Comprehensive Fire and EMS System Analysis

Town of Easton

CONNECTICUT

FINAL – JANUARY 1, 2023

ESCi

**Emergency Services
Consulting International**

ACKNOWLEDGMENTS

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...and the rest of the members of Town of Easton public safety organizations who selflessly serve their citizens and visitors with compassion and professionalism.

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ESCI Emergency Services Consulting International

INTRODUCTION

In early 2022, the Town of Easton retained Emergency Services Consulting International (ESCI) to conduct a Comprehensive Fire and EMS System Analysis. The Town identified the following four items as the priority areas of the study:

1) Staffing/Compensation
2) Volunteer recruitment/retention
3) Response protocols
4) Fire and EMS Commission Structure

The Comprehensive Fire System Analysis provides a comprehensive review of the fire and EMS systems including:

General organizational practices
Finances
Staffing and Personnel Management
Capital Facilities including facilities and fleet
Fire and EMS service delivery and performance

In brief, this analysis process answers three questions relative to the four priorities:

1. Where is our organization today?
2. Where will we need to be in the future?
3. How will we get there?

Providing short- and long-range future strategies designed to address long-term, future needs.

The project consists of three components, beginning with an Evaluation of Current Conditions. In this step, ESCI reviews existing facilities and conducts a detailed analysis of current service delivery and response performance. These observations and findings are compared with industry standards and best practices, accompanied by recommendations for changes where needed.

The next step is the development of Future Service Demand Forecasts. ESCI uses a combination of historical population data, census information, comprehensive plans, and past incident history to project anticipated future workload and identify community risk.

Finally, the report uses the information gathered to identify and evaluate future strategies to meet long-range needs. The approaches may include modification of existing facilities, relocation of current stations, and potential locations of future stations, if appropriate.

Figure 1: Study Area Map
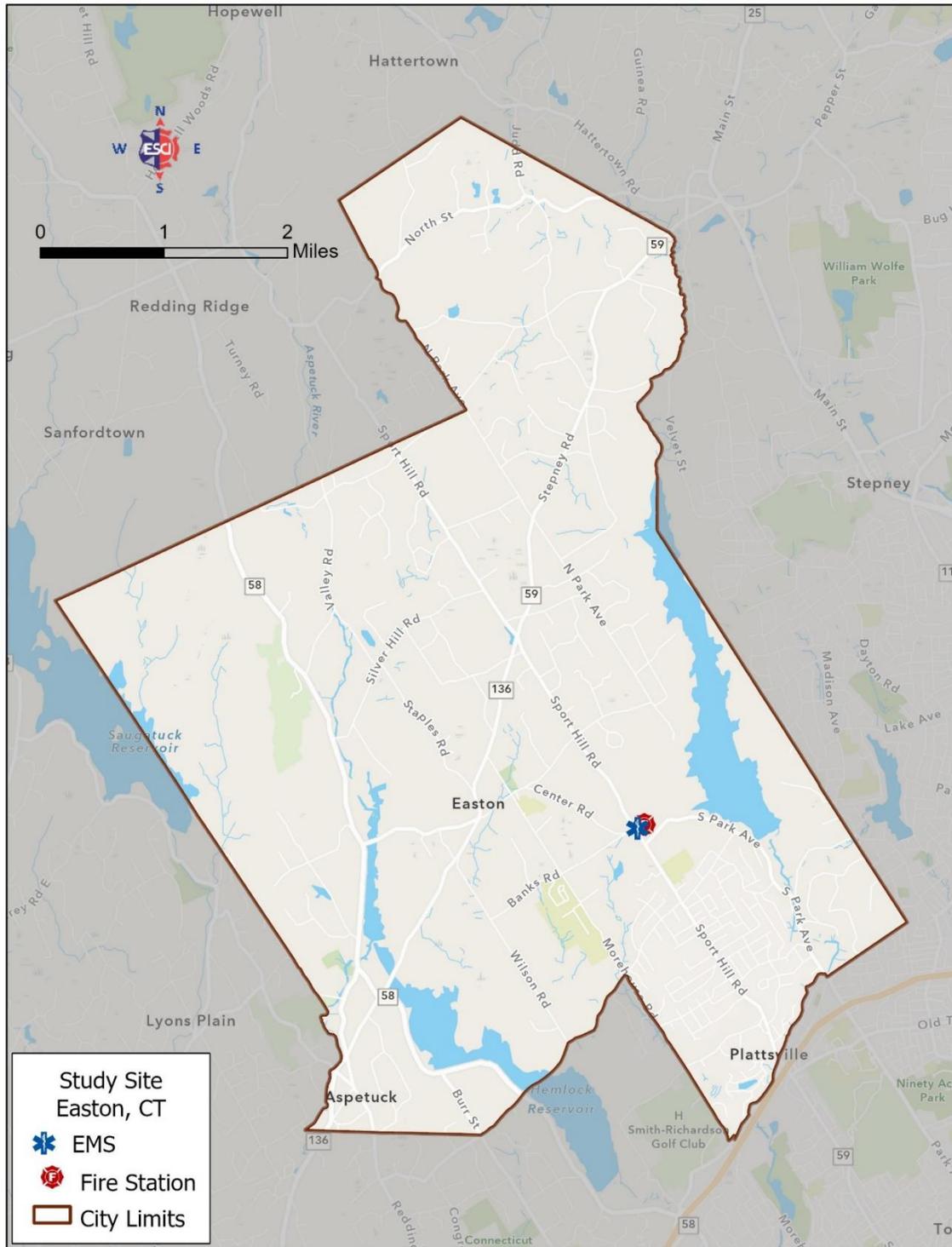
SECTION I:
Evaluation of Current Conditions

COMMUNITY OVERVIEW

The Town of Easton, Connecticut is in Fairfield County approximately twenty-five miles west of New Haven and fifty miles northeast of New York City in the Bridgeport-Stamford-Norwalk Metropolitan Statistical Area (MSA) or New York-Newark Combined Statistical Area (CSA). Towns in Connecticut are self-sufficient meaning there are few, if any, regionalization services. Counties are a geographic organizer of towns but offer no services to local communities.

Locally, Easton is in the Coastal Lowlands approximately seven miles from the northern shoreline of Long Island Sound. The town encompasses 27.42 square miles. According to the US Census Bureau, the 2021 population estimate is 7,594, up 1.4% from the 2010 population of 7,490. The town is bordered by Redding and Newtown to the north, Monroe and Trumbull to the east, Fairfield to the south, and Weston to the west.

Geographically, it is composed of a mix of mostly residential property, farmland, and recreational open spaces and little commercial development. US Census provides the following information on Easton compared to the entire state of Connecticut:

Figure 2: Easton 2020 Demographics

	Easton	Connecticut
Population	7,605	3,605,597
Median Household Income	$166,875	$79,855
Persons in Poverty	2.6%	9.7%
Total households	2,727	1,385,437
Percentage population over 65 yoa	20.7%	18.0%
With a Disability (under 65)	8.4%	7.6%
Racial Composition:		
• **White**	93.6%	64.6%
• **Black**	0%	12.7%
• **Hispanic**	2.7%	17.7%
• **Other**	3.7%	5.0%
Bachelor's Degree	70.6%	40.0%

The following figure displays how the property within Easton is currently used and allocated. Nearly all the privately owned property is residential or vacant with only a small amount of commercial property in the southeast corner.

Figure 3: Easton Developed Land
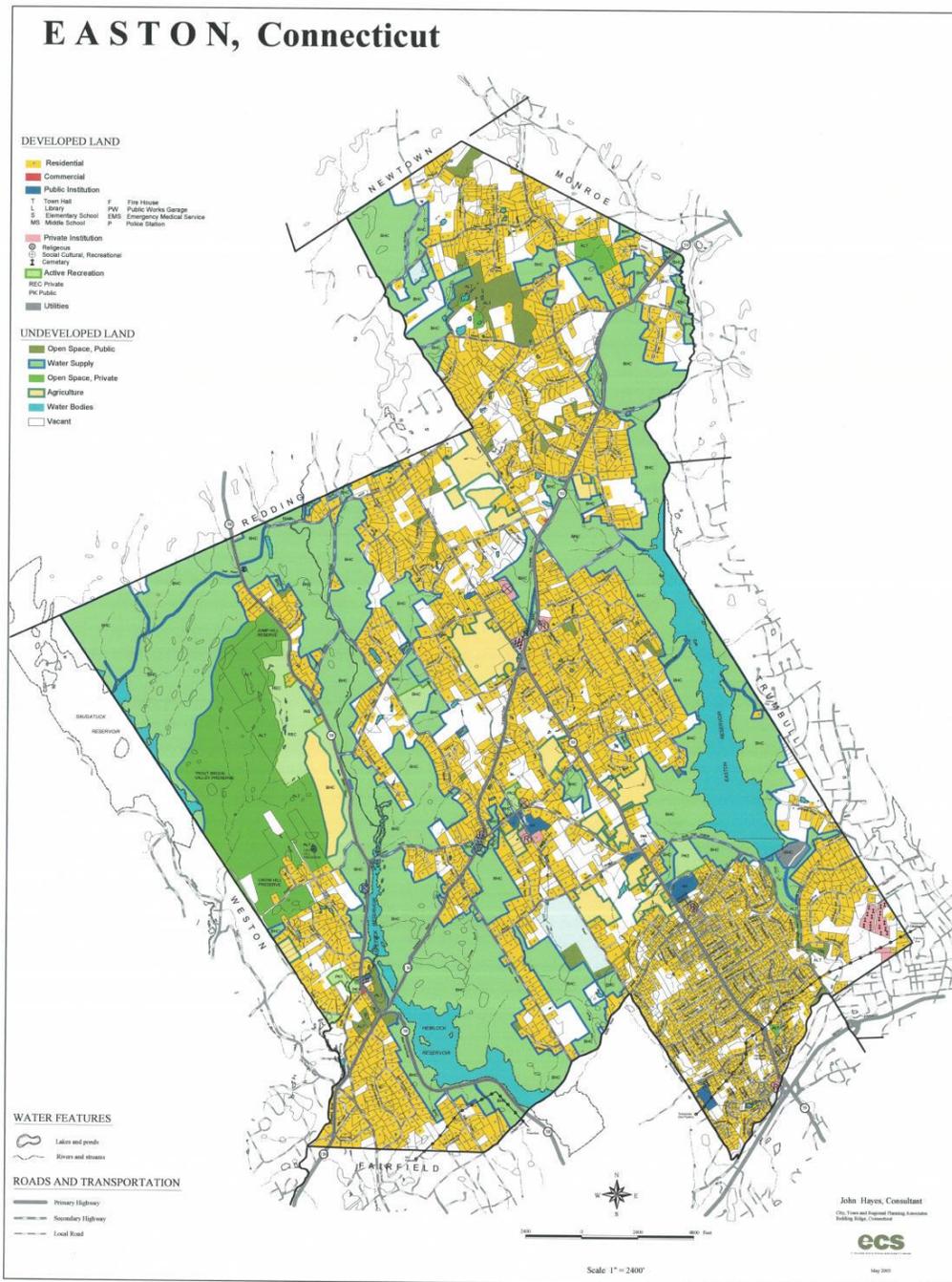
Organization Overview

The Town of Easton is governed by a three-person council called the Board of Selectmen. The First Selectman is the Chief Executive Officer of the Town and an ex-officio member of all boards and commissions. The Town uses several volunteer commissions to oversee their departments including

a Board of Fire Commissioners to oversee the fire department and an EMS Commission to oversee the ambulance (EMS) service.

Easton Fire Department and Volunteer Fire Company #1

The Town of Easton's fire service is a quasi-consolidated organization made up of paid full-time Town of Easton employees and volunteers from the Easton Volunteer Fire Company #1. The volunteer fire company has existed since 1921. Leadership of the organization is provided by the company and chief officers of the volunteer fire company while funded by the town. Understandings between the two are in place but there are no written agreements as to how the two organizations will interact with each other. The fire chief and his leadership team are elected annually by the volunteer portion of the department and function as the chiefs of the Easton Fire Department as well. The Town provides eight full-time employees 24/7 over four shifts, two per shift, who are initial responders on all calls and are accountable to the department's volunteer fire company leadership. The Town has a part-time Fire Marshal who is accountable directly to the First Selectman. The Town's fire service is overseen by the Board of Fire Commissioners and the Volunteer Fire Company has its own executive officers overseeing the company's business.

Easton Volunteer EMS

EMS for the town of Easton is provided by a volunteer-staffed organization, Easton EMS Association and funded by the Town. It is overseen at the town level by the volunteer EMS Commission which controls the EMS budget but also has an Association Board of Trustees that oversees the volunteer Association. The EMS Chief is elected by the association membership but is accountable to the EMS Commission. Ambulances are staffed 24/7 by a combination of paid and volunteer staff. The Association does additional fund-raising to complement the town's funding.

MANAGEMENT COMPONENTS

Effective department management is a complicated and expanding challenge for service leaders. With increasing complexity comes the potential for increased confusion and cost. Today's department must address management complexities that include an effective organizational structure, setting and measuring levels of service, staying abreast of modern technologies and methods, evaluation and maintenance of a qualified force, staff development for effective succession, a readiness for change, and financial sustainability for the future.

It is important to determine if the organizations have implemented foundational management elements and if these may require some modernization or enhancement. This includes mission statements, records, systems implementation, and information technology systems.

The Town is overseen by three elected officials, Selectmen, with several common municipal departments. Each department has a head except for the fire department which has an arrangement with the local volunteer fire company to provide leadership to the town fire department staff. Providing advisory guidance to the selectmen are several volunteer commissions including the Board of Fire Commissioners overseeing the fire department and the EMS Commission overseeing the volunteer EMS service.

Town/Volunteer Arrangements

Fire
The Town has two independent volunteer organizations providing public safety to the community, the Easton Volunteer Fire Company #1, and the Easton Volunteer Emergency Medical Service. The town has unique collaborative arrangements with both organizations but no formal contractual relationships.

For the fire department the Town provides a career staff of firefighters, on duty 24/7, and all necessary operational equipment department including fleet purchases and maintenance. The volunteer fire company provides complementary volunteer staffing, organizational leadership, and the fire station. This arrangement is overseen by the Town's Board of Fire Commissioners and the Volunteer Fire Company executive officers.

ESCI would recommend that a legal contract between the town and the volunteer fire company be created. The agreement can represent the current arrangement but include defined accountability for both organizations. This would help future leaders in knowing areas of responsibility. The volunteer department also performs fund-raising for expenditures the Town is unable to provide.

EMS

The Town provides funding for the local EMS volunteer organization and the current head of the EMS organization is the Town's police captain and elected by the volunteer membership. The EMS station which is an old fire station across the street from the new fire station, is staffed daily with a combination of paid and volunteers, using available on-call staff after hours. The volunteer organization also uses fund-raising to supplement the town's expenditures and this funding is overseen by a separate Board of Trustees.

Recommendation #1: Establish contracts, effectively documenting existing arrangements, between the Town and both volunteer organizations.

Critical Issues/Future Challenges

The Easton Fire and EMS have identified the following as critical issues and future challenges

- ISO rating – Can the town improve its ISO rating
- Existing EMS station is inadequate – The existing EMS station is too small for crews that perform shift duties
- Radio system is approaching obsolescence – Fire department continues to use a Low Frequency band of radios which prohibits communications with external stakeholders. In addition, the radio system itself is becoming obsolete.
- Updated organizational policies and procedures – The fire department should modernize and/or update their policies and procedure manuals.
- Staffing – volunteer firefighter and EMT recruitment and retention is becoming more difficult
- 9-1-1 communication system – Easton provides their own 24/7 9-1-1 dispatcher who also provides reception services to the public. Is there a better model to be used?

Information Technology

Adequate technology is a foregone conclusion in today's world. Whether it is cellular telephones, information sharing, or data management, traditional tools for managing organizational resources are rapidly becoming, if not already, obsolete. To manage all of this, a formal technology structure needs to be in place that not only provides the tools but also has the inherent security required to make sure the system is not abused.

Easton Fire Department and Easton Volunteer Fire Company #1 report that hardware, software, and information technology are not appropriate for the agency's size, function, complexity, and mission. Computers are present but the town has a limited IT budget that limits the number of computers as well as network connectivity between all the town's buildings.

No comprehensive technology plan is in place to update, evaluate and procure hardware and software. No cybersecurity policy is in place to protect the integrity of the infrastructure including networks, programs, and devices from unauthorized access that could disrupt essential services.

The arrangements between the town and the fire department make connectivity between the fire station and the town a challenge as the fire station and property are owned by the fire department and would have potentially a separate IT infrastructure arrangement. However, it would be to the Town's and fire department's benefit if the fire department contracted with the town for IT functionality to provide consistency across all Town functions.

Recommendation #2: ESCI recommends that the Town develop an all-inclusive technology plan including the fire station that includes necessary security arrangements, a communications infrastructure between all the town's facilities and adequate user computer technologies that are kept current.

Management Documentation

All three agencies have varying degrees of regulatory documents. Easton Fire Department (not volunteers) employees are guided by the Town of Easton employee handbook last updated in 2016. The Board of Selectmen, along with the Human Resources Advisory Committee are tasked with many of the human resource functions of the town.

Easton Volunteer EMS maintains a robust, detailed Policies and Procedures manual which also serves as an employee handbook. This document has most recently been updated in 2022. In addition, many clinical and oversight functions of EMS are codified at the state level with the Department of Public Health – Office of Emergency Medical Services.

The Easton Fire Department and the Easton Volunteer Fire Company #1 have been unable to provide documentation in both operational and policy driven categories. Neither department provided policy or procedure manuals during this study. The fire chief has identified that they have an old hard-copy typewriter generated policy/procedure manual but nothing electronic and nothing was provided to ESCI to review. Consequently, ESCI had nothing to verify the practices of the fire department however steps to digitize what is present is underway.

Recommendation #3: The fire department should create an electronically-based policies/procedures manual that is reviewed/updated regularly. Since the town funds most of the fire department's operations budget, policies at least and possibly some procedures that reflect or affect organizational philosophy should be approved by both the Fire Commissioners and the volunteer fire company's executive and line officers.

Internal & External Communications Processes

Internal

Since neither the Fire nor EMS organizations have strategic plans (see Planning Processes section), it can be challenging for the memberships to know the direction of the organizations. There is adequate understanding of the current states of both organizations, but ESCI did not see any indications about regular organizational communications between the departments' leaderships and memberships. This may be being accomplished through the regular organizational meetings that are held or email but having plans and updates in writing provides a stability, commitment, and accountability to a certain direction. More on this will be mentioned in the next section.

External

External communications are defined by how well the department interacts with the community. Being the fire department for a small town, external communications can be critical to an organization's survival.

Both the fire and EMS departments have websites that provide information about their organizations as well as communication with the community about organizational events.

The fire department provides a large annual fund-raiser that is regionally supported. The event is a well-known part of the community and raises significant funds for the Volunteer Fire Company's association.

Recommendation #4: Consider the use of social media to be a dependable resource for the community to turn to in times of disaster.

PLANNING PROCESSES

Emergency services continually contend with a rapidly changing environment. Improved tools, technologies, increased regulation of activities, and changing risk profiles, are all challenges that, if not planned for, create a reactionary management style instead of proactive management. Departments can avoid service complications through continuous evaluations of the internal and external environment and aligning themselves around the needs of these environments. An organization will stay on the leading edge of service delivery by analyzing data and trends and making it a practice of implementing course corrections. In addition, to remain highly effective and improve service delivery, an organization must identify programs and activities that may no longer serve the community's changing needs.

Mission and Value Statements

To be effective, the management of a department needs to be based on several components. These include a clearly stated *mission* (the fundamental purpose of an agency); a *vision* for the future (where is the organization going); and the *values* or *guiding principles* (how will the organization treat its members and customers, as it navigates from its current state to its desired future state). From these fundamental elements, the organization evaluates the environment it operates within, and establishes a series of strategic initiatives, goals, and objectives. Long-term (beyond five years) these elements combine to form a master plan with a shorter (two to five years) and a more specific implementation roadmap forming a strategic plan.

A mission statement defines why an organization exists, what its overall goal is, the goal of its operations: what kind of service it provides, its primary market, and its geographical region of operation. Mission and vision statements play three critical roles:

> (1) communicate the purpose of the organization to stakeholders
> (2) inform strategy development, and
> (3) develop the measurable goals and objectives by which to gauge the success of the organization's strategy.

The Easton Fire Department does not have readily available mission or values statements. The closest similar messaging is visible on the Fire section of the Easton, CT website (eastonct.gov/fire) which states

> *"The purpose of this organization shall be the preservation and protection of lives and property in the Town of Easton."*

Easton Volunteer Fire Company #1 does not have readily available mission or values statements. The closest similar messaging is visible on their website (evfc1.com/about) which reads:

"Established in 1921, The Easton Volunteer Fire Company has been serving the citizens of Easton for over 90 years. Today it stands ready to protect and assist in the face of fire, flooding, hazardous materials, or other modern disasters."

"The Easton Volunteer Fire Company is an independent volunteer organization. Through years of active fundraising, careful planning, and prudent management, the EVFC has been able to put in place resources that allow it to be highly effective in protecting property and lives. Few firefighting organizations in like sized communities can boast of the equipment, trained manpower, and facilities that EVFC brings to bear in the pursuit of its mission."

Easton Volunteer EMS has established mission and values statements. The mission statement of Easton Volunteer EMS is:

"The mission of Easton EMS is to provide outstanding emergency medical services and patient transportation services. We provide these services in a professional manner while maintaining the dignity of those we serve. Our staff continuously strives to learn, improve, and grow in enhancing the delivery of emergency medical services to those we serve."

The values statement of Easton Volunteer EMS is:

"Easton EMS adheres to the following values:

We treat persons with illness and injury in our community with care and compassion, utilizing effective principles and practices of patient care, and we strive for excellence through ongoing evaluation and improvement.

We recognize the dignity of others and communicate with others in a respectful manner.

We serve with honesty, loyalty, and dedication.

We are responsible for our actions, both positive and negative.

We practice teamwork through communication and cooperation to achieve common goals.

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We do not discriminate against patients or personnel on the basis of race, color, national origin, ancestry, religion, sex, age, disability, political belief, military service, or any other legally protected characteristic"

Recommendation #5: It is recommended that Easton Fire Department and Easton Volunteer Fire Company #1 develop, communicate, and routinely evaluate the mission statements of their respective organizations.

Value statements communicate to internal and external stakeholders the principles it uses to guide its decision making, as well as provide a glimpse into the culture of an organization.

None of the three organizations appear to have vision statements. A vision statement is an inspirational statement of an idealistic future of an organization. A vision statement is closely related to a mission statement and describes the future-facing goals and ambitions of your agency.

Planning Processes

To be truly effective, an emergency services agency must consider planning on many distinct levels:

- Master planning
- Strategic and values planning
- Operational and practices planning, including emergency preparedness
- Tactical/project and behavior planning
- Infrastructure support for these plans

Master-level planning is the formulation of a long-term outlook that brings together the organization's charter and the stated mission to create the department's long-term vision. It guides decision-making establishing long-term effectiveness as its operating environments change over time. Considering the current and future needs of the community and department is vital to a successful planning process. The master plan lays out a comprehensive vision that will take the organization to its desired future state from its current form.

Strategic and values level planning establishes the more immediate direction for the organization, determining its objectives and formulating the strategies required to achieve its mission and vision in the master plan. In addition, strategic planning is not just a where-do-we-want-to-be but also a who-do-we-want-to-be which involves creating guidelines for the department leadership that accomplish the objectives of the organization formulated in the master plan.

Operational and practices planning guides the organization in how it will perform its services. It involves the mostly short-term activities to be realized by employees and how they may be

accomplished. It integrates the agency into other local, regional, or national response networks, and lays out how the organization demonstrates its values. These activities directly accomplish the operational objectives and indirectly support the master plan vision.

Tactical/program and behavior planning is the development of strategies for potential emergency incident response and program projects like SCBA maintenance or facilities construction. Finally, the behavior level takes the people practices and translates these practices into behaviors that demonstrate the identified values of the organization. All this supports the operational plans, strategic plan, master plan, and in turn, the department's mission.

The process illustrated above is called organizational alignment and adapted to meet the fire department's needs.[1]

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[1] Group, Vector. *MODEL: Strategic Alignment*. PDF. Denver: Vector Group, 2016.

Figure 4: Organizational Alignment

```
                        Community needs
                             │
                             ▼
                            CRA
                             │
                             ▼
     Organization Track   Master Plan   People Track
           ↙                              ↘
   Strategic Plans                          Values
        │              SUPPORT SYSTEMS        │
        ▼              Structure, Systems,    ▼
   Operational Plans   Policies, Processes,  Practices
        │              Procedures, Support    │
        ▼                                     ▼
   Tactical/Program Plans                  Behaviors
           ↘                              ↙
                        Results
                          │
                          ▼
                    Customer Service
                          │
                          ▼
                    Community needs
```
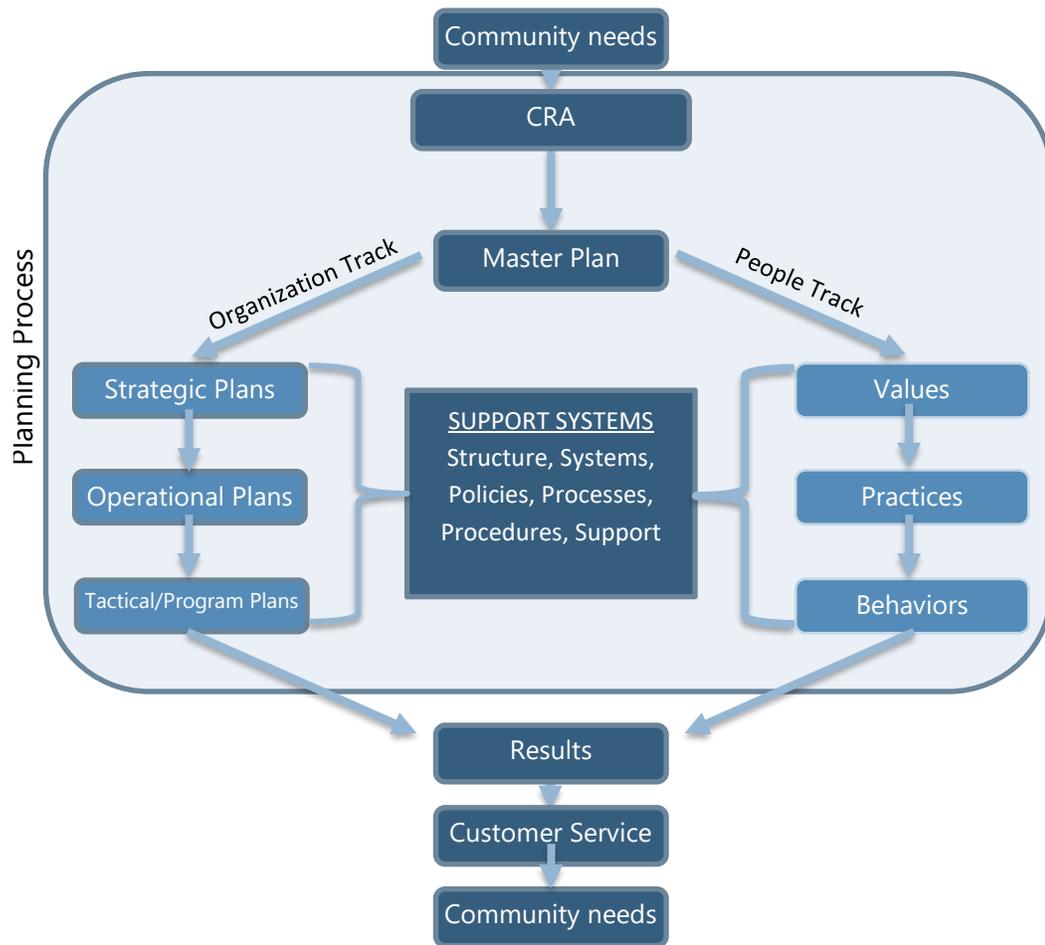
Master Planning

Master planning, also called long-range planning, is a process that seeks to answer several questions:

- Where is our organization today (mission)?
- Where will we need to be in the future (vision)?
- What service do we need to provide (service)?
- How do we affect the risks our community faces (CRRA)?
- How do we get there (plan)?
- The quality and accuracy of the planning processes contribute to the organization's success.

After the Master Plan, the organizational track looks at strategic, operational, and tactical/program plans. A fire department can stay true to its core mission and competencies through proper planning while sculpting its vision to serve the new environment.

Strategic Planning

A strategic plan considers a two-to-five-year planning window and establishes prioritized goals and objectives for the organization. The strategic plan evaluates, prioritizes, and implements the recommendations of the master plan. Strategic planning involves creating guidelines for the department management to follow to accomplish the objectives of the organization formulated in the master plan. Figure 5 represents examples of different organizational inputs that might be considered when creating a strategic plan.

- Community Risk Reduction – the identification of hazards, (fire, EMS, rescue, etc.) within a community and the plan for mitigation and prevention.
- Accreditation model – provides the organizational structure committed to a standard of excellence
- ISO – the insurance industry's methodology for evaluating the ability of a fire department. This translates to homeowners' insurance premium costs.
- Standards of Cover (SOC) - a document and/or standard that describes identified objectives that a community has established for its fire department. It is most often used for measuring response performance.

Figure 5: Strategic Planning Inputs

- Response Agreements – support the notion that reliable, efficient, and effective emergency responses will require resources beyond a local community's.

Establishing a customer-oriented strategic plan accomplishes the following:

- Identification of the strengths, weaknesses, opportunities, and challenges of the agency
- Determination of the community's service priorities
- Understanding the community's expectations of the agency
- Establishment of realistic goals and objectives for the future
- Definition of service outcomes in the form of measurable performance objectives and targets

Some of the elements in the strategic plan model such as accreditation may not be directly applicable to the town of Easton however all of them combined create a model for bringing intentionality to the direction of the fire and EMS departments.

Community Risk Reduction identifies those situations and risks within the community that the fire and EMS departments should be aware of if not prepared for. ISO ratings evaluate the Town's ability

to provide fire protection with a potential impact on homeowner's insurance rates. A Standard of Cover can be a very comprehensive document loaded with data and calculations but it is about identifying the levels of service and to be provided to the community and the required resources to provide that level. Lastly, response agreements are a recognition that no fire department can handle all emergencies alone. With that beginning perspective, planning can take place about where additional resources may be accessed once an incident is beyond the capabilities of the local department.

Strategic plans should ensure that the speed, strength, and depth of response are adequate when deployed to an emergency within a community.

Operational Planning

Easton's fire and EMS operational planning is limited. The fact that the fire department's current operational plans were typed on a typewriter give an indication of the last time operational plans were formalized. Elements should be organized into a documented plan that is approved by city leadership and shared with the community and stakeholders.

Operational planning includes establishing guides for the organization about routine undertakings such as functional plans, response plans, staffing policies, mutual and automatic aid (locally and regionally), and specialty resource identification.

Figure 6 Figure 6: Operational Planning Functionsrepresents the organization's primary functions that should be considered when an organization is in the planning process. Functional plans such as training, EMS, support services, administration, etc., should have operational plans. These functional plans outline responsibilities, staffing, schedules, goals, objectives, and other needs specific to each function. Many of these plans are broken down into smaller groups that require specialized needs, i.e., special teams, apparatus maintenance, etc. It is not important to have an organization structured with these functions although as they expand, this is a common and reliable structure. What is most important is that each function, in some capacity, is present in all organizations and should be addressed.

Figure 6: Operational Planning Functions

Operational plans also need to address the timely implementation of mutual and automatic aid. In addition, mutual aid agreements should incorporate resource needs and responsibilities.

These plans allow the organization to understand the duties of each function and how the functions support the overall strategic, master plans, and mission of the fire department.

Tactical /Program Planning

This area of planning is where the rubber meets the road. These plans are detailed and task oriented. This planning section has two primary areas, tactical response, and program areas. Tactical planning includes pre-incident, target hazard, response, and emergency planning.

Tactical

When responding to a building or property during an emergency, there is limited time to sort out the special hazards, location, and treatment of critical components. A lack of familiarity with buildings and property can easily lead an emergency crew to use valuable time planning the incident, become disoriented, or, even worse, suffer an injury. The following figure shows the various parts of the tactical plans that need to be considered when formulating them.

Figure 7: Tactical Planning Components Example

It is critical that firefighters and command staff have information readily at hand to identify hazards, direct tactical operations, and use built-in fire-resistive features to their advantage. This situational awareness can only be accomplished by building familiarization tours, developing pre-incident plans, conducting tactical exercises, and identifying needed specialty resources.

Recommendation 6: Both fire and EMS departments should complete strategic plans (2-5 years) adopted and approved by the Board of Selectmen and their oversight Boards. Master Plans (5+ years) should be considered as well.

Recommendation 7: The department should use a structural approach to operational planning ensuring that all elements of the organization contain a planning element.

CAPITAL FACILITIES AND EQUIPMENT

The Town of Easton maintains a balance of three basic resources that are needed to carry out its emergency mission: people, equipment, and facilities. Capital assets include all facilities, vehicles, and key support equipment used on the apparatus dedicated to achieving the mission. Facilities and apparatus are the single most expensive infrastructure elements in a fire department. Funding of these elements is difficult to absorb in a single year; therefore, planning must be developed to address replacement, refurbishment, and maintenance in a multi-year funding strategy, or a funding source must be identified.

Facilities – Fire Department

Appropriately designed and maintained facilities are critical to a fire department's ability to provide services in a timely manner and with appropriate deployment of assets. The Fire Department operates out of one centrally located fire station. In a unique partnership, the land and structure are owned by Easton Volunteer Fire Company #1. However, the career firefighters and majority of apparatus and equipment are funded by the Town of Easton. In addition, the town of Easton pays an annual rent, $50,900 in 2022, to operate the fire department out of a portion of the leased building. In return, facility upkeep and maintenance are funded and overseen by the Easton Volunteer Fire Company #1 as landlords. The station was constructed in 1989. The $1.25 million construction cost was partially funded by the Town of Easton issuing $500,000 in construction bonds and turning them over to Easton Volunteer Fire Company #1 as prepayment of the first 15 years of a 99-year lease agreement. The lease agreement does not surrender control of the whole building to the Town of Easton, as the Easton Volunteer Fire Company administration, commercial kitchen, and social space still occupy the second floor of the building. In addition, the Easton Volunteer Fire Company owns an adjacent vacant lot to the West measuring approximately 39,000 sq. ft.

Easton Fire Headquarters is a three-bay facility. All three bays are drive through, however due to apparatus configuration they are currently being used with apparatus backing into their spots. The facility is of appropriate capacity for current apparatus and allows room for expansion or addition.

Figure 8: Easton Fire Headquarters

Survey Component	Observations
Structure	
Physical address	1 Center Rd Easton
Square Footage	10,000 ft^2
Stories	2
Date of Construction	1989
General Condition	Good
Facilities and Building Services	
Security Fence and Gate	No
CCTV	No
Keypad	Yes
Maximum/Disaster Staffing Capacity	4
Normal Staffing Capacity	2
Number of Beds	4
Number of Bedrooms	1
24 Hour Watch Office	Yes
Kitchen Facilities	Yes
Training/Meeting Rooms	Yes
Individual Lockers	Yes
Emergency Ops Center	Yes
Exercise/Workout Areas	Yes
Shower Facilities	Yes
Equipment Storage	Yes
Helipad	No
Automatic Sprinklers	No
Apparatus Exhaust System	Yes
Seismic Protection	No
Washer/Extractor for PPE	Yes
Biohazard Disposal	No
Fuel	None
Assigned Apparatus/Vehicles	
Apparatus Designation	Minimum Staffing
Engine 1	2 – Cross Staffed
Engine 2	2 – Cross Staffed
Engine 3	2 – Cross Staffed
Engine 4	2 – Cross Staffed

Below are observations about the current facility:

- The lack of separate gender living facilities may cause individuals of either gender to be uncomfortable or does not represent current practice for station design. This lack of separate sleeping areas for privacy could provide challenges with any gender-neutral policies.
- Gym and exercise equipment is stored on the apparatus floor. This exposes participants to carcinogens of apparatus and equipment as well as a space not designated or designed for exercise activity.
- Bunker Gear is kept in the apparatus bays where they are exposed to vehicle exhaust. Firefighters wear their gear during their shift and are subject to absorbing the carcinogens through their skin.
- Sleeping areas and living space provide room for only two additional members beyond the normal shift strength. This could limit future expansion or staffing. Also, it may remove the ability of volunteers to staff the stations during periods of high call volume or inclement weather where an extended station presence is required.
- The station lacks a washer/dryer for station wear or linens as well as a biohazard disposal area. Should personnel be exposed to carcinogens, bodily fluids, or hazardous materials they need a proper area to decontaminate to return to service.
- The station has a large parking lot as well as control of an open lot of land to the west. This would allow for addition or expansion of the facility if more bays were needed. This could also allow another agency, such as EMS, to be housed under the same roof while maintaining separate areas and identities.

Figure 9: Easton FD Apparatus Bay

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Figure 10: FD Property looking west

Below is a score chart reflecting various aspects of the building condition.

Facility Condition – Fire

5. Very Good	4. Good	3. Fair	2. Poor	1. Critical
As New, No Defects, Performing as intended	Minor defects Performing as intended	Moderate defect Functioning, but worn	Minor or major defect Not functioning as desired	Major defect Not functioning **OR** Risk to safety and health
Preventive Maintenance	Conditional Repair	Repair	Repair **OR** Replace	**Immediate** Repair **OR** Replace

Figure 11: FD Station Condition

Item	Score	Item	Score
Site		*Interior*	
Site Utilities and Fire Hydrants	4	Security	3
Emergency Vehicle Access	4	Walls, ceilings, and interior finishes	3
Pedestrian Access (ADA and safety)	3	Doors, windows, partitions, and hardware	4
Roadways/driveways and associated signage, markings	3	Floor condition and suitability	3
Parking lots and associate signage, markings	4	Stairs: Interior stairs, handrails, and landings	4
Pedestrian sidewalks and associated signage, markings	4	Technology	2
Fences, walls, and access gates	N/A	Cabinetry, Furniture	2
Stormwater drainage/storage	4	Multi-purpose training/meeting areas	4
Landscape vegetation and trees	4	Restroom facilities, showers, lockers	3

Irrigation system	N/A	Kitchen/food service facilities, water fountains	4
Patio System	N/A	Dormitory facilities	3
Loading Dock	N/A	Living facilities, breakrooms, workout facilities	4
Helipad	N/A	Apparatus bays	4
Miscellaneous utility, trash, and storage structures	4	Storage and mechanical rooms	3
Substructure		*Utilities*	
Foundations; Walls columns, beams, or pilings	4	Emergency Power	Diesel
Basement: Materials, insulation, slab floor underpinnings	3	Electrical Service and distribution	Not Rated
Loading Dock	N/A	Lighting and Branch Wiring	Not Rated
Exterior		Communications and Security System	Not Rated
Frame: columns, pillars, walls, covered walkways, balconies	4	Gas Service and distribution	Not Rated
Roof: condition, gutters, eaves, openings, leakage, ponding	3	Water service, heating, and distribution	Not Rated
Exterior Condition, finishes, and appearance	4	Sanitary Collection/Septic	Not Rated
Exterior doors, windows, doors, and hardware	4	*Mechanical Systems*	
Fire/Life Safety		Heat Generation and distribution	3
Open Code Violations or Deficiencies	4	Cooling Generation and distribution	4
Applied Fireproofing	4	Testing, balancing, controls, and instrumentation	3
Fire doors, fire escapes	4	Chimneys, vents, and exhaust systems	3
Emergency lighting	4	Refrigeration systems, freezers, and ice machines	4
Fire Detection and alarm	4	Elevators, escalators, and lifts	4
Automatic Sprinklers, standpipes, and Fire pumps	None	Cascade system/Breathing air compressor	3
Eyewash stations	4	Apparatus Bay Exhaust Systems	4
Decontamination Area	3	Washer Dryer for Station Wear	N/A
		Washer/Extractor for PPE	4

Recommendation #8:

The fire department should consider an addition/reconfiguration that allows for gender-specific

facilities, fitness and gear facilities separate from the apparatus floor, and living space that can accommodate 6-8 full-time personnel.

Facilities – EMS

Easton EMS operates out of one centrally located EMS station across the road from the fire station. The current building housing Easton Volunteer EMS was built in 1926. The building used to be the

Figure 12: Easton EMS Station

firehouse until the current fire headquarters construction in 1989. The building faces the kinds of structural, plumbing, and other issues one might expect from a 97-year-old building.

The building provides two back-in bays for two ambulances, a UTV and one staff vehicle. Both bays have little to no surplus space. The proximity of the building to the travel segment of the roadway, less than 15 feet, creates a hazard for apparatus responding from or returning to the station and has resulted in numerous other challenges. As the town has improved the road in front of the station, the nominal increases in pavement height have created issues with overhead clearance. This limits the types of ambulances that can be purchased or brought in as mutual aid.

Figure 13: Easton EMS Station Front Ramp

In addition, modifications must be made to ambulances after purchase to allow them to be stored in such a small space. Vehicles have struck the building twice. In addition, the apparatus bay floor is below grade from the road resulting in drainage issues with water intrusion during wet weather events.

The exterior of the building is in an advanced state of disrepair. Exterior shingles are falling off and paint is peeling throughout. Parking is limited, is in poor condition, and is dependent on an agreement with an adjacent landowner to whom Easton EMS pays to plow and insure an adjacent lot. The roof is over 25 years old, and the ridge line is currently sagging.

The building is not handicap accessible and has no elevator. The septic system is over 50 years old, and the well is not on site.

A lack of appropriate storage facilities results in EMS supplies being stored in rusting metal cabinets on the very compact apparatus floor. Limited clearance around EMS vehicles can pose a safety issue for responding members, as well as limits the ability of members to maintain and inspect apparatus and equipment.

Figure 14: EMS Station Vehicle Bay

Apparatus bay floor drains discharge into a dry well outside whose pipe has collapsed.

Office and living space on the first floor are insufficient for current career and volunteer staffing levels. Five desks are provided for more than ten administration staff. Air conditioning is provided via window units and windows are currently pushing out causing

Figure 15: EMS Station Office Space

energy loss. Live in accommodations are inadequate with no separate gender facilities or living space.

Figure 16: EMS Station Living Arrangements

The second floor of the building is used for meeting space and training however cannot be used for any residential or dormitory space due to its lack of code compliance. The floor is

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sagging, and the space is divided in ways not conducive to conducting training or larger events. Plumbing and utilities throughout the second floor are in poor condition.

ESCI is agreement with all stakeholders, including Easton EMS administration and Town of Easton officials, that the current EMS station is insufficient for the current needs of the organization. The building has outlived its expected service life and is no longer a viable option to safely house an effective career and volunteer response agency. EMS administration has made it clear during interviews and public statements that their intent is to purchase land and construct a new building to house their organization's response and administration elements.

Below is a building condition chart for the EMS station.

5. Very Good	4. Good	3. Fair	2. Poor	1. Critical
As New, No Defects, Performing as intended	Minor defects Performing as intended	Moderate defect Functioning, but worn	Minor or major defect Not functioning as desired	Major defect Not functioning **OR** Risk to safety and health
Preventive Maintenance	Conditional Repair	Repair	Repair **OR** Replace	**Immediate** Repair **OR** Replace

Figure 17: EMS Station Condition

Item	Score	Item	Score
Site		*Interior*	
Site Utilities and Fire Hydrants	4	Security	3
Emergency Vehicle Access	1	Walls, ceilings, and interior finishes	2
Pedestrian Access (ADA and safety)	2	Doors, windows, partitions, and hardware	2
Roadways/driveways and associated signage, markings	3	Floor condition and suitability	1
Parking lots and associate signage, markings	1	Stairs: Interior stairs, handrails, and landings	2
Pedestrian sidewalks and associated signage, markings	1	Technology	2
Fences, walls, and access gates	N/A	Cabinetry, Furniture	2
Stormwater drainage/storage	1	Multi-purpose training/meeting areas	3
Landscape vegetation and trees	1	Restroom facilities, showers, lockers	2
Irrigation system	N/A	Kitchen/food service facilities, water fountains	2
Patio System	N/A	Dormitory facilities	2
Loading Dock	N/A	Living facilities, breakrooms, workout facilities	2
Helipad	N/A	Apparatus bays	1
Miscellaneous utility, trash, and storage structures	3	Storage and mechanical rooms	1
Substructure		*Utilities*	
Foundations; Walls columns, beams, or pilings	2	Emergency Power	None
Basement: Materials, insulation, slab floor underpinnings	N/A	Electrical Service and distribution	Not Rated
Loading Dock	N/A	Lighting and Branch Wiring	Not Rated
Exterior		Communications and Security System	Not Rated

Frame: columns, pillars, walls, covered walkways, balconies	2	Gas Service and distribution	Not Rated
Roof: condition, gutters, eaves, openings, leakage, ponding	2	Water service, heating, and distribution	Not Rated
Exterior Condition, finishes, and appearance	2	Sanitary Collection/Septic	Not Rated
Exterior doors, windows, doors, and hardware	2	*Mechanical Systems*	
Fire/Life Safety		Heat Generation and distribution	3
Open Code Violations or Deficiencies	1	Cooling Generation and distribution	2
Applied Fireproofing	1	Testing, balancing, controls, and instrumentation	2
Fire doors, fire escapes	3	Chimneys, vents, and exhaust systems	2
Emergency lighting	1	Refrigeration systems, freezers, and ice machines	2
Fire Detection and alarm	1	Elevators, escalators, and lifts	1
Automatic Sprinklers, standpipes, and Fire pumps	None	Cascade system/Breathing air compressor	N/A
Eyewash stations	1	Apparatus Bay Exhaust Systems	1
Decontamination Area	1	Washer Dryer for Station Wear	2
		Washer/Extractor for PPE	2

Recommendation #9: Easton's EMS organization needs a new facility to include vehicle quarters, headquarters, space, office space, living quarters, and adequate space for growth**.**

Facilities – Emergency Communications Center

The current emergency communications center is in the main lobby of the police department. While two consoles are available, this position is staffed by one emergency dispatcher at a time. While this is an appropriate and financially prudent level of staffing, the required technology and telecommunications cost of maintaining a standalone dispatch and public safety answering point should be evaluated. As additional state mandates for Public Safety Answering Points (PSAPs) are rolled out, costs to maintain these facilities grow. Opportunities exist to join regionalized dispatching centers which offer higher staffing levels along with the most modern telecommunications equipment and technology.

One of these opportunities is the recently redesigned Fairfield County Regional Dispatch Center. Opened in the spring of 2022, the Fairfield County Regional Dispatch Center is a joint venture between the towns of Fairfield and Westport and is the first of its kind in the realm of municipal partnerships in the State of Connecticut. The center streamlines public safety responses in both Fairfield and Westport and is working to incentivize municipal partnerships and modernize local

public safety answering points. The center is located on the campus of Sacred Heart University as part of yet another innovative community partnership.

Apparatus – Fire Department

The Easton Fire Department maintains a fleet of four engines and one utility vehicle. Traditional staffing has the two career members on one engine, with a frontline volunteer engine along with two additional engines in reserve. The department survey identifies the following apparatus:

Figure 18: FD Apparatus

Apparatus Name	Resource Type	Status	Year	Mileage	Overall Condition
Engine 1	Engine	Frontline	2001	28513	Critical
Engine 2	Brush Engine	Frontline	2004	10575	Fair
Engine 3	Engine	Frontline	2013	2900	Fair
Engine 4	Engine	Frontline	2020	Not Reported	Not Reported
Utility	Utility	Frontline	2015	17684	Very Good

Based on the community profile, the Easton Fire Department does not have its own aerial apparatus. This determination is made based on the size and height of structures within its response area. Mutual aid companies would supply an aerial device if called upon. These types of items are important to include in mutual aid agreements with surrounding agencies, as they provide a resource type not available from within the organization.

During the 2011 ISO review, the type, location, and condition of apparatus was reviewed. For the Fire Department these were some of their strongest categories as illustrated below:

Figure 19: ISO Apparatus Evaluation

Item	Earned Credit Points	Possible Credit Points	Percentage of Maximum Available Credit
Engine Companies	8.96	10.00	89.6%
Reserve Pumpers	0.79	1.00	79.0%
Pumper Capacity	5.00	5.00	100.0%
Ladder Service	1.86	5.00	37.2%
Reserve Ladder and Service Trucks	0.63	1.00	63.0%
Apparatus Distribution	1.76	4.00	44.0%
Total	19.00	26.00	73.1%

No replacement plan was identified for the fire department apparatus. In these conditions, apparatus are evaluated on their current condition and as signs of wear increase, replacement becomes a topic of conversation. However, fire apparatus are extraordinarily expensive. New fire engines are approaching $1 million in cost which means departments must either decide to buy used, lease, save for future purchases or a combination of all three. Whichever is chosen, ESCI would recommend that a replacement plan or methodology be developed and become part of the organization's policy manual.

Apparatus – EMS

Easton EMS operates two similarly equipped Type III basic life support ambulances, one first response vehicle and one UTV. Each ambulance carries a wide variety of medical equipment, from Automatic External Defibrillators (AEDs) and a Lucas device for cardiac arrests. Ambulances stock oxygen, naloxone, epinephrine, aspirin, and glucose to treat common life-threatening medical emergencies. Recently, considering current events they have equipped both ambulances with quick-clot and tourniquets to stop major bleeding. Additionally, they carry backboards, combi-carrier scoop stretchers, and a stair chair to help get patients to the ambulance.

Alongside standard personal protective equipment (PPE) like gloves and surgical masks both ambulances have reflective vests, extrication jackets, helmets, and hazardous material suits. They use Stryker hydraulic stretchers, which makes loading and unloading safer for patients and providers.

Both ambulances are equipped with portable and mobile radios to communicate directly with Easton's 911 center and CMED regional dispatch. Through these radios they can also communicate with Easton Police and Fire Departments as well as mutual aid partners.

Easton EMS does not have a vehicle replacement plan and uses practices like the fire department. ESCI would make the same recommendation for the EMS Agency as it did for the fire department and adopt a replacement methodology, have it approved by the organization's leadership and codified in the policy manual.

Figure 20: Easton EMS Apparatus

Apparatus Name	Resource Type	Year	
851	Type III Ambulance	2009	Lifeline/Ford E-450
852	Type III Ambulance	2017	PL Custom/Chevy E-450
TAC 853	UTV		Polaris 6X6

Recommendation #10: Both fire and EMS organizations should develop fleet replacement plans that include potential replacement year and anticipated costs.

STAFFING AND PERSONNEL MANAGEMENT

The Town of Easton's greatest assets are its people. It is important that special attention be paid to managing human capital in a manner that achieves maximum productivity while ensuring an important level of job satisfaction for the individual. Both the fire department and EMS rely on a combination of career and volunteer staffing. While the functional positions at incident scenes may be similar for both groups, their roles within the organization serve different purposes. Consistent management practices combined with a safe working environment, equitable treatment, opportunity for input and recognition of the work force's commitment, and sacrifice are key components impacting job satisfaction.

The size and structure of an organization's staffing is dependent upon the specific needs of the organization and the community it serves. These needs must directly correlate to the needs and financial capabilities of the community and a structure that works for one entity may not necessarily work for another agency. This section provides an overview of the Easton Fire Department and Easton EMS staffing configuration and management practices.

Public safety staffing can be divided into two distinct groups. The first group works behind the scenes to provide the support needed by the operation's personnel to deliver an effective emergency response and is commonly known as the administrative section or support services section. The second group is typically recognized by the citizens and is commonly known as the operations section; it can be classified as the emergency response personnel.

It takes an adequate and professionally trained staff of emergency responders to put the appropriate emergency apparatus and equipment to its 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.

Volunteerism

Approximately 25% of the American population performs some form of volunteer service and there are some reports indicating the number is slowly declining. Easton FD and EMS are not alone in their struggles to attract volunteers. Volunteering for fire and EMS service is quite a bit more complicated than other volunteerism as there is a tremendous knowledge and skillset that is required to be successful. Historically, this has been addressed at regular gatherings that offer training as a part of the gathering. However, more recently and for good reason, qualifications, credentials, skill monitoring, training and participation requirements have increased the expectations of what is required of volunteers, often at a significant monetary or time expense. Ultimately, a town like Easton that offers a service provided by volunteers will only be able to offer

the service either as long as volunteers are available, or the general community decides for more certainty by paying for the service.

Several non-profit websites offer ideas on how to attract and retain volunteers. Here are a few of the ones that would relate to public safety volunteerism:

1) Set volunteer expectations up front. This begins to build trust as well as saves time by eliminating those who want to volunteer with their own agendas

2) Provide volunteers with adequate and appropriate resources. Supporting volunteers with what they need to adequately do the job demonstrates the interest and reliance the organization needs from them.

3) Leverage skills and strengths. While responding to emergency incidents is one-way volunteers get satisfaction, so does allowing them to contribute their abilities in other elements of the organization. Try to find opportunities for volunteers to contribute and offer their skillsets throughout the entire organization.

4) Keep communications open. This means frequency as well as content. Provide weekly updates. Leaders should share plans and work being accomplished. Keep the volunteers feeling like they are part of the organization.

5) Show value and appreciation. Most people, especially volunteers, like to know their contributions are having an impact and appreciated. Give recognition both publicly and privately for the work volunteers do.

6) Be flexible but structured. Volunteers can appreciate expectations that show the organization has a purpose to fulfill but walk the line between allowing volunteers the flexibility they need to participate with the requirements for a safe and effective mission.

Administrative & Support Staffing Levels - Fire

The chief officers of the Easton Volunteer Fire Company serve as the administrative heads for both career and volunteer firefighters. The Chief and two Assistant Chiefs receive a stipend payment from the town of less than $30,000 combined. Their employment classification regarding the municipality remains unclear. The Chief officers through committees and individual assignments to volunteer and career staff fulfil the administrative functions of the department.

Demands on volunteer staff are increasing as the nature of the industry changes. The town and department leadership should monitor demands and expectations of volunteer staff including the department's leadership to know when alternate organizational models may have to be considered.

Recommendation #11: Town and volunteer department leadership should regularly assess volunteer time contributions and make sure all is being done to attract and retain volunteers.

Fire Prevention

The Fire Marshal's Office consists of the Fire Marshal and two deputy Fire Marshals. All three are employed by the Town of Easton on a part-time basis. Their roles include enforcement of fire, life safety and building codes, plan review to ensure code-compliant construction, and conducting fire investigations. Surveys report that there is adequate staff with specific expertise to meet goals, objectives and identified community risk. A public fire safety education program is in place that targets specific risks, behaviors, and audiences. This program has adequate staff with specific expertise to meet public education program goals. Surveys report that there are no programs in place to identify large loss potential or high-risk audiences nor specific programs to mitigate fires and other emergencies. These programs include home safety visits, smoke alarm installations or car seat installation programs.

There are no designated clerical assistants or secretaries specific for the fire department. These functions along with other routine public interactions are generally handled by on duty staff.

Administrative & Support Staffing Levels – EMS

Easton EMS leadership is split between line officers and company officers. Line officers are responsible for the operational functions of Easton EMS. The line officers are appointed by the Chief of Service who is elected by the membership every 2 years on even number years. The line officers are: Chief, Assistant Chief of Operations, Assistant Chief of Administration, Director(s) of Training, Director of Personnel, Director of Communications, Director of Public Relations. The Trustees are responsible for the financial support of Easton EMS. The Trustee officers consist of: President, Vice President, Secretary, and Treasurer

Operational Staffing – Fire

The Easton Fire Department's daily career staffing always consists of two firefighters on duty 24 hours a day, 7 days a week. This results in a total of eight career firefighters employed by the Town of Easton. These firefighters respond in one apparatus out of fire headquarters. This career staff has been in place since 1947 and is represented by IAFF Local 1426. All eight career firefighters are also certified as EMTs.

At incident scenes this career response is supplemented by volunteers who are available to respond. Over the last 5 years, Easton Volunteer Fire Company has reported between 14-16 volunteer

firefighters within its ranks. This represents the total pool of available volunteers. The number of volunteers actively responding to any given incident varies widely based on their availability. All volunteers are alerted on all calls with the paid on-duty staff providing the initial response capabilities.

In 2005, the International Association of Fire Chiefs Volunteer and Combination Officers Section issued *The Red Ribbon Report: Lighting the Path of Evolution: Leading the Transition in Volunteer and Combination Fire Departments*[2]. This report detailed the difference between "combination" and "dual" fire departments. A combination fire department is one where career and volunteer firefighters are "combined" into a single system to provide fire and emergency response to the community. A "dual" fire department is one in which career firefighters are segregated from volunteer firefighters and there is little cooperation and integration between the two. Interviews show that Easton operates under a combination department during day-to-day operations. Good relationships exist between the full-time and volunteer staffs.

Scheduling Methodology - Fire

Career firefighters are scheduled to work 24-hour shifts. The 24-hour shift provides several benefits for the organization: infrequent shift exchanges, personnel who can work more than 40 hours per week, and consistent coverage throughout the year, including weekends and holidays. The 24 hours shift has become the most common throughout Connecticut amongst career firefighters. One reason for this is that, because of working 24 hours in a single shift, personnel work fewer shifts throughout the month. Although the total number of hours worked per week is more, the 24-hour shift results in an employee working 8 to 10 shifts per month. Nationally, it is becoming increasing more challenging to hire and retain qualified firefighters. This model is the most appropriate schedule for Easton career firefighters. Changing the duration of shifts at the current time could create additional recruiting challenges for the Easton Fire Department.

Tasks that must be performed at a 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 diverse types of fires.

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[2] https://www.iafc.org/docs/default-source/uploaded-documents/vcos-ribbonreportred.pdf?sfvrsn=0

In the absence of adequate personnel to perform concurrent action, the command 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. 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 to control a fire or to treat a patient. Easton Fire Department is responsible for assuring that responding companies can perform all the described tasks in a prompt, efficient, and safe manner.

Considerable ongoing national discussion and debate around large incidents of significant consequence have brought attention to the matter of firefighter staffing. Frequently, this discussion is set in the context of firefighter safety. While there are published standards regarding firefighter staffing, they speak in terms of the number of firefighters assigned to a response apparatus, often characterized as a preferred standard of "a minimum of four personnel per company." ESCI notes that the more critical issue is the number of firefighting personnel assembled in a reasonable amount of time at the scene of an emergency that can perform the required critical tasks to mitigate the emergency, regardless of the type or number of vehicles upon which they arrive.

It is important to understand that the assembly of firefighters on an incident, also called an "Effective Firefighting Force" or "Effective Response Force," is a determination that is made at the community level based on risk, capability, and citizen expectations. There is no mandated requirement for specific staffing levels, though there are standards discussed in detail in this report.

Current career staffing levels require at least two additional volunteers to arrive on scene prior to any firefighter's entry into an environment that is an immediate danger to life and health. At the scene of a structure fire, state and federal OSHA regulations requires that at least two members always enter the Immediately Dangerous to Life or Health (IDLH) atmosphere and remain in visual or voice contact with each other. It also requires that at least two members be located outside the IDLH atmosphere, thus the term, "two in/two out".

Operational Staffing – EMS

Easton EMS operates as a combination agency as well. Weekday coverage is provided Monday – Friday from 0700 hrs to 1500 hrs by two career EMTs staffing a Basic Life Support (BLS) ambulance. Additional coverage is provided Monday – Friday from 1500 hrs to 1800 hrs by a rotation of two of the six available per diem EMTs. Additional coverage is provided from a pool of thirty-six volunteer EMTs who may either respond from a standby position at the station, or from home to muster a BLS ambulance. These volunteers are expected to provide coverage from 1800-0000 on weekdays, and 24 hr coverage on weekends. Easton EMS also has a residential live-in program which provides coverage from 0000-0600 hrs on weekdays. There are three available live-in program positions however not all slots are continuously filled.

In the event of additional concurrent calls for service, volunteers can respond to staff the backup BLS ambulance, or the calls may be rolled to a mutual aid ambulance from a neighboring community. As with all public safety volunteer components, recruitment and retention remains a priority within Easton EMS. Various volunteer incentive programs have been put in place, as well as drawing appropriately trained volunteers from surrounding communities.

Scheduling Methodology – EMS

Full time staffing is provided during hours when the most calls for service are requested. EMS calls for service are most frequent during weekday daylight hours. Additionally, these hours tend to have the most limited availability of volunteers who hold other employment, family or school time demands.

Responsibilities and Activity Levels of Personnel

Both departments were unable to provide individual responsibilities or activity levels of its volunteer personnel. Response levels should be monitored both to ensure delivery of adequate personnel to incident scenes, as well as ensuring personnel are active enough to maintain proficiency. Activity measurement also allows a return-on-investment analysis of volunteer staff. Onboarding, training, and outfitting volunteers is an expensive endeavor. It is important to see a return on that investment.

One method to encourage maintaining appropriate response levels is to create incentives for certain levels of response. These can be tangible items such as gift cards, or intangibles such as additional responsibilities and recognition.

Response Staffing Comments

Easton has the question that many other communities ponder as well and that is, what is the sufficient level of staffing for a given call. Do we send too many staff or not enough? While there are

national standards that guide the determination of an adequate workforce for various type calls, additional attributes to be considered with this question are promptness and risk.

Promptness is the ability to arrive on the scene within an established an amount of time. The response performance section of the report details the response performance of both Easton Fire and EMS. However, what is not detailed is the community's expected or desired performance against the response performance of those agencies. There is a clear expectation that when 9-1-1 is called, in most circumstances for fire and EMS, units will arrive as quickly as possible. Volunteer response environments often take longer for arrivals then their full-time counterparts and the longer the arrival time, the greater potential for an increased severity be it medical or fire.

To help mediate this expectation, many communities, especially those that rely on a volunteer fire and EMS force, send police officers as well because they are typically already on the street, have an immediate response, and have a basic level of training to begin a degree of intervention consistent with their level of training. This can reduce the likelihood of an incident severity increasing but also give the impression that there are too many resources on a scene.

The second attribute is risk. Emergency services resources that are observed responding to a scene often stimulate questions about enough resources required for an incident. Risk factors in because if insufficient resources are initially sent and are inadequate to address the incident quickly, escalation of the incident severity can be rapid potentially creating additional harm. The harm may be in a cardiac arrest that most effectively is handled with four or five people is handled with two, carrying a heavy patient downstairs with two people instead of four, fire growing because of only two firefighters on a scene when four would have allowed for a more aggressive intervention. To address the chance that this may happen, fire departments regularly assume potential realistic worst-case scenarios and respond accordingly. Since the risk of this kind of incident is small but not non-existent, this also creates an illusion of an abundance of resources.

There is a definite cost element of this risk management, so it depends on alignment between community expectations, risk tolerance, and workforce protection. How much risk is the community willing to accept if it reduces its initial intervention abilities with a possibility, albeit small, that first responders can arrive on a scene with an inadequate response force.

FINANCIAL OVERVIEW

Financial Review

This section of the study provides background information on the historical and current financial conditions of the Town of Easton Comprehensive Fire and EMS system analysis. To provide an understanding of fire service and EMS financial resources and costs within the overall study area, ESCI reviewed the individual historical revenues and expenditures provided for each respective department. The review includes, to the extent the data were available, a five-year historical look back. Individual departmental historical trend data were later used to develop key assumptions leading to financial forecasts of revenue, expense, and fund balance (if applicable) for the period FY23-28, given various potential new configurations. This analysis relies on documentation provided by the departments, including actual and adopted budget documents and departments' annual financial reports and audits as available.

Financial analysis is an important part of determining the potential viability for fire and EMS systems analysis. To this end, ESCI has developed data-driven models for each respective option based upon the data provided.

Historical Revenues and Expenses

The following discussion presents historical revenue and expense for the Town and its support of each agency department. A summary of each department is provided along with a comparative millage rate. Each department has different revenue streams, although each relies primarily on general fund allocations derived from ad valorem taxes, with various categories of expenses and requirements for fund balance. Therefore, descriptions and analyses in each section may differ slightly from one another.

Town of Easton Overview

The Town of Easton operates on a July 1 to June 30 fiscal year and uses fund accounting with current financial resources focus. Shown in the following figure is the Town's total taxable assessed value for FY2021 (which is the value adopted for FY 2022 budget) and the combined fire and EMS net operating budget which includes Personnel Services, Maintenance and Operations, and Capital Outlays.

To calculate an equivalent millage rate, the net Town's operating budget was divided by the total taxable assessed value (divided by 1,000) giving an equivalent millage rate of $31.54/$1,000 taxable value. This calculation gives an approximation of the total impact to taxpayers of the cost for providing service, including Fire and EMS, in FY 2022.

Figure 21: Budget/Finance Overview FY 2022

Town of Easton Budget compared to Finance Overview of Fire, FY2022

Component	Description
Fiscal Year	Jul 1-Jun 30
Total Taxable Assessed Valuation (*Grand List)	$1,482,708,040
Town's Net Operating Budget	$46,217,096
Town's Net Fire and EMS Budget	$1,153,802
Equivalent Millage	31.54

*Source: State of Connecticut Office of Policy and Management, Net Grand List by Town 2011-2021

The following figure summarizes actual Town of Easton revenues for the period FY2017 – FY2021 and adopted revenues for FY2022.

Figure 22: Town Revenue, FY17 Actual - FY22 Adopted

Town of Easton Revenue, FY 2017 Actual - FY 2022 Adopted

Revenue	2017 Actual	2018 Actual	2019 Actual	2020 Actual	2021 Actual	2022 Adopted
Property Tax	41,038,854	42,869,128	40,238,403	39,935,561	40,649,362	41,798,548
Other Revenue	2,132,010	2,458,509	2,619,208	2,621,825	2,694,084	4,450,837
TOTAL REVENUE:	**43,170,864**	**45,358,637**	**42,857,611**	**42,557,386**	**43,343,446**	**46,249,385**

The following figure shows the Town of Easton's recurring (base) revenue and non-recurring (other) revenue. Recurring revenues, primarily property tax, comprise the bulk of the town's revenues. Total revenues increased between FY2017 and FY2018 with an almost equivalent dip between FY2018 and FY2019. Revenues remained steady over FY2020 and FY2021 with another significant jump in FY2022. These fluctuations are more than likely due to a combination of factors including the Covid-19 pandemic. Overall, total revenues have increased from $43,170,864 in FY2017 to an adopted budget of $46,249,385 in FY2022, an increase of $3,078,521 or 7.13% for the period.

Town of Easton Recurring Revenue, FY2017 Actual - FY2022 Adopted

Figure 23: Recurring Revenue, FY17 Actual - FY22 Adopted
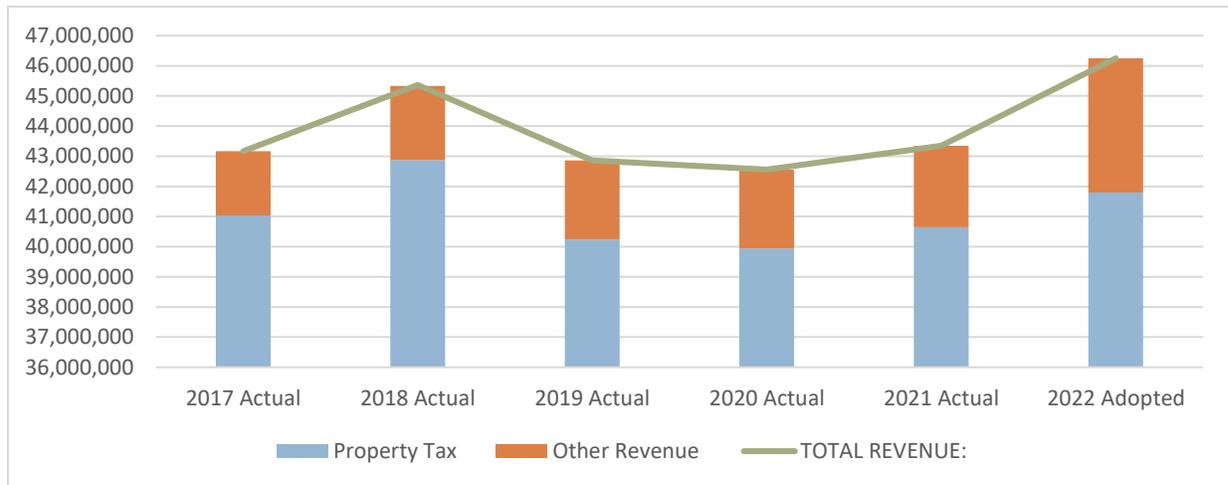
The following figure shows the Town of Easton's expenses for the period FY2017 – FY2021 and FY2022 as adopted.

Figure 24: Expenses, FY17 Actual - FY22 Adopted

Town of Easton Expenses, FY2017 Actual - FY2022 Adopted						
Expense	**2017 Actual**	**2018 Actual**	**2019 Actual**	**2020 Actual**	**2021 Actual**	**2022 Adopted**
Education – R9	10,987,100	11,063,430	10,842,772	9,410,311	10,846,068	11,921,320
Education – Easton	15,311,776	16,121,856	16,387,291	16,106,643	16,856,626	17,561,351
Town	16,134,643	15,897,899	16,079,743	16,004,660	16,103,062	16,766,714
TOTAL EXPENSE:	**42,433,519**	**43,083,185**	**43,309,806**	**41,521,614**	**43,805,756**	**46,249,385**

The following figure shows combined town's expenses by major category. Total town operating expenses (less debt service and capital outlays) have remained unchanged, or stagnant, between FY2017 – FY2021 actual, increasing at an average annual rate of approximately 0.73% annually. The overall budget increased 8.19% between FY2017 actual – FY2022 adopted.

Figure 25: Expense by Major Category, FY17 Actual - FY22 Adopted
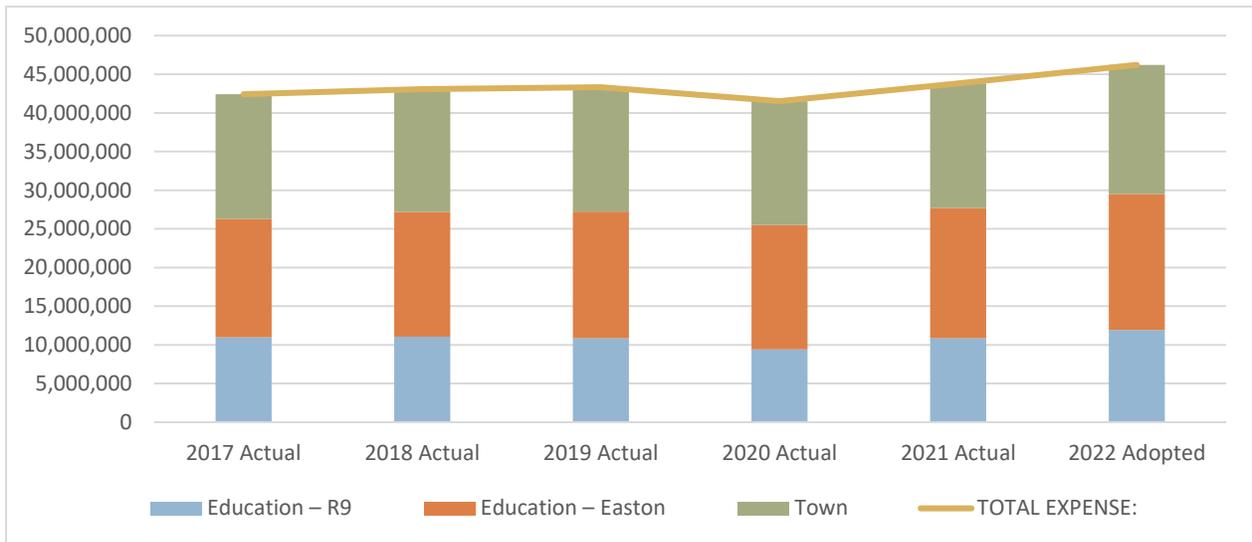
The following figure shows the Town of Easton's historical operational revenues and recurring operating expenses, and the difference between the two, whether positive or negative. When expenses exceed revenue, transfers from reserves or cash carryover are necessary to support the expenditures and maintain services.

Figure 26: Recurring Exp/Rev with Net Gain (Loss) FY17 Actual – FY22 Adopted
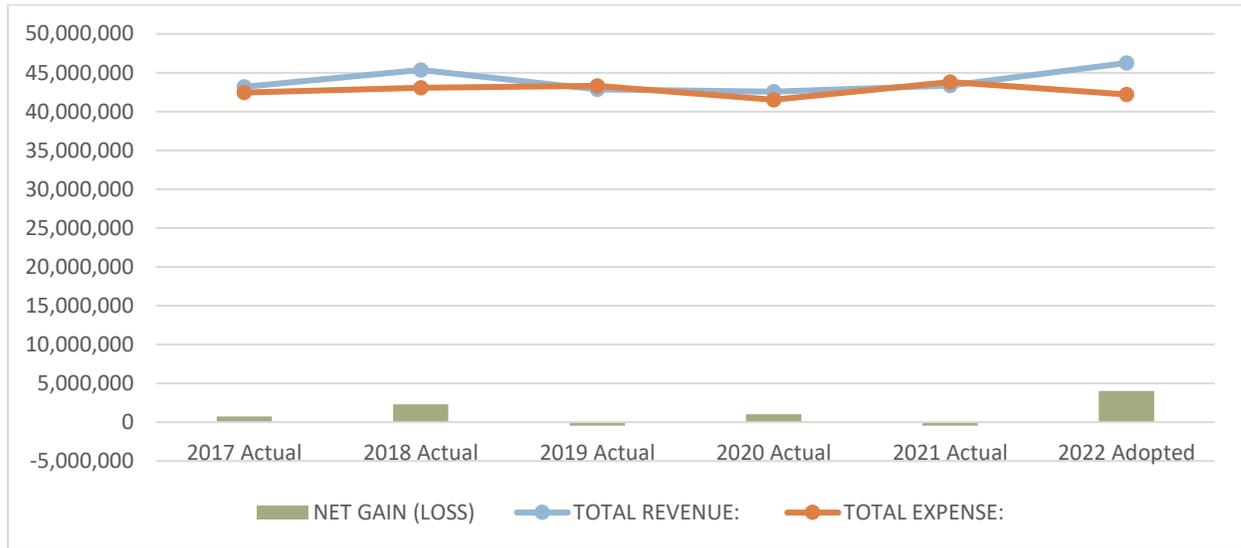
	2017 Actual	**2018 Actual**	**2019 Actual**	**2020 Actual**	**2021 Actual**	**2022 Adopted**
Total Revenue:	43,170,864	45,358,637	42,857,611	42,557,386	43,343,446	46,249,385
Total Expense:	42,433,519	43,083,185	43,309,806	41,521,614	43,805,756	46,249,385
Net Gain (Loss)	737,345	2,275,452	-452,195	1,035,772	-462,310	0
Net Balance*	737,345	3,012,797	2,560,602	3,596,374	3,134,046	3,134,046

* - Balance is unknown as of 1/1/2017

Fire & EMS Review

ESCI reviewed the expenditures provided for the Town of Easton's Fire and EMS divisions for FY2019 actual – FY2022 adopted. The period of review was completed based on the information provided by each department.

FIRE Expenditures

The following figure shows the Town of Easton's fire expenses for the period FY2019 – FY2022 as adopted. Capital outlays are considered non-recurring expenses, although the department could consider an average annual capital expenditure amount of $154,000 as typical for fire apparatus, equipment, buildings, and land replacement and/or purchases.

Figure 27: Fire Expenses, FY19 Actual - FY22 Adopted

Expense	2019 Actual	2020 Actual	2021 Actual	2022 Adopted
Personnel Services	832,805	823,323	883,740	881,202
Maintenance/Operations	74,734	92,994	83,522	118,600
Recurring Expenses	**907,539**	**916,317**	**967,262**	**999,802**
Capital Outlay (Apparatus, Equipment, Bldgs, & Land)	124,924	168,646	130,884	154,000
Non-Recurring Expense	**124,924**	**168,646**	**130,884**	**154,000**
TOTAL EXPENSE:	**1,032,463**	**1,084,963**	**1,098,146**	**1,153,802**

The following figure shows combined fire department expenses by major category. Total department operating expenses (less debt capital outlays) have increased linearly between FY2019 – FY2021, at an average annual rate of approximately 3.26% annually. The rate of increase is still present in the adopted FY2022 operating budget, but at a higher rate of 4.46%.

Personnel Services costs have increased at an average annual rate of 1.97%.

Maintenance and Operation costs, although experiencing a decrease in 2021, have increased at an average annual rate of 7.12%. This figure increases to 18.75% when FY2022 figures are considered.

Figure 28: Fire Expense by Major Category FY19 Actual - FY22 Adopted
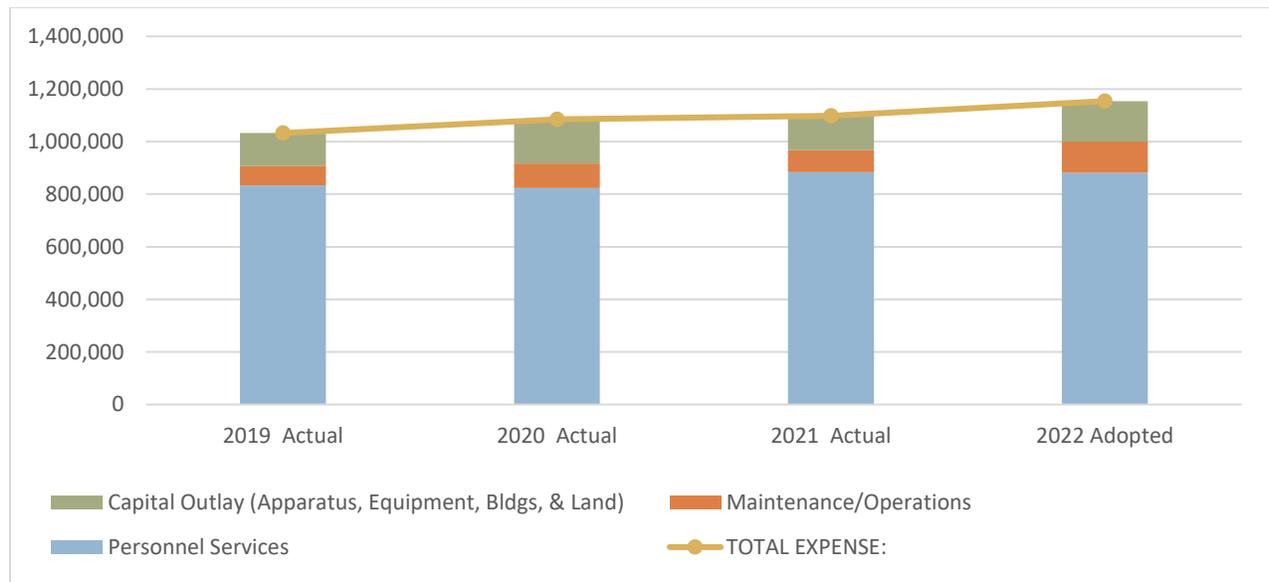
EMS Expenditures

The following figure shows the Town of Easton's EMS expenses for the period FY2019 actual–
FY2022 as adopted. Capital outlays are considered non-recurring expenses, although the
department could consider an average annual capital expenditure amount of $154,000 as typical for
apparatus, equipment, buildings, and land replacement and/or purchases.

Figure 29: EMS Expenses, FY19 Actual-FY22 Adopted

Expense	2019 Actual	2020 Actual	2021 Actual	2022 Adopted
Personnel Services	150,917	168,934	171,228	181,313
Maintenance/Operations	133,308	159,983	164,912	166,672
Recurring Expenses	**284,225**	**328,917**	**336,140**	**347,985**
Capital Outlay (Apparatus, Equipment, Bldgs, & Land)	11,285	3,126	90,000	90,000
Non-Recurring Expense	**11,285**	**3,126**	**90,000**	**90,000**
TOTAL EXPENSE:	**295,510**	**332,043**	**426,140**	**437,985**

The following figure shows combined EMS department expenses by major category. Total department operating expenses (less debt capital outlays) have increased FY2019 – FY2021, at an average annual rate of approximately 8.96% annually. The rate of increase is still present in the adopted FY2022 operating budget, but at a rate of 2.86%.

Personnel Services costs have increased at an average annual rate of 6.40%.

Maintenance and Operation costs have increased at an average annual rate of 8.05%.

EMS capital expenses consist of a combination of ambulance and AED purchases as well as building renovations. Information provided does not contain a breakdown of capital outlay.

Figure 30: Easton, EMS Expense by Major Category, FY19 Actual – FY22 Adopted
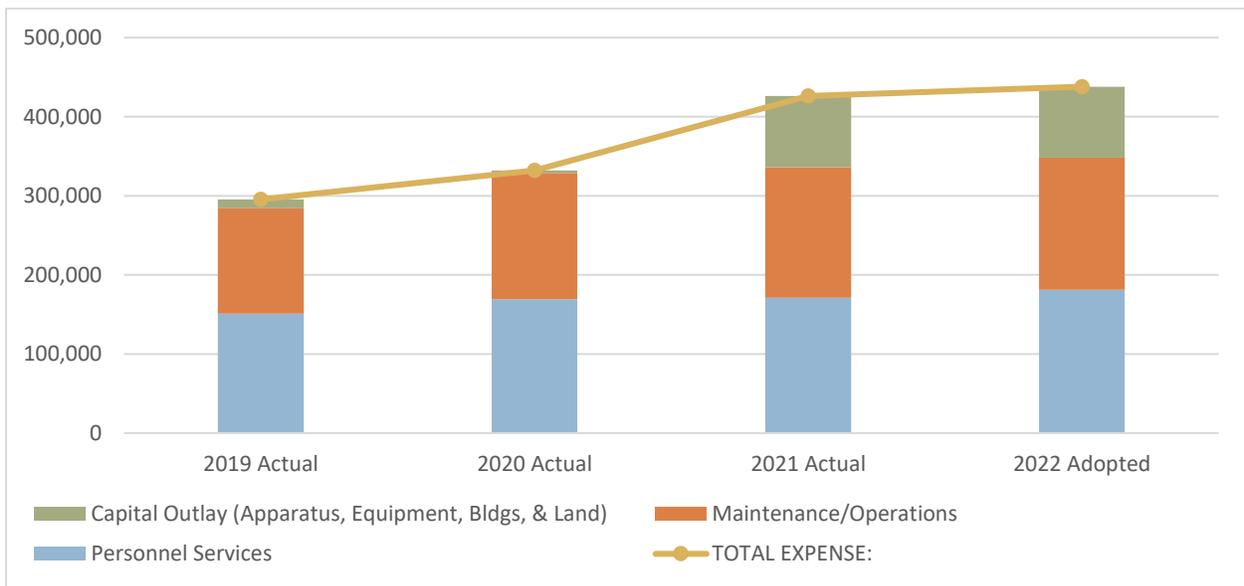
EMS Revenues

The following figure shows the Town of Easton's EMS revenues for the period FY2019 actual – FY2022 as adopted.

Figure 31: EMS Revenues, FY19 Actual - FY22 Adopted

Revenue	2019 Actual	2020 Actual	2021 Actual	2022 Adopted
EMS service revenue	150,000	190,000	117,500	117,500
TOTAL REVENUE:	**150,000**	**190,000**	**117,500**	**117,500**

The following figure shows the Town of Easton's EMS revenues. Although FY202 shows a significant increase in actual revenues received, the review reflects an average revenue change of -3.83% for period FY2019 actual – FY2022 adopted.

Figure 32: EMS Revenue, FY19 Actual - FY22 Adopted
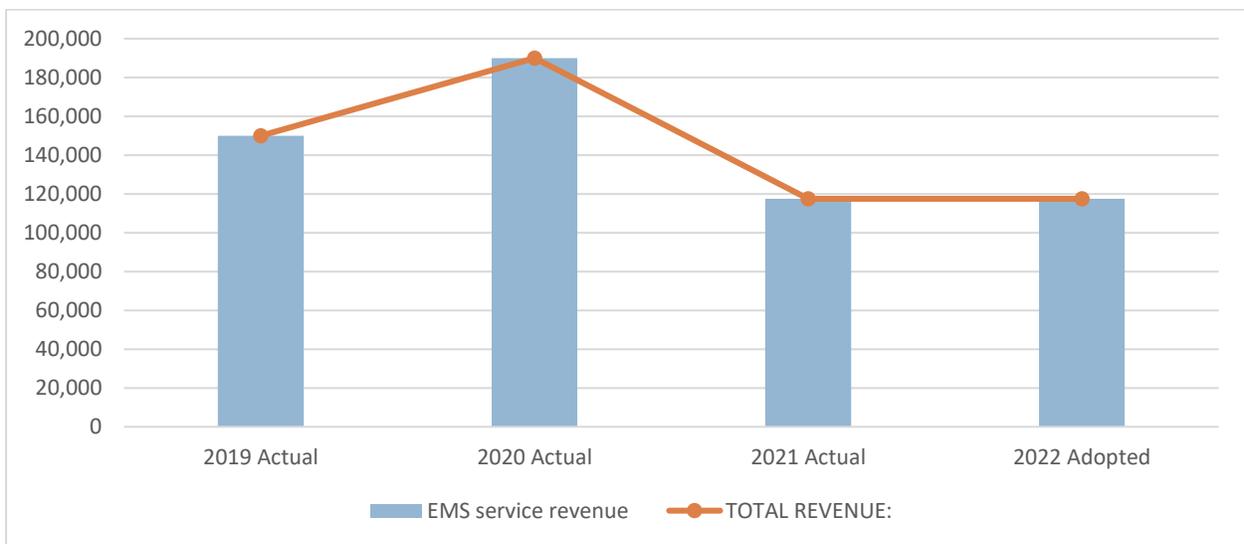
Current Financial Status

ESCI's examined the Town of Easton's General Fund recurring revenues and expenses as they pertain to the Fire and EMS divisions. For FY2022, budgeted revenues ($46,249,385) were expected to be outpaced by expenditures ($46,217,096) by $32,289 or 0.0007%.

The following figure shows the Town of Easton's historic revenues versus expenditures. Total revenue for the Town of Easton on average has increased by approximately 1.28% annually over the last four years (2017-2021); while expenses have increased an average by approximately 1.63%. The annual back and forth of the expenses over revenues and revenues over expenses, both within small margins and with a healthy fund balance at the end of 2021 indicates Easton is in a good financial position.

Figure 33: Revenues/Expenditures, FY17 Actual - FY22 Adopted
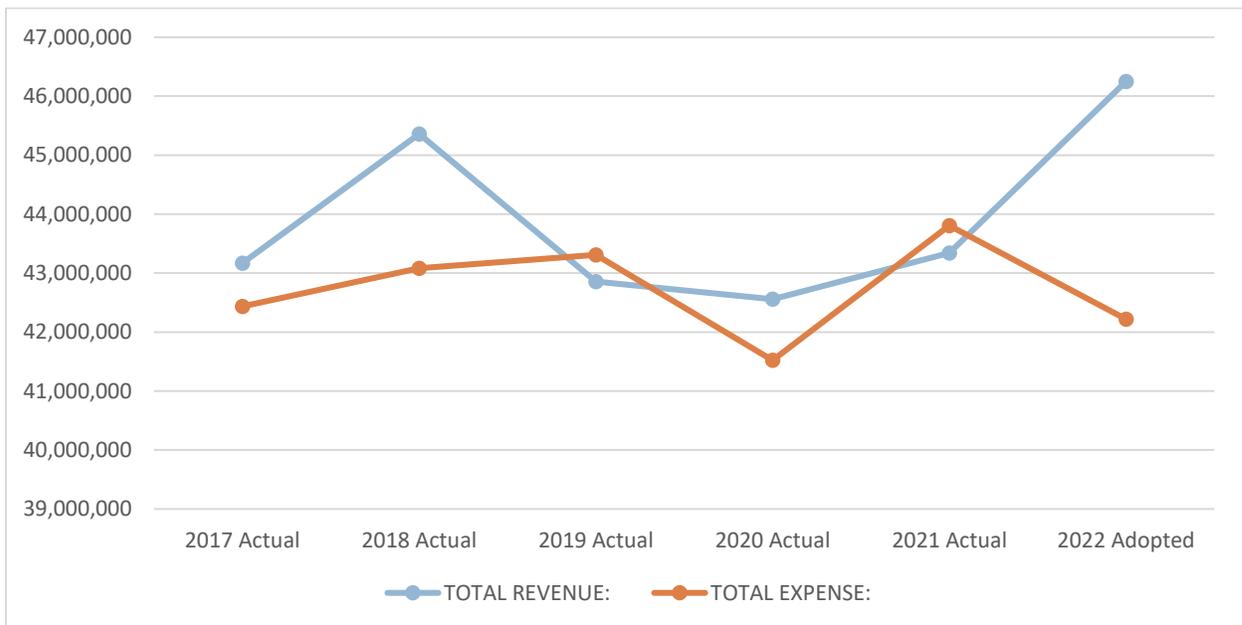
The following table shows the Town's projected revenues for FY2023 – FY2027 at a conservative 1% annually. Additionally, expenditures are reflected outpacing revenues annually at 0.0007%. However, this amount is comparatively small so that for intents and purposes, Easton is projected to have balanced revenues and expenses over the next five years.

Figure 34: Forecast 2023-2027
Revenue increase 1% vs Expenditures increase over Revenue @ 0.0007%

FORECAST	2022 Fund Balance	2023	2024	2025	2026	2027
Revenue		46,711,879	47,178,998	47,650,788	48,127,295	48,608,568
Expense		46,744,577	47,212,023	47,684,143	48,160,985	48,642,594
Net Gain (Loss)		**-32,698**	**-33,025**	**-33,356**	**-33,689**	**-34,026**
Fund Balance	**3,134,046**	**3,101,348**	**3,068,323**	**3,034,967**	**3,001,278**	**2,967,252**

FIRE

The following table shows the Town's Fire projected expenses for FY2023-FY2026. Recurring expenses such as personnel services and maintenance/operational costs were considered based on historical averages for the period provided for review. Personnel services are reflected at an annualized increased rate of 2%, while maintenance and operations were increased at 18.75%. The total recurring expenses minus capital outlay is averaged at 4.6%. Capital outlays increase annually by 10%.

Figure 35: Projected Fire Expenses, FY23-FY26

Expense	2023	2024	2025	2026
Personnel Services	898,826	916,803	935,139	953,841
Maintenance/Operations	140,838	167,245	198,603	235,841
Recurring Expenses	**1,039,664**	**1,084,047**	**1,133,741**	**1,189,682**
Capital Outlay (Apparatus, Equipment, Bldgs, & Land)	169,400	186,340	204,974	225,471
Non-Recurring Expense	**169,400**	**186,340**	**204,974**	**225,471**
TOTAL EXPENSE:	**1,209,064**	**1,270,387**	**1,338,715**	**1,415,154**

The following figure reflects the projected recurring and non-recurring forecasted expenses. Based on data collected expense are expected to increase linearly over the next four years.

Figure 36: Projected Fire Recurring/Non-Recurring FY2023 – FY2026

EMS
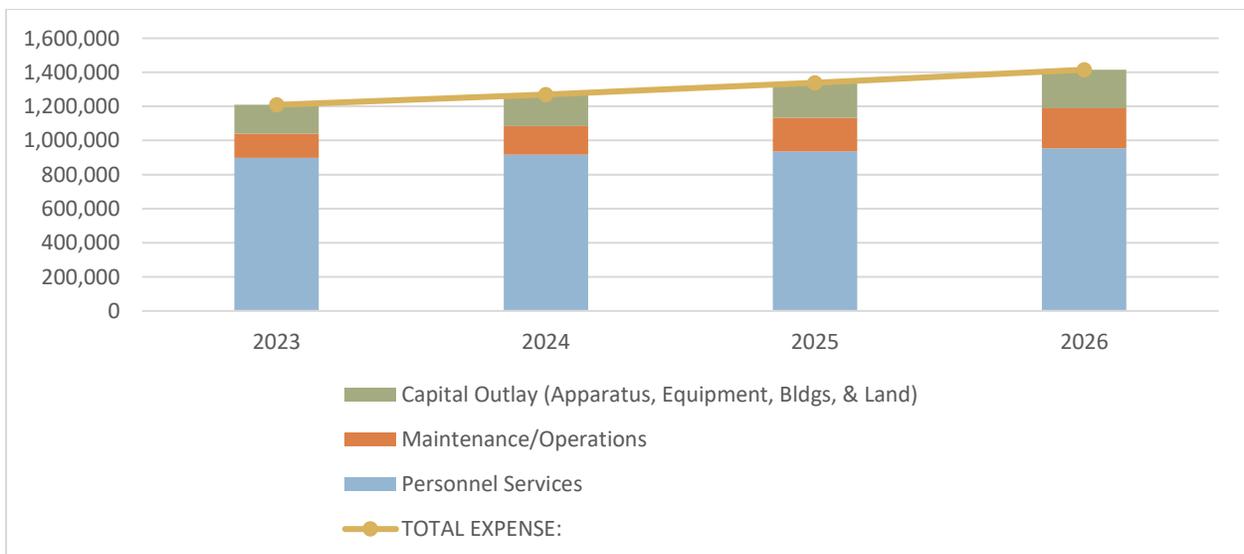
The following table shows the Town's EMS projected expenses for FY2023-FY2026. Recurring expenses such as personnel services and maintenance/operational costs were considered based on historical averages for the period provided for review.

Figure 37: EMS Expenses, Projected FY23 - FY26

Expense	2023	2024	2025	2026
Personnel Services	221,105	235,256	250,312	266,332
Maintenance/Operations	152,796	166,548	181,537	197,875
Recurring Expenses	**373,901**	**401,804**	**431,849**	**464,207**
Capital Outlay (Apparatus, Equipment, Bldgs, & Land)	0	0	90,000	90,000
Non-Recurring Expense	**0**	**0**	**90,000**	**90,000**
TOTAL EXPENSE:	**373,901**	**401,804**	**521,849**	**554,207**

The following figure shows major EMS forecasted expenses by category. Expenses are projected increase by an average $93,059 annually between FY2023 – FY2026. Personnel services are reflected at an annualized increased rate of 6.8%, while maintenance and operations were increased at 9.8%. The total recurring expenses is averaged at 8.05%. Capital outlays remained stagnant due to lack of historical information.

Figure 38: Projected EMS Recurring/Non-Recurring FY2023 – FY2026
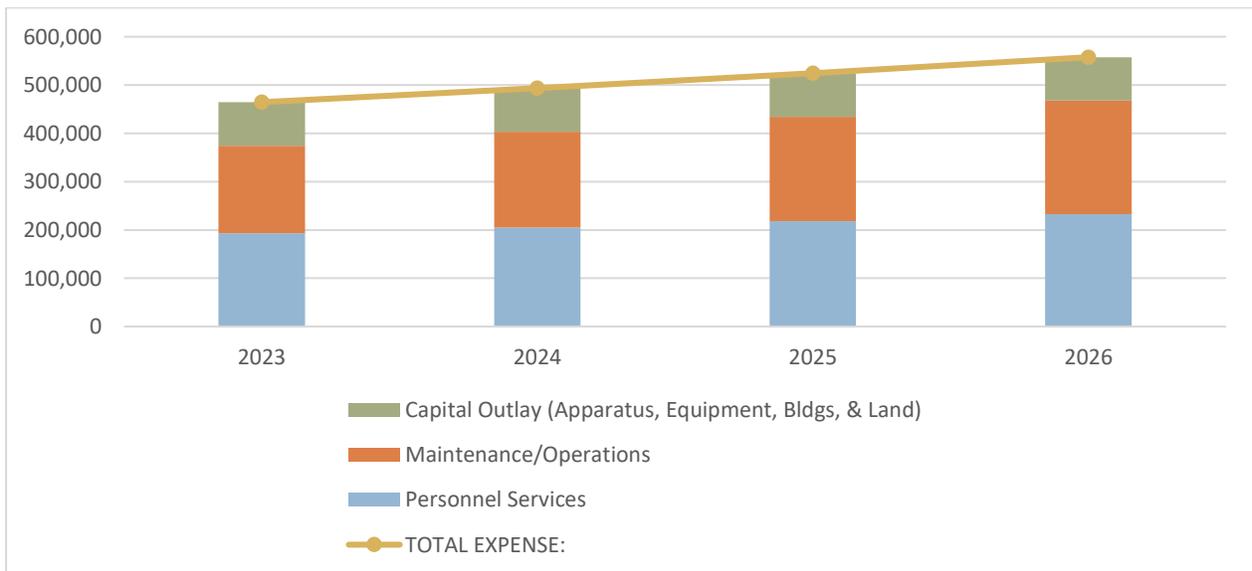
SERVICE DELIVERY & PERFORMANCE – EASTON FIRE

For elected officials, citizens and visitors, the forward-facing part of the fire department is its ability to respond timely to calls for assistance and provide quality service. For EFD leadership to be successful in planning for current and future service delivery, they need a thorough understanding of the various components of service delivery, as listed below.

- Service demand
- Resource distribution
- Resource concentration
- Resource Reliability
- Response performance

Service Demand Analysis

Within the category of service demand, there are additional subcategories that will provide EFD leadership with a greater understanding of the nature of requests for service that are received within the community.

Incident Type Analysis

Incident type is the first subcategory of service demand. Within this subcategory, the goal is to identify the types of incidents to which EFD units respond. Rather than just a simple count of total incidents per year, value is gained by understanding the types of incidents so that leadership can work towards appropriate staffing, equipment, training, and other factors to ensure quality service to the community.

In 1976, the federal government designed a classification system for fire departments which is now used by fire departments throughout the nation, the National Fire Incident Reporting System (NFIRS). Within this classification system, each type of incident is assigned a three-digit code and then these codes are grouped into the series illustrated in the following figure, based on the first number of each code.

Figure 39: NFIRS Incident Types

Incident Series	Incident Heading
100-Series	Fires
200-Series	Overpressure Rupture, Explosion, Overheat (No Fire)
300-Series	Rescue and Emergency Medical Service (EMS) Incidents
400-Series	Hazardous Condition (No Fire)

500-Series	Service Call
600-Series	Cancelled, Good Intent
700-Series	False Alarm, False Call
800-Series	Severe Weather, Natural Disaster
900-Series	Special Incident Type

As illustrated in the following figure, three has been an overall increase of 0.8% in service demand for EFD. This includes increases of 14.8% from 2017 to 2018 and 1.7% from 2019 to 2020 as well as decreases of 8.7% from 2018 to 2019 and 5.4% from 2020 to 2021. Specific incident series change included increases in emergency medical service incidents and canceled/good intent incidents. All other series experienced decreases over the study period.

Figure 40: Annual Totals by Incident Type

	2017	2018	2019	2020	2021
Fire (100)	26	26	18	26	15
Hazardous Condition (200, 400)	78	87	73	61	65
EMS (300 except 322-324)	139	180	178	175	182
MVC (322-324)	21	19	20	19	13
Service Call (500)	78	83	83	68	66
Canceled, Good Intent (600)	41	38	40	59	70
Alarm (700)	124	143	119	129	101
Other (800, 900)	1	7	1	4	0
Total	508	583	532	541	512
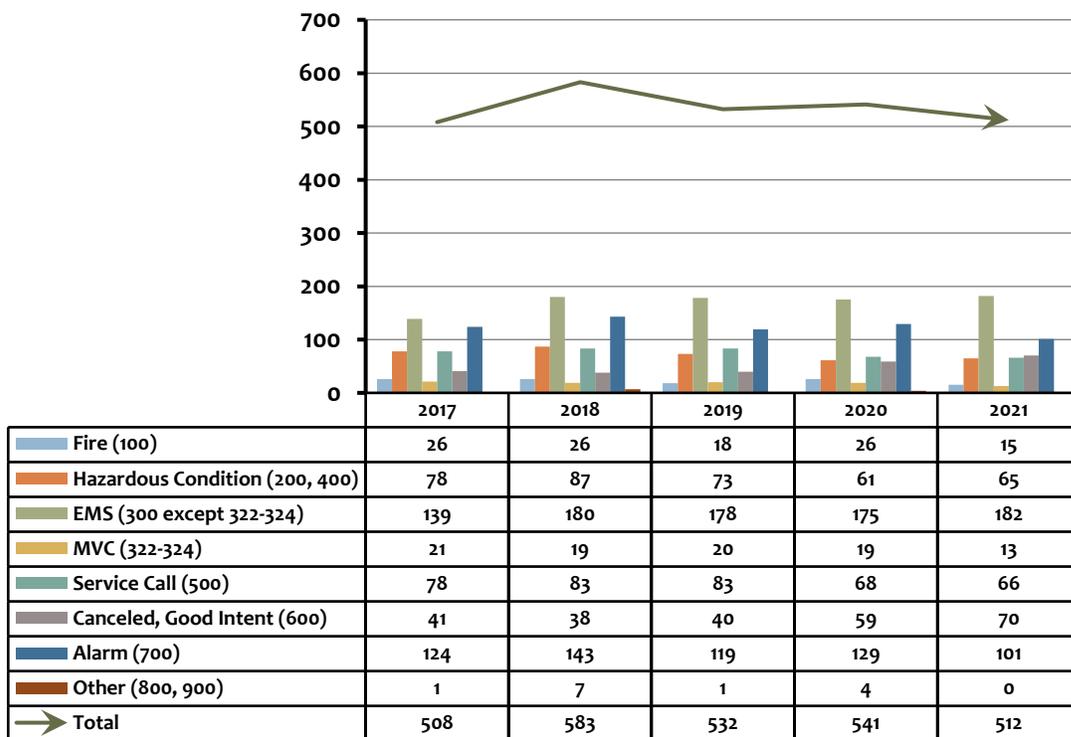
The preceding figure provided an illustration of the year-to-year change in service demand. There is also value in viewing the same data from the perspective of how each series compares relative to the whole of service demand, expressed as a percentage of the whole. As illustrated in the following figure, the greatest demand for service is for emergency medical service incidents (31.9%), followed by alarm incidents (23.0%), service call incidents (14.1%), hazardous condition incidents (13.6%), canceled/good intent incidents (9.3%), fire incidents (4.1%), motor vehicle collision incidents (3.4%), and other incidents (0.5%).

Figure 41: Service Demand by Incident Frequency
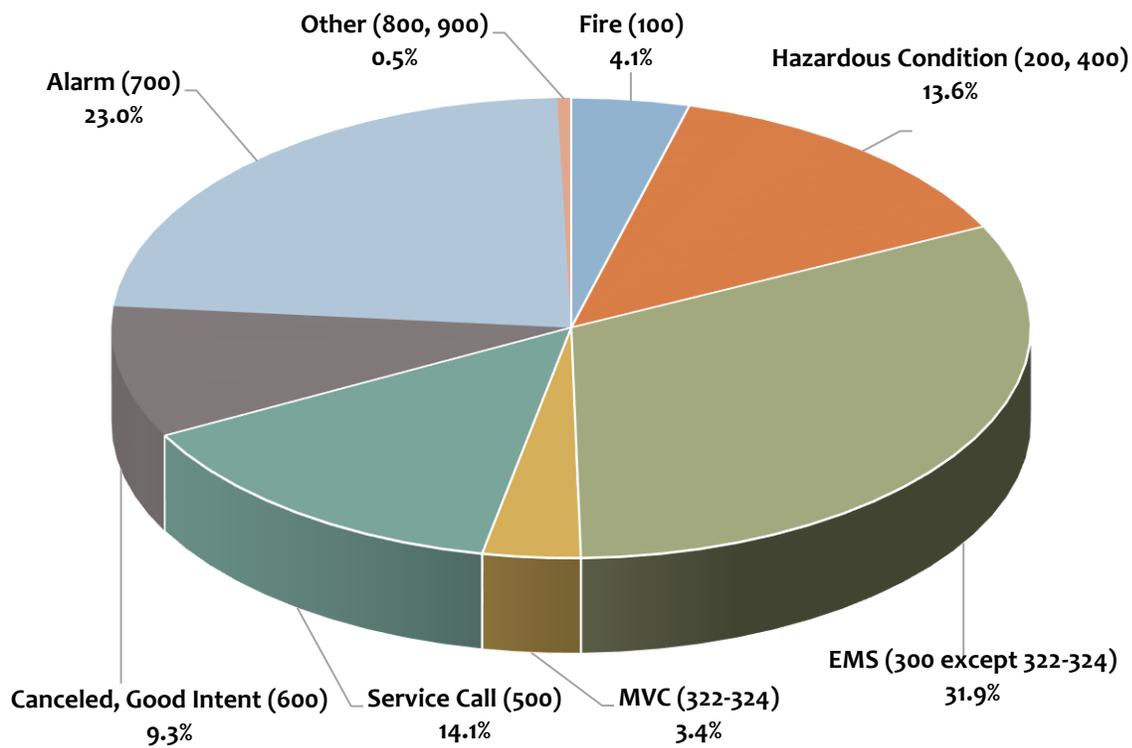
EFD leadership is tasked with projecting future needs within the community and some of that will be based on future service demand. There are two methods of predicting future service demand—based on historical percentage of change or based on incidents per 1,000 population.

Temporal Variation

Temporal variation is the second subcategory of service demand. Within this subcategory, the goal is to identify when incidents occur. The value this knowledge assists leadership in ensuring adequate staffing for response to incidents as well as the ability to schedule non-incident activities during periods of lower demand for service. Non-incident activities may include:

- Training
- Pre-incident planning
- Hydrant testing
- Apparatus maintenance
- Public education events

The first analysis of temporal variation provides understanding of service demand based on the month in which it occurs. As illustrated in the following figure, the lowest demand for service occurs in February. Although there is a large spike in March, the overall trend is a continual increase until reaching August, the month of greatest demand for service. Other than a large decrease in

September, there is an overall decrease in service the following months until returning to the lowest demand for service.

Figure 42: Service Demand by Month, 2017–2021
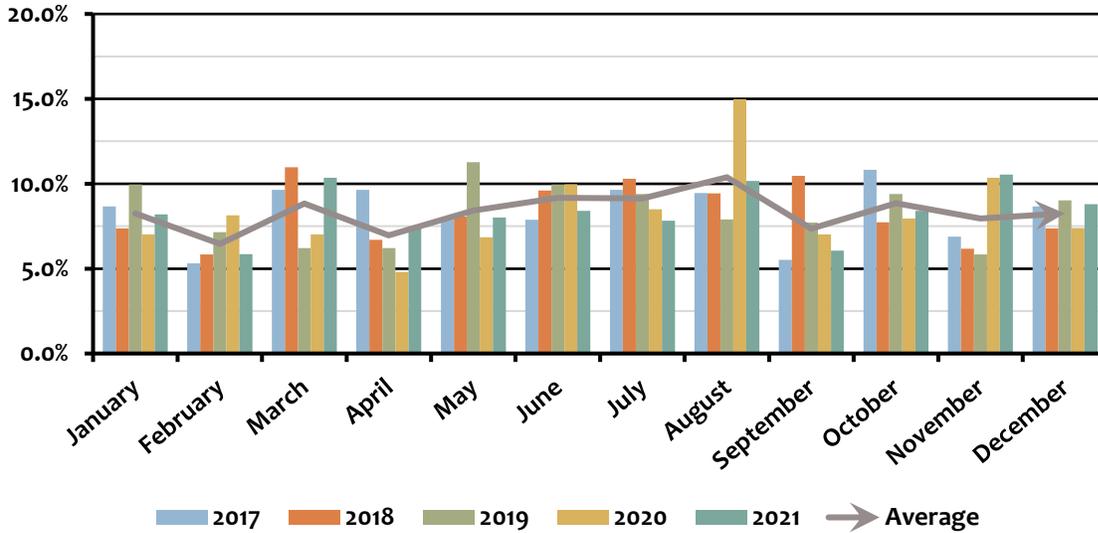
The second analysis of temporal variation provides understanding of service demand based on the day on which it occurs. As illustrated in the following figure, the lowest demand for service occurs on Monday, followed by the greatest demand for service on Tuesday. Service demand on Wednesday and Thursday is slightly higher than Monday and the remaining days are midway between the level of Monday and Tuesday.

Figure 43: Service Demand by Day, 2017–2021
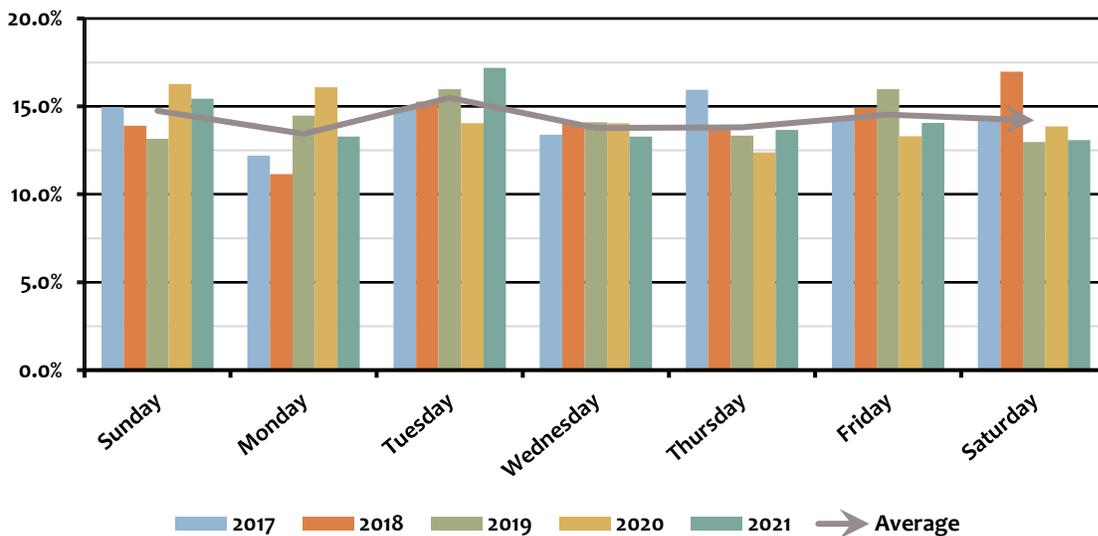
The final analysis of temporal variation provides understanding of service demand based on the time which it occurs. As illustrated in the following figure, the lowest demand for service occurs at 4 AM and then begins increasing as the population arises from their beds and prepares for their daily activities. This increase continues at a steep rate until 10 AM where the increase continues at a slower rate. The greatest demand for service occurs at 3 PM followed by a decrease of service demand as the population completes their daily and evening activities and returns to their residences.

Figure 44: Service Demand by Hour, 2017–2021
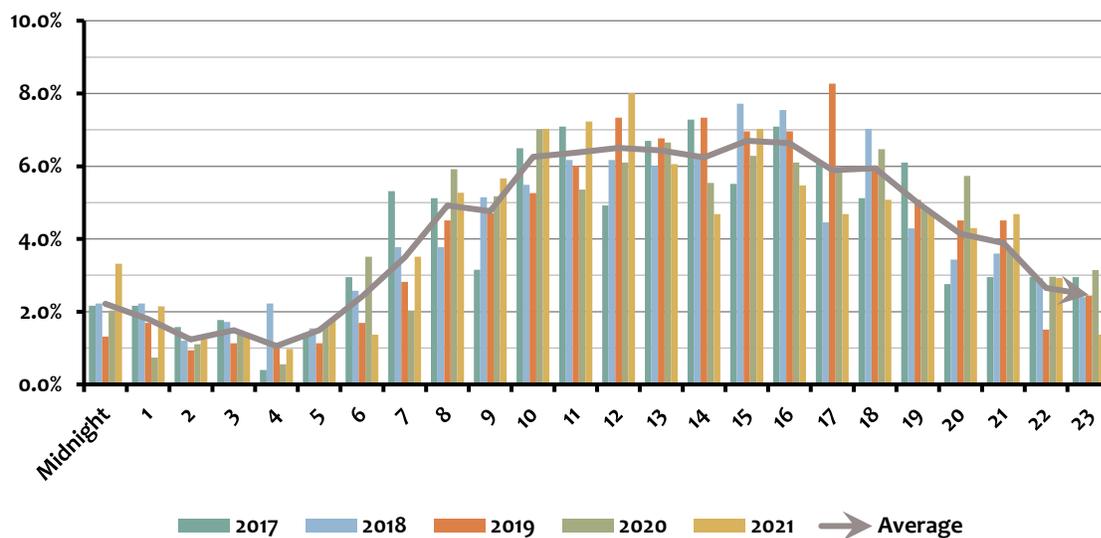
While service demand is lowest during those early morning hours, it should be noted that most fatal residential fires occur most frequently late at night or early in the morning. Based on findings from a national study, from 2014 to 2016, residential fatal fires were highest between 1:00am to 2:00am, and 4:00am to 5:00am. The 8-hour peak period (11pm to 7am) accounted for 48 percent of residential fatal fires.[3]

Population Density & Geographic Service Demand

According to the US Census Bureau, population density across the town is uniform between 200 and 350 people per square mile. Under the US Census Bureau definition, this would qualify as a rural community which is population densities of under five hundred people per square mile. Below is a graph of the population density by US census blocks.

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[3] Fatal Fires in Residential Buildings (2014-2016), Topical Fire Report Series Volume 19, Issue 1 /June 18, U.S. Department of Homeland Security, U.S. Fire Administration, National Fire Data Center.

Figure 45: Population Density
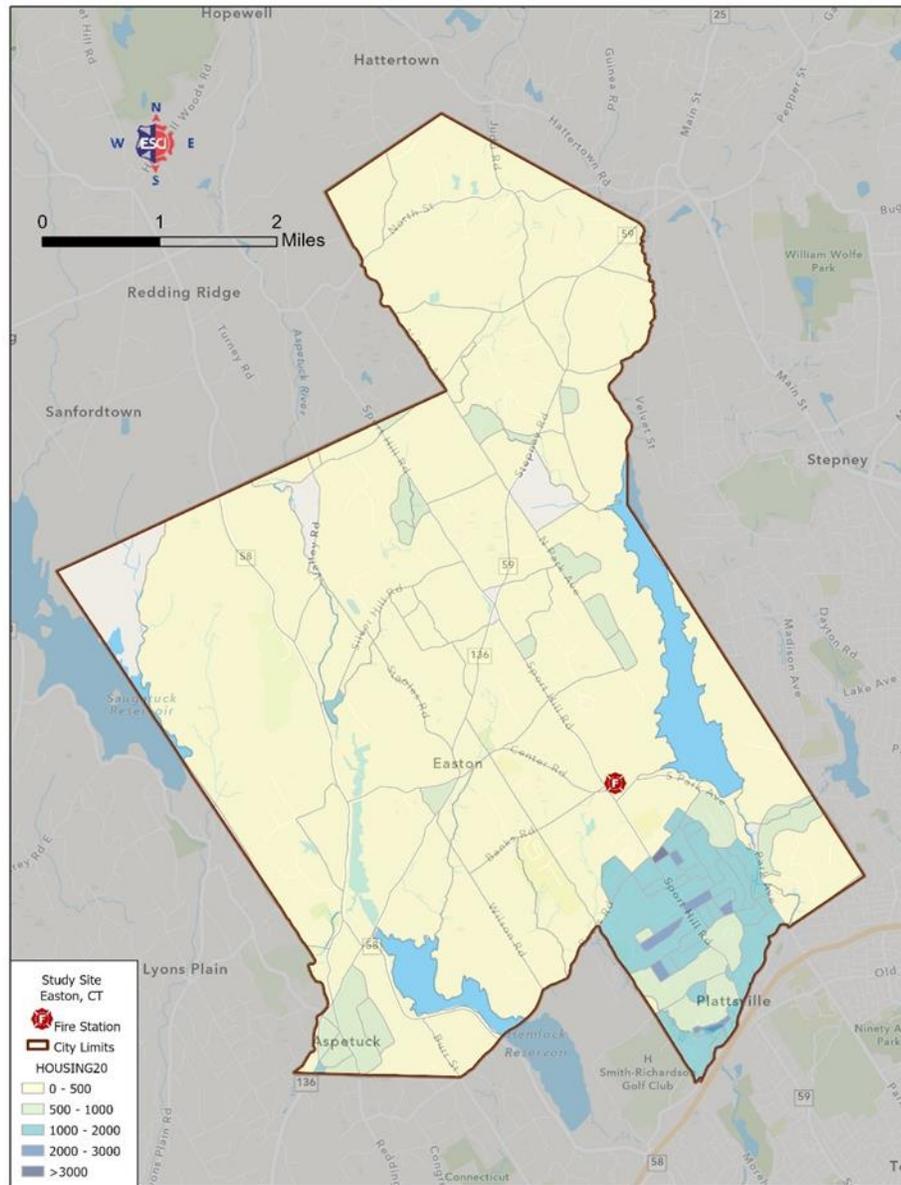
ESCI uses geographical information system (GIS) software to plot incidents and then calculate the mathematical density of incidents (incidents per square mile) within the service area. This is then graphicly shown as a heat map where hotter colors indicate areas of greater density and lighter colors indicate areas of lesser density. As illustrated in the following figure, the greatest density of calls for service occurs around the fire station and southeast of that location, coinciding with the areas of greater population. There is also a pocket of greater density slightly northwest of the fire station.

Figure 46: Incident Density (All Incidents) 2017-2021
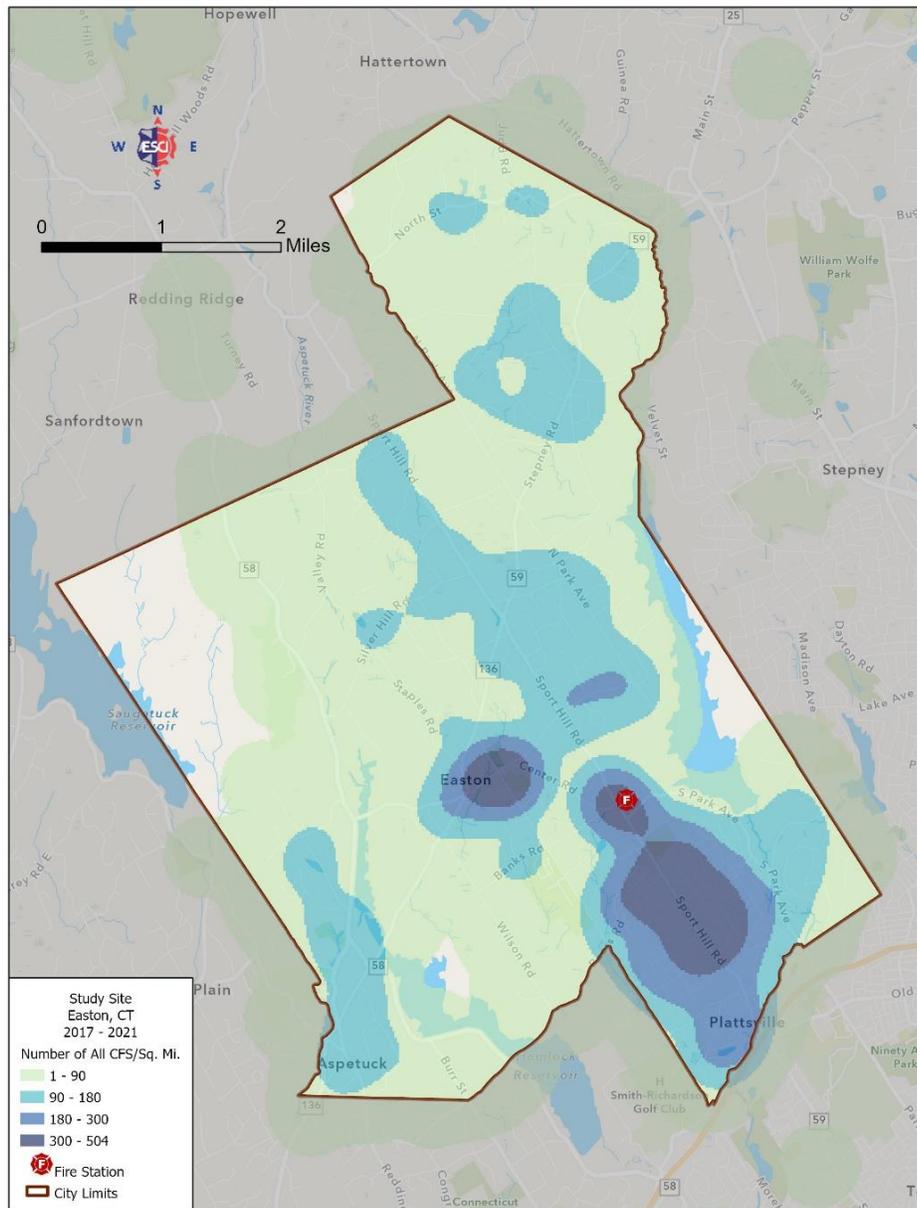
Due to the resources required to handle response to fire incidents, there is value in viewing incident density for only those calls for service that were coded as fire incidents. While the following figure shows areas of great density throughout the community, the number of fire incidents overall is low and results in this distribution. As illustrated, there is a pocket southwest of the fire station, coinciding with the greater population density. There are also pockets of greater density northwest of the fire station and in the northern area of the service area.

Figure 47: Incident Density (Fire Incidents) 2017-2021
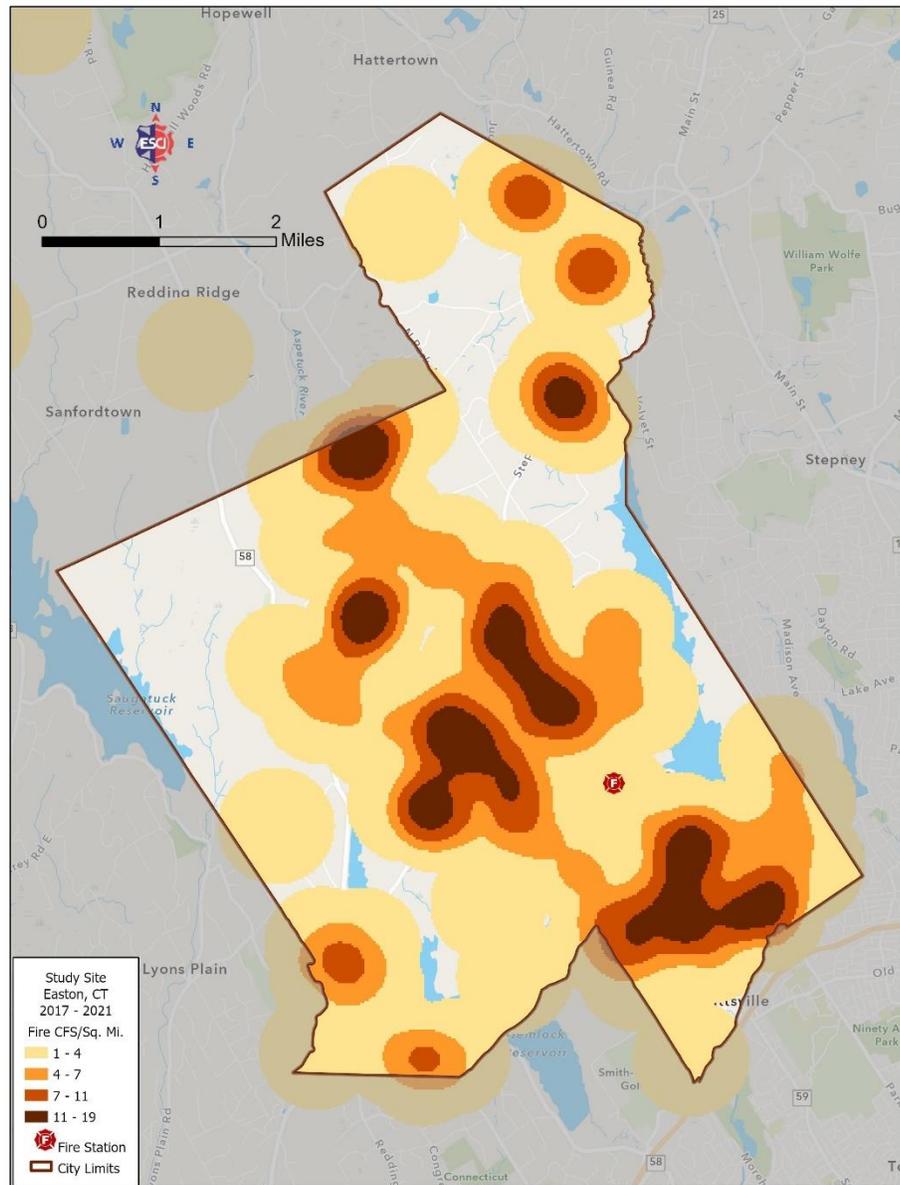
Emergency medical service incidents comprise a larger portion of overall incident data. As illustrated in the following figure, the density of EMS incidents follows a pattern like that of all incidents, with the greatest incident density in the same area as the greatest population density.

Figure 48: Incident Density (EMS Incidents) 2017-2021
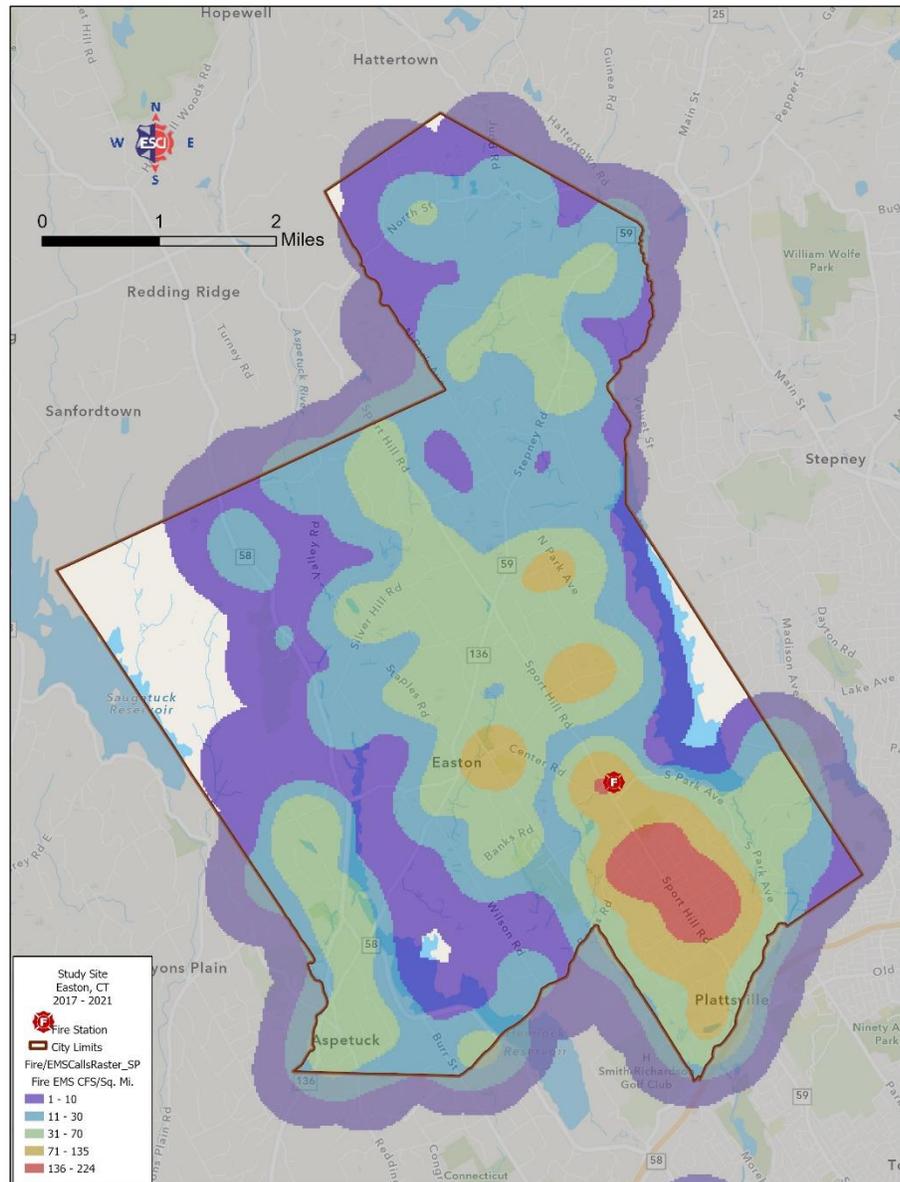
Resource Distribution

Within the category of resource distribution, there are two different methods of analysis. Both have value in the planning process and leadership should consider along with other factors to determine the best balance of resource distribution versus cost of providing those resources. Leadership should work closely with elected officials in the planning process to achieve that balance.

NFPA 1710/1720 Criteria

The National Fire Protection Association (NFPA) is an industry trade association that develops and provides standards and codes for fire departments and emergency medical services for use by local governments. EFD is a volunteer organization and thus falls under 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*. However, there is also value in comparing the organization to the requirements found in 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*. Throughout the following analyses, both standards will be illustrated, where appropriate, but NFPA 1720 is the prevailing standard for EFD to consider.

NFPA 1720 provides a guideline that volunteer fire departments achieve adequate staffing within a response time as illustrated in the following figure. Response time is a measure of time between units being dispatched and their arrival at the incident.

Figure 49: NFPA 1720 Response Time

Demand Zone	Demographics	Staff	Response Time	Percentile
Urban	>1,000 people/mi^2	15 firefighters	9 minutes	90%
Suburban	500-1,000 people/mi^2	10 firefighters	10 minutes	80%
Rural	<500 people/mi^2	6 firefighters	14 minutes	80%

With consideration of a turnout time of 60 seconds or less, that leaves an expected travel time of 8 minutes in urban areas, 9 minutes in suburban areas and 13 minutes in rural areas. As illustrated in the following figure, 90% of the service area is within an 8-minute travel time, covering the majority of the urban census blocks. 95.3% of the service area is within a 9-minute travel time, covering all the suburban census blocks. And 99.7% of the service area is within a 13-minute travel time, covering the vast majority of the rural census blocks.

Figure 50: Predicted 8, 9 and 13-Minute Travel Times, NFPA 1720
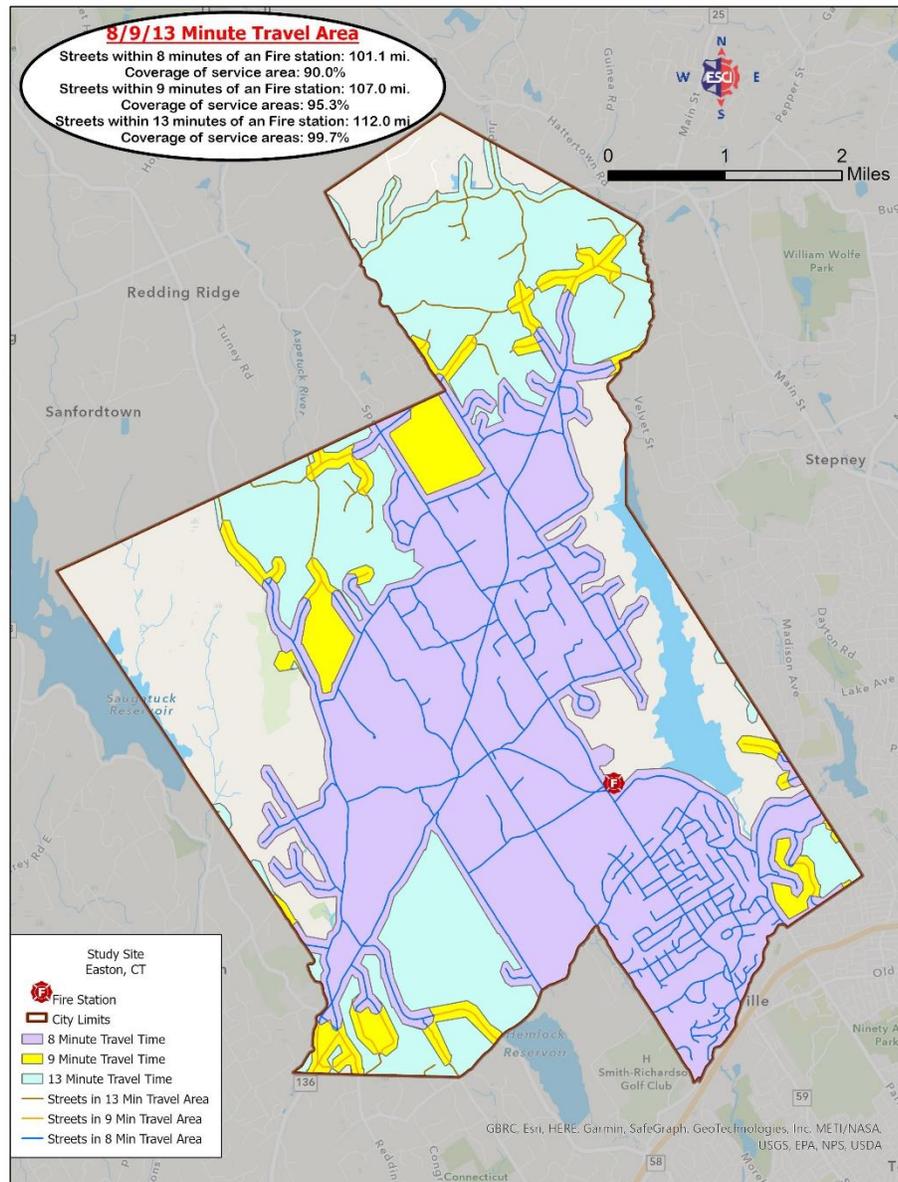
While the preceding figure illustrates travel time, the actual standard is based on response time—from dispatch until arrival. As illustrated in the following figure, EFD had a response time of less than 9 minutes to 85.25% of incidents, 9–10 minutes to 5.16% of incidents, 10–14 minutes to 7.62% of incidents, and greater than 14 minutes to 1.96% of incidents.

Figure 51: Actual 8, 9 and 13-Minute Response Times, NFPA 1720
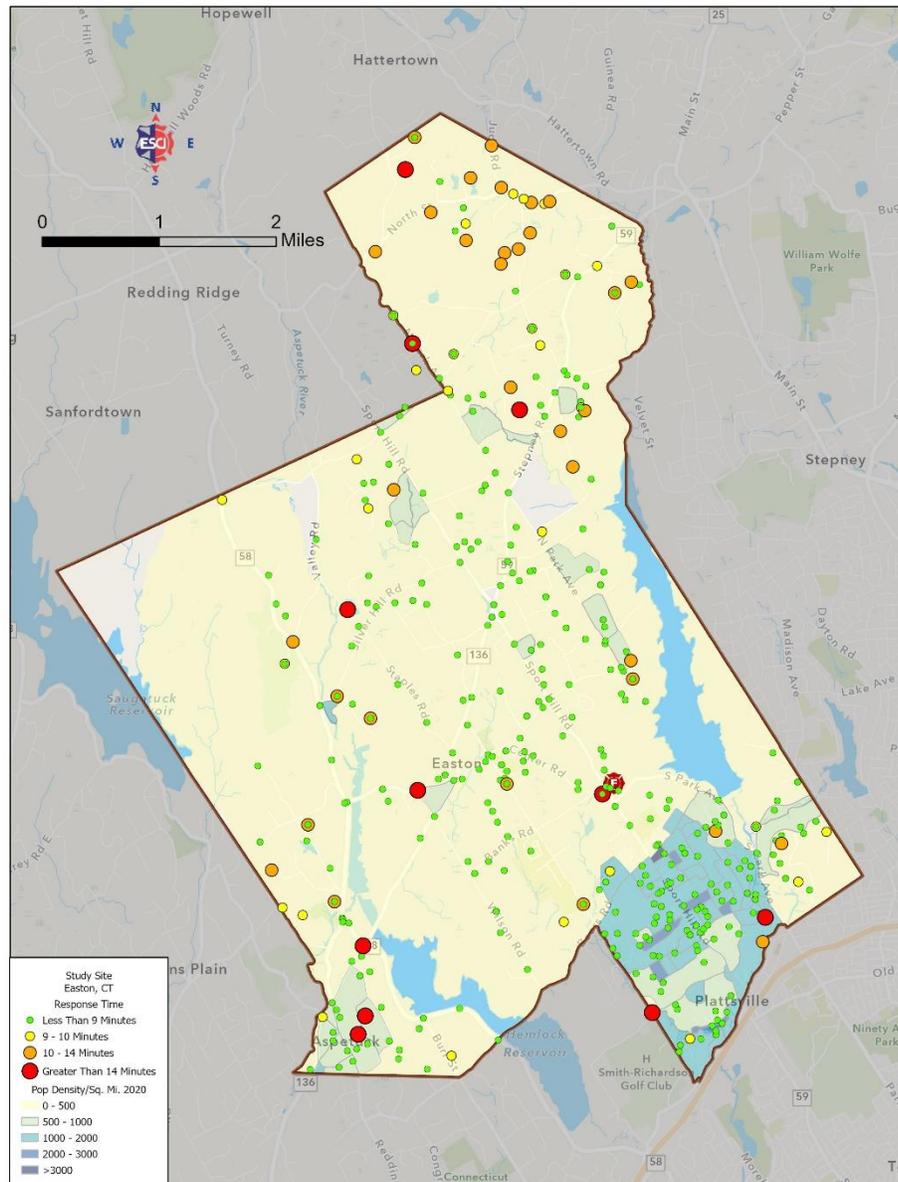
For career departments, NFPA 1710 provides guidance that the first unit should arrive within a 4-minute travel time and the full assignment should arrive within an 8-minute travel time. While Easton FD is not a career department, travel times are a good benchmark to know when fire stations may be too far from areas that have high call volumes.

Predicted travel time is calculated using the posted speed limit and adjusted for turns, intersections, one-way streets, etc. However, the prediction is not able to account fully for impacts from weather, construction, traffic, etc. As illustrated in the following figure, 25.8% of the service area is within the 4-minute travel time and 79.2% is within the 8-minute travel time.

Figure 52: Predicted 4 and 8-Minute Travel Times, NFPA 1710
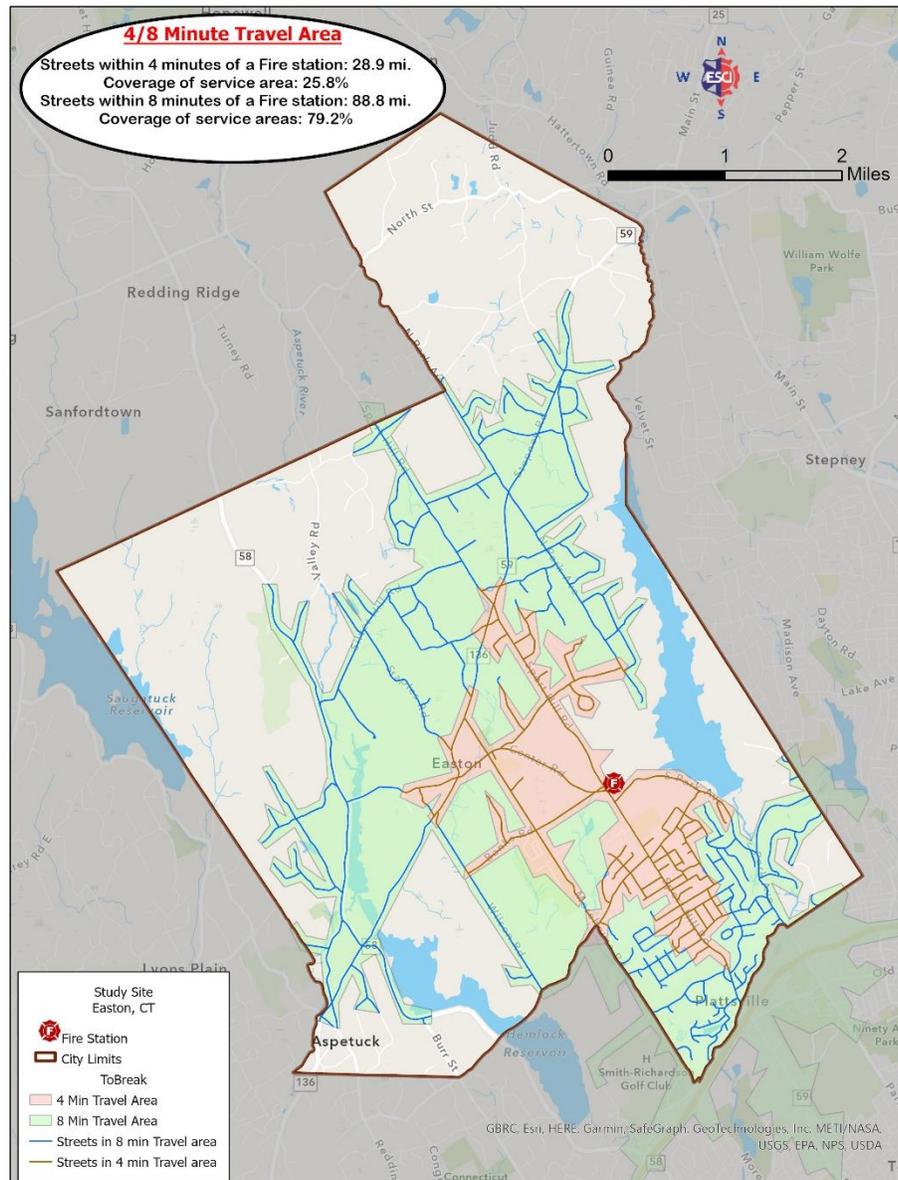
The preceding figure assumes all units are in station at the time of dispatch and bases the travel time on that assumption. There is also value in understanding the actual travel time to real incidents within the service area. As illustrated in the following figure, travel time was less than 4 minutes to 16.7% of incidents, 4–8 minutes to 52.2% of incidents, 8–12 minutes to 26.8% of incidents and greater than 12 minutes to 4.1% of incidents.

Figure 53: EFD Actual Travel Time, 2021
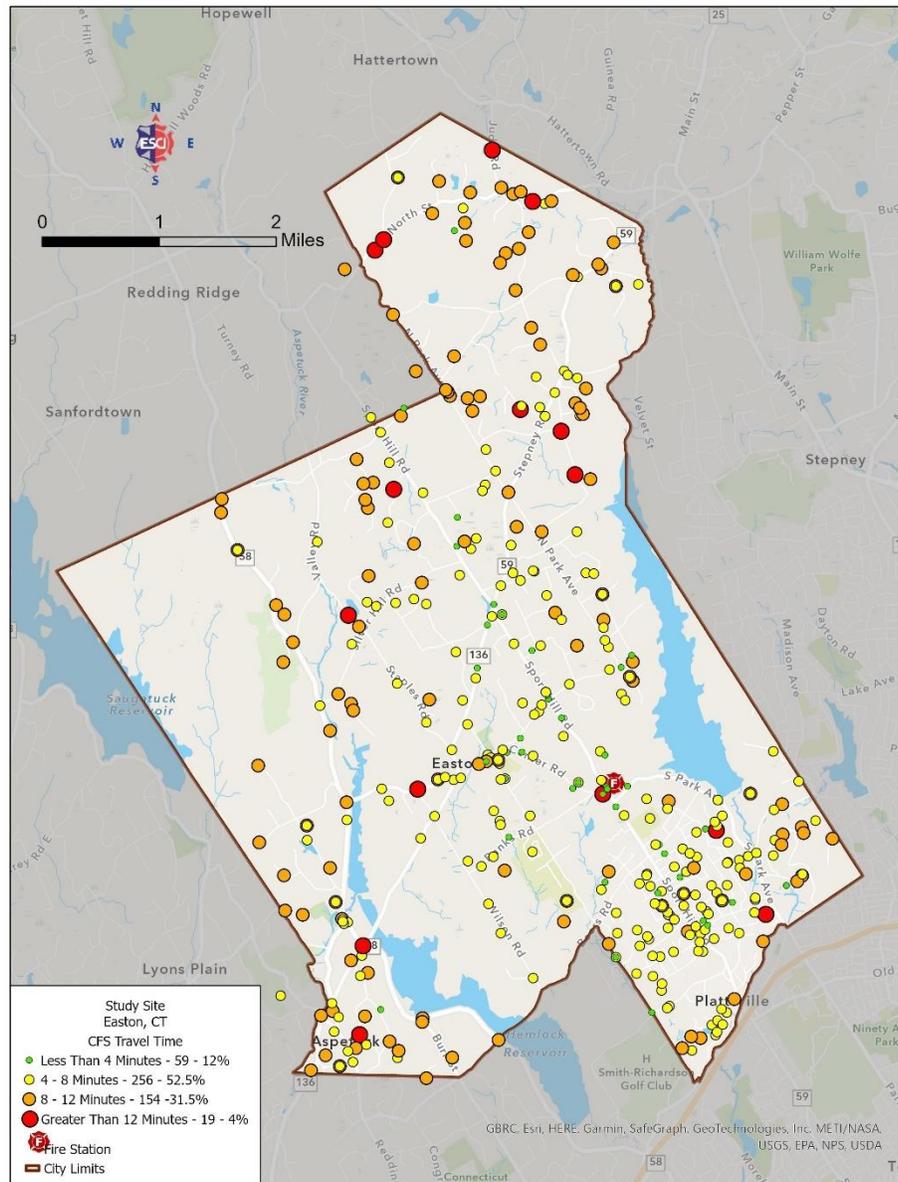
ISO Distribution

The Insurance Services Office (ISO) is a national insurance industry organization that evaluates fire protection for communities across the country. ISO assesses all areas of fire protection as broken down into four major categories: emergency communications, fire department, water supply, and community risk reduction. Following an on-site evaluation, an ISO rating, or specifically, a Public Protection Classification (PPC®) number is assigned to the community ranging from 1 (best protection) to 10 (no protection). The PPC® score is developed using the Fire Suppression Rating Schedule (FSRS), which outlines sub-categories of each of the major four, detailing the specific requirements for each area of evaluation.

A community's ISO rating is a principal factor when considering fire station and apparatus concentration, distribution, and deployment due to its effect on the cost of fire insurance for the residents and businesses. To receive maximum credit for station and apparatus distribution, ISO evaluates the percentage of the community (contiguously built upon area) that is within specific distances of fire stations, central water supply access (fire hydrants), engine/pumper companies and aerial/ladder apparatus.

Engine Company Performance

A key area of credit that applies towards a jurisdiction's PPC$^®$ score is the overall number of structures protected by a fire department that are located within 1.5 road miles of the closest fire station. This 1.5 road-mile standard is used to estimate a 4-minute travel time for first responding units as required by NFPA 1710. As illustrated in the following figure, 8% of the service area is within the 1.5-mile travel distance.

Figure 54: ISO 1.5-Mile Engine Company Service Areas
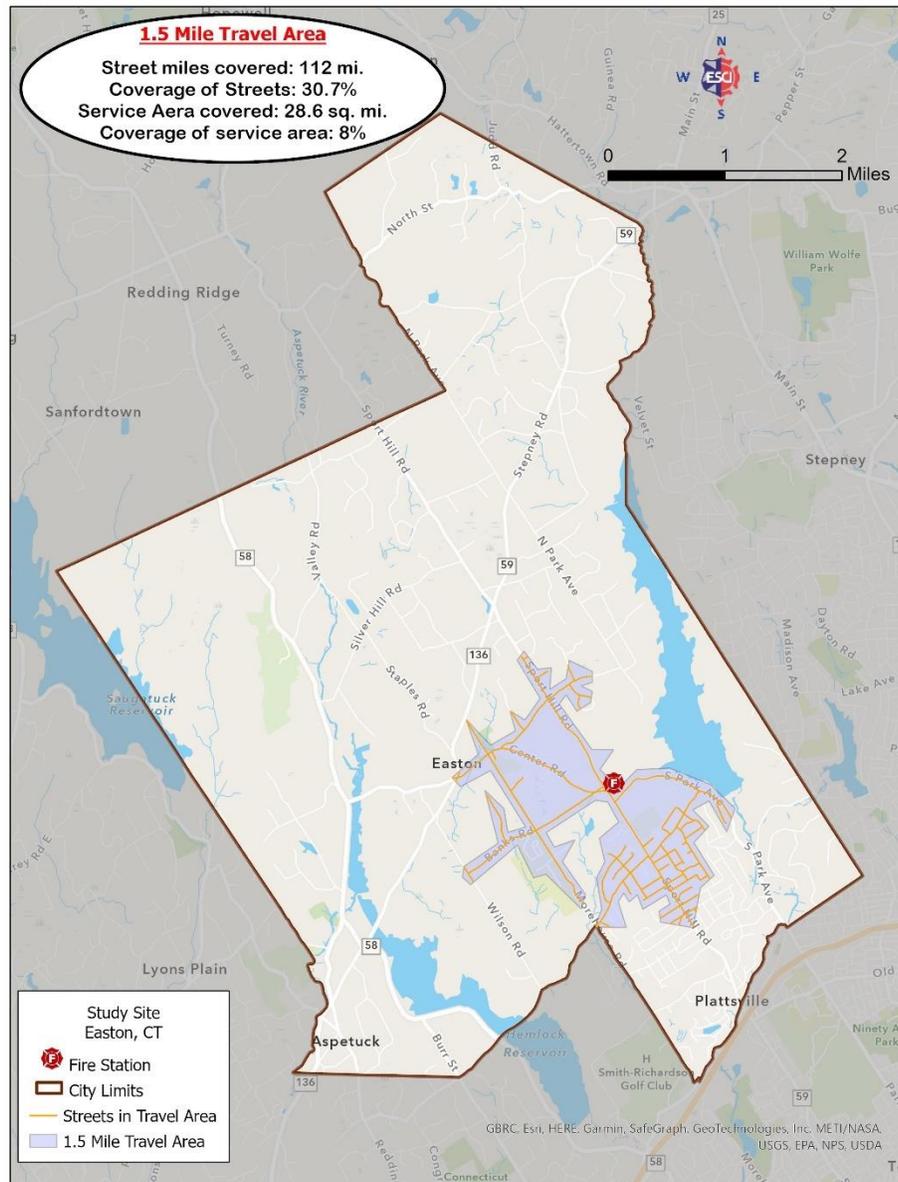
ISO Fire Station Coverage

To receive a PPC® rating that recognizes fire coverage is available, structures must be located within five road miles of a fire station. Areas outside of five road miles are subject to receiving a PPC® rating of 10 (no fire department protection available). As illustrated in the following figure, 58.4% of the service area is within a 5-mile travel distance of a fire station.

Figure 55: ISO 5-Mile Service Area

5 Mile Travel Area

Street miles covered: 112 mi.
Coverage of Streets.94.4%
Service Aera covered: 28.6 sq. mi.
Coverage of service area: 58.4%

Study Site
Easton, CT
● Fire Station
☐ City Limits
— Streets in Travel Area
☐ 5 Mile Travel Area
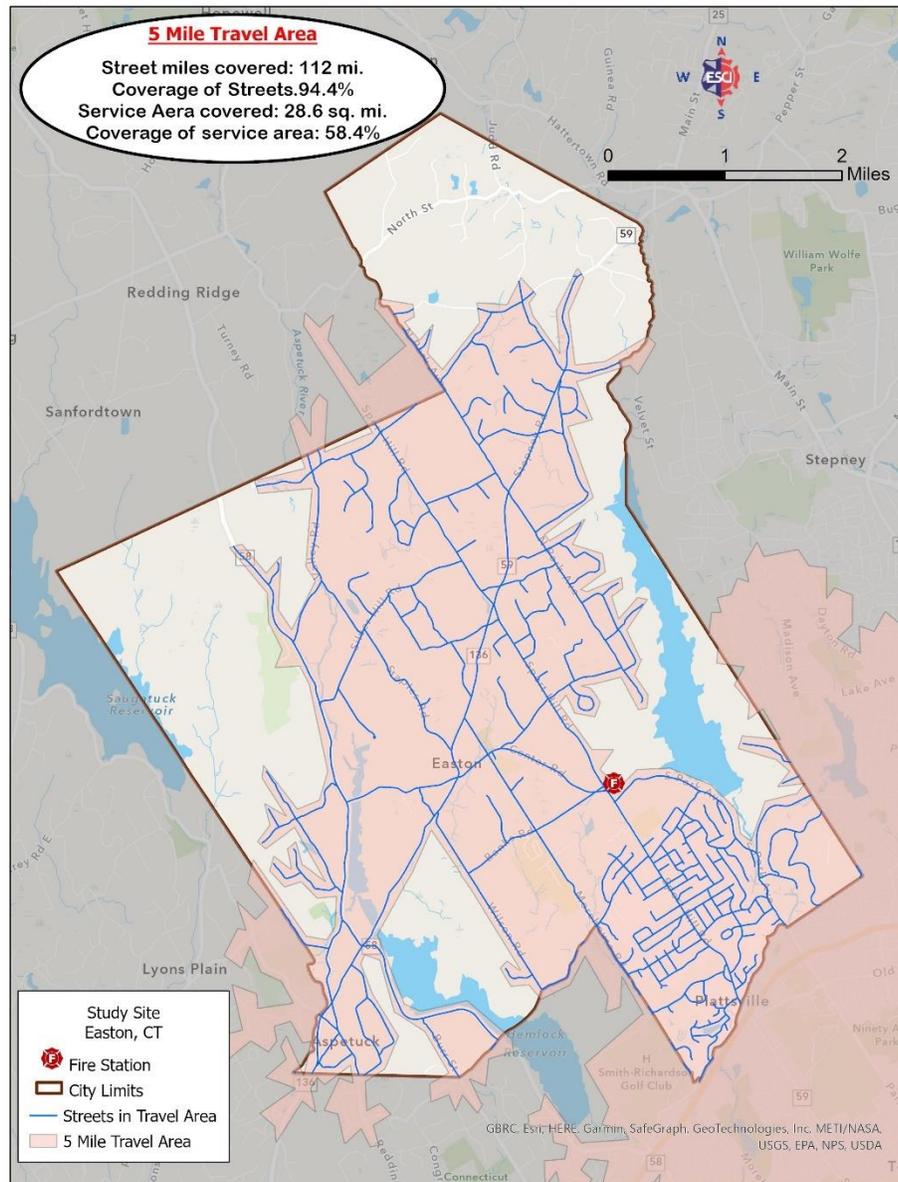
Water Supply and Hydrant Locations

ISO evaluates a community's availability of a sufficient water supply, which is critical for the extinguishment of fires. Included in this evaluation is the geographic location and distribution of fire hydrants. Structures outside a 1,000-foot radius of a fire hydrant are subject to a lower Public Protection Classification® rating than areas with adequate hydrant coverage, thus signifying limited fire protection. Exceptions are made when a fire department can show that either a dry hydrant or a suitable water tanker operation is possible to provide the needed volume of water for fire suppression activities for a specific period. ESCI was not provided with hydrant location data and thus was unable to evaluate this measure for EFD.

Resource Concentration

However, for volunteer agencies such as EFD, NFPA 1720 recommends the staffing based on the following figure which is based on population density. Easton would fit completely within the Rural demand zone.

Figure 56: NFPA 1720 Response Time

Demand Zone	Demographics	Staff	Response Time	Percentile
Urban	>1,000 people/mi^2	15 firefighters	9 minutes	90%
Suburban	500-1,000 people/mi^2	10 firefighters	10 minutes	80%
Rural	<500 people/mi^2	6 firefighters	14 minutes	80%

Resource Reliability

Within the category of resource reliability, there are two additional factors that may impact the ability for EFD to respond quickly to all incidents—incident concurrency and workload.

Incident Concurrency

Each of the preceding analysis provided a view of response based on a single incident occurring at a given time and all resources available at station. However, there are times that more than one incident occurs simultaneously. This is referred to as incident concurrency. As the number of concurrent incidents increases, the availability of resources to respond to additional incidents decreases.

ESCI evaluated incident concurrency, which is defined as two or more incidents occurring during the same time frame, which places increased demand on response resources. A summary of concurrent calls, including the number of concurrent calls at any given time, is listed in the following figure. As illustrated in the following figure, incidents occur as a single incident 95.5% of the time within the EFD service area, which is not a concerning level.

Figure 57: Incident Concurrency, 2017–2021

Concurrent Incidents in Progress	2017	2018	2019	2020	2021	Change Over Study Period
Single Incident	96.44%	93.80%	96.23%	94.79%	95.50%	-0.94%
Two Incidents	3.56%	5.16%	3.58%	5.03%	4.50%	0.94%
Three or More Incidents	0.00%	1.03%	0.19%	0.19%	0.00%	0.00%

Response Performance

For the citizens and visitors of Easton, Connecticut, the most important aspect of the fire department is the speed at which units arrive at the scene of their incident, a measure of time between the 911 call and arrival of the first unit—also known as the response time continuum.

The *response time continuum*—the time between when the caller dials 911 and when assistance arrives—is comprised of several components:

- *Alarm Handling Time*—The time between a dispatcher getting the call and the resources being dispatched.
- *Turnout Time*—The time between unit notification of the incident and when they are responding.
- *Travel Time*—The time the responding unit spends on the road to the incident
- *Response Time*—A combination of turnout time and travel time, the most commonly used measure of fire department response performance.
- *Total Response Time*—The time from when the 911 call is answered until the dispatched unit arrives on the scene.

Figure 58: Response Time Components

In analyzing response performance, ESCI generates percentile measurements of response time performance. The use of percentile measurement using the components of response time follows the recommendations of industry best practices. The best practices are derived by the Center for Public Safety Excellence (CPSE), Standard of Cover document and the National Fire Protection Association (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*.

The "average" measure is a commonly used descriptive statistic also called the mean of a data set. 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 outliers, especially in small data sets. One extremely good or bad value can skew the average for the entire data set.

The "median" measure is another acceptable method of analyzing performance. This method identifies the value at the middle of a data set and thus tends to not be as strongly influenced by data outliers.

Percentile measurements are a better measure of performance because they show that most 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 are at or below this level. This can be compared to the desired performance objective to determine the degree of success in achieving the goal.

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 fractal percentile is calculated exists in a set of data unto itself.

Tracking the individual components of response time enables EFD to identify deficiencies and areas for improvement. In addition, knowledge of current performance for the components listed above; is an essential element of developing response goals and standards that are relevant and achievable. Fire service best practice documents recommend that fire jurisdictions monitor and report the components of total response time.

For accurate evaluation of time performance measures, the accepted standard is to only include those incidents to which units responded emergency (lights and sirens). In the dataset provided by EFD, this field was not documented, thus all incidents are included in the following analyses. ESCI recommends that EFD ensure personnel document response mode for all future incidents to provide the ability for accurate analysis of time measures.

Also, the documentation of seconds for all timestamps was not consistent within the dataset provided. This results in inaccuracy of time analyses as it can only identify down to the minute. ESCI recommends that EFD ensure personnel document each timestamp down to the seconds. If possible, EFD should implement an interface between the computer aid dispatch system and the records management system to automate the documentation of timestamps.

Call Processing Performance

Call processing time is a measure of time between the 911 call being received at the communications center and dispatch of the first unit to the incident. While this is not under direct control of the fire department, EFD leadership should work closely with communications center leadership to monitor performance and develop improvements. The following figure illustrates the pertinent standard for this measure.

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

In the dataset provided by EFD, the timestamp for 911 call and the timestamp for dispatch was the identical, resulting in a performance of zero. Thus, ESCI was not able to provide an accurate analysis of this performance measure.

Turnout Performance

Turnout time is a measure of time between dispatch and the unit beginning to respond to the incident. The following figure illustrates the pertinent standard for this measure—for staffed stations only.

Standard	Performance
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 recommends	Fire and Special Operations Incidents 80 seconds at the 90th percentile All Other Incidents 60 seconds at the 90th percentile

As with the issue identified with analysis of call processing time performance, the responding time documented in the EFD dataset was identical with the time of the 911 call and time of dispatch. Thus, ESCI was not able to provide an accurate analysis of this performance measure.

Travel Performance

Travel time is a measure of time between the unit responding and its arrival at the scene of the incident. Travel time is impacted by the physical distance between units and the incident, traffic, weather, etc. The following figure illustrates the pertinent standard for this measure—*for staffed stations only*.

Standard	Performance
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 recommends	First Unit 4 minutes at the 90th percentile Full Compliment 8 minutes at the 90th percentile

As illustrated in the following figure, EFD travel time performance is 10 minutes. When analyzed by NFIRS incident series, performance ranges from 9 minutes for motor vehicle collision incidents to 11 minutes for alarm incidents, service call incidents and hazardous condition incidents.

Figure 59: Travel at the 90th Percentile, 2017–2021
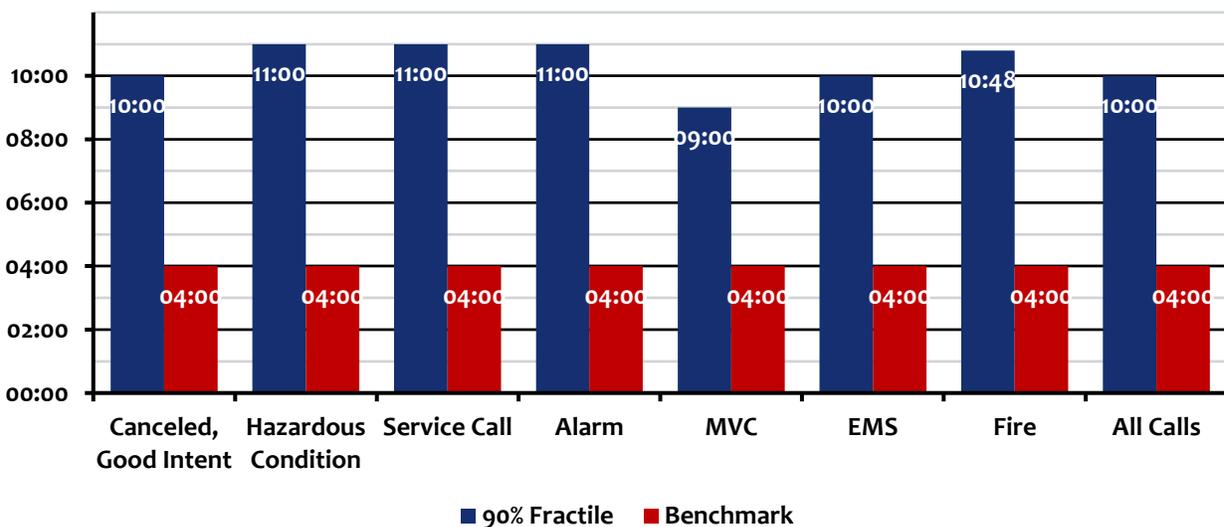
Response Time Performance

Response time performance is a measure of time between dispatch of the unit and arrival at the scene of the incident. The following figure illustrates the pertinent standard that applies to EFD, as a volunteer fire department.

Figure 60: NFPA 1720 Response Time

Demand Zone	Demographics	Staff	Response Time	Percentile
Urban	>1,000 people/mi^2	15 firefighters	9 minutes	90%
Suburban	500-1,000 people/mi^2	10 firefighters	10 minutes	80%
Rural	<500 people/mi^2	6 firefighters	14 minutes	80%

With consideration of the previously identified issues with timestamps, ESCI is not able to identify whether the travel time or response time measure is the correct performance. However, it is appropriate to illustrate the comparison. If the dataset correctly captures the time from dispatch until arrival—response time—then EFD response time performance is well below the expected performance for rural and suburban population densities, as illustrated in the following figure.

Figure 61: Response Time at the 80th Percentile, 2017–2021
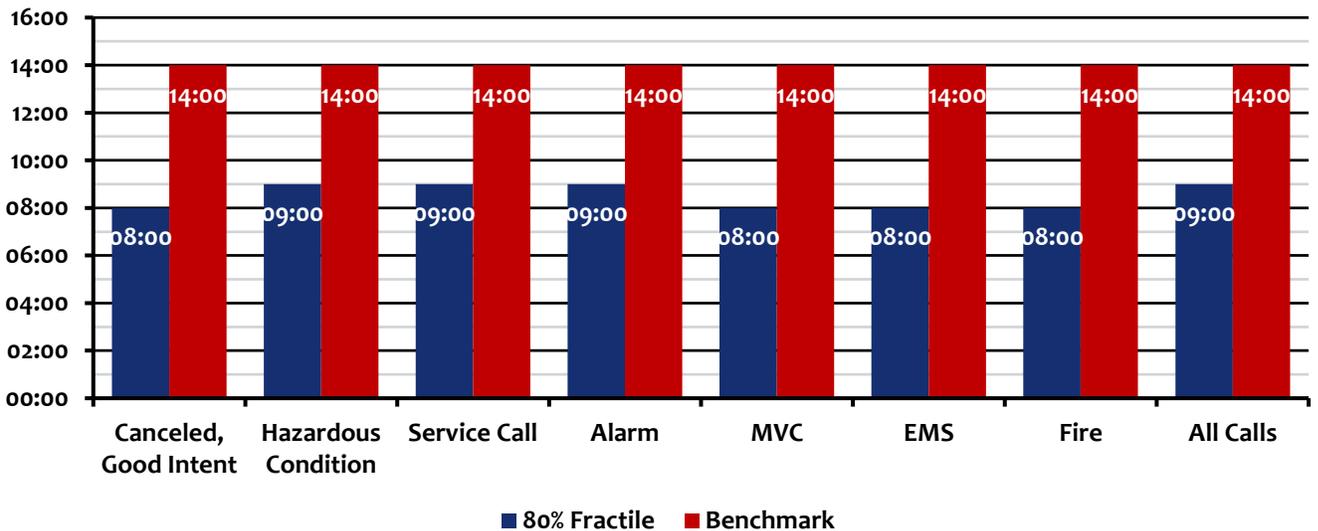
For purposes of comparison, the following figure illustrates a comparative performance benchmark that is achieved by combining the individual components that would apply to career and combination fire departments.

Figure 62: Comparative Performance Benchmarks

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

With consideration of the previously identified issues with timestamps, ESCI is not able to identify whether the travel time or response time measure is the correct performance. However, it is appropriate to illustrate the comparison. If the dataset correctly captures the time from dispatch until arrival—response time—then EFD response time performance is well above the NFPA 1710 standard—which does not apply to EFD.

Figure 63: Response Time at the 90th Percentile, 2017–2021
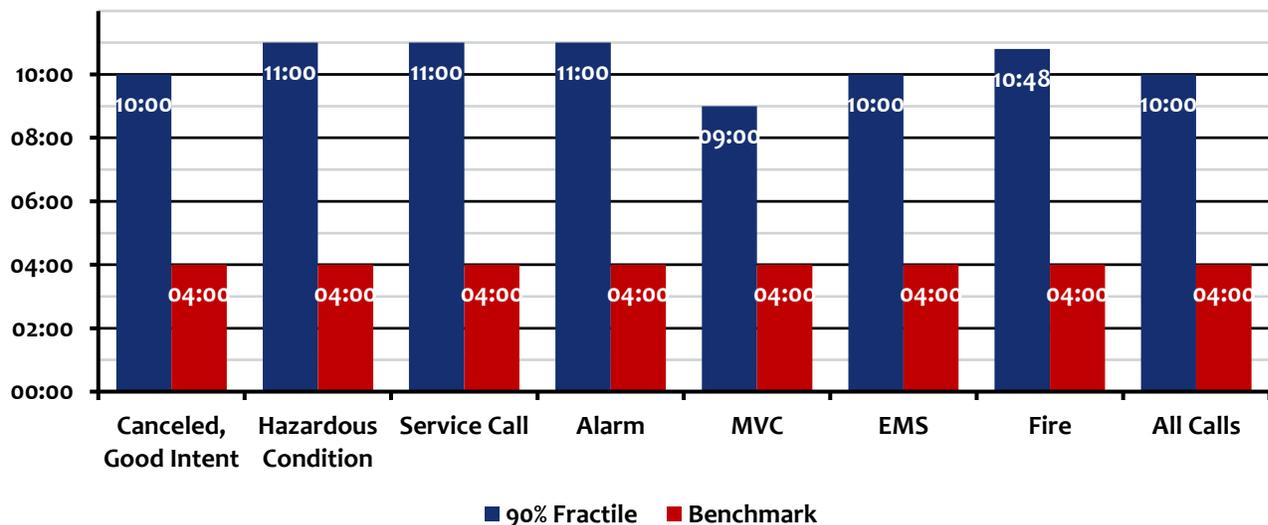
Total Response Time Performance

Total response time performance is a measure of time between 911 call and arrival at the scene of the incident. The following figure illustrates the pertinent standard that applies to EFD—as a volunteer fire department—by combining the time measures from NFPA 1225 and NFPA 1720.

Figure 64: Response Time Performance Standards

Demand Zone	Demographics	Staff	Response Time	Call Processing	Performance
Urban	>1,000 people/mi^2	15 firefighters	9 minutes 90%	1 minute 90%	10 minutes
Suburban	500-1,000 people/mi^2	10 firefighters	10 minutes 80%	1 minute 90%	11 minutes
Rural	<500 people/mi^2	6 firefighters	14 minutes 80%	1 minute 90%	15 minutes

For purposes of comparison, the following figure illustrates a comparative performance benchmark that is achieved by combining the individual components that would apply to career and combination fire departments.

Standard	Performance
Call Processing Time	60 seconds at the 90th percentile
Turnout Time	Fire and Special Operations Incidents 80 seconds at the 90th percentile All Other Incidents 60 seconds at the 90th percentile
Travel Time	4 minutes at the 90th percentile
Combined	Fire and Special Operations Incidents 6 minutes, 20 seconds at the 90th percentile All Other Incidents 6 Minutes at the 90th percentile

As with the issue identified with analysis of call processing time performance, the responding time documented in the EFD dataset was identical with the time of the 911 call and time of dispatch. Thus, ESCI was not able to provide an accurate analysis of this performance measure.

Mutual & Automatic Aid Systems

Few, if any, fire departments have all the resources needed to mitigate all possible types of incidents. Additionally, when mutually beneficial agreements are possible, particularly when they occur at little cost to the organizations, good governance suggests that these opportunities should be seized to provide higher service levels to the communities involved.

Two types of agreements are discussed in this section, mutual aid agreements and automatic aid agreements. In mutual aid agreements, two or more organizations agree that, when requested, they will supply the other agency with the requested resources if available. For emergency services, this request typically occurs through the request on responding or on-scene personnel.

The other type of agreement, automatic aid, occurs as the name implies, automatically. When the dispatch center receives an emergency call, all available resources are examined based on the appropriate unit type and their proximity to the call, typically with the closest unit responding regardless of the jurisdiction in which the incident occurred. The following figure presents the locations of fire stations surrounding Easton.

Figure 65: Mutual Aid Stations
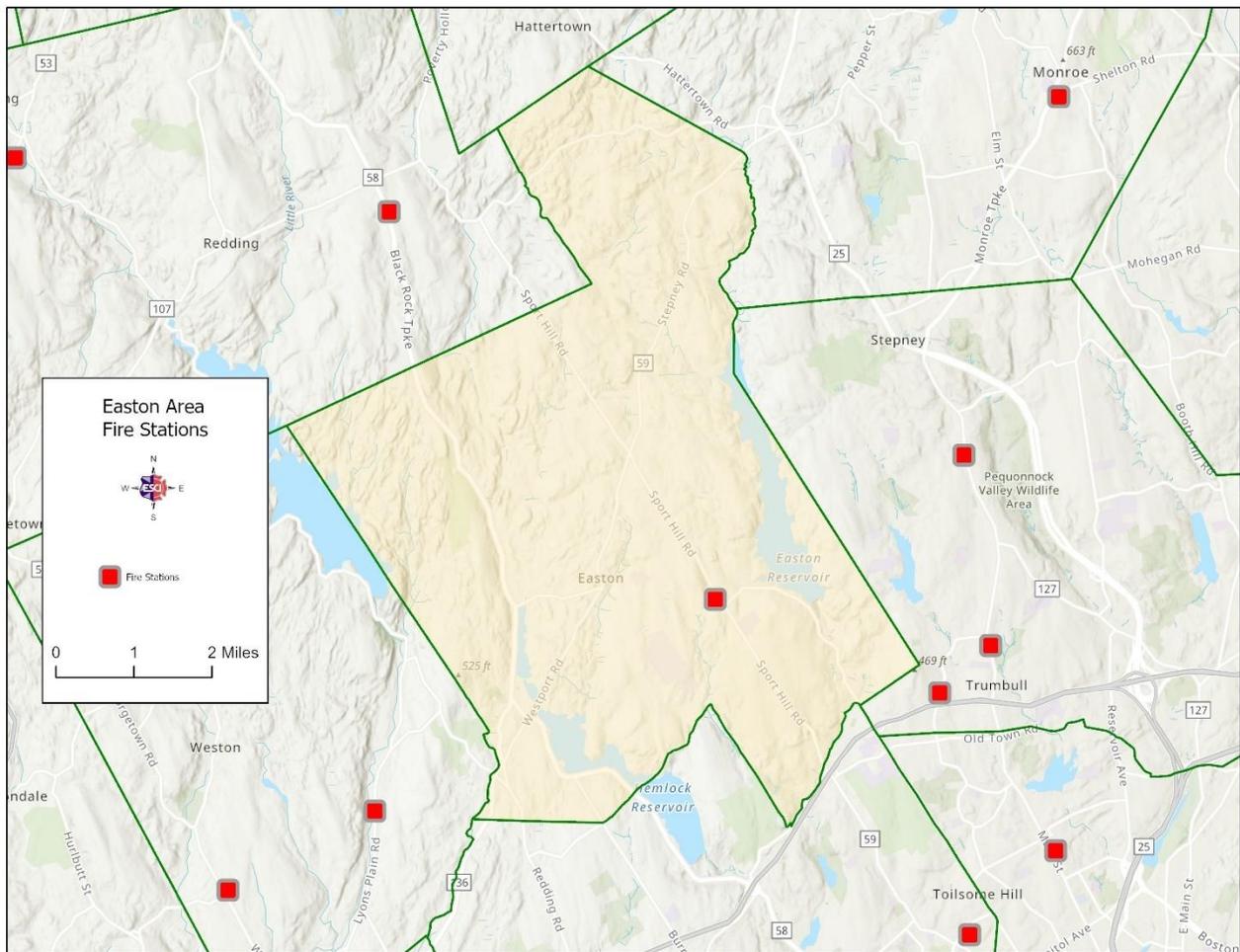
ISO recognizes automatic aid agreements, and additional credit is awarded when automatic aid agreements are in place with organizations that can reach within the service area within an 8-minute travel time.

Easton Fire Department has arrangements with other fire departments to provide assistance through mutual when needed but no formal agreement exists. Easton does not use any automatic aid arrangements with neighboring fire departments on initial responses. ESCI recommends they create these agreements that would increase safety and effectiveness as well as potentially improve the ISO rating. To maintain community equity, the FD should expect that a reciprocal arrangement where Easton responds into neighboring jurisdictions on their initial alarms may be part of the agreement.

Recommendation #12: Easton FD consider automatic aid agreements with neighboring fire jurisdictions to increase initial response effectiveness and potentially help reduce the town's ISO rating.

SERVICE DELIVERY & PERFORMANCE – EASTON EMS

While Easton EMS is not a fire-based emergency medical services organization, some of the fire-based standards have value in identifying areas of improvement for EMS services. Through the long history of Easton EMS, leadership and members have always looked forward to the future and how they can best serve the community. In cooperation with this integral component of the organization, there is value in considering historical service demand and performance to enable Easton EMS leadership to plan for the future.

Service Demand Analysis

As an EMS agency, the measurement of service demand from the broad perspective is the progression of total incidents from year to year. As illustrated in the following figure, Easton EMS has experienced an increase of 42.9% in service demand from 2016 to 2021.

Figure 66: Easton EMS Service Demand, 2015–2021

	2015	2016	2017	2018	2019	2020	2021
■ Total	360	403	433	452	513	476	576
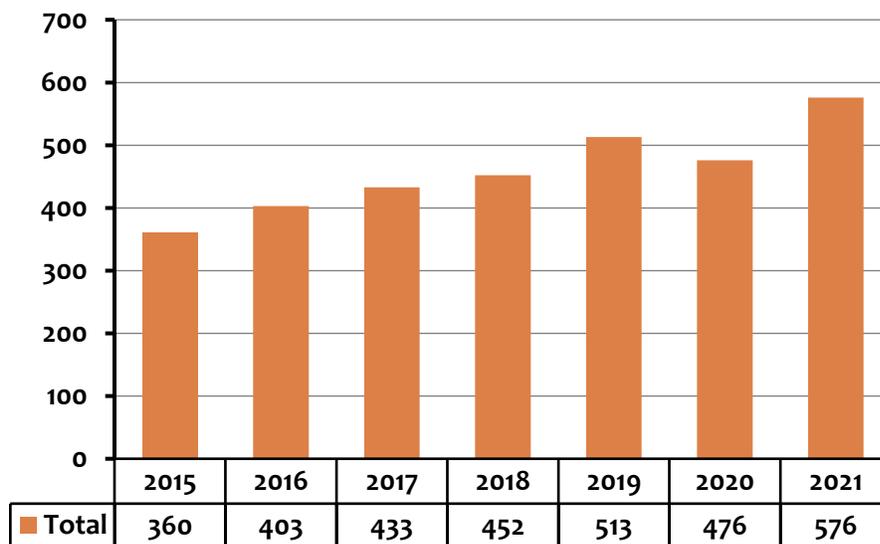
Easton EMS leadership is tasked with projecting future needs within the community and some of that will be based on future service demand. There are two methods of predicting future service demand—based on historical percentage of change or based on incidents per 1,000 population.

EMS Analysis

While the preceding analysis illustrates the service demand from the perspective of total incidents, emergency medical services incidents vary in several ways. These variations include disposition of the incident, type of medical issue encountered, age, gender, and transport trend. When analyzing

each category, only those incidents with data recorded for the category were included in the analysis.

When Easton EMS paramedics and emergency medical technicians make contact with the patient, they go through an assessment process that includes gathering information and performing a physical examination. Based on their findings, they reach a conclusion as to the main issue the patient is experiencing—referred to as a primary impression. The following figure illustrates the total number of patient encounters each year in which a primary impression was recorded.

Figure 67 Easton EMS Patient Encounters, 2015–2021

	2015	2016	2017	2018	2019	2020	2021
Total	378	495	407	445	516	503	619
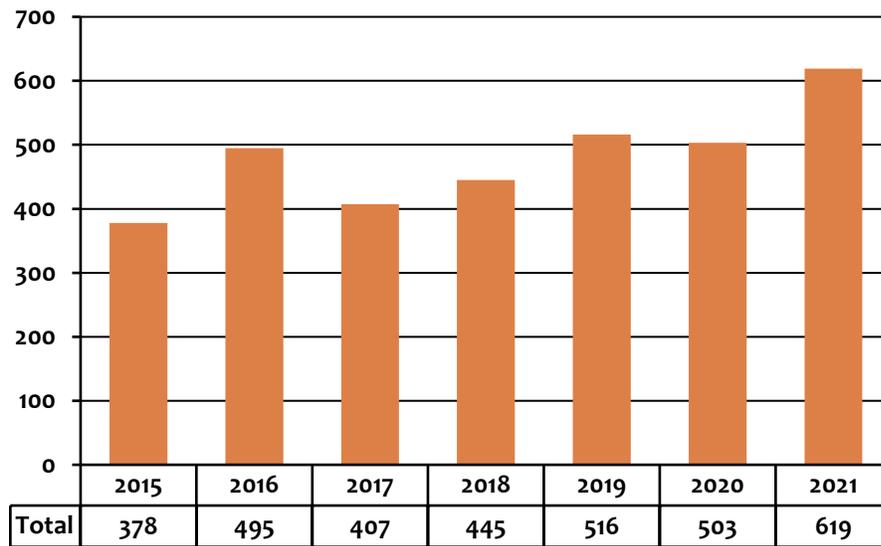
As illustrated in the following figure, trauma is the most common primary impression and deaths is the least common primary impression.

Figure 68: Easton EMS Primary Impression, 2015–2021
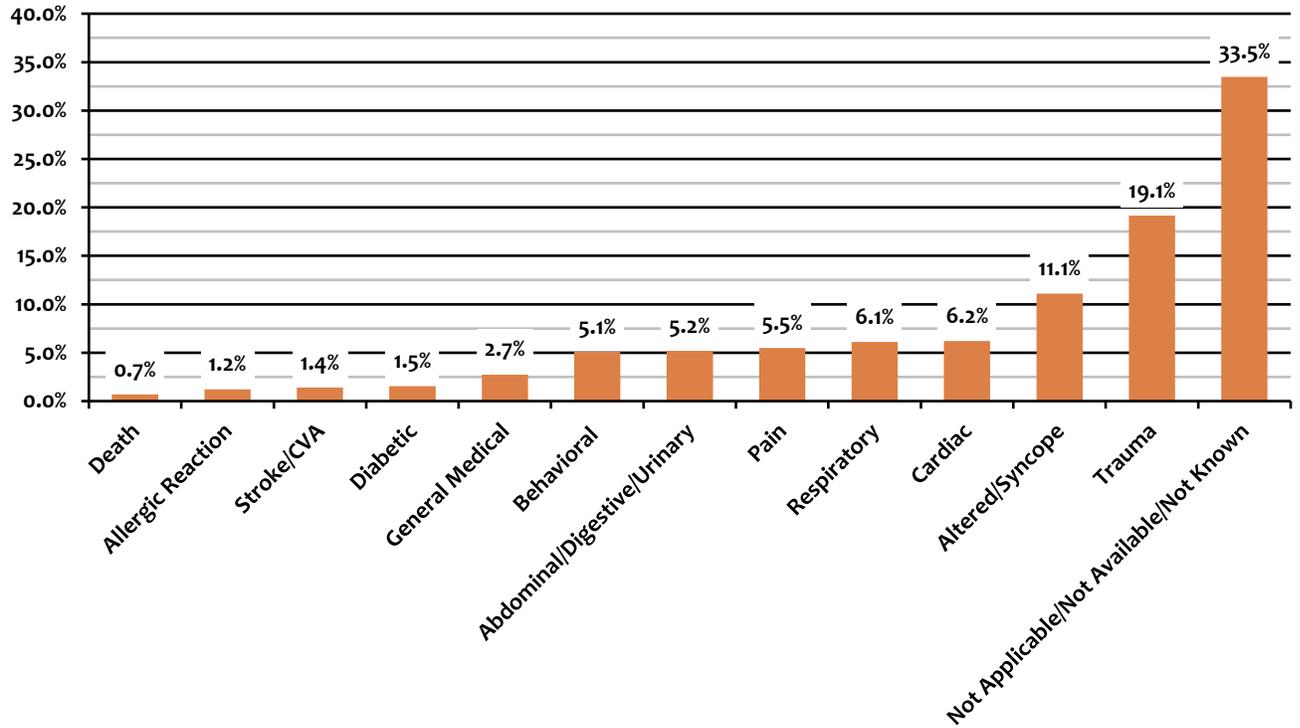
The greatest demand for service occurs in those patients aged eighty or greater, with 48.41% of patients aged sixty or greater, which only account for 30.68% of the population within the community. Within the community, those persons aged sixty or older has increased from the 22.9% of the population in 2015. With the trend of this age group increasing and being those that create the greatest demand for service, it is likely that they will continue to be the most frequent users of services by Easton EMS.

Children under the age of fifteen account for 7.77% of patients, accounting for 15.67% of the population. And the remaining 35.13% are aged 16–59, accounting for 53.65% of the population.

Figure 69: Easton EMS Patients by Age, 2015–2021
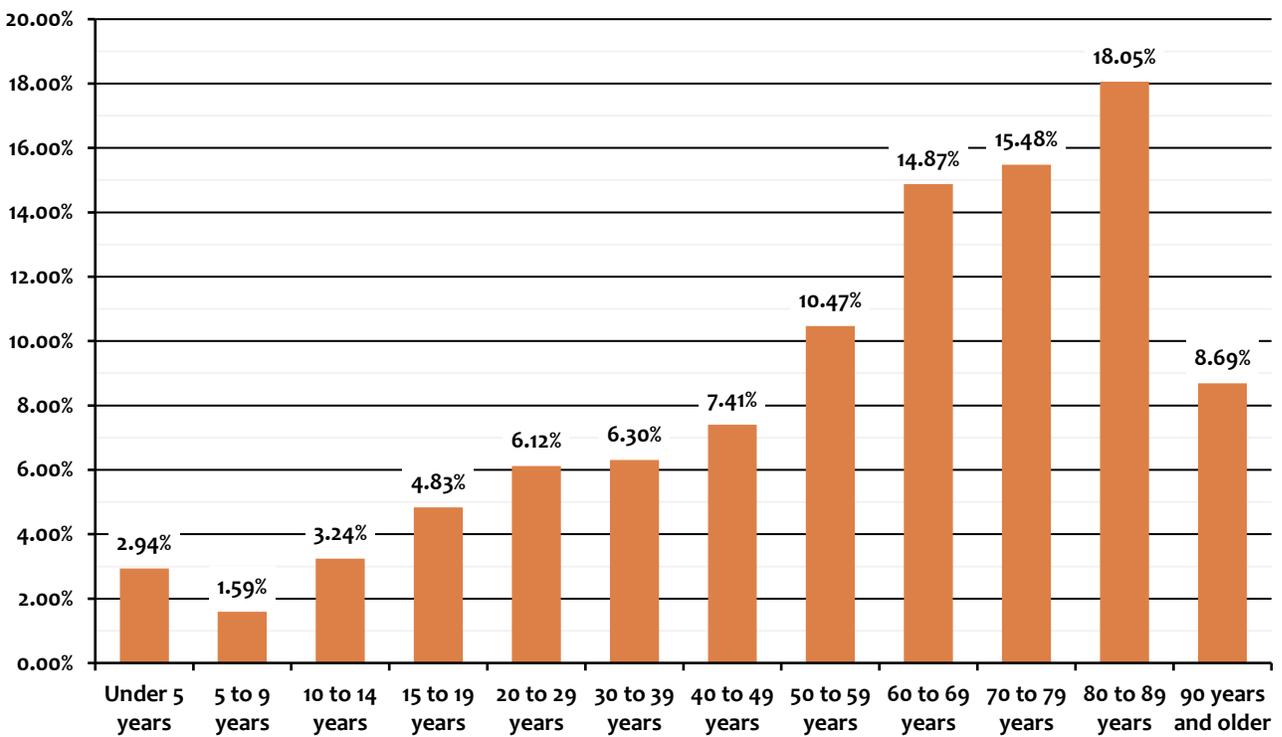
As illustrated in the following figure, a greater number of patient encounters are with female individuals versus male individuals. Within the community, females account for 50.57% of the population.

Figure 70: Easton EMS Patients by Gender, 2015–2021

Female
51.14%

Male
48.86%
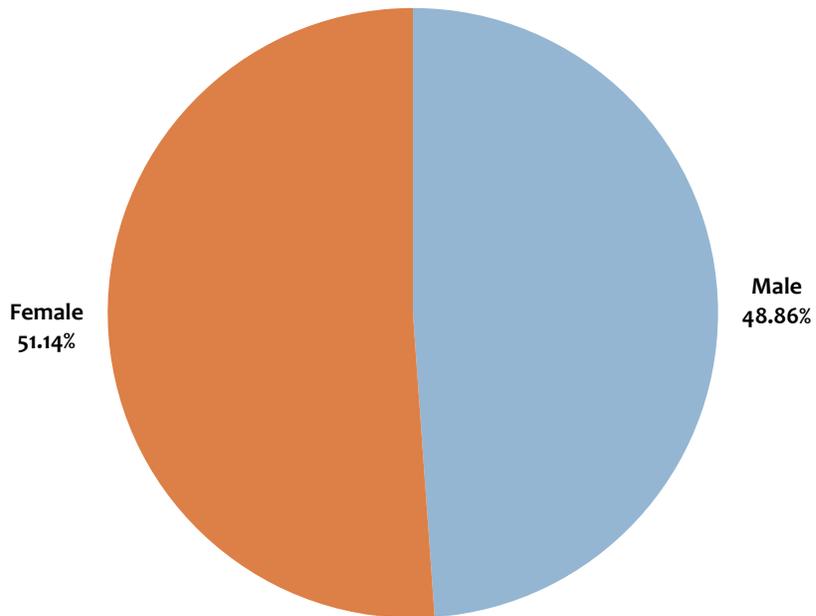
As illustrated in the following figure, the greatest number of patients were transported basic life support.

Figure 71: Easton EMS Incident Disposition, 2015–2021
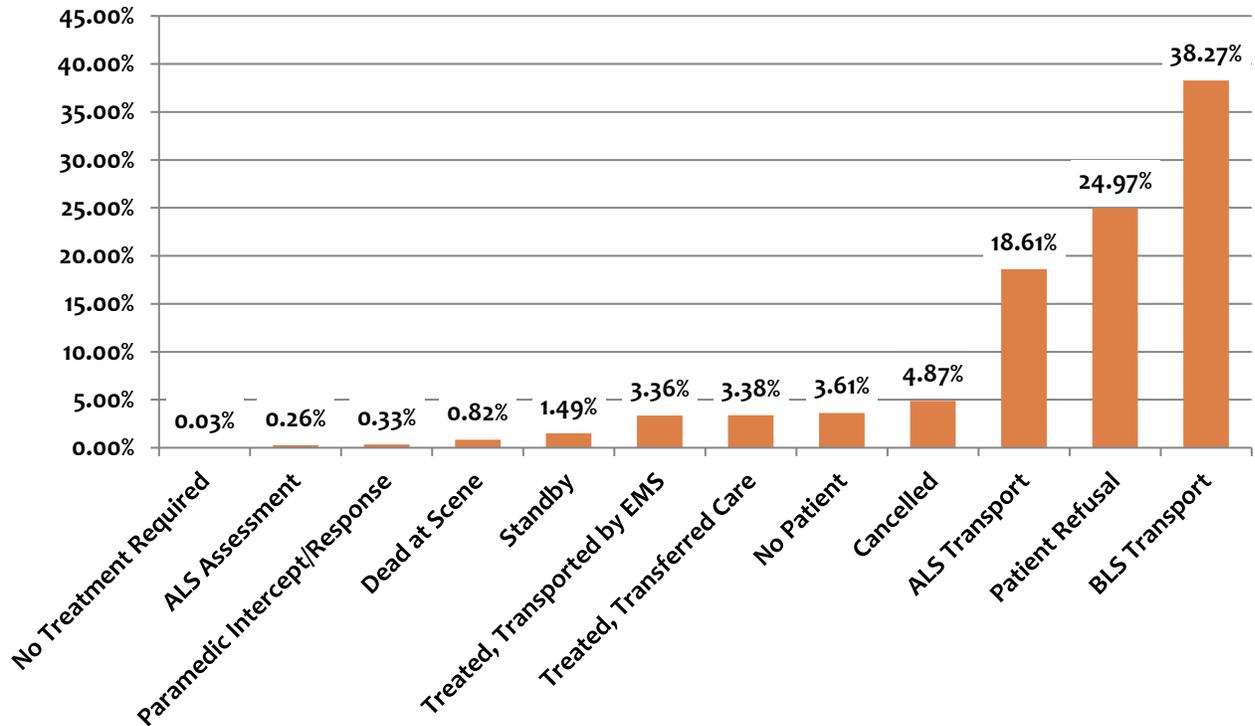
Temporal Variation

As was illustrated for Easton FD, there is also temporal variation in the service demand for Easton EMS. EMS leadership can gain value from this knowledge to plan for adequate staffing (career and volunteer), as well as other activities such as those below that are a part of the Easton EMS service to the community.

- Teaching cardiopulmonary resuscitation (CPR) courses
- Standby services
- Blood pressure screening
- Public education
-

The first analysis of temporal variation provides understanding of service demand based on the month in which it occurs. As illustrated in the following figure, the lowest demand for service occurs in September with a steady increase until November. There are spikes of service demand in December and January. Then demand drops in February, followed by a steady increase and spiking in July, the month with the greatest demand for service.

Figure 72: Service Demand by Month, 2015–2021
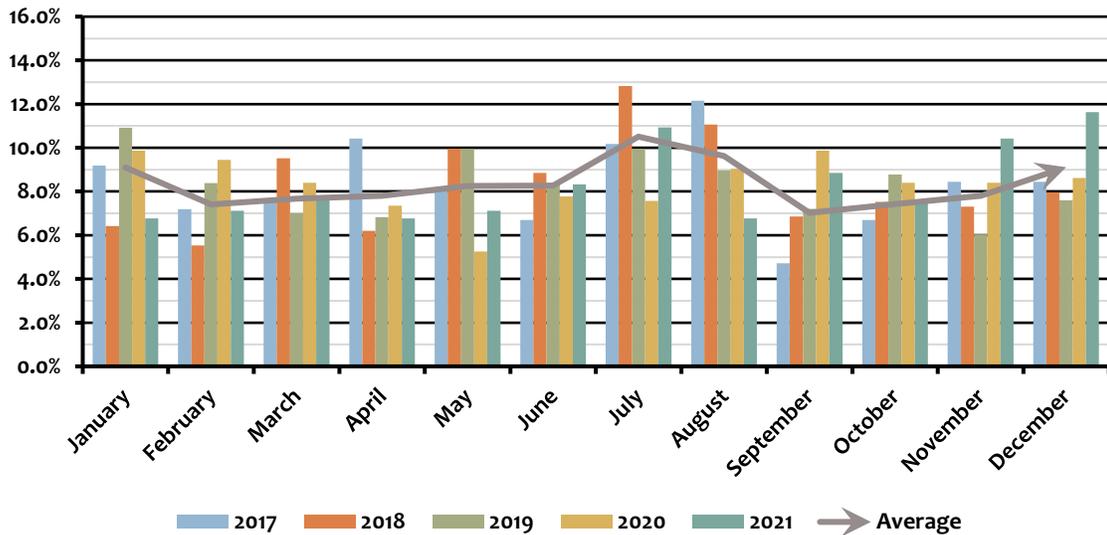
The second analysis of temporal variation provides understanding of service demand based on the day on which it occurs. As illustrated in the following figure, the greatest demand for service occurs on Monday and then decreases over the next two days. This is followed by two days of increases before decreasing again to Sunday, the day with the lowest demand for service.

Figure 73: Service Demand by Day, 2015–2021
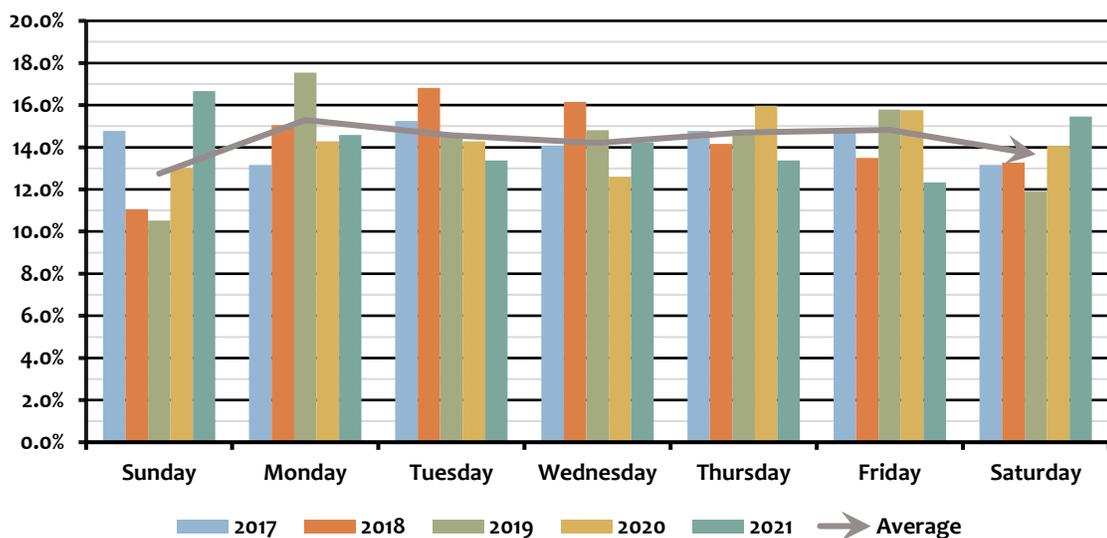
The final analysis of temporal variation provides understanding of service demand based on the time which it occurs. As illustrated in the following figure, the lowest demand for service occurs at 4 AM and then begins increasing as the population arises from their beds and prepares for their daily activities. This increase continues at a steep rate until 10 AM where the increase continues at a slower rate. The greatest demand for service occurs at 12 PM followed by a decrease of service

demand as the population completes their daily and evening activities and returns to their residences.

Figure 74: Service Demand by Hour, 2015–2021
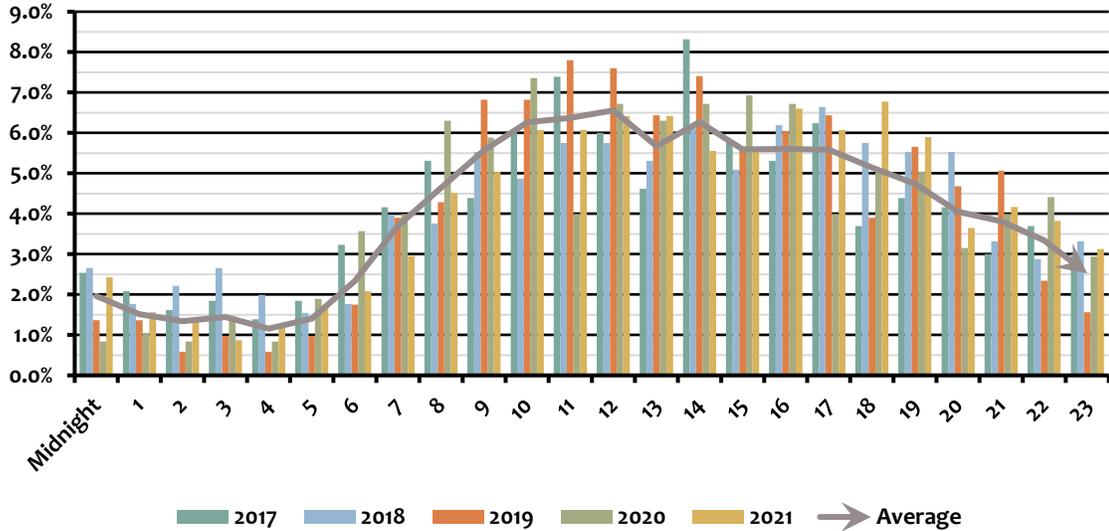
Geographic Service Demand

The next figure summarizes an analysis of incident density using two years of fire rescue response data from 2017 through 2021. This analysis, commonly referred to as "Hot Spot Mapping," calculates areas of greatest demand based on the density of incidents within a geographic area. This analysis *does not* indicate how many incidents occurred within each ring but instead provides a relative incident comparison between areas. In this analysis, each ring is calculated to display incidents per square mile and provides a range of how densely located incidents for service were to each other.

Figure 75: Incident Density Analysis, 2017–2021
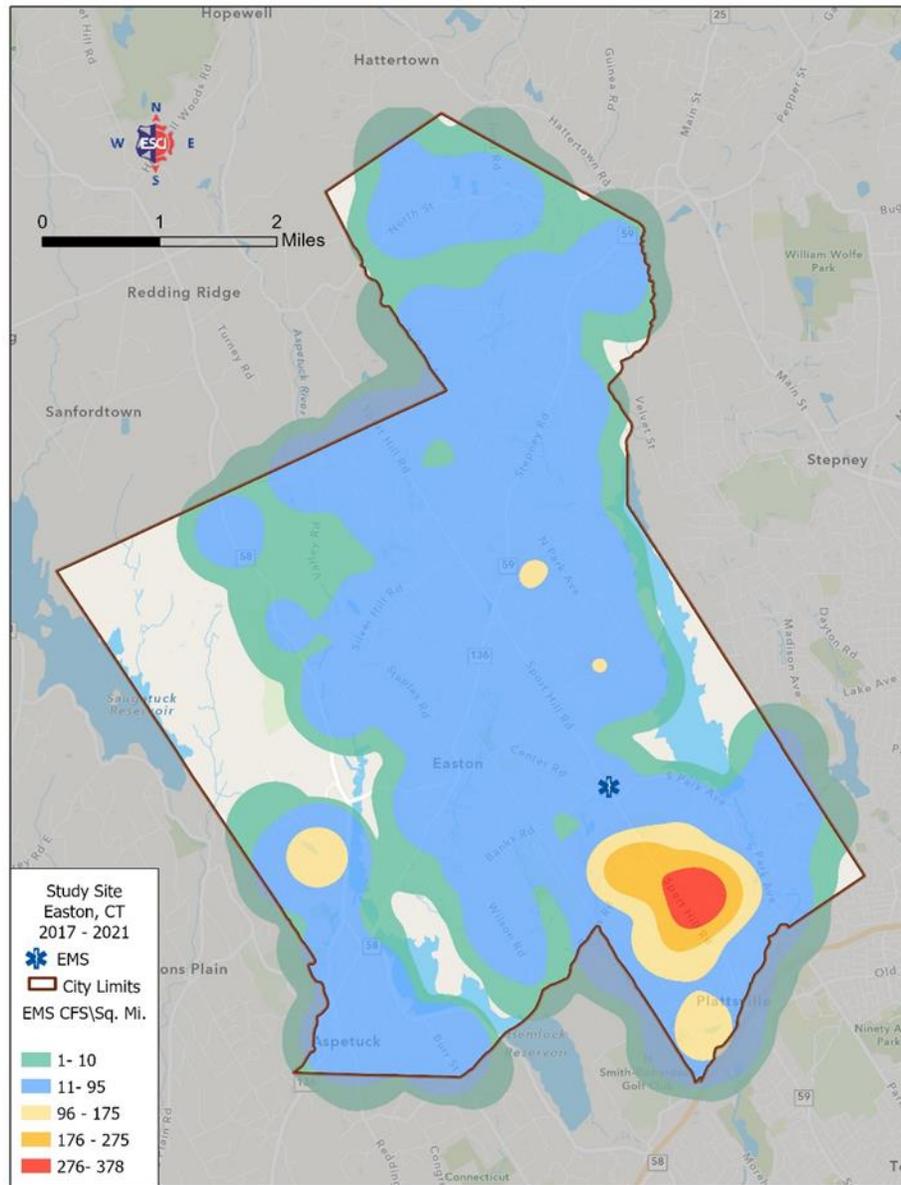
Resource Distribution

The ability to respond in a timely manner is just as important to emergency medical service (EMS) agencies as it is to fire departments. In the event of a cardiac arrest, chances of survival decrease by 7–10% for every minute between collapse and defibrillation, with a recommendation of defibrillation within 5 minutes of arrest. Other examples of time-based measures for EMS agencies include those associated with traumatic injuries, strokes, cardiac events, and others. While NFPA 1710 travel distance does not apply to non-fire-based agencies, there is value in understanding travel time for

Easton EMS. As illustrated in the following figure, 32.9% of the service area is within the 4-minute travel time and 83.4% is within the 8-minute travel time.

Figure 76: Easton EMS 4/8-Minute Travel Time
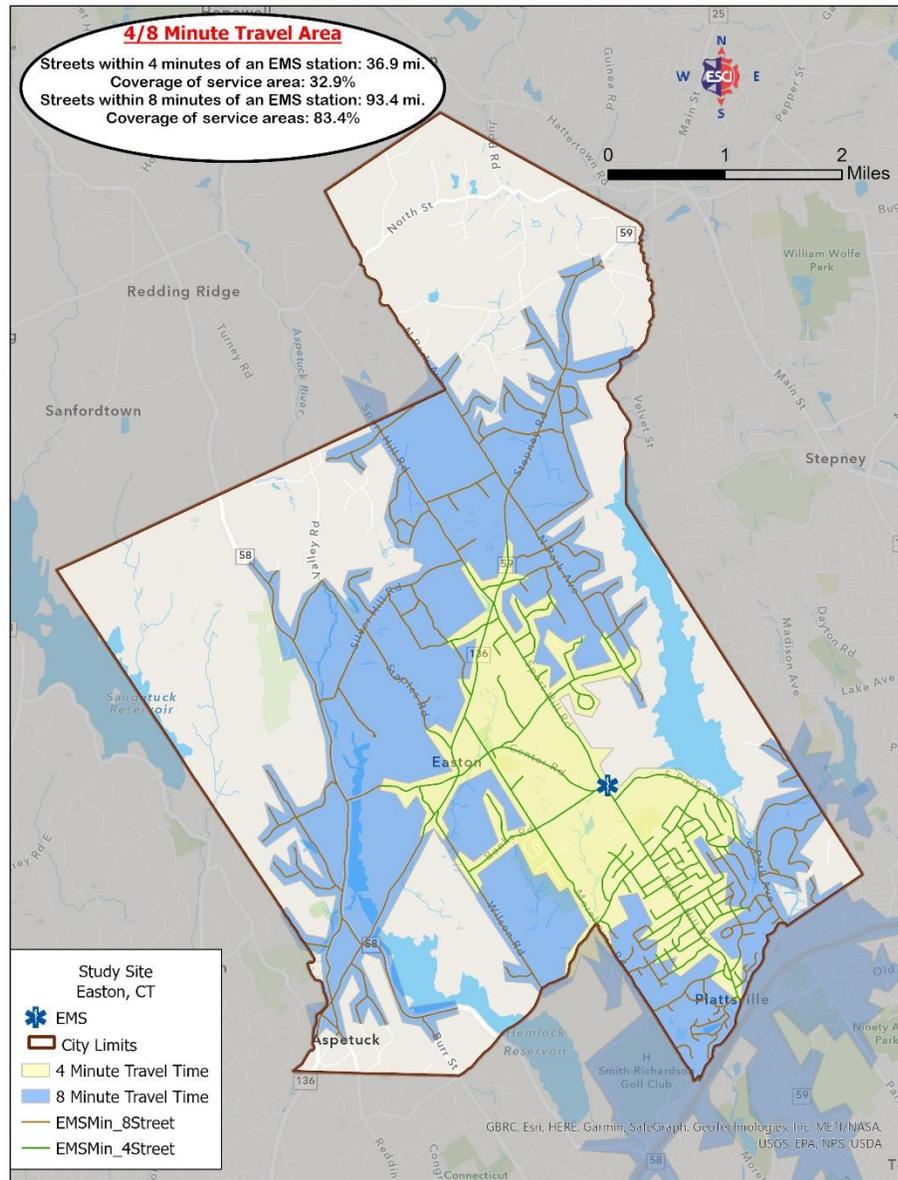
As illustrated in the following figure, Easton EMS travel time is less than 4 minutes to 34.39% of incidents, 4–8 minutes to 45.53% of incidents, 8–12 minutes to 16.30% of incidents, and greater than 12 minutes to 3.78% of incidents.

Figure 77: Easton EMS Actual Travel Time, 2021
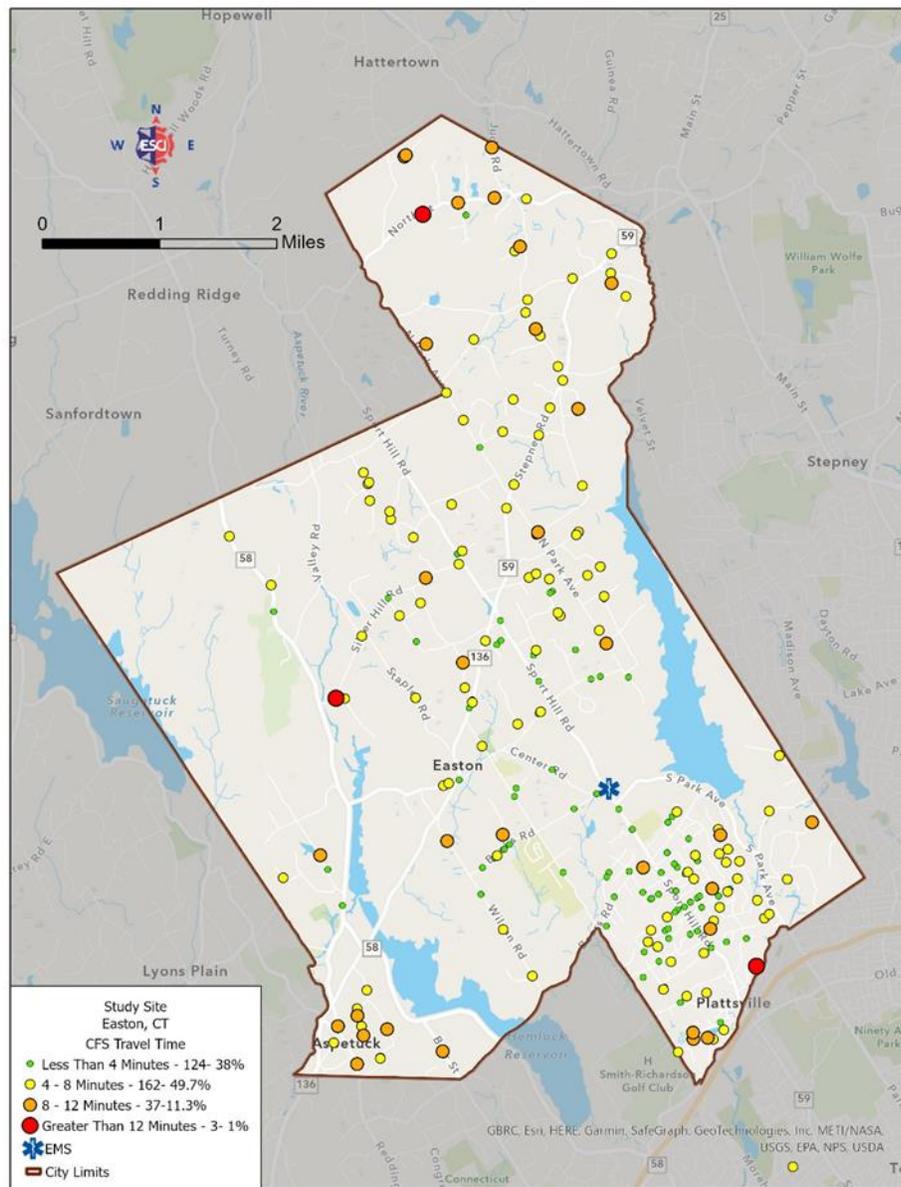
Resource Reliability

Within the category of resource reliability, there are two additional factors that may impact the ability for Easton EMS to respond quickly to all incidents—incident concurrency and workload.

Incident Concurrency

There are times that more than one incident occurs simultaneously, referred to as incident concurrency. As the number of concurrent incidents increases, the availability of resources to respond to additional incidents decreases.

ESCI evaluated incident concurrency, which is defined as two or more incidents occurring during the same time frame, which places increased demand on response resources. A summary of concurrent calls, including the number of concurrent calls at any given time, is listed in the following figure. As illustrated in the following figure, incidents occur as a single incident 93.92% of the time within the Easton EMS service area, which is not a concerning level.

Figure 78: Incident Concurrency Percentage, 2015–2021

Concurrent Incidents in Progress	2015	2016	2017	2018	2019	2020	2021	Change Over Study Period
Single Incident	96.67	92.56	91.92	89.60	92.59	94.54	93.92	-2.74
Two Incidents	3.33	6.45	8.08	10.40	7.21	5.46	5.56%	2.22
Three Incidents	0.00	0.99	0.00	0.00	0.19	0.00	0.52%	0.52

Response Performance

For the citizens and visitors of Easton, Connecticut, the most important aspect of EMS agency is the speed at which units arrive at the scene of their incident, a measure of time between the 911 call and arrival of the first unit—also known as the response time continuum.

The *response time continuum*—the time between when the caller dials 911 and when assistance arrives—is comprised of several components:

- *Alarm Handling Time*—The time between a dispatcher getting the call and the resources being dispatched.
- *Turnout Time*—The time between unit notification of the incident and when they are responding.
- *Travel Time*—The time the responding unit spends on the road to the incident
- *Response Time*—A combination of turnout time and travel time, the most commonly used measure of fire department response performance.
- *Total Response Time*—The time from when the 911 call is answered until the dispatched unit arrives on the scene.

In analyzing response performance, ESCI generates percentile measurements of response time performance. The use of percentile measurement using the components of response time follows the recommendations of industry best practices. The best practices are derived by the Center for Public Safety Excellence (CPSE), Standard of Cover document and the National Fire Protection Association (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*.

The "average" measure is a commonly used descriptive statistic also called the mean of a data set. 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 outliers, especially in small data sets. One extremely good or bad value can skew the average for the entire data set.

The "median" measure is another acceptable method of analyzing performance. This method identifies the value at the middle of a data set and thus tends to not be as strongly influenced by data outliers.

Percentile measurements are a better measure of performance because they show that most 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 are at or below this level. This can be compared to the desired performance objective to determine the degree of success in achieving the goal.

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 fractal percentile is calculated exists in a set of data unto itself.

Tracking the individual components of response time enables EFD to identify deficiencies and areas for improvement. In addition, knowledge of current performance for the components listed above;

is an essential element of developing response goals and standards that are relevant and achievable. Fire service best practice documents recommend that fire jurisdictions monitor and report the components of total response time.

For purposes of this evaluation, only those incidents with an emergency response (lights and sirens) were included. While the following measures are compared to fire department consensus standards, they are still of value to leadership to consider in operation of the organization.

Also, the documentation of seconds for all timestamps was not consistent within the dataset provided. This results in inaccuracy of time analyses as it can only identify down to the minute. ESCI recommends that Easton EMS ensures personnel document each timestamp down to the seconds. If possible, Easton EMS should implement an interface between the computer aid dispatch system and the records management system to automate the documentation of timestamps.

Call Processing Performance

Call processing time is a measure of time between the 911 call being received at the communications center and dispatch of the first unit to the incident. While this is not under direct control of the fire department, Easton EMS leadership should work closely with communications center leadership to monitor performance and develop improvements. The following figure illustrates the pertinent standard for this measure.

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

In the dataset provided by Easton EMS, the timestamp for 911 call and the timestamp for dispatch were identical, resulting in a performance of zero. Thus, ESCI was not able to provide an accurate analysis of this performance measure.

Turnout Performance

Turnout time is a measure of time between dispatch and the unit beginning to respond to the incident. The following figure illustrates the pertinent standard for this measure—for staffed stations only.

Standard	Performance
NFPA 1710 Standard for the Organization and Deployment of	All Other Incidents (includes EMS)

Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Career Fire Departments recommends	60 seconds at the 90th percentile

As illustrated in the following figure, turnout time performance for Easton EMS is 10 minutes.

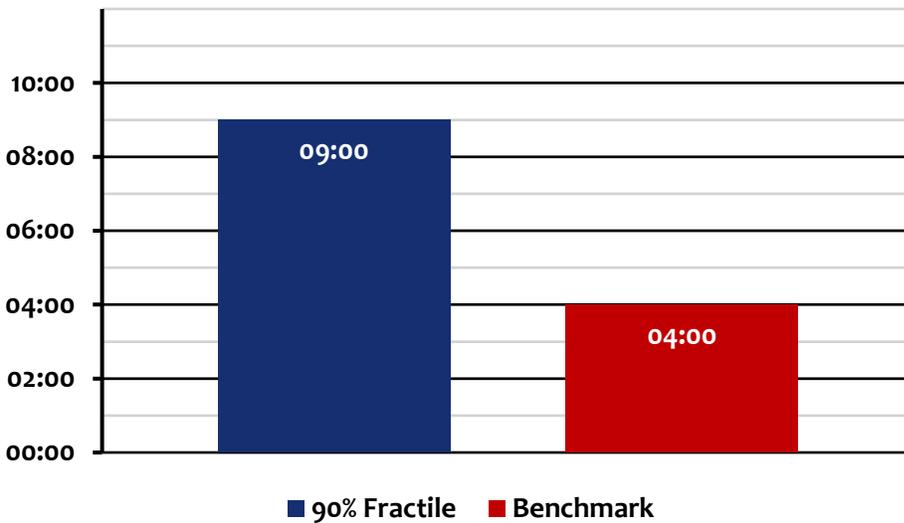**Figure 79: Turnout at the 90th Percentile, 2015–2021**

Travel Performance

Travel time is a measure of time between the unit responding and its arrival at the scene of the incident. Travel time is impacted by the physical distance between units and the incident, traffic, weather, etc. The following figure illustrates the pertinent standard for this measure—for staffed stations only.

Standard	Performance
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 recommends	Basic Life Support (BLS) Unit 4 minutes at the 90th percentile Advance Life Support (ALS) Unit 8 minutes at the 90th percentile

As illustrated in the following figure, Easton EMS travel time performance is 9 minutes.

Figure 80: Travel at the 90th Percentile, 2015–2021

Response Time Performance

Response time performance is a measure of time between dispatch of the unit and arrival at the scene of the incident. For purposes of comparison, the following figure illustrates a comparative performance benchmark that is achieved by combining the individual components that would apply to career and combination fire departments.

Standard	Performance
Turnout Time	All Other Incidents (includes EMS) 60 seconds at the 90th percentile
Travel Time	Basic Life Support (BLS) Unit 4 minutes at the 90th percentile Advance Life Support (ALS) Unit 8 minutes at the 90th percentile
Combined	All Other Incidents (includes EMS) 5 Minutes at the 90th percentile

As illustrated in the following figure, Easton EMS response time performance is 17 minutes.

Figure 81: Response Time at the 90th Percentile, 2015–2021

Total Response Time Performance

Total response time performance is a measure of time between 911 call and arrival at the scene of the incident. For purposes of comparison, the following figure illustrates a comparative performance benchmark that is achieved by combining the individual components that would apply to career and combination fire departments.

Standard	Performance
Call Processing Time	60 seconds at the 90th percentile
Turnout Time	All Other Incidents (includes EMS) 60 seconds at the 90th percentile
Travel Time	Basic Life Support (BLS) Unit 4 minutes at the 90th percentile Advance Life Support (ALS) Unit 8 minutes at the 90th percentile
Combined	All Other Incidents (includes EMS) 6 Minutes at the 90th percentile

As with the issue identified with analysis of call processing time performance, the dispatched time documented in the Easton EMS dataset was identical with the time of the 911 call. Thus, ESCI was not able to provide an accurate analysis of this performance measure.

SUPPORT PROGRAMS

Training

The National Fire Protection Association (NFPA) has provided criteria through which volunteer and combination fire departments should operate an effective training program. Both Easton Fire and EMS do not have a formally established training programs but does utilize "on-duty" personnel for training activities. In addition, neither have training programs specifically for leadership. At the time of this report, Easton reported that they conducted various levels of training, however, ESCI was not provided any documentation on their fire or EMS training but a questionnaire with some follow-up questions to the current and prior chiefs revealed some characteristics of EFD's training. It is entirely likely that there is more documentation to the training program, but ESCI was unable to determine this.

- Volunteer training is offered twice per month
- Volunteers must attend the majority of trainings
    - The department has a training calendar that includes
        - Live fire training twice per year
        - Blood-borne pathogens annually
        - CPR annually

EFD does not have a formal training rotation cycle that includes all elements of firefighting. The town offers to cover the expenses of a Firefighter I (Basic) certification of which most of the volunteer firefighters have obtained but ESCI did not observe any indications of any firefighters having Firefighter II (Advanced). In addition, there were no indications of any officer training.

Training records provide a minimal understanding of the efficiency and effectiveness of the training program as well as provide legal protection when an action is questioned. It is recommended Easton implement a quality documentation program, allowing the department to ensure compliance with NFPA 1001: Standard for Firefighter Professional Qualifications, and ISO requirements. It is also recommended the training program utilize NFPA 1410: Standard on Training for Emergency Scene Operations as the foundation for all training activities.

Recommendation #13:
Both Easton EMS and Fire should establish structured training programs, including documentation, compliant with NFPA and ISO standards.

Limited training information documentation was provided to ESCI

Life Safety Services (Fire Prevention)

Currently, Easton Fire has limited documented information about the hazards present in the community. This lack of information, which would normally be available during training and response, handicaps the effectiveness of the first responders. The Department is encouraged to develop and maintain effective pre-incident and special hazard plans and incorporate these plans routinely into dispatch communications. A defined list of "target hazards" should be developed, and focused effort should be given to ensuring response personnel has ready access to pre-incident plans. FEMA defines target hazards as: "facilities in either the public or private sector that provide essential products and services to the general public, are otherwise necessary to preserve the welfare and quality of life in the community, or fulfill important public safety, emergency response, and disaster recovery functions." Many fire departments will define target hazards by:

- Facilities that can have a substantial economic impact on the community
- Buildings with large potential occupant loads
- Buildings with populations who are partially or entirely non-ambulatory
- Buildings of considerable size (greater than 12,000 square feet)
- Buildings that contain process hazards, such as hazardous materials or equipment

Pre-incident and target hazard planning should be regularly updated, easy to use, and quickly accessible for all responders.

NFPA 1620 (1660) provides excellent information on the development and use of pre-incident plans and is a vital reference. Once pre-plans are established, providing training to all personnel who may respond to an incident at those locations is essential.

Communications

Communications is paramount in any organization and the ability to communicate on an emergency scene can be critical to the ability to save lives and property of both the community and firefighters. Communications and technology are rapidly advancing integrating many functions that historically have been separate or not a part of the equation. Radios, computers, global-positioning systems, heads-up displays and now an integral part of firefighting operations and good communications technology is required to make them work.

Radios

Easton FD radio's system is archaic and obsolete with radios that are well-passed their ability to be maintained let alone incorporate modern technologies. The radios operate on a low band (LF) which

is a communications band usually reserved for long-distance communications and functionally works for the fire department when they operate alone. The PD, EMS, and Town radios operate on VHF frequencies which means, with the exception of the newest radios, the agencies cannot speak to each other through their daily radio systems as communications cannot take place between radios on different bands. Neighboring departments such as Fairfield and Redding operate in the UHF band and use a communications system technology known as 'trunking' which allows for a more efficient use of available radio frequencies. Easton FD cannot communicate with any of them unless they have a radio provided to them by the agency they want to speak with. This means there is a significant complication when Easton is part of a firefighting team composed of outside departments.

However, changing radio systems is not an inexpensive transition as not only do the appropriate radios need to be purchased but the supporting infrastructure such as base stations, transmitters, repeaters, all need to be replaced.

Two options the fire department does have is to switch to the VHF radio system that the town uses which would allow communications at least between those units the fire department interacts with most frequently, the police and EMS departments. This likely would be a lower expense transition as the infrastructure is already in place and the fire department would only need to purchase the appropriate radios and receive FCC licensing. The second option would be to participate in a regional communications system.

Dispatch Center Staffing

Fire department communications is handled by the town's police department, a not uncommon practice in small towns. The dispatch center is staffed by a single dispatcher who monitors all the radio channels for all the town's functions: police, fire, and EMS. It is in the police station and also serves as the police reception area for the general public. The on-duty dispatcher is also the receptionist.

Dispatchers work around the clock eight-hour shifts and if relief is needed, an on-duty police officer is called to the center. While an inexpensive staffing model, a single-dispatcher model is not without its risks:

- A relief police officer may not be available
- Critical incidents may overwhelm a single dispatcher
- Incident management that requires a dedicated dispatcher is not a possibility without calling in extra staff
- Walk-ins to the reception area that require assistance may distract from radio communications
- 9-1-1 callers may emotionally overwhelm a single dispatcher to the point of distraction

- Safety issues increase with a single dispatcher

Emergency dispatchers, as well as Easton Volunteer EMS EMTs are governed by the collective bargaining agreement between the Town of Easton and AFSCME Local 1303-406 which expires June 30, 2025.

Communications Maintenance

Communications technologies are one of the areas that are progressing in their abilities to provide solutions to users whether they are police, fire, EMS, or public works. Increased functionality via technological applications include:

- Efficient use of radio spectrum that allows more simultaneous radio communications
- GPS technologies that identify where users are
- Radio identifiers that identify who the speaker is without the speaker having to identify themselves
- Interfaces with cellphone technologies
- Incorporation of data into communications streams allowing greater information movement
- Broader abilities to connect with different users
- Automated and non-automated user emergency detection that transmits emergency signals

Radio systems have become much more advanced than they were just a few decades ago. Infrastructure upgrades are also part of the advancing technology processes. With Easton being alone with its own communications system, it bears the burden of complete system costs including large, major, and expensive upgrades potentially the situation they find themselves currently in. It does come with a cost as towns must more readily adapt to changing technologies and adopt a mindset that is not just a one-and-done deal but develop a philosophy that has the organization changing with the times. In other words, there is greater benefit and a cheaper finance approach when organizations begin adopting a regular incremental change philosophy rather than single purchases that eventually require a future substantial change or replacement.

SECTION II:
Future System Demand Projections

POPULATION GROWTH PROJECTIONS

Population growth or change is one of the factors that is monitored to determine if service levels will need to be adjusted. Increases in population tend to translate to increased levels of service for both fire and EMS organizations.

Easton's population has changed little over the past 20 years with the community's largest population increases taking place from the 1940s into the 1970s and again in the 1990s. Since 2000, the population of the community has only increased by 4.5%, likely from the lack of available property.

Figure 82: Easton Population Growth History (1940-2020)
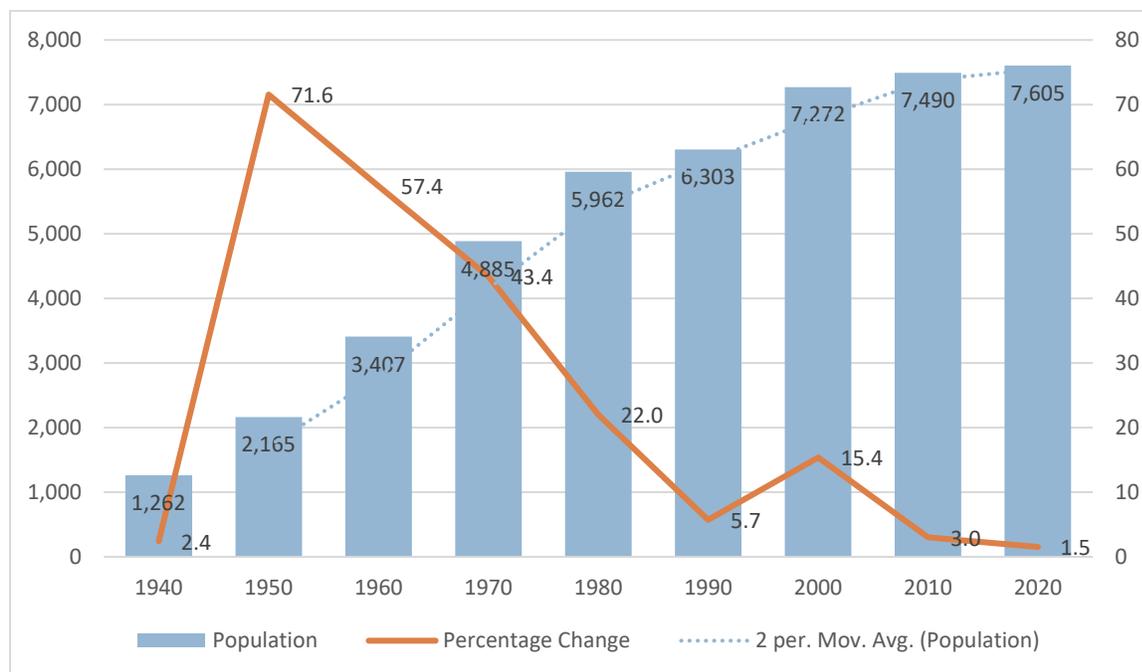
Census-Based Population Growth Projections

Permanent growth within a community can change in at least three ways:

- Available property to grow on.
- Unavailable property is converted to listed property
- Existing properties grow in density.

Recent growth within Fairfield County has mostly occurred within the urban areas such as Bridgeport, Norwalk, Danbury, and Stamford. Easton is proud of the rural, small character it currently possesses and without any good reason, there are no indications that the town has

intentions of changing its character. Most if not all the land within Easton has been developed to the community's satisfaction.

An area where growth could be experienced is if property were to be converted to a use such as multi-family housing that would growth to occur. There are no indications that this is currently being considered.

Lastly, is that properties could increase in densities. Easton has a senior population of 21% and a possibility exists that as this population begins to pass on, younger families with children may move in depending on how growth occurs in the cities nearby. Also, is the possibility that families could seek more compound-like settings on the larger lots and have multiple families living on the same lot. These growth considerations are all possibilities but not to the extent that they would significantly alter town service requirements. This should be considered alongside the Easton School District future growth projections in 2017 anticipating continued a stable school enrollment.

One area that should be considered for possible impact on services though is not the resident population but the transient population. Easton markets several historic sites and recreational opportunities and as they expand their marketing efforts and improve their recreational opportunities, this may attract a greater visitor population.

The growth rate in Easton has been nominal over the past twenty years with just a 1.5% population increase in the past 10 years and 4.5% in 20 years. The last decade saw an average of ten residents per year come to Easton. Continuing that trend or even increasing it to 2% growth per year would mean Easton would experience on average 10-15 new residents per year. This would be a generous calculation that would unlikely affect the government services over the next 10 years.

The chart below identifies potential population ranges for .5% and 1% annual growth. While the school district is anticipating a stable enrollment over the next 10 years, it is also possible that generational turnover could slowly increase the population.

Figure 83: Annual Population Projections

	2020	2025	2030	2035	2040
Population (0% Growth)	7,597	7,600	7,600	7,600	7,600
Population (.5% Growth)	7,597	7,789	7,986	8,187	8,394
Population (1% Growth)	7,597	7,985	8,392	8,820	9,270
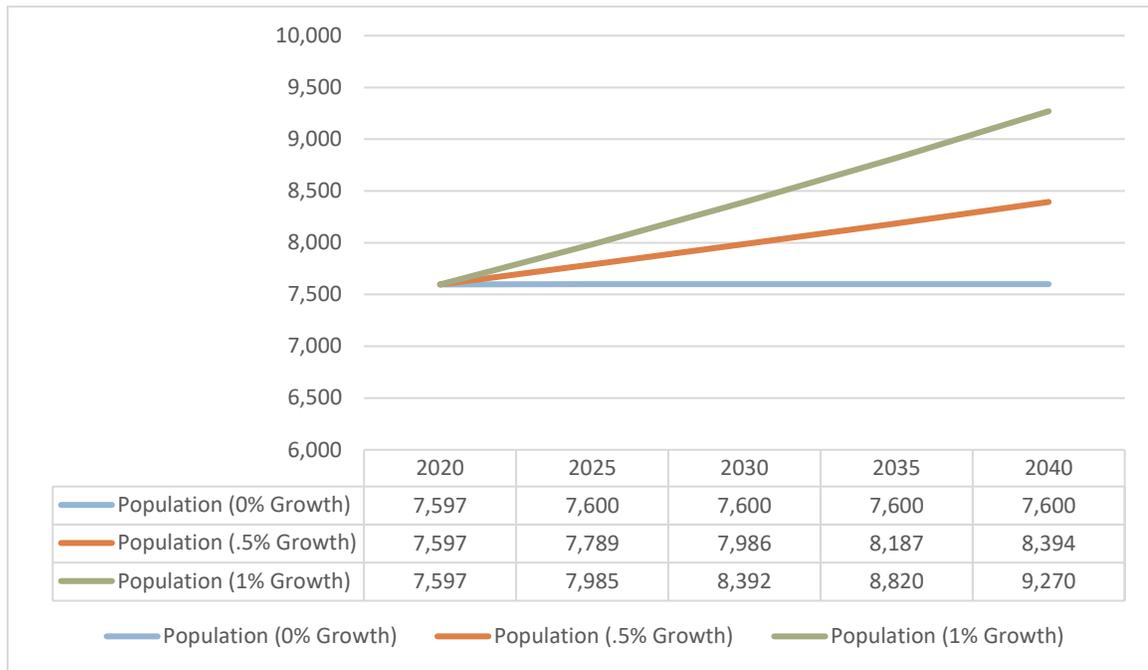
Community Planning-Based Population Growth Projections

In 2017, the Easton-Redding Region 9 School District projected continued enrollment declines for the next six to seven years 10 years having an enrollment decrease of 10% by 2022 and then holding steady through 2026. Below is the graph from a 2016 Easton-Redding Long Range Planning presentation[4]:

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[4] Easton-Redding Region 9 School District. "Easton Prowda Enrollment Projected to 2026". November 9, 2016. https://www.er9.org/common/pages/DisplayFile.aspx?itemId=3283555

Emergency Services
Consulting International

Figure 84: Easton LRP Enrollment Projections
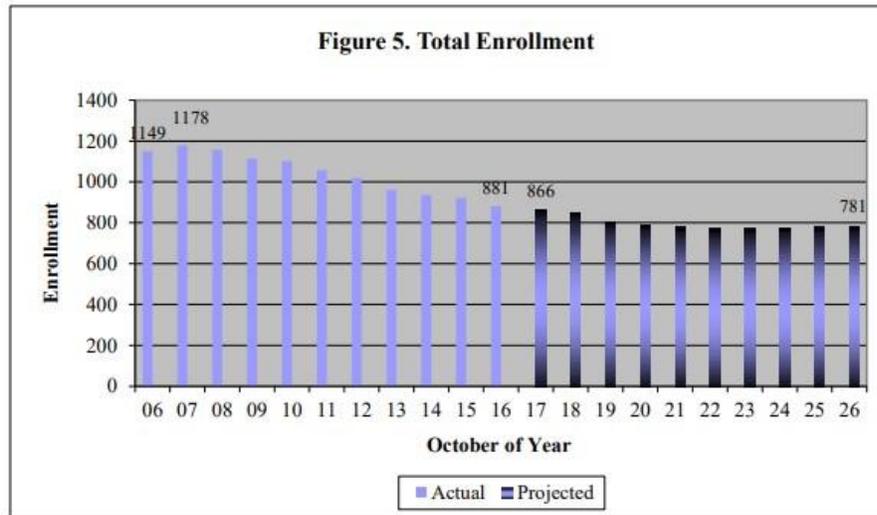
A consultant's analysis identified local economics, families with fewer children, fewer families buying homes in the Easton area as some of the factors contributing to the decline.

The conclusion is consistent with the 0% growth projection however ESCI believes that with generational turnover beyond 2026, Easton may begin to experience nominal increases in growth as families take the place of the current senior population.

SERVICE DEMAND PROJECTIONS - FIRE

Future Service Demand by Historical Percentage of Change

This method of projecting future service demand analyzes the historical percentage of change during the service delivery to determine the average increase or decrease per year. This figure is then extrapolated over time to provide the total number of incidents each year, which is then distributed based on the incident frequency percentages. The following figure illustrates the EFD projected service demand using this method.

Figure 85: EFD Projected Service Demand by Historical Change, 2025–2050
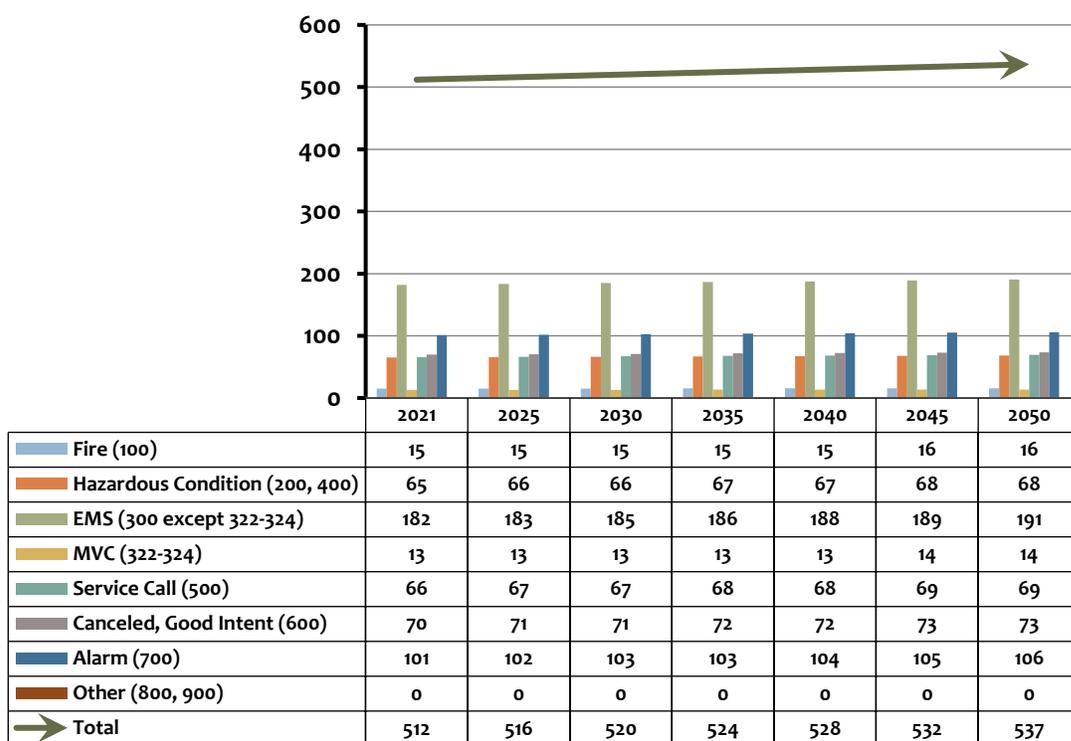
	2021	2025	2030	2035	2040	2045	2050
Fire (100)	15	15	15	15	15	16	16
Hazardous Condition (200, 400)	65	66	66	67	67	68	68
EMS (300 except 322-324)	182	183	185	186	188	189	191
MVC (322-324)	13	13	13	13	13	14	14
Service Call (500)	66	67	67	68	68	69	69
Canceled, Good Intent (600)	70	71	71	72	72	73	73
Alarm (700)	101	102	103	103	104	105	106
Other (800, 900)	0	0	0	0	0	0	0
Total	512	516	520	524	528	532	537

Future Service Demand by Incidents per 1,000 Population

This method of projecting future service demand analyzes the number of incidents per 1,000 population within the community. Then, through analysis of the historical population changes within the community obtained from the United States Census Bureau, a projection of future population is extrapolated, the incidents/1,000 population is applied to achieve the total number of incidents each year, which is then distributed based on the incident frequency percentages. The following figure illustrates the EFD projected service demand using this method.

Figure 86: EFD Projected Service Demand by Incidents per 1,000 Population, 2025–2050

	2021	2025	2030	2035	2040	2045	2050
Fire (100)	15	15	15	16	16	16	16
Hazardous Condition (200, 400)	65	66	67	68	69	70	71
EMS (300 except 322-324)	182	185	187	190	192	195	198
MVC (322-324)	13	13	13	14	14	14	14
Service Call (500)	66	67	68	69	70	71	72
Canceled, Good Intent (600)	70	71	72	73	74	75	76
Alarm (700)	101	103	104	105	107	108	110
Other (800, 900)	0	0	0	0	0	0	0
Total	512	520	527	534	541	549	556
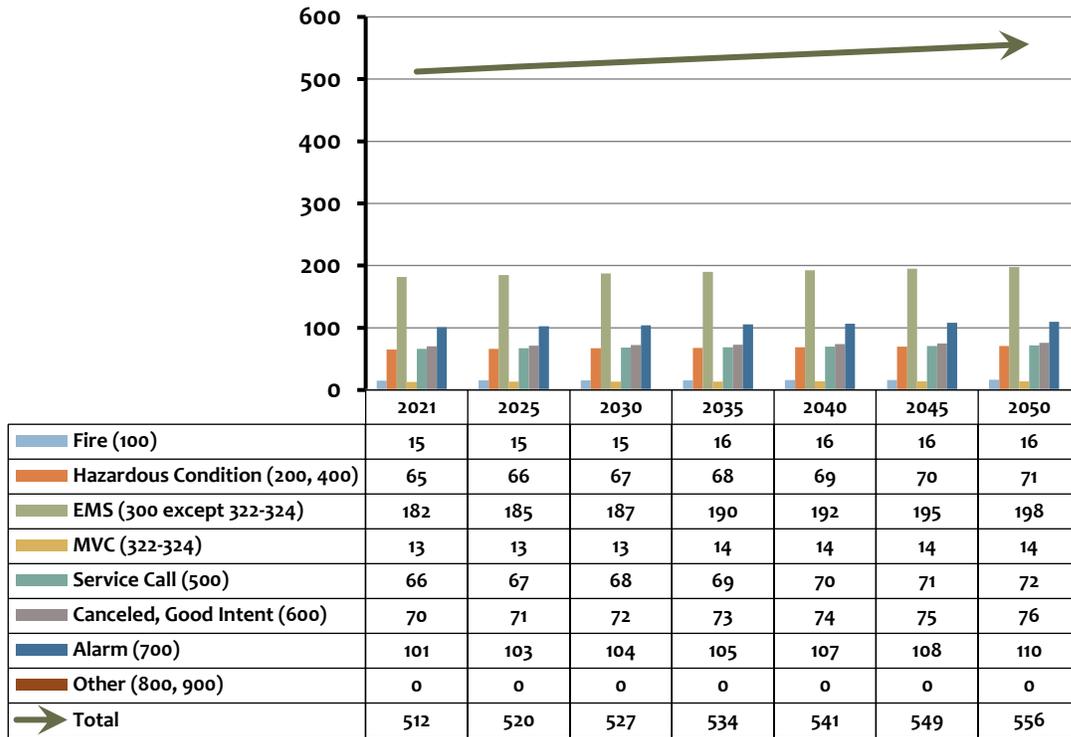
When we combine both together, we see that ESCI does not anticipate a significant increase in call volumes for the near future.

SERVICE DEMAND PROJECTIONS – EMS

Future Service Demand by Historical Percentage of Change

This method of projecting future service demand analyzes the historical percentage of change during the service delivery to determine the average increase or decrease per year. This figure is then extrapolated over time to provide the total number of incidents each year, which is then distributed based on the incident frequency percentages. The following figure illustrates the Easton EMS projected service demand using this method. While there are significant differences between the two projections, they can be used as a lowest and highest estimation.

Figure 87: Future Service Demand by Historical Service Demand Growth, 2025–2050
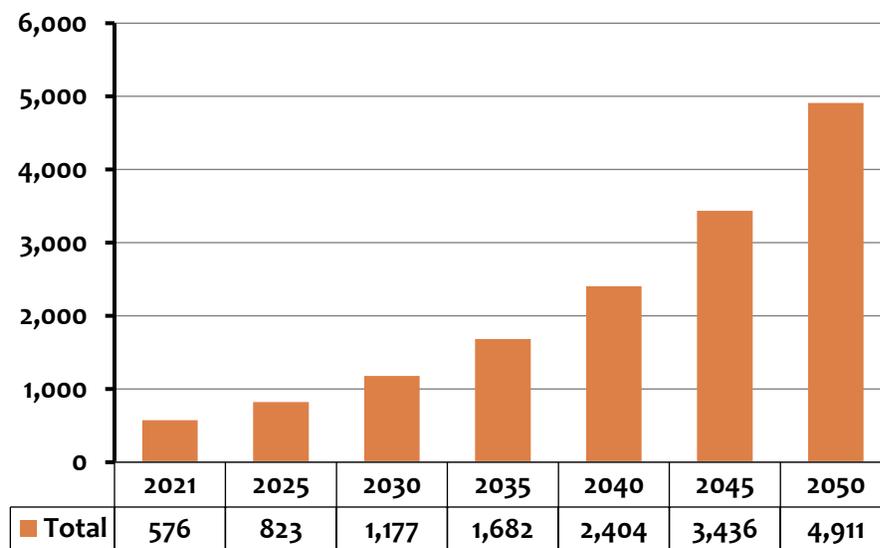
	2021	2025	2030	2035	2040	2045	2050
■ Total	576	823	1,177	1,682	2,404	3,436	4,911

Future Service Demand by Incidents per 1,000 Population

This method of projecting future service demand analyzes the number of incidents per 1,000 population within the community. Then, through analysis of the historical population changes within the community obtained from the United States Census Bureau, a projection of future population is extrapolated, the incidents/1,000 population is applied to achieve the total number of incidents each year, which is then distributed based on the incident frequency percentages. The following figure illustrates the EFD projected service demand using this method.

Figure 88: Future Service Demand by Population Growth, 2025–2050

	2021	2025	2030	2035	2040	2045	2050
Total	576	585	593	601	609	617	626
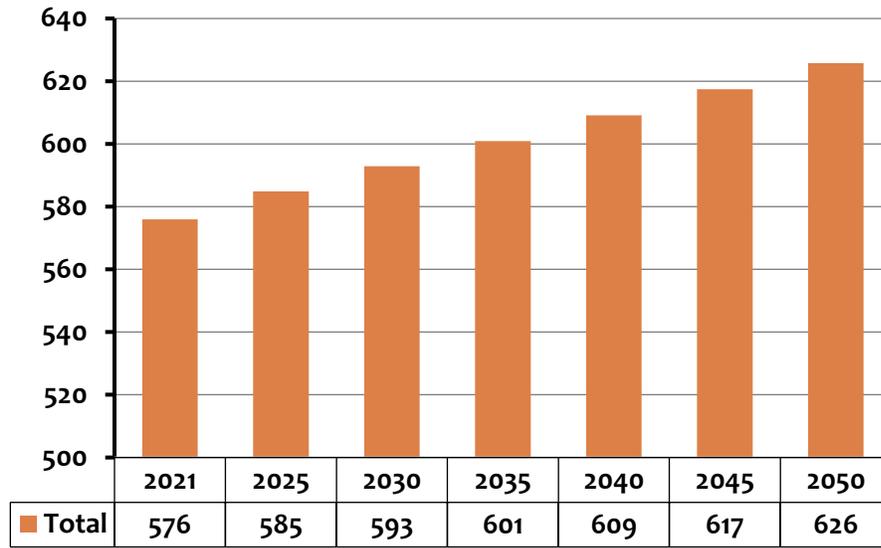
COMMUNITY RISK ANALYSIS

A community risk assessment aims to use interconnected processes that together evaluate a community's preparedness for threats and hazards that include natural, technological, and human-caused. Many define community risk assessment (CRA) as "the identification of potential and likely risks within a particular community and the process of prioritizing those risks." This concept is consistent with the FEMA concept of "whole community" and shared responsibility for emergency preparedness.[5] Thus, CRA is a critical component of the core capabilities, or phases, of emergency management—prevent, prepare, respond, recover, and mitigate, as shown here.

Prevention focuses on preventing human hazards, primarily from potential natural disasters or terrorist (both physical and biological) attacks.

Preparation is a continuous cycle of planning, organizing, training, equipping, exercising, evaluating, and taking corrective action.

Figure 89: 5 Stages of Emergency Management

Response is coordinating and managing resources in an all-hazards approach with measures taken for life/property/environmental safety.

Recovery is the group of activities to restore critical community functions and begin to manage stabilization efforts.

Mitigation is the effort to reduce the loss of life and property by lessening the impact of disasters and emergencies.

Vulnerability Hazard Tool

A tool initially used by the healthcare field has been modified to analyze the community risk factors[6] to determine an organization's vulnerability to various hazards. This tool requires the user to assign a simple relative rating for the following risks:

- structural fires,
- non-structural fires,
- medical responses,
- rescues,

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[5] National Planning Frameworks, U.S. Department of Homeland Security, FEMA, 2018. Retrieved from: https://www.fema.gov/whole-community

[6] Kaiser Foundation Health Plan, Inc.

- hazardous material,
- natural hazards,
- technological hazards, and
- human hazards.

Each of these risks is considered in terms of probability, magnitude, and mitigation to simplify FEMA's five phases of emergency management. To determine the probability, the fact that it is a known risk and historical data to determine how often it occurs or industry statistics are considered. The magnitude is rated by the impact on humans, property, and business. Mitigation offsets the magnitude based on the amount of preparedness, the resources within the Department, and external resources. Severity is the magnitude less than the amount of the mitigation. Community risk is the probability times the severity.

Figure 90: Vulnerability Hazard Tool Diagram
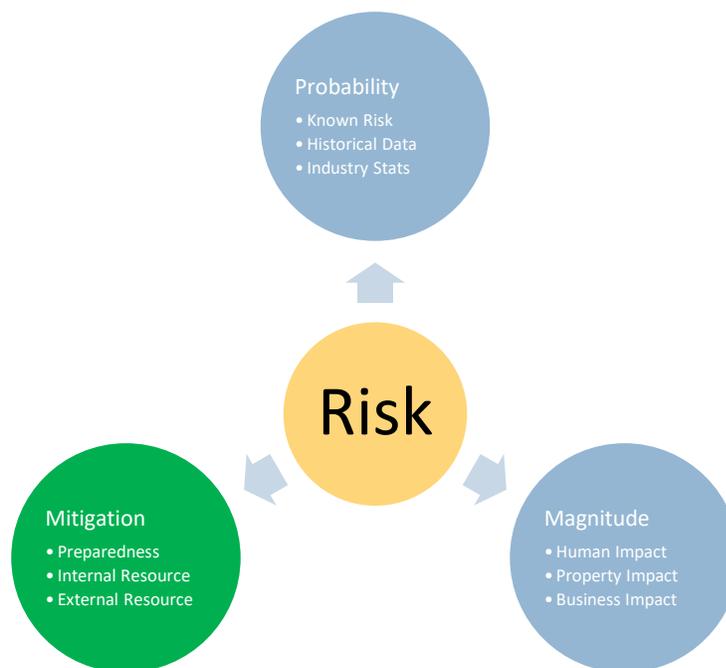
The following map shows the current (2007) land use map for the town of Easton. The town is dominated by two forms of land use, open space and residential with almost no commercial property risk. This means that the town's largest risk comes to those hazards that can affect the large open space or significant amounts of the population.

Figure 91: Current (2007) Land Use Map
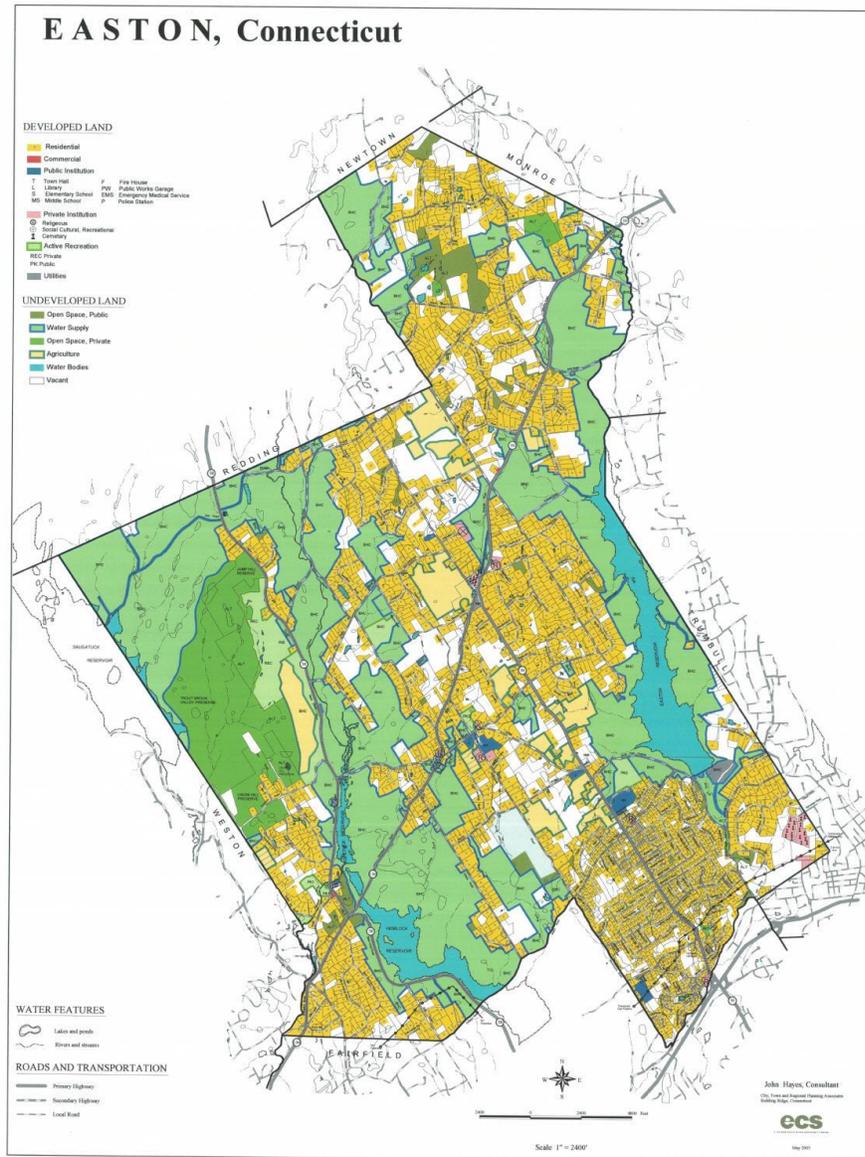
Not all potential hazards rise to automatically being a risk. Hazards may or may not exist according to the event severity. A thunderstorm, outside of lightning strikes and localized minor flooding, are not considered a community hazard however a severe thunderstorm with winds that exceed 60 mph and/or damaging hail more than ¾" diameter would be.

Looking at the open space risk, hazards that could affect the open space include major natural events or major human-caused events. In the former, major natural events would include:

- severe thunderstorms
- windstorms
- hurricanes
- ice storms
- wildfires
- pest invasion
- climate warming

Major human-caused events would be:

- hazardous material spillage
- poor management
- wildfire
- malicious harm

In the measurement of risk, most assessments include human and business casualty elements. Since, outside of a minor recreational economic impact should an event occur in these environments, these types of events are reflected with an insignificant risk.

The following figure shows the relative risk of each type of hazard with 100% being the highest rating for probability coupled with severity.

Figure 92: Relative Risk of Potential Hazards
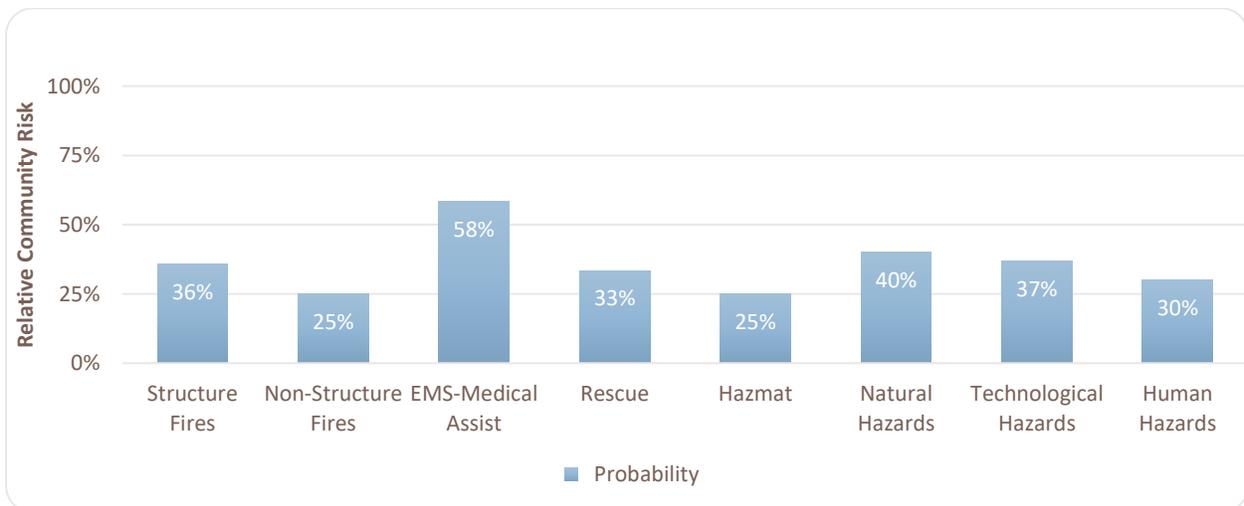
The following figure displays the community risk based on general probability and severity. The chance of a hazard occurring is 35 percent. The impact on the community relative to the various threats is 55 percent.

Figure 93: Relative Risk of Probability and Severity
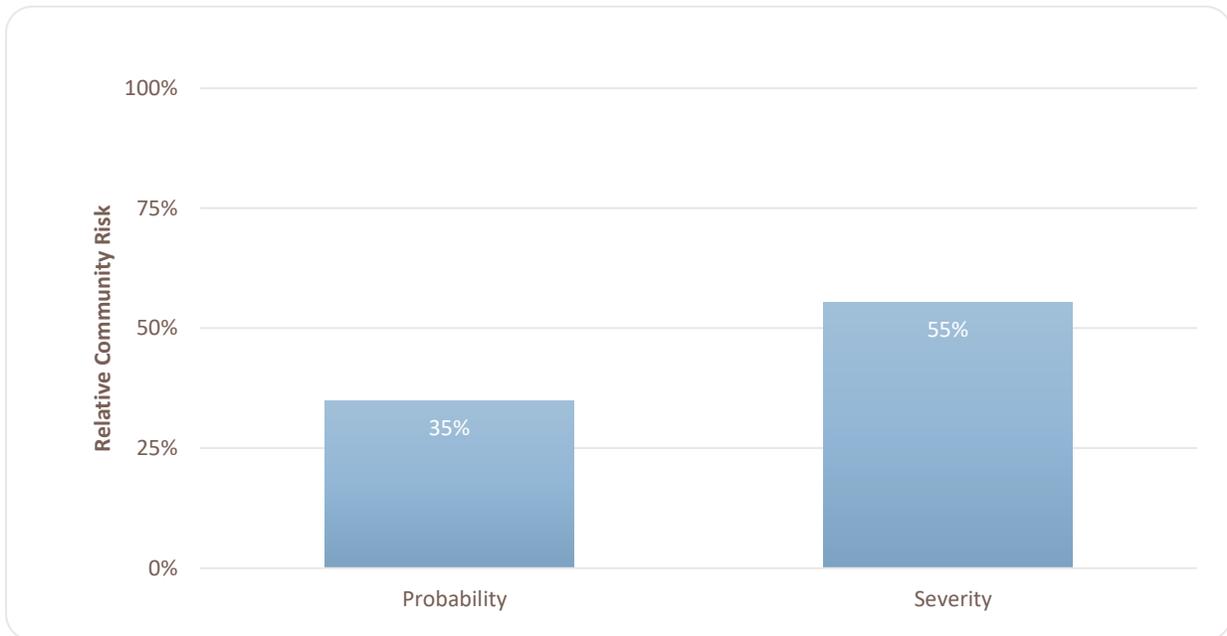
Geographic Service Demand

Since human activity is the primary cause of emergency incidents, many communities see a relationship between population density and service demand. Areas with greater population density often experience greater levels of service demand. From a logical standpoint, higher population density correlates with an increased number of people experiencing a medical emergency, the number of structures that may be involved in a fire, and the movement of vehicles that may experience an unexpected collision.

SECTION III:
Future Delivery System Models
and Recommended Enhancements

RESPONSE GOALS AND DEPLOYMENT STRATEGY

An element that was significant across the entire Easton organization was a lack of performance standards. Performance standards includes not only the response element of the organization but various aspects of the fire department. For example:

- Percentage of calls volunteers respond to
- Percentage of training sessions volunteers attend
- Hours of actual training
- Skills evaluation
- Number of hours an EMT is on call
- Number of hours an EMT signs up for duties

It is recognized that in a community the size and of the character of Easton, performance metrics may not be as vital as larger communities but there an accountability still needs to take place to the community to make sure their public safety force is adequately trained and capable of doing the job.

In developing performance standards, it can be difficult to know where to begin. ESCI recommends the following general steps to develop performance standards:

1) Identify the performance you would like to evaluate. Performance can be any aspect of the organization, administrative or operational
2) Speak with similar-character communities to determine if they evaluate the measure you are interested in. If so, inquire as to what their level of acceptable performance is. In addition, national standards, such as ISO and NFPA, can be starting points for standards development.
3) With input from your chiefs, decide on what an acceptable performance standard is. It may or may not be the same as a national standard, but it could be a percentage of a national standard. The performance standard can either be one that defines the current performance level, and you are just interested in accountability or one that increases the performance level in addition to accountability
4) Determine how you will measure the standard. This will require an understanding of how data is collected, and the processes involved to *collect good data*. Many fire departments ignore this element, but good evaluation and accountability must begin with good data.
5) Share the standard with the community. Inform the community of what the goals of the fire and EMS organizations are. This sharing becomes vital and beneficial when it comes time to ask for additional funding as the failure to be able to meet established and approved performance standards is a strong indicator of funding shortages.

Recommendation #14: Develop specific performance standards related to both the responses of the organizations as well as the administrative aspects of the organization such as training hours or skills evaluation.

ISO Review

Ratings

Easton Fire Department's last ISO review was in 2011. ISO prefers to do evaluations at least every five years or when a major change has occurred that could affect ISO ratings such as major water system upgrades or fire department reconfiguration. ESCI recommends that the Town (Fire Department) have an ISO evaluation update performed.

In 2011, Easton was rated as a Class 5/9. This is a two-rating classification that rates the portion of the community that is within five miles of a fire station and 1000' of a fire hydrant or permanent water supply. The second number is a rating for those properties still within five miles from a fire station but do not have a sustainable firefighting water supply within 1000'. Any properties beyond five miles will receive a Class 10 rating. (ISO now has a new rating called a 10W which identifies properties between five and seven miles from a fire station but have a water supply within 1000').

However, when performing this distance calculation, ISO can use neighboring fire stations to determine distances provided an aid agreement exists with between the home and neighboring fire department.

Class 10

As identified in Figure 55, only the far north end of the Town is beyond five miles from the Easton fire station and potentially going to receive a Class 10 rating but if there is an agreement between EFD and the Redding Fire and EMS Company #1 to the northwest, it's possible that any Class 10 properties at the north end may be able to get their rating reduced.

Class 9

To reduce the Class 9 portion of the rating, the Town must establish sustainable water supplies in those areas that are within five miles of a fire station. Extending water lines from an existing water system is certainly the most reliable method of providing an "unlimited" amount of water, this is an extraordinarily expensive option.

Many communities with this challenge turn to the establishment of a cistern system where cisterns are placed in strategic places throughout the community that offer a significant but not unlimited amount of water for firefighting purposes. Cistern sizes of 25,000 to 50,000 gallons are effective sizes that allow the fire department to be able to flow five hundred gallons to one thousand gallons per minutes for thirty to sixty minutes. (Most initial attacks on fires that are "offensive" and can still

perform property perfection use 100 to 250 gallons per minute. Large fires that require an extended water supply often use 500 to 1000 and even higher gallons of water per minute.) It also figures into ISO calculations for the ability to have a sustained waterflow.

Installation costs for cisterns can range from $1-$5/gal depending on material, above/below grade, fire department connections, and auxiliary pumps among other options. Where some communities have not been able to afford cisterns, homeowners associations have often covered the expense. For cisterns to be a regularly reliable option, EFD should do a more comprehensive analysis on goals, costs, ownership, maintenance, and water supply (where does the cistern water come from).

Class 5

Easton's rating of Class 5 puts it in near the median of Connecticut fire departments with just as many communities having a lower rating and a higher rating. ISO's 2011 ratings were divided into three broad categories:

Figure 94: Easton FD 2011 ISO Results

Feature	Easton FD Points	Available Points
Receiving and Handling Fire Alarms Total	**6.30**	**10**
Telephone Service	1.80	2
Operators	1.50	3
Dispatch Circuits	3.00	5
Fire Department Total	24.06	50
Engine Companies	8.96	10
Reserve Pumpers	0.79	1
Pumper Capacity	5.00	5
Ladder Service	1.86	5
Reserve Ladder and Service Trucks	0.63	1
Distribution	1.76	4
Company Personnel	4.10	15
Training	0.96	9
Water Supply Total	27.61	40
Supply System	23.66	35
Hydrants	2.00	2
Inspection and Condition	1.95	3
Divergence	**-4.18**	
TOTAL	**53.79 (Class 5)**	**100**

To move Easton to a lower ISO rating (class 4?), the five lines that have the highest potential for change are:

1) Receiving and Handling Fire Alarms – Operators
2) Fire Department Total - Ladder Service
3) Fire Department Total - Distribution
4) Fire Department Total - Company Personnel
5) Fire Department Total - Training
6) Water Supply Total - Supply System

Receiving and Handling Fire Alarms – Operators

ISO recognizes for safety and backup reasons; two dispatchers should be on duty simultaneously. Since Easton's dispatcher also functions as a front-desk receptionist for the police department, there is some merit to this. However, it may not make financial or efficiency sense for a round-the-clock second dispatcher. Two main options exist:

1) Contract with the new Fairfield dispatch center which would likely get Easton full credit on this line.
2) Hire a second dispatcher for day-time hours that would increase the credit and reduce dispatcher workload. Full credit may not be achieved but it should increase the score.

Fire Department Total – Ladder Service

ISO recognizes ladder trucks for both large stream application and building ventilation. If a community does not have occupancy types requiring a ladder truck (3 stories or greater), it may gain credit through "service companies" which is a vehicle that carries the equipment a full ladder truck would carry. Easton received a .63/1 score here with this option.

Easton FD may gain credit with purchasing a short-version quint engine. Many smaller communities recognize that they do not have a need for a large 100' aerial ladder however having a mechanized ladder that reaches beyond ground ladders can be greatly beneficial for both safety and effectiveness reasons. A quint/engine is effectively a pumper engine equipped with a 55' or 75' ladder (It is called a 'quint' because it performs five functions: carries water, carries hose, has a pump, has a mechanical ladder, and has ground ladders. It runs a bit heavier than a pumper but usually with similar wheelbases allowing for access to areas that pumpers can get to. Short wheel-based quint engines add about $200,000-$250,000 to the price of an engine. This likely would not give the fire department full credit for ladders but could increase its line score.

Fire Department Total - Distribution

This line is a combination score of the potential for a first-due engine to be within 1 ½ miles of an incident and a ladder or service company to be within 2 ½ miles. Without the building of an additional fire station (which ESCI does not see a need for) much may not be gained here but a quint engine as mentioned in the previous section could add points here.

Fire Department Total - Company Personnel

One of the biggest rooms for ISO improvement is with Company Personnel. This line addresses the number of personnel that respond to a call and there are credits for:

- On-duty personnel
- Volunteer personnel
- Chief officers
- Mutual aid personnel

Simply, Easton FD could increase its initial call response manpower and gain credit. ISO identified an average of 8.3 personnel responding on call which not only caused a reduced score but is also well below the NFPA recommendation of at least fifteen people on structure fires; a safety issue when much is to be done on an emergency scene.

This is an area that the fire service is strengthening through stronger and more robust mutual aid programs; having neighboring jurisdictions responds on initial dispatches. It is called automatic aid and there are some fire departments with low manpower that often have over six different fire departments responding in reciprocal fashion to fire incidents. Easton should consider strong automatic and mutual agreements with their neighbors.

Fire Department Total – Training

Training had the lowest percentage of possible points of all the ISO categories. This is an area that the fire department can make tremendous progress in significantly raise the ISO score. While there are several individual line items that me up training, ESCI will highlight only those lines that we feel, within Easton's context, can make noteworthy progress in.

1) Sharing a neighbor's fire department drill tower
2) Creating a combustible liquids pit or equivalent
3) Providing 5-10 hours of monthly fire training with a higher participation rate
4) Providing classes for officers
5) Providing formal driver and operator training
6) Inspecting all commercial properties within the town
7) Improve training record-keeping

Water Supply Total - Supply System

This was addressed in the class 9 section however improvements can be achieved with determining where water would come from and then practicing sustained water supply and flows for periods that exceed 30 minutes.

Recommendation #15: The Easton FD should conduct an ISO evaluation as soon as possible and expect to repeat them every 5-7 years or if a notable change is made to the fire department, water supply, or communications system.

Communications/Radios

Easton has three options available to but only two are realistic.

Option #1: Fire department migrates to a newer radio technology but does not take advantage of trunking technologies. Trunking technologies are methods of frequency sharing that are transparent to a user and allows a greater number of units on any frequency. This is an expensive technology that would require a significant infrastructure expense as well and would not be cost-feasible for only the fire department. Most fire departments that use this technology use it because the state government hosts the required infrastructure and makes it available to local governments, is a large city that can afford it, or are part of a regional dispatch system that shares all the costs as well as receives volume purchasing discounts.

Option #2: Upgrade fire department radios to match those of the rest of the town and EMS. It is likely that this would require FCC approval depending on the existing licenses the town holds. In addition, this would require some form of agreement between the town and the volunteer fire company permitting the volunteer fire company to operate under the town license. This option would satisfy the need of allowing the fire department to communicate with other town units but could still be problematic when trying to communicate with outside agencies. Including mobile, portable, and base station radios, the estimated cost on this would be $50,000-$75,000 plus installation and programming costs.

This option upgrades all the radios in the system including the base stations, and transmitter, and receivers. One element to be aware of is that the contemporary fire service is now equipping every firefighter with a radio for safety purposes. The radio may be accessible on a vehicle or be issued directly to the firefighter who carries it with him, but cost predictions should include a radio for every firefighter.

Option #3:

Taking one step farther out is an option to participate in a regional communications system. These types of systems tend to be inclusive of both fire and police and allow neighboring fire departments to communicate as well as participating agencies of different disciplines such as police and fire. This includes the ability to provide integrating technologies for mutual aid plans, emergency medical dispatching and emergency fire dispatching. These systems operate as a subscription service where participating agencies pay a cost-distribution based fee to a hosting agency (usually a nearby government or quasi-government agency) that provides all the necessary communications

infrastructure and policies often at a national standard level. The participation fee is often based on a combination of population served and call volumes. Easton's neighbors, Fairfield and Westport have opened a regional communications center that opened in late 2022 and likely would welcome the Town of Easton into its operations.

While the scope of this document is a Comprehensive Fire/EMS system analysis and not a formal communications study, ESCI would recommend that the Town do a comprehensive cost/benefit analysis along with survey input from all the Easton agencies on the pros/cons of switching to a regional dispatch center. The analysis should include a variety of use-cases from all organizations and compare the existing system and costs to the those of a regional dispatch center. In addition, to be well-informed on options, Town staff should meet with the Fairfield regional dispatch center staff and investigate what it would take for the Town (and Fire Department) to become part of the Fairfield Operation. This investigation should include the following:

- Benefits, quantifiable and unquantifiable, to both the Town and the Easton FD
- Scope of communications abilities
- User equipment to be purchased including mobile, portable, and base station radios
- Infrastructure upgrades such as the installation of transmitters and receivers within the Town.
- How is system and radio maintenance handled
- Communications system coverage analysis to assure that all areas of Easton have adequate coverage
- Service fees including how they are calculated
- How does Easton participate in governance and decision-making

Communication needs are a regular and highly valuable function that grants are available for. FEMA's Assistance to Firefighters Grant regularly provides funding for this need.

Recommendation #16: The Town of Easton should conduct a comprehensive communications assessment that includes all users of the existing town radio system to determine a strategic plan forward. The assessment should include an evaluation of a migration to a regional dispatch center and what the requirements would be to participate.

New EMS Station

As mentioned in the EMS Facilities Review, ESCI is recommending a new EMS station to replace the existing station. A replacement committee has already been established by the Town.

The administration of Easton EMS has made it clear they have no want or intention at this time to fold their operations into the organizational structure of the Fire Department. In interviews they feel

that maintaining a separate organizational structure is imperative to their ability to recruit and retain active volunteers as well as achieve their organizational mission. Organizational identity and culture are crucial factors in staff and volunteers feeling fulfillment in their positions. The visual representations of uniforms, patches and titles allow members to feel connected to their organization in a way that provides job satisfaction. ESCI agrees that these elements are crucial factors in allowing Easton EMS to continue fulfilling its mission.

To build the station, the Town is looking at two options: building a new building for its own operations or building an addition onto the fire station which is across the street. The Easton Volunteer Fire Company has graciously offered, contingent on membership approval, the EMS station to be attached to its fire station and potentially allow a sharing arrangement that is cost beneficial to the town. A quick review of the pros and cons of each option are listed:

Separate EMS Station Pros
- o Organizational identity is more visible
- o EMS has sole oversight of building design and functionality
- o Maintains separation from fire department
- o Can modify building to adapt to needs as organization grows

Separate EMS Station Cons
- o More expensive construction costs
- o More expensive to maintain
- o Greater tax impact on community
- o Property must be purchased as well
- o Promotes a separateness amongst public safety agencies

Fire Station Attachment Pros
- o Lower construction and maintenance costs
- o No property to purchase
- o Less impact on community taxes
- o Promotes team atmosphere amongst public safety teams

Fire Station Attachment Cons
- o Creates risk of identity merging
- o Risk of reduced EMS volunteerism
- o Fire station not currently configured to share living spaces
- o Concerns if fire department is landlord or partner

Without doing a thorough facility design study, ESCI estimates the appropriate size square footage for a new building would be 6000-8000 square feet with three drive-through bays on 2-3 acres of

property to allow for storage and additional growth. At an estimation of $700/ft^2 for construction costs and land costs of approximately $100,000/acre, total hard construction costs without interior furnishings are estimated at $4.4 million to $5.8 million. If the same square footage were attached to the fire station, costs could be reduced by 10%-20% since no property would need to be purchased and if the fire department felt joint living space could be shared, they cover a portion of the costs. Just as important to the construction costs would be the sharing of maintenance costs which would be reduced in a shared building.

While the writers of this report feel that maintaining separate organizational identities are a priority, ESCI does not see the need for a separate standalone building at a new physical location. Land acquisition, construction, and financing costs continue to rise in the current economic environment. The current fire headquarters has room for expansion and addition without impeding its current operations. By having two agencies share segmented parts of a single structure you do not need to inherently combine the organizations. This is evident in the many communities that have adopted a public safety complex model which will often house operations and administration staff for both police and fire departments. The cost savings of this will allow resources to be used for apparatus, equipment, and personnel costs.

Recommendation #17: The Town should build a new EMS station attached to the existing Easton volunteer fire station which the fire company has offered, contingent on membership approval.

SHORT AND MID-TERM STRATEGIES

Short-Term Strategies

1) Request a current ISO evaluation. With the last evaluation taking place in 2011, it is likely there have been changes to the community and fire department. Those will be identified in an ISO study.

2) Establish a committee of representatives from all the Town departments including the Volunteer Fire Company to discuss the issues of radio communications and viable solutions. The aim of the committee should be of one that allows for a single technology.

3) Initiate discussions between the Town, the EMS organization, and the volunteer department addressing how the EMS organization can maintain its identity yet share resources with a shared fire department facility. Try to avoid mistaken perceptions and operating from already-established conclusions.

4) Establish written agreements between the Town and both the Volunteer Fire Company and volunteer EMS department that identify specific responsibilities and liabilities of each organization. Have it approved by the First Selectmen and the Boards of each organization.

Mid-Term Strategies

1) Establish performance standards for both the Fire and EMS agencies. With the town providing funding for both, the Town, with community input should have the final say on performance standards.

2) Convert, review, and establish written policies and procedures for the fire department.

3) In the interest of transparency, have the fire and EMS department budgets publicly available.

4) Create strategic plans for the Town, fire department and EMS department.

5) Have new EMS station include modern station amenities including gender-specific living arrangement and physical fitness resources.

6) Develop formal aid arrangements with neighboring fire departments.

RECOMMENDED LONG-TERM STRATEGY

1) Continue to monitor impacts of growth and demographic changes on service demands

2) Incorporate formal long-term planning into the Town's individual departments.

RECOMMENDATIONS

Recommendation #1: Establish contracts, effectively documenting existing arrangements, between the Town and both volunteer organizations.

Recommendation #2: ESCI recommends that the Town develop an all-inclusive technology plan including the fire station that includes necessary security arrangements, a communications infrastructure between all the town's facilities and adequate user computer technologies that are kept current.

Recommendation #3: The fire department should create an electronically-based policies/procedures manual that is reviewed/updated regularly. Since the town funds most of the fire department's operations budget, policies at least and possibly some procedures that reflect or affect organizational philosophy should be approved by both the Fire Commissioners and the Volunteer Fire Company's executive officers.

Recommendation #4: Consider the use of social media to be a dependable resource for the community to turn to in times of disaster.

Recommendation #5: It is recommended that Easton Fire Department and Easton Volunteer Fire Company #1 develop, communicate, and routinely evaluate the mission statements of their respective organizations.

Recommendation #6: Both fire and EMS departments should complete strategic plans (2-5 years) adopted and approved by the Board of Selectmen and their oversight Boards. Master Plans (5+ years) should be considered as well.

Recommendation #7: The department should use a structural approach to operational planning ensuring that all elements of the organization contain a planning element.

Recommendation #8: The fire department should consider an addition/reconfiguration that allows for gender-specific facilities, fitness and gear facilities separate from the apparatus floor, and living space that can accommodate 6-8 full-time personnel.

Recommendation #9: Easton's EMS organization needs a new facility to include headquarters, space, office space, living quarters, and adequate space for growth.

Recommendation #10: Both fire and EMS organizations should develop fleet replacement plans that include potential replacement year and anticipated costs.

Recommendation #11: Town and volunteer department leadership should regularly assess volunteer time contributions and make sure all is being done to attract and retain volunteers.

Recommendation #12: Easton FD consider automatic aid agreements with neighboring fire jurisdictions to increase initial response effectiveness and potentially help reduce the town's ISO rating.

Recommendation #13: Both Easton EMS and Fire should establish structured training programs, including documentation, compliant with NFPA and ISO standards.

Recommendation #14: Develop specific performance standards related to both the responses of the organizations as well as the administrative aspects of the organization such as training hours or skills evaluation.

Recommendation #15: The Easton FD should conduct an ISO evaluation as soon as possible and expect to repeat them every 5-7 years or if a notable change is made to the fire department, water supply, or communications system.

Recommendation #16: The Town of Easton should conduct a comprehensive communications assessment that includes all users of the existing town radio system to determine a strategic plan forward. The assessment should include an evaluation of a migration to a regional dispatch center and what the requirements would be to participate.

Recommendation #17: The Town should build a new EMS station attached to the existing Easton volunteer fire station.

SECTION VI:
Appendices

APPENDIX A: TABLE OF FIGURES