality's compliance with a three-year financial plan and annual budget and to recommend any changes necessary to ensure balance.
- Recommend the municipality and its BOE implement measures related to efficiency and productivity of operations as deemed appropriate to reduce costs and improve services.
- Obtain information on the financial needs of municipality and its BOE.
- MARB, in consultation with the municipality, may retain such staff and hire consultants experienced in municipal finance, municipal law, and governmental operations and administration.
- Require municipality and its BOE to apply LEAN practices.
- The MARB may consult with federal, state, quasi-public and nongovernmental agencies to accomplish its purposes.
- Establish written procedures deemed necessary to carry out responsibilities and purposes under the act.
- Tier III municipalities are also required to submit monthly reports.
- Term of designation is similar to other tiers but would have to have three consecutive years of positive surplus.
- Designated Tier III and Tier IV municipalities are eligible to enter into a contract with the Secretary of OPM and the State Treasurer for contract assistance in regard to refunding bonds in accordance with Section 376 of the Act. The contract to provide such contract assistance would be binding on the State for the term of those bonds and the funds shall be deemed appropriated.

TIER IV

A local chief elected official of a Tier III municipality or its legislative body can seek Tier IV designation. The same 30-day local notification process related to Tier III designation also applies to Tier IV designation. There is also a process in the Act for the MARB to recommend that a Tier III municipality be designated as a Tier IV municipality, which recommendation shall be forwarded to the Secretary. The Secretary, after receiving public input, shall forward the MARB's recommendation and a report on the public input received to the Governor for his/her final approval or disapproval of the recommended Tier IV designation. The Mayor and local legislative body leader shall be voting members for the purposes of the MARB's vote on designation. Such a designation cannot happen prior to April 1, 2018. There are also provisions related to certain local officials being non-voting ex-officio members of the MARB related to a designated Tier IV municipality include:

- Review and approval of the municipality's annual budget.
- Review and approval of all bond ordinances and resolutions.
- Monitor compliance with municipality's three-year plan and annual budget and require changes as needed.
- Approve or reject all collective bargaining agreements, amendments or modifications of the municipality or its BOE.
- Impose binding arbitration with respect to collective bargaining agreements of the municipality/BOE that are subject to or in binding arbitration and submit recommendations to the Governor for the his/her selection of a single arbitrator.
- Require its approval of proposed budget transfers in excess of \$50,000.
- Like Tier III municipalities, Tier IV municipalities would be eligible for Municipal Restructuring Funds and Contract Assistance.

Appendix B: Capital Assets and Assessment of Current Infrastructure

Regardless of an emergency service agency’s financing, if appropriate capital equipment is not available for the use by responders, it is impossible for a fire department to deliver services effectively. Two primary capital assets that are essential to the provision of emergency response are facilities and apparatus (response vehicles). In this section of the report, ESCI provides a review and analysis of assets and infrastructure operated and maintained by the three agencies.

Survey Component	ALLINGTOWN	WEST HAVEN	WEST SHORE
Fire Stations/Structures			
Capital Improvement Plan maintained?	No	Yes	No
Period of plan (from–to)	N/A	Yes	N/A
Funding mechanism identified?	Budget	Yes	Budget
Apparatus			
Apparatus Replacement Plan maintained?	No	No	No
Period of plan (from–to)	N/A	N/A	N/A
Funding mechanism identified?	Budget	Budget	Budget
Support Equipment			
Equipment Replacement Plan maintained?	Yes	Yes	No
Period of plan (from–to)	Fiscal Year	Yes	N/A
Funding mechanism identified?	Budget/Grants	Yes	Budget
Purchase interval planned for by type?	Yes	No	No

Collectively, the fire departments maintain a balance of three basic resources necessary to accomplish their emergency mission: People, equipment, and facilities. Because firefighting is an extremely physical pursuit, the adequacy of personnel resources is a primary concern; but no matter how competent or numerous the firefighters are, the department will fail to execute its mission if it lacks sufficient fire apparatus distributed in an efficient manner.

The departments maintain eight fire stations and millions of dollars-worth of capital assets. The types of assets are necessary to provide service to the citizens of West Haven and must be maintained and replaced as needed. A comparison of major capital assets, including engines, aerial ladder trucks, and fire stations is provided in the following figure.

Figure 65: Collective Capital Assets of West Haven Fire Departments

Department	Stations	Engines	Aerial
Allingtown	2	2	1
West Haven	4	4	1
West Shore	2	1	1

It is important to understand that the preceding figure includes “frontline” apparatus and not units classified as being in a “reserve” status. This figure also includes units identified as being operated by “volunteer” personnel. It should be noted that Allingtown and West Shore’s Aerial Apparatus are Quints and are typically staffed as engine companies.

Facilities

Appropriately designed, maintained, and properly located facilities are critical to a fire department’s ability to provide services in a timely manner with an effective deployment of assets. ESCI observed and reviewed the eight fire stations operated by the three fire departments; the findings are summarized in the following pages and any areas of concern observed are identified.

Collectively, the three fire departments own eight fire stations located within the City of West Haven. Of these stations, five are staffed by career personnel with the three remaining stations being volunteer stations.

Station Name/Number:	2 – Minor Park		
Address/Physical Location:	318 Fairfax Street, West Haven CT, 06516		
	General Description: Staffed Fire Station		
	Structure		
Construction Type	Type II		
Date of Construction	1968		
Seismic Protection	No		
Auxiliary Power	Yes		
General Condition	Fair/Poor		
Number of Apparatus Bays	2	Drive-through bays	2 Back-in bays
Special Considerations (ADA, etc.)	No		
Square Footage	9,032		
Facilities Available			
Separate Rooms/Dormitory/Other	2	Bedrooms	6 Beds in dormitory
Maximum Station Staffing Capability	6		
Exercise/Workout Facilities	Yes		
Kitchen Facilities	Yes		
Individual Lockers/Storage Assigned	Yes		
Shower Facilities	Yes		
Training/Meeting Rooms	No		
Washer/Dryer	Yes		
Safety & Security			
Sprinklers	No		
Smoke Detection	Yes		
Decontamination/Biohazard Disposal	Yes		
Security	No		
Apparatus Exhaust System	Yes		
Assigned Apparatus/Vehicles			
Apparatus Call Sign	Minimum Staffing*	Comments	
Rescue 1	2		
Engine 2	1		
Truck 1	2	Reserve	

Station Name/Number:	1 Headquarters		
Address/Physical Location:	20 Admiral Street, West Haven, CT 06516		
	General Description: Volunteer Fire Station General Office Use		
Structure			
Construction Type	Type III		
Date of Construction	1928		
Seismic Protection	No		
Auxiliary Power	Yes		
General Condition	Poor		
Number of Apparatus Bays	0	Drive-through bays	2 Back-in bays
Special Considerations (ADA, etc.)	No		
Square Footage	9,162		
Facilities Available			
Separate Rooms/Dormitory/Other	2	Bedrooms	6 Beds
Maximum Station Staffing Capability	5 (none staffed station)		
Exercise/Workout Facilities	No		
Kitchen Facilities	Yes		
Individual Lockers/Storage Assigned	Yes		
Shower Facilities	Yes		
Training/Meeting Rooms	Yes		
Washer/Dryer	Yes		
Safety & Security			
Sprinklers	No		
Smoke Detection	Yes		
Decontamination/Biohazard Disposal	No		
Security	Yes		
Apparatus Exhaust System	No		
Assigned Apparatus/Vehicles			
Apparatus Call Sign	Minimum Staffing*	Comments	
Engine 8		Volunteer Engine	
Engine 3		Reserve	

Station Name/Number:		1					
Address/Physical Location:		366 Elm Street					
		General Description:					
		Staffed Fire Station					
Structure							
Construction Type		Masonry					
Date of Construction		1960					
Seismic Protection		N/A					
Auxiliary Power		Yes					
General Condition		Poor					
Number of Apparatus Bays		0	Drive-through bays		4	Back-in bays	
Special Considerations (ADA, etc.)		No					
Square Footage		13,692					
Facilities Available							
Separate Rooms/Dormitory/Other		2	Bedrooms	2	Beds	12	Beds in dormitory
Maximum Station Staffing Capability							
Exercise/Workout Facilities		Yes					
Kitchen Facilities		Yes					
Individual Lockers/Storage Assigned		Yes					
Shower Facilities		Yes					
Training/Meeting Rooms		Yes					
Washer/Dryer		Yes					
Safety & Security							
Sprinklers		Yes					
Smoke Detection		Yes					
Decontamination/Biohazard Disposal		Yes					
Security		Yes					
Apparatus Exhaust System		Yes					
Apparatus Call Sign		Minimum Staffing*		Comments			
Rescue 27		2					
Engine 21		3					
Truck 22		4					
Marine 2		0					
Marine 4		4					

Station Name/Number:		Stevens Heights					
Address/Physical Location:		106 Meloy Rd.					
		General Description: Staffed Fire Station Volunteer Fire Station					
Structure							
Construction Type		Masonry					
Date of Construction		1950					
Seismic Protection							
Auxiliary Power		Yes					
General Condition		Poor					
Number of Apparatus Bays		0	Drive-through bays	2	Back-in bays		
Special Considerations (ADA, etc.)		No					
Square Footage		6,456					
Facilities Available							
Separate Rooms/Dormitory/Other		2	Bedrooms	3	Beds	N/A	Beds in dormitory
Maximum Station Staffing Capability		3					
Exercise/Workout Facilities		Yes					
Kitchen Facilities		Yes					
Individual Lockers/Storage Assigned		Yes					
Shower Facilities		Yes					
Training/Meeting Rooms		Yes					
Washer/Dryer		Yes					
Safety & Security							
Sprinklers		No					
Smoke Detection		Yes					
Decontamination/Biohazard Disposal		Yes					
Security		Yes					
Apparatus Exhaust System		Yes					
Apparatus Call Sign		Minimum Staffing*		Comments			
Engine 25		3					

Station Name/Number:		Hook & Ladder							
Address/Physical Location:		620 Second Ave.							
		General Description: Volunteer Fire Station							
Structure									
Construction Type		Masonry							
Date of Construction		1900							
Seismic Protection									
Auxiliary Power		No							
General Condition		Poor							
Number of Apparatus Bays		Drive-through bays	1	Back-in bays					
Special Considerations (ADA, etc.)		No							
Square Footage		2,000							
Facilities Available									
Separate Rooms/Dormitory/Other		0	Bedrooms	0	Beds	0	Bedrooms	0	Beds in dormitory
Maximum Station Staffing Capability		2							
Exercise/Workout Facilities		No							
Kitchen Facilities		No							
Individual Lockers/Storage Assigned		No							
Shower Facilities		No							
Training/Meeting Rooms		Yes							
Washer/Dryer		No							
Safety & Security									
Sprinklers		No							
Smoke Detection		Yes							
Decontamination/Biohazard Disposal		Yes							
Security		Yes							
Apparatus Exhaust System		Yes							
Apparatus Call Sign		Minimum Staffing*		Comments					
Truck 26		0							

Station Name/Number:		Engine Company 3					
Address/Physical Location:		215 Spring St.					
		General Description: Volunteer Fire Station Explorer Post					
Structure							
Construction Type		Masonry					
Date of Construction		1950					
Seismic Protection							
Auxiliary Power		No					
General Condition		Poor					
Number of Apparatus Bays		Drive-through bays	2	Back-in bays			
Special Considerations (ADA, etc.)		No					
Square Footage		3,150					
Facilities Available							
Separate Rooms/Dormitory/Other		1	Bedrooms	3	Beds	0	Bed in dormitory
Maximum Station Staffing Capability		2					
Exercise/Workout Facilities		No					
Kitchen Facilities		Yes					
Individual Lockers/Storage Assigned		Yes					
Shower Facilities		Yes					
Training/Meeting Rooms		Yes					
Washer/Dryer		No					
Safety & Security							
Sprinklers		No					
Smoke Detection		Yes					
Decontamination/Biohazard Disposal		Yes					
Security		Yes					
Apparatus Exhaust System		Yes					
Apparatus Call Sign		Minimum Staffing*		Comments			
Engine 23		0					
Canteen		0					

Station Name/Number:	West Shore
Address/Physical Location:	86o Ocean Ave.
	General Description: Staffed Fire Station Volunteer Fire Company Administrative Offices

Structure

Construction Type	Class 3 Ordinary		
Date of Construction	1936		
Seismic Protection	No		
Auxiliary Power	Yes		
General Condition	Fair		
Number of Apparatus Bays	0	Drive-through bays	3 Back-in bays
Special Considerations (ADA, etc.)	No		
Square Footage	8,020		

Facilities Available

Separate Rooms/Dormitory/Other	0	Bedrooms	0	Beds	3	Beds in dormitory
Maximum Station Staffing Capability	7					
Exercise/Workout Facilities	Yes					
Kitchen Facilities	Yes					
Individual Lockers/Storage Assigned	Yes					
Shower Facilities	Yes					
Training/Meeting Rooms	Yes					
Washer/Dryer	No					

Safety & Security

Sprinklers	No
Smoke Detection	Yes
Decontamination/Biohazard Disposal	Yes
Security	Yes
Apparatus Exhaust System	Yes

Apparatus Call Sign	Minimum Staffing*	Comments
Engine 31	3	
Marine 3	0	

Station Name/Number:	Benham Hill Rd Station/Station 2
Address/Physical Location:	250 Benham Hill Rd, West Haven, CT 06516
	General Description:
	Staffed Fire Station

Structure

Construction Type	Type III
Date of Construction	1986
Seismic Protection	No
Auxiliary Power	Yes
General Condition	Fair/ full thickness crack, front concrete apron
Number of Apparatus Bays	2 Drive-through bays 2 Back-in bays
Special Considerations (ADA, etc.)	1 story
Square Footage	7,649

Facilities Available

Separate Rooms/Dormitory/Other	1 Bedrooms	1 Beds	7 Beds in dormitory
Maximum Station Staffing Capability	9		
Exercise/Workout Facilities	Yes		
Kitchen Facilities	Yes		
Individual Lockers/Storage Assigned	Yes		
Shower Facilities	Yes		
Training/Meeting Rooms	Yes		
Washer/Dryer	Yes both: gear washer & dryer and household washer & dryer		

Safety & Security

Sprinklers	No
Smoke Detection	Yes
Decontamination/Biohazard Disposal	Yes
Security	Yes
Apparatus Exhaust System	Yes

Apparatus Call Sign	Minimum Staffing*	Comments
Ambulance 40	0	
Rescue 35	2	
Quint 33	3	
Engine 32	0	Reserve

Members of the ESCI study team conducted site visits to all stations within the City of West Haven on March 12 and April 17. ESCI team members were given a tour of each station by one or more members of each fire department, and the site visits included general discussion with staff assigned to that particular facility.

In general, the facilities are functioning as they were originally built with some modifications. The Elm Street Fire Station is now fully sprinklered and all of the career fire stations do have, at a minimum, smoke detection. There is a policy in place not to allow turn out gear in any living quarters or dormitories. All stations are in need of significant updates to accommodate for modern fire apparatus (significantly heavier, larger, and taller than apparatus of a generation or more ago), and to provide for reasonable working, living, and privacy conditions for firefighters and staff.

As is common across the United States, female firefighters were not part of the fire departments when the facilities were constructed. As a result, no fire station adequately provides appropriate facilities for women, although in several stations the firefighters demonstrated their ingenuity by attempting to provide some level of accommodation for female colleagues. While these attempts at “*work arounds*” are commendable, the leadership of each fire department has an obligation to provide upgraded facilities for all of its firefighters, both female and male. Additionally, none of the fire stations meet current ADA requirements. It will be necessary to complete significant upgrades to each facility to meet ADA guidelines.

The site visits revealed some general areas of attention, particularly surrounding general maintenance, condition of fire station kitchens, locker rooms, and bathroom/shower facilities. The current fire stations were constructed many years ago and concerns relative to electrical wiring of the facilities must be addressed. Additionally, these fire stations are limited in their smoke detection, fire protection, and alarm notification capabilities.

Over the past few years, the fire service has become increasingly concerned with the issue of firefighter cancer, and cancer-prevention practices. Within all three fire districts in West Haven, there are cancer policies in place. Firefighters have been provided with training, extra hoods, wipes, and protocols for both cancer prevention and decontamination.

An additional practice that could be put in place within the City of West Haven would be to limit firefighter exposure to products of combustion, as well as minimizing/eliminating exposure to diesel fumes/soot (from fire apparatus). One preventative measure is to limit/reduce firefighter exposure to toxic products of combustion which occur *after the fire* (aka, off-gassing). This can be done by storing turnout gear in a well-ventilated room to prevent additional firefighter exposure to off-gassing of chemicals absorbed into turnout gear during a fire.

To this end, regardless of this study's implementation by the parties involved, it is recommended the agencies continue to incorporate effective cancer prevention measures into current practices, and to consider cancer prevention strategies in future fire station renovation projects. During the visit, it was noted that there were gear washers and extractors at the West Haven Headquarters, Meloy Road, and West Shore Fire Stations.

Apparatus

Collectively the three fire departments maintain a sizeable fleet of response vehicles. In general, the fleet has an extended service life that approaches, or exceeds, industry best practices. It is worth noting the departments are doing an admirable job in keeping the fleet in proper working order. An inventory of fire apparatus, configuration, and condition is provided in the following figure.

Figure 66: Collective Fleet Inventory

Apparatus	Type	Status	Year	Condition
Rescue 1	Ambulance	Frontline	2014	Good
Engine 2	Engine	Frontline	1999	Fair
Truck 1	Aerial Capability, Staffed as Engine	Reserve	2016	Good
Engine 8	Engine	Reserve (vol)	2005	Good
Engine 3	Engine	Reserve	1983	Poor
Engine 21	Engine	Frontline	2011	Fair
Truck 22	Aerial	Frontline	2003	Fair
Rescue 27	Ambulance	Frontline	2017	Good
Rescue 51	Ambulance	Frontline	2009	Good
Engine 25	Engine	Frontline	2011	Fair
Truck 26	Engine	Reserve (vol)	1996	Fair
Engine 23	Engine	Reserve (vol)	1992	Poor
Engine 31	Engine	Frontline	2009	Good
Engine 32	Engine	Reserve	2002	Fair
Marine 3	Boat	Frontline	2012	Good
Rescue 35	Rescue	Frontline	2015	Good
Quint 33	Aerial Capability, Staffed as Engine	Frontline	2008	Good
Ambulance 40	Ambulance	Frontline	2002	Fair

The following boats are also maintained as part of the fire department inventory: Marine 1, Marine 2, Marine 3, and Marine 4.

In reviewing the entire fleet inventory, ESCI's site team determined that significant concerns exist relative to the overall operational status of the fleet. These concerns generally revolve around the age of specific units. Aerial units have passed ten years in age and some are approaching sixteen years in-service as frontline units. Additionally, it is recommended that the three fire departments establish a fleet inventory that serves the citizens of West Haven as a whole and not just as independent operations. In the experience of the ESCI team, the current number of aerial units exceeds what is needed to protect a community the size of West Haven.

Appendix C: Management Components

Mission, Vision, and Planning

Emergency services exist in a rapidly changing environment. In addition to new and improved tools and technologies, there is the increased regulation of activities, new risks to protect, and a multitude of other challenges that can quickly catch the unwary off guard. Only through continuous internal and external environmental awareness and periodic course corrections can an organization stay current with industry best practices.

To do the best possible job with available resources, organizations must focus on improving services while identifying programs or activities that may no longer serve their changing needs. Through appropriate planning, the fire districts can establish a vision for the future, create a framework within which decisions are made, and chart their course to the future. The quality and accuracy of the planning function determines the success of the organization.

While each fire district does have mission and/or vision statements, planning efforts among the three fire districts within the City of West Haven are almost non-existent. This is due to a lack of staff that can be dedicated to these functions. Interviews with the Fire Chiefs revealed that none of the districts has an approved master or strategic plan, much less adopted goals or objectives. The Chiefs stated that the apparatus replacement plans are the only formal planning documents that are in existence within any of the fire districts. ESCI's meetings with firefighters from all three districts repeatedly identified the lack of planning in all of the fire districts as one of the biggest concerns of the firefighters.

To be truly effective, an emergency services agency must consider planning for the future on five distinct levels:

Figure 67: Planning for the Future

Planning Level	Description
1. Tactical Planning	The development of strategies for potential emergency incidents.
2. Operational Planning	The organization of day-to-day activities, as primarily outlined by a department's standard operating guidelines and procedures. This includes the integration of the agency into other local, regional, or national response networks
3. Master Planning	Preparation for the long-term effectiveness of the agency as the operating environment changes over time
4. Strategic Planning	The process of <i>identifying</i> an organization's mission, vision, and values <i>and prioritizing goals and objectives</i> for things that need to be accomplished in the near future
5. Emergency Management Planning	The process of identifying potential critical risks and threats facing a community with the intent to mitigate their impacts and positively impacting recovery.

ESCI recommends that all three of the fire districts establish mission, vision, and values statements. Ideally, all three fire districts would adopt the same mission, vision, and values statements to assure that all three districts are striving to provide the same high level of service for all of the citizens of West Haven. The coordinated adoption of mission, vision, and values statements will further aid in any future consolidation efforts that may take place.

Internal Assessment of Critical Issues

The single most critical issue that threatens the future of fire service delivery in West Haven is funding.

ESCI conducted separate meetings with various chief officers and firefighters from all of the fire districts. The chief officers, despite working for three different fire districts, were remarkably synchronized with each other operationally. One of the chief officers summed up the current status of fire service delivery in West Haven this way: “The fire service in West Haven does a fantastic job—we have good response times, an above average cardiac arrest save rate, and we are reasonably priced. We inherited a debt that we need to deal with.” There was unanimous consensus toward this sentiment from all of the chief officers in the room.

ESCI found the West Haven firefighters to be very open and candid in their remarks. ESCI noted that for as many concerns as the firefighters raised about the infrastructure, funding, and future of the fire districts, the firefighters were not bitter or jaded. To the contrary, the 60 or so firefighters that ESCI met with during the course of three different days of meetings were very optimistic about the future of fire service delivery in West Haven provided that significant changes are made to the way the three districts conduct business. These firefighters were also very willing to be a part of the process to bring about changes.

Internal Assessment of Future Challenges

There was unanimous consensus among the chief officers and firefighters who spoke with ESCI that funding is the single biggest future challenge for the three fire districts.

The lack of a plan to address precarious financial situation facing each of the fire districts is negatively impacting firefighters who work within the City of West Haven. All three fire districts reported having firefighters resign their jobs in West Haven to go to work for other fire departments. There was also consensus among all three fire districts that it is becoming increasingly more difficult to recruit new firefighters to work anywhere within the City of West Haven. Firefighters who currently work for the City consistently reported concerns about the funding of their pensions. These issues are having a negative impact on fire fighter morale.

Internal and External Communications Processes

Internally, each of the three fire districts has established processes and procedures through which they communicate with their respective members. All of the districts use email as a means to ensure that all members receive critical information in a timely fashion.

Externally, each of the districts use its website to actively provide information to their constituents. None of the districts have established a citizen advisory board or formal citizen survey to ensure constituent feedback is proactively obtained.

Document Security and Recordkeeping

Each of the three fire districts in West Haven have established procedures for managing the records used in their respective department's operation. These procedures are different from agency to agency and have varying degrees of effectiveness.

The *National Fire Incident Reporting System* (NFIRS) is a voluntary reporting system designed to capture incident related information and then make estimates of the U.S. fire problem. The NFIRS systems, managed by the U.S. Fire Administration (USFA), is the most robust fire-based data collection system, with more than two-thirds of all U.S. fire departments reporting their fire data via the NFIRS system.

The Connecticut Fire Incident Reporting Systems (CFIRS) is a statewide incident reporting system that collects statistical information reported by Connecticut fire departments. CFIRS complies with Connecticut General Statute 29-303 and is a resource for state and local government, private agencies and organizations, the media, and the public.

The data collected by CFIRS is based on the National Fire Incident Reporting System (NFIRS) that all fire departments and Fire Marshals must use to document all incidents to which they respond. Reports are submitted to the Office of Education and Data Management. These reports are then used to gather information on such items as the numbers and types of fires, numbers of EMS calls, causes of fires, numbers of civilian injuries and deaths related to fires, fire service injuries and deaths, and much more.

Participation in the National Fire Incident Reporting System (NFIRS) and the Connecticut Fire Incident Reporting System (CFIRS) gives the fire departments the ability to apply for the Federal Firefighter Grant Program.

In any organization, the documentation and reporting of all activities is of paramount concern. Successful organizations consistently demonstrate the ability to effectively collect data and use that same data in their decision-making processes. These same organizations also use this data in a proactive manner to inform their constituents and policy makers of their operations and outcomes.

ESCI recommends that the three fire districts establish a common quality assurance program to verify that each of the districts is collecting and reporting their activities consistently. ESCI further recommends that the three districts establish a regular meeting schedule (i.e., quarterly) to review the collected information, identify trends, and discuss potential impacts on fire department operations.

Information Technology Systems

Each of the three fire districts has its own financial management system. West Shore uses Quickbooks while both West Haven and Allingtown use separate versions of Munis. In addition to entering their records into three distinct financial management systems, each budget is organized and tracked differently. This makes it very difficult to truly track the costs associated with fire service delivery across the City of West Haven as a whole.

ESCI recommends that a single financial platform, including automation, be used to provide consistency in Payroll, Purchasing, Accounts Payable, Financial Reporting, and data generation. The system could be used to initially manage the three separate fire district budgets and then eventually to manage a single operationally consolidated fire service supported by the three separate fire district revenue streams.

Appendix D: Staffing and Personnel Management

Fire department staffing is divided into two distinctly different groups. The first group is the “operations unit.” The operations unit is comprised of emergency response personnel. The second group is the “administrative unit.” The administrative unit provides the support needed by operational personnel effectively respond to and mitigate emergencies.

One of the primary responsibilities of the response team’s administration is to ensure that the operational segment of the organization has the ability and means to respond to and mitigate emergencies in a safe and efficient manner. The appropriate balance of administration and support compared to operational resources and service levels is critical to the success of the department in accomplishing its mission and responsibilities.

Typical responsibilities of the administration and support staff include planning, organizing, directing, coordinating, and evaluating the various programs within the department. This list of functions is not exhaustive, and other functions may be added. It is also important to understand these functions do not occur in a linear fashion and can more often occur concurrently. This requires the Fire Chief and administrative support staff to focus on many different areas at the same time.

Administrative Staffing

The current organizational structure establishes a Fire Chief position within each of the three fire districts. Each district has also established a Deputy Fire Chief position, however the Deputy Fire Chief position in Allingtown is a dual role that includes Fire Marshal. Each district has also established a position that provides administrative support. This title is different in each district. Allingtown has established a Business Manager position, West Haven has a Business Manager, and West Shore has an Office Manager.

The cumulative nine administrative positions staffed throughout the three fire districts to support 100 line personnel plus personnel assigned to the three Fire Marshal’s Offices for a total of 104 personnel. The administrative and support staff makes up 8.65 percent of the total citywide fire service workforce.

ESCI has noted that appropriately and effectively staffed small to mid-size departments maintain administrative staff levels in the 10 to 12 percent range. ESCI’s assessment is that although there are three separate districts each with its own self-contained staff, that overall there is a very lean administrative and support staff in comparison to the operational staff. Any future consolidation efforts would likely not result the ability to reduce staffing, such efforts could result in a better deployment of existing personnel.

Operational Staffing

The three fire districts within the City of West Haven are consolidated operationally. When an emergency occurs within the city, the closest resource is dispatched to the call without consideration of fire district lines. It is truly a testament to the dedication and professionalism of the chief officers and firefighters from all three fire districts that during an emergency, the public does not see where one fire district ends and where another begins.

Automatic aid is used to immediately dispatch firefighters from all three fire districts to reported structure fires. This allows 15 firefighters to respond to a structure fire on a first alarm assignment anywhere in the City of West Haven.

It takes an adequate and properly trained staff of emergency responders to put the appropriate emergency apparatus and equipment to best use in mitigating incidents. Insufficient staffing at an operational scene decreases the effectiveness of the response and increases the risk of injury to all individuals involved.

Tasks that must be performed at a structure fire can be broken down into two key components—life safety and fire flow. Life safety tasks are based on the number of building occupants, and their location, status, and ability to take self-preservation action. Life safety related tasks involve search, rescue, and evacuation of victims. The fire flow component involves delivering sufficient water to extinguish the fire and create an environment within the building that allows entry by firefighters.

The number and types of tasks needing simultaneous action will dictate the minimum number of firefighters required to combat different types of fires. In the absence of adequate personnel to perform concurrent action, the commanding officer must prioritize the tasks and complete some in chronological order rather than concurrently. These tasks include:

- Command
- Scene safety
- Search and rescue
- Fire attack
- Water supply
- Pump operation
- Ventilation
- Back-up/rapid intervention

The first 15 minutes is the most crucial period in the suppression of a fire. The timing of this 15-minute period does not start when the firefighters arrive at the scene, but begins when the fire initially starts. How effectively and efficiently firefighters perform during this period has a significant impact on the overall outcome of the event. This general concept is applicable to fire, rescue, and medical situations. Critical tasks must be conducted in a timely manner in order to control a fire or to treat a patient.

The 2016 Edition of 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* specifies the number of firefighters assigned to a particular response apparatus, often characterized as a “minimum of four personnel per engine company.”

ESCI notes that the more critical issue is the number of firefighters that are assembled at the scene of an incident in conjunction with the scope and magnitude of the job tasks expected of them, regardless of the type or number of vehicles upon which they arrive. Setting the staffing levels is a determination that is made at the community level based on risk, capability, and citizen expectations. There are not mandated requirements that fits all situations, although NFPA 1710 has objectives to meet regarding the number required for some typical scenarios.

Some terms are used nearly interchangeably, such as the assembly of firefighters on an incident, may be called the “Initial Full Alarm Assignment,” or called an “Effective Firefighting Force” (EFF), or “Effective Response Force” (ERF). ESCI will attempt to describe the NFPA 1710 levels for this effective response force for three different scenarios.⁹

The following figure describes an initial full alarm assignment for a single-family 2,000 square foot 2-story residential structure without a basement and with no exposures. This type of structure is common throughout the City of West Haven.

Figure 68: Initial Full Alarm Assignment for Residential Structure Fire

Initial Full Alarm Assignment—2,000 SF Residential Structure Fire	
Incident Commander	1
Water Supply Operator	1
2 Application Hose Lines	4
1 Support member per line	2
Victim Search and Rescue Team	2
Ground Ladder Deployment	2
Aerial Device Operator	1
Incident Rapid Intervention Crew (2FF)	2
Total	15

Structure fires that occur within the City of West Haven receive an ERF of 15 firefighters. This leaves 10 fire fighters to handle all simultaneous emergency calls that may occur elsewhere in the city.

The following figure describes an initial full alarm assignment for an open-air strip type shopping center. This type of structure is also common throughout the City of West Haven.

⁹ 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 (National Fire Protection Association 2016 ed.) Article 5.2.4 Deployment.

Figure 69: Initial Full Alarm Assignment for Strip Shopping Center

Initial Full Alarm Assignment Open Air Strip Shopping Center (13,000 SF to 196,000 SF)	
Incident Commander	1
Water Supply Operators	2
3 Application Hose Lines	6
1 Support member per line	3
Victim Search and Rescue team	4
Ground Ladder Deployment	4
Aerial Device Operator	1
Rapid Intervention Crew (4FF)	4
EMS Care	2
Total	27

The ERF for an open-air strip shopping center is 27 firefighters. There are only 25 firefighters on duty within all three fire districts in the City of West Haven at any given time. The ERF for an initial full alarm assignment for an open-air strip type shopping center can only be accomplished by deploying all of the on-duty firefighters in the City of West Haven *and* relying on mutual aid from neighboring fire departments to provide additional firefighters.

The following is an initial full alarm assignment for a three-story apartment building with a single 1,200-square foot apartment fire. This third type of occupancy is also common throughout the City of West Haven.

Figure 70: Initial Full Alarm Assignment in a Three-Story Apartment Building

Initial Full Alarm Assignment 1,200 SF Apartment (3-story garden apartment)	
Incident Commander	2
Water Supply Operators	2
3 Application Hose Lines	6
1 Support member per line	3
Victim Search and Rescue Team	4
Ground Ladder Deployment	4
Aerial Device Operator	1
Rapid Intervention Crew (4FF)	4
EMS Care (1 crew)	2
Total	28

The ERF for a three-story apartment building is 28 firefighters. There are only 25 firefighters on duty within all three fire districts in the City of West Haven at any given time. The ERF for an initial full alarm assignment for a three-story apartment can only be accomplished by deploying all of the on-duty firefighters in the City of West Haven *and* relying on mutual aid from neighboring fire departments to provide additional firefighters.

These are generalizations that are representative of different types of structures and risks. Fire departments may handle these types of fires with fewer or more personnel, however, this describes the work functions that must take place for the mitigation of a fire.

When a fire escalates beyond what can be handled by the initial assignment, or the fire has unusual characteristics such as a wind-driven fire, or has been accelerated with a highly flammable compound, additional personnel will be needed. There are also types of scenarios that may not be fires, but mass casualty incidents, explosions, tornadoes, etc., that may need additional staffing. It is difficult or impossible to staff for these worse case incidents. These require a strong mutual aid or automatic aid plan for assistance.

The current on-duty staffing of 25 firefighters in the entire City of West Haven meets the need for a routine house fire. This level of firefighter staffing is not sufficient for a strip shopping mall or an apartment building unless there is fire protection built-in to these structures. These types of fires will require mutual aid from surrounding agencies.

Appendix E: Emergency Communications Center Operations

Communication center operations are essential, directly affecting fire and EMS response times, service levels, overall service delivery, and customer satisfaction. Dispatch operations are integral to a successful emergency operation, starting with the initial “alarm” and continuing until units are available for redeployment. ESCI toured the dispatch center for the City of West Haven, which is operated as an independent Public Safety Answering Point which is civilian operated with its own director. The Communications Center is located within the West Haven Police Station. The City of West Haven funds 55 percent of the cost of operations and the three fire districts equally split the remaining 45 percent.

The effective dispatching of emergency equipment requires the presence of a quality computer aided dispatch (CAD) system. The West Haven Police Department utilizes the NextGen CAD system to record and process 911 calls for the three fire departments.

The National Fire Protection Association (NFPA) has established NFPA 1221: *Standard for the Installation, Maintenance, and Use of Emergency Services Communications Systems* as guidance for the staffing and operations of emergency communications centers. A significant factor impacting the three fire departments is the issue of “total response time.” The total response continuum consists of call processing time, turnout time, and travel time. In calculating the response, the departments must develop performance criteria for the response to fire, medical, and other types of emergency incidents. Foundational to the establishment of these response performance standards is the ability of each department’s leadership team to have access to valid and reliable data. The CAD system and its quality operation are the vehicle by which the department is able to receive data and monitor performance. It is recommended that the departments work to implement the relevant sections NFPA 1221 that impact operations of each department.

An industry best practice is for fire departments to achieve international accreditation through the Commission on Fire Accreditation International (CFAI). As part of this accreditation process, a department must have the ability to identify its performance relative to call processing time, turnout time, and travel time to sum response time. The travel time and total response time components must also measure both the first arriving unit and the “effective response force.”¹⁰

Emergency communications is also a component of the grading conducted by Insurance Services Organization relative to a community’s public protection classification. In the most recent grading, ISO awarded 7.12 out of a possible 10 points for this category. ISO also utilizes NFPA 1221 as the standard for grading emergency communications centers. Should the departments take corrective actions in an effort to achieve the maximum amount of points the results would have a positive impact in improving the community’s public protection classification score.

¹⁰ *Commission on Fire Accreditation International.*

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