EVESHAM FIRE-RESCUE

NJ

Standard of Cover

Evesham Township Fire District No.1

July 2021

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Evesham Township Board of Fire Commissioners
John Behnke, President
Benjamin Guerrini, Vice President
Elizabeth Baugh, Treasurer
Michael Powers, Secretary
Christian Smith, Member

Chief of Department
Carl Bittenbender

Introduction

The following report serves as the Evesham Township Fire District No. 1 Standard of Cover document. The Evesham Township Board of Fire Commissioners tasked the Fire Chief with developing a Standard of Cover in 2020. Following a lengthy development, review and revision process, this document was adopted by the Board of Fire Commissioners on July 8th, 2021.

One of the issues historically faced by emergency services is that of defining levels of service for the community it serves. The Center for Fire Accreditation International (CFAI) defines this process, known as "deployment analysis," as written procedures which determine the distribution and concentration of fixed and mobile resources of an organization. The resultant deployment analysis is documented as a *Standard of Cover.* The purpose for completing a Standard of Cover is to assist the agency in the deployment of a safe and effective response force for fire suppression, emergency medical services, specialty response situations, and homeland security issues. In summary, the Standard of Cover consists of a rational, systematic way to describe decisions made regarding the deployment of resources in relation to the potential demand placed on them by the type of risk and historical needs of the community.

Creating a Standard of Cover document requires that several areas be researched, studied, and evaluated. The following report will begin with an overview of both the community and the agency. Following this overview, the agency will discuss areas such as risk assessment, critical task analysis, agency service level objectives, and distribution and concentration measures. The agency will provide documentation of reliability studies and historical performance through charts and graphs. The report concludes with desired performance objectives.

On behalf of the Fire District,
Chief Carl Bittenbender

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Executive Summary

This document identifies Evesham Township Fire District No. 1's Standard of Cover (SOC) for Evesham Township, New Jersey. An analysis of response resources, deployment strategies, operational elements and the overall community risks have been included within this document. It establishes response time goals and performance standards for measuring the effectiveness of resources within the department and the deployment of those resources. The document is segregated into components based on the format recommended by the Center for Fire Accreditation International, Standard of Cover 5th Edition.

Evesham Township Fire District No. 1 (EFD) is an all-hazards trained department, providing a variety of services, including: fire suppression, vehicle extrication and technical rescue services, basic life support (BLS) emergency medical transport services, Uniform Fire Code and Uniform Construction Code plan review and inspection services, fire prevention education, and fire investigation services to the community. The department's jurisdiction encompasses all the governmental boundaries of the community, 29.71 square miles. The Fire District was created in 1968 and provides service under the departmental name Evesham Fire-Rescue and now serves a population of 45,060, based on the 2019 population estimate from the U.S. Census Bureau.

The area served by the department is experiencing residential and commercial growth, especially as areas have been redeveloped to include high and medium density housing on previous vacant or commercially developed land. The district's services are provided from three stations with a fleet of apparatus including four fire engines, one 100' platform ladder, one heavy rescue, a technical rescue unit, two wildland units, a marine unit, and five ambulances, along with a compliment of command and staff vehicles. The Burlington County Communications Center (Central) provides emergency call receipt and dispatch service.

The Insurance Services Office (ISO) reviews the fire protection resources within communities and provides a Community Fire Protection Rating system from which insurance rates are often based. The rating system evaluates three primary areas: the emergency communication and dispatch system, the fire district, and the community's pressurized hydrant or tanker-based water supply. The overall rating is then expressed as a number between 1 and 10, with 1 being the highest level of protection and 10 being unprotected or nearly so. As of the latest rating, ISO gave the service area a rating of Class 2. This rating was conducted in March of 2015.

This report provides guidance to the Board of Fire Commissioners and Fire Chief, as they determine the necessary emergency services coverage the community requires, within local policy and budget constraints. The Standard of Cover (SOC) is considered a planning document designed to accomplish several objectives including:

- Evaluating and defining the agency's baseline of operations [current operations]
- Determining levels of service for all portions of a community [desired coverage/district policy]
- Identifying benchmarks for achieving an agency's goals and objectives [defined goals]
- Measuring an agency's performance over budget/operational years [ongoing analysis]

Component A: Description of the Community Served

History and Governance of the Fire District

Evesham Township is in Burlington County, NJ and includes a mix of residential and commercial/retail properties, along with a large area of wildland-urban interface. The township is in southern New Jersey, on the borders of Burlington and Camden Counties, and located twelve miles from the center of Philadelphia. Evesham Township encompasses 29.71 square miles. The mutual aid districts for Fire and Emergency Medical Services (EMS) include Medford, Medford Lakes, Tabernacle and Mount Laurel in Burlington County, along with Cherry Hill, Voorhees, Waterford, and Berlin in Camden County. Evesham Fire-Rescue is a combination career and volunteer agency that delivers both Fire and EMS services to a growing community of more than 45,000 residents.

Governance of Evesham Fire-Rescue is provided by the Evesham Township Fire District No. 1 through a publicly elected five-member Board of Fire Commissioners. The Fire District created by Evesham Township Ordinance No. 68-20 in 1968, has all the powers of municipal government, except the power to legislate. Funding of the fire district is via tax levy, in accordance with New Jersey State Law.

All local legislation (ordinances) are created through the Evesham Township Council. The Fire District is the responsible public agency for providing all Fire and Emergency Medical Services for and to the township. In addition, the Fire District operates the Office of Emergency Management and provides Uniform Construction Code-Fire Subcode services for the Evesham Township Department of Community Development.

The Board of Fire Commissioners are responsible for establishing oversight of the Fire District and Fire Chief, including the funding level of the District. The election for commission positions is held annually, during the November General Election cycle, with each commissioner serving staggered three-year terms. The Board of Fire Commissioners, as public officials, must follow all the rules that are promulgated for all public agencies by the State of New Jersey.

Service Area Overview

The department's jurisdiction encompasses all the governmental boundaries of the community, 29.71 square miles. The 2018 American Community Survey from the United States Census Bureau indicates that there were 45,135 people and 18,642 housing units in the Township. The population density was 1,548.1 per square mile. There were 18,642 housing units at an average density of 627.5 per square mile. The township has a total of approximately 185 miles of roadways, which include major state highways NJ 73 and NJ 70.

Standard of Coverage Density

In the SOC process, the service area classifications are broken down into five demand zones:

- *Metropolitan* - geography with populations of over 200,000 people in total and/or a population density of over 3,000 people per square mile. These areas are distinguished by mid-rise and high-rise buildings, often interspersed with smaller structures.

- *Urban* - geography with a population of over 30,000 people and/or a population density of over 1,000 people per square mile.

- *Suburban* - geography with a population of 10,000 to 29,999 and/or a population density of between 500 and 1,000 people per square mile.

- *Rural* - geography with a total population of less than 10,000 people or with a population density of less than 500 people per square mile.

- *Remote* - geography requiring response where travel distance is greater than or equal to 8 miles.

- *Wilderness/Frontier/Undeveloped* - geography that is both rural and not readily accessible by a publicly or privately maintained road.

An analysis of population density in Evesham Township reveals that no geographic analysis areas fall into the metropolitan, remote, or wilderness areas. The population density analysis categorizes Evesham Township as urban, with a very limited suburban area consisting of residential homes in the wildland/urban interface response area of Evesham Township. As a result of this analysis, no tiered service delivery zones were established in this Standard of Cover document.

The entire response area is designated as an *urban* service delivery zone with common performance goals and objectives throughout.

Component B: Review of Services Provided

Services Provided

Evesham Township Fire District No. 1 is an all-hazards trained department, providing a variety of services, including: fire suppression, vehicle extrication and technical rescue services, basic life support (BLS) emergency medical transport services, Uniform Fire Code and Uniform Construction Code plan review and inspection services, fire prevention education, and fire investigation services to the community.

A blend of personnel provides staffing for the District:

- Full-time cross-trained Firefighter/EMTs (historically referred to as the 'career' staff)
- Full-time EMTs (new employee class June 2021)
- Per-diem EMTs
- Volunteer firefighters and EMTs

Fire and EMS apparatus is staffed 365 days a year through a variety of deployment of the staffing listed above. Effective with the Board of Fire Commissioners decision at the May 2021 meeting, a redeployment of career firefighter/EMT personnel will be conducted, additional career and per-diem EMTs will be hired, and our volunteer duty crew program will be overhauled to provide a consistent in-house suppression and BLS staffing model for the District. These changes changes are expected to be fully implemented by October 2021. The *Core Emergency Services Summary* below reflects this ongoing and upcoming deployment.

The following chart provides basic information on each of the department's core services, its general resource capability for that service, and information regarding staff resources for that service. Additional detail on service capabilities will also be provided throughout this document.

Figure 1: Core Emergency Services Summary

Service	General Resource/Asset Capability	Basic Staffing Capability per Shift
Fire Suppression	365 days a year (October 2021): 1 Engine, minimum M-F 0600-1800 (October 2021): 1 Engine, minimum 1 Fire Inspector, minimum 1 Command Unit, minimum M-F 1800-2200 & M-F 1800-0600: 1 Engine, minimum Additional resources response from home and additional automatic and mutual aid engines, ladder, and support units available	3-4 suppression-trained personnel 5-6 additional suppression-trained personnel per day 3-4 suppression-trained personnel Additional automatic and mutual aid firefighters available
Emergency Medical Services	365 days a year: 2 staffed BLS units, minimum M-F 0600-1800: 3 staffed BLS units, minimum	365 days a year: 4 EMTs per day M-F 0600-1800: Additional 2 EMTs per day
Vehicle Extrication	4 engines equipped with a hydraulic rescue tool, cutting saw, and stabilization cribbing. 1 rescue equipped with multiple hydraulic rescue tools, hand tools, air tools, air bags, cutting saw, and stabilization cribbing.	Majority of career and volunteer firefighters are vehicle rescue operations trained. Minority of career and volunteer firefighters are vehicle rescue technician trained.
Confined Space	1 rescue company equipped with tripod, SABA, communications set, air monitoring equipment, ventilation, basket stretchers, and rope rescue gear	Majority of career and volunteer firefighters are confined space operations trained. Minority of career and volunteer firefighters are confined space technician trained.

Service	General Resource/Asset Capability	Basic Staffing Capability per Shift
High-angle Rescue	1 rescue company equipped with rescue rope, software, and all associated hardware.	Majority of career firefighters are rope rescue operations trained. Minority of volunteer firefighters are rope rescue operations trained. Minority of career and volunteer firefighters are rope rescue technician trained.
Trench and Structural Collapse Rescue	1 rescue company with pneumatic shoring jacks, sheeting, cribbing, limited lumber, and hand tools for initial stabilization. Additionally, there is 1 collapse rescue truck brought to all trench and collapse incidents (purchased by FEMA funding in cooperation with Burlington County OEM)	Majority of career firefighters are trench/collapse operations trained. Minority of volunteer firefighters are trench/collapse operations trained. Minority of career and volunteer firefighters are trench/collapse technician trained.
Water and Ice Rescue	4 engine companies, BLS units and command units equipped with limited surface water rescue equipment 1 rescue company equipped with ice rescue suits and limited swift water equipment 1 marine unit equipped with surface-water rescue equipment	Majority of career and volunteer firefighters are swift water and ice rescue awareness trained. Minority of career and volunteer firefighters are water/ice operations trained. Minority of career and volunteer firefighters are water/ice technician trained.

Assets and Resources

Personnel

Evesham Township Fire District No. 1 is a combination fire and emergency medical services organization, using a blend of full-time cross-trained firefighter/EMTs (historically referred to as the 'career' staff), full-time EMTs (new employee class June 2021) and per-diem EMTs, and volunteer staffing is currently used to staff apparatus 365 days a year.

Effective with the Board of Fire Commissioners decision at the May 2021 meeting, a redeployment of career firefighter/EMT personnel will be conducted, additional career and per-diem EMTs will be hired, and our volunteer duty crew program will be overhauled to provide a consistent in-house suppression and BLS staffing model for the District. These changes are expected to be fully implemented by October 2021, and Staffing Allocation and resource deployment description reflects these anticipated operational changes.

The following figure represents the number of responders for each station location; the career, full-time, and per-diem members have been listed without station assignment, as they can be assigned to any of the physical locations.

Figure 2: Staffing Allocation

Assignment	Personnel Available	Certification, Primary
Station 221 Volunteer FF	20	Firefighter
Station 223 Volunteer FF	8	Firefighter
Station 225 Volunteer FF	3	Firefighter
Career Firefighter/EMT	39	Firefighter/EMT/Inspector
Administration	4	Administration
Full-time EMT	2	EMT
Per-diem EMT	18	EMT
Volunteer EMT, All Stations	3	EMT
Total	**97**	

*Staffing as of 07/01/2021

There are currently 39 uniformed career personnel including one Chief, two Deputy Chiefs, two Captains, five Lieutenants, and twenty-nine Firefighter/Emergency Medical Technicians. All the career staff, except for the newest hires, also carry the additional title of Fire Inspector and perform inspection duties in cooperation with our Fire Prevention Division. There are two full-time EMTs. In addition, there are four non-uniformed personnel: the business administrator and assistant business administrator, a management information specialist, and a clerical support person.

The career staff work Monday through Friday, from 6:00 a.m. to 6:00 p.m., staffing at a minimum, three (3) suppression apparatus (engine/aerial/rescue), one supervisor, and one fire inspector, deployed from one of our three stations. By October 2021, the career staff will be redeployed and the career staff will continuously staff an in-house suppression crew at Station

223, and one (1) suppression apparatus will be staffed Monday through Friday, from 6:00 a.m. to 6:00 p.m., along with one supervisor, and one fire inspector. This level of staffing is minimum, with additional personnel available to respond and supplement suppression forces during the Monday through Friday period. These additional trained personnel respond from the command staff and the inspection staff, all of whom are cross trained.

EMS coverage is provided by a mix of full-time and per-diem EMTs and career firefighters/EMTs staffing two (2) BLS units, 365 days a year, 7 days a week, with a third (3) BLS unit staffed M-F 0600-1800 for peak demand.

The volunteer firefighter staff encompass 31 firefighters (and recruit firefighters). Volunteers staff one (1) suppression apparatus Monday through Thursday, from 6:00 p.m. to 6:00 a.m. with an in-house duty crew, deployed from Station 221. By October 2021 it is anticipated that this suppression apparatus will be staffed on Friday overnight hours and our volunteer staff will begin to expand weekend daytime and nighttime coverage hours, based on volunteer availability.

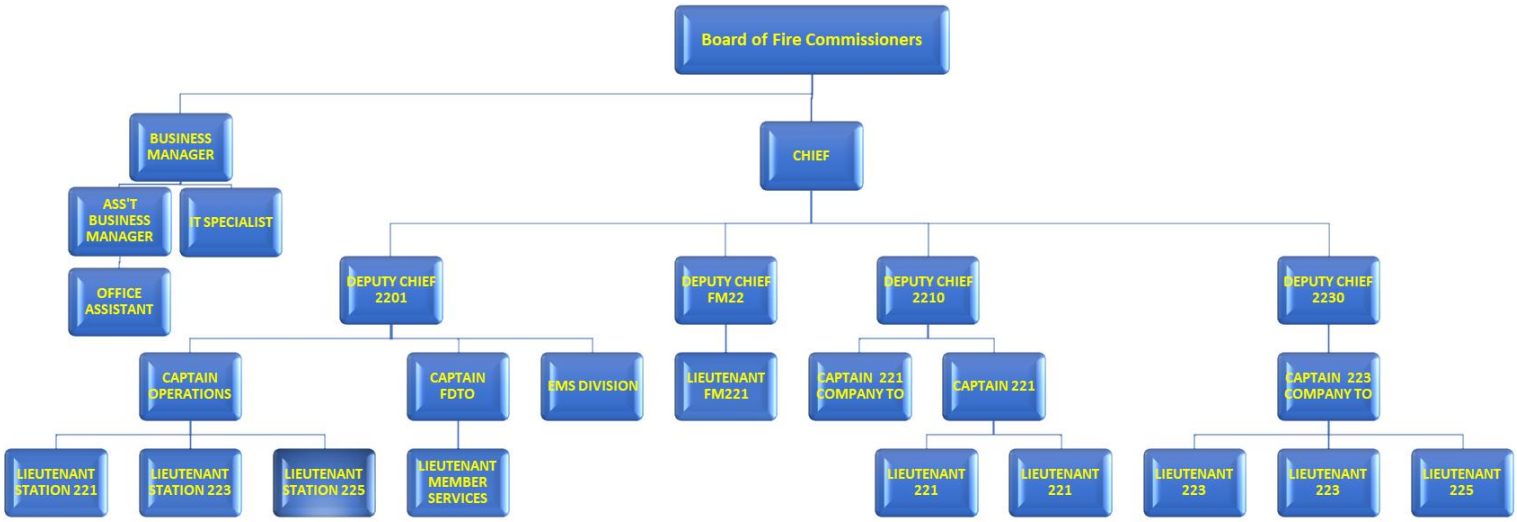
Business operations are conducted from our Fire Administration Office located within the Evesham Township Municipal Building. The Fire Administration Office is home to the Division of Fire Prevention/Education. In addition, the Business Administrator and clerical staff also work from the Fire Administration Office and provide extensive support to the operations of the Fire Department and the Board of Fire Commissioners. The administration office is open Monday through Friday from 8:30am to 4:30pm.

Organizational Structure

Span of control is still considered relevant today and applies not only to the military, but correspondingly to the fire service. It is important to note that all managers experience a decrease in effectiveness as their span of control exceeds the optimal levels. In other words, the limitations implied by span of control are not shortcomings of certain individual managers, but rather of managers in general. In addition, it is important to understand that span of control refers only to direct reports, rather than to an entire hierarchy (all personnel in the fire district). Extending span of control beyond the recommended limits engenders poor morale, hinders effective decision making, and may cause loss of the agility and flexibility that give many organizations their strength.

Evesham Township Fire District No. 1 is organized in the typical top-down hierarchy. The chain of command is identified with common roles for a combination fire district of this size. The fire district's multiple facilities and its combination staffing model create internal communications and management challenges. The fire district's organizational chart is functional and primary roles are well identified for operational responsibility, but all staff also have administrative responsibility not easily defined in a simple organizational chart (Figure 3). The fire district uses company level officers with specific responsibilities and job functions, which provides benefit to the officers' spans of control and delegation of responsibility.

Figure 3: Evesham Township Fire District No.1 Organizational Chart



One of the primary responsibilities of the fire district's administration and support staff is to ensure that the operational entities of the organization have the ability and means to accomplish their responsibilities on the emergency incident. Efficient and effective administration and support are critical to the success of the fire district. Without sufficient oversight, planning, documentation, training, and maintenance, the operational entities of a department will likely fail any operational test. Additionally, like any other part of a fire district, administration and support require appropriate resources to function properly.

Analyzing the ratio of administrative and support positions to the total positions of the fire district facilitates an understanding of the relative number of resources committed to this important function. The appropriate balance of the administration and support component to the operational component is critical to the success of the fire district's mission and responsibilities.

According to the Center for Public Safety Excellence, emergency services organizations usually enjoy a 10 to 15 percent ratio of administration and support staff to total personnel. As identified previously, the fire district has 95 operations staff, but only four full-time administrative staff, showing we are potentially understaffed by four to five administrative personnel.

Thus, Evesham Township Fire District No.1 career personnel perform double duty, ensuring the administrative and business functions of the Fire District are maintained, including the following responsibilities: Administration, Fire Operations, Emergency Medical Services, Information Technology, Fire Prevention/Public Education, Training and Safety, and Support Services and Logistics, while also maintaining a response-ready posture to immediately respond to calls for service. The Fire Chief oversees the operational and administrative functions of the District and= is also the appointed Emergency Management Coordinator for Evesham Township.

The following administrative and business functions are completed by the administrative staff and career fire officers, with significant support from the career firefighters:

- Administration functions include: providing direction and policy to the entire department and includes human resources and financial management components; information technology and integration; management of public records; contract management, public purchasing and procurement and distribution of supplies. Administrative functions also include all human resource aspects, such as: the hiring and promotional processes, the administration of discipline, labor-management relations, employee benefits, and volunteer stipend/benefit programs for the District.

- Fire Operations include: the protection of lives, property, and the environment by responding to fire, EMS, and all-hazards emergencies, performing pre-fire planning inspections, and assisting in presenting public education programs to increase fire and life safety awareness.

- Emergency Medical Services include: handling the administrative and operational aspects of our emergency medical service delivery system. This also includes working with our contracted Medical Director, protocol development and maintenance, quality control/quality assurance program, and billing compliance program.

- Support Services and Logistics include: the oversight and management of the facilities, fleet, and equipment ensuring operational readiness, and also managing contracts and scheduling third-party testing as mandated by various state laws and nationally recognized standards; uniform and turnout gear ordering, station consumables and response consumables, such as EMS supplies and suppressions/rescue supplies

- The Training section: provides all-hazards and EMS training for new and existing Fire Department personnel to ensure all members are well-trained in the skills needed to keep the public protected; the Department Training Officer and designated Assistant Training Officers from the career and volunteer staff work to prevent or reduce the severity of injuries and exposures to contagious diseases, while enhancing the overall readiness of all members.

- Fire Prevention/Public Education and Fire Investigation: promotes public safety by administering fire codes and standards, conducting commercial building inspections, enforcing compliance of code requirements and investigating fire origin and cause; assigned fire inspectors also deliver structured public education on fire, EMS and life safety practices to the community through social media, live presentations and community outreach programs throughout the year.

Volunteer and per-diem personnel are responsible for the operational staffing of the suppression and emergency medical service apparatus. The volunteer fire officer cadre support incident command and scene management, as well as limited administrative functions related to their assigned personnel, including membership support and training delivery and support.

Fire and EMS Stations

Fire stations play an integral role in the delivery of emergency services for several reasons. A station's location will dictate, to a large degree, response times to emergencies. Evesham Township Fire District No.1 maintains three (3) stations staffed by a combination of career, per-diem, and volunteer emergency services personnel. The stations are generally in good structural and mechanical condition, but they are not well-suited for 24/7 habitation by responders. When the stations were constructed more than 25+ years ago, the stations were equipped for staffing during daytime hours, with volunteer response from home.

Fire and EMS Station 221 is located at 26 East Main Street and houses one engine, one platform aerial, one heavy rescue, one collapse rescue unit, and three BLS units. This station is the largest of the three stations operated by EFD and this station's career and volunteer staff respond to most of the fire and EMS calls in Evesham Township from this location. This station is located in the northern portion of the township, which is the most densely populated area of the township, containing the highest risk level, with a hospital, multiple care facilities, shopping centers, and high-density multi-family housing located in this station's primary response area. This station's responders and equipment also respond via automatic aid into Mt. Laurel Township, Medford Lakes Boro and Tabernacle Township, and via Mutual Aid into other surrounding jurisdictions. This station is generally in good physical condition but does not ideally support a fire and EMS operation that is continuous in nature via in-house staffing, with the limitation being limited live-in quarters (bunkrooms).

Fire and EMS Station 223 is located at 150 Merchants Way and houses two engines, one brush truck, one flat-bottom 14' rescue boat, and two BLS units. This station is physically the smallest of the three stations, but the second busiest. Station 223 career and volunteer staff respond to the Station 223 response area and the Station 225 response area, and secondary to the Station 221 response area. This area contains a moderate risk level, with single-family and high-density multi-family housing integrated in the Wildland/Urban Interface. This station's responders and equipment also respond via automatic aid into Medford Township, Medford Lakes Boro, and Waterford Township, and via Mutual Aid into other surrounding jurisdictions. This station is generally in good physical condition but does not sufficiently support a fire and EMS operation that is continuous in nature via in-house staffing, with limited restrooms and showers, and a small area for administrative functions. In 2020, the training area was converted to a rudimentary live-in area with simple demising walls, to increase functionality within a limited capital budget.

Fire and EMS Station 225 is located at 498 Hopewell Road and houses one engine, and one brush unit. This station is the most remotely located of the three stations and this station's career and volunteer staff respond to the Station 225 response area, secondary to the Station

223 response area, and tertiary to the Station 221 response area. This area contains a lower risk level (relative to the rest of Evesham Township), with single-family homes integrated in the Wildland/Urban Interface, and in a number that exhibits a moderately lower density. This station's responders and equipment also respond via automatic aid into Waterford Township, and via Mutual Aid into other surrounding jurisdictions. This station is generally is good physical condition but does not sufficiently support a fire and EMS operation that is continuous in nature via in-house staffing, with the limitation being no existing live-in quarters.

Apparatus

Other than the firefighters assigned to stations, response vehicles are probably the next most important resource of the emergency response system. Evesham Township Fire District No.1 maintains an extensive fleet of fire apparatus, ambulances, light duty vehicles, and specialty vehicles to provide services to the community. The following figure lists apparatus operated by the fire district, assigned to one of the three (3) fire stations or administrative office, as needed to maintain operational readiness. The figure also indicates the expected replacement year and the frequency of replacement. The special operations vehicle was supplied by Burlington County under of a Memorandum of Understanding and cross staffed with specially trained career and volunteer firefighting personnel assigned to their respective stations.

Figure 4: Fleet Schedule

	Year	Make	Model	Replacement	Frequency
COMMAND					
2200	2015	Chevy	Tahoe	2025	10 yr
2201/FM22	2014	Chevy	Tahoe	2024	10 yr
2202	2013	Chevy	Tahoe	2023	10 yr
2204	2010	Chevy	Tahoe	2020	10 yr
2210	2018	Chevy	Tahoe	2028	10 yr
2230	2020	Chevy	Tahoe	2030	10 yr
EMS					
A901	2020	Ford/Horton	E450	2028	8 yr
A902	2021	Ford/Horton	E450	2029	8 yr
A903	2021	Ford/Horton	E450	2029	8 yr
A904	2013	Ford/Horton	E450	2022	8 yr
A905	2013	Ford/Horton	E450	2022	8yr
FIRE					
E102	2010	Pierce	Arrow XT	2026	15 yr
E104	2010	Pierce	Arrow XT	2028	15 yr
E105	2010	Pierce	Arrow XT	2029	15 yr
E106	2010	Pierce	Arrow XT	2030	15 yr
2215	2014	Pierce	Arrow XT	2034	20 yr
2218	2019	Pierce	Velocity	2039	20 yr
2237	1994	Ford	F350	2024	30 yr
2257	2000	Ford	F350	2030	30 yr
SPECIALTY					
Tech Rescue 22	2006	Chevy	C6500	2020	20 yr
Marine 22		14' Flat Bottom AL Boat			
M22 Trailer		Single axle bunk trailer			
PREVENTION					
FM221	2019	Ford	F150	2029	10 yr
FM223	2011	Chevy	Tahoe	*	10 yr
FM225	2011	Chevy	Tahoe	*	10 yr
FM226	2010	Chevy	Tahoe	*	10 yr
STA/SUPPORT					
2219	2017	Chevy	Express	2032	15 yr
2239	2012	Chevy	2500HD	2027	15 yr

*Vehicles replaced through vehicle rotation and reallocation

Component C – Review of the Community Expectations and Performance Goals

Community Expectations

The goal of any emergency service delivery system is to provide sufficient resources (personnel, apparatus, and equipment) to the scene of an emergency in time to take effective action, minimizing the impacts of the emergency. This need applies to fires, medical emergencies, and any other emergency to which the fire department responds.

Obtaining and understanding the desires and expectations of community stakeholders is an important first step. The primary responsibility of the Board of Fire Commissioners is to evaluate the service provided and ensure service provision is sufficient, based on the recommendations of the Fire Chief and his Command Staff. The Board of Fire Commissioners and the Command Staff routinely discuss service provision and the service expectations each board members desires. This standard of cover also considers the community's comments offered during open public meetings, on social media, and during any number of community events that the command staff and members attend. There have been a number of conversations, as well as discussion about specific incidents, between the Command Staff and the Township Manager, the Mayor and Deputy Mayor and the members of council, as well as the Police Chief about the Fire District and the services we provide, as well as what their expectations are. The Fire District is committed to incorporating the needs and expectations of residents and policy makers in the service delivery planning process.

As noted above, conversations reveal that many stakeholders share an opinion that service levels were "good," when asked to describe the overall level of service provided by the Fire District. Almost all residents and policy makers universally comment and agree that they desire the following performance from the Fire District:

- Continue or maintain current response performance
- Balance available financial and physical resources without jeopardizing service
- Be fiscally prudent and maintain affordability
- Continue placing emphasis on customer service and orientation to citizens
- Be visionaries and innovative as related to service delivery
- In summary, stakeholders want 'value' for their tax money; they want good service at a fair cost on a consistent basis

Community Service Level Area Considerations

In many communities, it is appropriate to consider variations in the service levels and expectations of the community based on population densities. This is because rural areas often present lower risks than urban areas based on land use and structure types. In addition, rural area residents often have a different expectation of service delivery based on their geographic distance from service centers.

However, there are two variables which alter the dynamic of the rural-area residential homeowner thought process: 1) In the rural area in Evesham Township, residents pay the same,

or more, in local and fire tax dollars as residents in the urban area and 2) the residents in the rural area have a physical fire station located in their community, erected many years ago by the community and the local volunteer firefighters, with the specific purpose of protecting their local community.

As a result of this analysis, no tiered service delivery zones were established in this Standard of Cover document. The entire service area in Evesham Township will be designated as an urban service delivery zone with common performance goals and objectives throughout.

Community Expectations

In general, the community generally expects the fire district to successfully deliver service in four dimensions:

- Timely response
- Trained and capable personnel
- State of the art equipment and tools
- Good community relations

Resulting Outcome Goals

Using the information gained as we identified community expectations, the District has developed overall goals for each of the services it provides. These performance goals further define the quality and quantity of service expected by the community and consistently pursued by Evesham Township Fire District No.1

Figure 5: Service and Outcome Goals

Service	Community Outcome Goal
Fire Suppression	For all fire incidents, EFD shall arrive in a timely manner with sufficient resources to stop the escalation of the fire and keep the fire to the area of involvement. An effective concentration of resources shall arrive within time to be capable of containing the fire, rescuing at-risk victims, and performing salvage operations, while providing for the safety of the responders and public.

Emergency Medical Services	For all emergency medical incidents, EFD shall arrive in a timely manner with sufficient trained and equipped personnel to provide medical services that will stabilize the situation, provide care and support to the victim, and reduce, reverse or eliminate the conditions that have caused the emergency, while providing for the safety of the responders. When warranted, timely transportation of victim(s) to appropriate medical facilities shall be accomplished in an effective and efficient manner.
Vehicle Extrication	For all vehicle accidents where rescue of victims is required, EFD shall arrive in a timely manner with sufficient resources to stabilize the situation and extricate the victim(s) from the emergency situation or location without causing further harm to the victim, responders, public and the environment.
High-Angle Rescue	For all high-angle rescue incidents, EFD shall arrive in a timely manner with sufficient resources to stabilize the situation and establish an action plan for the successful conclusion of the incident. Working in conjunction with additional specially trained and organized regional resources, EFD will perform the necessary rescue functions while providing for the safety and security of the responders, public and the environment.
Trench and Collapse Rescue	For all trench or collapse rescue incidents, EFD shall arrive in a timely manner with sufficient resources to stabilize the situation and establish an action plan for the successful conclusion of the incident. Working in conjunction with additional specially trained and organized regional resources, EFD will perform the necessary rescue functions while providing for the safety and security of the responders, public and the environment.

Water/Ice Rescue	For all water/ice rescue incidents, EFD shall arrive in a timely manner with sufficient resources to stabilize the situation and establish an action plan for the successful conclusion of the incident. Working in conjunction with additional specially trained and organized regional resources, EFD will perform the necessary rescue functions while providing for the safety and security of the responders, public and the environment.
Confined Space Rescue	For all confined space rescue incidents, EFD shall arrive in a timely manner with sufficient resources to stabilize the situation and establish an action plan for the successful conclusion of the incident. Working in conjunction with additional specially trained and organized regional resources, EFD will perform the necessary rescue functions while providing for the safety and security of the responders, public and the environment.
Hazardous Materials	For all hazardous materials incidents, EFD shall arrive in a timely manner with sufficient resources to stabilize the situation and establish an action plan for the successful conclusion of the incident. For those incidents requiring only operations-level containment, EFD will perform the necessary functions while providing for the safety and security of the responders, public and the environment. For those incidents requiring more extensive technician-level functions, EFD will call for and support additional specially trained and organized regional resources to perform the necessary containment, stabilization, and/or clean-up functions while providing for the safety and security of the responders, public and the environment.

Component D: Overview of Community Risk

Risk Analysis

Evesham Township was found to be like many other townships in America, when it comes to a discussion of its character – meaning the township is constantly changing. Buildings are constantly being constructed, rehabilitated, or renovated, traffic is constantly moving, commerce continuously occurs, and people are born, age, and die. As a result, risk changes, and the approach to managing those risks must change with them.

Emergency service organizations must expand their use of fundamental assessment and planning efforts to assure they can meet future demands. This is the defined process used to identify the community's fire protection and other emergency service needs, identifying potential goals and objectives. Evesham Township has a basic source of data and information to define the organization's mission logically and rationally. The result of the process is to establish a long-range general strategy of the operation of the system. This can be achieved by:

1. Documenting and collecting historical data and instituting a process by which risks are defined and potential organizational goals and objectives are established.
2. The organization can then assess the nature and magnitude of the hazards within its jurisdiction, with each significant event categorized and listed, to permit future analysis and study, in determining standard of response coverage and related services.
3. The organization next assesses the nature and magnitude of other hazards and risks within its jurisdiction and identifies appropriate strategies, methods of operation, and resource allocation required to mitigate potential emergencies.
4. Finally, the result is a "strategic" or other form of long-term (typically three to five years into the future) planning process that, along with a budget, is guiding the activities of the organization.
5. The plan is then submitted to the appropriate authority having jurisdiction for review and implementation. The coordination of these actions creates a plan.

The community's risk assessment has been developed based on current land use within the fire district boundaries. These uses are found in the area's geographic parcel data. The following parcel data translates land use to categories of relative fire and life risk.

- Low risk – Areas zoned and used for agricultural purposes, open space, low-density residential, and other low intensity uses.
- Moderate risk – Areas zoned for medium-density single family properties, small commercial and office uses, low-intensity retail sales, and equivalently sized business activities.
- High risk – Higher-intensity business districts, mixed use areas, high-density residential, light industrial, warehousing, and large mercantile centers.

Evesham Township contains mostly moderate and high-risk properties. In Evesham Township, the predominance of highest risk is located north of the Marlton Parkway, in certain non-residential developments along major arterial routes. These properties include healthcare, heavy commercial, mid-rise, mixed-use, institutional, and multi-family occupancies.

The department has identified several occupancies in Evesham Township, which require a more proactive response posture. This special response is due to the occupants' physical or medical condition and/or type of life hazard use of the building. An automatic alarm at these occupancies will be dispatched with two engines assigned. Any report of fire in these occupancies will receive the moderate or high hazard response algorithm.

Figure 6: Moderate and High Hazard Occupancies

Street Address	Use Group	Alias	Special Hazard
120 Tomlinson Mill Road	Educational	Cherokee High School North	Density
130 Tomlinson Mill Road	Educational	Cherokee High School South	Density
302 Lippincott Drive	Healthcare/Institutional	Artis Senior Living	Disabilities & restricted mobility
99 East Main Street	Healthcare/Institutional	Wiley Healthcare	Disabilities & restricted mobility
90 Brick Road	Healthcare/Institutional	Virtua Marlton	Disabilities & restricted mobility
92 Brick Road	Healthcare/Institutional	Marlton Rehabilitation	Disabilities & restricted mobility
870 East Route 70	Healthcare/Institutional	Care One at Marlton	Disabilities & restricted mobility
874 East Route 70	Healthcare/Institutional	Care One Assisted Living	Disabilities & restricted mobility
170 Greentree Road	Healthcare/Institutional	Briteview, Care	Disabilities & restricted mobility
170 Greentree Road	High-density housing	Briteview, Independent	Restricted mobility
1000-3000 Hailey Drive	High-density housing	Weston Club	Restricted mobility
500-7000 Barclay Blvd	High-density housing	Barclay Chase	Density
12 South Maple Avenue	High-density housing	Jackie's Crossing	Density
444 North Elmwood Road	High-density housing	B'nai B'rith	Restricted mobility
109 East Route 70	High-density housing	Inwood Renaissance Square	Density
111 East Route 70	High-density housing	Inwood Renaissance Square	Density
123 East Route 70	High-density housing	Inwood Renaissance Square	Density
125 East Route 70	High-density housing	Inwood Renaissance Square	Density
133 East Route 70	High-density housing	Inwood Renaissance Square	Density
42 East Main Street	High-density housing	Main Street Apartments	Density
125 East Main Street	High-density housing	Marlton Gateway Apartments	Density
16 West Stow Road	High-density housing	Marlton Senior Living	Restricted mobility
4 Executive Drive	High-density housing	Marlton Family Living	Density

New Construction or Expansion of Facility Above Under Construction			
Street Address	**Use Group**	**Alias**	**Special Hazard**
3 Executive Drive	High-density housing	Marlton Family Living	Disabilities & restricted mobility
5 Executive Drive	High-density housing	Marlton Family Living	Restricted mobility
170 Greentree Road	Healthcare/Institutional	Briteview, Care	Disabilities & restricted mobility
874 East Route 70	Healthcare/Institutional	Care One Assisted Living	Disabilities & restricted mobility
405 Lippincott Drive	Healthcare/Institutional	Artis Senior Living	Disabilities & restricted mobility
Route 73 & Dutch Road	Healthcare/Institutional	Oakleigh Senior Living	Disabilities & restricted mobility
52 E. Main Street	High-density housing	Harvest House Living	Density
63 E. Main Street	High-density housing	McKenna Family Living	Density
500-7000 Barclay Blvd	High-density housing	Barclay Chase	Density x 3 more buildings

*As of 07/01/2021

Risk Analysis Overview by Specific Hazard or Use Classification

The following sections highlight certain hazards within Evesham Township that pose special concerns for the fire district.

Weather Risk

Evesham Township is situated in southern New Jersey, situated between the Delaware Bay and the Atlantic Ocean. This region is known for hot, humid summers and cold winters. Firefighters regularly face weather emergencies each year. The primary threat occurs during the spring and summer seasons that spawn strong thunderstorms, which can cause wind damage and minor flash flooding. When these events occur, and there are prolonged power outages, there is likely to be a need for an emergency shelter in a hardened structure located on elevated ground for persons affected by the storm damage.

Geographic/Geological Risk

Certain geographic and geologic risks create situations that threaten the community or are physical barriers to street connectivity for emergency service response. One of these is the hydrological features such as streams and lakes. There are regional aquifers in Evesham Township and the surrounding area that, in combination with the Pinelands National Reserve, has created areas of Evesham Township which remain accessible by only a few roadways. The flat terrain of the area also precludes any mountainous barrier as well.

Man-made barriers

There are man-made barriers that also affect the response capability of emergency services and they are present in almost every community, and especially with urban areas such as Evesham Township. Limited access freeways, bridges and grade-differentials can interrupt street connectivity, forcing apparatus to negotiate a circuitous route to reach an emergency scene. While freeways and other arterials can have jersey-type safety barriers or medians to separate opposing traffic lanes, cross-over or breaks are limited.

While the aforementioned man-made barriers are minimal, Evesham Township has other man-made barriers to street connectivity. The proliferation of cul-de-sac developments and gated communities, or tract communities, where developments are not interconnected, by their design, provide limited access points for emergency responders. Evesham Township has a number of these barriers which challenge the travel distances of responders.

Fault lines

Although the United States east of the Rocky Mountains has fewer and generally smaller earthquakes than the West, at least two factors increase the earthquake risk in New Jersey and the East. Due to geologic differences, eastern earthquakes effect areas ten times larger than western ones of the same magnitude. Also, the eastern United States is more densely populated, and New Jersey is the most densely populated state in the nation. Although there are many faults in New Jersey, the Ramapo Fault is the best known. The United States Geological Survey has classified this area for a low probability of an earthquake occurring that would affect Evesham Township.

Transportation Network

Transportation corridors provide necessary access and egress for Evesham Township. These take the forms of roads, airports, and railways, and ports. Absent within Evesham Township are airports, railways, and a river port. However, its proximity to the Delaware River and the river ports, and the City of Philadelphia make the arterial roads within Evesham Township essential to regional commerce.

The southern New Jersey road network serves pharmaceutical companies, retail, warehousing, agricultural and through-truck movements. Two major state highways dissect Evesham Township. The NJ 73 corridor runs North-South through Evesham Township from the Tacony-Palmyra Bridge to the Atlantic City Expressway. The NJ 70 corridor runs East-West from the Delaware River to the Atlantic Ocean. Both corridors serve as a pass-through for the New Jersey shore recreational and beach traffic, as well as the Atlantic City casinos. Evesham Township experiences high traffic year-round, but during summertime and on summer weekends, traffic on NJ 73 and Route NJ 70 traffic is markedly increased.

According to the Delaware Valley Regional Planning Commission, the traffic volumes along NJ 73 varies, but the 1996 average (this is the most current data available) annual daily traffic (AADT) volume recorded in Evesham Township was approximately 41,000. While this counts vehicles, it does not account for the number of passengers onboard each vehicle. Additionally, some of these travelers may just be passing through at a given time or their final or interim destination may be within Evesham Township. Another element often overlooked that is essential to the safety of motorists and pedestrians is the traffic signals. Without these devices operational, such as during a power outage, significant increases in collisions are likely to occur. Intersections are the leading location for motor vehicle collisions in the United States. Other dangerous intersections are near freeway interchanges as entering or exiting vehicles merge into other lanes for the maneuver, such as the confluence of NJ 73 and NJ 70.

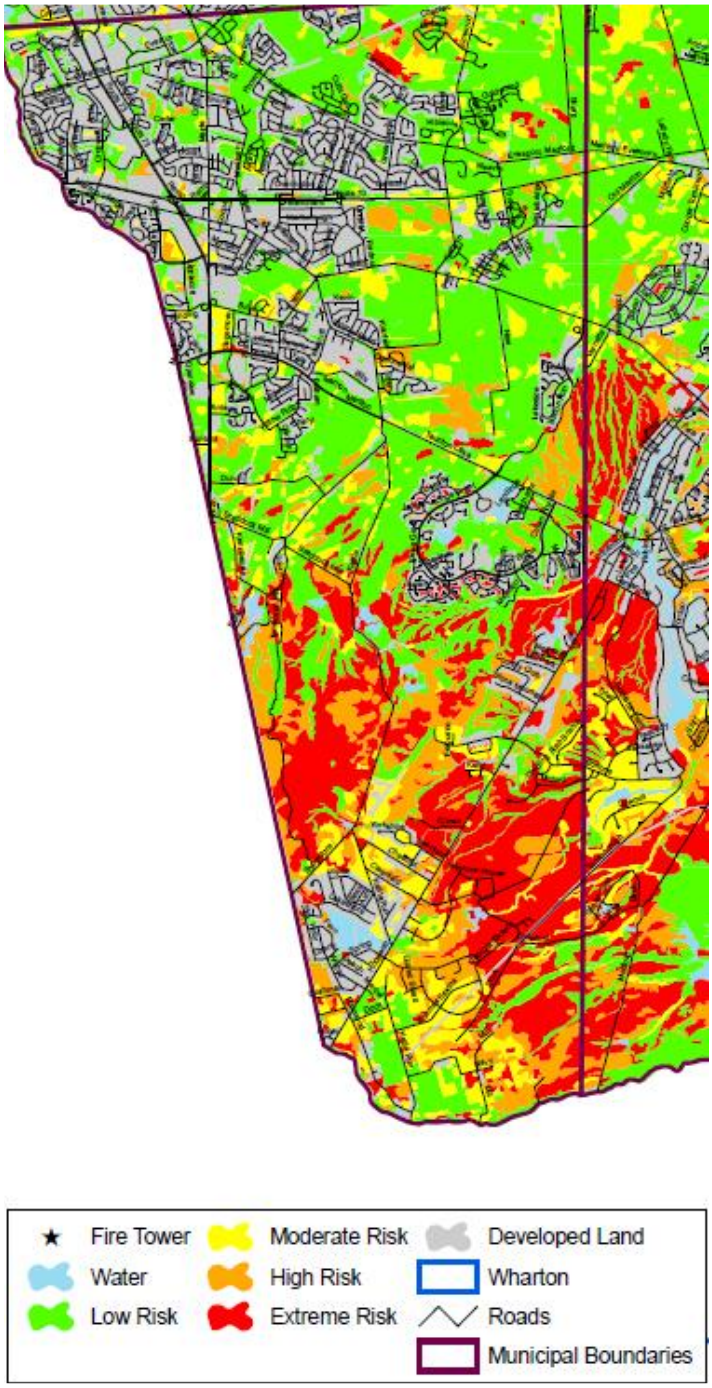
There is no airport in Evesham Township, but Evesham Township lies under the approach to the Philadelphia International Airport and its' runways 27L and 27R, the main runways and approach pattern for the airport. There are also several regional airports in the communities contiguous to Evesham Township, which also present a level of risk to the community, though not easily quantifiable. There are two private helipads located between mid-rises in Evesham Township, both of which receive inbound and outbound moderate private traffic.

Wildfire Risk

A significant portion of the geography of Evesham Township lies within the Pinelands National Reserve. The New Jersey Pinelands is a fire adapted ecological community that is one of the most hazardous wildland fuel types in the nation. Fuel loadings exceed twenty tons per acre in some locales. Pinelands fires burn extremely hot and spread rapidly. Crown fires are common, spreading from treetop to treetop, as is long range spotting where flying embers start new fires in advance of the main fire. A potentially explosive combination is created when the factors of hazardous wildland fuels, interface home development, and an increased risk of human caused ignition come together under extreme fire weather conditions.

In Evesham Township, single family and multi-family housing are part of the built environment in the wildland environment. This creates a wildland/urban interface environment, where the risk for a large portion of the land in Evesham Township within the Pinelands National Reserve is listed as moderate, high, and extreme by the New Jersey Forest Fire Service. A clip of the risk map that was compiled by the New Jersey Forest Fire service is shown for Evesham Township, with yellow indicating moderate risk, orange high risk and red extreme risk.

Figure 7: Wildfire Risk



Government Buildings
Essential to the response, mitigation, and preservation of a community during and after an emergent event are government buildings. These are buildings which contain the equipment, staff, and archival records essential to the primary functions of government. These facilities include most municipal, state, or federal offices, emergency services facilities, libraries, postal facilities, and communication centers. Several government buildings are located within Evesham Township.

Congregational
There are certain identifiable places where larger congregations of people converge for one reason or another. These congregational facilities and are higher risk due to larger populations within the facility, and the economic or community impact of a loss due to fire or some other event.

Business, Low and Mid-rise and Assembly
There are buildings in Evesham Township which are low and mid-rise office buildings, social halls, and restaurants that have a higher population density than in residential areas and contribute significantly to the economic well-being of the community. These other congregational facilities that also pose a high life risk, based on population density.

Schools/Daycares
There are several educational institutions within Evesham Township. These are facilities which contain children ranging in ages from newborn to college-age, representing the future of the community and the region. Though primarily operational during the daytime hours, evening classes, or athletic events create an environment in which many persons can occupy the property at varying hours of the day and early evening.

Houses of Worship
Churches, mosques, and Judaic and Indian temples are all a part of the American mosaic. There are houses of worship of many varieties located within Evesham Township, most host activities throughout the weekdays and evenings, aside from scheduled worship services.

Retail Centers
Aside from thriving retail strip commercial centers, the auto-dependent retail centers have also proliferated the landscape in Evesham Township. Open-air store-anchored strip malls geared towards pedestrian traffic have also been constructed in Evesham Township. These retail centers attract many shopping visitors to these properties year-round.

High Density Housing
Although most housing is in the form of single-family residences, higher density housing such as condominiums, townhouses, and apartments do exist in Evesham Township. Additionally, there is a certain amount of affordable housing for low- and moderate-income persons, which also represents higher population densities. High-density housing has a higher risk for the loss of

life, and correlate with higher rates of multiple emergency responses, compared to single family residential areas.

Water Distribution
The most obvious element of this system that affects the fire district are the fire hydrants. Disruption to the municipal hydrant system would impact Evesham Township and the firefighting ability of the district. Additionally, as water is used for firefighting, or perhaps in the case of a hazardous material spill, run-off into the sewer pipes can impact the processing capability of the municipal utility authority, potentially threatening the ecological and human health of the community.

Medical Facilities
Caring for the sick and infirmed is every community's moral responsibility. However, when an emergency threatens the facilities that care for them or the community at large, this population must be assisted to reach a safe place that can continue to care for them. Identifiable facilities include hospitals, clinics (such as dialysis centers), outpatient surgical centers, nursing homes, and assisted living facilities. Additionally, the community should be aware of those who are infirmed or disabled that live in residences throughout the township. Evesham Township contains several medical facilities, including Virtua Health System Marlton Campus on Brick Road.

Communications
While it may be obvious that emergency communication centers and the transmitting and receiving equipment are essential, there are other communication facilities and equipment that are equally important to the community and government operations. These are the fire stations, which serve as redundant centers (in a limited capacity) to dispatch fire district resources, and the lines of local telephone providers. Internet service providers, along with wireless cellular communication providers, provide essential communication capabilities for the community as well as emergency personnel through their facilities and equipment. There are numerous communications facilities throughout Evesham Township, many of them integrated and mounted on water towers operated by the water utility. There is also one large communication hub centrally located in Evesham Township, and this hub is critical to communications within Evesham Township and several surrounding municipalities.

Energy
Previously discussed community services, from communications to traffic signals to normal operations, require the use of energy. Whether it is fuel distribution, storage tanks or natural gas pipelines and regulator stations, the community is dependent upon energy sources. One of the most important energy elements is the electrical distribution infrastructure. This includes the generation facilities, the transmission lines, and the substations that are located across every community in the nation. Evesham Township has a network of transmission lines that run through Evesham Township along the state highway routes, in addition to the network of piping supplying residential service. Evesham has two large electrical substations in the township, one

located on NJ 73, and one located on Sharp Road, both serving Evesham Township and surrounding municipalities.

Bridges
These structures provide essential crossings and unimpeded travel across physical and man-made barriers. In the event of an emergency, these are crucial as both evacuation routes, and as emergency response routes. The bridges in Evesham Township are limited to secondary roadway connector bridges, but the bridges located on Taunton Lake Road, Tomlinson Mill road, and Barton Run Boulevard are critical to the Evesham road network, as an impassable bridge in these locations would essentially divide Evesham Township in half.

Retail Food, Commercial Food & Cargo Distributors
These suppliers and their storehouses are critical, not only for providing goods to the community during an emergency, but to the everyday distribution of goods and food products needed to sustain a community. There are several small and midsize commercial food and cargo distributors with operations in Evesham Township. There are also at least five large retail grocery stores in Evesham Township, integral in the food chain supply to Evesham Township and surrounding municipalities.

Hazmat Preplanning
Buildings that have been identified as containing hazardous materials can create a dangerous environment during a spill, rupture, or fire, to the community as well as the firefighters. Special equipment such as clothing and detectors, along with specialized training are necessary to successfully mitigate a hazardous materials incident. There are no reported SARA (Superfund Amendments of Reauthorization Act) Title III sites in the Township. However, SR 73 and 70 consistently have commercial carriers traversing the roads with hazardous cargo.

Multi-Storied Buildings
Buildings that are above two floors pose a special risk in an emergency. Fires occurring on higher floors require an aerial fire truck to be able to deliver water into the building that does not have standpipe infrastructure, or to make rescues of entrapped occupants who have had their egress blocked by smoke or fire. Evesham Township has numerous multi-storied commercial office occupancies and high-density multi-story housing occupancies.

Large Square Footage Buildings
A multi- story building typically has more square footage, but a building does not necessarily have to be multi-floored to have a large area. Examples include warehouses, malls, and large 'box' stores. A larger square footage building also requires an aerial truck to deliver water across a larger surface area to suppress a fire. Evesham Township has several large square footage commercial occupancies, primarily retail in nature, each housing a variety of combustible materials.

Terrorism

The proximity of Evesham Township to a major international city (Philadelphia), as well as its airport, along with the general density of the population surrounding a major city, raises the threat level and concerns of a terrorist activity compared to other less populated areas of the country. Most of the previous categorized risks listed within this document, are potential targets for terrorist activity. The fire district needs to be vigilant in its training and preparedness in should one or more coordinated acts of terror occur in the Philadelphia and New York City metropolitan regions.

Development Considerations

Evesham Township has been extensively developing previously undeveloped lands, as well as redeveloping land with increased density use structures along the Route 70 corridor for the past five or more years. The Evesham Township Vision 2020 Report and planning documents indicate that the intersection of State Routes 70 and 73 are in a redevelopment zone overlay. This area of Evesham Township is one of the oldest developed sections of Evesham Township. The older commercial and residential buildings in this overlay zone have undergone significant redevelopment in the past ten years, increasing the number of commercial and retail occupancies by inserting high-density housing in this redevelopment overlay.

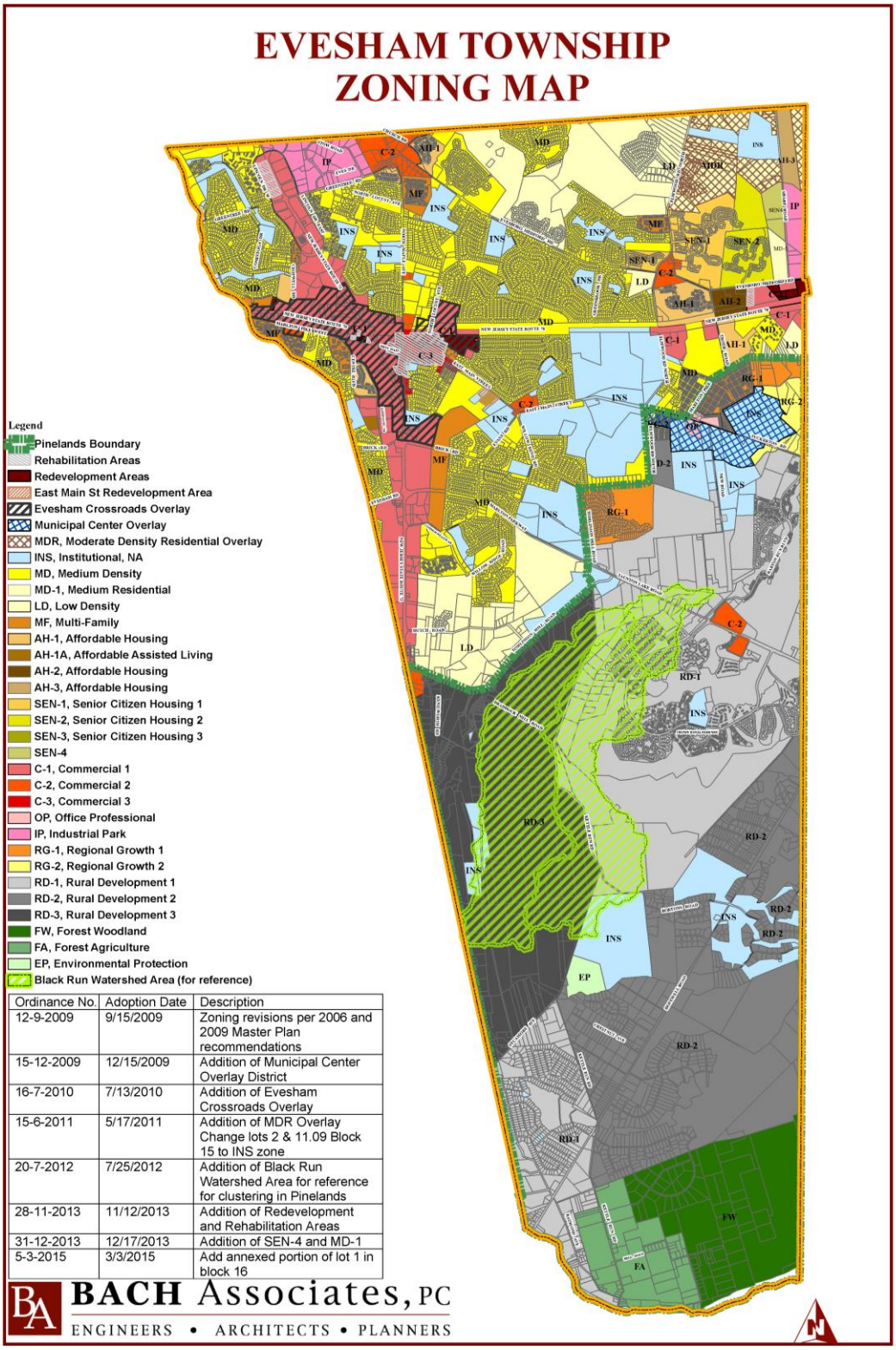
Additionally, the Maples Avenue and Main Street corridors are major travel routes dissecting the township. This area lies just south of State Route 70 and East of Route 73 and is a major connector from Evesham Township to Mount Laurel and Medford Townships. This is where Fire Station 221 is located and the fire station staff has witnessed the extensive redevelopment that occurs daily. This area is undergoing significant redevelopment, with older balloon-frame single-family dwellings being replaced with high-density wood frame apartment-style buildings with light commercial on the lowest floors.

Further redevelopment plans in Evesham Township point to redevelopment in commercial/office areas as the need for housing outside of the urban environment increases. Due to the COVID-19 pandemic, world events and housing supply may alter these redevelopment factors, requiring a return to more suburban population centers outside of urban hubs. Currently, among younger demographic cohorts, urban living is considered attractive, but the dynamic of community-spread disease in urban areas may shift that landscape. The following figure presents the various zoning for Evesham Township, as well as the redevelopment overlays.

Development of high-density housing and single-family housing along the North Elmwood and Sharp Road corridors has been vigorous for the past 5 years. Drawing lines north along Elmwood Road and east along Route 70 from the intersection of these two roads and extending those lines to the Evesham Township border on a map, would show an area resembling a square. This square was previously undeveloped. This area has now been developed, or has plans for development, which include more than 1,000 housing units, either in single-family form, townhouse form, or high-density apartment form. This area of the township is one of the

more densely populated sections of Evesham Township, and the furthest physical location from any of our fire stations.

Figure 8: Evesham Township Zoning Map



Risk Summary

Township-wide, there are several key points identified as we identify the service coverage area and standard of cover density:

1. While hazards are not considered “unique”, they are hazards and risks that require appropriate types of response, equipment, and performance capability to adequately manage those risks. This means that staffing, fire apparatus, specialized equipment in some cases, and water supply is necessary and must be provided in a timely fashion if there is an expectation of minimal damage relative to the risk.

2. There is a limited level of built-in fire protection in older structures (fire detection, fire alarm, fire suppression) which results in a delay of emergency reporting to the fire department. This means that small fires grow undetected, and must be found by human detection, and those humans must then activate 911. Larger fires result in greater fire damage and more reliance upon human action (reporting by civilians) and manual fire suppression actions (fire department personnel). Larger fires require more fire suppression resources, efforts, and water supply.

3. Evesham Township has a limited water supply in certain portions of the township and undeveloped sections of the township. This is based on hydrant location information and Insurance Services Organization Data, where these areas are classified as ISO 2X. This lack of a hydrant water supply creates a greater emphasis on the need for provisions of water at fire scenes by alternative water sources, or automatic aid water source tenders in those areas. These operations require time to establish, which is in direct relation to fire growth-- that is the longer it takes to get water on the fire by firefighters in the proper fashion, the greater the size of the fire.

In summary, when a fire occurs, there must be enough water applied with the right type of equipment and staff to suppress the fire. If there is no early warning (e.g. smoke detectors) or early suppression efforts (e.g. automatic fire sprinklers), the application of water by the fire department is critical in quickly minimizing life safety risks associated with smoke and fire development and to manage any property loss.

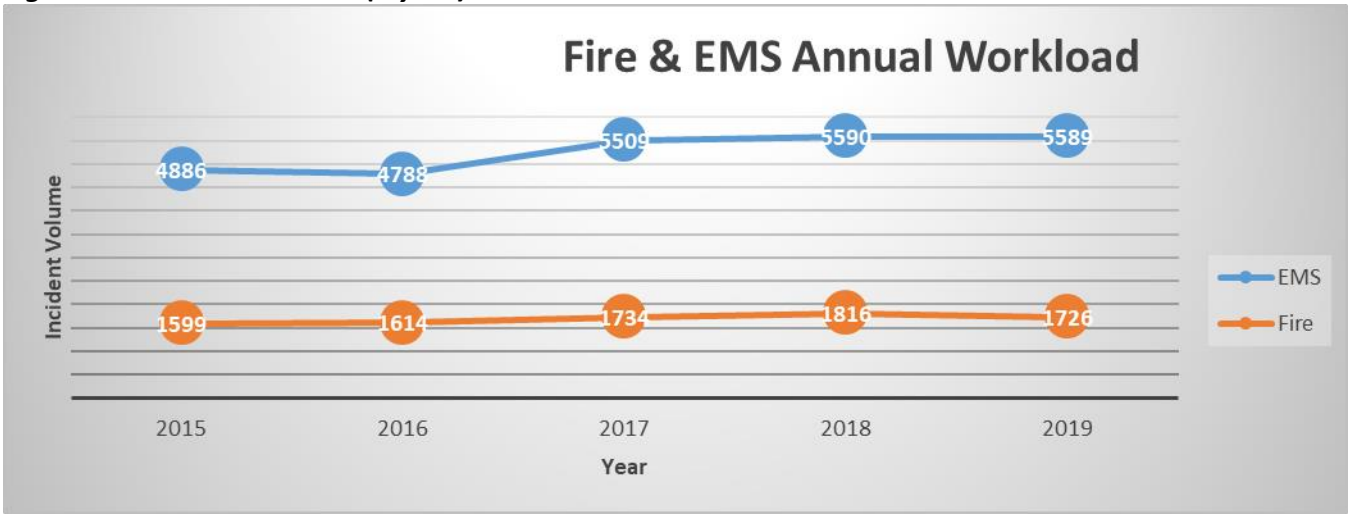
Component E: Review of Historical System Performance

Incident Demand

Before a full response time analysis is conducted, it is important to first examine the level of workload, or incident demand, that the fire district experiences. Higher service demands can strain the resources of a department and may result in a negative effect on response time performance.

A five-year study period was used for workload analysis. EFD experienced a slight increase in fire calls as well as an overall increase in medical calls, resulting in a significant increase in overall service call volume in the five-year period from January 1, 2015 to December 31, 2019.
Note: Year 2020 records have not been used for statistical analysis due to the unique circumstances surrounding the COVID-19 impact during 2020.

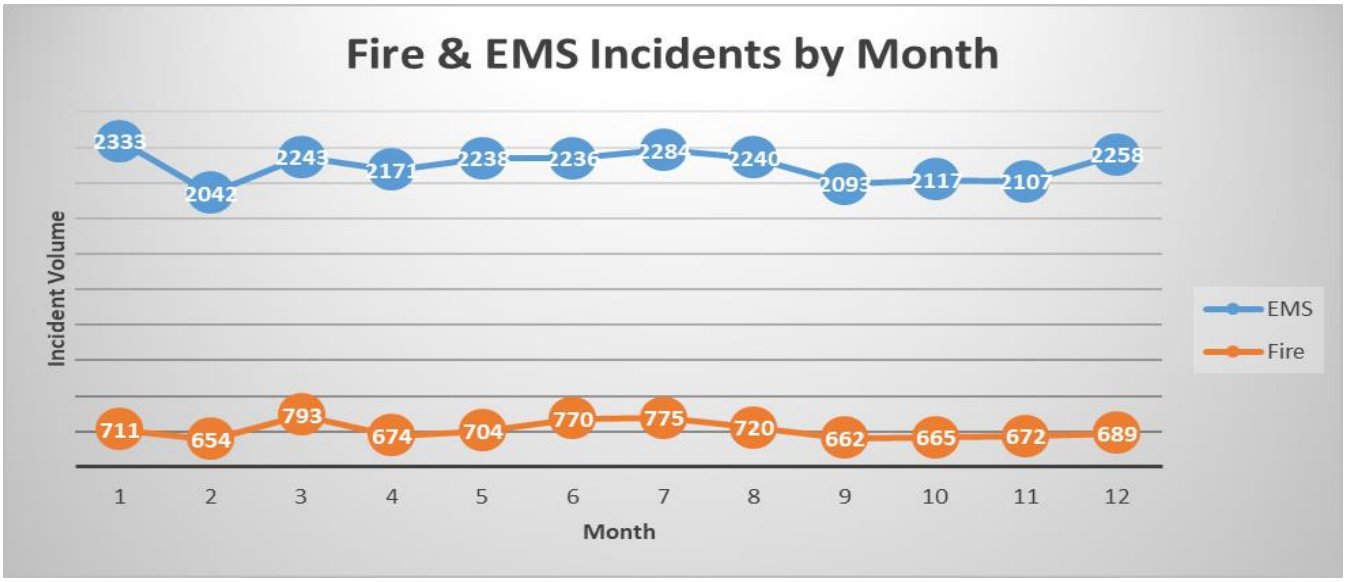
Figure 9: Annual Workload (5 year)



Annual Workload (5 Year)	Fire	EMS
2015	1599	4886
2016	1614	4788
2017	1734	5509
2018	1816	5590
2019	1726	5589
% Increase over 5 Years	***7.94% (1.6% annual)***	***14.38% (2.88% annual)***
2020 Actual (Covid-19)	*1517*	*5208*
2021 Projected	1781	5915
2022 Projected	1810	6085
2023 Projected	1839	6261
2024 Projected	1868	6441

An examination of fire and EMS incidents by month over a five-year period shows that incident occurrence is stable from month to month.

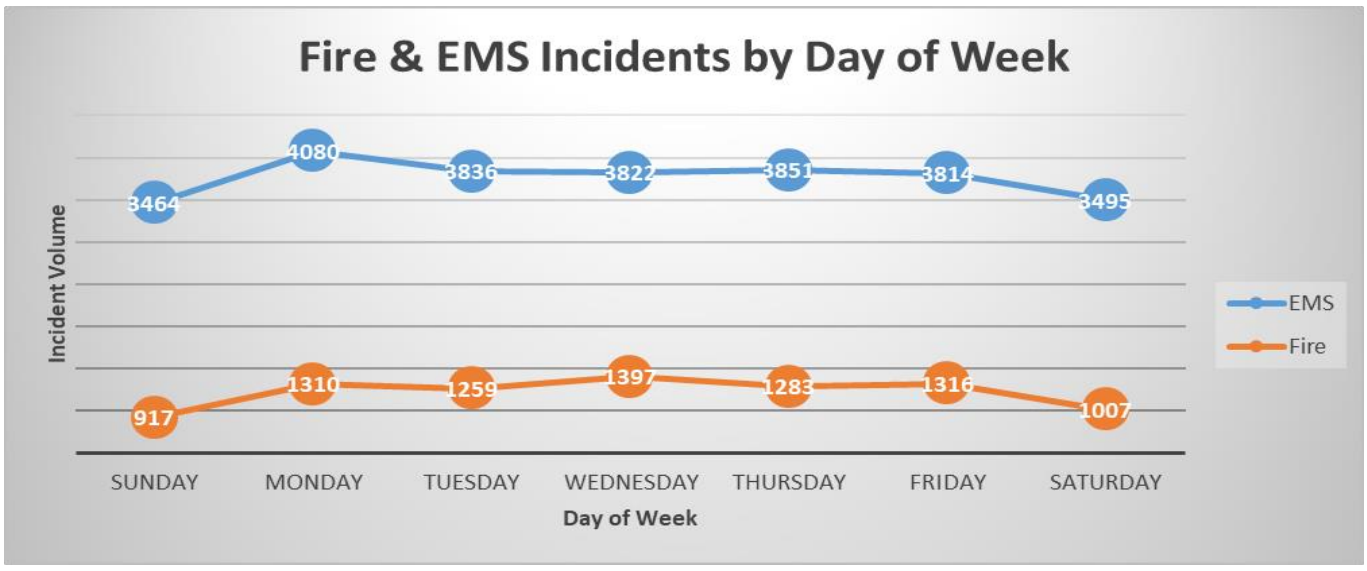
Figure 10: Incidents by Month (5 Year)



Next, the workload is examined by the day of the week to determine when workload is highest daily.

Figure 11: Incidents by Day of Week (5 Year)

Daily workload varies, but service demand is higher during the week and lower on the weekends.



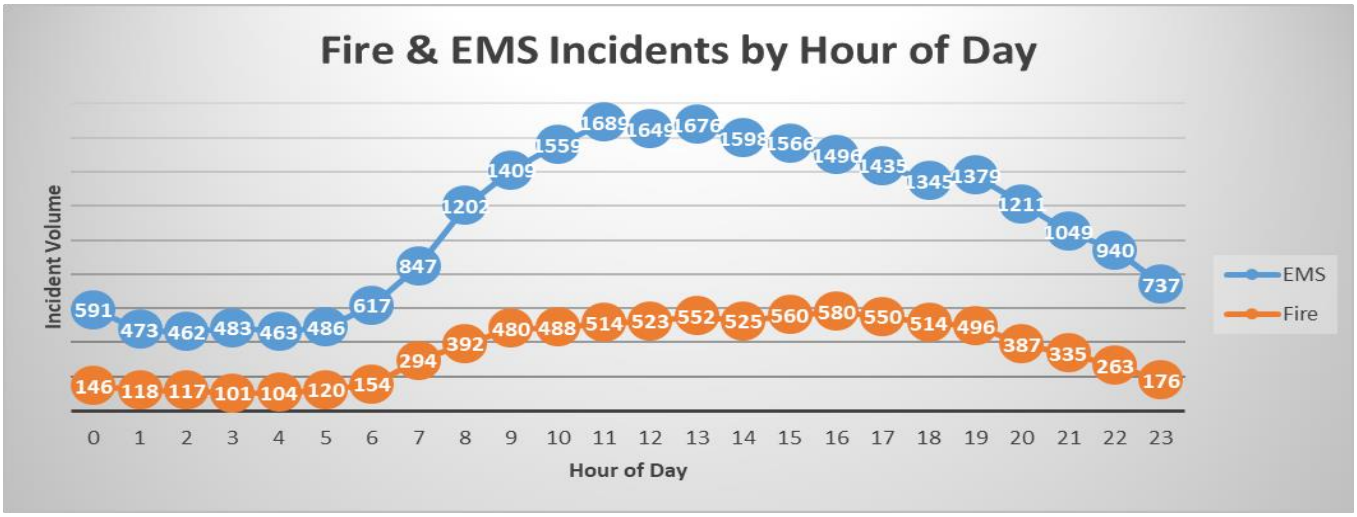
The final analysis of historical workload concludes with examination of call types by hour of day. Understanding when peak activity occurs begins the process of developing deployment strategies and needs assessment.

A similar pattern of higher daytime workload is exhibited by the hourly workload analysis and is reflective of the level of human activity during these times.

EMS activity begins to increase by 6:00 a.m., peaks between 10:00 a.m. and 5:00 p.m., and gradually decreases until 1:00 a.m., when the service demand decreases to pre-6:00 a.m. levels. This is a normal trend for departments with very heavy demand for emergency medical services.

Fire activity begins to increase by 7:00 a.m., and remains steady through 10:00 p.m., when the service demand decreases to pre-7:00 a.m. levels. This is a normal trend for departments, as commuter and commercial traffic, as well as businesses, have sustained occupancy during operating hours.

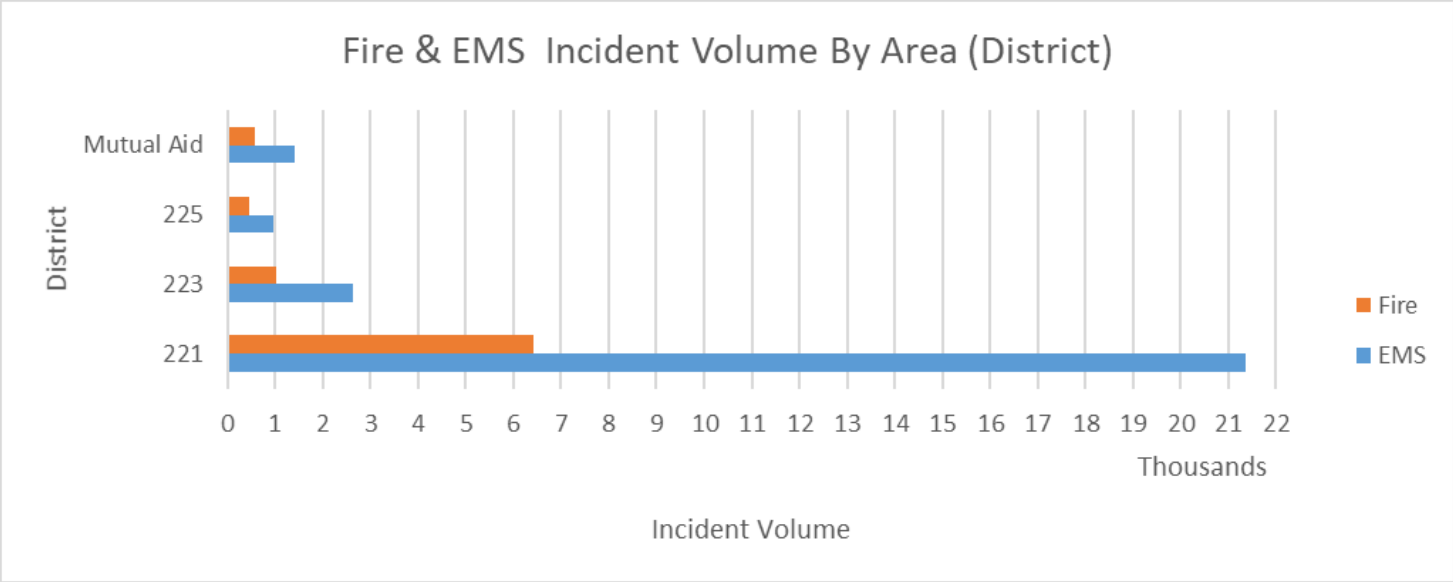
Figure 12: Incidents by Hour of Day (5 Year)



In addition to the temporal analysis of the current service demand, it is useful to examine geographic distribution of service demand. The following chart series indicates the distribution of emergency incidents in Evesham Township for the same five-year period of analysis.

The following diagrams illustrates the fire and EMS incident volume by geographic district in Evesham Township, as well as calls for service outside of Evesham Township on a mutual aid basis. The incident volume and district location directly correlate with the density throughout Evesham Township, with the highest number of calls in District 221, the area at the northern portion of the township with the greatest building density and population. The disproportionate distribution of the call volume throughout Evesham Township is staggering. If was necessary to mention this disproportionate distribution, as this can factor into policy decisions regarding resource allocation and system deployment.

Figure 13: Incident Volume by Area (District) (5 Year)



Fire & EMS Incident Volume by Area (District)	EMS	Fire
Mutual Aid	1,418	579
225	956	464
223	2,626	1,010
221	21,362	6,436

Understanding System Performance

Throughout this document, certain descriptive statistical measures are utilized which may not be familiar to all readers. To reduce confusion or the drawing of inaccurate conclusions, this section seeks to provide a brief explanation of these measures. The measures most often used which require clarification are the use of "average" and "percentile."

Average

The "average" measure is a commonly used descriptive statistic, also called the mean of a data set. It is a measure which is a way to describe the central tendency, or the center of a data set. The average is the sum of all the points of data in a set divided by the total number of data points. In this measurement, each data point is counted, and the value of each data point has an impact on the overall performance. Averages should be viewed with a certain amount of caution because the average measure can be skewed if an unusual data point, known as an outlier, is present within the data set. Depending on the sample size of the data set, the level to which the measure is skewed can be either very large or very small.

As an example, assume that a particular fire station with a response time objective of six minutes or less had five calls on a particular day. If four of the calls had a response time of 8:00 minutes while the other call was across the street and only a few seconds away, the average would indicate the station was achieving its performance goal. However, four of the five calls, or 80%, were beyond the stated response time performance objective.

The opposite can also be true, where one call with an unusually long response time can make otherwise satisfactory performance appear unacceptable. These calls with unusually short or long response times have a direct impact on the total performance measurements and the farther they are from the desired performance, the greater the impact.

The reason we do compute the average is because of its common use and the ease of understanding associated with it. The most important reason for not using an average for performance standard is that it does not accurately reflect the performance for the entire data set. As illustrated above, one extremely good or bad call skewed the entire average. While it does reflect all values, it does not really speak to the level of accomplishment in a strong manner.

Fractile and Percentile

With the average measure, it is recognized that some data points are below the average and some are above the average. The same is true for a median measure, which simply arranges the data set in order and finds the value in which 50 percent of the data points are below the median and the other half are above the median value. This is also called the 50th *percentile.* A fractile is that point below which a stated fraction (or decimal equivalence) of the values lie.

When dealing with fractiles or percentages, the actual value of the individual data does not have the same impact as it did in the average. The reason for this is that the fractile is nothing more than the ranking of the data set. The 0.90 fractile means that 90% of the data falls below the identified value and 10 percent of the data is greater than the value stated.

Higher fractile measurements are normally used for performance objectives and performance measurements because they show that most of the data set has achieved a particular level of performance. This can then be compared to the desired performance objective to determine the degree of success in achieving the goal.

For example, if we wanted to evaluate response time, and the objective was to respond in 9:00 minutes or less 90% of the time, then we are evaluating the responses time for the 0.90 fractile- there will be a portion, or fractile, of responses that have a response time of 9:01 or greater. The calculated (fractile) percentage is the target that we are looking to improve upon, as the 9:00 minute mark is the benchmark and that is not moving. Thus, as we look at making system improvements, we are trying to increase the percentage—90% to 91% to 94%, for example, of values that were observed as having a response time of 9:00 minutes or less.

With this explanation, you can see why displaying an average is not the best indicator of response time or most performance objectives, as the average is the 50% *percentile*. Using the average, you have 50% of your response times below the average value and 50% of your response times above the average value and the average value is a variable measure, not static.

Incident Response Sequence

The total incident response time continuum consists of several steps, beginning with initiation of the incident and concluding with the appropriate mitigation of the incident. The time required for each of the components varies. The policies and practices of the fire district directly influence some of the steps, but two are only indirectly manageable. The parts of the continuum are:

1. Detection: The detection of a fire (or medical incident) may occur immediately if someone happens to be present, or if an automatic system is functioning. Otherwise, detection may be delayed, sometimes for a considerable period.
2. Report: Today most emergency incidents are reported by telephone to the 911 center. Call takers must quickly elicit accurate information about the nature and location of the incident from persons who are apt to be excited. A citizen, well trained in how to report emergencies, can reduce the time required for this phase.
3. Call Processing: The dispatcher must identify the correct units, subsequently dispatch them to the emergency, and continue to update information about the emergency while the units respond. This step offers several technological opportunities to speed the process, including computer aided dispatch and global positioning systems.
4. Turnout: Personnel must don appropriate equipment, assemble on the response vehicle, and begin travel to the incident. Good training and proper fire station design can minimize the time required for this step. In a response-from-home algorithm

(typically a volunteer staffing model), the response from home to station is included in turnout time.

5. Travel: This is potentially the longest phase of the continuum. The distance between the fire station and the location of the emergency influences total response time the most. The quality and connectivity of streets, traffic, driver training, geography, and environmental conditions are also a factor.
6. *Total Incident Response Time = (Call Processing Time + Turnout Time + Travel Time)*

As is apparent by this description of the sequence of events, application of water in time to prevent flashover, or the timely initiation of potentially life-saving medical care, is a serious challenge for any fire district. It is critical, though, as studies of historical fire loss data can demonstrate. Portions of the total response time sequence that are within at least some control of the fire district are evaluated in the following paragraphs

Call Processing (911 call received ⟶ Fire/EMS Dispatched)
Call processing is the sole responsibility of Burlington County Central Communications, a county-based 911 answering point. Telecommunicators, or dispatchers, receive training in Medical Priority Dispatch and are expected to adhere to the call processing standard set forth by that credentialing agency.

NFPA 1221: Standards for the Installation, Maintenance, and Use of Emergency Services Communications System is the recognized consensus standard for public safety answering points. The recommended call processing time in NFPA 1221 identifies that calls should be processed, and fire apparatus dispatched within 64 seconds 90 percent of the time, and within 106 seconds 95 percent of the time.

[Call Processing Time per individual incident is not readily available from Burlington County Central Communications. When the Turnout Time and Travel Time for EFD is calculated, call processing time would be added to calculate the Total Incident Response Time.]

Turnout Time (Fire/EMS Dispatched ⟶ Fire/EMS Enroute to Incident Location)
Elements such as traffic, weather, construction, and travel distance are not within the control of firefighters in their efforts to reduce response time performance. However, turnout time is one element that can be impacted by the actions of emergency personnel. Turnout time, as explained previously, is the amount of time from the point when the firefighters are notified of an alarm to when they are assembled on an apparatus and leaving for the scene. Turnout time can be affected by the time of day, with firefighters engaged in other activities such as training, drills, or building maintenance during the day, or perhaps deep sleep during the overnight hours.

In a response-from-home algorithm (typically a volunteer staffing model or paid-on call model), the response from home to station is included in turnout time. Turnout time is one area where the emergency services agency can reduce the total response time through a variety of efficiencies. In a volunteer staffing model, the most efficient way to reduce turnout time is to eliminate or limit the time it takes to respond from home by using an in-station staffing model

or crew system. An in-station staffing model not only reduces turnout time, but it also guarantees a response by responders. The fire district is a combination agency, and, for this reason, when an analysis of response times was conducted as part of this Standard of Cover, the times were delineated to show an in-house response model contrasted with a response-from-home model.

Prior to reviewing turnout time performance, we believe that it is worth noting that while the NFPA 1710: Standard for the Organization of Fire Suppression Operations, Emergency Medical Operations and Special Operations to the Public by Career Fire Departments identifies a 60-second performance objective for firefighter turnout, the practicality of this objective has been strongly debated. Based on our network of professional relationships, and the Center for Public Safety Excellence it is difficult to find a full-time fire district that was fully meeting this turnout time objective, and certainly, no agency that uses a response from home deployment model would be able to meet this turnout time. This information was considered when identifying the performance objective for turnout time.

[We will discuss NFPA 1710: Standard for the Organization of Fire Suppression Operations, Emergency Medical Operations and Special Operations to the Public by Career Fire Departments identifies a 60-second performance objective and NFPA 1720 Standard for the Organization of Fire Suppression Operations, Emergency Medical Operations and Special Operations to the Public by Volunteer Fire Departments extensively later in this document].

Departments typically cite the need for safety in the fire station as a reason, and most discourage firefighters from running or “cutting corners” in donning gear and seatbelts to meet the turnout time objective. There has been discussion within emergency services regarding the need to complete validated time-studies, along with analysis of safe procedures for varying types of calls and different classifications of emergency responders, to identify turnout time objectives. Still, all fire districts should continually measure and benchmark their turnout time performance to identify areas for improvement.

The following subsections portray the analysis of a variety of response metrics for fire and EMS incidents in the 2019 fire and EMS emergency incident database. Unless otherwise specified, the statistical analysis for the incident response sequence used the available data from the range January 1, 2019 to December 31, 2019. This “years’ worth” of data should accurately reflect the incident response sequence for the fire district, as this period would be reflective of the current deployment model. ***Note: Year 2020 records have not been used for statistical analysis due to the unique circumstances surrounding the COVID-19 impact during 2020.***

For the fire response analysis, the alarm time, enroute time, and arrival time for the first fire suppression unit was tracked in the twelve-month period, measuring the first suppression unit times. Times were tracked for calls where an 'emergency' response would be necessary. This does not indicate that all other calls were not an emergency, but the type of call at the time of dispatch was used to identify and prioritize incident types and delineate between an 'emergency' priority and a 'lower' priority for fire incidents. No response times where the apparatus was placed on non-emergency speed by a first-arriving chief are calculated. No

mutual aid call response times are included in the analysis. No EMS assists, pump-outs, wires down, etc., or other lower priority calls are included in the analysis. No chief officer apparatus is included in the analysis. Examples of emergency priority responses include:

- Engine assist cardiac arrest
- Engine on MVC with injuries
- Engine on MVC/Pedestrian
- Engine Response to alarm systems, where notes or the OIC do not indicate a reduced speed
- Structure Fires and other structure hazards (odor of smoke)
- Inside gas leaks

Thus, the number of fire calls in 2019 was 1,726. Of that number of calls, 1,047 were classified as emergency responses and these incidents were used for the analysis.

The same date range was used for the analysis of EMS incidents. EMS incident reporting captures call priority, so a similar methodology for EMS incident analysis was used in the 2019 incident database. For the EMS response analysis, the alarm time, enroute time, and arrival time for the responding ambulance was tracked in the twelve-month period. Times were tracked for calls where an 'emergency' response would be necessary. This does not mean that all other calls were not an emergency, but the type of call at dispatch was used to prioritize incident types and delineate between 'emergency' priority and 'lower' priority for fire incidents.

The following subsections portray the analysis of the various response times, grouped by time of day and day of week (herein: shift), allowing us to effectively delineate between in-house staffing with career and volunteer members staffing one station in-house, career and volunteer members staffing two stations in-house, or a response from home model.

Figure 14: Fire and EMS Turnout Time by Shift (Year 2019)

Percentage of Time Fire and EMS Turnout Time 90 Seconds or Less

Fire Turnout Time			EMS Turnout Time	
M-F 0600-1800*	40.04%		M-F 0600-1800*	67.07%
M-F 1800-2200**	30.63%		M-F 1800-2200*	55.42%
M-F 2200-0600	7.92%		M-F 2200-0600*	23.40%
Sa-Su 0600-1800	16.20%		Sa-Su 0600-1800*	51.72%
Sa-Su 1800-2200	5.00%		Sa-Su 1800-2200*	51.45%
Sa-Su 2200-0600	7.14%		Sa-Su 2200-0600*	16.78%

*Denotes in-house staffing at Station 221 and Station 223

**Denotes in-house staffing at Station 221

We have examined call processing time (data not available from Burlington County Central Communications, but we have the NFPA 1221 guidance for call processing), and fire and EMS turnout time. We must now examine travel time and resource distribution.

Distribution and Initial Arriving Unit Travel Time

This document has identified that a turnout time of 90 seconds for 90 percent of calls is desirable. Additionally, the District has determined for 90 percent of all emergency incidents, regardless of risk type, the first due unit shall arrive within 9 minutes total response time from the time of alarm. We can use a simple math calculation the desired travel time.

> *9:00 objective response time - 90 second turnout time = 7 minutes 30 seconds (7:30) available travel time for EFD resources from time of alarm.*

A review of the physical capability of EFD's resources to achieve a 7:30 or less travel time to the entire township is necessary. Then analysis will determine whether EFD's actual performance matches this physical distribution capability. If not, there may be other issues affecting travel time, such as traffic congestion, intersections, construction, and distance. All these factors play crucial roles in travel time.

Evesham Township Fire District No. 1 operates three physical stations within a 30-square mile area. The following map models this current distribution. The models were run using ESRI GIS Mapping Software real-time analysis for road conditions on a Monday weekday at the noon hour, adjusting to the speed capability of the streets for street type and conditions. The distance shown in the next figure corresponds to the distance apparatus would travel over the road network from each station for a travel time of 7:30

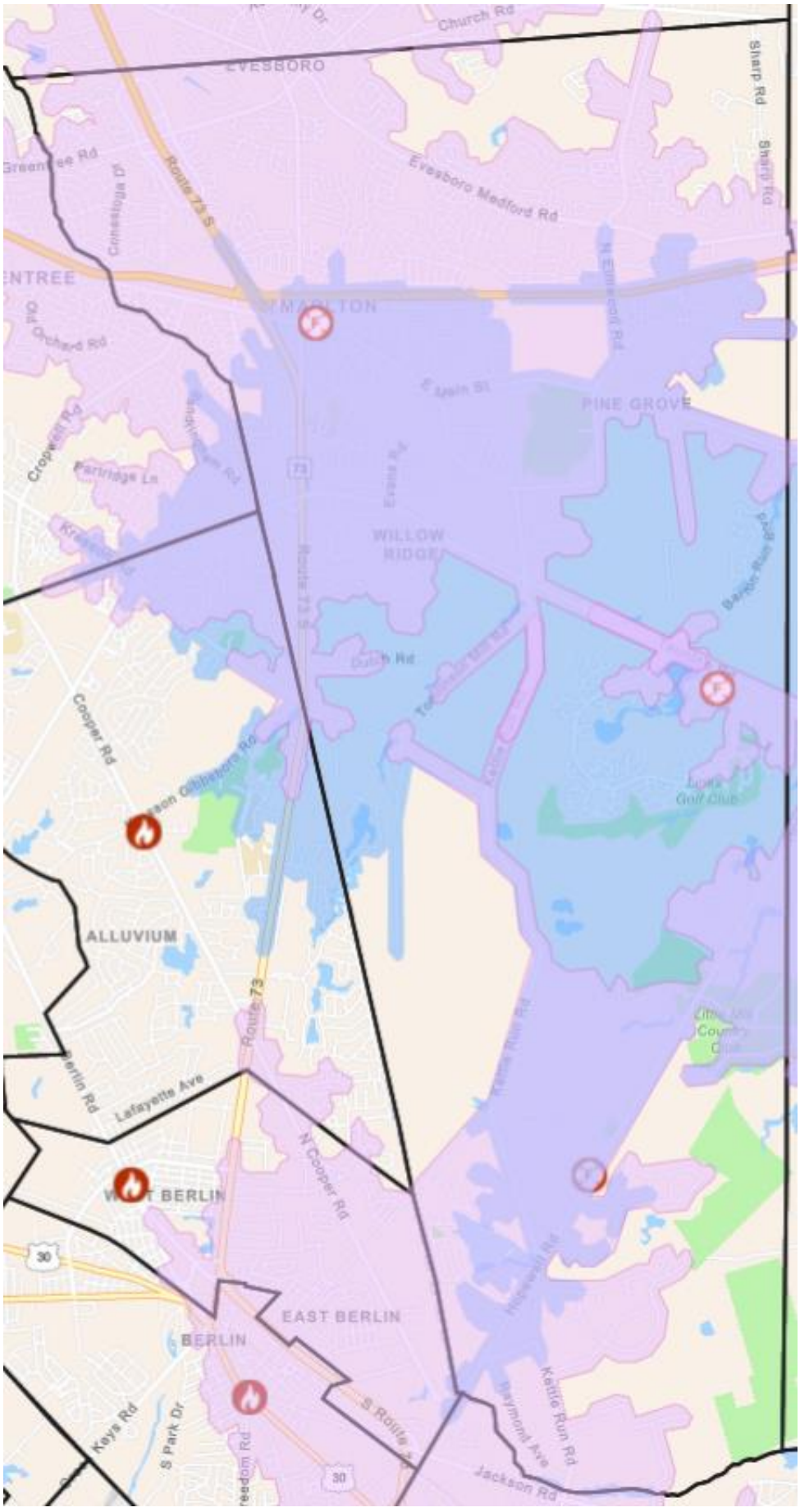
Figure 15:
7:30 Travel Distance from Station 221, 223, 225

The purple shaded areas indicate the distance traveled by apparatus for a driving time of 7 minutes and 30 seconds from Station 221, and 225, respectively. Blue is Station 223.

The areas appearing darker purple, or a deeper shade, are overlap areas, where each station's travel distance overlaps the other geographic area.

The northeast corner of the map shows the area of Sharp Road and Elmwood Road as white roadways, indicating that this area is outside of a 7:30 travel distance.

Resources Distribution and Initial Arriving Unit Travel Time is discussed extensively in this document in the prior paragraphs.



The following table provides the historical performance of total response time for first-arriving units by shift from the Evesham Township Fire District No. 1. The figure shows the percentage of time that the first arriving fire or EMS unit has a total response time of 9:00 minutes or less.

Figure 16: Fire and EMS Response Time Analysis by Shift (Year 2019)

Percentage of Time Fire and EMS Response Time is 9:00 Minutes or Less

Fire Response Time			**EMS Response Time**	
M-F 0600-1800*	88.02%		**M-F 0600-1800***	93.36%
M-F 1800-2200	77.27%		**M-F 1800-2200***	83.69%
M-F 2200-0600	14.29%		**M-F 2200-0600***	74.39%
Sa-Su 0600-1800	42.02%		**Sa-Su 0600-1800***	81.35%
Sa-Su 1800-2200	19.44%		**Sa-Su 1800-2200***	86.56%
Sa-Su 2200-0600	13.89%		**Sa-Su 2200-0600***	75.34%

Response time performance can vary by time of day due to traffic patterns, weather, and distance to the calls that are most frequent during that time period, among other factors, however, the single biggest factor is the availability of a fire or EMS crew to immediately respond when dispatched. The method to achieve immediate response is having an in-house crew available to respond from at least one fire station, and optimally, all three fire stations.

EFD experiences its longest response times between the hours of 2200-0600 (10:00 p.m. to 06:00 a.m.). EFD experiences its highest percentage of response times less than 9:00 minutes Monday through Friday between 0600-1800 (06:00 a.m. and 6:00 p.m.), when multiple fire and EMS units are staffed at multiple stations by in-house staffing.

Concentration and Current Effective Response Force Capability

Effective Response Force (ERF) is the number of personnel required to be present on the scene of an emergency incident to perform the critical tasks in such a manner to effectively mitigate the incident without unnecessary loss of life and/or property. The ERF is specific to each individual type of incident, as are the critical tasks that must be performed. Structural fires are used as the primary risk category for this analysis, as they present the most demanding requirements for resource concentration.

Evesham Township Fire District No.1 is quite well resourced with fire apparatus in the event of a structure fire. Equally important is the number of firefighters that can arrive on the fireground to make rapid use of this equipment.

Through a variety of staffing models, and extensive automatic aid agreements, the fire district can anticipate the deployment of resources and concentration of an ERF at structure fires. When in-house staffing models are considered, the ERF is generally known, given that EFD operates with pre-determined resource requests as part of automatic aid agreements and

those agreements are based on the assumption that fire apparatus will be staffed with a minimum of three firefighters.

An Effective Firefighting Force of on-duty firefighters can be mustered within a reasonable timeframe in this region in the event of a fire in most low, moderate, or high-risk incidents. This assumption assumes all apparatus are in service and available for dispatch with at least three firefighters. During periods of concurrent calls, where some apparatus is already committed to other incidents, the ability to achieve this concentration of apparatus and firefighters would be affected.

Reliability, Call Concurrency and Resource Drawdown

When evaluating the effectiveness of any resource deployment scheme, it is not only necessary to evaluate the geographic distribution of resources to determine their physical capability to travel to, and gather at, emergency incidents within target time frames; it is also necessary to evaluate the workload of the individual companies to determine to what extent their availability for dispatch is affecting the response time performance. In simplest terms, an engine company cannot make it to an incident across the street from its own station in four minutes if it is unavailable to be dispatched to that incident because it is committed to another call.

The measurement of the performance of a first-due unit to arrive first in its assigned primary response area is known as unit reliability. Reliability analysis begins by measuring the reliability of each fire station in and around Evesham Township to get one of its assigned apparatus to incidents within its primary response area as the first arriving apparatus, regardless of type. This will measure overall fire station reliability. This will account for the common practice of sending an alternate unit to a call it would not normally be dispatched to when the most appropriate unit in that station is unavailable. For instance, if the engine is unavailable for a particular call in EFD's area, another engine may be sent in its place. Likewise, an engine unit may respond in place of an unavailable EMS unit while a more distant EMS unit responds. For the purposes of this Standard of Cover, we did not analyze the data to this level of specificity, instead focusing on the simplest measurement of the fire arriving fire suppression apparatus.

An extensive network of automatic aid agreements does increase the workload for many departments, but also permits the department to access and share resources in high-risk areas or target occupancies.

One way to look at resource workload is to examine the amount of time multiple calls happen within the same time frame on the same day. This is important because more calls occurring simultaneously can stretch available resources and extend response times by causing the community to rely on more distant responding apparatus.

For most departments, most calls occur one at a time. However, as communities grow, the propensity for concurrent calls increase. When the concurrency reaches a level to which it

stretches resources to near, or even beyond capacity, response times begin to extend. Although multiple medical calls will cause drawdown, especially as concurrency increases, they usually occupy only one or two units at a time. Concurrent fire calls, however, are of more concern as they may require multiple unit responses and a larger contingent of personnel for each call, depending upon the dispatch criteria and the hazard.

It is also important to note that geographic areas with the highest workload typically have the highest rate of concurrent calls and resource drawdown. This may require response units from other stations to respond into this area more frequently. The impact on station area reliability can be affected by several factors, such as:

- Units out of service for mechanical reasons
- Units out of service for training exercises
- Units out of primary area on move-up deployment
- Units or stations with lack of staffing
- Units committed on concurrent calls

When these factors impact the reliability of a station to respond within its prescribed territory, response time performance measures for Evesham Township Fire District No.1 can be negatively affected.

For EFD, there are two effective methods to increase station reliability. EFD could use one of the methods or both methods described below to create systemic efficiencies:

- Develop automated dispatch methodology to account for a unit being committed and immediately dispatching the next-due resource
- Proactively manage the resource deployment with a dedicated/full-time operations supervisor (fire officer), performing real-time system status management

Component F: Performance Objectives and Performance Measures

Methodology for Incident Staffing

Evesham Township is primarily a densely populated urban environment, and the only areas of the community that do not fall into this category are those to the extreme south that are, as of now, surrounded by undeveloped/limited development protected land. Based on this fact, and the population density in Evesham Township, the service delivery performance objectives discussed throughout the remainder of this report will be measured against the urban standard.

Urban settings present several challenges that are not present in other communities. With this, the fire district must determine what the expectations of the community are as well as what the "acceptable" level of risk is. Acceptable risk is defined as, *"…the potential fire loss a community is willing to accept rather than provide resources to reduce such losses."* (*NFPA Firewise Definitions)*

Based on information obtained from the Board of Fire Commissioners, and the Command Staff, combined with their experience and knowledge of community expectations, it was determined that the residents of Evesham Township expect to receive:

- Timely response
- Trained and capable personnel
- State of the art equipment and tools
- Good community relations

These expectations should be taken into consideration as departmental objectives and goals are developed, implemented, and measured.

Within the urban environment, and more specifically within Evesham Township, several risks exist, as was discussed within the "Community Risk" section of this document. To generalize these risks enables the fire district to evaluate current resourcing and make changes as necessary to reduce the potential for loss based on the level of risk. The specific risk categories contained within the EFD response area vary depending upon the type of incident. In other words, each type of incident, whether fire, medical, rescue, or hazardous materials, may fall into one of four risk categories, as identified below.

Figure 17: Risk Categorization

Fire Suppression	
Low	Areas with mobile property, outbuildings, structures, etc. with less than 1,000 gpm needed fire flow, and/or a BAR (building area ratio - % of land covered by building) of less than 10 percent
Moderate	Areas with single occupancy structures with a needed fire flow of 1,000 to 2,500 gpm and/or a BAR greater than 10 percent and less than 75 percent
High	Areas with multi-occupancy structures with a needed fire flow above 2,500 gpm, structures over three stories in height, and/or a BAR greater than 75 percent
Special Risk	Areas within the downtown core that produce special risks based on increased structure and population densities.
Emergency Medical Services	
Low	Areas with a history or potential for emergency incidents where predominately a Basic Life Support level of care is provided routinely. Calls requiring basic first aid/EMT skills. These areas would normally have low population densities and/or limited residential or commercial development.
High	Areas with a history or potential for needing multiple levels of emergency medical response. Paramedic level response may be summoned simultaneously. These areas would normally have high population densities and/or large numbers of "at risk" populations.
Special Hazards Risk	Disasters such as tornado, flood, pandemic, mass casualty incident, etc. This risk level would normally be event specific.
Vehicle Extrication	
Low	Areas with a history or potential for rescue situations that require only the tools and knowledge set available on first due apparatus. Normally a single unit response.
Moderate	Areas with a history or potential for rescue situations requiring the use of specialty equipment. Normally a two-unit response.
High	Areas with a history or potential for rescue calls requiring specialized equipment and training. Normally a three unit or more response.

(Continued on next page)

Technical Rescue	
High Angle	Areas and/or structures with a history or potential for rescue situations that require special equipment for working in an elevated environment. Examples include rescues from towers, mid-rise buildings, grade separations, etc.
Trench and Collapse	Areas and/or structures with a history or potential for rescue from underground or collapsed structure environments. Examples include rescues from construction pits or collapse due to loss of structural integrity.
Water/Ice Rescue	Areas with a history or potential for rescue situations that require special equipment for working in a body of water such as a stream or river due to routine or flood conditions, or a lake or retention pond
Confined Space Rescue	Areas with a history or potential for rescue situations that require special equipment for working in spaces with limited mobility and maneuverability such as underground utility spaces.
Hazardous Materials	
Low	Areas with hazards that would require Level D entry. Incidents that require only the tools and knowledge set available on the first due apparatus. This risk would include incidents related to common chemicals such as those used in homes or businesses.
Moderate	Areas with hazards that would require Level B or C entry. Incidents that require specialized tools and knowledge to deal with hazardous materials that are normally liquids or solids without acute hazards. This risk would include incidents related to chemicals used in light industry and larger amounts of hazardous materials in transport or storage. The fire department's response team would respond but may or may not have primary responsibility for mitigation depending on type and magnitude of the incident.
High	Areas with hazards that would require Level A entry. Incidents involving "Acutely Hazardous" materials that require encapsulation of the workers and multiple specialized teams with a level of decontamination that is potentially hazardous.
Special Hazards Risk	Weapons of Mass Destruction or terrorist act, structural collapse, trench rescue, low/high angle rescue, or confined space emergencies. All such risks are infrequent, perhaps even unlikely, but possible in this area.

Critical Tasks

Evesham Township is primarily a densely populated urban environment and, as such, contains an elevated number, density, and distribution of risk; the fire district should be resourced to effectively mitigate the incidents that have the highest potential to negatively impact the community. As the actual or potential risk increases for each of the risk categorizations listed in the preceding figure, the necessity of higher numbers of personnel and apparatus also increases. With each type of incident and corresponding risk, specific critical tasks need to be

accomplished. The next section of this document considers the risk categories and illustrates the number of personnel that are necessary to accomplish the critical tasks.

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 actions. Life safety related tasks involve the search, rescue, and evacuation of victims. The fire flow component involves delivering sufficient water to extinguish the fire and create an environment within the building that allows entry by firefighters.

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

- Command
- Scene Safety
- Fire Attack
- Ventilation
- Water Supply
- Pump Operation
- Search and Rescue
- Backup/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. Three scenarios commonly encountered are commonly utilized by fire districts when conducting field validation and critical tasking. They are a medium risk structure fire, a traffic collision with a trapped victim, and a cardiac arrest. EFD is responsible for assuring that responding apparatus and personnel can perform all the described tasks in a prompt, efficient, and safe manner.

Figure 18: Fire Suppression Critical Tasking

Fire Suppression			
Critical Task	**Risk**		
	Low (Single Company)	**Moderate (Two Companies)**	**High (First Alarm)**
Attack Line	3	3	4
Back-up Line		3	4
Search and Rescue			4
Ventilation		2	4
Rapid Intervention Team			4
Pump Operator	1	1	2
Command		1	1
Safety			1
Total	**4**	**10**	**24**

Evesham Township Fire District No. 1 provides staffing to stations and apparatus in a variety of ways using full-time, per-diem and volunteer responders at one of three station locations to respond to incidents within its primary service area.

It is also true that for larger incidents, this fire department is typically acting together with one, or more, neighboring fire departments in providing fire and life protection through a coordinated regional response system of mutual and automatic aid agreements. This is particularly true for large structure fires, other high-risk incidents where staffing needs are high, and during periods of high incident activity.

Regardless of the raw numbers of personnel available to a department, what matters most is actual numbers of emergency responders the agency can produce at an emergency scene. This almost always relates to the actual number of emergency responders available for immediate deployment.

Of significance to the staffing objective of this document is that NFPA 1720 establishes that a response company consists of four personnel. The standard does not require that all four be on the same vehicle but does expect that the four will operate as a single functioning unit once on scene. The NFPA 1720 response time standard also requires that all four personnel be on scene within the recommended response time guidelines.

There is another reason the arrival of four personnel is critical for structure fires. Occupational Safety and Health Administration (OSHA) regulations require that before personnel can enter a building to extinguish a fire, at least two personnel must be on scene and assigned to conduct search and rescue in the event the fire attack crew becomes trapped. This is referred to as the two-in, two-out rule. There are, however, some exceptions to this regulation. If it is known that victims are trapped inside the building; a rescue attempt can be performed without additional personnel ready to intervene outside the structure.

Given that Evesham Township Fire District No. 1 allows apparatus to leave on a response with less than four firefighters on board (as do many fire districts across the country), the time it takes for the second unit to arrive becomes very important to achieve the four-person company standard where required. If additional help is a considerable time away, the fire will continue to grow rapidly, contributing to significantly more damage to the property and a higher potential for injury to occupants and responders. The ability of this department and its automatic aid neighbors to assemble an effective response force within the specific period, also known as resource concentration, is critical to civilian and firefighter safety.

In departments that rely on volunteers to staff units or to supplement full-time personnel, analysis by hour of day and by day of week is useful in determining staffing performance. Because of the combination nature of our responders, the fire district does vary its staffing during peak hours and, therefore, it cannot be assumed that a minimal level of staffing is maintained at all times, nor is a minimal staff readily available in-house.

The typical response to a low risk reported structure fire investigation or outside fire in Evesham Township is 1 or 2 engines. Upon receipt of any additional information indicating a confirmed or working structure fire, the response for a moderate and high risk reported structure fire would be initiated at the request of the arriving fire officer, or via Burlington County Central Communications, based on the 911 caller information that they have received.

The typical minimum response to a moderate and high risk reported structure fire in Evesham Township is 3 engines, 2 ladders, 2 BLS units and a chief officer. Upon receipt of any additional information indicating a confirmed or working structure fire, 1 additional engine, 1 additional rescue and 1 breathing air unit is assigned to assist with fire suppression needs and initiate initial rapid intervention (RIC) duties. This assignment is further enhanced by issuing an "all companies in service" declaration, or subsequent alarms that automatically initiate mutual aid from surrounding agencies. The stations are backfilled with mutual aid resources, ensuring Evesham Township remains protected for additional alarms, or if resources are needed at the initial alarm, they can be immediately assigned.

Performance Standards

There are two standards that establish performance measures for fire departments. Understanding their application and performance measures is necessary, so that Evesham Township Fire District No.1 policy makers can define the organizations performance objectives and measures. The National Fire Protection Association (NFPA) standards are nationally recognized standards, developed through committee consensus, generally developed using the min/max principle, where the standard sets the floor, or *minimum* compliance criteria.

NFPA 1710: Standard for the Organization of Fire Suppression Operations, Emergency Medical Operations and Special Operations to the Public by Career Fire Departments and *NFPA 1720 Standard for the Organization of Fire Suppression Operations, Emergency Medical Operations and Special Operations to the Public by Volunteer Fire Departments* are the recognized consensus standards. Both standards contain minimum requirements relating to the organization and deployment of fire suppression operations, emergency medical operations, and special operations to the public by full-time or volunteer and combination fire departments.

Fire service response is a complex system involving variables and constants. All emergency responses follow a timeline beginning with a discovery of an event and ending with closure or mitigation of the event. The variables are discovery of the event, reactions of the people involved to the event, the amount of time to react, weather conditions, and traffic conditions. The constants are the emergency services system infrastructure (stations, personnel, and equipment) and the road network. To manage response time, organizations must manage these constant elements.

The staffing systems used by the fire service in North America vary, but principally include career, paid-call, part-time, and volunteer personnel. Any given fire department may be staffed in one manner or in a combination. The NFPA treats volunteer and career departments

differently when it comes to response time standards. Fire departments that are substantially career (>80%) would apply NFPA 1710 standard to their deployment. Fire departments that are substantially volunteer (>80) would apply NFPA 1720 to their deployment. For fire departments that fall in between the volunteer/career staffing ratios identified in those standards, there is no applicable standard.

The two standards are often misunderstood, the 1710 standard for response time has been used in news reports to evaluate all types of fire departments, including volunteers. It is not intended for that purpose and using it in that manner is misleading. The performance objective established in 1710 is as follows:

- 60 seconds to turn-out
- 4 minutes for the first engine company to arrive
- 8 minutes for the full first-alarm assignment, for at least 90 percent of all fire calls

The rationale behind this is the fact that a room fire will reach a critical stage in fire development (point of flashover) in about 8 to 10 minutes. The variables are whether the fire room is ventilated (open doors or windows), size of the compartment, configuration, fuel load, etc. In the worst-case scenario, the critical temperature is reached, and the flashover engulfs the room in fire before firefighters arrive to control the event. With flashover, the fire moves beyond the room of origin. NFPA 1710 response times are meant to ensure that flashover is prevented through fire control. (Automatic fire sprinklers are intended to control fire development to prevent flashover, thus keeping the fire to the area or room of origin.) With a good response time and adequate available water supply, fully staffed fire departments stand a much better chance of minimizing fire damage.

NFPA 1720 applies to volunteer fire departments who typically do not have personnel on-duty in stations and instead respond by page-out from home, work, or elsewhere. Volunteer at-will response is considered a variable factor. Volunteers cannot guarantee availability like career or, on-duty staff can, unless the volunteers are in the station when alerted. In this standard, performance objectives are very different and intended to reflect the nature of a volunteer response system.

Generally, NFPA 1720 provides the following benchmarks:

- Urban Zones with >1000 people/square mile call for 15 staff to assemble an attack in 9 minutes, 90% of the time.
- Suburban Zones with 500-1000 people/sq. mi. call for 10 staff to assemble an attack in 10 minutes, 80% of the time.
- Rural Zones with <500 people/sq. mi. call for 6 staff to assemble an attack in 14 minutes, 80% of the time.
- Remote Zones with a travel distance greater than 8 miles call for 4 staff, once on scene, to assemble an attack in 2 minutes, 90% of the time.

There is a direct relationship between fire development, temperature, and time. Intervention with water application is the strategy, whether it is by automatic fire sprinklers or firefighters. Community resources dictate fire service capacity. The larger the town, the more fire stations may be needed. Having fire stations implies staff and equipment. Staffing presents an option, to a point, volunteers are less expensive than paid staff, however the savings in personnel costs may translate into a higher community-wide fire loss.

Thus, it is critical to understand both standard 1710 and 1720 and their respective the performance objectives, which allows the Fire District to develop performance objectives and performance measures specific to Evesham Township Fire District No.1 and the risk in Evesham Township.

Evesham Township Fire District No.1, as a combination system, does not fit cleanly in the application of 1710 or 1720, so a rational combination of the standards must be used to establish performance objectives for the Fire District.

Utilizing the information in both NFPA 1710 and NFPA 1720, and the information and policy direction provided by the Evesham Township Board of Fire Commissioners to the Fire Chief at the Special Meeting on February 27th, 2020, the authors have developed performance objectives and performance measures for each of the services it provides. These performance objectives further define the quality and quantity of service expected by the community and consistently pursued by Evesham Township Fire District No. 1.

Evesham Township Fire District No.1
Standard of Cover Performance Statement and Performance Objectives

Performance Statement
It is the goal of Evesham Township Fire District No. 1 to limit the risks to the community and its people from fire, injury, death, and property damage associated with fire, accidents, illness, explosion, hazardous materials incidents, and other natural or man-made emergencies through prevention and response.

Performance Objectives
EFD has established the following Turnout Time Performance Objective:
For 90 percent of all emergency dispatches received, Evesham Township Fire District No. 1, resources will be enroute to the incident in 90 seconds or less, regardless of incident risk type, from the time of alarm.
EFD has established the following First Due Response Performance Objective
For 90 percent of all emergency incidents, regardless of risk type, the first due unit staffed with at least four qualified personnel shall arrive within 9 minutes total response time from the time of alarm. The first due unit shall be capable of advancing the first line for fire control, or starting rescue, or providing basic life support for medical incidents.
EFD has established the following Concentration Performance (Initial Alarm) Objective
For moderate, high, and maximum risk incidents, Evesham Township Fire District No. 1 shall assemble an Effective Response Force (ERF) consisting of personnel sufficient to effectively mitigate the incident based on risk, within twelve minutes response time as measured from the time of alarm, 90 percent of the time. This ERF shall be able to flow up to 2,500 gpm for firefighting or be able to handle a multiple-casualty emergency medical incident.

Component G: Overview of Compliance Methodology

Compliance Methodology

The preceding sections of this report provide a detailed analysis of the historical performance of fire district resources. For this analysis to prove beneficial to the fire district and the Board of Fire Commissioners, continued analysis should be performed on a routine basis. The data provided to the project team for analysis requires time to analyze, as it is necessary to ensure that the data is consistent and complete. Future efforts to measure performance will continue to be hindered by data accuracy issues without significant improvement in the data collection process. The authors have long believed that "what gets measured, gets improved," but without proper data collection, measurement of performance indicators can become unreliable.

EFD is committed to a continual process of analyzing and evaluating actual performance against the adopted standards of cover. The District will need to adopt policies to enhance the data collection procedures of field operations personnel. Periodic review of the District's records management system reports will be necessary to ensure compliance and reliability of data.

Maintenance of effort requires that performance objectives and performance measures are evaluated, and efforts are made to reach or maintain the established levels.

Compliance is best achieved through a systematic approach. Evesham Township Fire District No. 1 has identified the following six-step compliance model.

Step 1: Establish/Review Performance Measures
Step 2: Evaluate Performance
Step 3: Develop Compliance Strategies
Step 4: Communicate Expectations to Organization and Stakeholders
Step 5: Validate Compliance
Step 6: Make Adjustments/Repeat Process

Based on the analysis conducted during the evaluation phase of this process, Evesham Township Fire District No. 1 has adopted the following performance goals against which it can measure the department's overall success in meeting the service delivery expectations of the community.

Step 1: Establish/Review Performance Measures

- Complete the initial Standards of Cover process. Conduct a full review of the performance measures every five years. This process is risk-based and evaluates whether:
    - Services provided are identified
    - Levels of service are defined
    - Levels of risk are categorized
    - Performance Objectives and Measures developed:
    - Distribution Measures

- Concentration Measures

Step 2: Evaluate Performance

- Performance measures are applied to actual services provided:
  - System level
  - First Due Area level
  - Unit level

Step 3: Develop Compliance Strategies

- Determine issues and opportunities:
  - Determine what needs to be done to close identified gaps
  - Determine if resources can or should be reallocated
  - Seek alternative methods to provide service at desired levels
  - Develop budget estimates as necessary
  - Seek additional funding commitment as necessary

Step 4: Communicate Expectations to Organization and Stakeholders

- Communicate expectations:
  - Explain method of measuring compliance to personnel who are expected to perform the services
  - Provide feedback mechanisms
  - Define consequences of noncompliance
- Train Personnel:
  - Provide appropriate levels of training/direction for all affected personnel
  - Communicate consequences of noncompliance
  - Modify (remediate) internal processes, application systems, and technical infrastructure as necessary to comply

Step 5: Validate Compliance

- Develop and deploy verification tools and/or techniques that can be used by divisions of the organization on an ongoing basis to verify that they are meeting the requirements:
  - Monthly evaluation:
    - Performance by Unit
    - Overall Performance
    - Review of performance by Division
  - Quarterly evaluation:
    - Performance by Unit
    - Performance by First Due
    - Overall Performance
- Review of performance by Executive Management
- Determine whether independent validation and verification techniques will be used to measure the performance, and solicit external assistance as necessary

Step 6: Make Adjustments/Repeat Process

- Review changes to ensure that service levels have been maintained or improved. Develop and implement a review program to ensure ongoing compliance:
    - Annual Review and Evaluation
        - Performance by Unit
        - Performance by First Due
        - Overall Performance
        - Review of performance by Governing Body
        - Adjustment of performance standards by Governing Body as necessary
    - Five Year Update of Standards
        - Performance by Unit
        - Performance by First Due
        - Overall Performance
        - Adoption of performance measures by Governing Body
- Establish management processes to deal with future changes in the Evesham Township service area

Component H: Overall Evaluation, Conclusions, and Recommendations

Overall Evaluation

The standards of cover process based on the Commission on Fire Accreditation International (CFAI) Standards of Cover 5th Edition required the fire department to conduct an intensive analysis on all aspects of the deployment policies. The analysis used various tools to review historical performance, evaluate risk, validate response coverage, and define critical tasking. The analysis relied heavily on the experience of command officers and their historical perspective based on their collective experience, combined with historical incident data captured by the fire district's in-house records management system.

Presentation of the information follows the format recommended in the CFAI Standards of Cover 5th Edition, including: Description of Community Served; Review of Services Provided; Review of Community Expectations; Overview of Community Risk; Review of Historical System Performance; Performance Objectives and Performance Measures; and Overview of Compliance Methodology. This section summarizes the results of all the analyses completed in the SOC process, including conclusions and recommendations. This section also serves to highlight information that need continuous analysis and evaluation, so that the fire district can develop strategic polices to meet the identified performance objectives.

The Description of Community Served provided a general overview of the organization, including governance, lines of authority, finance, and capital and human resources, as well as an overview of the service area including population and geography served. The Review of Services Provided detailed a brief overview of the core services the organization provides based on general resource/asset capability and basic staffing complements. During the Review of Community Expectations and Performance Goals, it was determined that the community had high expectations of the department while maintaining a high level of community satisfaction in the services currently provided. The fire department needs to be ever vigilant of the community's expectations and its responsibility to serve their needs; not assumptions or desires for what the community needs.

An overview of community risk was provided to form the basis for the department's development of mitigation plans. Issues of geospatial characteristics, topographic and weather risks, transportation network risks, physical assets, and critical infrastructure culminated in a hazard vulnerability assessment that identified medical incident and human, technological, and rescue hazards as the primary risks within the community. As a factor of risk, community populations and demographics are evaluated as they relate to historic and projected service demand. Although historical population estimates have shown a slow decline, service demand has shown an increase, due in part to transient and aging resident populations. As this report is being finalized, the 2020 Census results are also being finalized and an increase in Evesham Township population is expected. Evaluating community risk provided an increased understanding of community risk factors, which can lead to an improved deployment policy.

During the analysis of service level objectives, critical tasking was completed for incident types ranging from a basic medical emergency, to a single company response utilizing 4 personnel, to a high-level structure fire with 24 personnel. Critical tasking required a review of the on scene staffing capability to mitigate the effects of an emergency. These tasks ultimately determine the resource allocation necessary to achieve a successful operation. Pre-flashover vs. post-flashover set up time, or the time required to set up for the extinguishment of fire, is directly related to the time required to advance hose time, search and rescue, ventilation, and a myriad of other tasks. These tasks, in essence, are directly related to the number of firefighters on scene to complete the required tasks.

Matching community risk, fire flow requirements, and the number of firefighters and equipment required through critical tasking reaffirmed the position that sprinkler systems are a major factor in limiting the number of fires and maintaining the community at a moderate risk level. Critical tasking, however, allowed a re-examination of the number of firefighters required at the scene for the various types of emergencies and the simultaneous tasks required to successfully mitigate an emergency.

The premise of the distribution policy is to consider the potential for life loss, economic value, and fire flow requirements. The present fire station locations are situated based on historical local-area service demand (the stations began as small, community-based volunteer fire companies). These station locations compliment the geography of the Township and provide a reasonable travel time for first arriving units, which has been confirmed with computer modeling of apparatus travel time. The 7:30 travel time is compatible with the fire district's objective of having the first arriving unit on scene in 9:00 minutes, 90 percent of the time, however, the station locations must be matched with immediately deployable resources, which will eliminate the delay created in a response-from-home model and reduce turnout time. Due to the size of Evesham Township and the increased travel times, turnout time is the variable that must be addressed. Computer modeling has also identified extended travel time in the northeast section (Sharp/Elmwood Roads) of Evesham Township and consideration should be given to construction of a fourth station to increase system performance and provide redundancy for concurrent calls.

The Review of Historical System Performance evaluated each component of the emergency incident sequence. Total response time included several components such as time of alarm, turnout, and travel time. We were unable to access the data for call processing time, and this variable is a component of total response time. The inability to effectively evaluate processing time highlights the importance of ensuring a responsive turnout time and travel time.

Historical reliability is defined as the probability that the required amount of staffing and apparatus will be available when an emergency call is received. Analysis indicates that as calls for service increase, primarily medical, overlapping calls become increasingly frequent. The analysis indicates that if the department continues to experience increased calls of medical

emergencies, it can expect increased overlapping of calls and longer travel time from adjacent stations and mutual aid departments.

Conclusion

The ability to define great service requires a set of tools that can be used to measure the performance of an organization. These tools allow an organization to evaluate its performance over time through observation of changes in key performance indicators. They also allow an organization to compare itself with other similar organizations to identify opportunities for improvement. Attainment of a performance target should be recognized and celebrated to provide a sense of organizational accomplishment.

This Standard of Cover was adopted at the June 10th, 2021 Board meeting. It is anticipated that by October 2021 the Fire District will continuously staff two in-house suppression apparatus and two BLS units, on a continuous basis. This level of staffing is minimum, with additional suppression apparatus and BLS units staffed Monday through Friday.

This deployment model is a positive step for the District and will aid in meeting the Performance Statement and Performance Objectives identified. Through constant analysis and evaluation, we will be able to evaluate successes or shortcomings, and recognize organizational achievements.