

**CHESTER COUNTY, PENNSYLVANIA
FIRE AND EMERGENCY MEDICAL SERVICES
STRATEGIC PLANNING STUDY**

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Prepared by:



**Municipal Resources, Inc.
120 Daniel Webster Highway
Meredith, New Hampshire 03253
mrigov.com
Phone 603-279-0352**

INTRODUCTION

*“Fire and EMS **are** in a crisis – right now. Simply put, EMS is woefully lacking in funding – and the number of volunteer firefighters has fallen dramatically over the decades.”*

Those words comprise the first two sentences of the *SR 6 Final Report* on the status of the fire and EMS delivery systems throughout Pennsylvania. The report then states that *“this is not new”* and notes that many of the same issues have been highlighted in multiple other reports over the past four decades most notably the *SR 60 Report* from 2004, and the *Emergency Medical Services System in the Commonwealth of Pennsylvania Report* from 2013.

All these reports say the same thing about the need to act. Yet definitive action – moving ideas that may make a difference from concept to reality – has been slow to happen. While the need to be deliberative in the legislative process is important, the continued wearing down of the emergency services towards potential systemic failure continues unabated.

The organizations that represent Chester County’s fire and EMS agencies: the Chester County Fire Chiefs Association, Chester County EMS Council, Inc., and the Chester County Fire Police Association have proactively recognized that the emergency services delivery system within the County is facing those same pressures and heading toward its own crisis. However, there are those who are skeptical of this concern referring to it as *“a crisis without evidence”*. **That perception is seriously misguided.** The only reason why the challenges the system is facing both today and looking to the future are not more evident is because of the passion and dedication of the members of the County’s fire and EMS organizations who continue to answer an ever-increasing number of calls for service. But the number of volunteers is declining in the County as they are everywhere, and many of those who remain are aging. On the career side, particularly for EMS, many personnel must work multiple jobs to make ends meet. Long term, the MRI study team does not believe these trends make the current service delivery system and deployment model sustainable.

Most of the fire and EMS agencies that protect Chester County are excellent organizations that provide quality service to their communities. However, it is clear that service demand is increasing and that the ability to match resources against service demand is straining many of these organizations. As the fire and EMS services have entered an all hazards environment, the public has come to expect increased knowledge, skill and ability from their firefighters and EMS providers. In Chester County, as throughout the commonwealth, this trend has increased both training and certification requirements and contributed to a reduction in the number of volunteer personnel that are certified to perform both firefighting and EMS operations. This translates into organizations struggling to keep up with meeting the growing needs of their communities.

The more immediate challenge is this: there are excellent recommendations in each of the studies that have been completed, most notably SR 60 and SR 6. However, many of those recommendations require legislative action to implement. Regrettably, not a lot of that legislation has been enacted. For instance, the SR 60 report recommended providing tax credits

for volunteer firefighters and EMS staff. The commonwealth subsequently enacted a state income tax credit for volunteer personnel, but it was permitted to expire and no longer exists. Bills are pending which would provide income tax and/or property tax breaks for volunteers, however, they have not been acted upon. Other recommendations call for authorizing or enabling regional fire/EMS boards/districts/authorities, and, establishing a Length of Service Award Program (LOSAP) for volunteer personnel. Yet 16 years after SR 60 was issued these recommendations have not yet been implemented or made available as a tool for the fire and EMS services. Similar recommendations are made again in the SR 6 report.

It is also important to note that many of the main topics and recommendations continue to rely heavily on recruitment and retention and providing greater benefits to entice volunteers to join and stay active. These are important initiatives and every effort should be made to provide as many different potential enticements as possible and support the volunteer emergency services in any way possible. However, the growing reality is that these efforts are not making a significant difference. The EMS system in the County (as well as many other counties) has already seen this as they have transitioned into a service that is primarily delivered by career personnel. The fire service needs to start planning now to begin to make that same transition, to a system that will still heavily depend upon volunteer firefighters but will be supplemented by career personnel.

This report and the accompanying strategic plan contain a total of 139 recommendations for Chester County that provides a path - or paths - for the fire and EMS services moving forward. However, it is the sincere hope of the MRI study team that this report is not viewed as *“different study, same information”* and the proverbial can gets kicked further down the road. While there are invariably going to be similarities to previous reports, and repetition of recommendations, that is because the necessary action has not yet been taken. We cannot emphasize strongly enough that the time is here to finish studying and start taking action to implement the recommendations before the system does experience a domino effect failure.

It is the MRI study team’s strong opinion that Chester County through the Department of Emergency Services is the most qualified entity to coordinate and direct operational assistance with the delivery of fire and EMS services throughout the County. There are multiple factors that contribute to this belief and are discussed in detail in various chapters throughout the report. However, the most significant ones include the level of professionalism, knowledge, and experience at the Department of Emergency Services, a lack of involvement or engagement by over 40% of the County’s municipalities, and the need for a consistent level of service delivery and funding throughout the County.

To implement some of these recommendations, particularly at the County level, will require that often elusive legislative action. The various stakeholders in the County will need to collectively lobby their legislative delegation with one voice to make the passage of enabling legislation a priority. Any legislation that is necessary will not mandate a one size fits all approach, it will just increase the number of potential options available for service delivery. For instance, if Recommendation 6 in SR 6 which suggests simplifying the process to regionalize fire

and EMS services was to be enacted into law, it would not require any entity to do that, it would merely give them the option to do so. In addition, many of these recommendations appear to have no financial impact on any entity that does not choose to recommend them.

It is important to stress that any program that is implemented will require a cafeteria style approach with various options that participants can select that best suit their unique needs. The entire process also needs to be a partnership between a cross section of stakeholders and that many – although not all – things will involve voluntary participation such as when a company may need to have career personnel assigned to their station, and during what hours. All these options should be coordinated, managed, and even implemented at the County level. SR 6 notes that many similar initiatives are now under development in the Commonwealth of Virginia.

Chester County is a diverse and vibrant community with high expectations for the performance and professionalism of its emergency services to which its citizens still give very high satisfaction marks. It is our goal to provide a road map and template for strengthening the level of fire and EMS that are delivered throughout the County. With every emergency service organization, there is always room for improvement, but the citizens of Chester County should be proud of the quality and performance of their firefighters, emergency medical technicians, paramedics, and fire police officers who provide round-the-clock protection and care.

In spite of the challenges identified in this report, the citizens of Chester County should feel confident that the majority of the fire and EMS organizations that serve them are professional emergency services providers that continue to provide critical service to the community day in and day out. We continue to be impressed with the dedication and commitment of their members. We also commend the Chester County Fire Chiefs Association, Chester County EMS Council, Inc., and the Chester County Fire Police Association for their proactive approach to the challenges that are facing their members, and for their willingness to address these very complex issues in an open and positive manner.

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STRATEGIC PLAN IMPLEMENTATION: Separate Document

APPENDICES: Separate Document

TOOL KIT: Separate Document



REPORT



CHAPTER I

PROJECT OVERVIEW, SCOPE, AND METHODOLOGY



Figure 1: MRI Logo

Municipal Resources, Inc. (MRI) was engaged by the Chester County responder organizations in cooperation with Chester County to undertake a comprehensive organizational, effectiveness, and overall operational evaluation; and to deliver a comprehensive report and a series of workshops addressing future County-wide fire protection and emergency medical services (EMS) concerns; as a planning tool for fire chiefs, EMS chiefs, municipal managers, and elected officials. The study was performed in partnership with the Chester County Fire Chiefs Association, Chester County Emergency Medical Services Council, Inc., Chester County Fire Police Association, and the Chester County Department of Emergency Services, and was funded through a regional homeland security grant.

MRI's analysis included, but was not limited to: standards of response cover, response districts and deployment models, staffing levels and needs, volunteer recruitment and retention, apparatus, equipment, fire and EMS standardization, funding, training, fire prevention, integration of fire and EMS operations, regional planning, and automatic/mutual aid pertaining to the fire and EMS services throughout the County.

From that analysis, MRI was further tasked with the development of a "Tool Kit" that the various stakeholders can use as a planning tool for the continued delivery of high-quality fire and EMS services throughout Chester County. The study team has produced a report containing recommendations, and a stakeholder "Tool Kit"; that will assist the County, its municipal leaders and governing bodies, and its emergency services providers both fire and EMS, to set a clear course of action for future service improvements and delivery throughout Chester County.

ABOUT MRI

MRI was founded in 1989 by six former municipal and state government managers, with both public and private, professional experience. MRI provides professional, technical, and management support services to municipalities, schools, and non-profit organizations throughout the Northeast. MRI provides technical knowledge and practical experience that others cannot offer because it hires the best in the municipal consulting industry. This is evidenced by a high level of implementation of MRI's recommendations by its clients. MRI's clients have come to expect the organization to provide for whatever they need, and it fulfills their expectations.

MRI's dynamic management staff adapts services to specific client needs. Clients realize that MRI has been in their shoes and has the experience, sensitivity, and desire that it takes to

develop and deliver services that specifically meets their needs. The depth of MRI's experience is reflected not only in the experiences of its associates but in the scope of services it provides its clients, from professional recruitment to organizational and operational assessments of individual municipal departments and school districts or ongoing contracted services for various municipal government and school business support activities. Municipal Resources has a particularly strong public safety group with nationally recognized expertise in fire and emergency medical services.

MRI's professional staff is always focused on helping its clients solve problems and provide solutions for their future success. They simply work to gain an understanding of past events to build a framework for future success. They do not put forth idealistic, unachievable, or narrowly focused solutions.

MRI'S PHILOSOPHY

Municipal Resources, Inc. is committed to providing innovative and creative solutions to the problems and issues facing local governments and the agencies that serve them.

The purpose of MRI's approach is to supplement the efforts of municipal employees and other personnel and enable them to do their jobs well. MRI is committed to supporting and enhancing positive, sustainable communities through better organization, operations, and communication. This is achieved by:

- Supporting towns/townships, cities, counties, school districts and other community service agencies with management and technical services to facilitate constructive change within client organizations.
- Conducting studies and analyses designed to assist clients in achieving organizational improvement.
- Advocating and advancing cooperation, coordination, and collaboration between government organizations and related community support agencies.
- Maintaining a staff of highly qualified professional, experienced and open-minded life-long learners to serve as consultants and advisors to clients.
- Maintaining awareness and understanding of advances in "best practices" for delivery of all levels of core community services and related professional management.
- Developing and refining techniques for effective community engagement, information dissemination, and constructive change.

OBJECTIVES

1. To help municipalities and agencies obtain maximum value for limited tax dollars.

2. To identify and help communities manage the risks associated with public safety functions.
3. To raise public awareness of the value and professionalism of their municipal resources.
4. To help local leaders develop and execute plans that best meet their community's needs, given available resources.



Figure 2: MRI Project Implementation Plan

SCOPE OF WORK

The evaluation contained herein; will provide Chester County, its 73 municipalities, the Chester County Fire Chiefs Association, Chester County Emergency Medical Services Council, Inc., Chester County Fire Police Association, the County's Fire and EMS providers and the Chester County Department of Emergency Services, with a comprehensive overview of how fire and emergency medical services are currently being provided throughout the County. This assessment provides the various stakeholders with insight and evaluation regarding whether existing organizational structures, staffing and equipment levels, operational response approaches, coverage areas, and funding levels are adequate to provide a level of services throughout the County that is in line with generally accepted standards, industry best practices, and benchmarks for a community of like character.

Using this review as a basis, MRI makes recommendations for improvements that take into consideration the current and future financial ability of the municipalities/community, appropriate modifications to the fire and EMS delivery systems to provide optimum service throughout the entire County, adequacy, and appropriateness of apparatus and equipment, efficient use of resources, and whether the current deployment and coverage model is appropriate or should be modified. These recommendations then provide the basis for the development of a basic strategic plan for the County's fire and EMS services that will provide the wide array of stakeholders, both internal and external, the "Tool Kit" to address their emergency service's needs, both now and in the future. The "Tool Kit" is designed to assist the Chester County Fire Chiefs Association, Chester County Emergency Medical Services Council, Inc., Chester County Fire Police Association, and the Chester County Department of Emergency Services, along with their respective memberships of emergency services organizations and providers, in their desire to provide the highest level of service to all residents, businesses, and visitors to Chester County, balanced with reasonable, effective costs for personnel, equipment, facilities, and related operations.

The overall intent and goal of the study was to assess and make recommendations regarding:

- The current overall system for providing fire and EMS services throughout Chester County including a comparison with other geographical areas of similar size and population.
- Concern regarding the ability to provide adequate emergency services staffing precipitated by declining numbers of volunteer personnel along with declining operational revenues streams, and the relationship between potential threats and the planned response.
- The lack of standardization in the deployment and operation of fire and EMS resources.
- Duplication of resources that contribute to increased costs to provide service.
- Addressing the future of fire and EMS delivery in Chester County-based on emerging trends and best practices in fire protection and EMS.

To that end, MRI utilized a six-phase process to conduct its assessment of the Chester County Fire and EMS services and to develop its strategic plan/tool kit recommendations. The six phases include:

1. Orientation, stakeholder input, data gathering, and identification of significant issues facing the community and fire and EMS services within Chester County.
2. Information review, inventory and assessment of the emergency risks of the County, and response effectiveness and operational readiness of the fire and EMS services.
3. Develop a comprehensive and detailed assessment and inventory of current fire and EMS service operations.

4. Evaluation of the effectiveness, efficiency, and quality of service of the fire protection and EMS delivery systems within Chester County.
5. Preparation of a final evaluation report and strategic/master plan/tool kit recommendations for the Chester County fire and EMS services.
6. Presentation of a final project report and strategic/master plan/tool kit recommendations.



Figure 3: Project Methodology

In performing this study, and as designated in the original request for proposal, MRI focused on the following aspects of the County-wide fire and EMS delivery system and its operations:

- A. Define the desired fire and EMS response capability.
- B. Conduct a SWOT Analysis (Strengths, Weaknesses, Opportunities, and Threats) of current operations based upon the desired response capability.
- C. Overall fire and EMS delivery system, organizational structure, and governance.

- D. Requests for service and response metrics.
- E. Organizational, managerial, and operational practices, including standardized operational procedures for response and operations.
- F. Fire and EMS staffing practices and personnel scheduling.
- G. Chester County community profile and characteristics, risks, vulnerabilities, and concerns.
- H. Fire, rescue, and EMS operations, including standards of cover, incident analysis, designation of operational responsibilities, and deployment of resources.
- I. Training and personnel development.
- J. Fire prevention and code enforcement activities.
- K. Fire and EMS apparatus, vehicles, and equipment.
- L. Fire and rescue services facilities as they pertain to deployments and response times.
- M. Dispatch, communications, and the use of technology.
- N. Budgeting and fiscal considerations relative to the delivery of fire and EMS services.
- O. Internal and external stakeholders' perceptions concerning the fire and EMS services.
- P. The relationships between various stakeholders with emphasis on municipal officials and the leadership of fire and EMS agencies.
- Q. Sense of common vision among internal stakeholders and fire and EMS membership perceptions and feedback.
- R. Automatic/mutual aid and regional emergency service delivery options.
- S. Evaluating how Chester County fire and EMS agencies compare to other similar-sized (population and geography) departments/localities in terms of staffing, deployment, and financing.

- T. Insurance Services Office (ISO) rating and ways to improve it.
- U. Identifying opportunities for how fire and EMS services can potentially be better delivered in Chester County in a more coordinated and cost-effective manner.
- V. Long-range and strategic planning.
- W. Predicting potential future impacts by not addressing current service delivery concerns and staffing challenges.
- X. Attempting to identify cost-effective solutions to issues identified.

Recommendations for improvement are based on the applicable nationally recognized standards and best practices such as: Insurance Services Office (ISO), National Fire Protection Association (NFPA), Commission on Fire Accreditation International (CFAI), National Volunteer Fire Council (NVFC), state laws and administrative regulations, County/municipal codes and ordinances, and fire and EMS industry emerging service delivery trends and best practices. However, since every community has unique characteristics, challenges, and resource limitations, MRI's recommendations are specifically designed to address the immediate and long-term needs of Chester County and the fire and EMS providers that provide service to its communities and citizens.

METHODOLOGY

To fulfill the requirements of this study, members of the study team held an initial orientation meeting with the primary internal stakeholders, the Chester County Fire Chiefs Association, Chester County Emergency Medical Services Council, Inc., the Chester County Fire Police Association, and the Chester County Department of Emergency Services; and in partnership with them, gathered a large amount of statistical information and data on Chester County, its 73 municipalities, and the 55 primarily autonomous entities that provide fire, rescue, and EMS services to the County. The MRI study team performed 13 days of on-site work, interviews, and observations in Chester County over the course of several months.

The MRI study team made multiple visits to Chester County and completed a wide variety of tasks in the development of this report, including conducting more than 75 interviews and open meetings/forums throughout the County with internal and external stakeholders. In consideration of the fact that Chester County is still staffed primarily by volunteer fire and rescue personnel (EMS leans much more to career staffing), and to accommodate the varied needs of the fire and EMS services' internal and external stakeholders; the MRI study team arranged our time in the County to include evening and weekend availability to accommodate the schedules and needs of these personnel.

The team spent significant time with the senior officers and other key personnel in the fire and EMS organizations, Chester County Fire Chiefs Association, Chester County Emergency Medical Services Council, Inc., Chester County Fire Police Association, and, the Chester County Department of Emergency Services, to gain an understanding of the organizational, operational, and management systems and approaches currently in place, and then compared and contrasted the current structures against contemporary practice and convention.

The study team also engaged the County Commissioners, Municipal Managers/Administrators, members of local governing bodies, a wide cross section of the fire and EMS services community, other appointed senior municipal officials, and, a wide array of other internal and external stakeholders (including the general public) in in-depth discussions about the current fire and EMS delivery system and structure to identify any concerns or areas requiring special focus and to gather thoughts and ideas about areas of potential improvement and long-range visions, needs, goals, and objectives.

Altogether there were more than 100 major work elements involved in conducting this analysis and developing the strategic plan and “*Tool Kit*”. This includes more than 75 interviews with key stakeholders. These elements include, but were certainly not limited to:

1. A review of compiled data regarding key operational aspects of the Chester County fire, rescue, and EMS delivery systems.
2. Conducted a SWOT (Strengths, Weaknesses, Opportunities, Threats/Challenges) analysis of the Chester County fire and EMS response system.
3. Through a variety of means worked with municipal leaders and the public to attempt to define the desired level of fire and EMS response capability.
4. Through a variety of means worked to identify significant issues and concerns of the various internal and external stakeholders regarding the current operations of the fire and EMS services. Part of this process involved the MRI study team achieving an understanding and appreciation of the values and “personality” of Chester County as a whole, as well as the individual communities, local governments, and fire and EMS providers that comprise it.
5. A thorough tour of Chester County to gain a sense of the physical environment, the primary fire, and life safety risk exposures, and the location of population and commercial centers and growth areas, in relation to existing facilities. Part of this process included an evaluation of the relationship between the potential threats and the planned response.
6. Met with the Chester County Commissioners (current and previous), County Administrator, Deputy County Administrator, and Chief Financial Officer.

7. Interviewed key Department of Emergency Services staff members (12).
8. Attended a Department of Emergency Services staff meeting.
9. Conducted/facilitated two initial informational sessions at the County Public Safety Training Campus (PSTC), one in the afternoon and one in the evening, for all interested stakeholders, followed by smaller group breakout sessions for fire personnel, EMS personnel, and elected officials.
10. Interviewed President and Past President of the Chester County Fire Chiefs Association.
11. Interviewed the President of the Chester County Fire Police Association.
12. Interviewed members of the Chester County EMS Council, Inc.
13. Attended a meeting with the Chester County Emergency Services Strategic Planning Group (12 attendees).
14. Attended a meeting of the Chester County EMS Operations Group at Minquas Fire Company (19 attendees).
15. Conducted individual interviews with multiple fire and EMS chief officers.
16. Attended an information presentation and meeting on SR-6 for a delegation of Connecticut Fire Service leaders at King of Prussia Fire Department (approx. 15 attendees).
17. Interviewed Jerry Ozog, Executive Director, Pennsylvania Fire and Emergency Services Institute.
18. Interviewed members of the Western Chester County Chamber of Commerce (4 members).
19. Attended Southern Chester County Fire Chiefs district meeting at Avondale Fire Company (18 Attendees).
20. Attended Chester County Fire Chiefs Association meeting at Westwood Fire Company.
21. Interviewed several municipal managers.
22. Attended Chester County Fire Chiefs Association advisory board meeting.

- 23.** Attended Chester County recruitment and retention committee meeting (5 attendees).
- 24.** Toured PSTC in Coatesville.
- 25.** Observed a training session at the PSTC.
- 26.** Toured and observed Chester County public safety 9-1-1 dispatch centers in West Chester and at PSTC.
- 27.** Facilitated an open meeting on a Friday afternoon at West Whiteland Township municipal building to obtain input from various stakeholders (24 attendees).
- 28.** Facilitated an open meeting on a Friday evening at Kimberton Fire Company to obtain input from various stakeholders (6 attendees).
- 29.** Facilitated an open meeting on a Saturday morning at Avondale Fire Company to obtain input from various stakeholders (8 attendees).
- 30.** Facilitated an open meeting on a Saturday afternoon at Berwyn Fire Company to obtain input from various stakeholders (2 attendees).
- 31.** Facilitated an open meeting on a Sunday morning at Parkesburg Borough Hall to obtain input from various stakeholders (5 attendees).
- 32.** Facilitated an open meeting on a Sunday afternoon at East Brandywine Fire Company to obtain input from various stakeholders (7 attendees).
- 33.** Attended a meeting of the Chester County Municipal Managers Consortium at the Chester County Government Services Center (15 attendees).
- 34.** Facilitated a Virtual Town Hall meeting on June 10, 2020, with 68 attendees to interview various stakeholders regarding their perceptions of the County's fire, rescue, and rescue services.
- 35.** Inspected and reviewed a sampling of fire company and EMS facilities, apparatus, and equipment.
- 36.** Conducted a review of the locations of existing fire and EMS stations primarily related to an assessment of response times and utilizing GIS mapping illustrated recommended benchmark response times and coverages.

- 37.** Evaluated the current fire and EMS service staffing and deployment models compared to service level demands, safety issues, and quality of service considerations. Recommendations were made regarding staffing needs necessary to maintain service levels in the future.
- 38.** Analyzed the fire and EMS service's current deployment strategy, response districts, and dispatch protocols.
- 39.** Evaluated Chester County's fire and EMS run cards and dispatch assignments and made recommendations for revisions and standardization.
- 40.** Reviewed and evaluated automatic and mutual aid capabilities and practices.
- 41.** Analyzed the workload of various fire and EMS agencies (including an analysis by each municipality) and utilizing GIS mapping; plotted three years of incident locations to assist with determining the most efficient future deployment of resources.
- 42.** Evaluated the current fire apparatus and EMS unit make-up and distribution from a County-wide perspective. Plotted the location of specialized apparatus such as ALS/medic units, ladder trucks, rescue units, and water tenders. This element included identification of unreasonable duplication of resources that add to operational costs as part of a comprehensive response policy for Chester County.
- 43.** Evaluated the existing fire and EMS services organizational structure and governance for appropriateness and effectiveness for providing fire and EMS services within the County, including an assessment of the sense of common vision.
- 44.** Evaluated the extent to which SOGs are standardized and provide for interoperability between organizations.
- 45.** Reviewed and evaluated fire and EMS training and personnel development.
- 46.** Reviewed and evaluated current fire prevention, code enforcement, and fire investigation operations and strategies.
- 47.** Reviewed and analyzed the fire and EMS services incident/response time statistics, both County-wide and by geographic region (east, west, central).
- 48.** Reviewed state and County statutes and municipal ordinances applicable to the fire and EMS services.
- 49.** Reviewed previous studies and evaluations that have been conducted regarding the fire and EMS services.

50. Developed, distributed, and evaluated three computer-based survey instruments to gain input and perspective from a wide range of both internal and external fire and EMS system stakeholders: one for fire and EMS providers, one for local government officials, and one for citizens. The number of responses received for each survey was:

- Fire and EMS providers: **469**
- Local government officials: **56**
- Citizens: **1,142**

These surveys and their results, including comments, can be found in Appendices B, C, and D. The citizen surveys also resulted in the development of 62 potential leads for volunteer assistance to the fire and EMS agencies.

51. Developed, distributed, and evaluated two detailed questionnaires, one for fire and EMS agency leadership, and one for municipal managers/administrators. ***The questionnaire for the fire and EMS agencies resulted in a 100% return rate.*** For the municipal managers/administrators 42 of 73 (57.5%) municipalities completed and returned them. The questionnaires can be found in Appendices E and F.

52. Evaluated opportunities for additional regional or shared services related to fire and EMS response.

53. Developed and conducted analysis of a summary comparative using nationally accepted norms, and practices of other communities of similar type and size.

54. Developed a comprehensive assessment of the current conditions of the Chester County Fire and EMS delivery system along with recommendations for improvement.

55. Assessed the current funding levels and mechanisms for providing fire and EMS services throughout Chester County. This included an evaluation of potential fiscal constraints, as well as opportunities relative to achieving strategic goals and objectives related to the delivery of comprehensive fire and EMS services throughout Chester County.

56. Developed a “*Tool kit*” to address the Chester County Fire and EMS delivery system needs, both now and in the future.

The MRI study team investigated areas such as the organizational and command structures of the fire and EMS delivery systems and their various component organizations, both individually and collectively, along with chain of command, span of control, budgeting, staffing, volunteer

recruitment and retention, service demands, fire prevention services, response districts, dispatch protocols and the deployment of personnel, standards of coverage, the communications and data processing functions, perceptions within the community, working relationships with other persons and agencies, responsiveness, internal policies and procedures, adequacy and reasonableness of facilities and equipment, and compliance with various state and federal regulations.

Following the on-site visits, the data and documentation collected, and observations made, were subjected to analysis by the study team, both individually and collectively. The information was then compared with contemporary fire service and public safety standards, recommendations, and best practices, to formulate the recommendations contained in this report and utilized for the development of the *“Tool Kit”*.

This report is the work product of more than a year of extensive observation, information gathering, research, and analysis. The observations made within this report are believed to be accurate based on the information gathered from Chester County and the individual entities that comprise the fire and EMS agencies that serve the County, and the combined judgment of the entire MRI fire and EMS study team.

The resulting recommendations and *“Tool Kit”* are based upon an acknowledgement that fire and EMS services are living and continuously evolving organizations. They must continuously change and adapt to current and anticipated conditions and realities. Every fire and EMS agency, while steadfastly holding onto traditions, is an organization that must be progressive and proactive, and requires a perpetual commitment to improvement. The modern fire and EMS services are besieged constantly with ever-increasing demands from the public. They must readily adapt to changes in technology, continually evolving risks and hazards, and new generations of men and women entering this highly rewarding and challenging public service avocation. The delivery of high-quality fire and emergency medical services requires energetic, enlightened, progressive, and proactive leadership at all levels of the fire and EMS delivery system. Every day must include an effort to improve and move forward.

ACKNOWLEDGEMENTS

MRI would like to take this opportunity to sincerely thank a wide range of stakeholders who were involved in this project, without whose assistance and support, the completion of this final study and report would not have been possible. This includes:

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- Chester County Administrator Robert Kagel
- Chester County Fire Chiefs Association President Gerald DiNunzio and Past President (and Parkesburg Borough Manager) Neil Vaughn
- Chester County EMS Council, Inc. President Gary Vinnacombe
- Chester County Fire Police Association President Ronald Miller

- Chester County Municipal Managers Consortium President John Nagel
- Chester County Association of Township Officials Executive Director and Past President Ernie Holling
- Department of Emergency Services Director Michael Murphy
- Department of Emergency Services Director of Operations George “Beau” Crowding
- Department of Emergency Services Deputy Director for Fire Services William “BJ” Meadowcroft
- Department of Emergency Services Deputy Director for EMS Harry Moore
- Department of Emergency Services Assistant Director for Quality Michael Groover

The study team especially appreciates the candor and integrity of the wide array of fire and EMS providers, and municipal officials that it interacted with throughout this endeavor, all of whom demonstrated their professionalism and genuine desire to improve and strengthen the fire and emergency medical services that are delivered to the citizens and visitors of Chester County.

MRI must also thank the members of the public who took the time to speak to the MRI study team and offered their valuable input and perspective to them regarding the future of the fire and EMS delivery system in Chester County.

CHAPTER II

BACKGROUND, DEMOGRAPHICS, AND FIRE AND EMERGENCY MEDICAL SERVICE (EMS) OVERVIEW



Figure 4: Chester County Seal

Chester County is located in southeastern Pennsylvania, west and southwest of Philadelphia. It is the westernmost suburb of the Philadelphia metropolitan area. Chester County is part of the Philadelphia-Camden-Wilmington, PA-NJ-DE-MD Metropolitan Statistical Area. Eastern Chester County is home to many communities that comprise part of the old “Main Line” suburbs of Philadelphia. The southern part of the County is also considered to be part of the Wilmington, Delaware suburbs. The County seat is in West Chester. Chester County is bordered by Berks County to the north, Montgomery County to the northeast, Delaware County to the east, New Castle County, Delaware to the southeast, Cecil County, Maryland to the south, and Lancaster County to the west. The Schuylkill River flows from west to east across the northern part of the County.

Chester County was one of the three original Pennsylvania counties created by William Penn on August 24, 1682. At that time, Chester County's borders were Philadelphia County to the north, the ill-defined western edge of the colony (approximately the Susquehanna River) to the west, the Delaware River to the east, and colonies of Delaware and Maryland to the south. The fourth County in Pennsylvania, Lancaster County, was formed from Chester County on May 10, 1729. On March 11, 1752, Berks County was formed from the northern section of Chester County, as well as parts of Lancaster and Philadelphia counties.

The original Chester County seat was the City of Chester at the eastern edge of the County. To accommodate the increased population of the western part of the County, the County seat was moved to a more central location in 1788. In response to the new location of the County seat, the eastern portion of the County separated and formed the new Delaware County in 1789.

Today, Chester County is officially a Third-Class County, according to Pennsylvania state statutes. Third-Class counties are those with a population of between 210,000 and 499,999 as reported by the United States Census Bureau. Based upon projections, Chester County's population after the 2020 census will probably raise it to a Second-Class A County which has a population between 500,000 and 799,000. It would join its neighbors of Bucks, Delaware, and Montgomery counties at this level. However, the County may also elect to remain a Third-Class County. A three-member Board of Commissioners, elected at large, serves as the governing body. The board enacts legislation and sets the policy for the County. The Commissioners have selective policy-making authority to provide certain local services and facilities on a County-wide basis. The governing body is also assisted by numerous citizen boards and commissions. A professional county administrator oversees the County's day to day operations.

DEMOGRAPHICS

Because of its proximity to both Philadelphia and Wilmington, Chester County has seen large waves of development over the past half-century due to suburbanization. In that time, Chester County has developed into one of the most important activity centers in the entire greater Philadelphia region. According to the United States Census Bureau, Chester County had an official 2010 population of 499,133 in 189,592 households¹. This represents an increase of 15.1% from 2000. The County's estimated 2018 population was 522,046², an increase of 4.6% since 2010. Chester County's population grew tremendously from 1950 to 1970, increasing by 32.3% in the 1950s, and another 32.1% in the 1960s; decades when America's suburbs were being developed. In the decade from 1980 to 1990 the population increased more modestly, growing 18.9%³. Overall, from 1930 to 2000, Chester County's population increased by 242%. The Delaware Valley Regional Planning Commission (DVRPC) anticipates that Chester County's resident population will continue to grow, increasing to 647,330, an additional 29.8%, by 2040⁴. This increase is almost double the next nearest of the Pennsylvania counties in the DVRPC area and nearly three times the five Pennsylvania County average of 11.5% growth. Overall, Chester County's projected growth will also be nearly triple the nine-county average of 11.3%. In the nine-county DVRPC area, only Gloucester County, New Jersey, is projected to have slightly higher growth than Chester County at 30.5%. Chester County is also one of the fastest-growing counties in the entire Northeastern section of the United States.

YEAR	POPULATION	POPULATION CHANGE	PERCENTAGE (%) CHANGE
1930	126,629	N/A	N/A
1940	135,626	+ 8,997	+ 7.1%
1950	159,141	+ 23,515	+ 17.3%
1960	210,608	+ 51,467	+ 32.3%
1970	278,311	+ 67,703	+ 32.1%
1980	316,660	+ 38,349	+ 13.8%
1990	376,396	+ 59,736	+ 18.9%
2000	433,501	+ 57,105	+ 15.2%
2010	498,886	+ 65,385	+ 15.1%
2018	522,046*	+ 23,160	+ 4.6%

Figure 5: Chester County population Trend 1930 – 2014 * Estimated
Sources: US Census Bureau and Delaware Valley Regional Planning Commission

¹ <https://www.census.gov/quickfacts/fact/table/chestercountypennsylvania/PST045219> February 2, 2020

² <https://www.census.gov/quickfacts/fact/table/chestercountypennsylvania/PST045219> February 2, 2020

³ <http://www.dvrpc.org/reports/DB082.pdf> February 2, 2020

⁴ <http://www.dvrpc.org/reports/ADR018-A.pdf> February 2, 2020

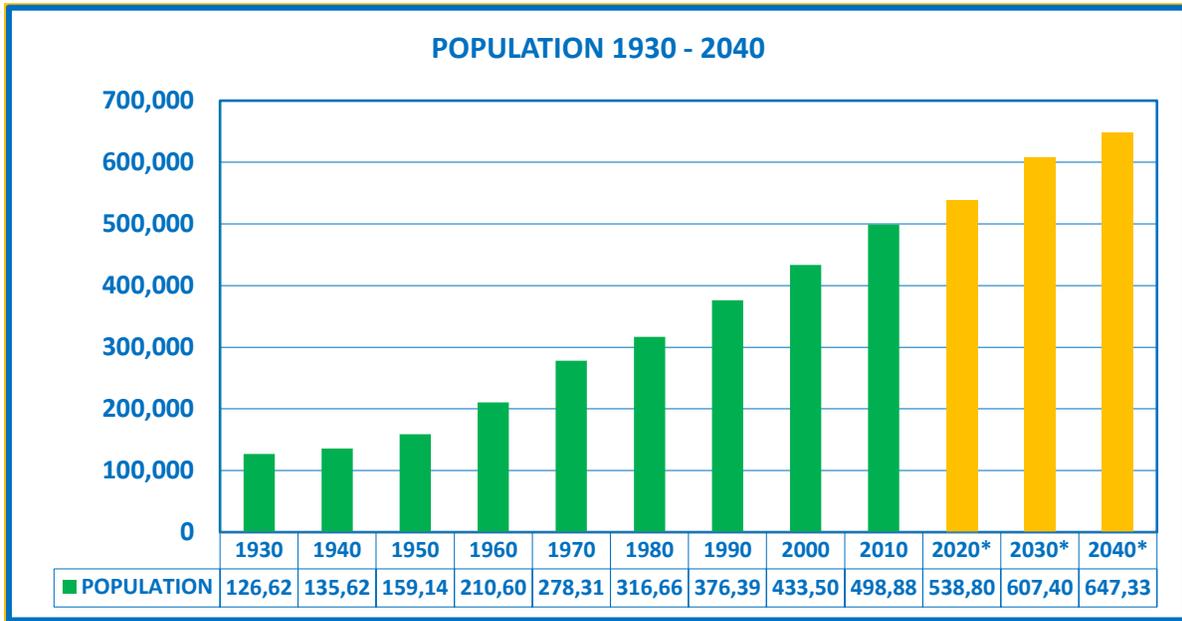


Figure 6: Chester County Population Projection

* 2020, 2030, and 2040 populations are projections.

Sources: US Census Bureau and Delaware Valley Regional Planning Commission

The 2010 population is 79.1% Caucasian, 6.3% African American, 5.8% Asian, and 7.6% Hispanic⁵. If national trends evidence themselves in Chester County, the Asian and Hispanic populations will continue to grow and will eventually necessitate the need for bilingual emergency services personnel. As these changes occur, the fire and EMS organizations that serve Chester County will need to take steps to recruit personnel from various racial and ethnic backgrounds so that their membership will mirror the community (this is discussed more in Chapter XI, *Volunteer Recruitment and Retention*). The population makeup includes 22.6% under the age of 18 and 16.3% age of 65 and older⁶. The latter has experienced an 18.4% increase since 2013⁷. The age group of 20-64 represents 58.1% of the population⁸. This fact, coupled with the continued rapid residential development that is occurring, planned, and proposed throughout the County, could impact the emergency response needs and demands, particularly with potential increases in the EMS call volume due to shifting ages and an aging population.

Chester County covers 759 square miles, of which 751.51⁹ square miles are land area. Based upon its overall population density of 664.7¹⁰ people per square mile (Pennsylvania average:

⁵ <https://www.census.gov/quickfacts/fact/table/chestercountypennsylvania/PST045219> February 2, 2020

⁶ <https://www.census.gov/quickfacts/fact/table/chestercountypennsylvania/PST045219> February 2, 2020

⁷ <https://www.chesco.org/3995/Demographics> February 2, 2020

⁸ https://www.chesco.org/DocumentCenter/View/52331/2018-ACS-Chester-County-at-a-Glance_Updated-Oct-2019 February 2, 2020

⁹ <https://www.census.gov/quickfacts/fact/table/chestercountypennsylvania/PST045219> February 2, 2020

¹⁰ <https://www.census.gov/quickfacts/fact/table/chestercountypennsylvania/PST045219> February 2, 2020

attached (17.8%) or detached (62.5%) dwelling units²¹. The median sales price for all units (including newly built and existing stock) for 2018 was \$340,000, while the median sales price for new sales (units first sold during 2018) was \$444,000²². Although apartment construction remains strong in the County, currently just 15.1% of housing units are in structures with three or more units²³.

Chester County is traversed by Interstate 76 (Pennsylvania Turnpike), and US Routes 1, 30, 202, and 322. Other major highways include Pennsylvania Routes 3, 10, 23, 29, 41, 100, 113, 252, 401, 724, and 896. The County is served by 12 train stations that are stops for Amtrak (Keystone Service) and Southeastern Pennsylvania Transportation Authority (SEPTA) regional rail lines. SEPTA also operates 13 different bus routes in Chester County, several of which provide direct service to downtown Philadelphia. Other routes provide service to transportation terminals in Norristown and Upper Darby, while several also provide a link to the King of Prussia area and its transportation center. Freight railroad lines operated by Norfolk Southern and the East Penn Railroad are also located within the County. Figure 8 illustrates major transportation routes and facilities located within the County.

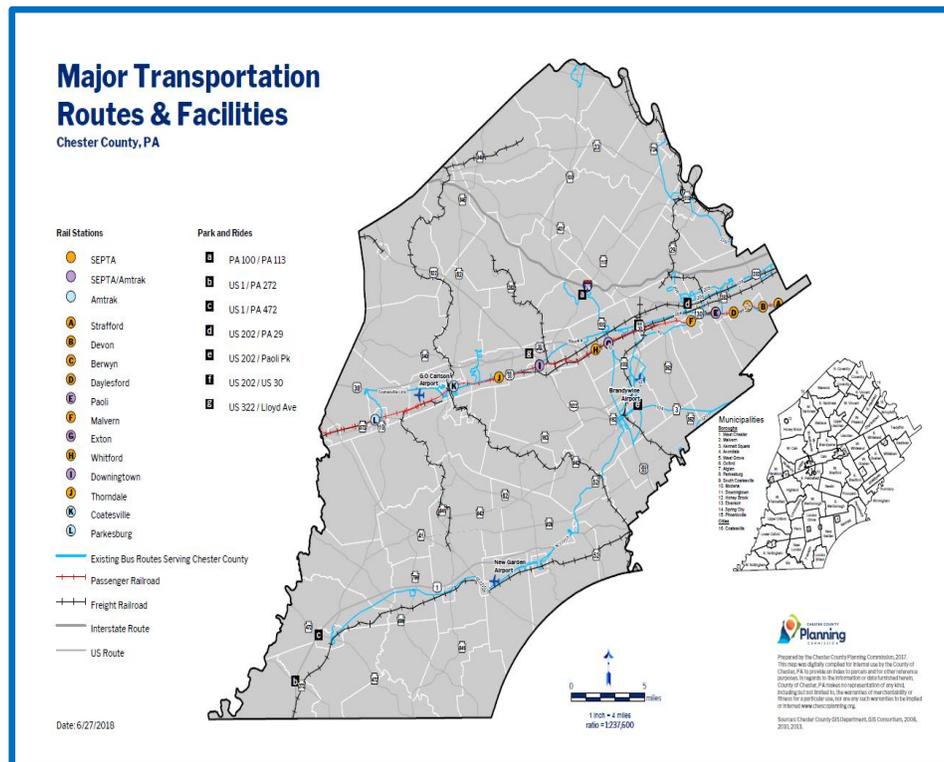


Figure 8: Chester County Major Transportation Routes
Map Credit: Chester County Planning Commission

²¹ https://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS_14_5YR_S2504&prodType=table
February 2, 2020

²² <https://www.chesco.org/DocumentCenter/View/50268/Housing-Report-2018?bidId=> February 2, 2020

²³ https://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS_14_5YR_S2504&prodType=table
February 2, 2020

As a suburb to both Philadelphia and Wilmington, many Chester County residents commute to work in those cities. A significant number also commute to work in other regional economic hubs such as Montgomery County, PA and New Castle County, DE. However, in addition to its stature as one of the Philadelphia region’s most desirable residential destinations, Chester County is an important business and industrial hub in the city’s western suburbs with a large, vibrant, and still rapidly expanding commercial base. The County is home to nearly 15,000 businesses. Total employment in Chester County in 2017 was 250,337 people²⁴. The DVRPC forecasts that Chester County’s total employment numbers will continue their steady upward trajectory increasing by 76,007 or 26.0% between 2010 and 2040²⁵. This would place the County as #2 on the regional list of counties with the greatest forecast change in employment, just behind Gloucester County, NJ²⁶. Six of the twenty municipalities with the greatest forecast absolute change in employment including five of the top ten are in Chester County²⁷.

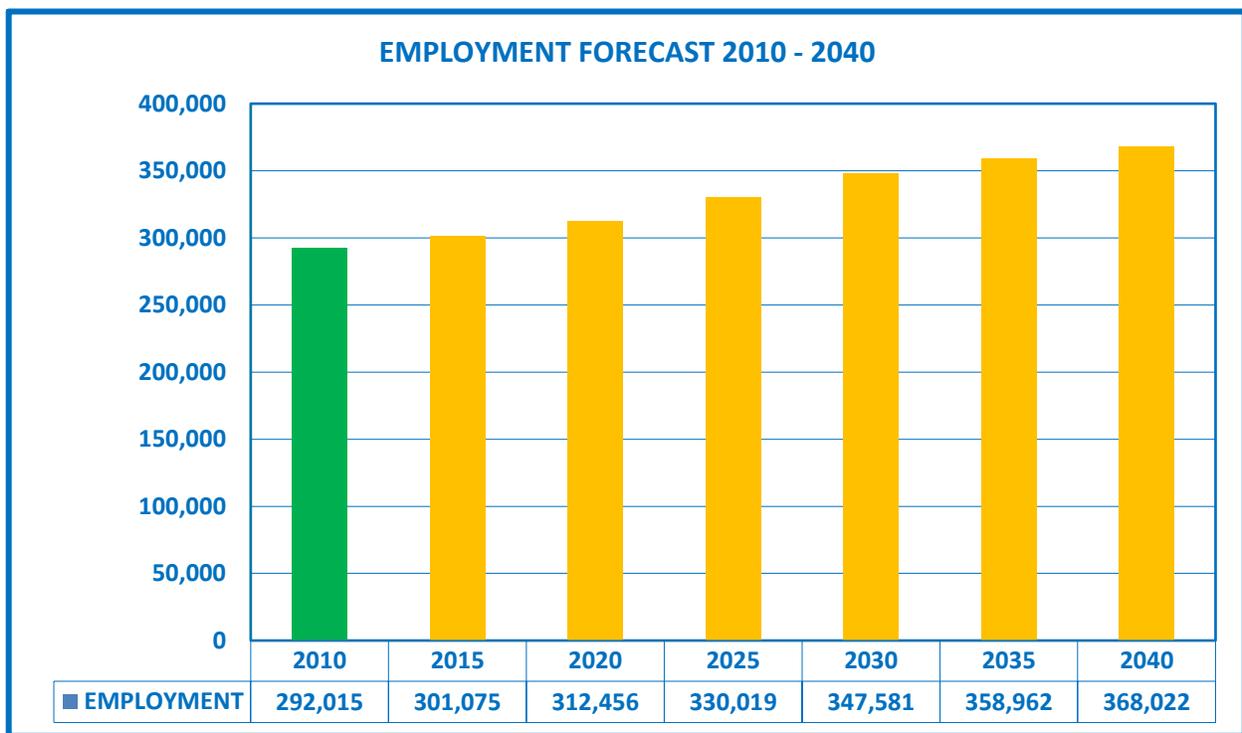


Figure 9: Employment Forecast 2010-2040
Note: All employment numbers except for 2010 are projections.
 Source: Delaware Valley Regional Planning Commission

Despite its rapid growth, Chester County’s largest industry is still agriculture; with about 24% of its total land area being used to grow crops. However, the extensive highway and

²⁴ <https://www.census.gov/quickfacts/fact/table/chestercountypennsylvania/PST045219> February 2, 2020
²⁵ <http://www.dvrpc.org/reports/ADR019.pdf> February 2, 2020
²⁶ <http://www.dvrpc.org/reports/ADR019.pdf> February 2, 2020
²⁷ <https://www.dvrpc.org/reports/ADR019.pdf> February 2, 2020



transportation system with easy access has resulted in the County hosting numerous modern facilities with a 21st century focus on finance and the production of innovative technologies. In addition, government and health care industries are major employers. Twelve of the 100 largest companies that have their headquarters in Pennsylvania, including two of the top 10, are headquartered in Chester County²⁸.

According to the Pennsylvania Department of Labor and Industry, Center for Workforce Information and Analysis, Chester County's 25 largest employers in the 3rd quarter of 2019 were:

- Vanguard Group, Inc.
- Comcast Cablevision Corp (PA)
- QVC Network, Inc.
- Communications Test Design, Inc.
- County of Chester
- United Parcel Service, Inc.
- United States Federal Government
- Pennsylvania State Government
- The Chester County Hospital
- Wawa, Inc.
- Giant Food Stores, LLC.
- Wegmans Food Markets, Inc
- Main Line Hospitals, Inc.
- Wal-Mart Associates, Inc.
- PA State System of Higher Education
- Johnson Matthey, Inc.
- YMCA of Greater Brandywine Valley
- Siemens Medical Solutions USA, Inc.
- The Devereux Foundation
- Cerner Health Services, Inc.
- Downingtown Area School District
- De Lage Landen Financial Services
- Chester County Intermediate Unit
- Janssen Research & Development, LLC
- West Chester Area School District

Chester County is comprised of 73 municipalities. According to Pennsylvania statutes, five types of incorporated municipalities are permitted: cities, boroughs, townships, home rule municipalities (which can include both boroughs and townships) and towns. Chester County's municipalities include one city, 15 boroughs, and 57 townships (Figure 10). All the townships are Townships of the Second-Class except Caln, which is a Township of the First-Class.

Figure 11 provides a landscape map of the population and community characteristics of Chester County based upon the County's growth plan.

²⁸ <https://www.zippia.com/advice/largest-companies-in-Pennsylvania/> February 2, 2020

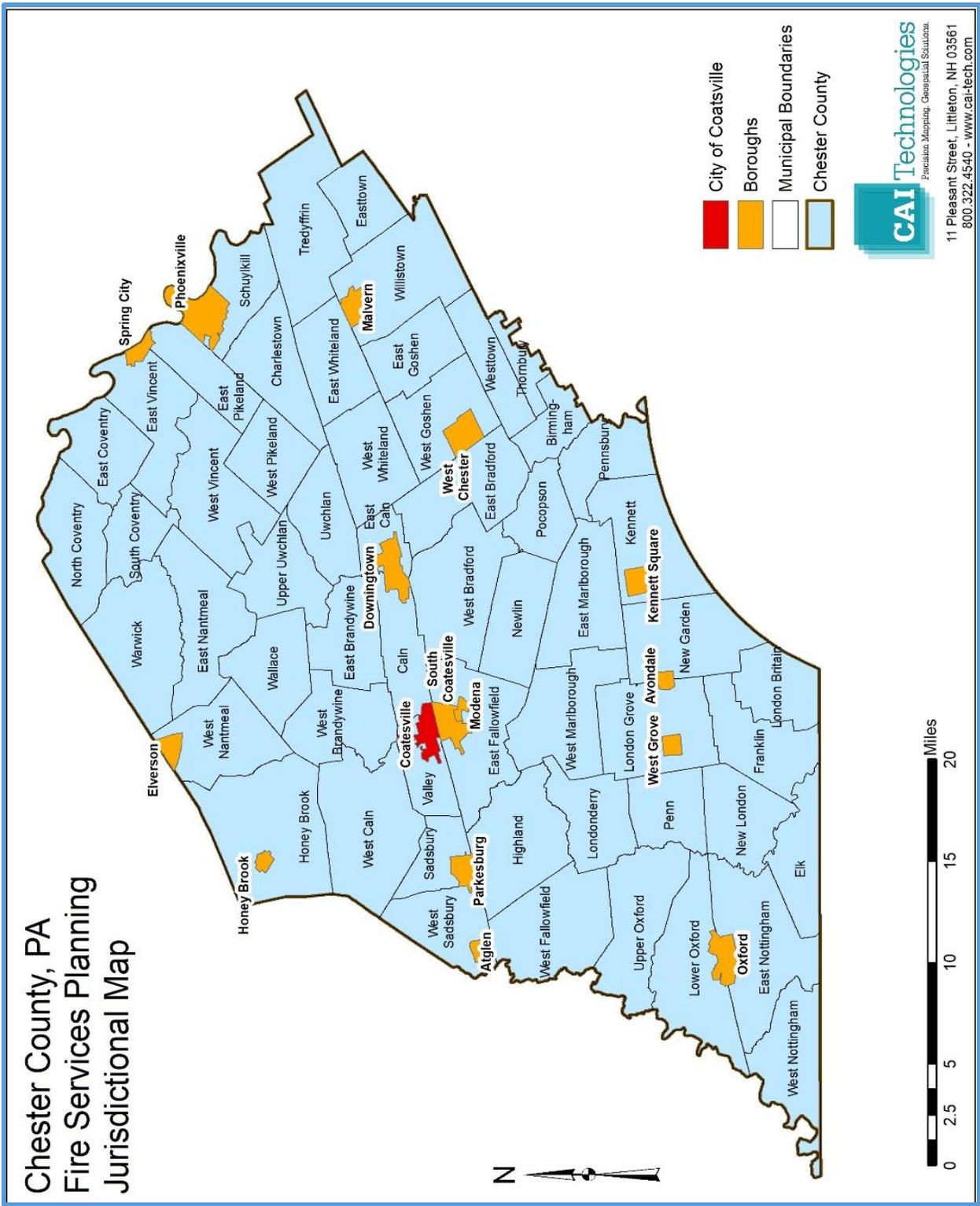


Figure 10: Chester County Municipalities

Chester County’s municipalities present a wide range of demographics and characteristics. These include a densely developed city, boroughs, and even townships, primarily in the eastern portion of the County, to rural sparsely populated townships. The municipal populations range from Tredyffrin Township with 29,504 residents to Modena Borough with just 532. Population densities range from 10,000.5 people per square mile in West Chester Borough, to West Marlborough Township, with just 48 residents per square mile. Figure 12 provides the population, area in square miles, population density, and community characteristic based upon population density according to census bureau designations. For community characteristics these include:

- Urban = Population density is greater than 1,000 people per square mile.
- Suburban = Population density between 500 and 1,000 people per square mile.
- Rural = Population density of less than 500 people per square mile.

MUNICIPALITY AND TYPE	POPULATION *	AREA (SQUARE MILES) *	POPULATION DENSITY/ SQUARE MILE *	CHARACTERISTIC
Atglen Borough	1,408	0.88	1,606.9	Urban
Avondale Borough	1,401	0.5	2,896.7	Urban
Birmingham Township	4,249	6.43	672.1	Suburban
Caln Township	14,304	8.86	1,560.2	Urban
Charlestown Township	6,137	12.45	455.5	Rural
Coatesville City	13,114	1.81	7,241.6	Urban
Downingtown Borough	7,927	2.19	3,606.5	Urban
East Bradford Township	9,933	14.93	665.7	Suburban
East Brandywine Township	8,826	11.15	604.6	Suburban
East Caln Township	4,852	3.68	1,353.8	Urban
East Coventry Township	6,761	10.66	622.6	Suburban
East Fallowfield Township	7,575	15.51	480.2	Rural
East Goshen Township	18,207	10.05	1,794.3	Urban
East Marlborough Township	7,464	15.45	454.7	Rural
East Nantmeal Township	1,841	16.38	113.6	Rural
East Nottingham Township	9,062	20.03	431.9	Rural
East Pikeland Township	7,327	8.74	810.2	Suburban
East Vincent Township	7,327	13.4	509.1	Suburban
East Whiteland Township	12,402	10.94	973.8	Suburban
Easttown Township	10,646	8.23	1,273.8	Urban
Elk Township	1,694	10.13	168.5	Rural
Elverson Borough	1,313	1.0	1310.9	Urban



MUNICIPALITY AND TYPE	POPULATION *	AREA (SQUARE MILES) *	POPULATION DENSITY/ SQUARE MILE *	CHARACTERISTIC
Franklin Township	4,352	13.14	345.8	Rural
Highland Township	1,282	17.19	74.9	Rural
Honey Brook Borough	1,760	0.48	3,647.2	Urban
Honey Brook Township	8,311	24.75	309	Rural
Kennett Square Borough	6,195	1.07	5,701.4	Urban
Kennett Township	8,254	15.34	493.2	Rural
London Britain Township	3,255	9.79	335.6	Rural
London Grove Township	8,752	17.15	435.9	Rural
Londonderry Township	2,426	11.36	214.4	Rural
Lower Oxford Township	5,077	18.14	286.7	Rural
Malvern Borough	3,445	1.27	2,730.9	Urban
Modena Borough	532	0.35	1,546.5	Urban
New Garden Township	12,150	16.11	743.9	Suburban
Newlin Township	1,351	12.12	112.8	Rural
New London Township	5,964	11.65	483.3	Rural
North Coventry Township	7,989	13.22	594.9	Suburban
Oxford Borough	5,572	1.97	2,581.1	Urban
Parkesburg Borough	3,920	1.27	3,026	Urban
Penn Township	5,530	9.6	558.9	Suburban
Pennsbury Township	3,661	10.05	368.9	Rural
Phoenixville Borough	16,957	3.51	4,686.4	Urban
Pocopson Township	4,842	8.32	591.4	Suburban
Sadsbury Township	3,880	6.2	629.2	Suburban
Schuylkill Township	8,641	8.51	1,000.9	Suburban
South Coatesville Borough	1,444	1.76	833.5	Suburban
South Coventry Township	2,603	7.6	345.3	Rural
Spring City Borough	3,317	0.82	4,335.9	Urban
Thornbury Township	3,146	3.87	820.8	Suburban
Tredyffrin Township **	29,504	19.77	1,484	Urban
Upper Oxford Township	2,497	16.73	150.1	Rural
Upper Uwchlan Township	11,609	10.89	1,030.7	Urban
Uwchlan Township	18,908	10.4	1,739.6	Urban
Valley Township	7,803	5.93	1,144.9	Urban
Wallace Township	3,677	12.13	307.4	Rural
Warwick Township	2,540	18.9	135.5	Rural

MUNICIPALITY AND TYPE	POPULATION *	AREA (SQUARE MILES) *	POPULATION DENSITY/ SQUARE MILE *	CHARACTERISTIC
West Bradford Township	13,123	18.5	660.8	Suburban
West Brandywine Township	7,497	13.12	563.6	Suburban
West Caln Township	9,103	21.6	417.4	Rural
West Chester Borough ***	20,048	1.85	10,000.5	Urban
West Fallowfield Township	2,588	18.25	142.6	Rural
West Goshen Township	23,009	11.85	1,844.9	Urban
West Grove Borough	2,847	0.65	4,367.1	Urban
West Marlborough Township	816	17.08	48	Rural
West Nantmeal Township	2,192	13.54	164.4	Rural
West Nottingham Township	2,685	14.13	192.4	Rural
West Pikeland Township	4,083	9.96	413.8	Rural
West Sadsbury Township	2,466	10.65	232.4	Rural
West Vincent Township	5,726	17.68	258.4	Rural
West Whiteland Township	18,381	12.84	1,423.8	Urban
Westtown Township	10,995	8.66	1,249.7	Urban
Willistown Township	10,991	18.11	579.7	Suburban

Figure 12: Chester County Municipal Populations and Characteristics* Source: United States Census Bureau based upon 2016/2018 population estimates.

** Largest municipality by population.

*** County seat.

NOTE: The community characteristics identified above will be pertinent when the concepts of Standards of Response Cover and staffing related to the development of an effective response force (ERF) are introduced and discussed in later chapters of this report.

Census-designated places (CDPs) are geographical areas designed by the US Census Bureau for the purpose of compiling demographic data, CDPs are populated areas that generally include one officially designated but currently unincorporated community, for which the CDP is named, plus surrounding inhabited countryside of varying dimensions and, occasionally, other, smaller unincorporated communities. CDPs are not actual jurisdictions under Pennsylvania law. The following 17 CDPs are in Chester County.

- Berwyn
- Caln
- Chesterbrook
- Cheyney
- Cochranville
- Devon
- Eagleview
- Exton
- Kenilworth
- Lincoln University
- Lionville
- Paoli
- Pomeroy
- South Pottstown
- Thorndale
- Toughkenamon
- Westwood



Other unincorporated communities that often provide a reference to residents or businesses, including villages, are found throughout Chester County. These locations also have no legal jurisdiction, although they may have a post office and zip code. However, they are all part of one or more of the County’s municipalities. The unincorporated communities in Chester County include:

- Birchrunville
- Brandamore
- Bucktown
- Cedar Knoll
- Chester Springs
- Compass
- Coventry
- Coventryville
- Daylesford
- Devault
- Doe Run
- Dowlin Forge
- Embreeville
- Fisherville
- Frazer
- Glenmoore
- Hayti
- Hephzibah
- Humphreyville
- Ironsides
- Jennersville
- Kimberton
- Knauertown
- Landenberg
- Lenape
- Longwood
- Ludwigs Corner
- Lyndell
- Marchwood
- Marshallton
- Mortonville
- Nantmeal Village
- Newlinville
- Parker Ford
- Phillipsville
- Pine Swamp
- Pocopson
- Pomeroy Heights
- Pughtown
- Romansville
- Sadsburyville
- Schades Corner
- Strafford
- Suplee
- Unionville
- Valley Forge
- Warwick
- Weatherstone
- Wilsons Corner

Chester County is served by 12 public school districts that are all regional in nature (Figure 13). Cumulatively, these school districts operate 99 schools (including the Chester County Intermediate Unit) from grades K-12 along with 12 Head Start facilities²⁹.

²⁹ <https://www.cciu.org/cms/lib/PA01001436/Centricity/Domain/3/2020%20Directory%20Final%20Upload.pdf>



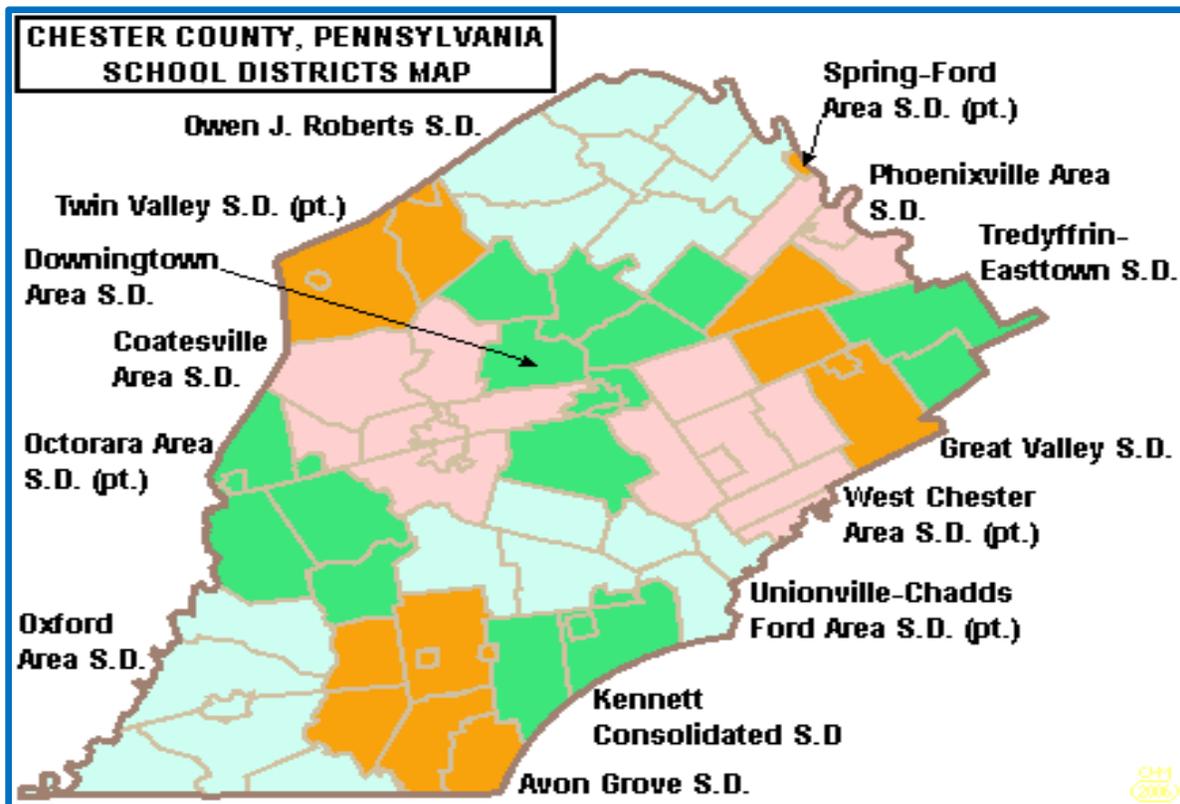


Figure 13: Chester County Public School Districts

In addition to the public-school districts, there are fifteen charter schools and 51 private or religiously affiliated schools located throughout the County³⁰. Chester County also hosts various institutions of higher learning with one of those, Delaware County Community College, operating at multiple locations in the County. These college and universities include:

- Cheyney University of Pennsylvania (partially in Delaware County)
- Immaculata University
- Lincoln University
- Delaware County Community College
- Drexel University
- Penn State Great Valley
- University of Valley Forge
- West Chester University of Pennsylvania

FIRE AND EMERGENCY MEDICAL SERVICES

Chester County is protected by forty-five (45) separate and primarily autonomous fire companies/departments all of whom have a long and proud heritage and history of service to the community. Many of these organizations are totally independent; however, some are municipally controlled, although often to a limited extent. The fire departments/companies are

³⁰ <https://www.cciu.org/cms/lib/PA01001436/Centricity/Domain/3/2020%20Directory%20Final%20Upload.pdf>

still primarily utilizing volunteer personnel to provide fire protection; however, some agencies, often with municipal government support or sponsorship, are beginning to hire a limited number of full-time career firefighters to supplement the volunteer staff, primarily during the workday.

As volunteer organizations most fire company personnel generally do not staff their stations on regular shifts or on a consistent basis, although some companies do maintain in-station duty crews. In many cases, fire personnel respond to emergency calls from wherever they may be when an incident is dispatched.

Chester County is also protected by thirty-two (32) EMS agencies providing response to 9-1-1 medical emergencies. Chester County utilizes a tiered EMS system, consisting of Quick Response Service (QRS), Basic Life Support (BLS), and both transport and non-transport Advanced Life Support (ALS) levels. All 32 of Chester County's BLS and ALS EMS agencies utilize career staff to cover most of their responses; and are comprised of fire department affiliated, hospital affiliated, and independent organizations. Quick Response Service (QRS) providers remain largely volunteer and fire service based.

The management, organization, and sophistication of the emergency services providers vary widely. However, due to state regulations and oversight, the organizations that provide EMS services tend to be at the higher end regarding management and operations due to the structure and requirements associated with regulation. The study team noted, that unlike in most places MRI has completed studies, the boundaries of municipalities and fire and EMS service providers are, for the most part, not the same in Chester County. As a result, the emergency services leadership and municipal governing bodies must often deal with multiple entities within their respective geographic areas of responsibility. In addition, except in a few cases, the municipal governing bodies have virtually no direct oversight, administrative, or command authority over the individual fire and EMS organizations and/or their operations. Funding for the fire and EMS organizations are as varied as the organizations and municipalities themselves. In some cases, there is an annual allocation of funds from the municipality, but even when that occurs, a significant portion of the budget often consists of individual fundraising activities undertaken by the fire companies and EMS organizations.

The individual organizations that comprise the fire and EMS services have been recognized for their accomplishments by various training, certification and oversight agencies including the Office of the Pennsylvania State Fire Commissioner, Pennsylvania Department of Health, and Chester County Department of Emergency Services. The following are the organizations that provide primary fire and EMS services to Chester County, including those that are in adjacent counties but provide primary response to portions of the County.

- Alert Fire Company (Downingtown Fire Department)
- Avondale Fire Company
- Berwyn Fire Company
- Brandywine Hospital Medic 93 (ALS)

- Christiana Community Ambulance Association (Lancaster County)
- Christiana Fire Company (Lancaster County)
- Cochranville Fire Company
- Concordville Fire Company (Delaware County)
- East Brandywine Fire Company
- East Whiteland Fire Company
- Elverson-Honey Brook EMS
- Fame Fire Company (West Chester Fire Department)
- First West Chester Fire Company (West Chester Fire Department)
- Glenmoore Fire Company
- Good Fellowship Ambulance Club
- Goodwill Fire Company (West Chester Fire Department)
- Goodwill Steam Ambulance of Pottstown
- Goshen Fire Company
- Honey Brook Fire Company
- Kennett Fire Company
- Keystone Valley Fire Department
- Kimberton Fire Company
- Liberty Stream Fire Company (Spring City)
- Lionville Fire Company
- Longwood Fire Company
- Ludwigs Corner Fire Company
- Malvern Fire Company
- Minquas Fire Company (Downingtown Fire Department)
- Modena Fire Company
- Newtown Square Fire Company (Delaware County)
- Norco Fire Company
- Paoli Fire Company
- Phoenixville Fire Department
- Po-Mar-Lin Fire Company
- Radnor Fire Company (Delaware County)
- Ridge Fire Company
- Royersford Hose, Hook and Ladder (Montgomery County)
- Sadsburyville Fire Company
- Southern Chester County EMS (ALS)
- Thorndale Fire Company
- Trappe EMS (Montgomery County)
- Twin Valley Fire Department
- Union Fire Company No.1 (Oxford)
- Uwchlan Ambulance Corps
- Valley Forge Fire Company
- Wagontown Fire Company
- Washington Hose Company (Coatesville Fire Department)
- West Bradford Fire Company
- West Chester University QRS
- West End Fire Co. #3 (Phoenixville)
- West End Fire Company (Coatesville Fire Department)
- West Grove Fire Company
- West Whiteland Fire Company
- Westwood Fire Company
- Westwood Fire Company - Wagontown Division

In addition to the fire departments and EMS providers listed above, there are also three facility-based emergency services providers located in the County that can provide mutual aid when requested. These providers are:

1. Arcelor Mittal Steel (Coatesville) Emergency Services.

2. Coatesville VA Hospital Fire Department (Coatesville). Provides frequent automatic and mutual aid for fire and EMS incidents to the City of Coatesville and surrounding townships.
3. Lockheed Martin (Sikorsky) Helicopter Fire Department (Sadsbury Township).

Figure 14 illustrates the location of all Chester County fire stations. Figure 15 shows the location of all EMS stations. The blue, yellow, and green colors on each map designate the geographic areas that the County utilizes for primary radio communications channels for fire and EMS incidents. These include East (blue), Central (yellow), and West (green).

It should be noted that that all maps included in this report reflect conditions and deployments as they existed on January 1, 2020. Any additional deployments that took effect after that date will not be reflected.

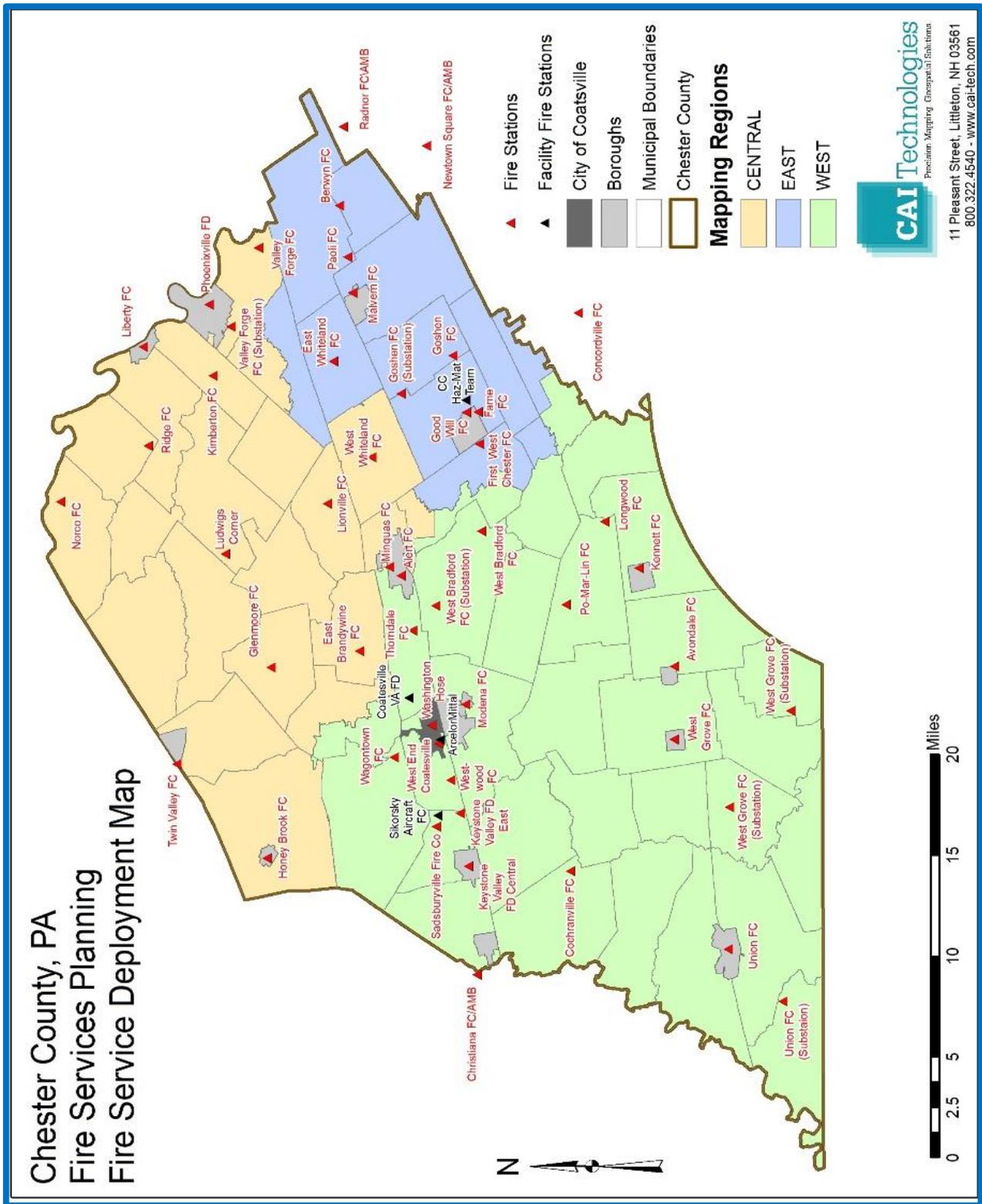


Figure 14: Chester County Fire Service Deployment Map

CHESTER COUNTY FIRE CHIEFS ASSOCIATION

The Chester County Fire Chiefs Association was formed in 1974 to serve as an advisory board and means of networking for the Chiefs of each of the fire departments/companies that serve Chester County. According to its bylaws, the purpose of the Chief's Association is to:

1. Promote better fire prevention, fire protection, and firefighter safety among the members.
2. Serve as a central point to share information among the members and to resolve matters of disagreement between stations.
3. Act as a liaison between the County Commissioners, the County Department of Emergency Services, the fire, rescue and Haz-Mat service providers within Chester County.
4. Coordinate the radio operations of the County 9-1-1 Center with the County fire, rescue companies and the EMS stations.



Figure 16
Chester County Fire Chiefs
Association Seal

There are also regional Fire Chief's Associations in the County including the Eastern Chester County (Main Line) Fire Chiefs, Central Chester County Fire Chiefs, Southern Chester County Fire Chiefs, Northern Chester County Fire Chiefs, and Western Chester County Fire Chiefs. These groups have varying levels of engagement with most meeting on a monthly or bi-monthly basis.

CHESTER COUNTY EMS COUNCIL, INC.



CHESTER COUNTY EMS COUNCIL, INC.

Figure 17
Chester County EMS Council, Inc. Logo

The Chester County EMS Council, Inc. is comprised of EMS agencies, EMS consumers, hospitals, and allied health and public safety agencies having a vested interest in the provision of EMS; and is established to bring together the various elements of EMS serving Chester County, PA. The purpose of the Council, Inc. is to “serve as a unified voice of EMS in providing advice and

recommendations to local and county governments, EMS agencies, consumers, and other emergency services entities to promote the maintenance and improvement of the EMS system and public safety in Chester County, PA.”

CHESTER COUNTY FIRE POLICE ASSOCIATION

Fire Police serve as an important component of the overall emergency services delivery system. Fire Police members respond to a wide range of emergencies to provide traffic and scene control; in order to protect responders from the growing threats that highway traffic exposes them to. They also often respond to large planned events to assist local law enforcement with the same functions.



Figure 18
Chester County Fire Police
Association Logo

The Chester County Fire Police Association was organized in 1949; and formally chartered in 1965 exists to: promote the general improvement of the Fire Police service to the Chester County fire companies and communities they serve, gather and share information beneficial to all Fire Police, promote the welfare of the Fire Police through legislative enactments, and promote interest in improving the Fire Police service of the fire companies and to create a feeling of good-will and fellowship among members.

DEPARTMENT OF EMERGENCY SERVICES



Figure 19
Chester County Department of
Emergency Services Seal

The Chester County Department of Emergency Services provides support and to some degree, coordination of the fire and EMS delivery system throughout the County. This support also includes providing critical incident stress management (CISM), incident support (IST) and fire marshals services. Operating under the auspices of the Pennsylvania Department of Health, it also serves in an administrative oversight role as the regional EMS council. The Department of Emergency Services operates a fully interoperable 800 MHz radio system, along with mobile data computers, paging, station printers, WebCad, and third-party dispatch services from its emergency communications/9-1-1 Center. Chester County provides radio communication equipment and dispatch services to all the County's fire and EMS agencies at no cost.

DES is comprised of an Operations Group which consists of the 9-1-1 center, Fire Services, EMS Services, and Law Enforcement Services; a Planning and Logistics Group which is comprised of Emergency Management and Technical Services; and a Training and Development Group which oversees 9-1-1 training, fire training, EMS training, law enforcement training, training and exercises, and the Public Safety Training Campus. Additionally, Chester County operates a state-certified Hazardous Materials Response Team, and supports fire, EMS and technical rescue task forces including an Urban Search and Rescue (USAR) Team.

CHAPTER III

EMERGING RISK PROFILE OF CHESTER COUNTY FIRE AND EMS SERVICES

CHESTER COUNTY RISK PROFILE

Fire and rescue services protecting all communities generally have a common overall mission, the protection of life and property; but different community profiles in which they operate. These dissimilarities create vastly different fire and rescue services operational needs based on a unique community risk profile, service demands, and stakeholder expectations.

A community risk assessment is a comprehensive process to identify the hazards, risks, fire, and life safety problems, and the demographic characteristics of those at risk in a community. In each community, there are numerous hazards and risks to consider. For each hazard, there are many possible scenarios and potential incidents that could be encountered depending on timing, magnitude, and location of the hazard or incident. A thorough risk analysis provides insight into the worst fire and life safety problems and the people who are affected. The analysis results create the foundation for developing risk-reduction and community education programs. Conducting a community risk analysis is the first step toward deciding which fire or injury problem needs to be addressed. Risk analysis is a planned process that must be ongoing, as communities and people are constantly changing. Too often, an objective and systematic community risk analysis is a step that is overlooked in the community education process. Many emergency service organizations address risks based on a perceived need for service that is not there. This approach can be costly (i.e. misdirected resources, continued property loss, injuries, or deaths). In short, a good community risk assessment will produce a picture of what the hazards and potentials for incidents are, identify who is at risk, and attempt to quantify the expected impacts (Figure 20).

Understanding the definition of hazards and risks is critical to the risk assessment process. Hazards are physical sources of danger that can create emergency events. Hazards can be items such as buildings, roadways, weather events, fires, etc. Risk relates to the probability of a loss due to exposure to a hazard. People and property can be at risk. Consequences to the community are also factors to consider. Each of these factors is assessed during the community risk process (Figure 21).

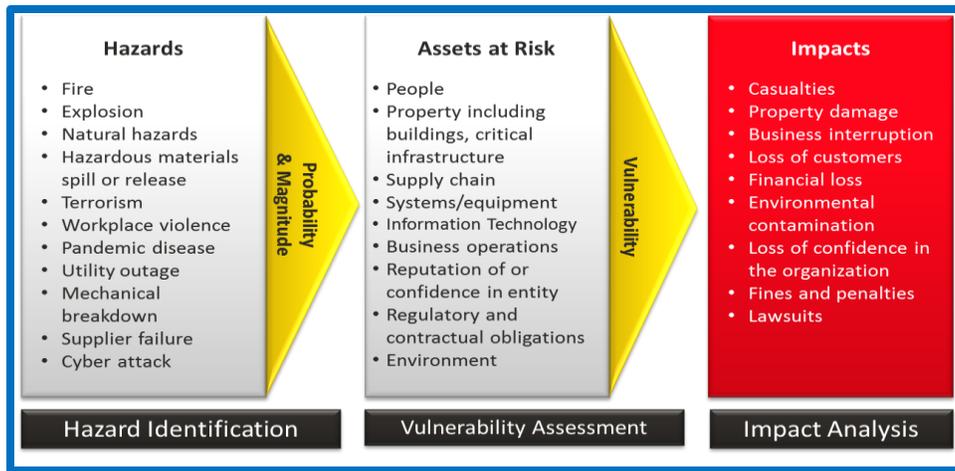


Figure 20: Risk Assessment Process
Image credit: www.ready.gov/risk-assessment

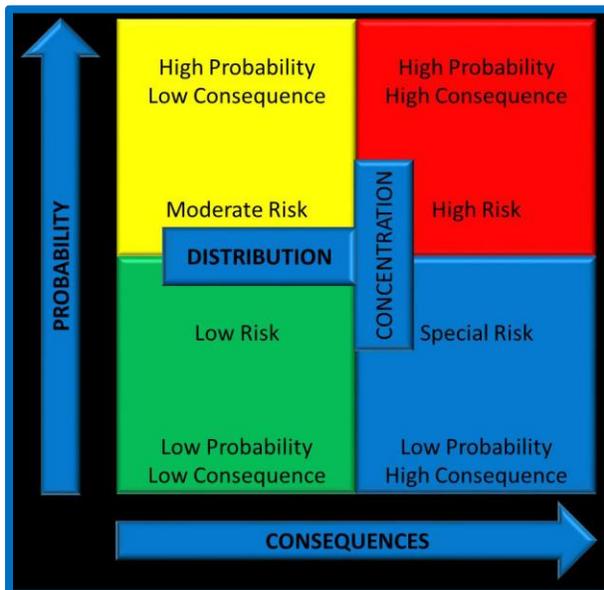


Figure 21: Fire Probability and Consequences Matrix
Image credit: Commission on Fire Accreditation International

In performing a risk assessment, a community determines which hazard may occur, how often it is likely to occur, and potential impact from that hazard. According to the Chester County Hazard Mitigation Plan, the risk assessment for Chester County and the municipalities within was performed using a County-wide, multi-jurisdictional perspective. An integrated approach was employed because many of the same hazards are likely to affect numerous jurisdictions and are rarely contained to a single jurisdiction. The vulnerability analysis was performed in a way such that the results reflect vulnerability at both an individual jurisdictional and County-wide level.

Chester County’s Hazard Mitigation Plan addresses numerous natural hazards, including but not limited to, floods, hurricanes, tornadoes, and winter storms. It also covers a wide variety of human-caused hazards such as fire, hazardous materials releases, and transportation incidents. Almost any of the comprehensive list of potential hazards identified in the plan will involve the County’s fire and EMS responders, at least during the initial stages.

A more focused community fire risk assessment is performed by assessing such factors as the needed fire flow, probability of an incident, consequences of an incident, and occupancy risk. The “score” established is then utilized to categorize the area, or even individual properties, as

one of low, moderate, or high/maximum risk. This categorization can assist the fire department in establishing fire risk/demand areas or zones. Having this information readily available provides the community and the fire department with a better understanding of how fire stations, response run cards, and staffing patterns can be used to provide a higher concentration of resources for higher-risk scenarios or, conversely, fewer resources for lower levels of risk.³¹ The community fire risk assessment may also include determining and defining the differences in fire risk between a detached single-family dwelling, a multi-family dwelling, an industrial building, and a high-rise building by placing each in a separate category.

According to the NFPA *Fire Protection Handbook*, these hazards are defined as:

High-hazard occupancies: Schools, hospitals, nursing homes, high-rise buildings, and other high life-hazard or large fire-potential occupancies.

Medium-hazard occupancies: Apartments, offices, mercantile, and industrial occupancies not normally requiring extensive rescue by firefighting forces.

Low-hazard occupancies: One-, two-, or three-family dwellings and scattered small business and industrial occupancies³².

The NFPA also identifies a key element of assessing community vulnerability as fire department operational performance, which is comprised of three elements: resource availability/reliability, department capability, and operational effectiveness³³.

Resource availability/reliability: The degree to which the resources are ready and available to respond.

Department capability: The ability of the resources deployed to manage an incident.

Operational effectiveness: The product of availability and capability. It is the outcome achieved by the deployed resources or a measure of the ability to match resources deployed to the risk level to which they are responding.³⁴

The greatest fire safety concern throughout Chester County is the potential life loss in fires that occur in non-sprinklered, single, and multi-family residential dwellings during sleeping hours, which is consistent with national trends. These fires are fueled by new “lightweight” construction and more flammable home contents. The time to escape a house fire has dwindled from about 17 minutes, 20 years ago, to three to five minutes today. This poses a

³¹ *Fire and Emergency Service Self-Assessment Manual*, Eighth Edition, (Commission on Fire Accreditation International, 2009) p. 49.

³² Cote, Grant, Hall & Solomon, eds., *Fire Protection Handbook* (Quincy, MA: National Fire Protection Association, 2008), p. 12.

³³ <http://www.nfpa.org/assets/files/pdf/urbanfirevulnerability.pdf>

³⁴ National Fire Service Data Summit Proceedings, U.S. Department of Commerce, NIST Tech Note 1698, May 2011.

severe risk not only to occupants but also to firefighters as they now have less time to do their job and save residents' lives and property.

Chester County's unique mix of challenges and hazards that must be protected by its emergency services. Although the County is overall suburban in nature, it is not just a prototypical bedroom community. It has densely populated urban centers and townships and has multiple concentrations of commercial and industrial properties. Over the past several decades, the eastern part of the County has developed into one of the commercial and economic hubs of the Philadelphia and Wilmington regions. Conversely, the County still has large areas that are still rural in nature, with 29% of the County preserved land that will not be developed.

Buildings more than three stories in height pose a special risk in an emergency. Fire on higher floors may require the use of ladder trucks to provide an exterior standpipe to be able to deliver water into a building that does not have a system in place. For victims trapped on higher floors, a ladder truck may be their only option for escape. Buildings six or more floors in height present even more challenges to the fire department. Aerial ladder trucks often cannot reach beyond the sixth to the eighth floor (and never higher than the 10th floor) depending upon setbacks, obstructions to placement, etc. Thus, rescue and firefighting activities must be conducted strictly from the interior stairwells. This requires additional personnel to transport equipment up to higher floors. Large area buildings sometimes referred to as horizontal high rises, such as warehouses, malls, and large "big box" stores often require greater volumes of water for firefighting and require more firefighters to advance hose lines, long distances into the building. They also present challenges for ventilation and smoke removal.

Chester County also experiences a major influx of people each day who work in the County but live elsewhere. There are numerous companies in the County with 500 or more employees, with several employing thousands.

Being able to develop an adequate water supply for firefighting purposes is perhaps the most critical, non-safety, aspect of firefighting operations. If an adequate water supply cannot be established quickly and maintained, effective firefighting operations will simply not be possible. The Insurance Services Office (ISO) also places a high priority on a municipality's water supply needs and capabilities as part of its periodic evaluations. Many of the boroughs and more developed townships have good municipal water supply systems. Figure 22 illustrates the areas where municipal water systems are available. Rural townships that do not have a municipal pressurized water supply must supply their needs from other sources.

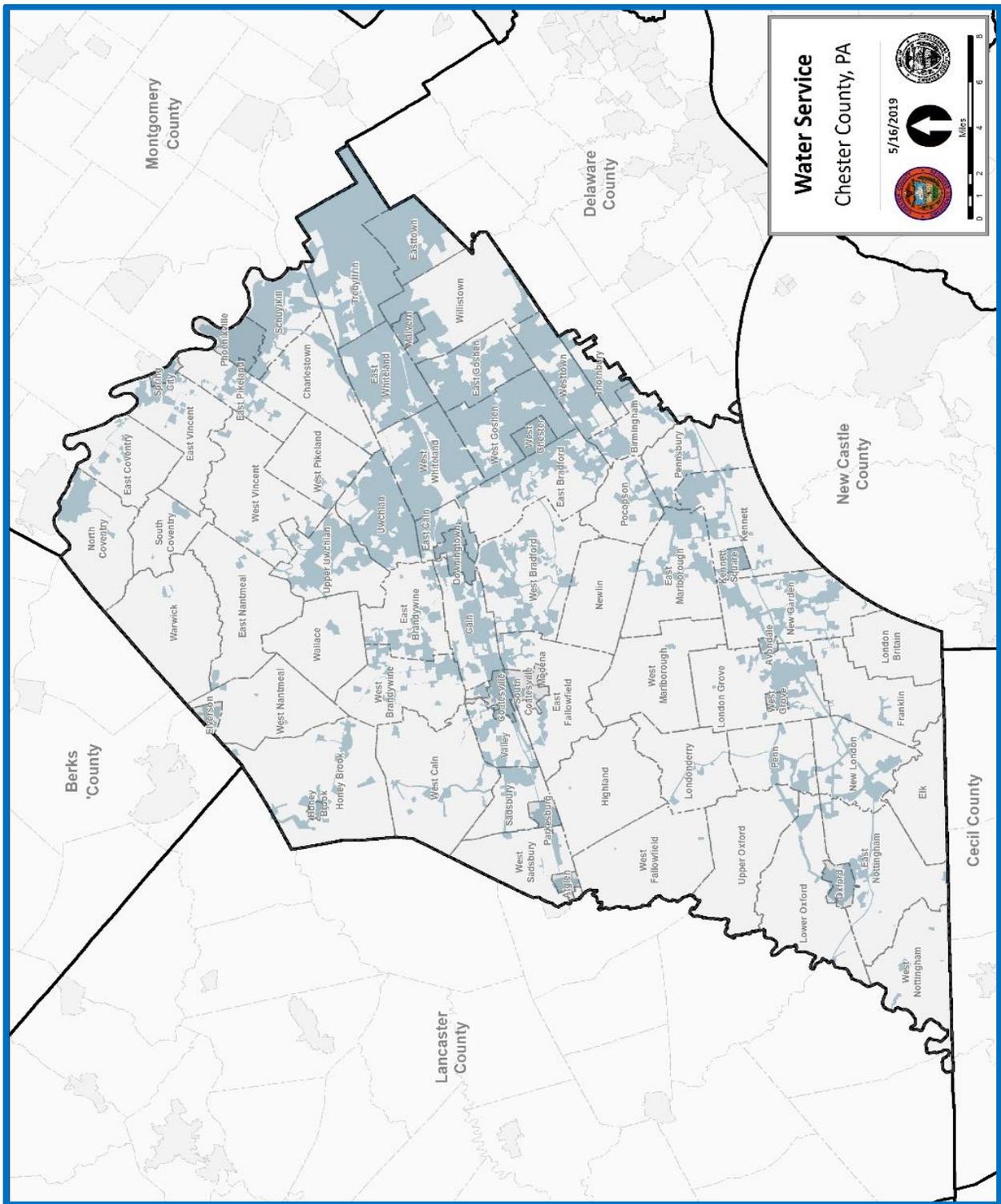


Figure 22: Chester County Water Service Map

According to the County’s Hazard Mitigation Plan, Chester County has over 570 miles of liquid and gas pipelines. This includes the controversial Mariner East Pipeline, which is currently under construction. Ten companies operate 27 lines throughout Chester County. There are approximately 350 miles of pipelines that transport gas, and 230 miles that transport liquid product. The pipelines traverse 59 of the 73 municipalities in the County. Figure 23 illustrates the County’s pipeline network.

Chester County’s increasing industrialization brings with its greater sources of hazardous material transportation, storage, use, and waste.

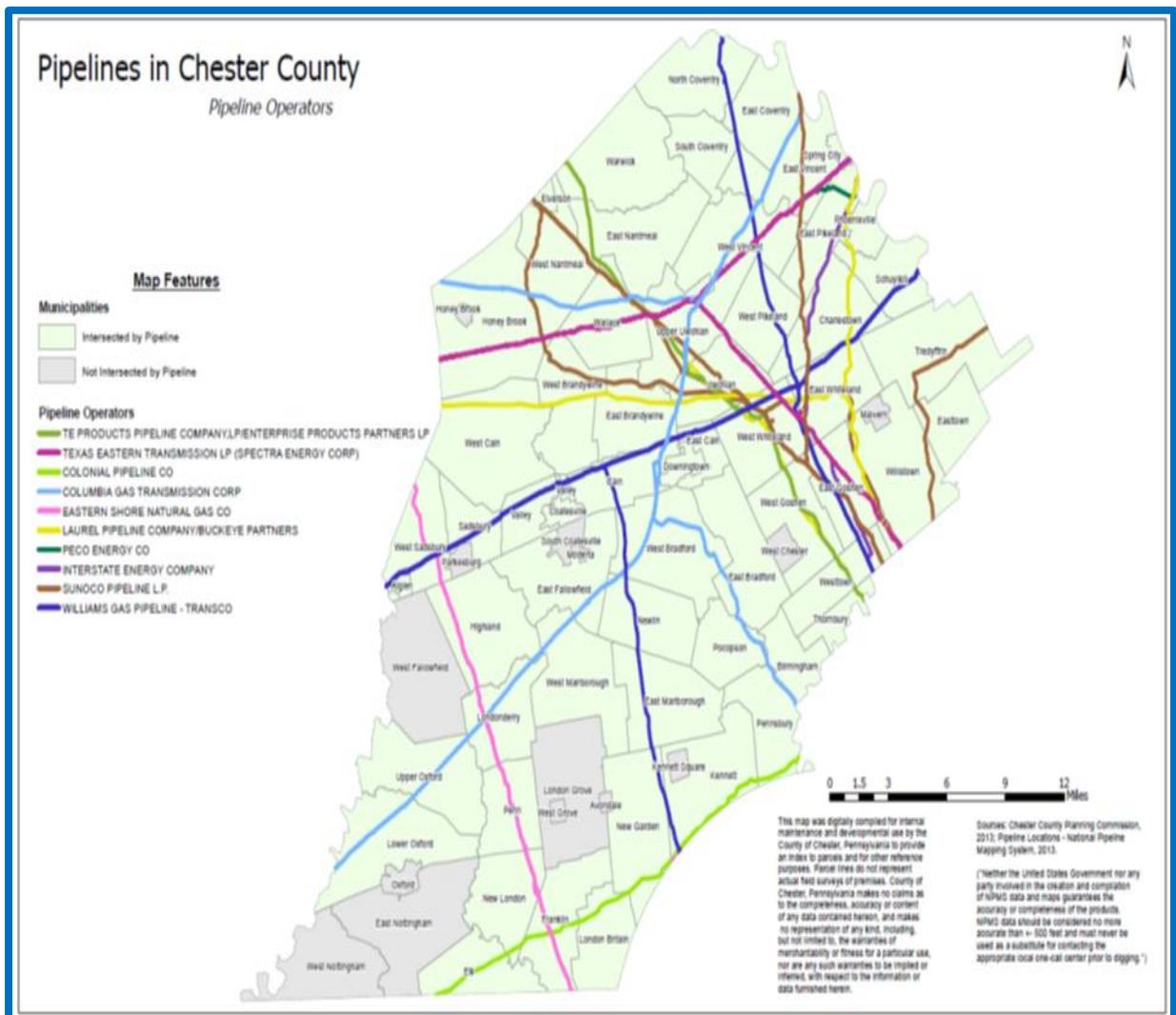


Figure 23: Major Chester County Pipelines
Map credit: Chester County Planning Commission

Chester County is traversed by Interstate 76 (Pennsylvania Turnpike), and US Routes 1, 30, 202, and 322. Other major highways include Pennsylvania Routes 3, 10, 23, 29, 41, 100, 113, 252, 401, 724, and 896. The County is served by 12 train stations that are stops for Amtrak (Keystone Service) and Southeastern Pennsylvania Transportation Authority (SEPTA) regional rail lines. SEPTA also operates 13 different bus routes in Chester County, several of which provide direct service to downtown Philadelphia. Other routes provide service to transportation terminals in Norristown and Upper Darby while several also provide a link to the King of Prussia area and its transportation center. Freight railroad lines operated by Norfolk Southern and the East Penn Railroad are also located within the County. Any of these transportation corridors present the possibility of a mass casualty or major hazardous materials incident.

The fire service further assesses the relative risk of properties based on several factors. Properties with high fire and life risk often require greater numbers of personnel and apparatus to mitigate a fire emergency effectively. Staffing and deployment decisions should be made with consideration of the level of risk within each area of the community. The assessment of each factor and hazard as listed below took into consideration the likelihood of the event, the impact on the County itself, and the impact on County's fire and EMS provider's ability to deliver emergency services, which includes automatic aid capabilities as well. The list is not all-inclusive but includes categories most common; or that may present to the County as a whole.

Low Risk:

- Automatic fire/false alarms
- Single patient/non-life threatening BLS EMS Incidents
- Minor fire incidents (fire flow less than 250 gallons per minute) with no life safety exposure
- Minor Flooding with thunderstorms
- Good Intent/Hazard/Public Service
- Minor rescues
- Outside fires such as grass, Rubbish, dumpster, vehicle with no structural/life safety exposure
- Small fuel spills

Moderate Risk:

- Fires in single-family dwellings and equivalently sized commercial office properties (needed fire flow generally between 250 gallons per minute to 1,000 gallons per minute) where fire and/or smoke is visible indicating a working fire
- Life-threatening ALS medical emergencies
- Motor Vehicle Crash (MVC)
- MVC with entrapment of passengers

- Hazardous materials emergencies requiring specialized skills and equipment but not involving a life hazard
- Technical rescues involving specialized skills and equipment (such as low angle rescue involving ropes and rope rescue equipment and resources)
- Larger brush and outside fires, particularly if structures are exposed.
- Suspicious Substance Investigation involving multiple fire companies and law enforcement agencies
- Surface Water Rescue
- Good Intent/Hazard/Public Service fire incidents with life safety exposure

High Risk:

- Fires in larger commercial properties and target hazards with a sustained attack (fire flows more than 1,000 gallons per minute)
- Cardiac/respiratory arrest
- Multiple patient medical/mass casualty incidents with more than ten but less than 25 patients
- Major releases of hazardous materials that causes exposure to persons or threatens life safety
- High-risk technical rescues
 - ❖ Confined space rescue
 - ❖ Structural collapse involving life safety exposure
 - ❖ High angle rescue involving ropes and rope rescue equipment
 - ❖ Trench rescue

Special Risk:

- Working fire in a structure greater than three (3) floors.
- Fire at an industrial building or complex with hazardous materials.
- Multiple patient medical/mass casualty incidents with more than 25 patients.
- Rail or transportation incident that causes life safety exposure or threatens life safety through the release of hazardous smoke or materials.
- Explosion in a building that causes exposure to persons or threatens life safety or outside of a building that creates exposure to occupied buildings or threatens life safety.

Aggressive adoption and enforcement of fire and building codes in both new and existing facilities will continue to be a critical factor in managing risk throughout Chester County. This challenge will be significant with the County having 73 municipalities, each with their own boards, priorities, and ordinances, that are involved. Communications regarding major projects need to be kept open and frequent. Any new development projects that are proposed should be sent to the fire company for review and input on fire protection needs and concerns. Unfortunately, some municipalities do not welcome fire department input nearly as readily as

others do. In addition, ensuring that existing buildings continue to maintain code compliance is an important component of a community's overall fire protection system.

FIRE AND EMS SYSTEM SWOT PROFILE

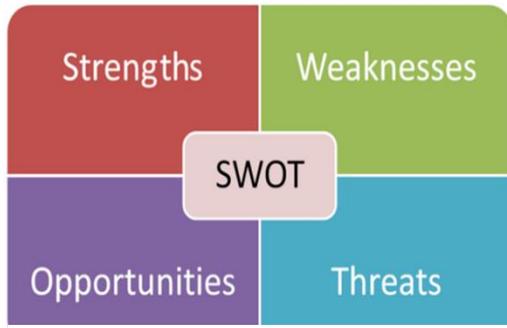


Figure 24: SWOT Analysis

A SWOT analysis is a business term utilized to identify the *Strengths*, *Weaknesses*, *Opportunities*, and *Threats* present within an agency's operating environment. This type of analysis involves specifying the objective or mission of an organization and identifying the internal and external factors that are favorable and unfavorable to achieve that objective.

Strengths: Characteristics of the agency that allows it to meet its mission, work toward achieving its vision, or provide exceptional service to a community.

Weaknesses: Characteristics of the agency that may create internal conflict, dysfunction, and/or frustrate organizational performance, thus creating a disadvantage to the organization in its efforts to meet the goals established by its mission statement.

Opportunities: Elements that the organization could pursue or develop to its advantage.

Threats: Elements in the environment that could create organizational instability or reduce the ability of an agency to fulfill its mission and/or achieve its vision.

A SWOT analysis aims to identify the key internal and external factors seen as important to achieving an organizational objective. SWOT analysis generally groups key pieces of information into two main categories:

1. **Internal factors:** The *strengths* and *weaknesses* internal to the organization.
2. **External factors:** The *opportunities* and *threats* presented by the environment external to the organization.

Analysis may view the internal factors as strengths or as weaknesses depending upon their effect on the organization's objectives. What may represent strengths with respect to one objective may be weaknesses (distractions) for another objective. A SWOT analysis can be used to:

- Explore new solutions to problems.
- Identify barriers that will limit goals/objectives.

- Decide on direction that will be most effective.
- Reveal possibilities and limitations for change.
- To revise plans to refocus on an organization’s mission statement.
- As a brainstorming and recording device as a means of communication.
- Creating a series of recommendations in the context of an organizational study.

The SWOT analysis in a public safety framework is beneficial because it helps organizations decide whether an objective is obtainable, and therefore enables agencies to set achievable goals, objectives, and steps to further the change or enhance organizational development. It enables organizers to take visions and produce practical and efficient outcomes that effect long-lasting change. It also helps organizations gather meaningful information to maximize their potential. Completing a SWOT analysis is a useful process regarding the consideration of key organizational priorities.

This process undertaken by MRI, included an evaluation of both the external environment, as well as, the Chester County fire and EMS services internal factors, and the interrelationship between the two. This was accomplished through more than 75 in-person and virtual interviews, stakeholder input obtained from multiple group meetings, along with analysis of data obtained from various sources, including online surveys and questionnaires, which were distributed to every municipality and fire and EMS agency in Chester County. By approaching the SWOT analysis in this way, the process continues to reinforce a primarily; but not entirely; stakeholder-driven perspective.

Strengths:

- ***Passion and dedication of Chester County fire and EMS personnel – they care and strive to provide excellent service.***
- A high regard for the customer.
- High-quality apparatus and equipment that is well distributed throughout the County.
- Strong support from the County Commissioners.
- Strong support from the public.
- Strong County Department of Emergency Services support for communities.
- State of the art training facility.
- Excellent training programs in many companies.
- Exceptional centralized resources for training and coordination of efforts.
- Best practice centralized resource coordination and deployment dispatch system.
- The County utilizes a high level of technology to coordinate service delivery.
- Some companies have excellent recruitment and retention programs.
- Recognition of current and potential challenges.
- Recognition that there is no one solution.



- High level of engagement in this study.
- Development of interagency coalition to address challenges.
- A curiosity to explore regionalization (not necessarily a direct interest yet).

Weaknesses:

- Societal change, and generational differences have changed the value of volunteer participation.
- Many active members are aging out.
- An overall reduction in active personnel and response staffing.
- The American fire and EMS services have an increased risk profile such as cancer, active shooter incidents, and more recently, COVID-19, which may change the level of interest of traditional candidates.
- Increasing training requirements consumes more leisure time.
- Increasing economic pressure on potential responders.
- Shifting concepts of who is responsible for cost.
- Political change in an increasingly divisive society.
- A large gap by the municipal governments in developing a thorough knowledge of what emergency services are truly delivered to their community.
- Lack of adequate financial support from municipalities relative to the true costs of providing services.
- Although well-intentioned, a County-wide recruitment and retention effort that has had only marginal success.
- Suspicion level from individual companies as to what the County can offer and deliver and what the cost may be (County take over).
- Increasing response metrics.
- Lack of standardized operational procedures.
- Not using AVL to its maximum capability.
- Continued use of resources that are not closest geographically.
- Lack of education of the public and local officials regarding all facets – including financial – of the fire and EMS delivery systems.
- Unnecessary redundancy in some types of apparatus.
- No established Standards of Response Cover (SOC) for responses.
- Continued primary use of traditional response practices for volunteer fire response.

Opportunities:

- Getting legislation enacted that was recommended in SR-6.
- Lobbying for legislation that will allow Chester County to take a more active role in assisting municipalities and fire and EMS agencies with continuing to provide a high level of service.

- Use of legislative processes to secure funding at both the local, regional, state, and federal levels.
- The ability to work with the community to identify the current level of service and set realistic service level/cost expectations.
- Development of an enhanced Department of Emergency Services that delivers more than the current support services.
- Development of a more County-wide focused fire and EMS delivery system that would bring additional standardization and continuity to emergency operations throughout the County.
- Increase in regional collaborations and endeavors within the County.
- Implementation of a Mobile Integrated Health Care program at the County level.
- County undertaking a role as an employer for fire and EMS personnel to assist with staffing issues and more favorable pay and benefits.
- Create a QRF (quick reaction force) model with regional deployment staffed by volunteers paid as per diems as an interim staffing measure.
- Address recruitment and retention County-wide by the consolidation of efforts.
- Demonstrate problem-solving abilities through programs and by providing a model approach to the declining volunteer crisis.
- Explore new forms of outreach and marketing to inform the community of the challenges ahead.
- Marketing and communicating the social identity and benefits of volunteering in Chester County.
- Harness best practices from across the nation relative to the further development of recruitment and retention strategies.
- Develop new support roles for volunteers (tech, social media, marketing, etc.).
- Education and strategize on how to bridge cultural and generational differences to attract younger and more diverse personnel to better reflect the County.

Threats:

- The fire and EMS services' ability to improvise and get a mission accomplished despite the absence of appropriate financial resources.
- The projection of a problem that does not exist, described as "*a crisis without evidence*". The fire and EMS providers see the service gaps, but the public sees and accepts a level of service continuity that goes against the description of the problem.
- Continued decline of volunteers across the County; part of an overall nationwide reduction in volunteerism.
- Continued exodus of younger trained volunteer personnel to career job opportunities outside of Chester County.

- Legal battles between volunteer fire organizations and “auxiliary” parts of organizations over control of funding.
- Declining reimbursement for EMS services placing multiple organizations in financial difficulty.
- Lack of support and engagement from a significant number of municipalities and governing bodies.
- Potential closing of fire companies because of a lack of financial support from municipalities and failed fundraising attempts.
- The financial costs to communities who will be required to take over the delivery of fire and/or EMS delivery in municipalities due to the closing of providers.
- Fire and EMS agencies that resist being transparent about their finances even as they request additional public funding.
- Reduction in operational safety based on staffing trends.
- Aging volunteers who in many cases, keep the lights on and the apparatus responding.
- Generational and cultural differences in the emergency services that are not always as inclusive as they should be.
- Cost of housing in Chester County making it prohibitive for many young people to purchase homes.

Looking ahead, the Chester County stakeholders should use the SWOT analysis to further define the most critical issues and service gaps facing the Chester County fire and EMS services. These service gaps and critical issues will then be utilized as the framework for establishing the priority for implementation of goals and recommendations in this strategic planning document.

THE VANISHING VOLUNTEER

According to the Pennsylvania Fire and Emergency Services Institute, the number of volunteer firefighters in Pennsylvania have declined from around 300,000 in the 1970s to about 60,000 in the early 2000s and 38,000 in 2018. And yet, Pennsylvania and its communities (including Chester County) continue to rely in large measure on volunteers to perform this critical emergency response and public safety service.

Chester County stakeholders have expressed a desire to retain a strong volunteer firefighting force. MRI concurs and believes that goal is realistic and achievable for the near future, albeit with changes in traditional operational procedures, and the introduction of a larger career force to supplement the volunteers. However, achieving this goal will require the implementation of program(s) to recruit and then, perhaps more importantly, retain personnel; strong commitments from the County, municipalities, and fire companies; and strong leadership in the fire companies.

In March 2004, the International Association of Fire Chiefs (IAFC) issued a report by the Volunteer and Combination Officers Section, entitled “*A Call for Action: Preserving and Improving the Future of the Volunteer Fire Service*” (Appendix G). Among other things, the report highlighted the fact that the ranks of volunteer/call firefighters nationwide are declining due, at least in part, to an increasing demand for services. There are also various other factors that are prevalent to the reduction in the number of volunteer firefighters in communities such as Chester County. Among them is that the demographics of many communities today, such as a number of municipalities in Chester County, do not support a sufficient number of the type of person who is attracted to the fire service in the 21st century; someone with time to dedicate to public service, or a young person who wants to make a career of it. According to the SR 6 report, the average age of a volunteer firefighter in Pennsylvania is 48 years old. In many cases those who are looking for a career leave the County as soon as they are offered a job, which is often in other nearby states.

MRI has found that on average, for every five volunteer firefighters recruited, two or three will remain active after a period of about 48 months has elapsed. This fact alone can frustrate recruitment efforts, which in and of themselves are a time-intensive endeavor. The task of recruitment and retention is further complicated if the fire company and/or the municipalities it serves lack a true commitment (whether real or perceived) to the volunteer firefighters. With nearly 50% of the County’s municipalities failing to participate in this study, and with comments being made in surveys and questionnaires like, “*Township A doesn’t want to hear from us*”, it is easy to see why personnel could grow frustrated.

Making the challenge even greater, in 2020, the average citizen does not want to spend a great deal of personal time dedicated to the fire and emergency services, especially when family commitments take priority. Other reasons for difficulty recruiting and retaining members include:

1. An overall reduction in leisure time.
2. Employment obligations and the common need to maintain more than one job.
3. The virtual elimination of employers understanding and flexibility relating to this form of community service.
4. Increased family demands.
5. Generational differences.
6. Increasing training requirements.
7. The cost of housing in many affluent communities. *This is reported to be a growing problem in Chester County as many young people cannot afford homes in many of the municipalities in the County.*
8. Organizational culture.
9. Internal respect.

10. Recognition of personnel.
11. Internal communication.
12. Department leadership styles and commitments.
13. Severe lack of funding.
14. Outdated service delivery models.
15. Internal agency politics.
16. Lack of diversity.

In November 2005, the IAFC Volunteer and Combination Officer's Section released a second report, called "*Lighting the Path of Evolution: Leading the Transition in Volunteer and Combination Fire Departments*" (Appendix H). This report further expanded on issues and strategies for maintaining high service levels to the community, and safety for emergency response personnel, while simultaneously keeping costs down.

One prominent question asked in the report was, "*How can fire departments ensure the delivery of services is reliable?*" The answer was the development of a list of "indicators for change", where fire department managers and local government leaders need to be cognizant of warning signs pointing to potential problems and "prepare for change before it is forced on them by external circumstances". These "indicators" of change include:

- **Community Growth:** Generally speaking, the larger the community, the greater the call volume and the higher the level of service people expect.
- **Community Aging:** Maintaining an appropriate level of service depends on the fire department's ability to recruit new and younger members. This appears to be a major issue in Chester County as many long-time senior members are nearing retirement or are faced with health problems (even before COVID-19) that limited their availability.
- **Missed Calls:** A critical issue because it is a failure that is highly visible to the public and there is an over-reliance on mutual aid for coverage.
- **Extended response times:** A reliability problem as the public is not provided the appropriate service.
- **Reduced staffing:** A serious problem as it puts citizens and first responder safety at a greater risk.

Most of these issues appear to have growing applicability to Chester County and its fire service delivery system. These warning indicators are not necessarily an indictment of anything wrong in Chester County; the same problems are facing volunteer fire companies and departments

across the commonwealth and the entire country. The challenge is, finding ways to preserve and improve the volunteer fire service in Chester County for the near future.

IMPLICATIONS OF SR 6 AND PREVIOUS REPORTS

The SR6 Final Report (Appendix I) begins: *“Fire and EMS are in a crisis – right now. Simply put, EMS is woefully lacking in funding – and the number of volunteer firefighters has fallen dramatically over the decades.”* Those words, especially **CRISIS**, defines the status of emergency operations state-wide in Pennsylvania, and Chester County is no exception. SR 6 also notes that these issues are not new, or something that has developed in the past few years, or even since the turn of the century. To some extent they have been building for decades and were noted in reports as far back as 1976. More recent reports have warned of a worsening situation.

SR 6 notes that the Pennsylvania General Assembly has worked over the years to address many of the challenges that have been identified – which is true – but that much more can and must be done – also true. SR 6 makes 27 excellent and common-sense recommendations to take steps to address the identified issues, in a long-term manner. The downside is, that many of the recommendations require legislative approval. This is a process that can end up suffering from a lack of inertia due to the normal political process, lobbying by special interest groups pursuing their own agendas without consideration of the life safety implications (specifically relating to requiring residential sprinklers in one and two-family dwellings), and exacerbated today by the extreme political polarization that seems to be dividing every level of government.

While all of the recommendations are important and needed; the MRI study team believes that there are several that stand out with regard to the fire and EMS services in Chester County being able to continue to provide the high quality of service they traditionally have, and that the citizens have come to expect. MRI believes that these recommendations can not only accomplish that for Chester County but also provide it with opportunities to become a trail blazer in the Pennsylvania emergency services and a model combination (volunteer/career) fire and EMS delivery system.

- [Recommendation 3](#) – Ensure minimum fire and EMS coverage through government partnerships.
- [Recommendation 4](#) – Correct reimbursement rates to allow for competitive compensation
- [Recommendation 6](#) – Simplify the process to regionalize fire and EMS services.
- [Recommendation 14](#) – Adjust the funding stream for emergency medical services operating fund.

- [Recommendation 16](#) – Educate municipal officials about the fire and EMS crisis and needs.
- [Recommendation 23](#) – Adopt residential sprinkler requirements in accordance with international code.

SR 6 concludes; that the necessity to identify efficient systems, legislative initiatives, and financial incentives becomes paramount to:

- Sustain a volunteer system where pride and community service build community value and pride.
- Provide necessary services for the protection and well-being of the community.
- Reserve financial assets for other critical services that cannot be provided by volunteers.

However, the report also notes that the reality is that each community is currently left to determine:

- "What is needed to protect the community?"
- "How much will it cost?"
- "What are the funding sources?"
- "How do the services get delivered?"

In Chester County where more than 40% of the municipalities failed to participate in this study, it would not appear that in many cases these questions are being discussed or answers provided. Every emergency incident begins locally, and every local fire and EMS agency must be prepared to know what they are dealing with and when to call for assistance. Without approval and implementation of much of the recommended action contained in SR 6, the bigger; and more pertinent question will be; “How long will the current service providers be able to hang on?”

SEVEN MOST SIGNIFICANT CHALLENGES FACING CHESTER COUNTY FIRE AND EMS SERVICES

Based upon the findings and analysis of the collective MRI study team, the most significant challenges facing the fire and EMS services in Chester County are:

1. Rapidly diminishing volunteer pool for fire operations, part of a nationwide trend. The cost associated with addressing this issue will be the biggest challenge ahead for all the stakeholders, both internal and external.

2. Lack of engagement and investment by many local government officials. In addition, effective communication is lacking between some fire and EMS providers and local government officials.
3. Critical need to develop new ways to fund fire and EMS operations moving forward. Revenue shortfalls from EMS reimbursements are placing multiple organizations in financial difficulty. On the fire side, traditional fundraising efforts by volunteer organizations, and the whole concept that they often self-fund most of their own operations, are no longer economically feasible and viable.
4. Lack of standardized operational and response procedures.
5. Concern over the training and qualifications of some fire and EMS providers.
6. Unnecessary duplication of specialized resources such as ladder and rescue trucks that increase the cost of operations.
7. Resistance to the necessary exploration of more regional or even County-wide provision of fire and EMS services.

SEVEN MOST IMPORTANT RECOMMENDATIONS FOR THE CHESTER COUNTY FIRE AND EMS SERVICES

Based upon the findings and analysis of the collective MRI study team, and consistent with the most significant challenges identified, this section includes what is believed are the most important recommendations regarding the fire and EMS delivery system in Chester County. The recommendations below are broad based and will be developed further, with specific suggestions for how to implement or accomplish them, in subsequent chapters of this report. There is also one caveat, however; MRI did not include any recommendations in this section that require legislative approval due to the uncertainty over getting them approved and implemented.

1. The governing bodies of all the County's municipalities **MUST** become engaged in the provision of fire and EMS services to their respective municipalities. Currently, it is ultimately their responsibility to determine the level of risk and the level of emergency services protection for their communities.
2. New sources of funding for both fire and EMS operations **MUST** be determined and implemented. To bring consistency to the funding levels for stakeholders throughout the County, consideration should be given to the implementation of taxes at the County level that are dedicated to the fire and EMS service delivery system.

3. Innovative ideas – many of which have a cost associated with them – must be implemented to attempt to increase recruitment, and perhaps more importantly retention, of members of the volunteer fire service.
4. Working collaboratively, the Chester County Fire Chiefs Association, Chester County EMS Council, Inc., the Chester County Fire Police Association, and the Chester County Department of Emergency Services should develop and adopt standardized emergency response assignments utilizing the closest available qualified resources based upon GIS and AVL technology.
5. Working collaboratively, the Chester County Fire Chiefs Association, Chester County EMS Council, Inc., the Chester County Fire Police Association, and the Chester County Department of Emergency Services should develop and adopt a manual of standard operational procedures or guidelines (SOPs/SOGs) to guide fire and EMS operations throughout the County.
6. Working collaboratively, the Chester County Fire Chiefs Association, and the Chester County Department of Emergency Services should develop minimum training requirements for fire service personnel to be considered “qualified” for inclusion in the overall County response system.
7. The Chester County Fire Chiefs Association, Chester County EMS Council, Inc., and Chester County Fire Police Association, with support from the Chester County Department of Emergency Services should work with their respective stakeholders to explore new regional opportunities for collaboration for the delivery of fire and EMS services in various areas of Chester County.

IMPLICATIONS OF NOT TAKING ACTION

The challenges that are facing the fire and EMS services in Chester County have sometimes been referred to as “*a crisis without evidence*”. The MRI study team heard this multiple times during interviews. But make no mistake, there is a crisis that is slowly building, and has been for a considerable period. The reason that many stakeholders; municipal leaders, and the general public; do not see “evidence” is the long tradition in both the fire and EMS services of “getting the job done”. It has long been known, that when people have a problem, that they don’t know how to deal with they call the fire department, because two things are certain when they do: 1) the fire department will come, and 2) they will figure out how to deal with the problem or find someone that can/will.

Looking ahead, the implications of not taking action will be quite simple: service levels will continue to diminish, some companies and EMS agencies may fold under financial pressures, and fewer and fewer most likely aging (average age of a volunteer in Pennsylvania is 48) volunteer members will be trying to respond to an ever-increasing number of requests for

service. On the EMS side, quite possibly a smaller number of service providers will be left to manage a steadily increasing workload.

The MRI study team wants to thank the municipal officials who were extremely interested and engaged in this study from the beginning. Their input and perspective were both valuable and appreciated. The engagement and support that was received at the County level was also commendable. Conversely, the study team cannot state strongly enough that it is unconscionable, the lack of involvement of some municipalities; in both this study and previous projects that MRI has completed in Chester County. Just 42 of 73 municipalities (57.5%) returned the questionnaire related to this study, and representatives from just 34 municipalities (46.6%) participated in the on-line survey. Although it should be a collaborative effort with the fire and EMS providers that protect them, it is ultimately the responsibility of these municipal officials to determine the acceptable level of risk for their communities and the level of protection they want and can afford. It is also, ultimately, their responsibility to provide adequate funding. Their failures to engage are exacerbating the growing crises.

To be sure, even if it was fully funded at levels that it should be, the current delivery system needs to change and be modernized. Requests for funding from the fire and EMS providers need to be reasonable and should not be accompanied by veiled threats to withhold or slow service if their demands are not met, which was reported by some municipal officials. Not every fire station needs to be a huge facility, and not every fire company needs a ladder and a rescue truck.

In the end, **ALL** the various stakeholders need to engage in open, frank, and honest dialogues regarding the fire and EMS delivery systems. There will need to be increased funding allocated, or funding can be re-appropriated. Priority should be given to innovative solutions to the recruitment and retention of volunteer personnel, which will have costs associated with it, but it will be money wisely invested. Even with success, the reality is that the fire and EMS services in the County are going to evolve into more of a combination system with the need for an increasing number of career personnel to supplement the volunteers. This, too, will come with an increased cost. However, this cost will be reasonable, and be money well invested, to help support what remains a quality fire and EMS delivery system. SR 6 notes, ***“If we lose our volunteer fire and EMS companies and volunteers, the taxpayers will face a very steep price tag.”*** That could eventually be the ultimate implication of not taking action. The choice is up to the stakeholders of Chester County.

CHAPTER IV

FIRE AND EMS SERVICES

GOVERNANCE, OVERSIGHT, AND ORGANIZATIONAL STRUCTURE

During this MRI study, a review of previous studies of the Pennsylvania fire and EMS service delivery systems, as far back as 2004, was conducted. In all studies since then, the subject of governance and organizational structure plays a key role in the delivery of high-quality public safety services. Noting that this study is also part of a larger strategic plan for the future, MRI has included an explanation of the roles and responsibilities related to public safety for the various types of local government organizations in Chester County.

The organizational structure of any organization or entity, whether public or private, establishes and illustrates the important hierarchical relationships between various personnel, supervisors/subordinates, levels, divisions, and bureaus within the organization that allow it to function properly, operate effectively and efficiently in its daily operations, or the pursuit of its mission. It also helps to clearly define the organizational chain of command from top to bottom, an especially important consideration in a quasi-military public safety organization such as the fire department where everyone from the highest rank to the lowest is subject to receiving orders, and, with the exception of the lowest rank also issues them. Effective communications and a cohesive chain of command, that allows everyone to know exactly who they report to, and/or who reports to them are essential in any organization, but especially public safety agencies..

Local, county, and state government is usually defined by its geography and geographic boundaries, which were often defined more than a century ago. These elements frequently determine what services the public receives and who provides them. In some cases, volunteer emergency services were formed in response to a void in communities in the delivery of emergency services. This void was filled by local citizens and remains in place in most Chester County townships. The emergency services created, serve small specific areas with little to no consideration given to the benefits of covering broader areas of service, in order to address future needs. In other areas the creation of multiple fire companies and ambulance or EMS companies were formed in the same community due to internal political splits within certain organizations. Each organization developed its own model of how emergency services should be delivered within the community, and have maintained that model over decades, without planning for significant growth or other major changes in their demographics.

Within each municipality, the powers designated by the state are exercised by a governing body elected by the people. Municipal government is basically the response to the local need for certain public services (i.e., waste disposal, police and fire protection, water supply, etc.) in addition to what is available from the state and/or county government. In the end, the municipal governing body is the one which is tasked with providing emergency services or designating which entity or entities are authorized to provide them on their behalf.

Municipal government is the basic unit of local control. A municipality is a political subdivision of a state within which a municipal corporation has been established to provide general local government for a specific population concentration in a defined area. Municipal corporations are organized under the applicable state constitution and laws, with powers of government expressly or implicitly conferred by that constitution and laws, and often, also by municipal charter. The specific powers and responsibilities held by each different municipality, and type of municipality, depends upon its founding legislation. Significant general laws affecting local governments both grant powers and impose restrictions.

In Pennsylvania, municipalities are classified according to their population with the General Assembly having the authority to legislate separately for each class. Each class of municipality operates under its own code of laws. The codes set forth the governmental structure and delineate general and specific powers of local government. There is also extensive general legislation that applies to all local governments. Local government in Pennsylvania is government below the commonwealth level. There are six types of local governments listed in the Pennsylvania constitution: county, township, borough, town, city, and school district. All of Pennsylvania is included in one of the state's 67 counties, which are in turn subdivided into 2,561 municipalities.

Local municipalities can be governed by statutes, which are enacted by the Pennsylvania General Assembly, and are specific to the type and class of municipality; as a home rule municipality, under a home rule charter; or by an optional form of government, adopted by the municipality. The township is the basic population center or town element in Pennsylvania. These are given Class I or Class II powers, attributes, and responsibilities, and comprise most communities in Pennsylvania. They are often characterized by lower population densities over a widespread region, within which small clusters of housing and mixed main road businesses occur. However, in counties such as Chester County, they also often include larger suburban or even urban-type population centers.

Larger, more densely populated municipal entities, usually ones with a defined business district and recognizable as having the traditional attributes of a 'town', is the borough. School districts often serve multiple communities, including groups of municipalities that sometimes cross county lines. Each subdivision is subordinate to county governmental functions, which include administration of courts, jails, and land registration.

Each municipality falls under a certain type of municipal laws, by the classification of the municipality, and some types of municipalities are periodically eligible to be reclassified into a different class according to their population and the passage of a change referendum. These classes limit or expand the local governmental powers, and the titles and duties of local office-holders who comprise the local governing body and other township officials. The General Assembly sets the population threshold for classifying said certain types of municipalities.

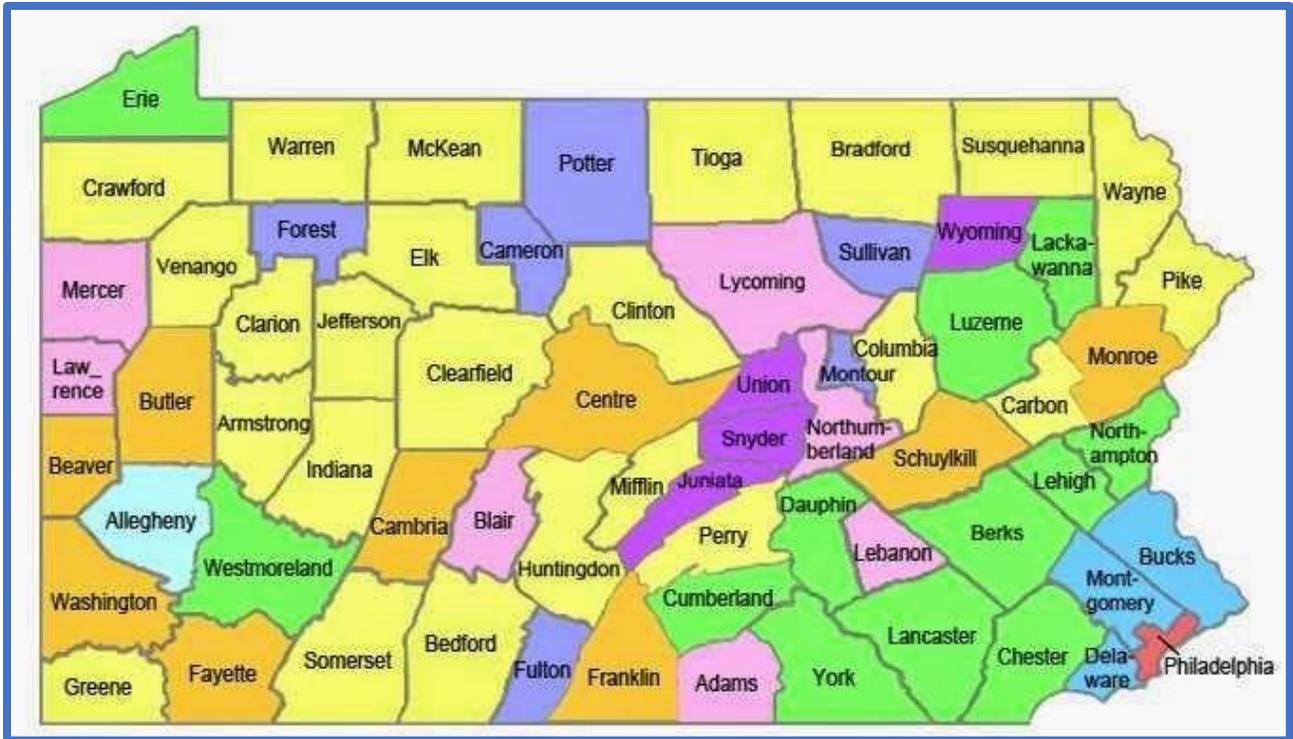


Figure 25: Pennsylvania Counties

There are currently nine classifications for counties, four classes of cities, two classes of townships, five classes of school districts. Boroughs are not classified; nor is the single Pennsylvania town.

Finally, villages and CDPs are a part of the local community. Although they are not recognized local governments, they often refer to specific areas of a township or other municipality and are often more familiar to people than the incorporated municipality. That can confuse people who live outside the area, who are unfamiliar with the local municipal structure.

COUNTY GOVERNMENT

Counties in Pennsylvania serve the traditional roles for the commonwealth including judicial administration and overseeing the administration of elections. Some of the other functions that Pennsylvania's counties may perform include public health, property assessment, and redevelopment. Some of the welfare functions often performed by counties include mental health, geriatric care, community colleges, and library support. Most counties are governed by a board of commissioners, consisting of three members. Two must be of the majority party, and the third must be of the minority party, which is determined by which candidates receive the most votes, as two candidates from each party are on the November ballot. One of the members serves as the chair. The board of commissioners typically serves as both the legislative and executive bodies. In addition to the elected commissioners, most counties elect other officials, commonly called "row officers," independent of the board of commissioners. The row offices include sheriff, district attorney, prothonotary, clerk of courts, register of wills,

clerk of the orphans' court, recorder of deeds, treasurer, controller, auditors, and jury commissioners.³⁵ Currently, Chester County is a County of the Third-Class based upon the 2010 census. Based on the estimated 2019 population that will be confirmed by the 2020 census; it is likely that Chester County will become a County of the Second A Class like its Philadelphia metropolitan area neighbors, although it could elect to remain a Third-Class County.

Counties are further classified by their population. Each classification has its own code, set up by the General Assembly, to administer County functions. The classification of counties is as follows:

Class	Maximum Population	Minimum Population	Number	Counties
First	--	1,500,000	1	Philadelphia
Second	1,499,999	800,000	1	Allegheny
Second A	799,999	500,000	3	Bucks, Delaware, Montgomery
Third	499,999	210,000	12	Berks, Chester, Cumberland, Dauphin, Erie, Lackawanna, Lancaster, Lehigh, Luzerne, Northampton, Westmoreland, York

Figure 26: County Classification by Population

One of the major challenges with the provision of emergency services in Pennsylvania is that as a commonwealth, most governmental functions are delegated to the lowest level of government, the municipality. As such, this limits the ability of the County government to provide direct assistance to municipalities, or fire and EMS providers, beyond the parameters defined in the Pennsylvania County Code (Act 130 of the Pennsylvania General Assembly – 1955). Fire protection is found in Sections 1952, which refers to the establishment of fire training schools, and 1953 which addresses the appointment of County fire marshals and assistant fire marshals. The Chester County Department of Emergency Services provides support to the local municipalities and fire/EMS agencies through:

- 9-1-1 Emergency Dispatch Services
- A state-of-the-art fire, rescue, EMS, and law enforcement training campus along with numerous training resources
- Fire and EMS Incident Support
- EMS oversight and direction
- Hazardous Materials Response Team
- Fire, EMS, and Technical Rescue Task Forces
- Fire investigation assistance

³⁵ The Pennsylvania Manual, Page 6-4.



- Emergency Management support and coordination

MUNICIPAL GOVERNMENT

Below the county level of organized services, everyone in Pennsylvania lives under the jurisdiction of at least two types of municipal governments. The first type of municipal government will provide police and fire protection, maintenance of local roads and streets, water supply, sewage collection and treatment, parking and traffic control, local planning and zoning, parks and recreation, garbage collection, libraries, licensing of businesses, and code enforcement. The second type will administer the local schools, collect a separate portion of taxes and are called school districts. Organized along practical geographic lines, some area school districts will cross county boundaries, though most are located within county regions providing community ties across multiple municipalities. The sense of belonging to a community in Pennsylvania is often tied to area high school sports teams.

Chester County is comprised of 73 municipalities which include one Third-Class city, fifteen boroughs, and fifty-seven townships, fifty-six of which are Second-Class and one First-Class. Commonwealth of Pennsylvania Acts 7, 8, 9, and 31 of 2008, assigns emergency services authority to local government to assure these services are provided in their communities.

THIRD CLASS CITIES

Any municipality adopting conversion into a city government with a population below 250,000 people, that has not adopted the second-class ordinance, is a Third-Class city. Coatesville is a Third-Class city. The City utilizes a council-manager form of government, in which all authority is lodged with city council members elected for a four-year term. A city manager is appointed by the council. The manager is the chief administrative officer of the City and is responsible for executing the ordinances and directions of the council. The manager appoints and may remove department heads and subordinates.

PA Act 31 of 2008 amended the Third-Class City Code as follows:

- The City shall be responsible for ensuring that fire and emergency medical services are provided within the City by the means and to the extent determined by the City, including the appropriate financial and administrative assistance for these services.
- The City shall consult with fire and emergency medical services providers to discuss the emergency services needs of the City.
- The City shall require any emergency services organizations receiving city funds to provide to the City an annual itemized listing of all expenditures of these

funds before the City may consider budgeting additional funding to the organization.

Third Class City Statutory Responsibility

Section 2101 & 2403

- Each city may organize a fire bureau, with or without pay
- Make appropriate for the maintenance of the same, prescribe rules and regulations of the government of the officers and companies belonging thereto, and purchase equipment and apparatus for the extinguishment, prevention, and investigation of fires and for the public safety.
- Ambulances and Service; Maintenance: To acquire, by purchase, gift or bequest or to operate and maintain ambulances or ambulance service for the purposes of conveying sick and injured persons in the City and the vicinity to and from hospitals, or in lieu thereof, to hire a private ambulance service, and for such purposes, to appropriate and expend moneys of the cities, or to appropriate money annually toward a nonprofit community ambulance service. All appropriations of money heretofore made and contracts for hire or private ambulance service heretofore.

BOROUGH

What many outside Pennsylvania would call "towns", are by law officially boroughs, which are generally smaller than cities in terms of both geographic area and population. Boroughs are not strictly classified by population and are administered through the borough legal code. Each borough elects a mayor and a council of three, five, seven, or nine members with broad powers, as determined by home rule measures. The borough offices of tax assessor, tax collector, and auditor are elected independently. The borough council can also hire a borough manager to enforce ordinances and carry out the day-to-day business of the municipality's administration and dictates of its council.

PA Act 8 of 2008 amended the Borough Code as follows:

- The borough shall be responsible for ensuring that fire and emergency medical services are provided within the borough by the means and to the extent determined by the borough, including the appropriate financial and administrative assistance for these services.

- The borough shall consult with fire and emergency medical services providers to discuss the emergency services needs of the borough.
- The borough shall require any emergency services organization receiving borough funds to provide to the borough an annual itemized listing of all expenditures of these funds before the borough may consider budgeting additional funding to the organization.

Borough Statutory Responsibility

Section 1202

Full text can be found at the following link:

<https://boroughs.org/ckfinder/userfiles/files/NEW%20BOROUGH%20CODE%281%29.PDF>

- To purchase or contribute to the purchase of fire engines and fire apparatus, boats, rescue and lifesaving equipment and supplies for the use of the borough
- Appropriate money to fire companies, rescue units, and for the construction, repair, and maintenance of the fire company and rescue units' houses, including the acquisition of land for such purposes and as set forth in this clause, for fire training schools and centers.
- The council may annually appropriate funds to fire companies located within the borough for the training of its personnel, and to lawfully organized or incorporated county or regional firemen's associations or an entity created pursuant to the act of July 12, 1972
- (P.L. 762 No. 180) referred to as the Intergovernmental Cooperation Law, to establish, equip, and maintain and operate fire training schools or centers for the purpose of giving instruction and practical training in the prevention, control and fighting of fire and related fire department emergencies to the members of fire departments and volunteer fire companies in any city, borough, or town with the Commonwealth.
- To appropriate money annually towards ambulance service and to enter contracts relating thereto.
- All appropriations of money heretofore make, and contracts heretofore entered by any borough for ambulance service are hereby validated and confirmed.

TOWNSHIP

Townships in Pennsylvania were the first form of land grants established by William Penn, and are generally large in area with a sparse population centered on one or a few clusters of homes and a handful of businesses. They have existed in one form or another since the Province of Pennsylvania was established.³⁶ They were usually large tracts of land given to a person, a family, or a group of people by Penn or his heirs.³⁷

Townships can be of the first or second class, the difference being the powers and offices of the municipal government or its officials. All begin as Second-Class townships, and when certain legal requirements are met, the township may become a First-Class township by a referendum of the township's voters, provided it meets population threshold requirements. Many townships that qualify prefer to continue as Second-Class townships (established by voter referendum). In Chester County, all the townships are Second Class Townships except for Caln, which is a First-Class Township.

Second-Class townships are governed by a board of supervisors elected at-large. A second-class township usually has three supervisors, elected at large for six-year terms. A referendum may allow a second-class township's board of supervisors to expand to five members. First-Class townships are governed by a board of supervisors that can consist of anywhere from five commissioners elected at large, to boards with seven to 15 members. They are elected to four-year terms. By law there is always an odd number of township supervisors.

PA Act 9 of 2008 amended the First-Class Township Code as follows:

- The township shall be responsible for ensuring that fire and emergency medical services are provided within the township by the means and to the extent determined by the township, including the appropriate financial and administrative assistance for these services.
- The township shall consult with fire and emergency medical services providers to discuss the emergency services needs of the township.
- The township shall require any emergency services organizations receiving township funds to provide to the township an annual itemized listing of all expenditures of

³⁶ "Frame of Government" of Penn's Land Grant. Text Available: <http://files.usgwarchives.net/pa/montgomery/history/local/mchb0008.txt>

³⁷ Velma, Carter. "Penn's Manor of Springfield." PDF Document, 1976. Available: <http://www.springfield-montco.org/usr/docs/about/penns-manor.pdf>

these funds before the township may consider budgeting additional funding to the organization.

1st Class Township Statutory Responsibility

Section 1502

Full text can be found at the following link:

<https://www.legis.state.pa.us/WU01/LI/LI/US/HTM/1931/0/0331..HTM>

- To create, by ordinance, fire and water districts in any portion or portions of townships when, in their opinion, the same is necessary for the safety and convenience of the inhabitants of said township.
- To pay the cost or part of the construction of such water supply or water lines, the township commissioners may charge for any such water supply or water lines by an assessment of a special water or fire tax on all surface properties or real estate located in the water or fire district, which tax shall be based on the assessment for county purposes as established for general taxation. Such tax may be levied for a single year or for a term of years as the township commissioners may determine, but in the case of fire districts, shall not exceed two miles per annum, and shall be collected in the same manner as other taxes.
- Fire Regulations: To make regulations within the township or within such limits, as may be deemed proper, relative to the cause and management of fires and the prevention thereof to purchase or contribute to the purchase of fire engines and fire apparatus for the use of the township and to appropriate money to fire companies for the operation and maintenance thereof and for the construction, repair and maintenance of fire company houses, to ordain rules and regulations for the government of such fire companies and their officers, and to regulate the method to be followed in the extinguishment of fires.
- Fire houses: to provide and maintain suitable places for the housing of engines, hose carts and other apparatus for the extinguishment of fire. No such building shall be erected or maintained without obtaining the assent of the electors thereof, expressed at an election to be held at the place, time, and under the same regulations as provided by law for the holding of municipal elections.
- Ambulances and Rescue and Life Saving Services: To acquire and to operate and maintain motor vehicles for the purposes of conveying sick and injured persons of such township and the vicinity to and from hospitals, and, for such purposes, to appropriate and expend moneys of the township or to appropriate money annually towards ambulance and

rescue and lifesaving service, and to enter in to contracts relating thereto. All appropriates of money heretofore made and contracts theretofore entered by any township for such service are hereby validated and confirmed.

PA Act 7 of 2008 amended the Second-Class Township Code as follows:

- The township shall be responsible for ensuring that fire and emergency medical services are provided within the township by the means and to the extent determined by the township, including the appropriate financial and administrative assistance for these services.
- The township shall consult with fire and emergency medical services providers to discuss the emergency services needs of the township.
- The township shall require any emergency services organizations receiving township funds to provide to the township an annual itemized listing of all expenditures of these funds before the township may consider budgeting additional funding to the organization.

2nd Class Statutory Responsibility

Section 1802

Full text can be found at the following link:

<https://www.legis.state.pa.us/WU01/LI/LI/US/HTM/1933/0/0069..HTM>

- The board of supervisors may annually assess the cost of fire protection by an equal assessment upon all property, whether or not exempt from taxation by existing law, within seven hundred and eighty feet of any fire hydrant based upon the assessment of property for county tax purposes.
- The board of supervisors may annually assess the cost of fire protection by an equal assessment on all property, whether or not exempt from taxation under existing law, abutting upon highways, streets, roads and alleys within seven hundred and eighty feet of any fire hydrant in proportion to the number of feet the property abuts any water main or within seven hundred and eighty feet of any fire hydrant on the water main. The board of supervisors may provide for an equitable reduction from the frontage of lots at intersections or where, due to the irregular shape of lots, an assessment of the full frontage would be inequitable.

- The board of supervisors may pay the cost for fire protection out of the general township fund. If the board of supervisors elects to pay the cost of fire protection services out of the general fund, any special fire protection districts and annual assessments shall be abolished.
- The Board of Supervisors may appropriate moneys for the use of the Township or to fire companies located in the Township for the operation and maintenance of fire companies, for the operation and maintenance of the apparatus, for the construction, repair and maintenance of fire company houses, for training of fire company personnel and as set forth in this section for the training schools or centers in order to secure fire protection for the inhabitants of a township.
- The fire companies shall submit the Board of Supervisors an annual report of use of appropriated moneys for each completed year of the Township before any further payments may be made to the fire companies for the current year.
- The Board of Supervisors may by ordinance make rules and regulations for the government of the fire companies which are located within the Township and their officers.
- The Board of Supervisors may contract with or make grants, to near or adjacent municipal corporations or volunteer fire-companies therein for fire protection in the Township.
- No volunteer fire-company not in existence in the Township before the effective date of this act may organize or operate unless the establishment or organization is approved by resolution of the Board of Supervisors.
- The Board of Supervisors may annually appropriate funds to fire companies located within the Township for the training of its personnel and to lawfully organized or incorporated county for regional firemen's association or an entity created pursuant to the act of July 12, 1972 (P.L. 762 No. 180), referred to as the Intergovernmental Cooperation Law, to establish equip and maintain and operate fire training schools or enters for the purpose of giving instruction and practical training in prevention, control and fighting of fire and related fire department emergencies to the members of fire departments and volunteer fire companies in any city, borough, town, or township with the Commonwealth.

MUNICIPAL AUTHORITIES

Municipal authorities are a special kind of local unit; unlike cities, boroughs, and townships, which are general government entities, they are set up to perform special services. An authority is a governmental entity authorized to acquire, construct, improve, maintain, and operate projects, and to borrow money and issue bonds to finance them. Projects include

public facilities such as buildings, including school buildings, transportation facilities, marketing and shopping facilities, highways, parkways, airports, parking places, waterworks, sewage treatment plants, playgrounds, hospitals, and industrial development projects.

An authority can be organized by any county, city, town, borough, township, or school district of the commonwealth, acting singly or jointly with other entities. An authority can be established by ordinance of one or more municipalities. The governing bodies of the parent local unit or units appoint the members of the authority's board. If the authority is created by one unit, the board consists of five members. If the authority is created by two or more local units, there must be at least one member from each unit but no fewer than five total. The board carries on the work of the authority, acquires property, appoints officers and employees, undertakes projects, makes regulations and charges, and collects revenue for the services provided by the facilities or projects.³⁸

PREVIOUS STUDIES

In 2003, during a legislative session on Senate Resolution No. 60 (SR 60) (Appendix J) in the General Assembly of Pennsylvania, discussion on providing of emergency services in the Commonwealth revealed that, *“Over the last decade, there have been a myriad of reports prepared and testimony taken on the status, needs, dilemma, and frustration of providing these services within the Commonwealth. The results have been both helpful and created challenges. The mere fact that the Commonwealth has a diverse topography, a dichotomy of old versus new communities that are both thriving and destitute, coupled with the largest of cities to the smallest of villages, involving over 2,500 fire companies and 1,500 emergency medical squads, the opportunity to develop a single system of emergency service delivery is almost impossible. Nevertheless, we must try to find a flexible system that will work within this dynamic and challenging environment called Pennsylvania.”*³⁹

In a research article published on February 1, 2001, Craig Beyler opined that *Fire Protection in the 21st Century* will have *“Powerful trends that will shape the fire service over the next ten years, changing department structures and roles in the community, and altering the demands placed on fire service personnel.”* The text went on to detail these “trends” to involve science, technology, risk management, finances, expanded services, recruitment, retention, lifestyles, urbanization, environmentalism, legal and regulatory changes and organizational structure. Every component of emergency services operation will change, forcing emergency service organizations themselves to change.⁴⁰

In the SR 60 Report to the Senate of the Commonwealth of Pennsylvania in November 2004, a recommendation was made that the General Assembly should consider providing specific

³⁸ The Pennsylvania Manual. Page 6-6.

³⁹ Excerpt Senate Resolution No. 60, Session of 2003. The General Assembly of Pennsylvania, July 8, 2003.

⁴⁰ Beyler, C.L. (2001). Fire Safety Challenges in the 21st Century. Journal of Fire Protection Engineering. 11(1), 4-15. <https://doi.org/10.1106/N72L-L31V-7X4P-2T4P>

statutory authority to county governments to provide assistance, under agreement with local municipal governing bodies, in meeting the provision of providing emergency service response at the local level. Nearly 16 years later this option for service delivery has yet to be authorized.

This true lack of consistency from municipality to municipality creates a dilemma in the expectations of the citizenry, service providers and the local elected officials, as the service delivery system can change and often does dramatically, from municipality to municipality. The true responsibility for providing these critical public safety services lies with the governing body of each municipality, not the fire and EMS agencies that serve them. As noted throughout this report, the lack of interest and engagement by the local officials in many Chester County municipalities is not only troubling, but in some ways creates a dysfunctional system where service levels can vary greatly from one side of the street to the other. *Just 42 of 73 municipalities (57.5%) returned the questionnaire related to this study, and representatives from just 34 municipalities (46.6%) participated in the on-line survey.* The MRI study team believes strongly that more consistency would be achieved by a more regional or county-wide system; however, there is currently no provisions to provide an incentive to do this, permit it, or to require it.⁴¹

The MRI study team, in its research of prior studies, reports, and legislative actions noted at least 25 previous reports identified many of the same recommendations for improvement in the delivery of emergency services in Pennsylvania. Since 2004, several legislative initiatives have resulted in some progress focused primarily on recruitment and retention of volunteer personnel and identification of specific responsibilities for the various types of local municipalities.

In 2005, the Legislative Budget and Finance Committee released a report entitled “*The Feasibility of Regionalizing Pennsylvania’s Volunteer Fire Companies*”⁴² (also known as the HR 148 Report) (Appendix K). This detailed document provides an overview of volunteer fire services in the state, discusses the problems and challenges facing these volunteer fire companies and analyzes regionalization as a method of addressing the problems and challenges. Examples and case studies are provided, as well as suggestions for building partnerships designed to increase recruitment, retention, and other operational efficiencies.⁴³ The report was the first of its kind to address the potential of regionalizing or standardizing emergency services in the commonwealth.

Since 2005 there has been limited actions taken to further this concept of operations towards improvement in the delivery of emergency services. It should be noted that there has been regionalization and some consolidations of emergency services in various counties, however these changes are conducted at the local level and limited at the County

⁴¹ Report to the Senate of the Commonwealth of Pennsylvania, November 2004.

⁴² dced.pa.gov/download/feasibility-of-regionalizing-pa-volunteer-fire-companies-house-resolution-148/?wpdmdl=56795

⁴³ dced.pa.gov/local-government/fire-emergency-services/

level due to the statutory legislation that has not been updated for the potential for county governments to take a more active role in providing services. There is not any enabling legislation that would allow counties to provide further assistance which may enhance the ability to maintain or enhance emergency services in light of the challenges faced by the changing expectations regarding the delivery of fire and EMS services, changing demographics, increasing call volumes, and the need to look at the potential efficiencies and service enhancements that can be realized from a more broad-based approach. The HR 148 report provides one of several objective road maps to the future that the Pennsylvania legislature should utilize as a guide to enacting laws that enable the recommendations to become a reality.

The MRI study team thoroughly studied the SR 6 Final Report that was completed in late 2018. This report contained many of the same or related issues and recommendations found in the SR 60 report from 14 years earlier. The 2018 report advanced 27 primary recommendations; the report also provided additional focus on the EMS service delivery system in the Commonwealth.

One of the important legislative recommendations that MRI reviewed from SR 6 was Recommendation Six which recommended the following:

[Simplify the Process to Regionalize Fire & Emergency Medical Services](#)⁴⁴

Issue:

- Communities/regions/counties may wish to organize their delivery of fire and EMS services in a regional/county fashion which is not traditionally supported by Pennsylvania statutes and regulations.
- Municipalities/counties should be empowered to form emergency services districts to allow service regionally or county-wide.

Problem Statement:

1. Fire and EMS service agencies are failing or are going to fail. While it is important to do what is possible to shore up the existing system, it is also important to look to the future of potential regional or county-wide emergency services. Now is the time to ensure that legislation, regulations and policies are in place to allow for counties and other regional organizations to easily form fire and emergency medical services. The Virginia Department of Fire Programs may be a starting point to gain assistance with models for

⁴⁴ SR 6 Senate Resolution 6, Final Report, November 2018 <http://pehsc.org/wp-content/uploads/2014/05/SR-6-REPORT-FINAL.pdf>

this <https://www.vafire.com>. It is unclear what is needed from a regulatory perspective to enable this, although Act 130 of 1955 may just need to be updated to authorize regionalization.

2. Having the framework in place now will provide governments options for moving forward with their emergency services into the future.

Resolution:

1. Develop legislation to facilitate/enable regional/county fire services that will set the stage for further development of combined services. Much of this has been or is under development in the Commonwealth of Virginia. The concept would be to provide a core of career personnel to handle the “routine” responses supported by volunteers to handle more involved responses.
2. Statutes/regulations/policies necessary to enable counties or other regional organizations to form county-wide or region-wide fire and EMS through regional boards/Fire-EMS authorities or districts. This would include enabling legislation to permit counties to organize and tax to provide these services.

After the MRI study team’s observation and review of the Chester County Department of Emergency Services organization, leadership, and operations, MRI strongly believes that the potential for the Chester County government taking a more active role in advancing regionalization and even taking on a greater role in the direct provision of fire and EMS service delivery in partnership with struggling fire and EMS organizations should be strongly considered as one component of an overall solution to the challenges that are facing the system.

To be sure, not everyone believes that the County should assume a greater role in the provision of fire and EMS services. In response to the question, *“Should there be a more regionalized approach to both the funding and operational control (such as standardized response assignments, minimum training standards, AVL based dispatching, etc.) of the fire and EMS delivery system in the County, based upon consensus procedures and protocols developed by the Chester County Fire Chief’s Association and the Chester County EMS Council, Inc.?”*

- On the questionnaire that was completed by each fire and EMS provider organization, 43.9% agreed or strongly agreed there should be, 31.7% were neutral, and 24.4% either disagreed or strongly disagreed.
- On the on-line survey that was completed by fire and EMS responders, 40.9% strongly agreed, 41.3% agreed (82.8% total) there should be, while 12.9% disagreed and 4.9% strongly disagreed.

- On the on-line survey that was completed by local government officials, 32.7% strongly agreed, 29.1% agreed (61.8% total) there should be, 32.7% were neutral while just 3.6% disagreed and 1.8% strongly disagreed.
- On the questionnaire that was completed by the municipalities, 67.7% agreed or strongly agreed there should be, 19.4% were neutral, and 12.9% disagreed (no one strongly disagreed). Comments that were made through the municipal questionnaire include:
 - Disagreement with use of AVL.
 - Increase of more regional fire and EMS services in Chester County.
 - Standardization on response, training, and funding are important.
 - SCCFCA CCCFCA - standard procedures.
 - Greater regional management.
 - Operational coordination.
 - Associations should provide a model to adopt or tailor to department operations.
 - Local municipalities cannot fund full fire/EMS departments when the County could and should.
 - Funding should come from the local level.
 - County government should not be directly involved in fire/EMS service.

RECOMMENDATIONS:

- IV-1: *The SR 60, HR 148, and SR 6 Final Reports should continue to be the referenced reports from which the recommendations regarding legislative changes to expand governance for fire and EMS delivery systems are based.***
- IV-2: *The Chester County Commissioners, working collaboratively with the Chester County Fire Chiefs Association, Chester County EMS Council, Inc., the Chester County Fire Police Association, the Chester County Municipal Managers Consortium, and the Chester County Association of Township Officials should work with members of the Chester County legislative delegation to introduce and enact legislation as recommended in SR 6 and which will serve to expand the permissible role of County Government in the delivery of fire and EMS services.***
- IV-3: *Chester County Commissioners, working in partnership with the stakeholders listed in recommendation IV-2, above, should explore ways to take a more active role in advancing regionalization and/or supporting the fire/EMS service delivery system.***

- IV-4: *The Chester County Fire Chiefs Association, Chester County EMS Council, Inc., the Chester County Fire Police Association, the Chester County Municipal Managers Consortium, and the Chester County Association of Township Officials, with support from the Chester County Department of Emergency Services should establish a joint strategic plan working group to serve as a facilitator that could assist the communities of Chester County to address the fiscal and operational challenges associated with the continued delivery of high-quality fire and EMS services.***
- IV-5: *The governing bodies of ALL Chester County municipalities MUST become engaged in the provision of fire and EMS services to their respective municipalities. By law it is ultimately their responsibility to determine the level of risk and the level of emergency services protection for their communities.***
- IV-6: *Working collaboratively, the Chester County Fire Chiefs Association, Chester County EMS Council, Inc., and the Chester County Fire Police Association, with support from the Chester County Department of Emergency Services, and input from the Chester County Municipal Managers Consortium, the Chester County Association of Township Officials, and the citizens of Chester County should develop a compelling education program including videos and in-person workshops to educate local officials and governing bodies on the operations of the fire and EMS services, the challenges they are facing, and the need for increased funding. This would be consistent with Recommendation 16 in SR 6 “Educate Municipal Officials About Fire & EMS Crisis and Needs”.***

CHAPTER V

SERVICE DEMAND AND RESPONSE METRICS

DEFINING THE LEVEL OF SERVICE

The mission performed by the fire department is one of the fundamental functions of government; to ensure the safety and protection of its residents and visitors. EMS operations are likewise an important component of the comprehensive emergency services delivery system in any community. Together with the delivery of police service, fire and EMS form the backbone of the community's overall public safety life net. The expectations for the quality and quantity of fire and EMS services must come from its residents and other taxpayers. The paramount issue facing Chester County, and its municipalities, is to determine an acceptable level of risk and then define an appropriate level of service for the community and as part of a comprehensive and integrated system.

There is no "right" amount of fire protection and EMS delivery. It is a constantly changing level based on the expressed needs of the community. Determining the appropriate level of service also involves deciding upon the municipalities' fiscal ability and willingness to pay for the desired level of service. Planned growth of the Chester County Fire and EMS services and their diverse operations is essential to provide a consistent service level to the community, while keeping pace with increased demands for service caused by continued development. It is the responsibility of elected officials to translate community needs into reality through direction, oversight and the budgetary process. It is their unenviable task to maximize fire, EMS, and other services within the reality of the community's ability and willingness to pay, particularly in today's economic environment.

Each community determines the composition of fire services that residents receive by balancing the level of risk against the cost to provide these critical services. Based on a review of the Chester County fire and EMS delivery system, it is clear the community expects the emergency response organizations to be capable of providing a timely response to both fire and EMS emergencies on a 24/7 basis. This expectation translates to an understanding that the local municipalities and their fire and EMS providers should collaboratively be working to establish acceptable levels of service that should be provided. However, there is also broad-based agreement that these efforts should be guided, to the extent that is reasonable and practical, by the benchmark response time established in various national consensus standards. Based on observations, the Chester County's stakeholders have a further expectation that the fire and EMS organizations will be able to provide sufficient resources to also mitigate most incidents within a comparable time to other similar-sized jurisdictions. The analysis also indicates that an increasing number of the fire and EMS service providers are struggling to continue to adequately meet the increasing requests for service in a timely manner. This is particularly true regarding fire operations as the fire service remains primarily volunteer and is struggling with a declining base of active members.

This chapter, as well as the next several chapters of this report will focus on assessing the fire and EMS delivery system based on the service expectation described above and making appropriate recommendations for improvement.

SERVICE DEMAND

One of the best ways to get a broad overview picture of an emergency services organization is to look at and analyze their emergency response/incident statistics. Looking at statistical data that is compiled from incident reports that are generated for every emergency response, or request of assistance, will assist with determining the adequacy of current operations, as well as, identify trends in responses (i.e., increasing vs. decreasing volume, changing types of incident requests, increasing or unacceptable response times, frequency of simultaneous incidents, frequency of missed calls for volunteer organizations, etc.). Utilizing current trends to help predict future events, while not an exact science, can be helpful to communities and its fire and EMS service providers. This information can be utilized to plan for future operational needs. However, as with any other type of statistical analysis, the information that is produced is only as good and/or reliable as the data that was originally entered and has been provided for evaluation.

The data that was analyzed for this report was provided to the MRI study team by the Chester County Department of Emergency Services. The reports developed were compiled through the report generation features of the 9-1-1 center's Computer Aided Dispatch (CAD) system. Every fire and EMS emergency incident that occurs in Chester County results in the generation of a dispatch report at the County's 9-1-1 communications center. The study team believes that the data that was analyzed is accurate as to the overall incident numbers, and general classification of incident types. This analysis of data notwithstanding, each fire company submits periodic statistical data and reports to the Office of the Pennsylvania State Fire Commissioner who compiles state-wide fire and incident response statistics. State-wide data is then submitted to the United States Fire Administration where data and statistics are compiled and analyzed nationally. While three (3) very broad incident type categories are utilized here, in Emergency Patient Care Reports (EPCR) and National Fire Incident Reporting System (NFIRS) each category has numerous sub-categories that allow the type of incident handled to be classified very specifically.

The MRI study team evaluated Chester County fire and EMS incident response data for a three (3) year period covering January 1, 2017 through December 31, 2019. During the three (3) year period the fire and EMS organizations responded to a total of 162,214 emergency incidents, an average of 54,071 per year. The number of incidents increased each year from 51,822 in 2017 to 54,957 in 2018, and 55,435 in 2019 (Figure 27). The increase of 3,135 incidents from 2017 to 2018 represents a 6.0 % increase, while the increase of 478 from 2018 to 2019 represents just a 0.87 % increase.

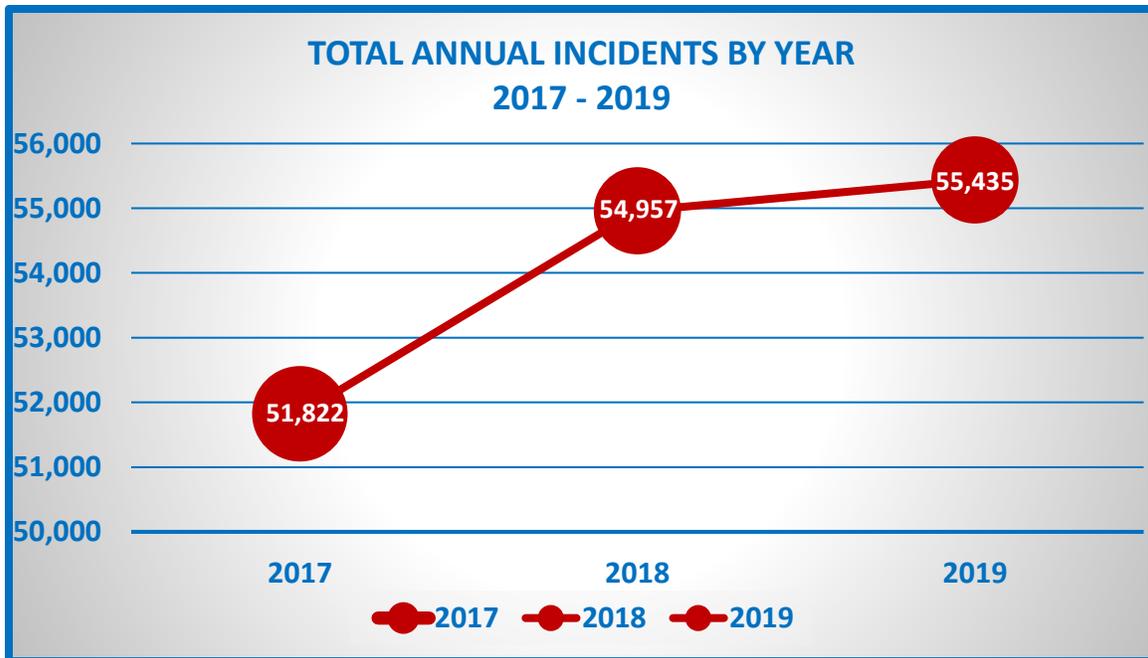


Figure 27: Total Incident by Year 2017 – 2019

Figure 28 breaks down the annual incidents by major category. For this table, fire and other incidents are classified together. They will be broken down into more specific categories later in this chapter.

YEAR	TOTAL EMERGENCY INCIDENTS	AVERAGE PER DAY	AVERAGE PER HOUR	EMS INCIDENTS	AVERAGE PER DAY	FIRES & OTHER INCIDENTS	AVERAGE PER DAY
2017	51,822	142	5.9	41,001	112.3	10,821	29.6
2018	54,957	150.6	6.3	43,137	118.2	11,820	32.4
2019	55,435	151.9	6.3	43,717	119.8	11,718	32.1
AVERAGE	54,071	148.1	6.2	42,618	116.8	11,453	31.4

Figure 28: Annual Incidents by Category and Day

As will be noted in several chapters of this report, Chester County’s fire and EMS providers, like many, if not most emergency services organizations respond to significantly more emergency medical incidents than actual fires, or fire and other types of emergency incidents (Figure 29).

From 2017 through 2019, the Chester County EMS providers responded to a total of 127,855 EMS incidents, an average of 42,618 per year, or 116.8 per day, or 4.9 per hour. The number of EMS incidents for the years studied was lowest in 2017 with 41,001 incidents (112.3 per day), while it peaked in 2019 with 43,717 incidents (119.8 per day).

Fire incidents can include structure fires, vehicle fires, and outside fires such as trash and brush. It is important to note that per NFIRS protocols, the category for “Fire Incident” must be an actual fire situation, which in many, but not all situations caused some type of damage. From 2017 through 2019, the Chester County fire departments responded to a total of 15,665 actual fire incidents, an average of 5,222 per year, or 14.3 per day. The number of fire incidents for the years studied was lowest in 2017 with 4,859 incidents (13.3 per day), while it peaked in 2019 with 5,474 incidents (15.0 per day).

Many of the incidents that are classified under the third, broad category of “Other Incidents” were possibly dispatched as some type of fire incident, but ultimately were classified otherwise, for reporting purposes, based upon the situation found at the scene. Examples of incidents that would be classified in this category, include, but are certainly not limited to:

- Automatic fire alarm and/or sprinkler system activations with no fire
- Carbon monoxide alarms
- Wires down
- Hazardous materials/chemical/fuel spills
- Hazardous situations
- Motor vehicle accidents
- Gas leaks

From 2017 through 2019, there were a total of 18,694 incidents broadly classified as other, an average of 6,231 per year, or, 17.1 per day.

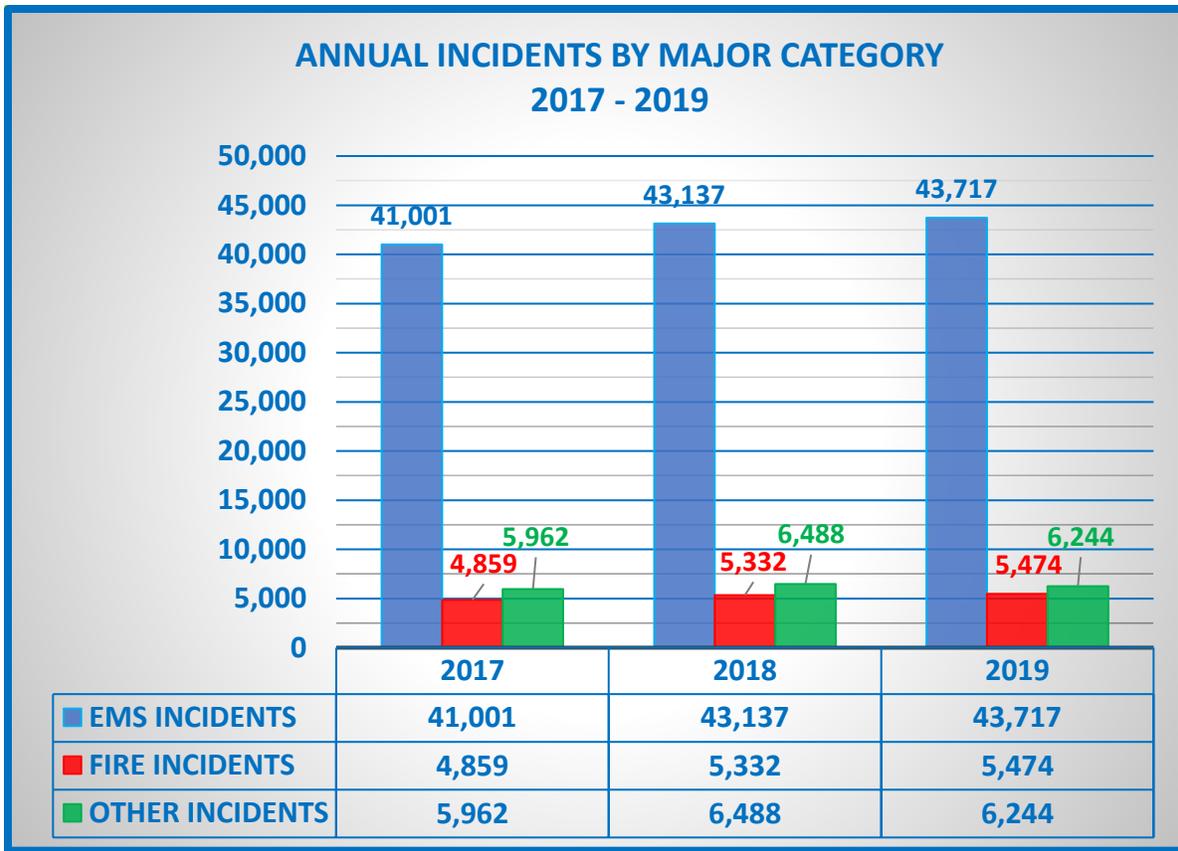


Figure 29: Chart of Incidents by Category

Overall, the EMS incidents account for 78.8 % of responses, while fires accounted for 6.7%, and other emergency-related incidents account for 11.5 % (Figure 30). These statistics are in line with current industry expectations as many fire/EMS systems find that EMS incidents account for 70% to 80% of their total call volume.

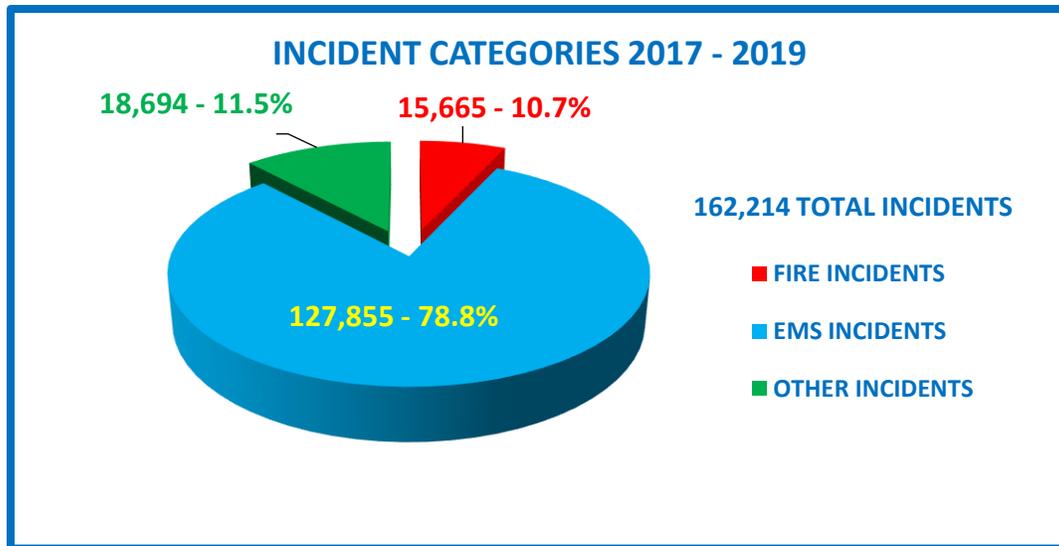


Figure 30: Incident Category by Percentage 2017 – 2019

Like in most communities, demand for EMS has increased dramatically over the past several decades. Chester County is no exception. EMS responses increased by 5.2% from 2017 to 2018, and a more modest 1.3% from 2018 to 2019. The increase that was seen from 2017 to 2018 is more typical of the increases that MRI has seen in other studies, particularly in communities that are still experiencing growth and those with a growing older population. The 2019 number equates to an average of 119.8 EMS incidents each day, or 5.0 each hour. Fire incidents increased slightly each of the three years while other incident responses increased from 2017 to 2018 before declining slightly from 2018 to 2019.

The data from these years, as well as nationwide statistics, the ongoing residential and commercial development occurring, and projected growth (up to 30% by some estimates) in Chester County would suggest that all emergency incidents (but particularly EMS related ones) will continue to gradually increase from year to year. **Looking forward, as this growth in service demand continues, maintaining the current service levels will only be possible if the level of resources dedicated to these services increases.**

Figure 31 provides a break down for 2017 – 2019 of fire and EMS related incidents by major categories by municipality.

MUNICIPALITY	YEAR	EMS INCIDENTS		FIRE INCIDENTS			OTHER INCIDENTS					TOTAL INCIDENTS
		EMS - BLS	EMS - ALS	STRUCTURE FIRES	OUTSIDE FIRES	OTHER FIRE INCIDENTS	ALARM SYSTEMS	HAZARDOUS CONDITIONS	HAZ. MAT./ FUEL SPILL	MVA - RESCUE	RESCUE NON-MVA	
Atglen Borough	2017	31	37	5	4	3	2	0	0	1	0	83
	2018	30	32	2	2	5	3	0	0	0	0	74
	2019	22	43	2	1	2	2	0	0	1	0	73
Avondale Borough	2017	26	30	4	2	31	10	0	1	2	0	106
	2018	30	25	1	6	14	11	0	3	0	0	90
	2019	33	28	4	3	26	12	0	1	3	1	111
Birmingham Township	2017	89	71	4	13	11	41	3	1	5	0	238
	2018	109	69	6	14	4	61	1	1	1	1	267
	2019	96	69	4	10	7	50	2	0	2	0	240
Caln Township	2017	814	1,179	32	57	65	127	6	3	36	1	2,320
	2018	887	1,088	27	47	77	113	6	3	15	8	2,271
	2019	957	1,275	24	66	85	112	4	2	22	4	2,551
Charlestown Township	2017	141	91	9	22	18	62	2	1	10	1	357
	2018	159	104	7	17	27	73	1	1	4	1	394
	2019	180	146	11	30	26	53	2	3	3	0	454
Coatesville City	2017	1064	980	51	43	93	175	12	1	18	6	2,443
	2018	1,001	1,017	50	50	118	248	12	2	17	13	2,528
	2019	976	1,049	57	42	88	217	11	5	18	5	2,468
Downingtown Borough	2017	405	378	14	24	35	100	6	0	11	2	975
	2018	474	391	17	31	39	86	1	0	6	4	1,049
	2019	418	395	17	20	39	104	7	2	3	3	1,008
East Bradford Township	2017	243	260	11	26	26	76	3	4	18	4	671
	2018	236	226	12	24	29	78	3	0	5	2	615
	2019	248	305	21	25	29	94	2	0	5	1	730
East Brandywine Township	2017	138	115	9	18	34	46	4	3	3	2	372
	2018	148	120	15	18	22	43	2	0	5	2	375
	2019	171	150	15	9	33	52	5	0	3	2	440
East Caln Township	2017	331	243	16	14	17	73	0	2	13	1	710
	2018	403	296	6	18	22	88	2	1	9	2	847
	2019	385	322	10	18	17	63	4	3	7	2	831
East Coventry Township	2017	242	258	9	12	29	17	1	1	7	2	578
	2018	243	214	11	12	30	27	3	0	2	0	542
	2019	248	258	10	15	29	20	3	0	4	2	589



MUNICIPALITY	YEAR	EMS INCIDENTS		FIRE INCIDENTS			OTHER INCIDENTS					TOTAL INCIDENTS
		EMS - BLS	EMS - ALS	STRUCTURE FIRES	OUTSIDE FIRES	OTHER FIRE INCIDENTS	ALARM SYSTEMS	HAZARDOUS CONDITIONS	HAZ. MAT./ FUEL SPILL	MVA - RESCUE	RESCUE NON-MVA	
East Fallowfield Township	2017	175	179	10	17	19	44	2	0	10	1	457
	2018	217	191	18	19	20	57	2	3	2	2	531
	2019	187	172	15	15	18	49	2	0	4	1	463
East Goshen Township	2017	1,512	985	27	33	40	155	6	7	11	0	2,776
	2018	1,452	919	30	27	33	154	4	1	3	1	2,624
	2019	1,304	870	22	36	58	163	1	5	3	2	2,464
East Marlborough Township	2017	261	264	13	23	18	70	1	3	11	2	666
	2018	264	259	24	19	29	77	2	4	2	2	682
	2019	353	258	6	35	36	78	6	1	2	2	777
East Nantmeal Township	2017	45	31	1	14	13	15	0	0	5	0	124
	2018	47	52	3	10	10	25	0	0	7	0	154
	2019	35	40	6	5	15	27	1	1	5	0	135
East Nottingham Township	2017	177	180	11	17	9	23	0	1	6	1	425
	2018	165	200	14	23	12	26	3	0	3	2	448
	2019	195	193	15	18	18	33	0	1	3	4	480
East Pikeland Township	2017	403	314	10	20	51	62	3	1	8	3	875
	2018	420	317	12	16	34	73	0	1	4	2	879
	2019	510	389	17	12	45	79	2	1	2	1	1,058
East Vincent Township	2017	335	294	12	19	21	40	1	2	5	0	729
	2018	337	293	12	27	27	66	0	2	6	2	772
	2019	302	311	10	27	31	66	1	1	4	0	753
East Whiteland Township	2017	417	337	17	36	48	187	2	5	19	3	1,071
	2018	497	342	21	35	75	281	6	9	14	6	1,286
	2019	462	375	28	50	88	270	5	6	5	6	1,295
Easttown Township	2017	409	302	26	44	37	175	2	0	13	2	1,010
	2018	495	313	17	35	52	171	1	1	11	4	1,100
	2019	504	371	20	31	46	226	3	2	7	4	1,214
Elk Township	2017	25	23	1	4	2	5	0	0	2	0	62
	2018	35	33	5	5	2	5	0	0	1	0	86
	2019	40	37	4	9	7	6	1	0	0	0	104
Elverson Borough	2017	70	47	1	3	2	18	0	0	1	2	144
	2018	128	68	4	5	5	22	0	0	2	1	235
	2019	92	64	2	4	3	16	1	0	0	0	182

MUNICIPALITY	YEAR	EMS INCIDENTS		FIRE INCIDENTS			OTHER INCIDENTS					TOTAL INCIDENTS
		EMS - BLS	EMS - ALS	STRUCTURE FIRES	OUTSIDE FIRES	OTHER FIRE INCIDENTS	ALARM SYSTEMS	HAZARDOUS CONDITIONS	HAZ. MAT./ FUEL SPILL	MVA - RESCUE	RESCUE NON-MVA	
Franklin Township	2017	70	82	7	11	7	18	1	2	7	1	206
	2018	73	86	9	7	5	22	1	0	0	0	203
	2019	81	56	6	11	6	18	0	1	2	0	181
Highland Township	2017	30	30	3	6	8	3	0	0	6	0	86
	2018	45	47	4	10	9	20	0	1	2	0	138
	2019	56	37	3	10	4	19	0	1	1	0	131
Honey Brook Borough	2017	84	62	2	2	27	18	0	0	1	1	197
	2018	64	71	3	2	20	17	1	0	1	0	179
	2019	63	66	6	6	23	18	0	0	3	0	185
Honey Brook Township	2017	421	505	18	17	16	46	0	2	13	4	1,042
	2018	435	522	10	16	25	45	3	2	6	8	1,072
	2019	454	482	12	27	20	44	1	0	1	4	1,045
Kennett Square Borough	2017	221	220	8	21	25	39	3	3	6	2	548
	2018	248	216	13	16	26	38	7	3	3	1	571
	2019	279	254	12	18	35	48	5	0	6	2	659
Kennett Township	2017	360	330	10	24	46	71	1	4	6	6	858
	2018	354	346	21	40	60	110	4	4	6	0	945
	2019	401	416	13	35	55	102	5	1	4	0	1,032
London Britain Township	2017	54	66	2	8	6	13	0	0	0	0	149
	2018	59	63	3	16	6	13	1	0	1	1	163
	2019	42	48	2	10	6	18	0	0	2	0	128
London Grove Township	2017	220	217	11	14	16	40	3	1	12	2	536
	2018	301	245	13	30	21	61	2	3	5	2	683
	2019	241	225	16	37	23	45	4	0	7	1	599
Londonderry Township	2017	34	50	4	5	4	12	0	0	4	1	114
	2018	44	38	5	5	8	20	0	0	5	1	126
	2019	37	50	2	1	5	16	0	0	2	1	114
Lower Oxford Township	2017	156	147	10	19	7	12	0	0	7	0	358
	2018	153	154	9	24	20	14	2	1	6	1	384
	2019	138	151	13	22	11	17	5	0	4	1	362
Malvern Borough	2017	113	87	8	9	11	42	2	1	3	0	282
	2018	122	74	5	8	9	44	1	0	1	1	265
	2019	129	78	10	14	15	31	0	1	1	0	279



MUNICIPALITY	YEAR	EMS INCIDENTS		FIRE INCIDENTS			OTHER INCIDENTS					TOTAL INCIDENTS
		EMS - BLS	EMS - ALS	STRUCTURE FIRES	OUTSIDE FIRES	OTHER FIRE INCIDENTS	ALARM SYSTEMS	HAZARDOUS CONDITIONS	HAZ. MAT./ FUEL SPILL	MVA - RESCUE	RESCUE NON-MVA	
Modena Borough	2017	22	36	1	3	11	5	0	0	1	0	79
	2018	30	32	4	3	8	11	0	0	1	1	90
	2019	38	37	2	1	5	12	0	1	0	0	96
New Garden Township	2017	356	341	21	48	40	61	3	5	24	2	901
	2018	366	360	26	42	93	81	2	2	11	3	986
	2019	344	356	11	42	70	66	1	2	4	1	897
Newlin Township	2017	33	41	3	8	5	14	0	0	2	0	106
	2018	25	24	2	9	7	23	0	0	5	0	95
	2019	23	22	1	11	6	27	0	1	2	0	93
New London Township	2017	92	100	7	7	9	25	2	1	4	0	247
	2018	89	91	5	8	6	16	1	0	4	0	220
	2019	85	87	12	4	10	19	1	0	3	1	222
North Coventry Township	2017	290	264	20	26	50	50	1	3	11	3	718
	2018	338	244	23	40	46	48	1	0	7	4	751
	2019	316	291	15	42	37	43	4	1	9	4	762
Oxford Borough	2017	437	376	18	12	37	71	1	1	5	1	959
	2018	483	349	16	14	38	59	4	3	2	0	968
	2019	468	348	10	13	34	49	1	1	4	2	930
Parkesburg Borough	2017	172	177	6	8	15	23	0	1	5	0	407
	2018	179	201	17	11	17	23	1	1	2	1	453
	2019	225	200	8	14	15	26	1	0	1	0	490
Penn Township	2017	432	477	12	9	20	101	1	1	6	3	1,062
	2018	455	575	7	16	31	63	1	0	3	2	1,153
	2019	442	528	9	10	25	90	3	1	3	1	1,112
Pennsbury Township	2017	145	142	8	16	12	54	1	0	5	0	383
	2018	163	145	9	22	15	44	3	0	3	0	404
	2019	168	148	5	26	13	42	2	0	4	4	412
Phoenixville Borough	2017	843	695	42	36	79	171	10	4	11	5	1,896
	2018	857	630	42	43	63	188	16	8	11	9	1,867
	2019	820	793	53	57	87	178	9	6	15	3	2,021
Pocopson Township	2017	185	180	7	13	13	34	1	0	4	2	439
	2018	188	183	10	11	10	36	3	0	3	1	445
	2019	165	213	2	6	17	42	1	0	3	1	450



MUNICIPALITY	YEAR	EMS INCIDENTS		FIRE INCIDENTS			OTHER INCIDENTS					TOTAL INCIDENTS
		EMS - BLS	EMS - ALS	STRUCTURE FIRES	OUTSIDE FIRES	OTHER FIRE INCIDENTS	ALARM SYSTEMS	HAZARDOUS CONDITIONS	HAZ. MAT./ FUEL SPILL	MVA - RESCUE	RESCUE NON-MVA	
Sadsbury Township	2017	172	282	11	17	17	26	0	0	10	1	536
	2018	198	232	11	13	22	31	1	1	4	4	517
	2019	213	274	10	21	31	26	2	0	2	0	579
Schuylkill Township	2017	213	185	22	24	32	94	2	1	4	2	579
	2018	258	161	13	26	33	106	0	1	4	3	605
	2019	335	179	15	21	42	132	4	3	3	1	735
South Coatesville Borough	2017	86	85	6	9	11	12	0	0	3	1	213
	2018	83	71	4	10	21	13	0	0	3	0	205
	2019	81	63	1	10	10	8	0	0	2	0	175
South Coventry Township	2017	115	66	6	6	16	20	1	2	7	0	239
	2018	122	75	6	5	15	26	1	2	4	0	256
	2019	108	62	2	13	17	14	0	2	1	0	219
Spring City Borough	2017	218	152	8	4	12	18	1	0	2	0	415
	2018	205	176	6	9	16	12	1	2	1	1	429
	2019	195	145	8	6	12	17	2	1	2	1	389
Thornbury Township	2017	81	58	6	5	4	23	2	0	2	1	182
	2018	87	57	6	7	14	31	0	1	1	1	205
	2019	76	54	5	8	12	29	2	0	5	0	191
Tredyffrin Township	2017	1,150	744	76	114	56	326	13	5	33	10	2,527
	2018	1,237	809	75	183	73	348	17	12	19	23	2,796
	2019	1,152	842	65	157	113	385	12	6	23	6	2,763
Upper Oxford Township	2017	60	49	4	9	5	4	1	0	6	1	139
	2018	68	80	6	11	7	7	2	0	5	3	189
	2019	80	49	3	6	10	3	2	1	4	0	158
Upper Uwchlan Township	2017	182	140	12	35	14	55	2	1	7	1	449
	2018	188	172	12	21	11	56	6	8	5	4	483
	2019	159	158	19	25	16	73	2	1	7	1	461
Uwchlan Township	2017	642	446	21	38	58	136	2	3	13	3	1,362
	2018	803	472	31	48	45	171	6	7	2	0	1,585
	2019	683	518	33	44	68	169	8	5	10	6	1,544
Valley Township	2017	342	341	20	20	31	60	2	0	9	0	825
	2018	401	376	17	21	33	66	1	1	6	2	924
	2019	355	334	18	19	41	55	1	2	3	2	830

MUNICIPALITY	YEAR	EMS INCIDENTS		FIRE INCIDENTS			OTHER INCIDENTS					TOTAL INCIDENTS
		EMS - BLS	EMS - ALS	STRUCTURE FIRES	OUTSIDE FIRES	OTHER FIRE INCIDENTS	ALARM SYSTEMS	HAZARDOUS CONDITIONS	HAZ. MAT./ FUEL SPILL	MVA - RESCUE	RESCUE NON-MVA	
Wallace Township	2017	120	97	7	14	19	31	2	0	3	1	294
	2018	152	91	5	14	18	56	0	1	3	0	340
	2019	126	103	6	9	22	47	0	2	4	0	319
Warwick Township	2017	70	61	3	16	10	11	0	0	2	2	175
	2018	76	65	4	9	15	13	0	0	4	2	188
	2019	67	60	4	15	5	11	1	0	1	0	164
West Bradford Township	2017	255	183	15	30	28	51	1	3	7	4	577
	2018	266	212	12	28	54	84	2	1	5	2	666
	2019	296	228	8	22	42	80	3	2	10	1	692
West Brandywine Township	2017	372	286	9	10	25	31	0	1	7	2	743
	2018	371	365	12	11	17	82	3	1	8	1	871
	2019	389	305	14	24	33	49	1	0	6	1	822
West Caln Township	2017	318	256	19	30	56	29	1	2	14	6	731
	2018	319	282	13	22	52	24	1	3	7	1	724
	2019	310	298	19	43	67	24	4	3	2	1	771
West Chester Borough	2017	890	765	42	47	110	409	16	7	20	3	2,309
	2018	985	803	61	45	106	445	20	1	20	1	2,487
	2019	888	760	54	49	97	399	17	4	9	5	2,282
West Fallowfield Township	2017	64	78	6	11	39	6	0	0	11	0	215
	2018	79	69	3	14	56	10	0	2	1	1	235
	2019	55	66	1	11	28	8	0	0	4	0	173
West Goshen Township	2017	925	860	47	53	88	176	8	7	34	7	2,205
	2018	1,120	954	49	66	111	226	4	3	18	8	2,559
	2019	1,143	926	46	71	91	231	8	6	15	5	2,542
West Grove Borough	2017	67	45	4	3	28	19	2	0	2	0	170
	2018	58	63	6	0	25	12	0	0	1	0	165
	2019	58	66	3	9	24	10	0	1	0	0	171
West Marlborough Township	2017	38	21	3	5	6	14	0	0	3	1	91
	2018	40	25	1	11	8	18	1	0	4	1	109
	2019	27	17	0	14	6	10	0	1	3	0	78
West Nantmeal Township	2017	94	84	3	6	7	4	0	0	3	1	202
	2018	66	66	3	12	7	12	1	0	3	2	172
	2019	84	74	2	11	7	7	0	1	0	1	187



MUNICIPALITY	YEAR	EMS INCIDENTS		FIRE INCIDENTS			OTHER INCIDENTS					TOTAL INCIDENTS
		EMS - BLS	EMS - ALS	STRUCTURE FIRES	OUTSIDE FIRES	OTHER FIRE INCIDENTS	ALARM SYSTEMS	HAZARDOUS CONDITIONS	HAZ. MAT./ FUEL SPILL	MVA - RESCUE	RESCUE NON-MVA	
West Nottingham Township	2017	104	106	4	9	9	9	0	1	6	0	248
	2018	124	114	6	13	14	12	1	1	2	0	287
	2019	96	124	6	10	8	11	1	2	1	0	259
West Pikeland Township	2017	82	50	7	11	8	30	0	2	6	0	196
	2018	87	53	6	9	9	34	2	1	4	2	207
	2019	82	65	5	11	7	42	1	1	3	1	218
West Sadsbury Township	2017	107	98	4	10	6	32	1	1	8	1	268
	2018	105	97	5	15	6	25	0	0	4	2	259
	2019	108	122	7	12	14	25	0	0	2	1	291
West Vincent Township	2017	131	71	14	14	26	58	3	0	4	1	322
	2018	143	99	11	23	13	85	2	2	0	0	378
	2019	121	102	8	17	32	62	4	1	4	0	351
West Whiteland Township	2017	816	590	34	61	51	210	9	5	29	3	1,808
	2018	883	598	19	61	73	227	3	7	12	3	1,886
	2019	918	774	47	50	97	236	5	5	10	2	2,144
Westtown Township	2017	394	305	18	20	27	58	2	0	7	0	831
	2018	435	297	17	32	14	73	0	1	6	2	877
	2019	411	299	18	31	52	73	1	5	10	3	903
Willistown Township	2017	652	663	24	30	27	186	1	2	19	1	1,605
	2018	617	641	23	32	30	229	2	1	9	8	1,592
	2019	725	682	16	32	39	242	3	1	4	2	1,746
Out of County Incidents	2017	835	893	242	88	187	194	27	6	119	10	2,601
	2018	943	930	252	106	200	193	32	7	60	28	2,751
	2019	995	891	240	79	189	197	13	2	38	14	2,658
TOTAL INCIDENTS	2017	19,180	21,821	1,218	1,536	2,105	4,778	183	114	758	129	51,822
	2018	19,663	23,474	1,255	1,730	2,347	5,511	212	127	432	196	54,957
	2019	20,666	23,051	1,226	1,748	2,500	5,437	203	109	375	120	55,435

Figure 31: Fire, EMS, and Other Incidents, by Type and by Municipality 2017 – 2019

As part of this project to evaluate Chester County’s Fire and EMS delivery systems, MRI partnered with CAI Technologies to develop geographic information system (GIS) maps to illustrate emergency incident response density and emergency services provider response times related to travel time from the various resource deployments points. The maps on the following pages (Figures 32-36) are “heat” or “bleed” maps that model, or illustrate with colors, the level of incident activity or call volume to various categories of emergency incidents for the three-year period of January 1, 2017 through December 31, 2019. Figure 32 illustrates EMS incidents; Figure 33 shows reported fire incidents; Figure 34 is the location of all working and multiple alarm fires individually plotted; Figure 35 plots alarm systems; and 36 is motor vehicle crashes. All the figures except 36 also include municipal boundaries. Since it illustrates motor vehicle crashes, Figure 36 includes major roadways rather than municipal boundaries.

On the maps, ***the orange and red colors indicate a high density of incidents or a “hot spot”***. The green and yellow colors indicate lower levels of incident activity. The higher levels of incident activity for all types of incidents are generally found in the areas with municipalities with higher populations and densities, the communities with urban and suburban characteristics, while lower activity is noted in the more rural parts of the County. For motor vehicle accidents, high response activity is concentrated along the County’s more heavily traveled roads and highways.

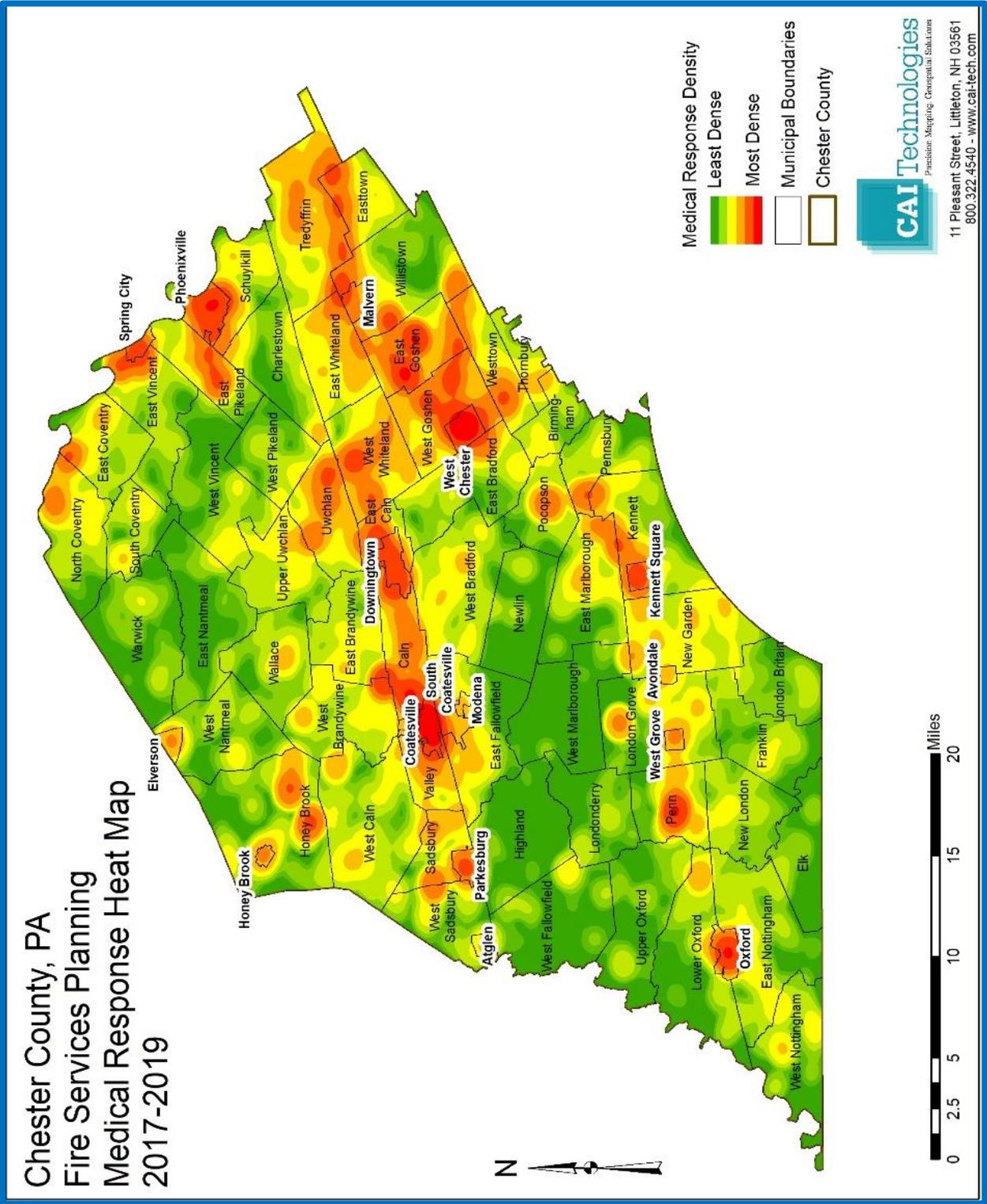


Figure 32: EMS Incident Heat Map 2017 - 2019

From 2017 through 2019 there were a total of 172 working and multiple alarm fires in Chester County, an average of 57 per year. The yearly totals were 70 in 2017, 61 in 2018 and 41 in 2019. This represents a 70% decline from 2017 to 2019.

- | | | |
|--|--|--|
| <p>➤ 2017</p> <ul style="list-style-type: none"> ❖ 61 - Working Fires ❖ 7 – 2 Alarm Fires ❖ 1 – 3 Alarm Fire ❖ 1 – 5 Alarm Fire | <p>➤ 2018</p> <ul style="list-style-type: none"> ❖ 51 – Working Fires ❖ 8 – 2 Alarm Fires ❖ 1 – 3 Alarm Fire ❖ 1 – 4 Alarm Fire | <p>➤ 2019</p> <ul style="list-style-type: none"> ❖ 34 – Working Fires ❖ 7 – 2 Alarm Fires ❖ 1 – 3 Alarm Fire |
|--|--|--|

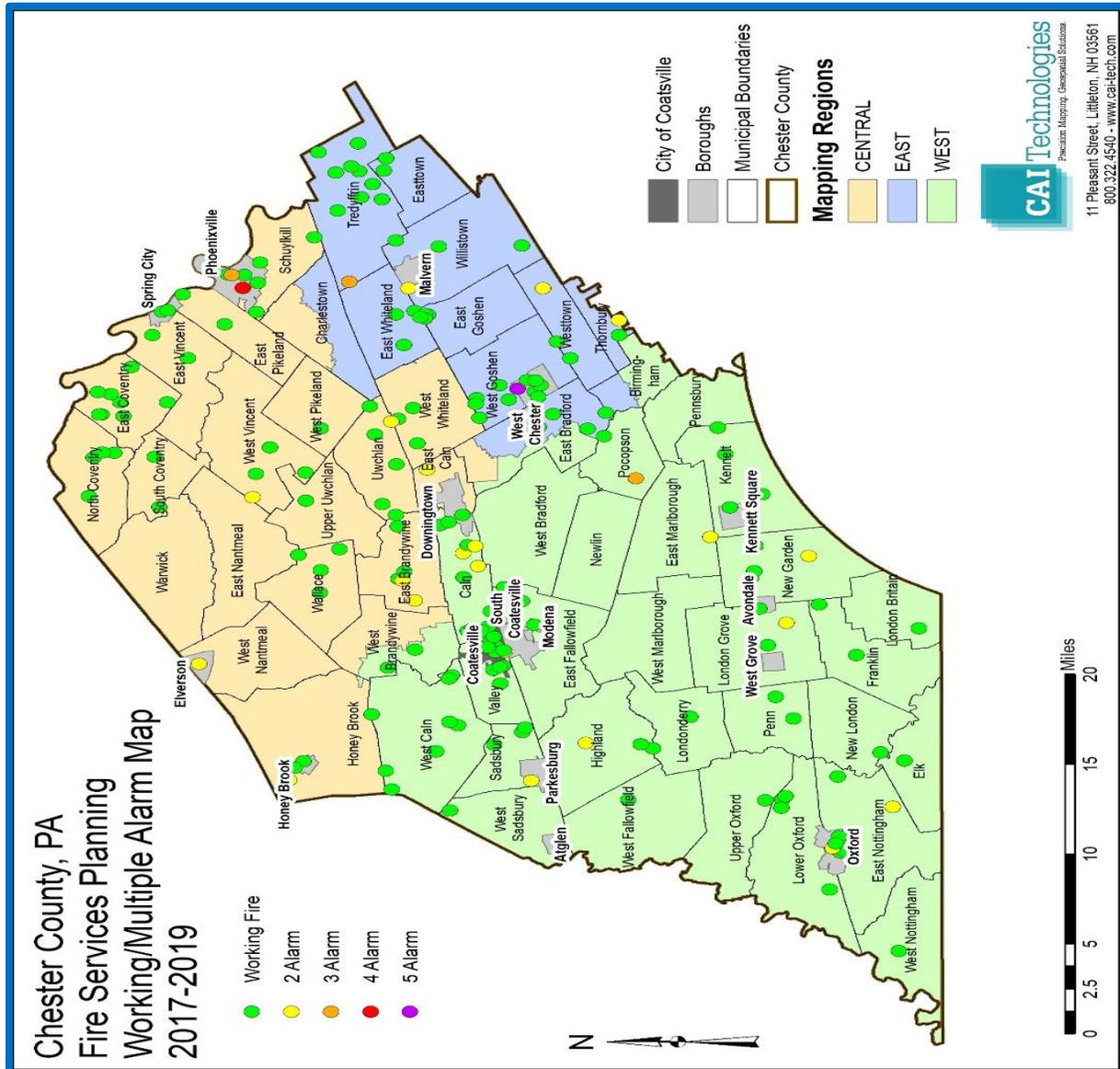


Figure 34: Working and Multiple Alarm Fires 2017-2019

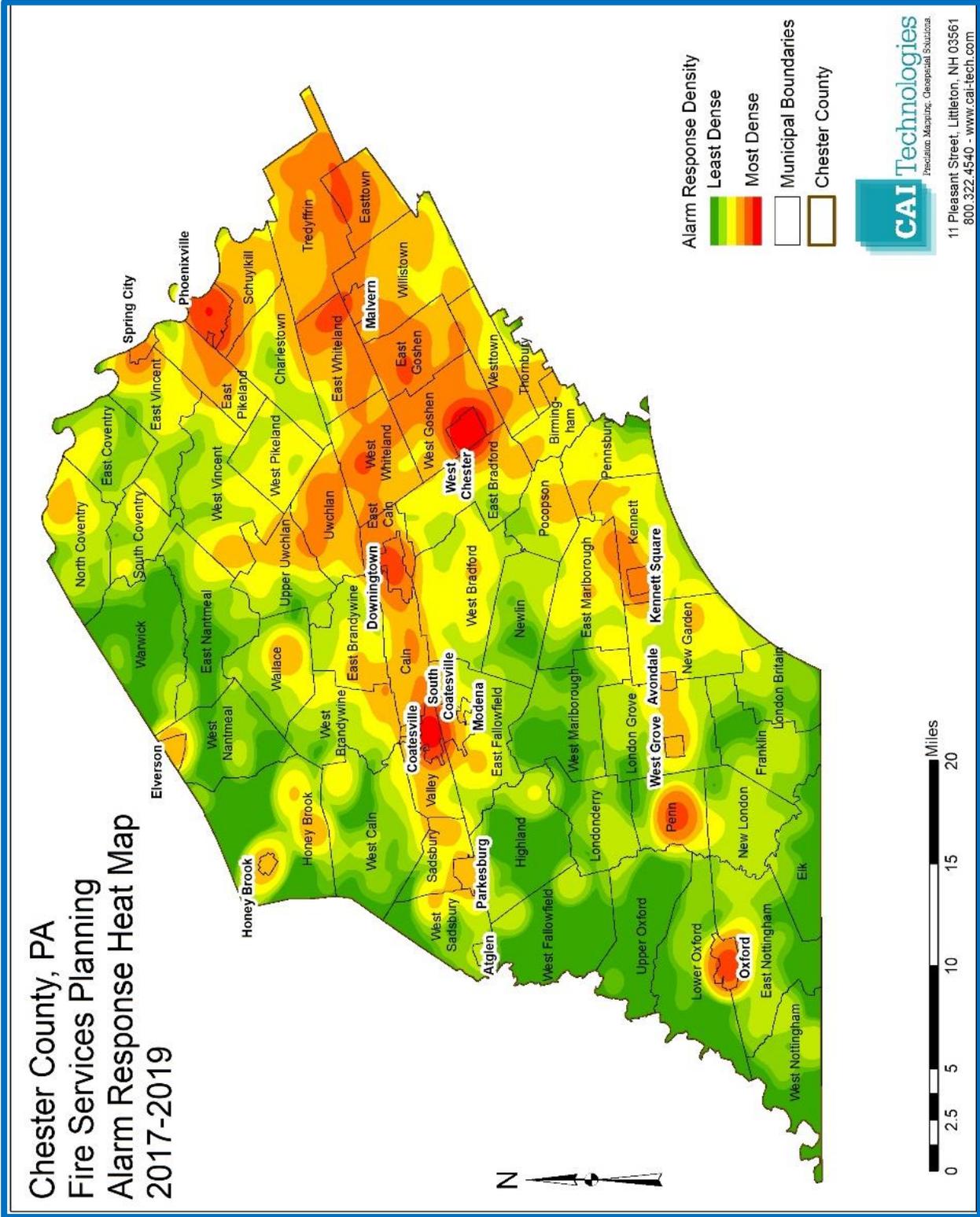


Figure 35: Alarm Response Heat Map 2017 - 2019

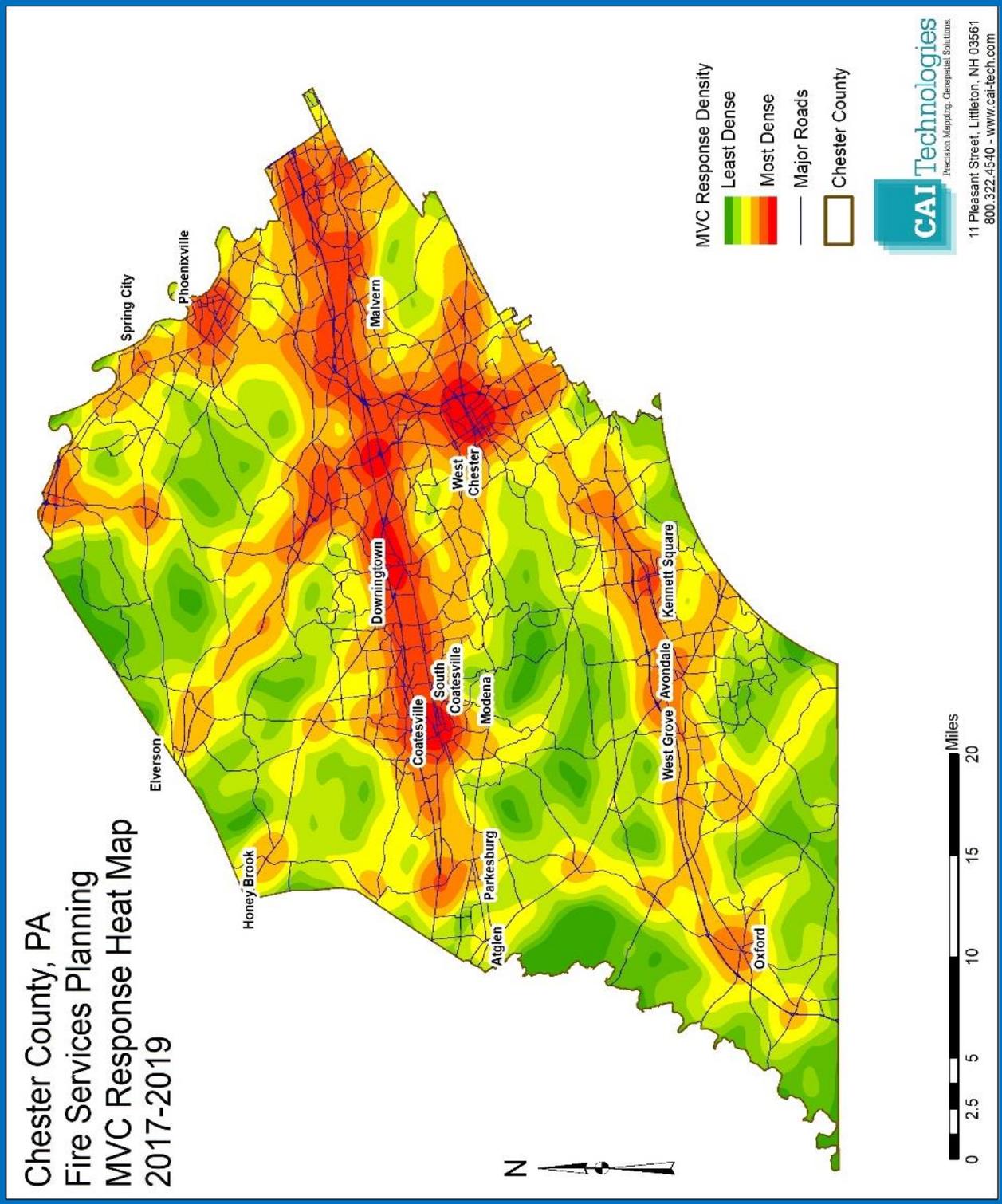


Figure 36: MVC Heat Map 2017 - 2019

Figure 37 provides a break down for 2017 – 2019 of fire and EMS related responses by major type by fire/EMS provider. It is important to note that these figures will result in a total that will be higher than the number of incidents previously identified since multiple companies/units are often dispatched to a single incident. For companies from out of Chester County the numbers only reflect their responses in the County. The types of responses were grouped into the three main categories with several subcategories for each. All incidents were grouped into the most appropriate subcategory so again, totals may not align exactly with data from other sources.

FIRE/EMS PROVIDER	YEAR	EMS INCIDENTS		FIRE INCIDENTS			OTHER INCIDENTS					TOTAL INCIDENTS
		EMS - BLS	EMS - ALS	STRUCTURE FIRES	OUTSIDE FIRES	OTHER FIRE INCIDENTS	ALARM SYSTEMS	HAZARDOUS CONDITIONS	HAZ. MAT./ FUEL SPILL	MVA - RESCUE	RESCUE NON-MVA	
Avondale Fire Company	2017	662	620	89	63	65	116	10	9	48	6	1,688
	2018	671	685	106	75	103	142	9	7	30	8	1,836
	2019	650	629	81	68	98	132	6	3	21	3	1,691
Berwyn Fire Company	2017	1,140	945	180	124	86	312	15	3	46	9	2,860
	2018	1,280	1,029	166	131	92	316	12	8	29	29	3,092
	2019	1,237	1,127	177	150	141	388	7	7	24	14	3,272
Brandywine Hospital Paramedics	2017	223	4,826	28	1	42	5	0	1	190	16	5,332
	2018	173	5,034	27	1	55	13	1	5	117	24	5,450
	2019	211	5,147	33	4	33	16	1	0	86	9	5,540
Chester County Hospital EMS*	2017	103	3,036	17	0	13	4	0	1	101	2	3,277
	2018	1	55	0	0	1	0	0	0	0	1	58
	2019											
Christiana Ambulance	2017	105	135	7	2	6	0	0	0	12	1	268
	2018	123	133	4	2	7	2	0	0	7	3	281
	2019	99	145	3	0	1	0	0	0	4	0	252
Christiana Fire Company	2017	12	4	16	9	29	4	1	0	8	0	83
	2018	8	6	14	7	15	4	0	0	6	1	61
	2019	9	5	15	4	24	4	0	0	6	0	67
Coatesville Fire Department	2017	1,548	1,827	90	46	81	185	14	2	59	7	3,859
	2018	1,557	1,843	84	55	105	265	15	4	47	20	3,995
	2019	1,572	2,021	93	46	76	231	16	6	35	9	4,105
Coatesville VA Hospital Fire Department	2017	15	32	61	14	3	24	1	1	3	0	154
	2018	61	338	55	12	5	26	2	0	3	1	503
	2019	80	445	72	15	6	30	0	1	10	1	660



FIRE/EMS PROVIDER	YEAR	EMS INCIDENTS		FIRE INCIDENTS			OTHER INCIDENTS					TOTAL INCIDENTS
		EMS - BLS	EMS - ALS	STRUCTURE FIRES	OUTSIDE FIRES	OTHER FIRE INCIDENTS	ALARM SYSTEMS	HAZARDOUS CONDITIONS	HAZ. MAT./ FUEL SPILL	MVA - RESCUE	RESCUE NON-MVA	
Cochranville Fire Company	2017	41	17	84	25	41	25	0	1	26	1	260
	2018	44	32	97	37	49	51	0	2	14	6	332
	2019	43	26	84	26	40	42	0	0	11	2	274
Concordville Fire Company	2017	89	66	11	7	20	28	3	2	5	1	232
	2018	118	89	16	10	12	42	0	1	4	1	293
	2019	89	93	9	12	16	44	1	0	6	1	271
Downingtown Fire Department	2017	1,302	1,238	80	49	58	188	12	4	61	9	3,001
	2018	1,411	1,187	71	58	75	195	8	1	33	12	3,051
	2019	1,469	1,349	86	42	74	190	19	6	32	12	3,279
East Brandywine Fire Company	2017	460	380	68	40	39	88	5	4	12	6	1,102
	2018	461	445	79	27	42	133	5	1	16	4	1,213
	2019	511	400	97	26	47	110	6	0	9	4	1,210
East Whiteland Fire Company	2017	687	468	55	64	69	238	3	8	49	4	1,645
	2018	735	452	51	56	85	344	6	10	24	6	1,769
	2019	666	515	74	82	106	307	6	9	14	7	1,786
Elverson-Honey Brook EMS	2017	1,184	1,153	76	32	58	71	2	3	65	14	2,658
	2018	1,233	1,290	70	28	75	81	8	4	53	21	2,863
	2019	1,169	1,211	67	34	46	61	6	9	24	7	2,625
Glen Moore Fire Company	2017	129	95	46	34	30	47	3	1	12	4	401
	2018	109	69	29	20	31	68	0	3	6	1	336
	2019	80	81	39	18	42	54	0	3	5	1	323
Good Fellowship Ambulance	2017	2,509	2,209	108	5	37	31	29	3	91	12	5,034
	2018	2,660	3,256	132	6	63	21	29	3	64	15	6,249
	2019	2,530	3,246	130	5	47	25	26	1	58	13	6,081
Goodwill Steam Ambulance of Pottstown	2017	162	170	11	0	7	1	1	1	8	1	362
	2018	174	146	12	0	2	4	0	0	5	12	345
	2019	173	213	6	0	2	2	1	0	8	3	408
Goshen Fire Company	2017	2,081	1,453	108	80	75	271	14	12	55	5	4,154
	2018	2,224	1,535	110	76	72	304	5	3	24	3	4,356
	2019	2,241	1,529	113	96	119	316	10	10	16	6	4,456



FIRE/EMS PROVIDER	YEAR	EMS INCIDENTS		FIRE INCIDENTS			OTHER INCIDENTS					TOTAL INCIDENTS
		EMS - BLS	EMS - ALS	STRUCTURE FIRES	OUTSIDE FIRES	OTHER FIRE INCIDENTS	ALARM SYSTEMS	HAZARDOUS CONDITIONS	HAZ. MAT./ FUEL SPILL	MVA - RESCUE	RESCUE NON-MVA	
Kennett Fire Company	2017	515	479	65	40	52	88	5	7	25	5	1,281
	2018	526	455	74	55	62	114	13	7	18	6	1,330
	2019	552	536	44	46	64	122	9	0	17	2	1,392
Keystone Valley Fire Department	2017	485	559	46	34	34	62	2	2	44	2	1,270
	2018	516	547	69	36	43	68	1	3	21	4	1,308
	2019	555	581	79	39	44	58	3	2	14	2	1,377
Kimberton Fire Company	2017	69	34	68	37	67	150	6	1	22	3	457
	2018	79	29	57	33	76	171	1	4	9	4	463
	2019	87	33	58	32	81	166	4	1	5	4	471
Liberty Steam Fire Company (Spring City)	2017	43	38	61	26	31	98	5	1	12	0	315
	2018	49	43	55	39	34	98	12	3	5	2	340
	2019	42	26	57	26	35	117	5	2	6	1	317
Lionville Fire Company	2017	69	45	98	78	73	192	4	6	24	6	595
	2018	63	27	94	70	77	227	13	15	12	16	614
	2019	55	44	128	67	82	248	9	11	19	15	678
Longwood Fire Company	2017	775	1,173	98	51	68	178	15	6	48	12	2,424
	2018	828	1,191	119	54	98	190	16	5	30	9	2,540
	2019	895	1,343	79	76	100	203	16	2	25	11	2,750
Ludwigs Corner Fire Company	2017	196	115	35	26	38	79	1	0	11	1	502
	2018	185	163	38	35	22	112	4	2	7	2	570
	2019	159	155	41	26	41	88	5	2	10	0	527
Malvern Fire Company	2017	629	1,712	74	36	40	251	6	1	66	3	2,818
	2018	592	1,614	58	45	39	379	7	3	38	10	2,785
	2019	572	1,607	69	29	40	162	2	3	21	11	2,516
Modena Fire Company	2017	396	407	66	29	66	52	3	3	24	2	1,048
	2018	418	406	63	28	60	68	4	4	14	10	1,075
	2019	387	351	61	32	56	58	6	2	15	2	970
Newtown Square Fire Company	2017	6	1	8	2	14	28	0	1	9	0	69
	2018	7	4	6	2	16	20	0	0	3	4	62
	2019	11	1	11	6	11	30	0	0	2	0	72



FIRE/EMS PROVIDER	YEAR	EMS INCIDENTS		FIRE INCIDENTS			OTHER INCIDENTS					TOTAL INCIDENTS
		EMS - BLS	EMS - ALS	STRUCTURE FIRES	OUTSIDE FIRES	OTHER FIRE INCIDENTS	ALARM SYSTEMS	HAZARDOUS CONDITIONS	HAZ. MAT./ FUEL SPILL	MVA - RESCUE	RESCUE NON-MVA	
Norco Fire Company	2017	62	22	46	38	88	59	1	3	16	3	338
	2018	79	25	63	48	91	56	1	0	7	7	377
	2019	54	28	40	53	68	48	5	2	12	7	317
Paoli Fire Company	2017	649	478	79	42	36	277	4	3	34	3	1,605
	2018	694	521	72	62	40	388	9	6	29	4	1,825
	2019	642	593	85	40	60	249	9	2	19	3	1,702
Po-Mar-Lin Fire Company	2017	56	14	47	43	37	66	0	2	14	3	282
	2018	59	25	67	41	47	93	2	5	12	9	360
	2019	69	30	32	44	54	74	3	2	13	2	323
Pottstown Ambulance Substation	2017	537	469	17	1	5	6	2	1	22	3	1,063
	2018	563	422	22	0	8	10	5	0	13	1	1,044
	2019	392	343	9	1	5	11	4	0	5	4	774
Radnor Fire Company	2017	106	98	22	16	7	57	1	0	6	3	316
	2018	119	101	25	43	10	52	1	0	3	1	355
	2019	111	120	20	17	10	60	2	0	1	3	344
Ridge Fire Company	2017	76	29	47	33	57	60	5	5	26	5	343
	2018	73	33	51	34	53	90	6	3	10	5	358
	2019	72	31	38	45	56	73	4	3	9	2	333
Royersford Hose Hook and Ladder	2017	748	662	18	0	5	11	5	1	16	0	1,466
	2018	741	669	19	1	12	6	1	0	15	3	1,467
	2019	669	656	11	1	7	10	4	0	18	3	1,379
Sadsburyville Fire Company	2017	37	20	58	17	19	26	0	0	23	1	201
	2018	42	20	46	23	32	36	1	2	13	1	216
	2019	52	10	41	29	40	31	2	1	6	2	214
Southern Chester County EMS	2017	109	2,433	21	3	13	0	2	3	115	4	2,703
	2018	99	2,474	17	1	16	4	1	2	55	9	2,678
	2019	91	2,341	11	0	12	6	0	1	45	1	2,508
Thorndale Fire Company	2017	94	516	79	63	42	128	6	5	41	1	975
	2018	111	492	70	51	50	120	7	3	21	10	935
	2019	106	550	68	70	61	113	4	3	26	7	1,008



FIRE/EMS PROVIDER	YEAR	EMS INCIDENTS		FIRE INCIDENTS			OTHER INCIDENTS					TOTAL INCIDENTS
		EMS - BLS	EMS - ALS	STRUCTURE FIRES	OUTSIDE FIRES	OTHER FIRE INCIDENTS	ALARM SYSTEMS	HAZARDOUS CONDITIONS	HAZ. MAT./ FUEL SPILL	MVA - RESCUE	RESCUE NON-MVA	
Trappe Ambulance Phoenixville	2017	933	776	23	3	19	13	12	0	22	7	1,808
	2018	966	744	22	2	12	17	13	0	19	11	1,806
	2019	670	574	14	1	12	10	6	1	11	4	1,303
Twin Valley Fire Department	2017	101	25	44	63	51	79	2	2	38	10	415
	2018	135	35	54	73	65	105	4	5	26	10	512
	2019	121	27	48	71	51	95	3	3	16	4	439
Union Fire Company No. 1 of Oxford	2017	1,026	950	131	81	77	130	3	4	48	5	2,455
	2018	1,086	992	142	94	104	120	12	5	36	6	2,597
	2019	1,063	958	130	79	94	122	10	5	24	8	2,493
Uwchlan Ambulance	2017	1,801	1,381	45	1	37	34	14	0	79	11	3,403
	2018	2,055	1,517	45	3	44	48	18	3	38	7	3,778
	2019	1,885	1,754	52	5	31	46	18	1	44	12	3,848
Valley Forge Fire Company	2017	41	27	95	33	46	115	4	2	7	6	376
	2018	44	19	70	29	57	127	0	2	5	4	357
	2019	46	23	58	27	59	139	4	4	7	6	373
Wagontown Fire Company	2017	82	33	59	40	72	41	1	4	26	6	364
	2018	77	40	59	36	70	46	1	6	16	14	365
	2019	84	49	85	60	87	50	4	5	11	7	442
West Bradford Fire Company	2017	79	17	35	41	49	71	2	5	19	6	324
	2018	84	29	36	47	70	107	4	2	8	2	389
	2019	75	36	27	35	62	117	3	3	13	2	373
West Chester Fire Department	2017	57	70	179	126	186	649	30	15	79	11	1,402
	2018	63	62	189	142	188	737	30	4	27	21	1,463
	2019	46	67	191	131	207	691	24	11	17	19	1,404
West End Fire Company Ambulance	2017	10	0	4	0	5	0	0	0	0	0	19
	2018	29	0	5	1	3	0	0	0	1	0	39
	2019	264	249	11	1	5	11	1	0	8	0	550
West Grove Fire Company	2017	975	942	117	56	88	196	10	4	52	6	2,446
	2018	1,186	980	135	67	92	160	13	4	30	6	2,673
	2019	1,046	918	139	81	86	169	12	4	24	4	2,483



FIRE/EMS PROVIDER	YEAR	EMS INCIDENTS		FIRE INCIDENTS			OTHER INCIDENTS					TOTAL INCIDENTS
		EMS - BLS	EMS - ALS	STRUCTURE FIRES	OUTSIDE FIRES	OTHER FIRE INCIDENTS	ALARM SYSTEMS	HAZARDOUS CONDITIONS	HAZ. MAT./ FUEL SPILL	MVA - RESCUE	RESCUE NON-MVA	
West Whiteland Fire Company	2017	66	23	77	69	75	218	12	5	40	4	589
	2018	67	42	66	79	84	238	3	8	20	4	611
	2019	53	48	107	58	109	245	5	7	14	5	651
Westwood Fire Company	2017	1,311	1,208	73	36	47	100	11	1	78	11	2,876
	2018	1,401	1,330	67	40	62	102	8	5	40	7	3,062
	2019	1,352	1,258	86	38	55	88	7	3	31	6	2,924

Figure 37: Incidents by Type and Fire/EMS Service Provider 2017 – 2019

Fire/EMS providers in grey shaded boxes are organizations that are in adjacent counties that have primary first due response districts in Chester County.

* EMS operations based out of Chester County Hospital ended in 2018.

RESPONSE METRICS

From the perspective of an effective response to fire and EMS incidents, there are three main factors that are used to help determine the deployment of resources: response time, travel distance, and call volume. For most evaluations, response time is the most critical factor for both. It is also an important measuring instrument to determine how well a fire department or EMS provider is currently performing; to help identify response trends; and to predict future operational needs. Getting emergency assistance to the location of a 9-1-1 caller or emergency incident in the quickest time possible may be critical to the survival of the patient, and/or successful mitigation of the incident. Achieving the quickest and safest response times possible should be a fundamental goal of every fire and EMS provider. It is not just a cliché that during critical life-threatening situations, minutes and even seconds truly do count. Structural firefighting has become far more challenging and dangerous in the last thirty years with the introduction of significant quantities of plastic and foam-based products into homes and businesses (e.g., furnishings, mattresses, bedding, plumbing and electrical components, home and business electronics, decorative materials, insulation, and structural components). These materials ignite, burn quickly, and produce extreme heat and toxic smoke. A fire can easily double in size and intensity every 30 seconds and the time to escape from a house fire has decreased from about 17 minutes in the 1980s to about three to five minutes today. If firefighters cannot arrive in a timely manner and attack the fire quickly, a strong possibility exists that a dangerous flashover (simultaneous ignition of the all combustible materials in a room) will occur. Flashover often occurs within eight to ten minutes of the fire’s inception;

however, in certain circumstances, flashover can occur in as little as three to five minutes after fire ignition and is one of the most dangerous events that a firefighter can face. When a flashover occurs, initial firefighting forces are generally overwhelmed and will require significantly more resources to achieve fire control and extinguishment.

Conversely, improved building construction, code enforcement, automatic sprinkler systems, and aggressive public education programs have contributed to a decrease in serious fires and, more importantly, fire deaths among civilians. These trends and improvements in the overall fire protection system notwithstanding, fires still do occur, and the largest percentage of those occur in residential occupancies where they place the civilian population at risk. Although they occur with less frequency than they did several decades ago, as noted above, when they occur today, they grow much quicker and burn more intensely than they did in the past. As will be discussed later in this report, it is imperative that the fire department is able to assemble an effective response force (ERF) within a reasonable time period in order to successfully mitigate these incidents with the least amount of loss possible.

It is also important to keep in mind that once units arrive on the scene, they will need to get set up to commence operations. NFPA recommends that units be able to commence an initial attack within two minutes of arrival, 90% of the time. Figure 38 illustrates the *Home Fire Timeline Curve*. It also illustrates that the fire department's response time to the fire is one of the only aspects of the timeline that the fire department can exert direct control over.

Fire departments are being held increasingly accountable for their response times and the consequences of extended or inadequate responses. The performance and effectiveness of fire department operations can be significantly impacted by the time it takes for them to arrive at the scene of an emergency incident. Although now 14 years old, the United States Fire Administration's (USFA) report, *Structure Fire Response Times* (Appendix L), has a useful framework for total emergency incident response time, including definitions and components. The same report notes that about half of structure fires confined to the room of origin (51%) and confined to the floor of origin (51%) had a response time of less than five minutes. More than half of fires confined to the building of origin (54%) and nearly half of fires beyond the building of origin (49%) had a response time of less than six minutes.

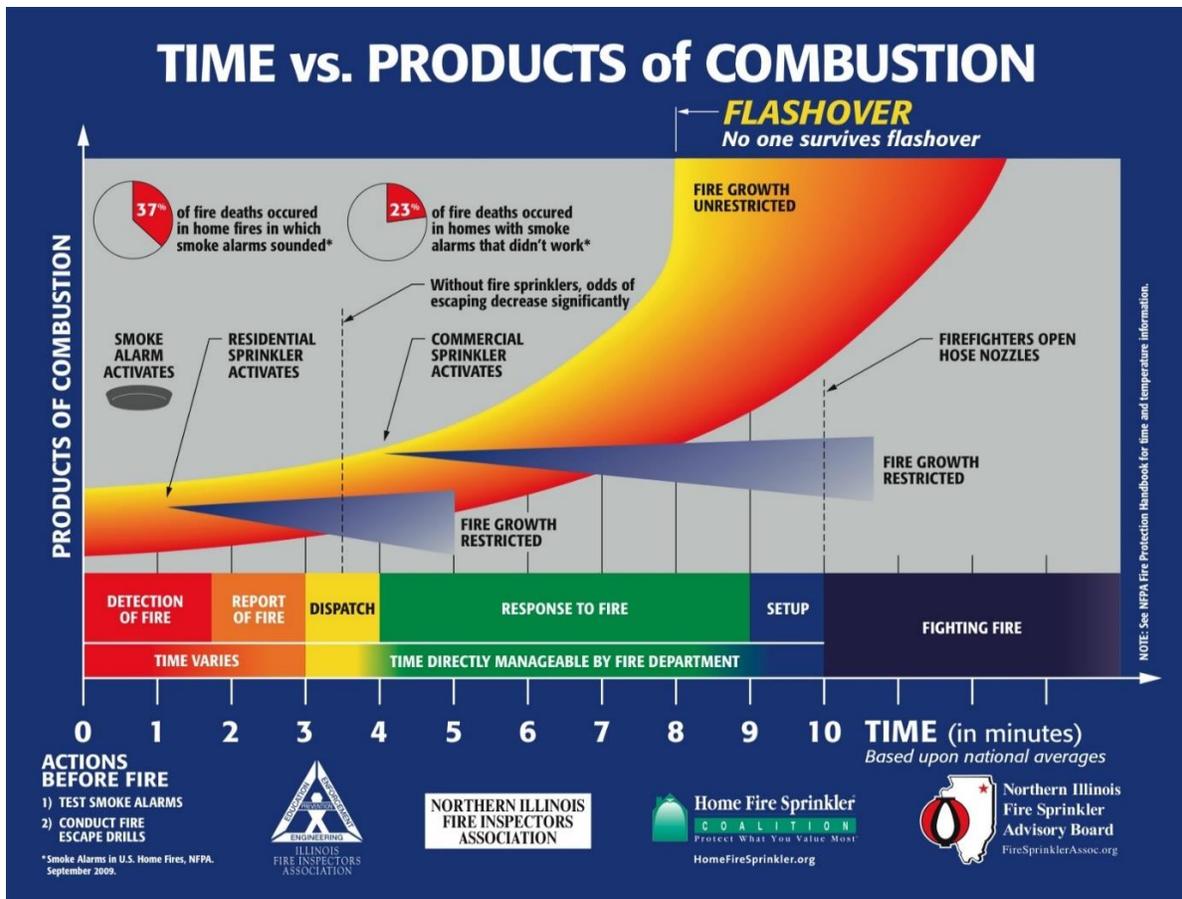


Figure 38: Residential Fire Timeline Curve Illustrates activation times and effectiveness of residential sprinklers (approximately 1 minute), flashover (can occur as quickly as 3 to 5 minutes after ignition), and firefighters applying first water to the fire after notification, dispatch, response, and set up (10 minutes).
 Image credit: Home Fire Sprinkler Coalition

As a percentage of overall incidents responded to, it could be argued that EMS incidents constitute the greatest number of “true” emergencies, where intervention by trained personnel does make a difference, sometimes literally between life and death. Heart attack and stroke victims require rapid intervention, care, and transport to a medical facility. The longer the time duration without care, the less likely the patient is to fully recover. Numerous studies have shown that irreversible brain damage can occur if the brain is deprived of oxygen for more than four minutes. In addition, the potential for successful resuscitation during cardiac arrest decreases exponentially; 7% to 10% with each passing minute that Cardio-Pulmonary Resuscitation (CPR), or cardiac defibrillation, is delayed (Figure 39). Research in EMS indicates that if emergency medical intervention is delayed for nine minutes, patient survival from cardiac arrest approaches zero.⁴⁵

⁴⁵ Eisenberg, M.S., et al., “Predicting Survival from Out-of-Hospital Cardiac Arrest: A Graphic Model,” *Annals of Emergency Medicine*; November 1993; pp. 1652-1658.

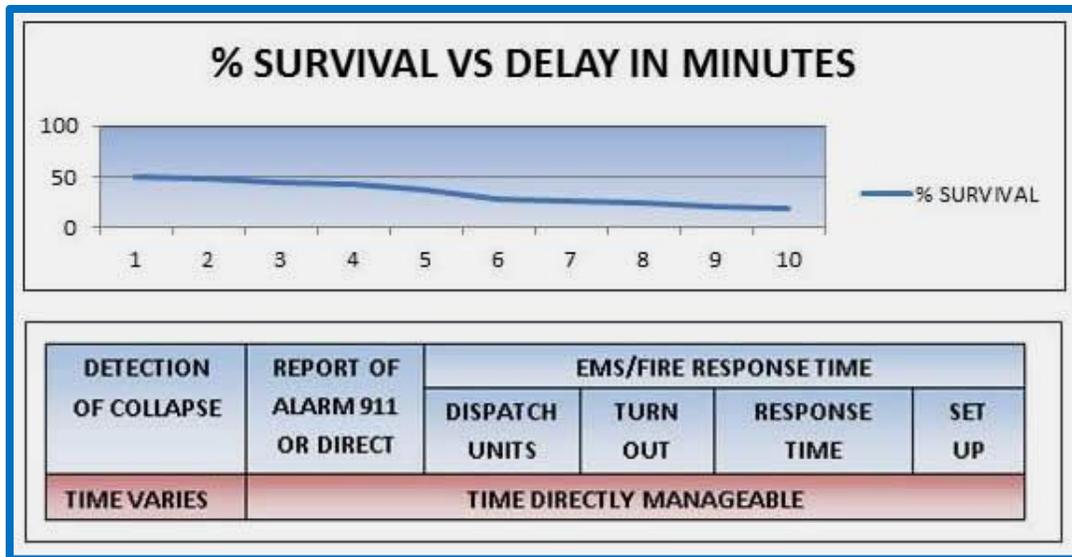


Figure 39: Cardiac Arrest Survival Timeline

Since the 1970s, arriving within eight minutes of receipt of an emergency call in the 9-1-1 center, 90% of the time, has been the recognized benchmark for determining the quality of an EMS system. Today, the national standard of care benchmark based on stroke and cardiac arrest protocols has evolved to have an emergency response unit on scene at a medical emergency within six minutes of receipt of the call in the 9-1-1 center.

Typically, less than 10% of 9-1-1 patients have time-sensitive ALS needs. But, for those patients, time can be a critical issue of morbidity and mortality. For the remainder of those calling 9-1-1 for a medical emergency, though they may not have a true medical necessity, this 90%, still expect rapid customer service. Response times for patients and their families are often the most important issue regarding the use of EMS and are what is most often referred to when they “rate” their local emergency responders. Regardless of the service delivery model, appropriate response times are more than a clinical issue; they are also a customer service issue.

Another important factor in evaluating response times what is termed as “**detection time.**” This is the time it takes to detect a fire or medical situation and notify 9-1-1 to initiate the response. In many instances, particularly at night or when the patient is alone at the time of their medical emergency, the activation of 9-1-1 can times can be delayed.

For the purpose of this analysis response time, also known as “**total response time**”, is the time interval that begins when the call is received by the 9-1-1 communications center and ends when the dispatched unit(s) arrives on the scene of the incident to initiate action. Total response time is a product of three components: dispatch time, turnout time, and travel time.

- **Dispatch time** is the time interval that begins when the alarm is received at the Chester County 9-1-1 Communications Center and ends when the response information begins to be transmitted via voice and/or electronic means to the emergency response facility, emergency response units, or to personnel in the field. National Fire Protection Association (NFPA) Standard 1710, *Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Career Fire Departments* (2016 edition) suggests that call processing should be completed within 64 seconds for 90% of calls, and, within 90 seconds for 90% of calls that are more complex such as those requiring emergency medical dispatch (EMD) questioning, or calls requiring language translation.
- **Turnout time** is the time interval that begins when the notification process to emergency response facilities and emergency response personnel and units begins by an audible alarm and/or visual announcement and ends at the beginning point of travel time. For staffed emergency response facilities, NFPA 1710 recommends a turnout time of 60 seconds for EMS responses, and 80 seconds for fire and special operations (hazardous materials, technical rescue, etc.) type responses. NFPA Standard 1720, *Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Volunteer Fire Departments* (2014 edition) does not provide guidance on this topic as there are many factors that can impact volunteer response times. However, it is important to note that the fire companies/departments and EMS providers have the greatest direct control over this segment of their total response time.
- **Travel time** is the time interval that commences when the emergency response unit is moving in response to the incident and ends when the unit arrives at the scene of the emergency.

For this study, and unless otherwise indicated, travel times and response times measure the first arriving fire suppression or EMS unit only and does not include chiefs or other personnel who may arrive first. It also does not include multiple units responding from the same station, or multiple companies responding to an incident, and does not evaluate the length of time that units were in service for various types of incidents. Perhaps most important, the charts and table that follow provide a snapshot of the entire County-wide response system, not any individual organization. Although the MRI study team did receive some input from some stakeholders that certain companies failing to provide an adequate response should be identified, with several even saying “*we need to be exposed*”, a conscious decision was made at the start of the project, in agreement with the major organizational stakeholders, that the study would not identify the shortcomings or deficiencies of any specific organization in Chester County.

National Fire Protection Association (NFPA) Standard 1710, *Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Career Fire Departments* (2016 Edition), is the nationally recognized consensus standard on staffing and deployment by career fire departments and EMS providers, particularly those that are fire department based. It is the benchmark standard that the United States Department of Homeland Security utilizes when evaluating applications for staffing grants under the Staffing for Adequate Fire and Emergency Response (SAFER) grant program. A companion standard, NFPA 1720, *Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations and Special Operations to the Public by Volunteer Fire Departments* (2014 edition), which outlines organization and deployment of operations by volunteer/call, and primarily volunteer/call fire departments including those that provide EMS services utilizing volunteer personnel.

Paragraph 4.1.2.1(4) of NFPA Standard 1710 states:

The first arriving engine company shall arrive at the scene of a fire suppression incident within four minutes or less and/or the entire full first alarm response should arrive on scene within eight minutes. For EMS incidents, a unit with first responder or higher-level trained personnel should arrive within four minutes, and an Advanced Life Support (ALS) unit should arrive on scene within eight minutes.

NOTE: *The four-minute response time is from when the units are physically moving to the incident. One minute can be added for call processing and dispatch, and one minute can be added for turnout time, that is from when firefighters in the station are notified until they are actually responding, providing six total minutes from the time the 9-1-1 call is answered until the first unit arrives on location.*

Paragraph 4.1.2.2 establishes a 90% performance objective for these response times.

According to NFPA 1710:

“This requirement is based on experience, expert consensus, and science. Many studies note the role of time and the delivery of early defibrillation in patient survival due to heart attacks and cardiac arrest, which are the most time-critical, resource-intensive medical emergency events to which fire departments respond.”

It is also important to note that NFPA 1720 is silent on the first unit on scene response times, so currently in Chester County the 1710 metric is primarily applicable to EMS operations which are largely career staffed; as opposed to fire operations, which are still mostly staffed by volunteer personnel and would be covered by the 1720 benchmarks. The recommended benchmark response times will also be further discussed and developed in Chapter VIII, *Standard of Cover Response*.

The Commission on Accreditation of Ambulance Services (CAAS)⁴⁶ also promulgates standards that are applicable to their accreditation process for ambulance services. CAAS recommends that an ambulance arrives on scene within eight minutes, fifty-nine seconds (8:59) of dispatch.

It is important to note that the benchmark response time standards suggest a 90th percentile achievement rate for most of their recommendations, although NFPA 1720 lowers the target to 80% for suburban and rural structure fire incidents. Simply explained, a 90th percentile time means that 90% of incidents had response times at or below that number. However, at the time of this assessment, this was not a data point that the Chester County 9-1-1 center analyzed.

While not as reliable of a response time barometer as looking at percentiles, many jurisdictions, including Chester County utilizes average response times for their statistical analysis. Looking at average response times rather than 80th or 90th percentile response times will not allow a correct analysis of whether the benchmark response time recommendations (or any other established standard of cover goals) are being met consistently, as averages will usually represent a lower number than what the standards recommend. In addition, types of incidents that are infrequent, but generally have longer response times, such as barn fires can skew average response time numbers.

For the three-year period studied, average EMS call processing time decreased from a high of one minute, thirty-one seconds (00:01:31) in 2017 to one minute, twenty-three seconds (00:01:23) in 2019, a reduction of nine seconds. Turnout time decreased from one minute, forty-nine seconds (00:01:49) in 2017, to one minute, thirty-nine seconds (00:01:39) in 2019, a decrease of ten seconds. Travel time was the lowest in 2017 at four minutes, fifty-seven seconds (00:04:57), increasing to five minutes, eight seconds (00:05:08) in 2018, before decreasing slightly to five minutes, five seconds (00:05:05) in 2019. These times are illustrated in Figure 40.

It is important to note, however, that Pennsylvania Department of Health EMS protocols stipulate that certain types of reported incidents are responded to in a non-emergency mode, that is, without lights and sirens. This requirement will impact the overall travel times, although how much would require a much more comprehensive analysis of each type of EMS incident. Overall, the average response time to EMS incidents in Chester County; the time from when the incident was dispatched until the first unit arrived on location, were fairly consistent and ranged from a low of six minutes, forty-four seconds (00:06:44) in 2019 to a high of six minutes, fifty-six seconds (00:06:56) in 2018, a difference of twelve seconds.

⁴⁶ The Commission on Accreditation of Ambulance Services (CAAS) is an independent commission that established a comprehensive series of standards for the ambulance service industry.

For all fire related incidents (not including alarm systems), average call processing time decreased from a high of two minutes, five seconds (00:02:05) in 2017 to one minute, fifty-one seconds (00:01:51) in 2019, a reduction of fourteen seconds. Turnout time decreased from three minutes, thirty-nine seconds (00:03:39) in 2017, to three minutes, twenty-two seconds (00:03:22) in 2019, a decrease of seventeen seconds. Travel time decreased from five minutes, fifty seconds (00:05:50) in 2017 to five minutes, twenty-eight seconds (00:05:28) in 2019, an improvement of twenty-two seconds. Overall, the average response time to all fire incidents in Chester County, the time from when the incident was dispatched until the first unit arrived on location, decreased by thirty-nine seconds from a high of nine minutes, twenty-nine seconds (00:09:29) in 2017 to a low of eight minutes, fifty seconds (00:08:50) in 2019. These times are illustrated in Figure 41.

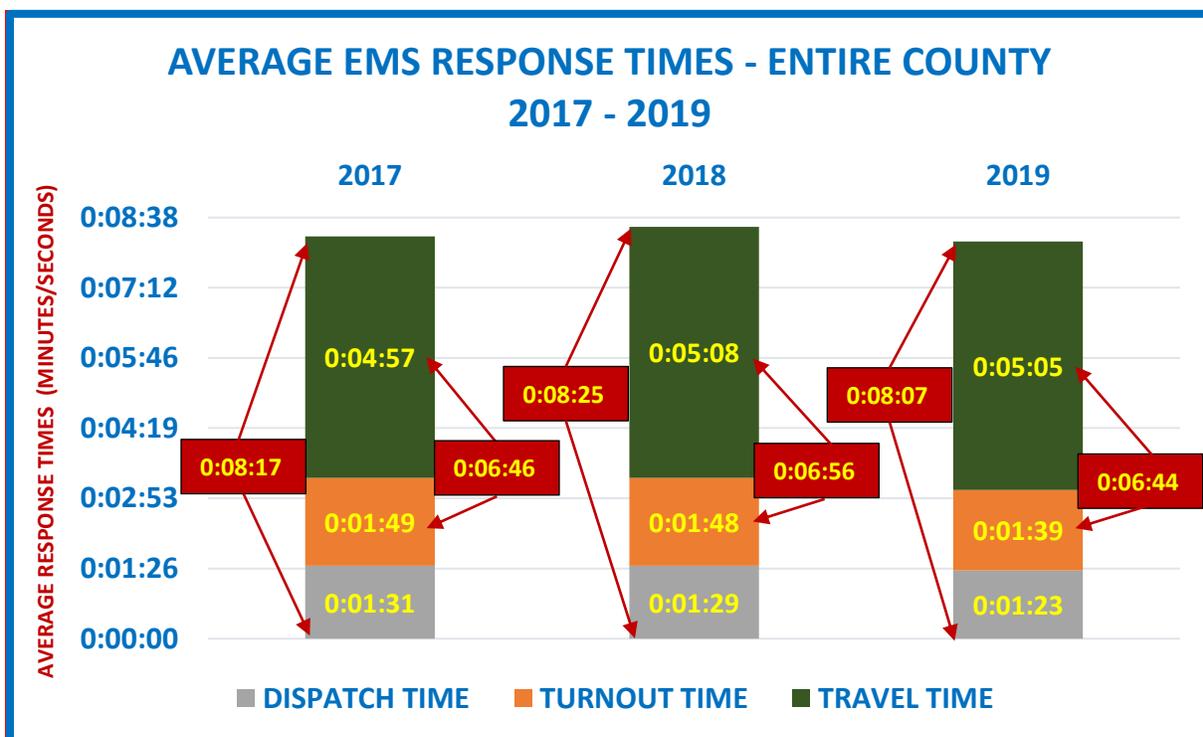


Figure 40: Average EMS Response Times 2017 - 2019

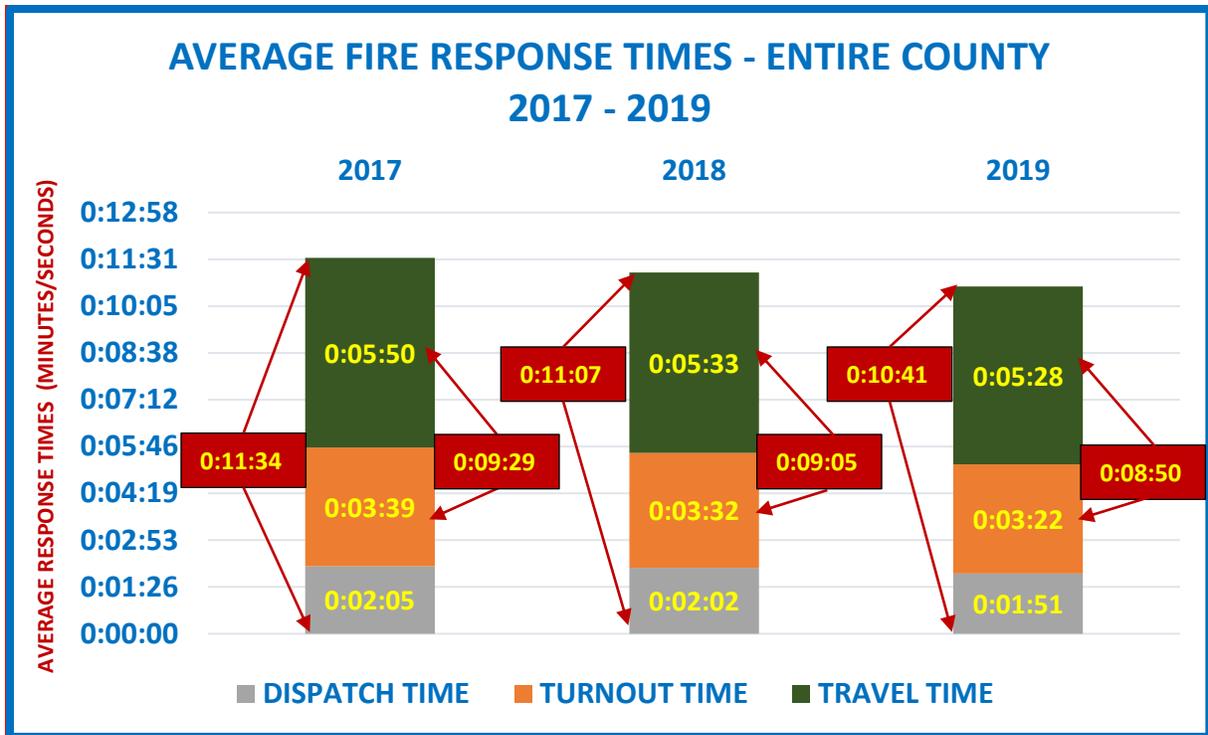


Figure 41: Average Fire Response Times 2017 - 2019

For structure fire related incidents which includes apartments, barns, buildings, houses, garages, and mobile homes, average call processing time decreased from a high of two minutes, eight seconds (00:02:08) in 2017 to one minute, thirty-two seconds (00:01:32) in 2019, a reduction of thirty-four seconds. The biggest decrease occurred from 2017 to 2018 when the call processing time decreased by thirty-two seconds to one-minute, thirty-four seconds (00:01:34). Turnout time decreased from a high of two minutes, thirty-eight seconds (00:02:38) in 2017, to two minutes, twenty-two seconds (00:02:22) in 2018, a decrease of sixteen seconds. It increased by just one second from 2018 to 2019, a negligible increase. Travel time decreased from five minutes, seven seconds (00:05:07) in 2017 to four minutes, fifty seconds (00:04:50) in 2019, an improvement of seventeen seconds. Overall, the average response time to structure fire incidents in Chester County; the time from when the incident was dispatched until the first unit arrived on location, decreased by thirty-two seconds from a high of seven minutes, forty-five seconds (00:07:45) in 2017 to a low of seven minutes, thirteen seconds (00:07:13) in 2019. These times are illustrated in Figure 42.

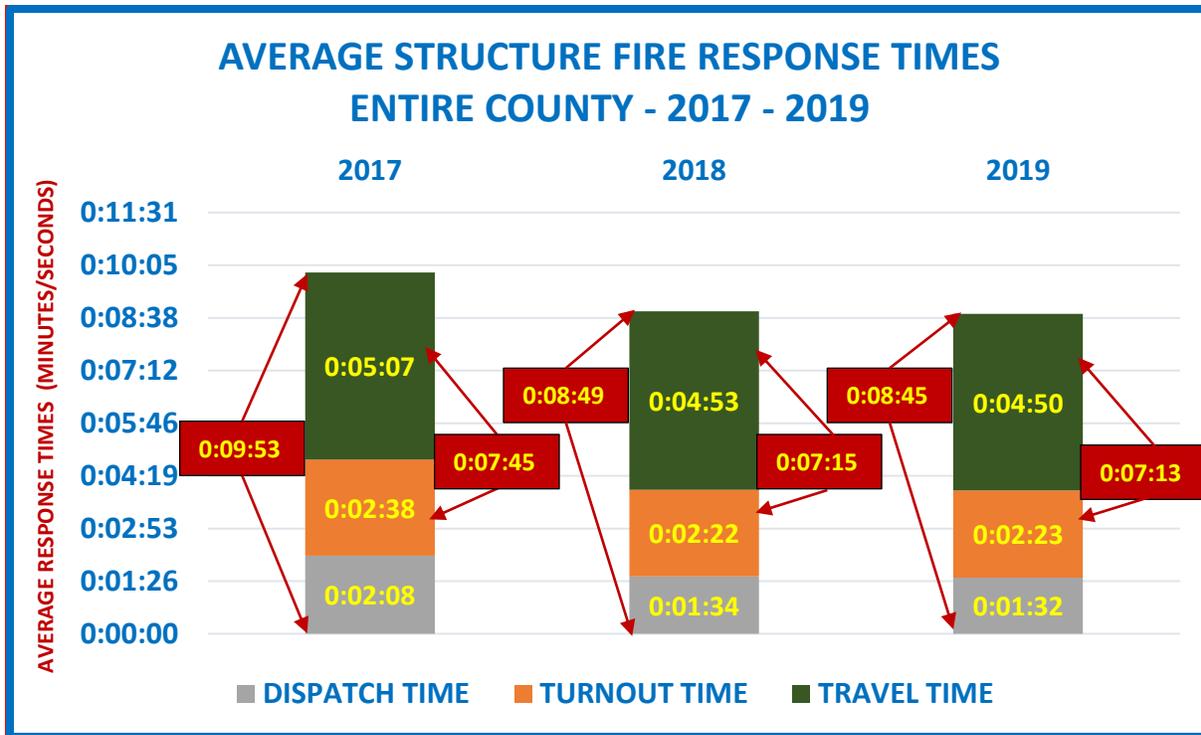


Figure 42: Average Structure Fire Response Time 2017 - 2019

Although, MRI’s analysis of the data from the three-year period indicates improvement (which translates into a reduction) in each of these metrics from 2017 through 2019, there is still room for improvement. The dispatch times for all incidents, and the turnout times for EMS incidents exceed the recommended benchmarks established by NFPA 1710. Improving dispatch and turnout times are both areas which can help to reduce total response times.

For fire incidents overall, and more so for reported structure fires, the turnout time is not unreasonable considering that most of the fire staffing is still provided by volunteer personnel who are not normally on duty in their stations. In addition, it showed improvement each year. The only way to improve these times even further would probably be through the implementation of in-station staffing. This concept is discussed in more detail in later chapters of this report.

It is also interesting to note the much better turnout times for structure fires than fire incidents overall. This is probably at least partially a function of a higher incidence of reported structure fires in the County’s more densely developed and populated municipalities, along with fire stations being more closely deployed. However, it may also in part be attributable to volunteer personnel being more likely to respond; and do so quicker, to a dispatch that describes a serious incident rather than to those dispatches where the incident sounds more “routine” (although there is no such thing as a routine incident).

REGION	YEAR	EMS INCIDENTS		FIRE INCIDENTS				OTHER INCIDENTS			
				ALL FIRES		STRUCTURE FIRES		ALARM SYSTEMS		MOTOR VEHICLE ACCIDENTS	
		TURNOUT TIME	TRAVEL TIME	TURNOUT TIME	TRAVEL TIME	TURNOUT TIME	TRAVEL TIME	TURNOUT TIME	TRAVEL TIME	TURNOUT TIME	TRAVEL TIME
EAST	2017	0:02:01	0:05:47	0:03:26	0:05:19	0:02:35	0:05:02	0:04:17	0:04:59	0:02:15	0:04:44
	2018	0:01:55	0:05:52	0:03:30	0:05:20	0:02:03	0:04:40	0:04:06	0:04:53	0:01:56	0:05:07
	2019	0:01:53	0:05:46	0:03:11	0:05:26	0:01:40	0:04:06	0:03:59	0:04:46	0:01:49	0:04:54
CENTRAL	2017	0:01:58	0:06:07	0:03:38	0:05:50	0:03:16	0:05:23	0:03:33	0:04:40	0:02:14	0:04:48
	2018	0:01:54	0:06:19	0:03:33	0:06:11	0:02:17	0:05:50	0:03:43	0:04:56	0:02:13	0:05:11
	2019	0:01:52	0:06:27	0:03:17	0:05:49	0:03:26	0:06:06	0:03:29	0:04:46	0:01:44	0:04:47
WEST	2017	0:01:52	0:06:14	0:03:50	0:06:17	0:02:41	0:05:17	0:04:05	0:05:05	0:02:19	0:04:48
	2018	0:01:48	0:06:23	0:03:44	0:05:49	0:02:44	0:04:48	0:03:49	0:04:58	0:01:56	0:04:40
	2019	0:01:42	0:06:07	0:03:44	0:05:47	0:02:41	0:05:00	0:03:47	0:04:59	0:01:37	0:04:32

Figure 44: Average Turnout/Travel Time by Incident Type and Geographic Region

At the time of this assessment, the Chester County 9-1-1 center did not keep track of the number of times fire and EMS agencies are unable to respond to an incident they are dispatched to; what is sometimes referred to as “scratching” a call. They also do not track the overall response time for the entire first alarm assignment to structure fire incidents. Finally, the County does not keep track of the number of personnel, primarily qualified interior structural firefighters, which are permitted to wear self-contained breathing apparatus (SCBA) who are staffing each piece of fire apparatus responding to an incident. Not having all these data points available somewhat limits the ability of the emergency services providers, particularly on the fire side, and the municipalities they serve, from truly being able to analyze how well they are complying with recommended response benchmarks and/or established standards of cover (SOC). The latter two issues are discussed further in Chapter VIII, *Standard of Response Cover*.

The number of incidents each day of the week is consistent throughout the three-year study period, although overall, there were fewer incidents on weekends than during the week (Figure 45). In 2017 and 2019, Thursday was the busiest day of the week, while in 2018 there was a spike in incidents on Mondays and Fridays. Incidents also spiked on Fridays in 2019.



**COUNTY-WIDE ANNUAL RESPONSES BY DAY OF WEEK
2017 - 2019**



Figure 45: Response by Day of the Week

As with most emergency services organizations, the volume of emergency incident response in Chester County varies throughout the day. Incident activity starts to increase in the morning around 6:00 AM to 7:00 AM, peaks during the mid-day through early evening, then slows considerably overnight. In Chester County, overall, the busiest hours of the day were between about 8:00 AM and 8:00 PM (Figure 46). This is particularly true for EMS incidents and is the time of day when many EMS services staff extra units. From a fire perspective, the busiest time of day is often between about 3:00 PM and 7:00/8:00 PM, although no scientific study has been done to analyze if there is a direct correlation, this is a time of day when people are returning home from work, making dinner, and doing other activities around the house. The hypothesis is that the increase in incidents many departments experience during this time can be attributed, at least in part, to homeowners smelling something upon return from work, cooking incidents, and other appliance related incidents, such as dryer fires.

TOTAL COUNTY-WIDE RESPONSES BY TIME OF DAY

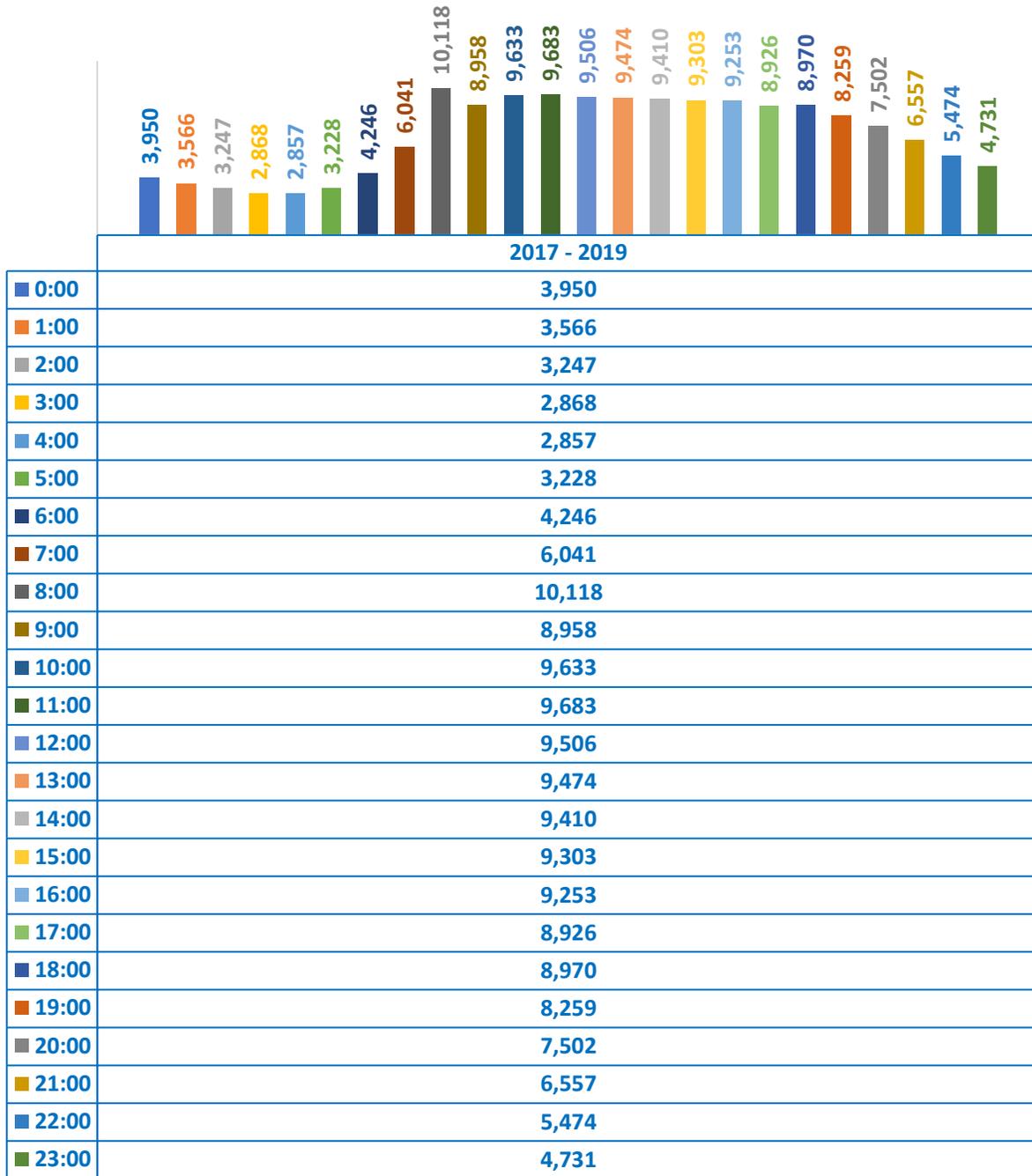


Figure 46: Response by Time of Day

Figures 47 through 49 illustrate the incident activity by hour of the day and major incident types for 2017 through 2019.

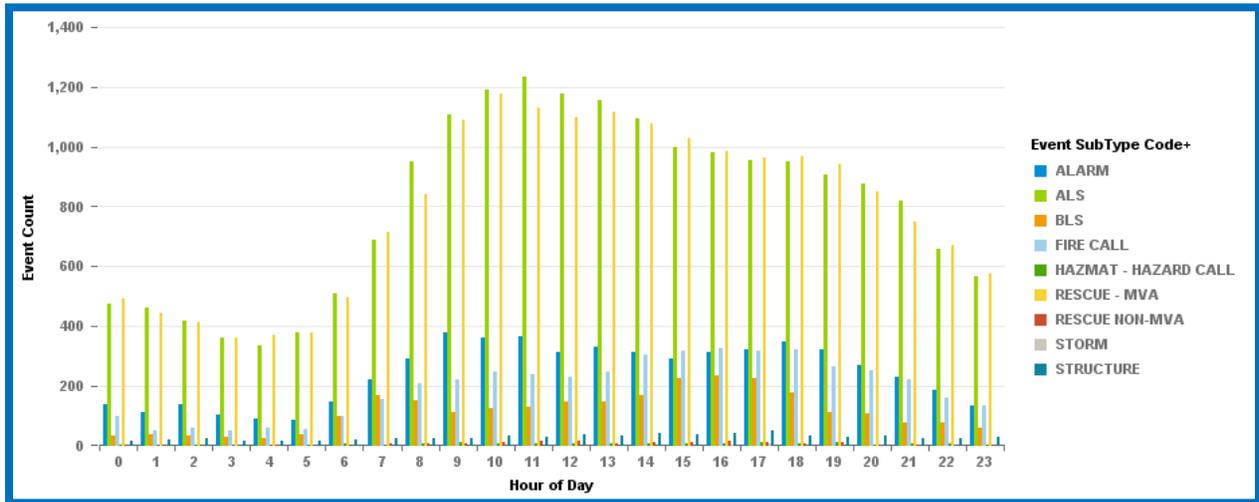


Figure 47: Incidents by Type and Time of Day 2017

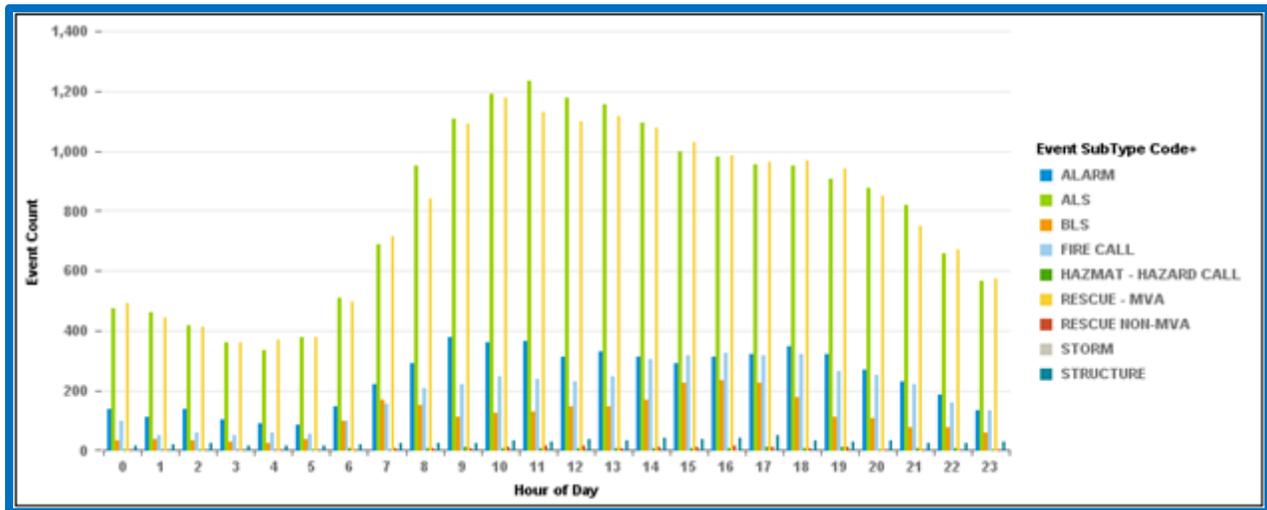


Figure 48: Incidents by Type and Time of Day 2018

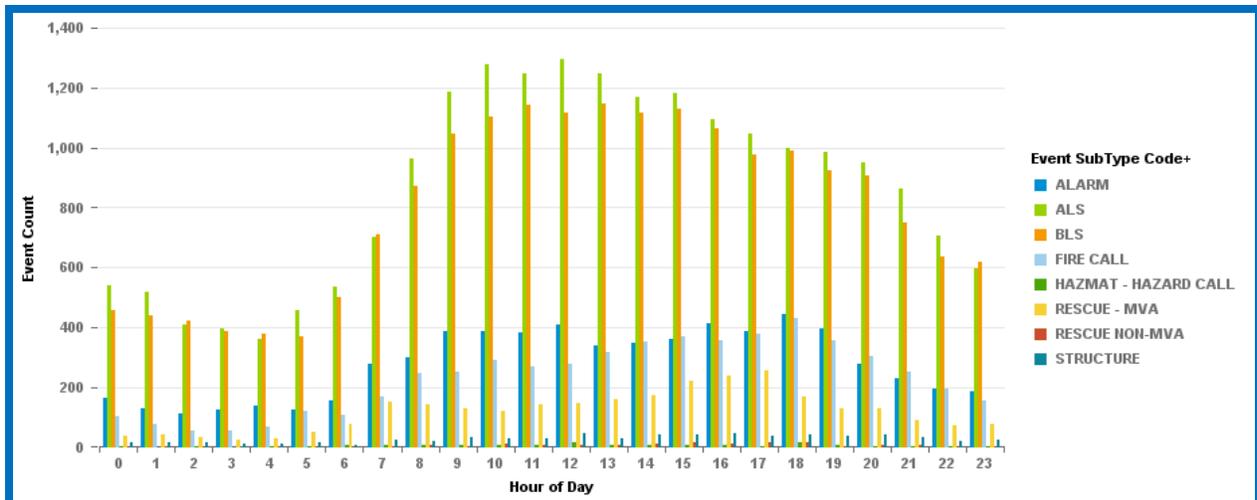


Figure 49: Incidents by Type and Time of Day 2019

RECOMMENDATIONS:

- V-1: *The Chester County Department of Emergency Services should continue to work internally with the 9-1-1 center leadership to identify any potential ways to reduce call processing time (from receipt of the call to dispatch of the incident) with the goal to achieve a 90th percentile time of not more than 64 seconds as recommended in NFPA 1710. Reducing call processing time can assist with leading to improved overall response times.*
- V-2: *Working collaboratively with the Chester County Fire Chiefs Association, Chester County EMS Council, Inc., and the Chester County Fire Police Association, the Chester County Department of Emergency Services 9-1-1 Center should consider making evaluation of the 80th and 90th percentile turnout and travel times as recommended in NFPA 1710 and 1720 part of its routine data analysis and statistical reporting. Having these more conservative times available will provide a more accurate response assessment and allow for better long-range master planning.*
- V-3: *Working collaboratively with the Chester County Fire Chiefs Association, Chester County EMS Council, Inc., and the Chester County Fire Police Association, the 9-1-1 center should implement a procedure to document the number of times that each fire and EMS agency is unable to respond to a dispatched incident or “scratches” a call.*
- V-4: *Working collaboratively with the 9-1-1 center to analyze their specific data, the leadership of Chester County’s EMS agencies should work to identify potential ways to reduce incident turnout time with the goal to achieve a 90th percentile time of not more than 60 seconds as recommended in NFPA 1710. Turnout time is the response time component that the agencies have the most direct control over which can lead to reduced overall response times.*

CHAPTER VI FIRE OPERATIONS

Fire, rescue, and EMS incidents, and the organizations' ability to respond to, manage, and mitigate them effectively, efficiently, and safely, are mission-critical components of the emergency services delivery system. In fact, fire, rescue, and EMS operations provide the primary, and certainly most important, basis for the very existence of the fire department. Ensuring that the department is operationally prepared; necessary equipment is provided, tested, inspected, and maintained; and that adequate funding is allocated to ensure that the department can fulfill its core mission, are basic responsibilities of the governing body of the municipality or municipalities that it serves. Utilization of an incident command system and adherence to safety procedures are also important pieces of the system.



Figure 50
Multiple Chester County fire companies battle
a house fire in February 2020.

Photo credit: Chester County Working Fires

In addition to structural and other types of firefighting operations, the fire department is tasked with responding to and managing a broad spectrum of other types of emergencies including, but not limited to; vehicle crashes, building collapses, water and ice rescues, mass casualty incidents, weather-related emergencies, and natural and technological disasters. These types of incidents require specialized equipment and training, and in small communities are frequently handled by a regional team, or by a larger, more capable neighbor. In all types of emergency responses, an Incident Command System (ICS) should be

utilized that conforms to the National Incident Management System (NIMS) guidelines that have been promulgated by the U.S. Department of Homeland Security. While firefighter safety is a primary focus throughout all operations, a formal component of the ICS program includes the consistent designation and use of an on-scene safety officer when appropriate.

Most of the fire companies of Chester County are fortunate to still have a dedicated core membership group who strive to provide the best possible services to their communities given the limitations and constraints, primarily from a time commitment standpoint, of volunteer fire companies in a still growing area. However, as is the trend nationwide, the size of those core groups is both diminishing and aging. Overall, the fire companies that serve Chester County appear to be reasonably well trained (although there are a few exceptions), well equipped, and generally prepared to serve the needs of the communities they protect. Figure 51, on the following page, illustrates the locations of all Chester County fire companies and outlines their respective response districts.

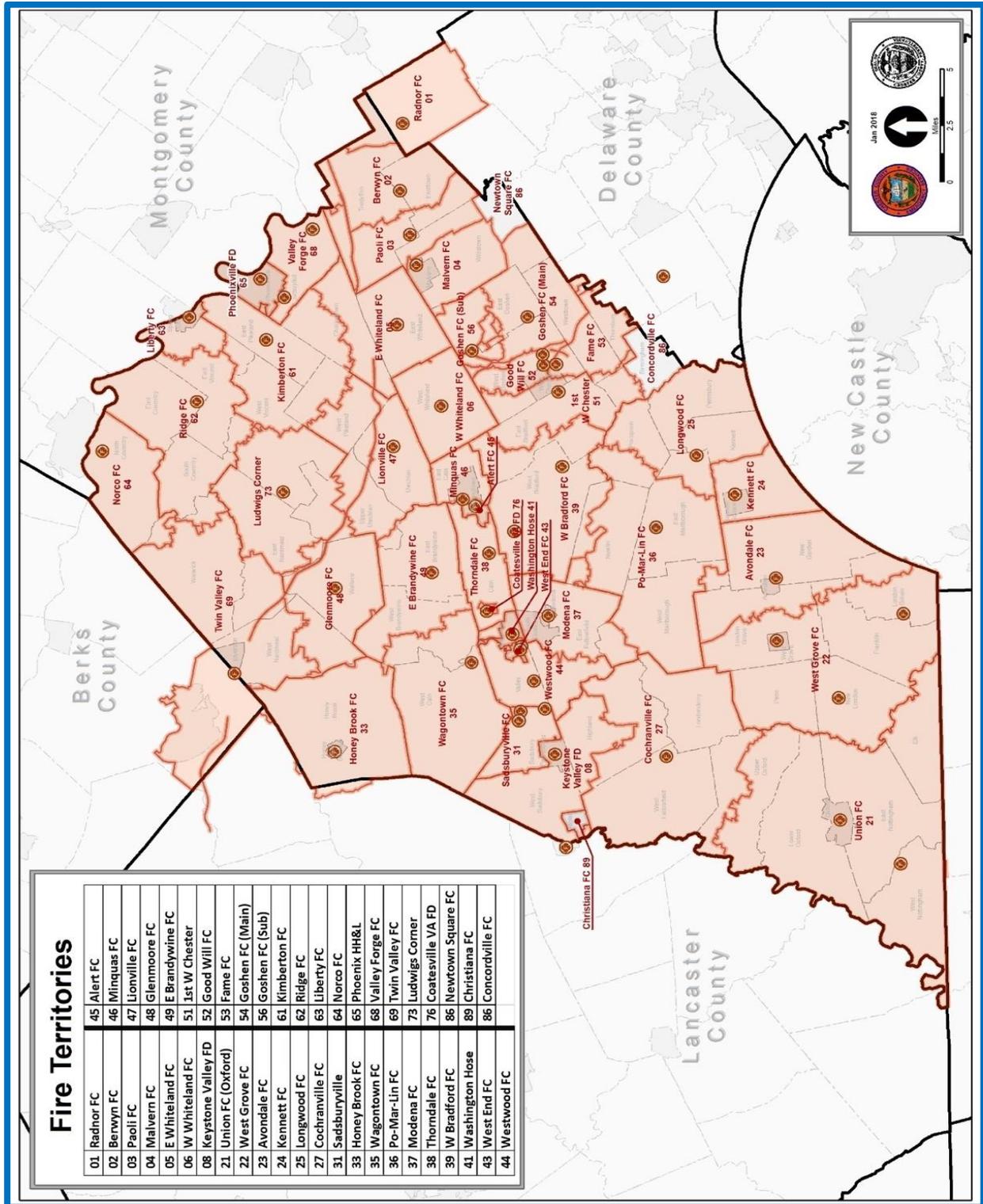


Figure 51: Chester County Fire Response Territories

However, that does not mean they are without weakness, or areas where there could be significant improvement. Concerns include a lack of interest in training among members of some companies, an oversized apparatus fleet, and some increasing response times associated with staffing challenges. Certain aspects of the staffing issues are discussed later in this chapter, while others will be discussed further in Chapter VI, *Volunteer Recruitment and Retention*.

Chester County provides a complete range of challenges and hazards that must be protected by its fire companies. While portions of the County still reflect its traditional rural character, many of its townships have experienced significant growth and development over the past several decades numerous large apartment and condominium complexes housing developments, and commercial and industrial complexes. This has transformed these municipalities into suburban, and in some cases even more urban like environments. Coatesville City and most of the boroughs are also very urban in nature with many older, closely constructed buildings, most of which are not equipped with fire suppression systems. The firefighting and emergency response challenges that confront firefighters in these types of structures and occupancies are much more complex, require more resources to mitigate, and are potentially more dangerous from a life safety perspective to both occupants and firefighters than those usually found in single family dwellings. In addition, continued development in many parts of the County creates increasing traffic conditions. These traffic conditions not only will create additional incidents such as motor vehicle accidents, they can also impact response times and routes for responses, and, for volunteer personnel attempting to respond to their stations for an emergency.



Figure 52
The strategic and tactical challenges of this house fire are much different than the challenges encountered in the fires in figures 53 and 54.

Photo credit: Chester County Working Fires
are discussed later in this chapter.

The strategic and tactical challenges that the widely varied hazards the County's fire companies protect against (Figures 52 thru 54) should be identified and planned for through a community risk analysis planning and management process as recommended in paragraphs 4.2 and 4.2.1, *Community Risk Management of NFPA Standard 1720, Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Volunteer Fire Departments*. The community risk and vulnerability assessment evaluates the community, and, regarding specific properties, measures all the risks associated with that property. The assessment then segregates the property as either a high-, medium-, or low-hazard, which are further broken down into varying degrees of risk. The different levels of occupancies



Figure 53

Chester County firefighters battle a fire on the upper floors of a mid-rise building under construction in February 2019.

Buildings more than three stories in height pose a special risk in an emergency. Fire on higher floors may require the use of ladder trucks to provide an exterior standpipe to be able to deliver water into a building that does not have a system in place.

Photo credit: Chester County Working Fires



Figure 54

Rural fire operations such as the 2017 barn fire present water supply challenges for firefighting operations.

Photo credit: Chester County Working Fires

Despite the complexities of numerous facilities that they protect, only a few fire companies have any well-established type of pre-fire/incident planning program which is one of the most effective tools a fire company must assist them with handling fires and other emergencies in these facilities. Paragraph 5.5.1 of NFPA 1720 states, *“the Fire Department shall set forth operational guidelines to conduct pre-incident planning”*, while paragraph 5.5.2 states, *“particular attention shall be provided to target hazards”*.

The purpose of a fire pre-planning program is to allow firefighters to become familiar with buildings and/or facilities within their response area prior to an emergency, alert them to on-site hazards and risks, and develop a detailed fire response plan for them that includes specific tactics that will be required to mitigate fires or other emergencies. Information collected for pre-fire/incident plans includes, but is not limited to, data such as:

- The occupancy types
- Floor plans/layouts
- Building construction type and features
- Fire protection systems (sprinkler system, standpipe systems, etc.)
- Utility locations
- Hazards to firefighters and/or firefighting operations
- Special conditions in the building
- Apparatus placement plan
- Fire flow requirements and/or water supply plan
- Forcible entry and ventilation plan

The information contained in pre-fire/incident plans allows firefighters and officers to have a familiarity with the building/facility, its features, characteristics, operations, and hazards, thus enabling them to more effectively, efficiently, and safely, conduct firefighting and other emergency operations. Pre-fire/incident plans should be reviewed regularly and tested by periodic table-top exercises and on-site drills.

Paragraph 4.1, *Fire Suppression Organization* in NFPA 1720 states, *“fire suppression operations shall be organized to ensure that the fire department’s fire suppression capability includes sufficient personnel, equipment and other resources to deploy fire suppression resources effectively, efficiently and safely”*. Paragraph 4.2.2, *Community Risk Management* states, *“the number and types of units assigned to respond to a reported incident shall be determined by risk analysis and/or pre-fire planning”*.

All fire companies in Chester County are dispatched through the Chester County 9-1-1 center. At the time of initial dispatch, the incident is dispatched over the County’s radios and pagers. An alpha page is also sent to the cell phones of members of the companies that have been dispatched through a third-party application. Traditional fire sirens at several fire stations are also activated during select hours. After a predetermined period, five minutes for fire and

accident incidents, if there is no response, the incident is dispatched again. After another two minutes if there is no confirmation of resource response, there is a response check. If there is no response after the response check (seven minutes) mutual aid (the next appropriate company/resource) is dispatched.

As primarily volunteer fire companies, most Chester County fire personnel do not normally staff their stations on regular shifts or on a consistent basis although a growing number do utilize some type of duty crew system. Forty-six percent (46%) of the respondents on the fire and EMS questionnaire stated that they do employ some type of duty crew; however, only three (8.1%) stated it was mandatory. Personnel normally respond to emergency calls from wherever they may be when an incident is dispatched. When the incident has been dispatched, responding personnel normally drive to their station to obtain the appropriate apparatus to successfully handle the emergency. Due to the additional travel time necessary for personnel to respond to the station, which obviously increases with distance and the impacts of traffic conditions, responses by volunteer emergency services providers inherently tend to be longer.

Although it is a time-honored tradition, the practice of having personnel respond to the station upon receipt of an alarm, is becoming increasingly less feasible in many parts of Chester County, if there is any realistic chance of improving on scene response times. Traffic conditions particularly in the more developed parts of the County will make it increasingly difficult, if not impossible, for there to be effective and timely response while continuing to use this model. In addition, the increasing number of incidents that can be anticipated with the continued development and related growing population, will continue to strain the volunteer personnel.

Consequently, the study team believes that the fire companies of Chester County should give serious consideration to utilizing volunteer personnel to provide in station staffing; a volunteer duty crew; primarily on nights and weekends, although they could certainly do so during the week also if personnel are available. These crews would handle most incidents thus relieving the remainder of the membership from the need to be available to respond to them. If each qualified member of the fire company actively participated, members would only need to pull duty perhaps one night per week. Statistical analysis of incident response data and trends, once the program is operational, would provide guidance on what adjustments to the program may be required to optimize its effectiveness.

Chester County fire agencies primarily utilize the *I Am Responding* system, whereby members can notify their station that they are responding even if they have not arrived. There are also some companies that use an alternate system called *Active 9-1-1*.

The fire companies in Chester County do have Incident Management Systems (IMS) in place, and from most accounts they are effective, and are utilized on most incidents, although like many other areas with a service this large, there are exceptions. Use of an IMS is mandated by federal regulations as well as numerous other regulations and standards. It is imperative that

the Incident Commander (IC) exercise overall command and control to ensure the proper coordination of incident operations, which prevents freelancing, and/or competing/dangerous strategies and tactics being employed. Chester County has an Incident Support Team (IST) that is comprised of trained and experienced personnel who can respond to assist with filling incident support functions on significant incidents. The fire companies in the southern part of the County try to have at least one additional chief officer respond to any significant incident to assist the incident commander. A shortage of qualified personnel to fill some ICS roles and responsibilities was mentioned by several stakeholders as a concern.

A critical component of ICS is the establishment of the role of safety officer to monitor conditions at an incident scene, to ensure that appropriate safety procedures are being followed. It was reported to the team that, when necessary, a safety officer is usually assigned to an incident. Most companies do have personnel accountability systems that appear to work and be effective.

Regarding incident management and the safety of on-scene operations, other standard incident management practices that are expected to be provided during any significant incident include status updates to the dispatch center, time checks, and personnel accountability reports (PAR).

It should also be noted from an operational perspective that the least busy fire company in Chester County responds to more than 200 incidents per year. There are several others that respond to between 300 and 400 incidents, and a number that respond to over 400 incidents per year. Most times when a company averages more than one call per day, it is a heavy workload for a fully volunteer organization and is in all probability, putting a strain on its membership. While there is no hard and fast rule or benchmark, once a volunteer emergency services provider exceeds about 450 - 500 responses annually, their ability to continue to maintain the traditional levels of service often begins to decline as the members struggle to keep up with the increasing requests for service, training needs, and other duties necessary to keep the organization operating.

Rural communities that do not have a municipal, pressurized water supply must supply their needs from other sources. Sometimes static water sources (lakes, rivers, ponds, cisterns) are drafted out of either manually or with dry hydrants, to achieve the needed water supply to fight a fire. In cases where static water sources are not readily available, and often even if they are, fire departments must utilize water tankers to carry or shuttle the needed water supply from the source to the incident scene. There are still many areas of Chester County that are not covered by a municipal, pressurized water system, and they must rely on rural water supply operations to develop needed fire flows for structure fires.

In communities without staffed fire stations, there is an inherent delay in the response to a building fire. This delay is due to the fire department members having to respond to the station to staff and respond with the apparatus. This inherent delay allows the fire to increase in size

before the arrival of the fire department. This situation can exacerbate the need for an adequate and sustainable water supply.



Figure 55
Areas of the County without municipal water supply systems need to use water tankers to shuttle water from the source to the fire scene.
 Photo credit: Chester County Working Fires

The establishment of a rural water supply operation requires significant resources, both in personnel and equipment, all part of a closely coordinated effort. These are frequently labor-intensive operations. Portable ponds or tanks are set up near the fire scene to supply engines operating to attack the fire. Water tenders transport water from supply sources located throughout the district (or even in adjoining towns) to the dump tanks near the incident (Figures 55 and 56). The size of the fire, and the distance from the fire to the closest source(s) of water, will both directly impact the size and complexity of this type of operation. At an absolute minimum, three rated Class A pumpers are required to maintain a rural water supply operation, along with an adequate number of tenders/tankers. If a water supply is being

established using a large diameter hose, an additional pumper will be required at each interval of no greater than 1,000 feet.

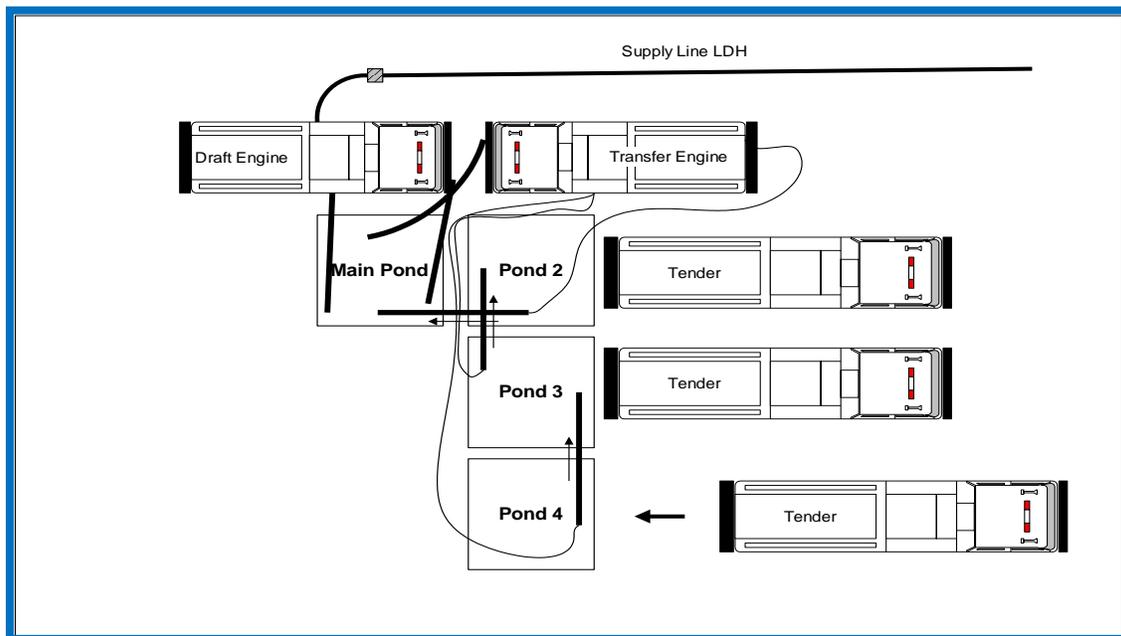


Figure 56: Typical set up for a water tender supply operation for a rural fire.



Figure 57
Chester County Hazardous Material Team members operate in West Chester in 2017.
Photo credit: Chester County Working Fires

The MRI study team noted that most of Chester County’s fire companies have limited specialized operations capabilities. There are several valid reasons for this, and the situation here is in fact quite common with smaller volunteer fire departments that do not have the resources or personnel to undertake these types of endeavors. Specialized operations can include but are not limited to:

- Hazardous materials incidents
- Rope rescue including high angle
- Water and ice rescue
- Trench/collapse rescue
- Confined space rescue
- Urban search and rescue (building collapse)

The specialized technical level resources to handle these relatively rare but often dangerous types of incidents are available through a regional County hazardous materials response team, and a technical rescue task force. Both these teams, which are comprised of emergency responders from throughout Chester County, are reported to be well trained and equipped. As team members are also local responders many of the challenges relative to training and staffing on the local level extend into the operation of these specialized teams.

Chester County should be commended for these efforts which MRI considers to be a **Best Practice**. It is imperative that fire company personnel understand their roles and responsibilities when responding to these types of incidents, know what operations they can safely perform, as well as be fully aware of what they cannot do. Joint training with the teams should be conducted periodically with regional groups of fire companies.

AUTOMATIC AND MUTUAL AID

Mutual aid is an essential component of almost every fire company’s operations. Except for the largest cities, no fire company or department can or should be expected to have adequate resources to respond to and safely, effectively, and efficiently mitigate large-scale and complex incidents. Mutual aid is shared between communities when their day-to-day operational fire, rescue, and EMS capabilities have been exceeded, and this ensures that the citizens of the communities are protected even when local resources are overwhelmed.

Automatic aid is an extension of mutual aid, where the resources from adjacent communities or companies are dispatched to respond at the same time as the units from the jurisdiction where

the incident is occurring. There are two basic principles for automatic aid, the first being that all jurisdictional boundaries are essentially erased, which allows for the closest, most-appropriate unit to respond to an incident, regardless of which jurisdiction it belongs to. The second is to provide, immediately and at the time of initial dispatch, additional personnel or resources that may be needed to mitigate the reported incident. Automatic and mutual aid are generally provided without charge among the participants.

Chester County has a long standing and robust automatic and mutual aid system with both intra-County and inter-County resources being utilized. This includes both fire- and EMS-related incidents. The seamless use of automatic aid as utilized in the County for the delivery of fire protection, EMS and special operations provides the community with a high level of service and high levels of effectiveness by providing the customer (the 9-1-1 caller) with the fastest response to their emergency. In addition, the delivery of emergency services through robust automatic aid agreements is a model for intergovernmental cooperation, efficiency, and customer service, and is considered the “Gold Standard” of emergency service delivery systems.

STAFFING

The fire service has experienced tremendous technological advances in equipment, procedures, and training over the past fifty years. Better personal protective equipment (PPE), the widespread use of self-contained breathing apparatus (SCBA), large diameter hose, better and lighter hand lines and nozzles, and thermal imaging cameras are just a few of the numerous advances in equipment and procedures that have allowed firefighters to perform their duties more effectively, efficiently, safely, and with fewer personnel. However, the fact remains that the emergency scene in general, and the fire ground involving a structure fire even more so, is a dynamic, dangerous, frequently unpredictable, and rapidly changing environment where conditions can deteriorate very quickly, placing emergency responders, victims and bystanders in extreme personal danger.

The operations necessary to successfully extinguish a structure fire, and do so effectively, efficiently, and safely, requires a carefully coordinated and controlled plan of action, where certain operations, such as venting ahead of the advancing interior hose line(s), must be carried out with a high degree of precision and timing. Multiple operations, frequently where seconds count, such as search and rescue operations and trying to cut off a rapidly advancing fire, must also be conducted simultaneously. If there are not enough personnel on the incident initially to perform all the critical tasks, some will, out of necessity, be delayed. This can result in an increased risk of serious injury or death to building occupants and firefighters, and increased property damage. Understanding the community’s risk greatly assists fire department management planning for, and justification of, staffing and apparatus resources.

The following information was compiled from the information provided by the fire and EMS agencies regarding their current staffing levels. Not all organizations answered all questionnaire questions. This data represents responses to the questionnaires and was not independently verified by the study team. This information should be used as an informative resource.

- Number of FT career personnel: **179**
- Number of PT/per-diem personnel: **504**
- Career personnel duties are –
 - ❖ Fire only: **3 Stations**
 - ❖ Fire and EMS: **15 Stations**
 - ❖ EMS only: **12 Stations**
- Total number of volunteer firefighters: **1,647**
- Number of active volunteer firefighters responding to at least 25% of calls: **537**
 - ❖ Range: **2 to 57 per station**
- Number of volunteer firefighters who are certified at least Firefighter 1: **863**
 - ❖ Range: **9 to 52 per station**
- Number of volunteer firefighters who are currently qualified interior structural firefighters: **978**
 - ❖ Range: **11 to 74**
- Percentage of volunteer firefighters who are qualified interior structural firefighters: **Average = 67.67%**
 - ❖ Range: **17 to 100%**
- Percentage of volunteer firefighters that live in the fire company first due response area: **Average = 66.21%**
 - ❖ Range: **25 to 100%**
- Average number of volunteer firefighters that respond to each call: **10**
 - ❖ Range: **2 to 40**
- Average number of volunteer firefighters that respond to each structure fire: **14**
 - ❖ Range: **6 to 30**

The information that was provided by the fire companies tells us:

- Just **52.4%** of fire company members are certified at least Firefighter I.
- Just **32.6%** of the volunteer personnel respond to at least 25% of their company's calls.
- There are **115** more members who are listed as being a "qualified" interior firefighter than there are listed as being at least Firefighter I certified.
- As indicated by the ranges, some companies are struggling significantly with the number of personnel who respond to each call, and with the number of personnel who are trained and qualified.

When discussing staffing, and as noted above, although many of the members of the fire companies are certified firefighters, many still are not. Personnel who are not certified as firefighters and up to date in their training, even though they may still arguably be able to contribute, should not be counted toward active “firefighter” numbers. They should not be counted towards unit staffing for incidents and depending upon their level of training (or lack thereof in some cases) could be a liability to their company and/or municipality. In addition, although some may argue that the members who respond to only a few incidents still contribute, their contribution on any given incident is unlikely, and their skill level would probably be questionable, and possibly even detrimental if they showed up on a major incident. However, again this is a common practice in the volunteer fire service.

The MRI study team’s interviews indicated that, as with many volunteer companies today, there is a core group of older, long-time members of the companies with a second group of young, newer firefighters. There is a shortage of personnel who would fall into the middle between the other groups both in age and years of experience. The questionnaires also indicated that about one in three fire company members do not live within their own first-due areas. This is also a fairly common practice in the volunteer fire and emergency services driven by the companies constantly striving to bolster their number of active personnel. However, once a member lives more than a certain distance away from their station their ability to make a timely contribution to emergency operations is questionable. In addition, in almost any volunteer emergency services organization there is going to be a percentage of members whose names still appear on the “active” roster, yet they no longer truly are, or are minimally so, for a variety of reasons. Factor in that most members of the fire companies have a primary job, other than the fire department, that limits their availability to respond, mostly during normal business hours, and, that a number of members belong to multiple fire companies or other emergency response organizations; according to the on-line survey 23.4% belong to two, 7.1% belong to three, and 4.3% belong to four or more; and a more challenging staffing picture begins to emerge.

NFPA 1720, *Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations and Special Operations to the Public by Volunteer Fire Departments*, 2014 edition outlines organization and deployment of operations by volunteer, and primarily volunteer fire departments.

Some of the key provisions of NFPA 1720 are as follows:

- Paragraph 4.3.1 on *Staffing and Deployment* states that the fire department shall identify minimum staffing requirements to ensure that enough members are available to operate safely and effectively.

- Paragraph 4.3.2 on *Staffing and Deployment* states that Table 4.3.2 (Figure 58) shall be used by the authority having jurisdiction (AHJ) to determine staffing and response time objectives for structural firefighting, based on a low-hazard occupancy such as a 2,000 square foot, two-story, single-family dwelling, without basement or exposures.

Table 4.3.2, Staffing and Response Time				
Demand Zone	Demographics ¹	Minimum Staff to Respond	Response Time ² (minutes)	Meets Objective (% of the time)
Special risks	AHJ	AHJ	AHJ	90 %
Urban	>1000 people/mi. ²	15	9	90 %
Suburban	500 - 1000 people/mi. ²	10	10	80 %
Rural	< 500 people/mi. ²	6	14	80 %
Remote	Travel distance > 8 mi.	4	Dependent upon travel distance	90 %

1 – A jurisdiction can have more than one demand zone. In Chester County each of these demand zones can be found based upon population.

2 – Response time in this table begins upon completion of the dispatch notification and ends at the time interval shown in the table.

FIGURE 58: STAFFING AND RESPONSE TIME TABLE FROM NFPA 1720

- Paragraph 4.3.3 on *Staffing and Deployment* states that upon assembling the necessary resources at the emergency scene, the fire department should have the capability to safely commence an initial attack within two minutes, 90% of the time.
- Paragraph 4.6.1 *Initial Firefighting Operations* states that initial firefighting operations shall be organized to ensure that at least four members are assembled before interior fire suppression operations are initiated in a hazardous area.
- Paragraph 4.7.1 *Sustained Firefighting Operations* states that the fire department shall have the capability for sustained operations, including fire suppression; engagement in search and rescue, forcible entry, ventilation, and preservation of property; accountability of personnel; the deployment of a dedicated rapid intervention crew (RIC); and the provision of support activities for those situations which are beyond the capabilities of the initial attack.
- Paragraph 4.7.2 *Sustained Firefighting Operations* also states that the capability to sustain operations shall include sufficient personnel,



equipment, and resources to effectively, efficiently, and safely conduct the appropriate operations.

Note: While the NFPA standards are nationally recognized consensus standards, it is still the responsibility of the local jurisdiction to determine the acceptable level of risk and corresponding fire protection/EMS services.



Figure 59

Five alarms were struck resulting in a massive response of personnel and resources to the fire at the Barclay Friends facility in West Chester in November 2017.

Many jurisdictions add additional response resources and, in some cases, exceed the specifics of national benchmarking for personnel and other resources, particularly when the incident is in a larger structure where the life hazard may be higher and/or the potential fire situation much more complex. Personnel needs for fires involving large, more complex structures, such as large senior citizen, assisted living (Figure 59), and commercial occupancies, of which Chester County has a growing number of, will require a significantly greater commitment of initial personnel; minimally

35/37, according to the 2016 edition of NFPA 1720's companion standard NFPA 1710, *Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations and Special Operations to the Public by Career Fire Departments*. This should include reported fire incidents in buildings that are fully sprinklered. While sprinklers are highly effective, they are not 100% so. Until such time as the extent and seriousness of the incident can be determined, a full complement of personnel and apparatus should be dispatched.

Figure 60 identifies, and Figure 61 illustrates, the critical tasks and resource deployment required for low- to moderate-hazard incidents such as one and two family residential and small commercial structure fires. Although some people advocate that these types of incidents can be handled with less personnel, unless it is a small fire, there is the possibility there will not be enough personnel available to perform all the critical tasks necessitating that some be delayed.

CRITICAL TASK	NEEDED PERSONNEL
Incident Command	1
Continuous Water Supply/Pump Operator	1
Fire Attack via Two Handlines	4
Hydrant Hook-Up, Forcible Entry, Utilities	2
Primary Search and Rescue	2
Ground Ladders and Ventilation	3
Aerial Operator (if Aerial is Used)	1
Establishment of an IRIT (Initial Rapid Intervention Team)	2
Effective Response Force	15/17

Figure 60:
Critical Tasking: Low and Moderate Risk Structure Fire

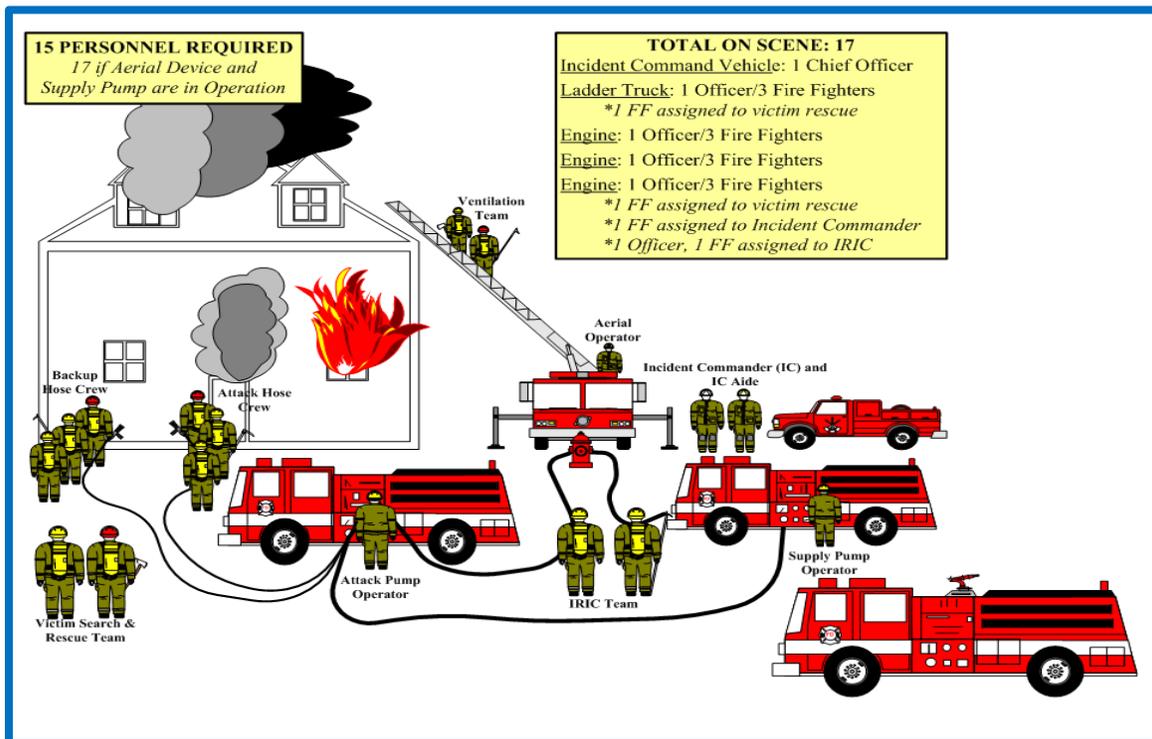


Figure 61
Typical Basic Staffing Needs for a Single-Family Dwelling Fire
Image credit: IAFF 266

These tasks meet the minimum requirements of NFPA 1720 for the initial full-alarm assignment to a typical low to moderate risk, 2000 square foot, 2 story residential structure. These are the proverbial “bread and butter” structural fire incidents that fire departments respond to, and

which are, by far, the most common type of structure fire. Personnel requirements for fires involving large, more complex structures such as commercial or industrial facilities or multifamily residential occupancies will require a significantly greater commitment of personnel.

Respondents to the fire and EMS questionnaire reported that they achieved NFPA 1720 compliance for structure fire response and average of 60.52% of the time. This ranged from a low of 6% to a reported high of 100%. At the current time, the Chester County 9-1-1 center does not keep track of the arrival of the entire first alarm assignment for structure fires. Appendix M contains an NFPA 1720 compliance matrix that fire companies can utilize to self-assess their own conformity with the standard’s recommendations.

The 2016 edition of NFPA 1710 recommends a minimum of 27/28 personnel on the initial response for fires involving moderate hazard garden-style apartments and strip shopping centers (Figure 62).

CRITICAL TASK	NEEDED PERSONNEL
Incident Command	2
2 – Independent Water Supply Lines/Pump Operators	2
Fire Attack via Three Handlines	6
Support Firefighter for each Handline	3
2 - Search and Rescue Teams	4
2 - Ground Ladders and Ventilation Teams	4
Aerial Operator (if Aerial is Used)	1
Rapid Intervention Team (1 Officer/3 Firefighters)	4
EMS/Medical	2
Effective Response Force	27/28

Figure 62
Critical Tasking: Moderate Risk Structure Fire



Figure 63 identifies critical tasking for fires involving high risk structures such as hospitals, nursing homes, and assisted living facilities.

CRITICAL TASK	NEEDED PERSONNEL
Incident Command	2
2 – Independent Water Supply Lines/Pump Operators	2
Investigation/Initial Fire Attack Line	3
Backup Line	3
Secondary Attack Line	3
3 - Search/Rescue Teams	6
2 – Ground Ladder and Ventilation teams	4
Water Supply/Fire Department Connection	2
Aerial Operators (if Aerials are Used)	2
Safety/Accountability	2
Rapid Intervention Team (1 Officer/3 Firefighters)	4
EMS/Medical	4
Effective Response Force	35/37

Figure 63
Critical Tasking: High Risk Structure Fire

Figure 64 identifies critical tasking for fires involving high rise structures which are generally considered to be any building more than six stories in height, or more than 75 feet tall. Some chief officers with considerable high-rise fire experience suggest that the actual personnel needs for a significant high-rise fire will be around 100 firefighters within approximately 30 minutes.

CRITICAL TASK	NEEDED PERSONNEL
Incident Command	2
Lobby Control	1
Interior Staging Officer	1
2 - Investigation/Initial Fire Attack Lines – Fire Floor	6
Backup Line – Floor Above	3
2 - Search/Rescue Teams	4
Operations Officer and aide at Fire Floor Entry	2
2 – Evacuation Management teams	4
Elevator Operations	1
Rehab Team (at least 1 ALS provider)	2
Vertical Ventilation	4
Water Supply/Fire Department Connection	1
Fire Pump Room Monitor (if building is equipped)	1
Equipment Transport	2
External Base Operations	1
Safety/Accountability	2
Rapid Intervention Team (1 Officer/3 Firefighters)	4
EMS/Medical (at least ALS provider)	4
Effective Response Force	44/45

Figure 64
Critical Tasking: High Rise Fire

There has been much research done by several fire departments on the effects of various staffing levels. One constant that has emerged is that company efficiency and effectiveness decrease substantially, while injuries increase when company/unit staffing falls below four personnel. A recent comprehensive yet scientifically conducted, verified, and validated study titled *Multi-Phase Study on Firefighter Safety and the Deployment of Resources* was performed by the National Institute of Standards and Technology (NIST) and Worcester Polytechnic Institute (WPI), in conjunction with the International Association of Fire Chiefs, the International Association of Fire Fighters, and the Center for Public Safety Excellence (Appendix N). This landmark study researched residential fires, where most of the fires, injuries, and fatalities occur. **The study concluded that the size of firefighter crews has a substantial effect on the fire department’s ability to protect lives and property in residential fires and occupancies.** Several key findings of the study include:

- Four-person firefighting crews were able to complete 22 essential firefighting and rescue tasks in a typical residential structure 30% faster than two-person crews and 25% faster than three-person crews.

- The four-person crews were able to deliver water to a similarly sized fire 15% faster than the two-person crews and 6% faster than three-person crews, steps that help to reduce property damage and reduce danger/risks to firefighters.
- Four-person crews were able to complete critical search and rescue operations 30% faster than two-person crews and 5% faster than three-person crews.

The United States Fire Administration, part of the Federal Emergency Management Agency in the Department of Homeland Security, recommends that a minimum of four firefighters respond on or with each apparatus. In its respected textbook *Managing Fire Services*, the International City/County Management Association (ICMA) states, “that at least 4 and often 8 or more firefighters under the supervision of an officer should respond to fire suppression operations”. They further state, “If about 16 firefighters are not operating at the scene of a working fire within the critical time period then dollar loss and injuries are significantly increased, as is fire spread”.

Beyond the NFPA standard(s), which as standards do not carry the weight of regulation or law, is the Occupational Safety and Health Administration (OSHA) Respiratory Protection Standard, CFR 1910.134, which carries the weight and force of regulation, thus making compliance mandatory. Although Pennsylvania is not an OSHA state this standard represents industry best practice. One key provision of the Respiratory Protection Standard that is directly applicable to fire department staffing is known as the “Two-In/Two-Out” rule. In brief, this regulation specifies that anytime firefighters operate in an environment/atmosphere that is “immediately dangerous to life and health” (IDLH), whenever two members enter the IDLH area together/as a team, they must maintain visual or voice communication with two additional firefighters who must remain outside of the IDLH atmosphere, prepared to render immediate emergency assistance to those inside (Figure 65). The OSHA rule does provide an exception, however, which states that the rule does not apply in emergency rescue situations where a person is visible and in need of immediate rescue, or there is credible and reasonable information that potentially viable victims are still in need of rescue.

To comply with the “Two-In/Two-Out” rule, a team of four firefighters must be assembled before an interior fire attack can be made when the fire has progressed beyond the incipient stage, except in an imminent life-threatening situation when immediate action could prevent the loss of life or serious injury before the team of four firefighters are assembled. The serious concern of the MRI study team is that the OSHA “Two-In/Two-Out” rule permits an exception for life hazard or rescue situations. The reality is that in one of the most serious life hazard fire

situations that can be encountered, trapped civilians, a firefighter may need to place himself/herself in extreme danger by entering the structure alone.

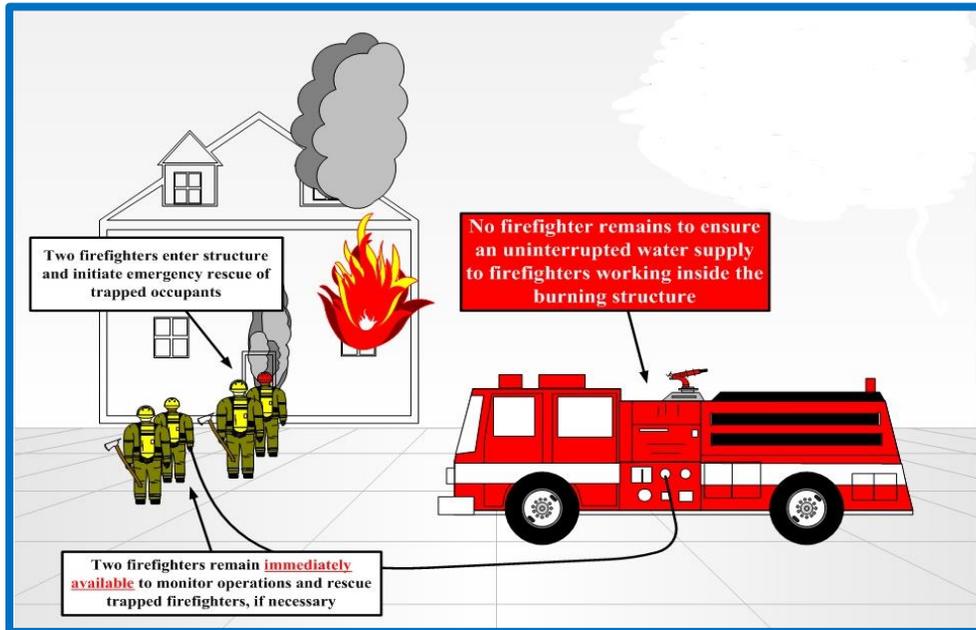


Figure 65:
OSHA TWO-IN/TWO-OUT
Image Credit: IAFF 266

In order to continue to provide the traditional levels of service with the diminishing volunteer staffing levels, an increasing number of fire and EMS agencies (53.8%) in the County, are utilizing their on-duty career personnel to cross staff both their fire and EMS units. This is consistent with what has been learned during previous studies MRI has conducted in Chester County. According to the fire and EMS questionnaire, for organizations that utilize career staff:

- Minimum on duty staffing ranges from **1** to **6**
- Maximum on duty staffing ranges from **2** to **9**
- The number of EMS units normally staffed ranges from **1** to **4**
- The number of fire units normally staffed is either **1** or **2**

As with most volunteer fire companies, and, caused primarily by limited availability of the volunteer firefighters due to their commitments to their regular, full-time occupations, effective day time responses become increasingly problematic, although an increasing number of organizations report weekend and evening challenges as well. Although usually made, responses are often becoming slower as companies wait for crews resulting in an unacceptably long delay in getting emergency assistance to the 9-1-1 caller. This problem will only get worse with the continued growth in many parts of the County and as the core, long time members of the fire companies continue to age. In other instances, although the apparatus may respond, it

is not adequately staffed with SCBA qualified firefighters, thus limiting the on-scene fire suppression tactical options.

MRI fully supports the continued use of a strong primarily volunteer fire service in Chester County, and, like all the large county-based systems in the Baltimore and National Capital Regions, believe that this model can continue to serve the needs of the County for the foreseeable future. However, it is also clear that the call volume, which will most likely continue to increase each year, an aging and shrinking core volunteer group, along with the multitude of other daily tasks which need to be performed in most fire stations indicate that the time has arrived for the County as a whole, and the fire companies individually, to consider the transition to a more true combination fire service utilizing career staff to supplement the volunteer personnel.

While effective, efficient, and safe emergency scene operations, particularly initial fire attack operations, is the overriding reason for considering the addition of career staffing, that is not the sole justification. Some of the other benefits of having the career staff in place, particularly during the day when most of the volunteer force are at their primary jobs, include, but would certainly not be limited to:

- Quicker and guaranteed compliance with the OSHA Two in-Two Out requirement for initial fire attack.
- Guaranteed, and usually immediate, EMS response by trained first responders to get lifesaving help to the 9-1-1 caller quicker if nearby ambulances are committed.
- Performing fire prevention inspections and other fire prevention activities.
- Developing pre-fire/incident plans.
- Performing fire apparatus, tool, and equipment inspections, testing and maintenance.
- Performing basic station maintenance in fire stations.
- Assisting the various fire company officers with special projects.

The sum of these benefits would be to assist with taking the workload off the volunteer officers and personnel letting them better focus their available time on training and emergency incident response.

To this end, the MRI study team proposes a phased approach. A discussion on funding for the recommendations contained in this and other chapters is found in Chapter XVI, *Funding and Finance*.

1. The career staff should be hired by Chester County and be under the direct command and supervision of the Department of Emergency Services, rather than any specific fire company chief. However, the fire company officers would have their normal authority to direct all subordinate personnel on any emergency incident in their response area, or where they are the incident commander.

2. Any of the existing career staff who wish to do so, and whose company decides it would be in their best interest to partner with Chester County in this endeavor, should be grandfathered into the County system.
 - a. MRI believes that the advantage of the County system over individual fire companies is basically an economy of scale. The County is most likely better positioned to offer better pay and benefits including health care and pensions than individual fire companies which are non-profits. In addition, as the system begins to grow, there should be opportunities for a career rank structure to develop. This may also encourage young firefighters who may leave for a career job elsewhere, to remain in Chester County instead.
3. The initial step in this process should be the establishment of a pilot program consisting of several daytime, quick response units; fire apparatus staffed with an officer and three firefighters, positioned strategically around the County in fire stations that wish to host them.
 - a. These units should initially be staffed with qualified volunteer personnel being paid a per diem.
 - b. Units should be in service from 6:00 AM to 6:00 PM.
 - c. Initially staff one unit in each geographic region of the County and adjust deployment, based upon data analysis.
 - d. Because these units will provide wide area coverage throughout the entire County during times of reduced volunteer availability, the MRI study team believes that again, as part of a pilot program, these units should be funded through the County. If the personnel are paid \$20.00 per hour, and personnel provide a total 720 staff hours per week (3 units x 4 personnel each x 60 hours per week), the first-year cost for salary would be approximately \$750,000.00.
 - e. Consideration should be given to the County applying for a FEMA Staffing for Adequate Fire and Emergency Response (SAFER) grant as a County wide endeavor to improve compliance with NFPA 1720.
4. Fire companies that wish to have career staff assigned moving forward would need to notify the County at least 24 months prior to any requested deployment. The times that the station would be staffed would be determined cooperatively between the County and fire company. Fire companies with the greatest need would be the first to have personnel assigned. No fire company that does not want career personnel would be forced to have them deployed from their station.

To provide consistency of rapid response, while also attempting to ease the response burden on the entire company; fire companies, particularly those where career staff will be deployed, should give serious consideration to utilizing volunteer personnel to provide in station staffing, a volunteer duty crew, nights and weekends. These crews would handle most incidents thus relieving the remainder of the membership from the need to be available to respond. When on duty they could also complete their required training, participate in various department/station projects, pre-fire planning, etc., and possibly even recruitment activities. If most members actively participated, members of most companies would only need to pull duty perhaps one night per week. Statistical analysis of incident response data and trends, once the program is operational, would provide guidance on what adjustments to the program may be required to optimize its effectiveness.

STANDARDIZED RESPONSES

The specific number of people required to perform all the critical tasks associated with an identified risk is referred to as an Effective Response Force (ERF). The goal is to deliver an ERF within a prescribed time frame.

During fire incidents, to be effective, critical tasking must assign enough personnel so that all identified functions can be performed simultaneously. However, it is important to note that secondary support functions may be handled by initial response personnel once they have completed their primary assignment. Thus, while an incident may end up requiring a greater commitment of resources or a specialized response, a properly executed critical task analysis will provide adequate resources to immediately begin bringing the incident under control.

The community risk and vulnerability assessment previously discussed; evaluates the community and property, measures all property and the risks associated with that property. The assessment segregates the property as either a high-, medium-, or low-hazard as identified below:

- **High-hazard occupancies:** Schools, hospitals, nursing homes, high-rise buildings, and other high life-hazard or large fire-potential occupancies.
 - ❖ **Operations response capability:** At least 4 pumpers, 2 ladder trucks (or combination apparatus with equivalent capabilities), and other specialized apparatus as may be needed to cope with the combustibles involved; not less than 28 firefighters and 2 chief officers, plus a safety officer, and a rapid intervention team. Extra staffing for incidents in high-hazard occupancies is advised.
- **Medium-hazard occupancies:** Apartments, offices, mercantile, and industrial occupancies, not normally requiring extensive rescue by firefighting forces.

- ❖ **Operations response capability:** At least 3 pumpers, 1 ladder truck (or combination apparatus with equivalent capabilities), and other specialized apparatus as may be needed or available; not less than 20 firefighters and 2 chief officers, plus a safety officer, and a rapid intervention team.
- **Low-hazard occupancies:** One-, two-, or three-family dwellings and scattered small business and industrial occupancies.
- ❖ **Operations response capability:** At least 2 pumpers, 1 ladder truck (or combination apparatus with equivalent capabilities), and other specialized apparatus as may be needed or available; not less than 12 firefighters and 1 chief officer, plus a safety officer, and a rapid intervention team.

The Chester County 9-1-1 center utilizes a default set of dispatches for all incidents. For structure fires and other types of incidents that can escalate into large or significant incidents, the run cards cover up to the fifth alarm. However, the County also provided the MRI study team with an extensive list of “overrides” (completed at the request of local responders) to the default settings. This can include changing the number of resources that are dispatched or designating specific units or companies which may not be the closest available.

Based upon the need to rapidly assemble an effective response force, accelerated fire growth, and an increased emphasis on firefighter safety, it is an increasingly common practice in the fire service today to use one standard dispatch of resources for initial response to any reported structure fire, except for high-rises. Chester County utilizes this approach with an initial default dispatch of:

- 4 - Engines
- 1 - Ladder/Truck
- 1 - Rescue
- 1 - BLS unit
- 1 - RIT team

We believe that with one suggested addition, this is an appropriate response to these types of incidents. MRI’s suggestion would be to add a second ladder/truck onto these assignments. In non-hydrant areas this initial assignment is still adequate; however, when a working fire is transmitted, the following additional resources should be added to the assignment:

- 3 - Water tankers
- 1 - Engine

Figure 66 below provides recommended standardized responses to select types of incidents. It should be noted that this list is not all inclusive.

Description	Engine	Ladder	Rescue	Chiefs	EMSS	Other	Staffing
Automatic Fire Alarm - Residential	1						4
Automatic Fire Alarm - Commercial	1	1		1			9
Automatic Fire Alarm - High Rise	2	1		1			13
Appliance	1	1					8
Building/Structure – All Types	4	2	1	2	1		32
Building - High Rise	6	3	1	4	2		48
CO detector	1				1		6
Debris/Fluids on highway	1						4
Electrical Outside	1						4
Gas leak inside	1	1		1	1		11
Gas leak outside	1						4
Fire hazard investigation	1						4
Helicopter landing	1						4
Hazardous materials inside	4	2	1	2	1	HM	31*
Hazardous materials outside	1	1	1	1	1	HM	15*
Building investigation	1						4
Building Collapse	4	2	1	2	1	TR	32
Rescue/not vehicle or water	1		1	1	1		11
Elevator rescue	1		1	1			9
Technical Rescue	1	1	1	1	1	TR	15*
Water rescue	1	1	1	1	1	WR	15*
Stand-by	1						4
Special service	1						4
Trash/dumpster	1						4
Fire of unknown type	1	1		1			9
Vehicle	1						4
Vehicle leaking fluids	1						4
Field/woods	1					1	6
Plane Crash	4	2	2	2	2	TR	38*
Train Crash	4	2	2	2	2	HM/ TR	38*
Vehicle accident with injuries	1				1		6
Vehicle accident/motorcycle	1				1		6
Vehicle accident/pedestrian	1				1		6
Vehicle accident with rescue	1		1	1	1		11
Vehicle accident standby	1						4

* Not including Haz Mat (HM), Technical Rescue (TR), or Water Rescue (WR) personnel.

Figure 66: Recommended Standard Run Cards for Select Incidents

STANDARDIZED SOPS

Most of Chester County's fire and EMS agencies have written communications systems of some type that include standard operating procedures or standard operating guidelines (SOPs/SOGs). The MRI study did not review these systems in any depth. It was reported to the team that the comprehensiveness of these systems is varied, as is the quality and thoroughness of the documents within them. The challenge here is that once again, there is no fire company or department in Chester County that can handle even a house fire, without the need for significant assistance through automatic and mutual aid. These companies all operate together on a regular basis, but they are not utilizing a uniform set of operational procedures or guidelines. The Chester County Fire Chiefs Association recently approved a County-wide procedure on Rapid Intervention Teams (RIT). However, even that procedure is not mandatory and some companies in the County use the term "on deck" rather than RIT. These types of issues can cause confusion on the fire ground and other emergency scenes.

Effective communications systems are key to successful operation of any organization. The use of standard operational procedures or guidelines, and various other forms of written communications are vital parts of a fire company's overall operations. Operational procedures ensure the consistent, effective, efficient, and safe operation of various aspects of the department's operations, both emergency and routine. Without them there is a tendency to freelance and personnel may not all be on the proverbial "same page", or rowing in the same direction regarding those operations. One of many common denominators among the best fire departments across the United States is that they have a comprehensive and up-to-date operational procedural manual, and their personnel are well versed and well-trained in those procedures. The inclusion of written documents, such as training and safety bulletins, serve to make the system more effective.

Ultimately, there should be a singular system that is utilized throughout the County, particularly pertaining to fires and emergency scene operations. From a content perspective the SOPs/SOGs should be consistent with currently accepted standards and best practices in the fire and emergency services.

The Fire & Rescue Departments of Northern Virginia is a regional coalition of 14 member departments (Figure 67). They include Fauquier County (population 71,000) and Stafford County (population 150,000) that are still protected primarily by volunteer fire companies supplemented by career staff, to Fairfax County (population 1,200,000) with over 1,400 career personnel who are still supplemented by several hundred volunteers. Their mission is to provide the Northern Virginia region with the best possible emergency services through shared use of resources and coordinated emergency response. These 14 departments operate seamlessly through automatic aid throughout the entire region (Figure 67). This includes the development of standardized operational manuals for various types of incidents with unit position and assignment summaries. A complete set of these manuals is included in the

resource tool kit provided along with this report. Figure 68 provides a unit and position summary quick reference list for various types of structure fire incidents.

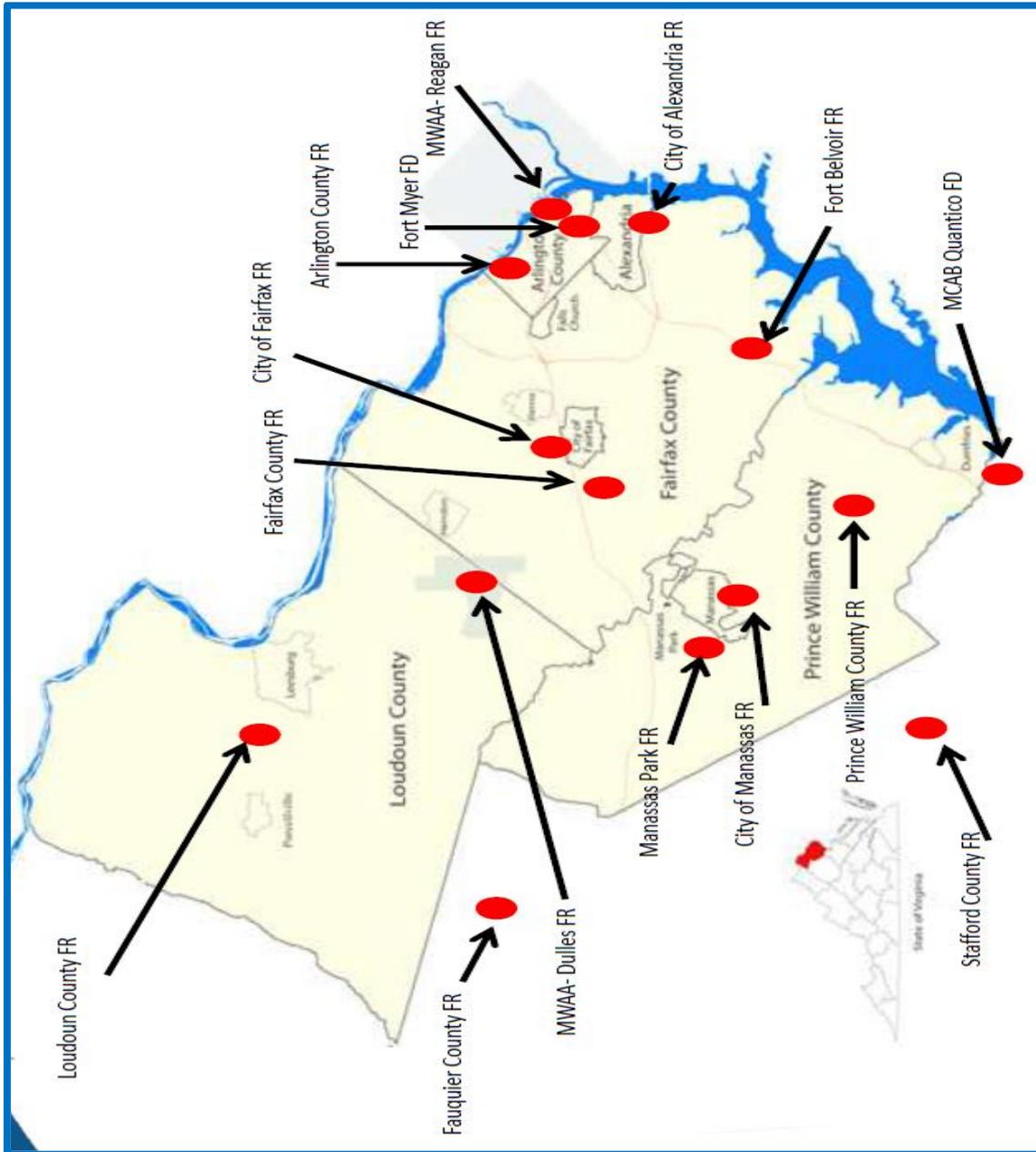


Figure 67
Fire & Rescue Departments of Northern Virginia

UNIT	SINGLE FAMILY	TOWNHOUSE	STRIP SHOPPING / COMMERCIAL	APARTMENT	HIGH RISE
1 st Engine	Side A, Supply Lines, initial attack line, Command Decision RECON Lap of Side C and announce findings	Side A, Supply Lines, initial attack line, Command Decision RECON Lap of Side C and announce findings	Side A, Supply Lines, initial attack line, Command Decision RECON Lap of Side C, (if possible) announce findings	Side A, Supply Lines, initial attack line, Command Decision RECON Lap of Side C, (if possible) announce findings	Abandon apparatus, entire crew inside, check FACP, identify floor, recall elevators, identify attack stairwell
2 nd Engine	Water supply for first engine, backup line/line above	Water supply for first engine, backup line/line above	Water supply for first engine, backup line, FDC if on Side A	Water supply for first engine, second attack line or backup	Supply FDC, check FACP for changes, assist first engine, plan for 2 nd hose line
3 rd Engine	RIT Position for second water supply	RIT Position for second water supply	Position on Side C, hose line operation & support Rescue & Truck, FDC if on Side C	RIT Position for second water supply	Water supply to secondary FDC, floor above 1 st engine w/2 nd truck
4 th Engine	Check side C, check for extension, exposure line	Check side C, check for extension, exposure line	RIT Supply 3 rd Engine	Check side C, check for extension, exposure line	RIT, attack stairwell (1 floor below fire floor)
5 th Engine					Report to Command Post, assume Lobby Control
1 st Truck	Side A, force entry, search, vent, ladders; vent & utilities if after Rescue	Side A, force entry, search, vent, ladders; vent & utilities if after Rescue	Side A, force entry, search, vent, ladders; vent & utilities if after Rescue	Side A, force entry, search, vent, ladders; vent & utilities if after Rescue	Side A, driver to stay with unit if fire is in reach of aerial, crew with first engine, force entry, primary search
2 nd Truck	Assure Side C is covered, IC's determination	Side C coverage	Side C, roof access, vertical vent	Side C coverage	Position for use at fire floor, crew to floor with 3 rd engine
1 st Rescue	Position out of way, vent, force entry & search Ladders, vent & utilities if after truck	Position out of way, vent, force entry & search Ladders, vent & utilities if after truck	Position Side C Gain access to involved occupancy and immediate exposure	Position out of way, vent, force entry & search Ladders, vent & utilities if after truck	If arriving before 1 st truck, assume 1 st truck tasks - if after, tagline on fire floor, force entry, ID alternative fire attack options, assist w/ 2 1/2 hose line
1 st EMS	Position for rapid egress Treatment of initial patients	Position for rapid egress Treatment of initial patients	Position for rapid egress Treatment of initial patients	Position for rapid egress Treatment of initial patients	Position for rapid egress, treatment of initial patients
2 nd EMS	Report to Command	Report to Command	Report to Command	Report to Command	Report to Command
1 st BC	Assume command	Assume command	Assume command	Assume command	Assume command
2 nd BC	Tactical Command, other duties as assigned	Tactical Command, other duties as assigned	Tactical Command, other duties as assigned	Tactical Command, other duties as assigned	Fire floor division supervisor

Figure 68
Unit Position and Assignment Summary

Fire rescue personnel can provide a valuable technical resource in the development of SOPs/SOGs. For the most part, the development and drafting of these policies should not be a top-down management driven process. The personnel who are going to be required to adhere to and follow the procedures should have input into their development. Input from personnel at all levels will strengthen the quality and effectiveness of SOPs/SOGs. The MRI study team encourages Chester County Fire and EMS agencies to draw upon the policies, practices, and procedures of other organizations, both local and distant. The experiences and lessons learned from other fire and rescue agencies can be extremely helpful in the development of SOPs/SOGs. No emergency services provider should be expected to write a policy or procedure document from scratch or without a template. A sample SOP which establishes a system of written communications and prepared on a standardized form is in Appendix O. A list of suggested SOPs that should be included in the manual are included in resource tool kit.

INSURANCE SERVICES OFFICE (ISO)

The Insurance Services Office's (ISO) Public Protection Classification (PPC) program evaluates communities according to a uniform set of criteria defined in the Fire Suppression Rating Schedule (FSRS). This criterion incorporates nationally recognized standards developed by the National Fire Protection Association (NFPA) and the American Water Works Association (AWWA). Using the FSRS, ISO evaluates the fire suppression capabilities of a community and assigns a PPC classification; a number rating from 1 to 10. Class 1 represents exemplary fire protection (by ISO's standards), and Class 10 indicates that the area or community's fire suppression program does not meet minimum recognized criteria or standards. In most cases, this means there is no recognized fire department or formal fire protection. Any building more than five road miles from a fire station or outside the boundary of a fire protection area is rated 10. Generally, areas of a community that are more than 1,000 feet from a fire hydrant, but within five road miles from a fire station, are rated Class 9.

The FSRS lists many items (facilities and practices) that a community should have to fight fires effectively. The schedule is performance-based and assigns/deducts credit points for each item. Using the credit points and various formulas, ISO calculates a total score on a scale of 0 to 105.5. The FSRS allocates credit for fire protection by evaluating these three major categories (Figure 69):

- 1. Fire Alarm and Communication System:** This aspect of the evaluation examines a community's facilities and support for handling and dispatching fire alarms. This includes telephone lines and systems, staffing, dispatching systems, and equipment. This component equates to 10% (10 points) of the evaluation. With Chester County's excellent 9-1-1 communications centers this should be an area where communities should be receiving full or nearly full credit during an ISO evaluation.

2. **Fire Department:** This component of the evaluation, which accounts for 50% of the total classification (50 points), focuses on the fire department and its operations. Areas that are examined include the number of engine and ladder/service companies, distribution of fire stations and fire companies, equipment carried on the apparatus, pumping capacity, testing of hose, pumps and ladders, reserve apparatus, department and on-duty staffing, and training.
3. **Water Supply System:** The third component of the evaluation is an analysis of the community’s water supply system for fire protection. Among the areas that are examined include fire hydrant size, type, flow, and installation. In addition, the condition and frequency of inspection of the hydrants is evaluated. Finally, the overall capabilities of the water supply system are assessed in comparison to the needed fire flow for target hazards in the community. Forty percent of the final rating (40 points) is based on the water supply system.

A relatively new addition to the FSRS, the Community Risk Reduction section, offers a maximum of 5.5 points, resulting in 105.5 total points now available in the FSRS. The inclusion of this section for “extra points”, allows recognition for those communities that employ effective fire prevention practices, without unduly affecting those who have not yet adopted such measures.

The addition of the Community Risk Reduction section gives incentives to those communities who strive proactively, to reduce fire severity through a structured program of fire prevention activities.



Figure 69
Four Key Parts of ISO PPC Evaluation Process
Source: ISO

Every city, borough, township, or area that provides fire protection services is subject to being graded to establish a PPC. Individual buildings, both residential and commercial, are subject to the community's PPC. When calculating property insurance premiums, insurance companies using the PPC apply a factor that reflects a community's PPC. Some individual facilities within a community may also be individually assessed and assigned a specific rating.

Although there may be validity to the argument that this rating is no longer utilized by all insurance companies that issue policies to industrial and commercial facilities within Chester County, ISO is still recognized as a comparative benchmark of public fire protection. Moreover, within the past several years, ISO has significantly revised its FSRS, and as a result, the PPC to reflect new innovations and technology, and the evolving standards and industry best practices within the fire service. Among these changes are:

- Greater reference to nationally accepted consensus standards; NFPA and AWWA.
- Increased recognition of automatic fire sprinklers.
- Greater reliance on technology-based solutions (e.g., GIS, thermal imaging cameras, etc.).
- Increased emphasis on fire training activities.
- New reference to national standard safety requirements.
- New reference to accreditation; focus on master/strategic planning.

According to ISO, the PPC helps measure the effectiveness of fire protection and provides an important advisory evaluation to both insurers and communities. It is applied nationwide, and more than ever incorporates accepted national consensus standards. The PPC is used in marketing, underwriting, and pricing of both homeowners and commercial lines of fire/property insurance. Broadly speaking, the cost of insurance premiums is generally lower with better protection which translates into lower losses; the cost is higher in areas that have lower levels of protection which often translates into higher losses. Many insurers still rely on this information, at least partially, to set their fire insurance rates.

RECOMMENDATIONS:

VI-1: *The fire companies of Chester County should work collaboratively with the municipalities they serve to conduct a community risk assessment and develop a community fire and EMS risk management plan as recommended in NFPA 1720, Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations and Special Operations to the Public by Volunteer Fire Departments.*

- VI-2:** *To the extent possible with their respective staffing availability, every fire company in Chester County should attempt to start a pre-fire/incident planning program. While the goal of the program should be to have an up to date pre-plan for every business, commercial, and industrial occupancy in their response area, initial efforts should focus on the most serious target hazards. Pre-planning will improve the firefighter's knowledge of the specific tactics needed to handle a fire or other emergency at a facility and will alert them to on-site hazards and risks. Pre-fire/incident plans should be reviewed regularly and tested by periodic table-top exercises and on-site drills.*
- VI-3:** *The Chester County Department of Emergency Services should continue to provide and facilitate the purchase of all equipment such as communications and other technology. This should continue to assist to control costs utilizing bulk purchasing and provide consistency and standardization throughout the County.*
- VI-4:** *The Chester County Fire Chiefs Association, Chester County EMS Council, Inc., and Chester County Fire Police Association, working collaboratively with the Chester County Department of Emergency Services should update their standardized responses for various types of incidents, and standardized run cards County-wide. Once developed the standardized responses should be adopted as the Chester County standard.*
- VI-5:** *The Chester County Fire Chiefs Association, Chester County EMS Council, Inc., and Chester County Fire Police Association, working collaboratively with the Chester County Department of Emergency Services should develop a County-wide procedure of dispatching the closest available station(s) with necessary apparatus/resources, and qualified personnel as determined by automatic vehicle location (AVL) or GPS, rather than permitting the selection of specific companies which may have longer travel distance and response times. Once developed, the standardized responses should be adopted as the Chester County standard response procedure for all agencies.*
- VI-6:** *The Chester County Fire Chiefs Association, Chester County EMS Council, Inc., and Chester County Fire Police Association working collaboratively with the Chester County Department of Emergency Services, should develop a procedure for documenting the number of self-contained breathing apparatus (SCBA) qualified interior structural firefighters are on each unit. Whenever possible, this information should be entered into the CAD system by the apparatus officer allowing all responding personnel, particularly chief officers, to track the number of responding personnel in real time.*
- VI-7:** *The Chester County Fire Chiefs Association, Chester County EMS Council, Inc., and Chester County Fire Police Association, working collaboratively with the Chester County Department of Emergency Services should develop a procedure for the 9-1-1 center to track and analyze full-first alarm assignment on location times as*

recommended by NFPA 1720, and, any standards of cover responses (SOC) that are established.

VI-8: *The Chester County Fire Chiefs Association working collaboratively with the Chester County Department of Emergency Services should develop a plan to deploy several daytime quick response units; fire apparatus staffed with an officer and three firefighters, positioned strategically around the County in fire stations that wish to host them.*

- *These units should initially be staffed with qualified volunteer personnel being paid a per diem.*
- *Units should be in service from 6:00 AM to 6:00 PM.*
- *Initially, staff one unit in each geographic region of the County and adjust deployment based upon data analysis.*
- *Because these units will provide wide area coverage throughout the entire County during times of reduced volunteer availability, the MRI study team believes that again, as part of a pilot program, these personnel should be funded through the County. If the personnel are paid \$20.00 per hour, and personnel provide a total 720 staff hours per week (3 units x 4 personnel each x 60 hours per week), the first-year cost for salary would be approximately \$750,000.00. There is currently no funding stream established to fund this need.*
- *Future consideration should be given to the County applying for a FEMA Staffing for Adequate Fire and Emergency Response (SAFER) grant as a County-wide endeavor to improve compliance with NFPA 1720. Currently, SAFER eligibility requirements do not allow for Chester County to apply.*

VI-9: *The Chester County Fire Chiefs Association working collaboratively with the Chester County Department of Emergency Services should work toward having Chester County begin to hire full-time, career firefighters to be assigned to fire stations throughout Chester County that wish to utilize them. Fire companies that need/wish to have career staff assigned moving forward would need to notify the County at least 24 months prior to any requested deployment. Fire companies that do not want career personnel would not be forced to have them deployed from their station.*

The addition of career personnel would provide a guaranteed, timely, and qualified, response to daytime emergency incidents. With these personnel available for immediate response, the fire companies should begin to improve initial unit on scene response times, and more frequently be able to comply with the initial fire attack requirements recommended by NFPA and required by OSHA.

Some of the other benefits to having the career staff in place, particularly during the day when most of the volunteer force are at their primary jobs, include, but would certainly not be limited to:

- ***Quicker and guaranteed compliance with the OSHA Two in-Two Out requirement for initial fire attack.***
- ***Guaranteed, and usually immediate, EMS response by trained first responders to get lifesaving help to the 9-1-1 caller quicker if nearby ambulances are committed, or on high priority incidents.***
- ***Performing fire prevention inspections and other fire prevention activities.***
- ***Developing pre-fire/incident plans.***
- ***Performing fire apparatus, tool, and equipment inspections, testing, and maintenance.***
- ***Performing basic station maintenance in all stations.***
- ***Performing fire hydrant testing, maintenance, and flow testing.***
- ***Assisting the fire companies with special projects.***

VI-11: The Chester County Fire Chiefs Association should encourage their members to consider starting to utilize volunteer personnel to provide in-station staffing, whenever possible, but primarily between 6:00 PM and 6:00 AM daily, and, all day on the weekends. Personnel who pull at least one duty shift per week would maintain their member in good standing status with the fire company. When on duty personnel could also complete their required training, participate in various department/station projects, pre-fire planning, etc., and possibly even membership recruitment activities.

Under the duty crew system, calls of less severe acuity would be handled by the duty crew alone. Multiple stations and units would still be dispatched and respond to potentially serious incidents such as any type of reported structure fire, rescue incidents, etc., based upon the run card protocols. All personnel would be encouraged to respond to these types of incidents.

VI-12: The Chester County Fire Chiefs Association should form a committee to begin development of a comprehensive County-wide Standard Operations Procedures/Guidelines (SOP/SOG) manual utilizing existing SOPs/SOGs as a starting point. They should also consider the development of County-wide operational manuals based upon the Northern Virginia Regional Fire Services manuals. This could even be pursued as a regional endeavor with the other counties in Southeastern Pennsylvania. The committee should be comprised of members of various companies and ranks.

VI-13: The Chester County Fire Chiefs Association should adopt a standardized SOP/SOG form that includes the following information:

- ***Title of the SOP/SOG***
- ***Number of the SOP/SOG***
- ***Category of the SOP/SOG (EMS Operations, Training, Administration, etc.)***
- ***Page number and total number of pages***
- ***Effective date***
- ***Revision date (if applicable)***
- ***Approval/signature***

Each SOP/SOG should, at a minimum, contain the following sections:

- ***Purpose***
- ***Scope (If necessary and/or appropriate)***
- ***Definitions of terms (If necessary and/or appropriate)***
- ***Procedure(s)/Main body***
- ***References (If necessary and/or appropriate)***

CHAPTER VII

EMERGENCY MEDICAL SERVICE (EMS) OPERATIONS

EMS operations are an important component of the comprehensive emergency services delivery system in any community. Together with the delivery of police and fire services, it forms the backbone of the community's overall public safety life net. In fact, as a percentage of overall incidents responded to, it could be argued that EMS incidents constitute the greatest number of "true" emergencies, where intervention by trained personnel does truly make a difference, sometimes literally between life and death.

Heart attack and stroke victims require rapid intervention and care, and transport to a medical facility. The longer the time duration without care, the less likely the patient is to fully recover. Numerous studies have shown that irreversible brain damage can occur if the brain is deprived of oxygen for more than four minutes. In addition, the potential for successful resuscitation during cardiac arrest decreases exponentially, 7 to 10%, with each passing minute that cardio-pulmonary resuscitation (CPR) or cardiac defibrillation and ALS intervention is delayed. Few attempts at resuscitation after 10 minutes are successful.

EMS organizations in Chester County provide an exceptional level of response and high-quality patient care. Despite the current positive operational outcome, the system is stressed and facing a confluence of fiscal and operational challenges that must be strategically addressed to preserve the current level of service in the long term. Without appropriate planning and creating new support for these systems, the current level of service will in all probability deteriorate.

Over the years, several reports have been commissioned by Pennsylvania to examine emergency services across the state. Examples include the SR 60 Commission report in 2004 and the SR 6 Report that was published in 2018. Both reports provided great insight into the challenges facing, and recommendations for improving, EMS delivery in Pennsylvania. However, limited action has occurred on many of the recommendations and action items highlighted in these reports, and thus prolonged, and even exacerbated, the challenges and obstacles facing many emergency service organizations in the Commonwealth.

The Pennsylvania Department of Health has statutory oversight of all EMS agencies in the Commonwealth. Throughout the state, there are 13 regional EMS councils. These regional EMS councils are responsible for inspecting all ambulance services in their region, as well as regulatory oversight and advocacy. In addition, the regional EMS councils oversee all initial certifications, re-certifications, and continuing education for all levels of EMS providers. The Chester County Department of Emergency Services is contracted by the Pennsylvania Department of Health and empowered by Commonwealth of Pennsylvania legislation, to act as a local regulatory body that assists the Pennsylvania Department of Health with regulatory oversight of local EMS organizations throughout their designated EMS region.

Chester County EMS agencies have diverse backgrounds and organizational compositions throughout the County. At the time of the interviews for this study, there were 32 EMS agencies with primary response area in Chester County consisting of both fire-based and independent EMS only agencies.

Each of these EMS agencies, regardless of organizational structure, has full-time career staff which are supplemented by per diem/part-time staff and/or volunteers. It should be noted that at the time of this review, five agencies within Chester County that provided

EMS services had completed mergers within the past decade. Those mergers were Parkesburg Fire Company, Pomeroy Fire Company, and Atglen Fire Company forming the Keystone Valley Fire Department and Elverson Ambulance and Honey Brook Ambulance forming Elverson-Honey Brook Area EMS. Each of these newly formed services are BLS transport services with ALS provided by separate ALS agencies.

Figure 71 indicates BLS response areas, while figure 72 shows ALS response areas. At any given time, there are generally 20 to 25 BLS ambulances and 30 to 32 ALS units in service throughout the County. The providers reported normally staffing between one and four units at any given time. The County also has five quick response agencies, including one at West Chester University, that provide first responder service in their response areas prior to the arrival of an ambulance.



Figure 70
EMS Operations in Chester County

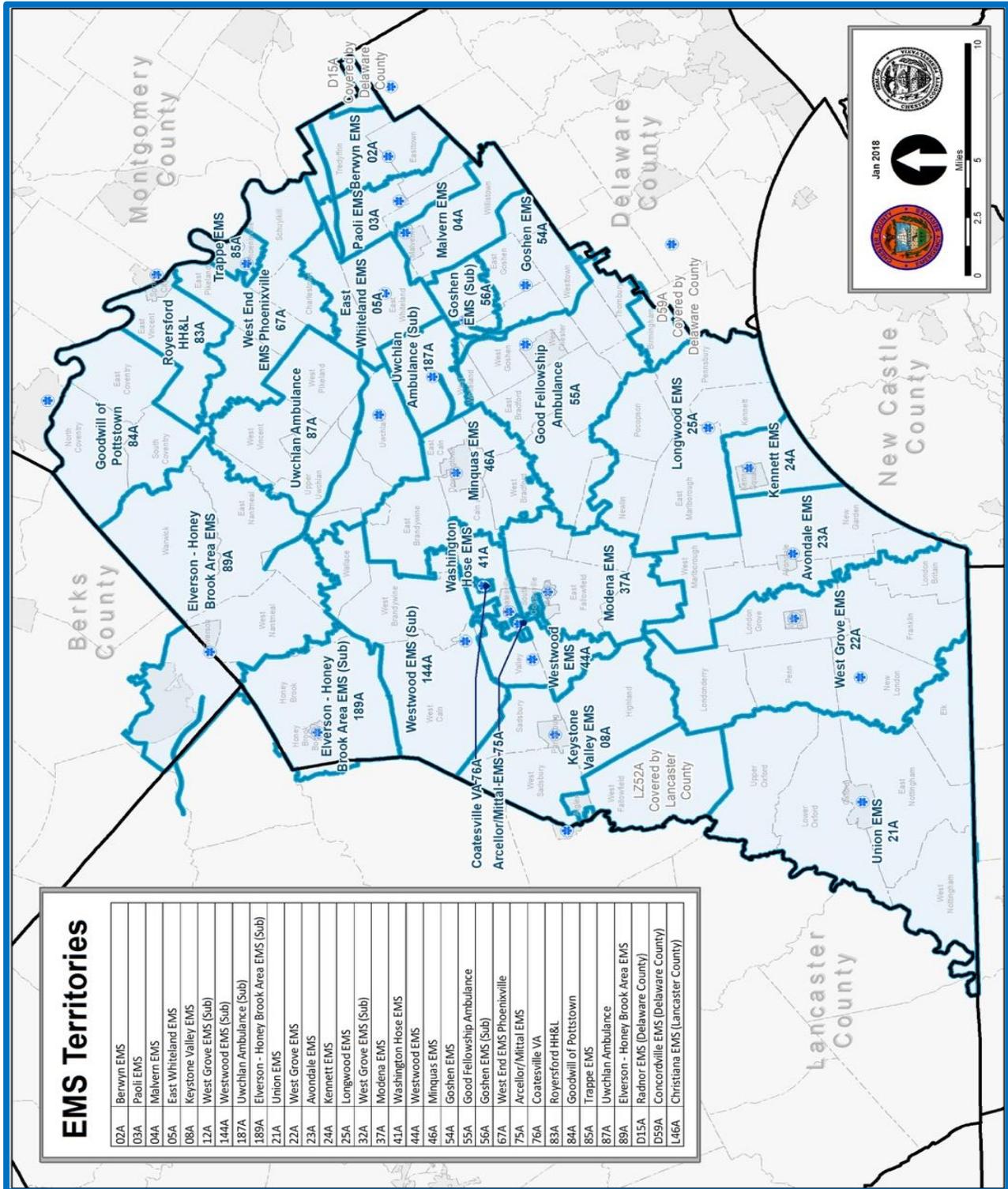


Figure 71: BLS Response Areas

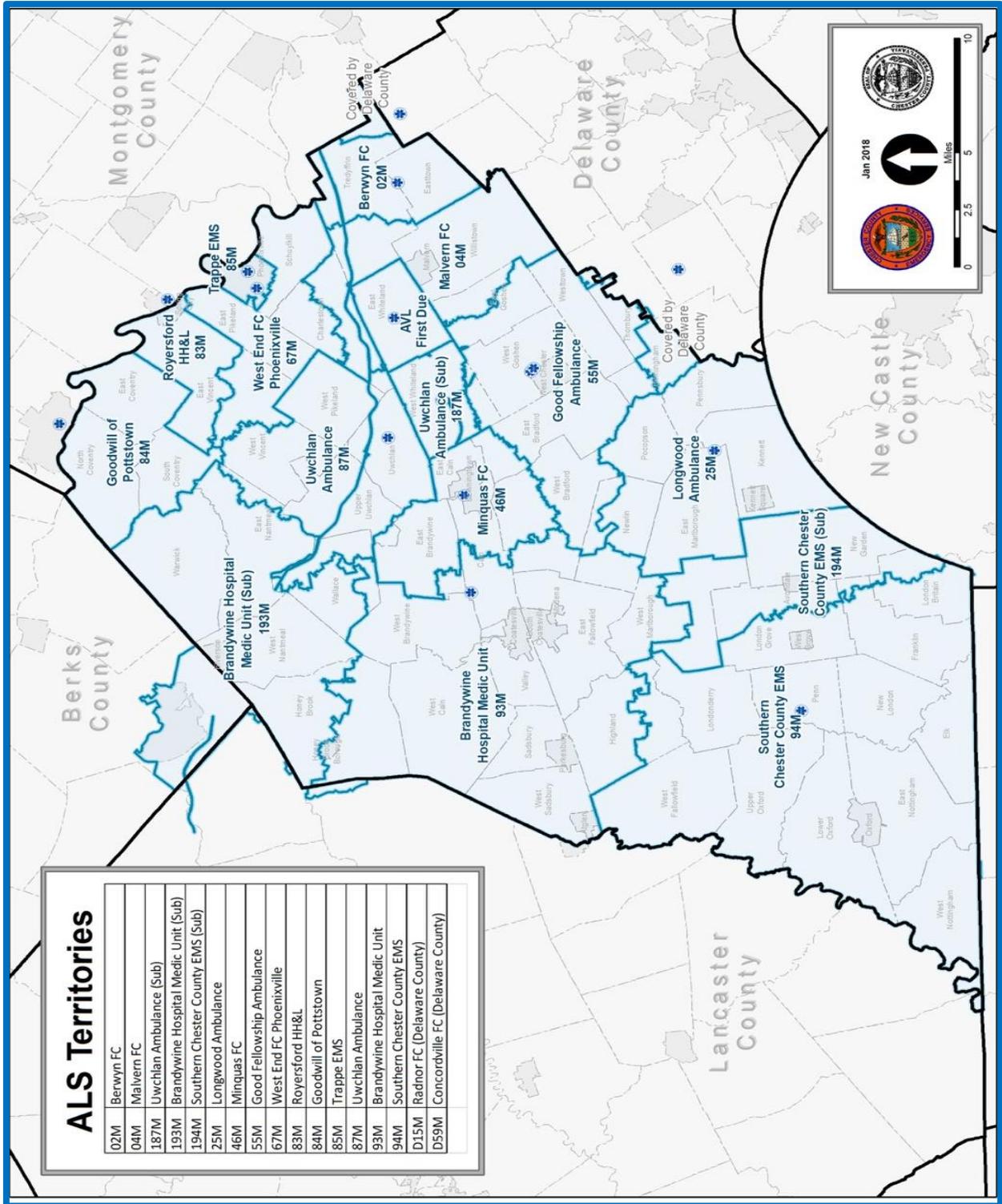


Figure 72: ALS Response Areas

For EMS especially, because of its high call volume, the continued heavy reliance on volunteers to supplement career staff for EMS service is tenuous. According to a representative of the Chester County Planning Commission, the cost of housing and the overall cost of living in Chester County is becoming a challenge and requiring more dual income families which limit volunteer time. The location of many jobs for County residents are remote from their residences and thus limits the ability of personnel response. Many personnel are also finding the management in many companies limiting their ability to respond from work, as they were losing too many work hours. In addition, many white-collar jobs are being created in the County. Examples of these jobs include finance, technology and pharmaceutical positions.

Recruitment and retention of emergency service volunteers continues to be challenging at best. Economic and financial pressures impact numerous families across the commonwealth. Many families rely on all the adults in the family unit to have multiple jobs, to offset the cost of living and rising inflation; leaving little time at home or to volunteer and provide service to the community. On the career side, low pay and limited benefits, have long been a part of normal operations in EMS forcing many providers to work multiple jobs to make financial ends meet.

The SR 6 report notes declining EMS staffing levels are linked to financial losses. The number of Emergency Medical Technicians (EMT) has fallen by over 6,000 since 2012, while the number of paramedics is down by 4,000 providers in the same period. The Bureau of EMS estimates the number of active providers in the system is approximately 17,000 state-wide, down from recent estimates of over 30,000. Only 11,400 providers work for only one agency, with the remainder working or volunteering for as few as two agencies, to as many as nine agencies in a six-month period.

In addition to the financial struggles by many families and individuals, this same economic squeeze is impacting local municipalities and the emergency services providers themselves. These financial challenges limit the ability of these emergency service organizations to support volunteers to attend training, purchase proper safety equipment, or offset any individual expenses pertaining to involvement with the emergency response agency. Given many of the EMS services are fire-based delivery models, this compounds the problem that not only are there limited volunteers to participate and provide EMS services for some of the independent agencies, but in addition there are declining volunteers to provide fire and EMS service in the fire-based agencies.

Based on a reduction in the number and availability of volunteers, all of Chester County's EMS services have transitioned to a primarily career staffing model, to provide their primary ambulance staffing. MRI's experience indicates that many EMS providers need to work for multiple agencies to make ends meet. This can create a dangerous situation as providers need to work multiple shifts to continue in this line of work. This often results in sleep deprivation that can lead to quality of care issues as these providers move from one shift to the next. The issue of sleep deprivation is becoming a significant issue in the emergency services as multiple studies have now looked at it and warned of the risks it presents to patients, providers, and

their families. Information on sleep deprivation is included in the tool kit. The COVID-19 pandemic has only exacerbated this issue as personnel are working more and longer shifts to meet demand while covering for sick or quarantined colleagues. As the EMS providers who serve Chester County examine strategies to stabilize these systems and enhance the level of service to their growing customer base, improving compensation and benefits (although a difficult proposition) should be considered a priority and a service-enhancing force.

The National EMS Scope of Practice Model has four separate and distinct levels of EMS licensure for all personnel: Emergency Medical Responder (EMR), Emergency Medical Technician (EMT), Advanced EMT (AEMT), and Paramedic. Each of these levels represents a comprehensive knowledge base and skill set that compounds from the previous level to provide a foundation for EMS competency of pre-hospital providers. In Pennsylvania, the national EMS training curriculum is used and recognized for all four of these levels. The Commonwealth requires EMR's to complete 16 hours of continuing education training every three years, EMTs to complete 24 hours every three years, AEMTs to complete 36 hours every two years, with Paramedics required to complete 36 hours every two years. In addition, each of these levels requires training and certification on emergency vehicle operations which enables them to drive EMS vehicles.

Training requirements continue to remain a challenge for all EMS providers across the Country. Initial basic-EMT training in the state requires at least 180 hours of instruction. In order to upgrade and progress to advanced-EMT, personnel must complete an additional 180 hours of training. Anyone wishing to obtain their paramedic certification must complete 1,000 hours of training along with extensive practical skills development. These initial training requirements and then the ongoing training requirements to maintain the certification, as well as the expected competencies associated with delivering the skill set, have become daunting for many. This leads to the rapid decline in numbers of certified personnel as was mentioned earlier.

As part of this project, the MRI study team conducted numerous interviews and surveys from different stakeholders across the County. A pronounced theme on the surveys from all three groups (local officials, fire and EMS responders, and citizens) was the challenge of initial and ongoing training requirements for medical (and fire) responders. Contributing factors to this included lack of time and opportunities for obtaining and completing the training, and limited funding for training opportunities and the number of required continuing education classes.

Online training has become more popular over the years particularly given the recent challenges the country has faced with the COVID-19 pandemic. Online learning provides opportunities to individuals to complete initial or continuing education in their respective fields at the convenience of their own homes or departments. Online learning eliminates the need for people to travel to remote areas, out of their coverage and response districts, and take additional time beyond the program to attend. Online learning allows participants to complete the programs at their own pace at their own schedule. One limitation that needs to be considered for implementation of these types of programs is access to internet capabilities and

other technologies as part of the infrastructure for these online platforms. Given the technical components required in the EMS field, there will always need to be a hands-on practical skills evaluation method for most programs that are offered. These programs have hybrid models that enable participants to complete all instructional modules online followed by a practical skills evaluation session done face-to-face. Numerous examples of such classes can quickly be found on the website for the American Heart Association (AHA). Classes such as Bloodborne Pathogens, First Aid, CPR/AED, pediatric programs, Advanced Cardiac Life Support (ACLS), and opioid education can all be readily found in hybrid formats.

Response times are always a critical component to any emergency response system. Chester County currently has a tiered response system in place to provide quick, reliable medical care and response throughout the region. A tiered EMS response system incorporates ALS level services providing coverage for a larger geographical area whether it is County-wide or just a large response district. These ALS level services are supported and supplemented by BLS and first responder level services that are deployed throughout these same areas and arrive on scene providing initial assessment, stabilization, and treatment. The BLS and first responder services are primarily (but not exclusively) provided by fire-based EMS organizations with some EMS only organizations also scattered around the County.

EMS responses are divided into either the BLS or ALS category. The primary caregiver at the BLS level is an EMT, who is the foundation of the basic level of EMS care. At the ALS level, the primary caregiver is a Paramedic, who has more advanced training and therefore, can accomplish a higher level of pre-hospital care. Emergencies such as fractures and general illness are dispatched at the BLS level, while emergencies such as chest pain and difficulty breathing are dispatched as ALS emergencies. Police departments also play a pivotal role in this tiered response system and the police agencies throughout the County all have AED's and naloxone as part of their EMS supplies. However, approximately 50% of the County is covered by the State Police who may not respond to medical calls, thus removing one link of this first responder network.

One of the things that MRI's analysis of EMS incident data revealed was that incidents that are classified as ALS outnumber those that are classified as BLS. From 2017 through 2019 the percentage on EMS incidents classified as ALS ranged from 52.7% to 53.9%. Typically, about 30% to 35% of patients are classified as needing ALS care. The County has looked at this statistic and adjusted protocols, however, it has not significantly changed the ratio.

Response times can provide some confusion based on the matrixes being measured and evaluated. Every response has a call processing time and dispatch (notification) time, turnout time (time of notification until personnel are in vehicle and physically beginning their response to the scene), time of response from their turnout time to arrival on the incident scene, also referred to as travel time, and time of arrival at the patient. Examining the data provided by Chester County, from January 2017 to December 2019 the average response times for EMS responses were between four minutes, fifty-seven seconds (00:04:57) and five minutes, eight

seconds (00:05:08). These times represent the time from personnel physically driving in the vehicle to the scene and arriving on the scene.

It should also be noted that Pennsylvania has a strong set of EMS protocols that specify that certain types of low acuity calls are responded to cold; at reduced speed, meaning with no lights or sirens. When looking at overall response times these calls can serve to increase average response times. Transporting low acuity patients to the hospital in a non-emergency mode, although safer from a risk management perspective can lengthen transport and turnaround times and keep ambulances out of service for longer periods of time.

National Fire Protection Association (NFPA 1710) standard, *Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Career Fire Departments*, is a nationally recognized consensus standard that helps to define levels of service, deployment capabilities, and staffing levels for substantially career fire departments and EMS providers. This standard outlines the following criteria for EMS responses (excluding alarm handling times) and performance objectives for the first due response areas that are identified by the AHJ:

- 60 seconds (one minute) turnout time for EMS responses 90% of the time.
- 240 seconds (four minutes) or less travel time for the arrival of a unit with first responder with automatic external defibrillator (AED) or higher-level capability at an emergency 90% of the time.
- 480 seconds (eight minutes) or less travel time for the arrival of an advanced life support (ALS) unit at an emergency medical incident, where this service is provided by the fire department provided a first responder with an AED for basic life support (BLS) unit arrived in the 240 seconds or less travel time 90% of the time.

The Commission on Accreditation of Ambulance Services (CAAS) sets a benchmark response time of eight minutes, fifty-nine seconds (00:08:59) for an ambulance to arrive on scene. Figure 73 illustrates BLS travel times from their respective stations for both the NFPA and CAAS standards. Figure 74 illustrates ALS travel times utilizing the same standards.

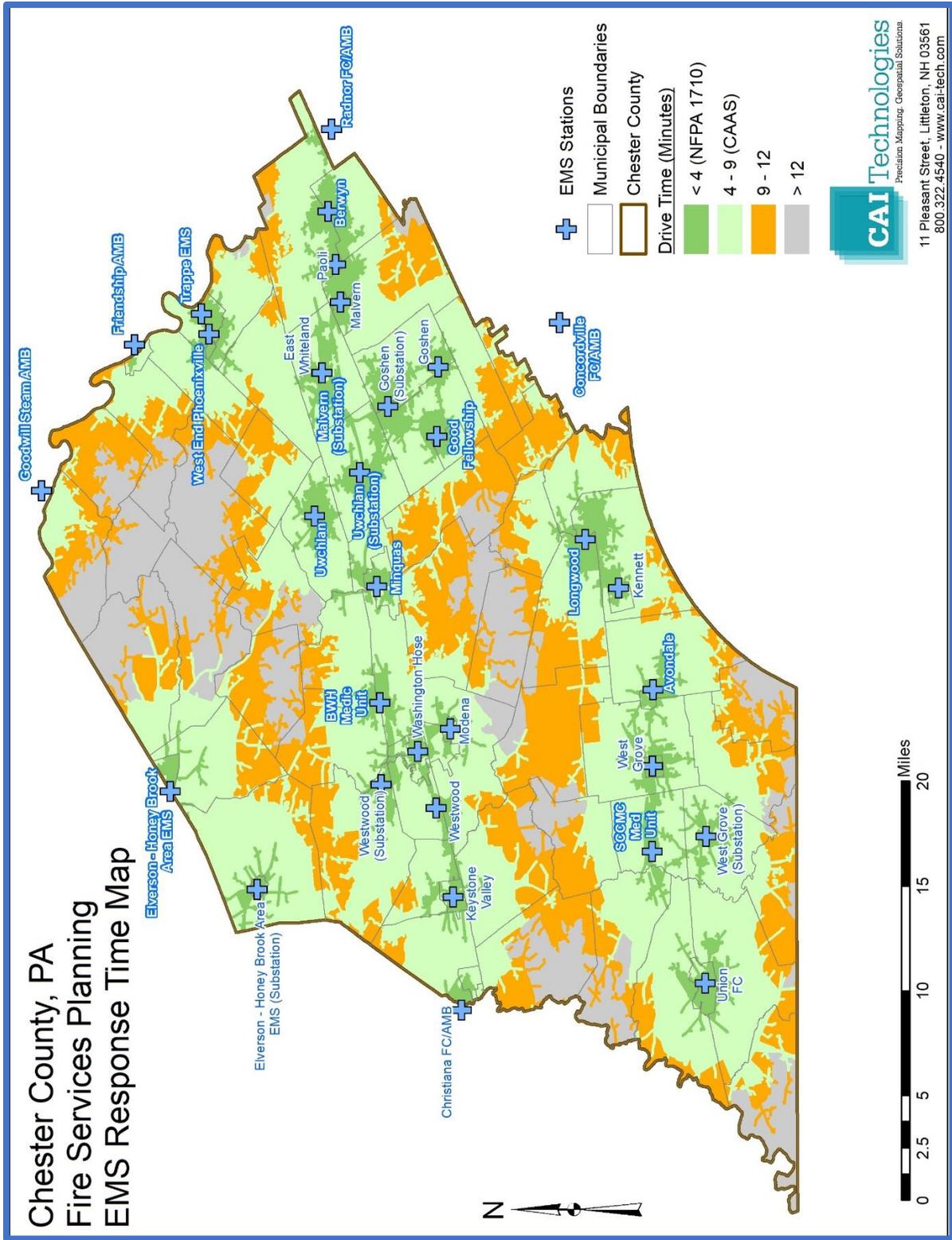


Figure 73: Basic Life Support Response Time Map

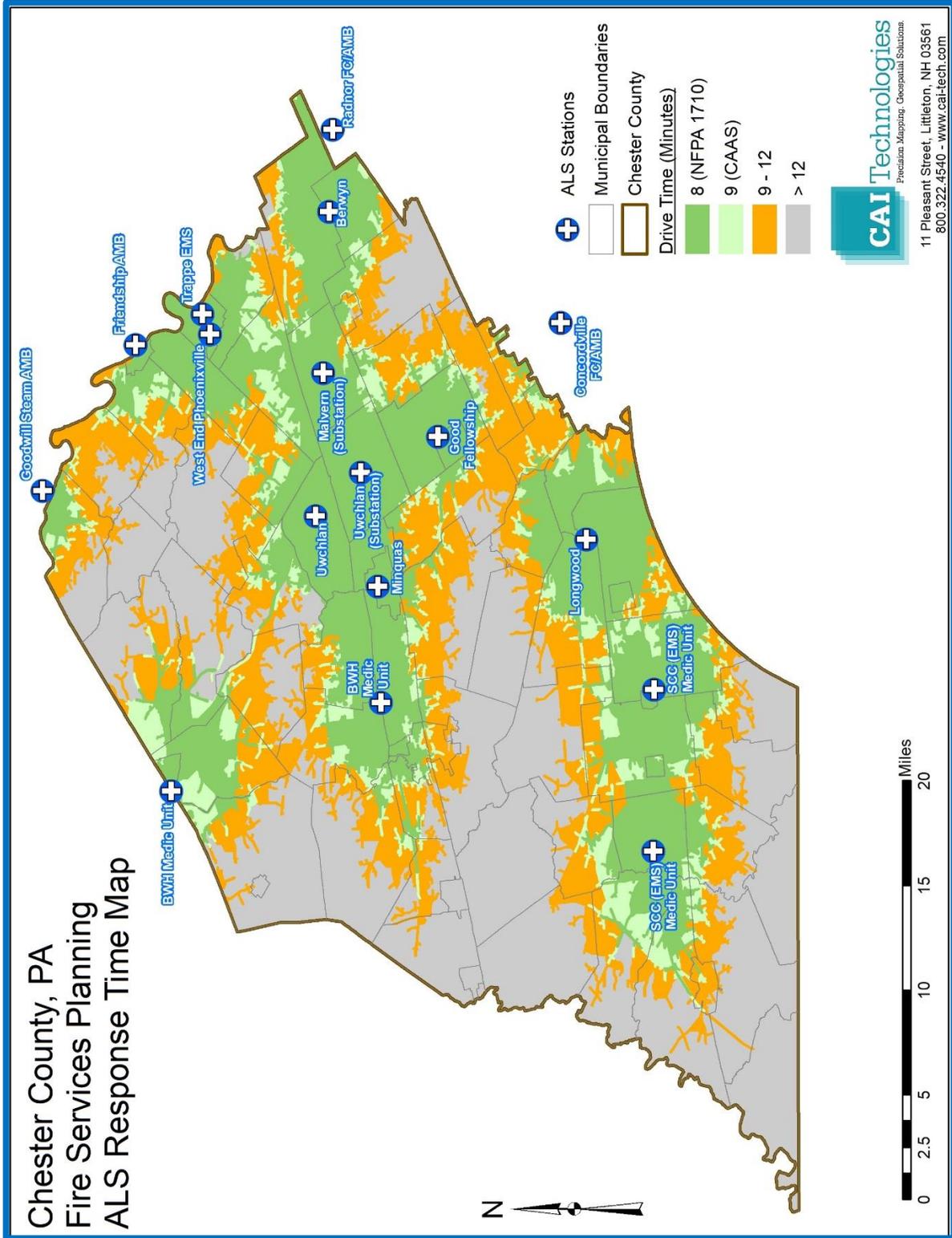


Figure 74: Advanced Life Support Response Time Map

The Chester County Department of Emergency Services, serving as the EMS Region under contract from the Pennsylvania Department of Health, has an EMS division that is comprised of one fulltime Deputy Director for EMS, three other full-time employees, and a small cadre of EMS Instructors. The Department of Emergency Services provides many technological services and other ancillary functions to EMS agencies throughout the County.

The Department of Emergency Services provides all the EMS services in the County with communications equipment. This equipment includes mobile and portable radios, pagers, and mobile data terminals. It was noted that some services still choose to purchase additional communications equipment on their own, however, the initial responding personnel and primary riding positions on the vehicles are typically funded through County resources.

Additionally, emsCharts, a software program that enables services to document their EMS responses and generate patient care reports as part of the continuum of care, is also purchased for each service through the County. Interviews with service providers throughout the County found that although emsCharts is available and purchased by the County for every service, there are still some services that purchase this, or another similar reporting software program for themselves in order to maintain the autonomy and oversight of this system and not have it driven by the County.

Recently, the County purchased a health data exchange link for all EMS agencies that enables EMS services to connect with hospitals to have real time reporting on patient care reports and reciprocal feedback to services from the hospitals. The MRI study team commends the Chester County Department of Emergency Services and the Chester County EMS Council, Inc. for these initiatives which is **Best Practices**.

The Department of Emergency Services also has a license for a Quick Response Service (QRS). A Quick Response Service can get a patient's information, provide initial patient treatment and stabilization, and then prepare the patient for transport. Most County buildings have public access defibrillators with personnel trained in cardiopulmonary resuscitation and the use of a defibrillator in these facilities. To eliminate any conflict of interest, another EMS regional council conducts and facilitates the inspection for the County to maintain this QRS license. This same procedure and concept could be further explored for any potential regionalization initiated in the future, at the County level.

One important potential life-saving service that is made available by the Department of Emergency Services throughout the County is a mobile phone application call PulsePoint. This technology allows subscribers to this mobile application, the ability to receive notifications when someone in their immediate vicinity, in a public location, is experiencing a cardiac arrest. The application uses the current location of the subscriber and interfaces with Chester County 9-1-1 CAD and signals or alerts the users when someone is having a cardiac arrest. This system provides a form of crowdsourcing and enables citizens who are trained in CPR the ability to utilize their skills and minimize the time until a trained person begins life-saving procedures that would hopefully reduce the potential of sudden death from cardiac arrest. The County

currently has about 12,000 subscribers to this program. MRI considers the use of the innovative technology to be a **Best Practice** that should be continued and expanded. **MRI's study team would like to recognize that Chester County is a national leader in the deployment of this proactive system that will help to enhance the survivability of cardiac arrest.** It was also noted in numerous interviews that many municipalities provide CPR training programs for the public to help support this initiative and help increase the life safety in their communities.

To further support this initiative, there are numerous public access defibrillators available throughout the County. When a caller to 9-1-1 reports a possible cardiac arrest, the dispatch center provides the location of the closest defibrillator, provided that it is documented that there is an AED at that location.

Another innovative program recently introduced in Montgomery County, Maryland interconnected with the non-emergency responses and transports might be something for Chester County to consider. The new alternative destination program means 9-1-1 callers might end up being transported to a qualified urgent care facility instead of a hospital if their emergency is not critical. The new program is designed to keep people with less serious injuries or ailments out of busy hospitals, leaving more room and beds for those who need them most. According to the Montgomery County Fire and Rescue Service, *"If a patient meets certain criteria, we're able to take them to an urgent care facility. It's usually more efficient for the patient in time and money and insurance."* At the time of this study, this type of alternative patient transport program was not permitted in Pennsylvania.

Funding and reimbursements in the EMS systems across the country have become extremely problematic, to the point where many services are incurring escalating debt, by providing emergency medical services at a greater cost than they can recuperate from the insurance companies. These services provided at the community level are decided upon and fees established at the agency level, but reimbursement are dictated by the federal government and private insurers. It is this local level, and local option, that help to determine the quality of EMS service provided to the communities. It was found during this study, that Chester County has a diverse population which translates to a diverse payer-mix, for insurance and insurance carriers. The eastern part of the County benefits from significant commerce, economic viability, and resources while the western and southern areas of the County are more rural and thus have fewer resources.

Medicaid payment rates for ambulance services are often approximately 70% less than the actual cost of providing them. Federal regulations at 42 CFR 447.3000 and Section 1902(a)(30) of the Social Security Act allows states to establish alternative payment methodologies including supplemental payment and certified public expenditures (CPE) methodologies. This discrepancy in reimbursement is so dramatic and damaging to many services that the CPE program was afforded to participating services to help offset some of these challenges. Federal rules allow certain health care provider organizations to utilize CPE's to draw down federal

funds to compensate for unreimbursed cost for medical care provided to Medicaid recipients. However, even with the implementation of this program, services are still not realizing reimbursement for their true costs of providing the highest quality of care.

These fiscal challenges inhibit the ability to provide sufficient resources and challenge the sustainability of continuing the current high level of service that has been delivered to residents and visitors in Chester County. Many of the fire company-based EMS providers are finding it necessary to contribute additional funding to offset the operational costs of providing the service. This trend cannot continue, and assurances need to be established to continually improve the operational capabilities and quality of service to the communities. The MRI study team was informed that there are several providers in the County whose finances are precarious.

In April 2020, faced with mounting financial pressure, the Monmouth Ocean Hospital Service Corporation (MONOC) in New Jersey which operated Mobile Intensive Care Paramedic Services and Mobile Critical Care Services as a non-profit, shut down after 42 years. Also, in April, a survey conducted by the National Association of Emergency Medical Technicians (NAEMT) found that several of the nation's largest EMS companies are on the brink of collapse, with 9% reporting to have only days or weeks to remain operational without financial relief. The financial distress has been compounded by the COVID-19 pandemic, which has increased EMS operational costs while significantly reducing its revenues. *"Without direct relief, a collapse of the nation's EMS system will happen; it's not a matter of if, only when,"* the NAEMT survey states.

With state budgets under significant pressure, the prospects for addressing this inequity with traditional measures are dim. The ability for local municipalities to establish their own fees helps to provide that strategic direction and financial forecast to meet the increasing service demands and public expectations. Lowering of reimbursement fees could also leave healthcare institutions and assisted living facilities within the communities at risk for some private services cancelling their contracts.

As municipal funding for all departments has stagnated, EMS operations, specifically the fees collected for emergency room transportation, have become an important source of revenue for municipalities and EMS organizations. While the volume of non-emergency calls can strain the capacity of local EMS services and impact their ability to respond to other emergency calls, the additional revenues transport activity generates has generally offset its costs. Increasingly however, private insurance companies and the government have reduced (or are considering reductions) reimbursement rates, and are becoming more reluctant in general, to compensate departments for the full cost of emergency room transportation fees, especially for non-emergency treatment. Communities that provide EMS transport services are therefore facing pressure on their transport revenues as well.

In addition to the Medicare and Medicaid insurance reimbursements, EMS organizations are struggling with many third-party insurance payors, who send payments for EMS services directly back to the subscriber who received the service. Many of these subscribers, knowingly or unknowingly, do not forward these reimbursements back to the EMS organizations. Many EMS organizations interviewed during this project specifically noted that their number one challenge was funding. Comments were made regarding reimbursement challenges and the facts that many services were owed anywhere from \$1,000 to \$250,000 from patients who had not sent reimbursements for services to their respective organizations. Complicating the financial picture even more for the EMS service providers is the continuing uncertainty over the future of the Affordable Care Act as it continues to face legal challenges and legislative efforts to dismantle it.

Legislative efforts have been made pertaining to EMS services having additional means to recuperate some of their operating expenses for providing emergency medical treatment. In 2018, Act 103 of the Pennsylvania legislature was enacted requiring insurance companies and Medicaid to reimburse EMS agencies for responses in which EMS personnel provided medical treatment to the patient but ultimately did not transport them to a healthcare facility. Previously, EMS services provided these services on a regular basis but had no mechanism in place to at least recover some of their expenses for the resources that may have been utilized during the response. There is also legislation pending that would require insurers to submit payments directly to the provider rather than sending it to the patient. Getting this legislation enacted should be a priority for the legislature and would provide a much-needed financial boost to the EMS delivery system.

SR 6 includes several recommendations directly related to EMS service delivery. However, all these recommendations require legislative approval:

- [Recommendation 4](#) - Correct EMS reimbursement rates to allow for competitive compensation.
- [Recommendation 8](#) - Review and revise EMS act and regulations.
- [Recommendation 11](#) - Clarify definition of EMS relief associations.
- [Recommendation 14](#) - Adjust funding streams for EMS operating fund.
- [Recommendation 15](#) - Update EMS payment policies including medical assistance (Medicaid) rates.
- [Recommendation 19](#) - Fund basic fire & EMS training at a Commonwealth level.

Fees for emergency medical services are currently established by each individual agency based on Medicare rates, industry norms, and individual operating expenses. Autonomy at the local level needs to be maintained for continually establishing these fees, thereby allowing communities to determine their level of service. Advancements and changes in technology such as cardiac monitors, tablets, intravenous pumps, or ultrasound technology that is already being used pre-hospital to help diagnose medical emergencies such as a collapsed lung or internal bleeding will all be stymied if reimbursement rates fall any lower and rates are not allowed to be adjusted.

The fire and EMS questionnaires that were completed by every EMS agency provided the following information on EMS billing and financing.

- 65.5% do third party billing for EMS services, while 34.5% do not.
- All of those who do third party billing also use a professional billing service.
- Of those who do not bill, several reported they were QRS only and the service was part of the fire department budget. Two others report they finance the service thru fund drives.
- Current charges for standard service
 - ❖ BLS: **\$800.00 - \$1,350.00**
 - ❖ ALS1: **\$1,300.00 - \$1,400.00**
 - ❖ ALS2: **\$1,600.00 - \$2,200.00**
 - ❖ Refusal: **\$210.00**
- Collection rate (percentage)
 - ❖ Range: **25% to 85%**
 - ❖ Average: **50.92%**
- Payer mix:

❖ Medicare – Average: 42.33%	Range: 20 to 72%
❖ Medicaid – Average: 15.81%	Range: 1 to 29.4%
❖ Commercial – Average: 31.62%	Range: 18 to 48.4%
❖ Self-Pay – Average: 17.22%	Range: 3 to 58%
❖ Uninsured – Average: 3.43%	Range: 1 to 10%
- The average EMS service required **\$488,589.00** in funding to offset the difference between EMS revenues and EMS operating expenses. The reported amount ranged from **\$69,900.00** to **\$1,500,000.00**.

Mobile Integrated Health Care and Community Paramedic (MIH/CP) presents a possible solution to these problems. Mobile Integrated Healthcare is defined by the National



Association of EMTs (NAEMT) as “*the provision of healthcare using patient-centered, mobile resources in the out of hospital environment.*” It can be provided through Community Paramedicine programs, which are programs that use EMTs and paramedics to provide this out-of-hospital health care. These programs have become more pronounced and integrated into geographical areas across the country to help minimize some of the costs associated with emergency medical care and treatment, as well as providing alternative solutions for medical events and minimizing the demands placed upon emergency rooms in hospitals.

These MIH programs have become multi-faceted providing a collaborative approach and partnership between local EMS providers and other public health organizations, to prevent illnesses and injuries through proactive measures and delivery systems. MIH/CP programs can help facilitate more appropriate uses of emergency care resources, and enhance access to primary care, particularly for underserved populations, by focusing on chronic disease management, post-discharge follow up, and transport to non-emergency care settings. These programs can provide pre- and post-hospital services that deliver a coordinated continuum of care that supports the patients’ needs in the community and provides an innovation delivery model that addresses any gaps in service in order to prevent any unnecessary hospitalizations.

The benefits of MIH/CP are therefore two-fold. These programs could potentially help provide more appropriate health care to community residents, and, if reimbursement arrangements can be agreed upon, also offer a substitute funding stream, separate from emergency transport, for community-based EMS transport programs. This is an opportunity that the Chester County EMS Council, Inc., and its member agencies, in cooperation with the Chester County Department of Emergency Services should actively, and collaboratively, explore.

Looking to the future, it is anticipated that EMS reimbursements will be tied, at least partially, to patient outcomes. Determining service levels will also be tied more closely to patient outcomes than traditional data points, like response times.

It is the opinion of the MRI study team, that should legislation be adopted in Pennsylvania to allow for counties to either provide more direct delivery of fire and EMS services, or that allow for the establishment of fire and EMS authorities, that Chester County should seriously consider the establishment of a County based EMS system. Gloucester County, New Jersey, a rapidly growing County with similarities to Chester County has an excellent system that could be used as a model. This thirteen-year-old service, which responds to approximately 30,000 calls per year, started with providing service to 10 of the County’s 24 municipalities who joined voluntarily. Today, Gloucester County EMS provides service to 22 of 24 municipalities in the County, all of whom have joined voluntarily based in many cases upon the potential for improved service levels. The system is a County department with line items in the County budget. Third party billing helps with offsetting the cost of operating. It is the study team’s belief that the County is best positioned to provide a consistent level of service throughout the County, while simultaneously being able to provide stability and equality to funding the service across all municipalities. More information on Gloucester County EMS and its operations is provided in Chapter XVII, *Comparative Jurisdictions*.

Appendix P contains the IAFC VCOS 2009 Orange Ribbon report: “We’re Here for Life Leading and Managing EMS in Volunteer and Combination Fire Departments” which identifies challenges and presents solutions for fire companies that have taken on this additional responsibility.

RECOMMENDATIONS:

- VII-1:** *The Chester County Department of Emergency Services should continue to provide and facilitate the purchase of all equipment such as communications, EMS report writing software, and the health data exchange link for all services. This should continue to assist to control costs utilizing bulk purchasing and provide consistency and standardization throughout the County.*
- VII-2:** *Working collaboratively the Chester County EMS Council, Inc., the Chester County Department of Emergency Services should explore the feasibility of developing a pilot program to implement a County-based Mobile Integrated Healthcare (MIH) response. The purchase of needed equipment could be done as a lease in arrears, so delivery of vehicles and equipment could occur, and the first payment for them would be one year after delivery enabling revenue to be generated from transports throughout the year. This program should initially consist of one unit in each of the County’s three geographic operations regions. It can then incrementally be expanded based on the proven success of the pilot program.*
- VII-3:** *Initial staffing of this MIH unit should be Monday to Friday from 8:00 AM to 8:00 PM during peak hours. It should be staffed with one fulltime Basic EMT and one fulltime Paramedic. Hours when this unit is not staffed will default to current local protocols and procedures until the system is more fully developed.*
- VII-4:** *Working collaboratively with the Chester County EMS Council, Inc. and the Chester County Municipal Managers Consortium, the Chester County Department of Emergency Services should develop a Memorandum of Understanding (MOU) with fire or EMS organizations to strategically locate the MIH units in each geographic area of the County.*
- VII-5:** *The current emergency responders are dedicated individuals who have provided an immeasurable service to their communities. This resource should not be overlooked. Any response from a County resource should still incorporate the tiered response from local responders to begin initial assessment, treatment, and care prior to the arrival of any MIH units.*

- VII-6: *The Chester County 9-1-1 Communications Center should meet with the Medical Director and review all Computer Aided Dispatch cards. All emergency medical calls for service into the Communications Center are vetted through Emergency Medical Dispatch (EMD). If appropriate, based on the triage through the EMD process, the Department of Emergency Services should have their MIH ambulance(s) respond to appropriate calls.***
- VII-7: *Chester County should establish a fund for collection of revenue for any response by the Department of Emergency Services for emergency medical services. These funds for service should be available to be put towards future operations of a possible County-based EMS system and not back into the general fund of the County. Based on recently passed legislation for treat-no-transport, the Department of Emergency Services should be able to bill for each response with an MIH unit.***
- VII-8: *Working in conjunction with its member agencies, the Chester County EMS Council, Inc. should explore the feasibility of implementing an alternative destination program for certain non-critical EMS patients modeled after the Montgomery County, Maryland program, once permitted by the Commonwealth.***
- VII-9 *The Chester County EMS Council, Inc. in conjunction with the Chester County Commissioners, the Chester County Fire Chiefs Association, Chester County Municipal Managers Consortium, and the Chester County Association of Township Officials should work with their local legislative partners to introduce and support the adoption of legislation that addresses the EMS issues that were identified in SR 6.***
- VII-10: *The Chester County EMS Council, Inc. in conjunction with the Chester County Commissioners, the Chester County Fire Chiefs Association, Chester County Municipal Managers Consortium, and the Chester County Association of Township Officials should work with their local legislative partners to introduce and support the adoption of legislation to enable EMS services in Pennsylvania to participate in the Federal regulations, 42 CFR 447.3000, Section 1902(a)(30) of the Social Security Act that allows states to establish alternative payment methodologies including supplemental payment and certified public expenditures (CPE) methodologies. Once passed, this process will allow services to submit expenditures for services and apply for reimbursements that more accurately reflect the true cost for delivery.***
- VII-11: *Any EMS providers who are not doing third party billing for EMS transports should implement a policy to do so ASAP in order to provide a revenue offset to their operating expenses.***
- VII-12: *Once enabling legislation is adopted, the Chester County EMS Council, Inc., and the Chester County Department of Emergency Services, working in conjunction with the***

municipal governing bodies, should explore the feasibility of, and interest in, the establishment of a County-wide EMS system. Participation would be voluntary, but long term, could result in improved consistency, increased efficiencies, enhanced service levels along with a consistent level of funding, as well as improved compensation and benefits for personnel.

CHAPTER VIII

STANDARDS OF RESPONSE COVERAGE

The Commission on Fire Accreditation International defines “Standards of Response Coverage” (SOC) as being written and adopted policies and procedures that determine the distribution, concentration, and reliability of fixed and mobile response forces for fire, EMS, hazardous materials, and other forces of technical response.⁴⁷ It is described as a “tool” to:

- Assess community fire and non-fire risk.
- Define baseline emergency response performance standards.
- Plan future station locations.
- Determine apparatus and staffing patterns.
- Evaluate workload and ideal unit utilization.
- Measure service delivery performance.
- Support strategic planning and policy development relative to resource procurement and allocation.⁴⁸

It is further noted that this process is totally reliant upon the accuracy and comprehensiveness of a local fire agency’s needs, data, and policies.⁴⁹ An SOC template guide is located in Appendix Q.

The SOC assessment process includes the following major components:

- Community baselines
- Risk assessment
- Standards, goals, and objectives
- Discussion of critical task capability of department
- Setting service level objectives
- Evaluation of reliability of fire companies
- Policy recommendations

⁴⁷https://www.iafc.org/files/1VCOS/sop_CPSE_CFAI_Standard_of_Cover_Template.pdf

⁴⁸ http://www.iafc.org/associations/4685/files/downloads/CONFERENCES/FRI/FRI10/FRI10_sprSeminar33-StandardsOfCoverBasic.pdf

⁴⁹ https://www.iafc.org/files/1VCOS/sop_CPSE_CFAI_Standard_of_Cover_Template.pdf

The appropriate deployment of resources is critical to any fire and EMS service being able to effectively, efficiently, and safely fulfill its core public safety and fire protection/EMS mission(s) within the community that it serves. One of the most important risk management, or how much risk are we willing to assume, decisions that elected officials in every community must make on behalf of their constituents is:

- 1) How many fire and EMS resources do we need?
- 2) How many fire and EMS resources can we afford?
- 3) How should they be stationed/ positioned/ deployed **to provide maximum benefit to the community as a whole?**

These are never easy decisions especially when one considers the fact that virtually any decisions on emergency service deployment that involve moving and/or relocating a resource, even for the considerable benefit of the community, may have a negative effect on at least a small percentage of the population.

As is mentioned in various chapters of this report, there is no “right” amount of fire protection and EMS delivery; it is a constantly changing level based on such things as the expressed needs of the community, community risk, and population growth. Response time, which was previously discussed in detail in Chapter V, *Service Demand and Response Metrics* is an important measuring instrument to determine how well an emergency services provider is currently performing, to help identify response trends, and to predict future operational needs. Getting emergency assistance to the scene of a 9-1-1 caller in the quickest time possible may be critical to the survival of the patient, and/or successful mitigation of the incident. Achieving the quickest and safest response times possible should be a fundamental goal of every fire and EMS provider.

When looking at response times it is prudent to design a deployment strategy around the actual circumstances that exist in the community and the fire problem that is identified to exist. The strategic and tactical challenges presented by the widely varied hazards that a department protects against needs to be identified and planned for through a community risk analysis planning and management process as identified in this report. It is ultimately the responsibility of elected officials to determine the level of risk that is acceptable to their community. Once the acceptable level of risk has been determined, then operational service objectives can be established. Whether looking at acceptable risk, or level of service objectives, it would be imprudent, and probably very costly, to build a deployment strategy that is based solely upon response times.

It is also important to note that in many cases volunteer fire companies originally formed 75 or more years ago were based upon the need at that time. Today Chester County’s fire protection and EMS needs are much different, resulting in some stations providing less than optimal coverage to their own response districts, as well as to the County from the perspective of automatic and mutual aid.

The community risk and vulnerability assessment that is part of establishing an SOC, evaluates the community as a whole, and with regards to property, measures all property and the risks associated with it, and then segregates the properties as either a high, medium, or low-hazard, which are further broken down into varying degrees of risk. According to the NFPA *Fire Protection Handbook*⁵⁰, these hazards are defined as:

- **High-hazard occupancies:** Schools, hospitals, nursing homes, high-rise buildings, and other high life-hazard or large fire-potential occupancies.
 - ❖ **Operations response capability:** At least 4 pumpers, 2 ladder trucks (or combination apparatus with equivalent capabilities), and other specialized apparatus as may be needed to cope with the combustibles involved; not less than 28 firefighters and 2 chief officers, plus a safety officer, and a rapid intervention team. Extra staffing for incidents in high-hazard occupancies is advised.

- **Medium-hazard occupancies:** Apartments, offices, mercantile, and industrial occupancies, not normally requiring extensive rescue by firefighting forces.
 - ❖ **Operations response capability:** At least 3 pumpers, 1 ladder truck (or combination apparatus with equivalent capabilities), and other specialized apparatus as may be needed or available; not less than 20 firefighters and 2 chief officers, plus a safety officer, and a rapid intervention team.

- **Low-hazard occupancies:** One-, two-, or three-family dwellings and scattered small business and industrial occupancies.
 - ❖ **Operations response capability:** At least 2 pumpers, 1 ladder truck (or combination apparatus with equivalent capabilities), and other specialized apparatus as may be needed or available; not less than 12 firefighters and 1 chief officer, plus a safety officer, and a rapid intervention team.

Although Chester County has performed a County-wide risk assessment as part of the County's emergency operations plan, and a few townships have completed more comprehensive risk assessments, many others have not. MRI also includes a basic assessment in Chapter III, *Emerging Risk Profile of Chester County Fire and EMS Services*. Overall, Chester County enjoys a low incidence of fire.

From the perspective of stations and apparatus, there are three (3) main factors that are used to help determine the deployment of resources: response time, travel distance, and call volume. For most evaluations, response time is the driving factor as time; more so than any

⁵⁰ Cote, Grant, Hall & Solomon, eds., *Fire Protection Handbook* (Quincy, MA: National Fire Protection Association, 2008).

other factor, is a critical consideration in emergency incident response, whether the situation involves a fire or an emergency medical event. This fact makes the fire or EMS station a critical link in service delivery; where these facilities are located, is the single most important factor in determining overall response times. The current response times in Chester County were discussed and analyzed in detail in Chapter V, *Service Demand and Response Metrics*.

Response times are typically the primary measurement for evaluating fire and EMS services. Response times can be used as a benchmark to determine how well a fire department is currently performing, to help identify response trends, and to predict future operational needs. Achieving the quickest and safest response times possible should be a fundamental goal of every fire department. At the same time, the actual impact of a speedy response time is limited to very few incidents. For example, in a full cardiac arrest, analysis shows that successful outcomes are rarely achieved if CPR is not initiated within four minutes of the onset. However, cardiac arrests occur very infrequently, on average they are 1 to 1.5% of all EMS incidents⁵¹. There are also other EMS incidents that are truly life-threatening, and the time of response can clearly impact the outcome. These involve full drownings, allergic reactions, electrocutions, and severe trauma (often caused by gunshot wounds, stabbings, and severe motor vehicle accidents, etc.). Again, the frequency of these types of calls nationally are limited.

Regarding response times for fire incidents, the criterion is based on the concept of “flashover.” This is the state at which super-heated gasses from a fire are released rapidly, causing the fire to burn freely and become so volatile that the fire reaches an explosive state (simultaneous ignition of the all combustible materials in a room). In this situation, usually after an extended period (often eight to twelve minutes after ignition, but at times as quickly as three to five minutes), and a combination of the right conditions (fuel and oxygen), the fire expands rapidly and is much more difficult to contain. When the fire reaches this extremely hazardous state, initial firefighting forces are often overwhelmed, larger and more destructive fire occurs, the fire escapes the room and possibly even the building of origin, and significantly more resources are required to affect fire control and extinguishment.

Flashover occurs quicker and more frequently today and is caused at least in part by the introduction of significant quantities of plastic and foam-based products into homes and businesses (e.g., furnishings, mattresses, bedding, plumbing and electrical components, home and business electronics, decorative materials, insulation, and structural components). These materials ignite and burn quickly and produce extreme heat and toxic smoke.

NFPA and ISO have established different indices in determining fire station distribution. The company travel distance model is employed by ISO to assist them with determining the Public Protection Classification (PPC) rating that is utilized for determining fire insurance rates by participating insurance companies. The ISO Fire Suppression Rating Schedule, section 560, indicates that in order to obtain maximum point value for this component of an evaluation, the

⁵¹ Myers, Slovis, Eckstein, Goodloe et al. (2007). “Evidence-based Performance Measures for Emergency Medical Services System: A Model for Expanded EMS Benchmarking.” *Pre-hospital Emergency Care*.

first-due engine companies should serve areas that are within a 1.5-mile travel distance. The placement of fire stations that achieves this type of separation, creates service areas that are approximately 4.5 square miles in size, depending on the road network and other geographical barriers (rivers, lakes, railroads, limited access highways, etc.). For ladder companies, ISO suggests a 2.5-mile travel distance.

The National Fire Protection Association (NFPA) references the placement of fire stations in an indirect way. It recommends that fire stations be placed in a distribution that achieves the desired minimum response times. NFPA Standard 1710, section 4.1.2.1 (3) and (6), suggests an engine placement that achieves a 240-second (four-minute) travel time for the first arriving unit. Using an empirical model called the “*piece-wise linear travel time function*,” the Rand Institute has estimated that the average emergency response speed for fire apparatus is 35 mph. At this speed, the distance a fire engine can travel in four minutes is approximately 1.97 miles⁵². A polygon based on a 1.97-mile travel distance results in a service area that, on average, is 7.3 square miles⁵³.

It is important to make several notes regarding the polygon models and the associated travel distances and times. First, the model often assumes that resources are distributed equally throughout a service area, which is generally not the case. In addition, the road network, and geographical barriers such as a railroad, a limited weight bridge, or limited access highways, can impact the distance units can cover over the same amount of time. That said, the formulas do provide a useful reference when attempting to benchmark travel distances and response times.

NFPA 1720, *Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations and Special Operations to the Public by Volunteer Fire Departments*, 2014 edition, outlines organization and deployment of operations by volunteer, and primarily volunteer fire departments.

Some of the key provisions of NFPA 1720 are as follows:

- Paragraph 4.3.2 on *Staffing and Deployment* states that Table 4.3.2 (Figure 75) shall be used by the AHJ to determine staffing and response time objectives for structural firefighting, based on a low-hazard occupancy such as a 2,000 square foot, two-story, single-family dwelling, without basement or exposures.

⁵² University of Tennessee Municipal Technical Advisory Service, Clinton Fire Location Station Study, Knoxville, TN, November 2012. p. 8

⁵³ University of Tennessee Municipal Technical Advisory Service, Clinton Fire Location Station Study, Knoxville, TN, November 2012. p. 9

Table 4.3.2, Staffing and Response Time				
Demand Zone	Demographics	Minimum Staff to Respond	Response Time (minutes)	Meets Objective (% of the time)
Special risks	AHJ	AHJ	AHJ	90 %
Urban	>1000 people/mi.	15	9	90 %
Suburban	500 - 1000 people/mi.	10	10	80 %
Rural	< 500 people/mi.	6	14	80 %
Remote*	Travel distance > 8 mi.	4	Dependent upon travel distance	90 %

Figure 75
STAFFING AND RESPONSE TIMETABLE FROM NFPA 1720

Note: While the NFPA standards are nationally recognized consensus standards, it is still the responsibility of the local jurisdiction to determine the acceptable level of risk and corresponding fire protection/EMS services. When applying any standard, including the NFPA standards, it is important to apply the document in its entirety. One should not selectively extract requirements to the exclusion of others or take a requirement out of context.

EMS responses are generally almost completely based on response times rather than travel distances. This is because a higher percentage of EMS incidents represent true emergencies where time truly does matter. Paragraph 4.1.2.1 of NFPA 1710, *Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations and Special Operations to the Public by Career Fire Departments*, 2016 states, “The fire department shall establish the following objectives”:

- 240 seconds (four minute) or less travel time for the arrival of a unit with first responder with automatic external defibrillator (AED) or higher-level capability at an emergency medical incident.
- 480 seconds (eight minutes) or less travel time for the arrival of an advanced life support (ALS) unit at an emergency medical incident where this service is provided by the fire department provided a first responder with AED or basic life support (BLS) unit arrived within 240 seconds or less travel time.

Although trying to reach the NFPA benchmark for travel time may be a goal, the question is, at what cost? What is the evidence that supports such recommendations? NFPA 1710’s travel times are established for two primary reasons: (1) the fire propagation curve; and (2) sudden cardiac arrest, where brain damage and permanent brain death occur in four minutes.

Figure 76 shows the fire propagation curve relative to fire being confined to the room of origin or spreading beyond it and the percentage of destruction of property by the fire.

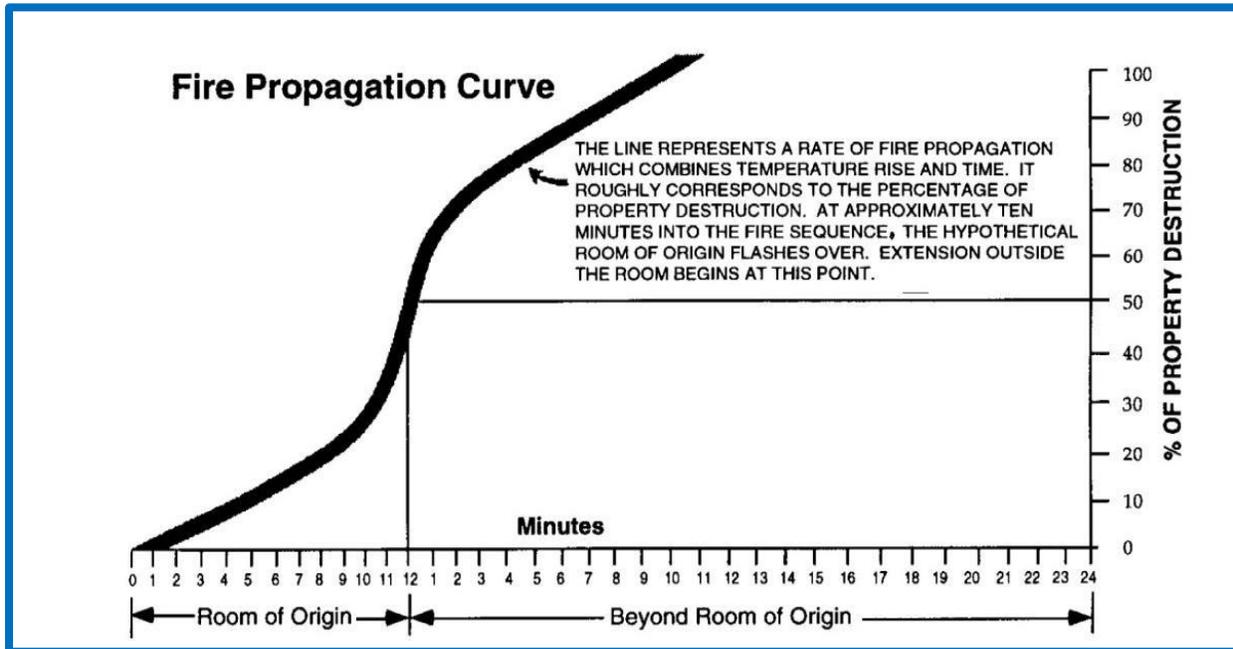


Figure 76

Fire Propagation Curve

Source: John C. Gerard and A. Terry Jacobsen, "Reduced Staffing: At What Cost?" *Fire Service Today* (September 1981), 15–21.

According to fire service educator Clinton Smoke, the fire propagation curve establishes that temperature rise and time within in a room on fire corresponds with property destruction and potential loss of life if present⁵⁴. At approximately the eight-minute mark of fire progression, the fire flashes over (due to superheating of room contents and other combustibles) and extends beyond the room of origin, thus increasing proportionately the destruction to property and potential endangerment of life. The ability to quickly deploy adequate fire staff prior to flashover thus limits the fire’s extension beyond the room or area of origin.

From the EMS perspective, figure 77 illustrates the chain of survival, which is a series of actions that, when put in motion, reduce the mortality of sudden cardiac arrest. Adequate response times coupled with community and public access defibrillator programs potentially can impact the survival rate of sudden cardiac arrest victims by deploying early CPR, early defibrillation, and early advanced care.

⁵⁴ Clinton Smoke, *Company Officer*, 2nd ed. (Clifton Park, NY: Delmar, 2005).



Figure 77
Sudden Cardiac arrest Chain of Survival
 Source: “Out of Hospital Chain of Survival,”

The CAAS also promulgates standards that are applicable to their accreditation process for ambulance services. CAAS recommends that an ambulance arrives on scene within eight minutes, fifty-nine seconds (00:08:59) of dispatch.

It is important to remember that whatever travel time benchmark is established, that time is from when the emergency vehicle (fire truck or ambulance) is responding to the incident.

Traffic conditions at various times of the day, weather, and call volume can all adversely impact emergency vehicle response times. In addition, most Chester County fire stations are not normally staffed for fire responses although a few do have dedicated career firefighting personnel, and a growing number utilize their on-duty EMS personnel to cross staff fire suppression units. The time it takes personnel to respond to the station after an incident is dispatched can add a considerable amount of time onto the four-minute response. Again, traffic and weather conditions can further impact these times as well.

At the time of this assessment, Chester County did not have a defined standard of cover, nor was the MRI study team informed of any municipalities that have one, although some do have response goals they try to obtain.

Meeting the benchmark standards recommended in NFPA 1710 and NFPA 1720, was important to all three of the stakeholder groups that participated in the online survey instruments, as well as the municipal officials who completed and returned the detailed questionnaires. Figures 78 through 80 provide a summary of those responses.

On the question: *National Fire Protection Association (NFPA) Standard 1710, sets a benchmark for career EMS services for a unit with Basic Life Support (BLS) capabilities to be on the scene of*

a medical emergency within 6 minutes of receipt of the call in the 9-1-1 dispatch center, and a unit with Advanced Life Support (ALS) capability within 10 minutes. How important is it that your providers meet these standards in your local jurisdiction?

Overall, 85% or more of the respondents to these instruments believe that meeting these standards is either very important or extremely important.

	CITIZENS	FIRE AND EMS PROVIDERS	LOCAL OFFICIALS	MUNICIPAL QUESTIONNAIRES
EXTREMELY IMPORTANT	77.65%	60.73%	64.29%	36.36%
VERY IMPORTANT	18.9%	28.11%	30.36%	48.48%

Figure 78

On the question: *National Fire Protection Association (NFPA) Standard 1720 for volunteer fire response sets the following benchmarks for structure fire responses by volunteer companies:*

- *Urban communities: 15 personnel on scene in 9 minutes (population density > 1,000 per square mile)*
- *Suburban communities: 10 personnel on scene in 10 minutes (population density 500 - 1,000 per square mile)*
- *Rural communities: 6 personnel on scene in 14 minutes (population density < 500 per square mile)*

How important is it that your providers meet these standards in your local jurisdiction?

As with the previous question, 85% or more of the respondents to these instruments believe that meeting these standards is either very important or extremely important.

	CITIZENS	FIRE AND EMS PROVIDERS	LOCAL OFFICIALS	MUNICIPAL QUESTIONNAIRES
EXTREMELY IMPORTANT	72.68%	55.34%	57.14%	36.36%
VERY IMPORTANT	22.72%	34.4%	32.14%	48.48%

Figure 79

On the question: *Do you believe the fire and EMS providers that serve your local jurisdiction are meeting the standards described in the questions above?*

The most revealing response from this question, particularly from the citizens and the municipal officials who completed the questionnaires is the high percentage who replied that they did not know. This response suggests that both education of, and better communications with, both the local officials and the citizens will be an important part of the process of continuing to develop and improve the delivery of fire and EMS services in Chester County.

	CITIZENS	FIRE AND EMS PROVIDERS	LOCAL OFFICIALS	MUNICIPAL QUESTIONNAIRES
YES	38.6%	60.47%	78.57%	37.5%
NO	11.93%	30.34%	8.93%	18.75%
DO NOT KNOW	49.47%	9.19%	12.5%	43.75%

Figure 80



Figure 81 illustrates fire response travel time bleeds, from each Chester County fire station. Shown are NFPA 1710 travel times of four minutes or less, along with NFPA 1720 travel times for urban (nine minutes or less), suburban (10 minutes or less), rural (14 minutes or less), and remote (more than 14 minute) areas. As would be expected the areas closest to each fire station have the shortest travel times. However, most of the County falls within the suburban response travel time of 10 minutes or less. Only relatively small areas of the County fall into the rural and remote travel time categories. Even in these areas, multiple units will probably be responding to incidents from various directions.

Figure 82 illustrates EMS response travel time bleeds, from each Chester County EMS station. Shown are NFPA 1710 travel times of four minutes or less, along with CAAS travel times of nine minutes or less. The map also illustrates areas of the County that are between nine- and twelve-minutes travel times from an EMS station, along with areas that are greater than 12 minutes. Significant portions of the County are outside of the nine-minute benchmark established by CAAS. However, they are mostly (but not exclusively) areas that are more rural in character and thus would have a significantly lower call volume, and where longer travel times would be expected. This is an area that will need to be monitored in the future as additional development may eventually indicate the need to deploy additional EMS units into some of these areas.

Figure 83 illustrates ALS response travel time bleeds, from each Chester County ALS unit deployment point. Shown are NFPA 1710 travel times of eight minutes or less, along with CAAS travel times of nine minutes or less. The map also illustrates areas of the County that are between nine- and twelve-minutes travel times from an ALS station, along with areas that are greater than 12 minutes.

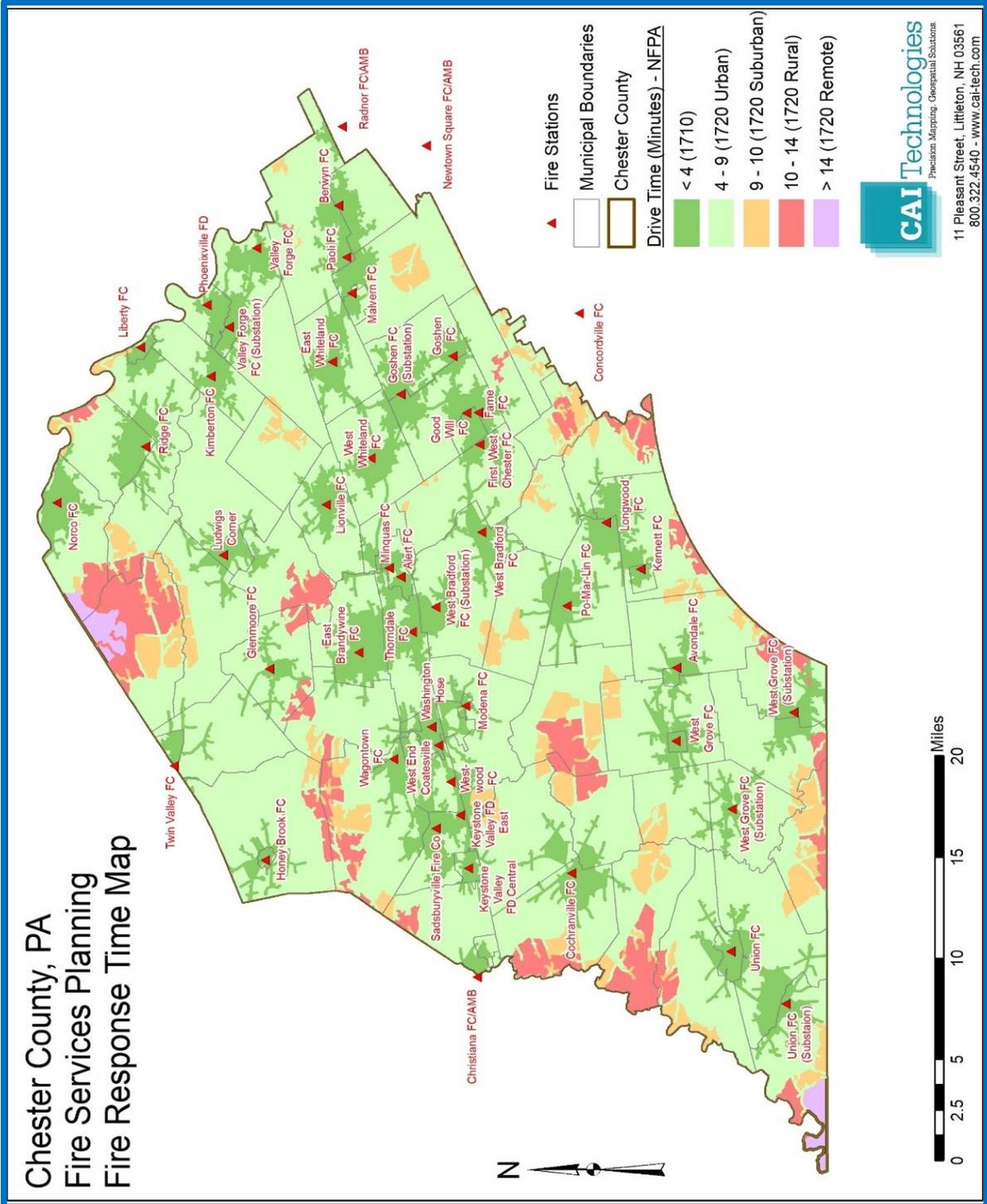


Figure 81
Fire Response Time Map

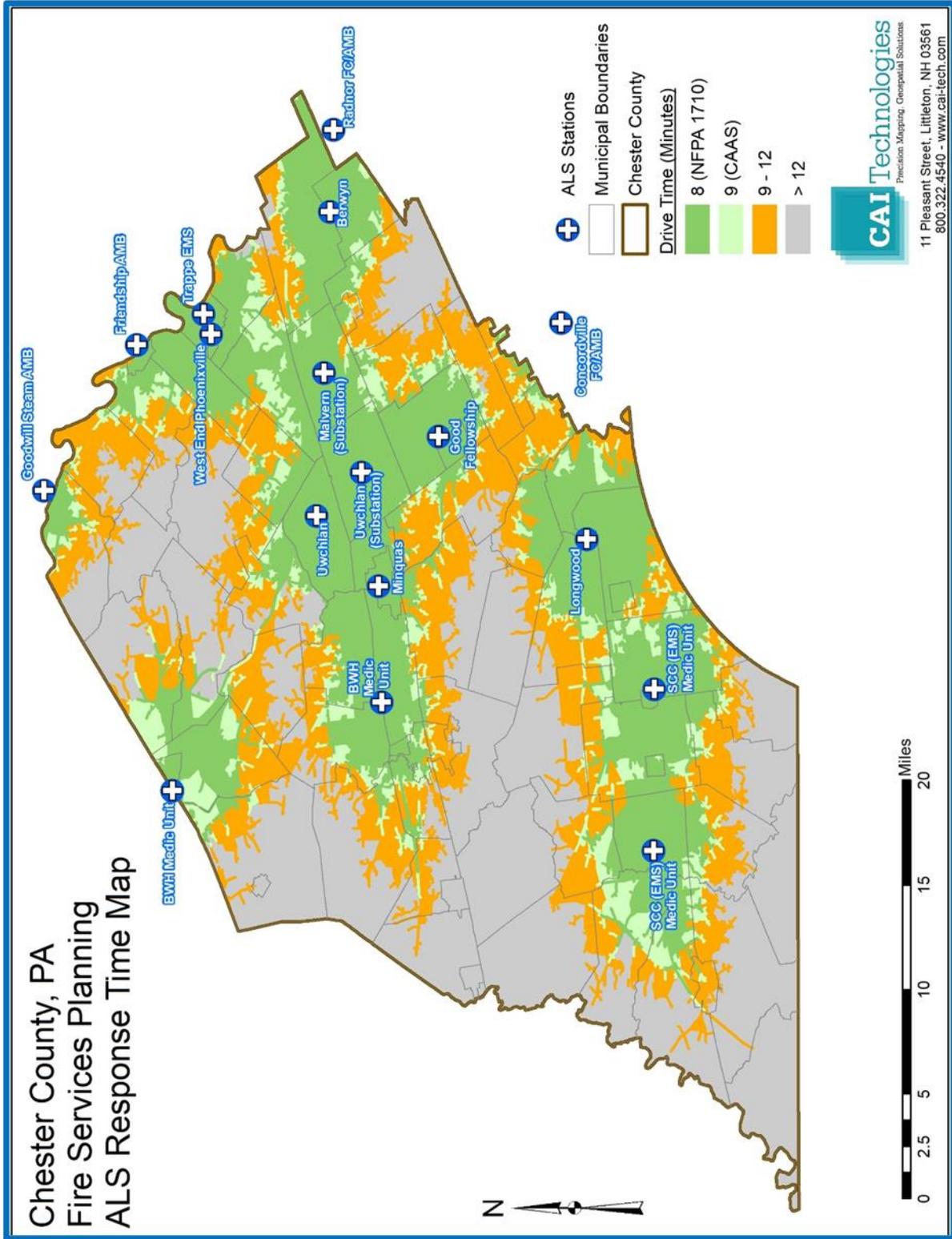


Figure 83
ALS Response Time Map

As was discussed previously in the staffing section of Chapter VI, *Fire Operations*, the practice of having personnel respond to the station upon receipt of an alarm is no longer feasible in many parts of Chester County if there is any realistic chance of improving on-scene response times. Traffic conditions will make it increasingly difficult, if not impossible, for there to be effective and timely response while continuing to use this model. Statistical analysis of incident response data and trends, once the program is operational, would provide guidance on what adjustments to the program may be required to optimize its effectiveness as it evolves and develops.

RECOMMENDATIONS:

- VIII-1: *Working collaboratively with their memberships, the Chester County Fire Chiefs Association, Chester County EMS Council, Inc., and the Chester County Fire Police Association should continue to explore ways to reduce all aspects of response time, but particularly turnout time as this the aspect that the fire and EMS providers have the most direct control over.***
- VIII-2: *Working collaboratively, the Chester County Fire Chiefs Association and the Chester County Department of Emergency Services should establish fire demand zones throughout the County, based upon the urban, suburban, and rural components of the diverse fire service coverage area. They should then work to develop a Standard of Response Cover based upon the recommendations contained in NFPA 1720 for the established fire demand zones, with adjustments as appropriate for Chester County's unique needs.***
- VIII-3: *Working collaboratively, the Chester County Fire Chiefs Association and the Chester County Department of Emergency Services should adopt Standards of Response Cover benchmarks to have the first unit responding to each fire type incident within 90 seconds (slightly higher than NFPA recommendation) of dispatch (when the station is staffed by career personnel or a volunteer duty crew), 90% of the time.***
- VIII-4: *Working collaboratively, the Chester County Fire Chiefs Association and its membership, and the Chester County Department of Emergency Services, and based upon the GIS mapping, consideration should be given to part of the Standards of Response Cover benchmarks seeking to have the first unit on scene within 10 minutes after responding to all fire type incidents, County-wide, 90% of the time.***
- VIII-5: *Working collaboratively, the Chester County Fire Chiefs Association and its membership, and the Chester County Department of Emergency Services, and based upon the GIS mapping, consideration should be given to part of the Standards of Response Cover benchmarks seeking to have the entire first alarm assignment for reported structure fires; even the rural areas of the County, with at least 15 personnel,***

on scene within 15 minutes from dispatch, 80% of the time. For the more urban and suburban areas of the County the more conservative benchmark of 10 minutes, 80% of the time should be considered.

VIII-6: *The Chester County Fire Chiefs Association should consider the development of a “performance improvement” process for fire suppression operations. The process should include the adoption of performance standards such as NFPA 1720, including on-scene performance indicators such as:*

- *On-scene to the charged line at the front door of a structure fire: two minutes or less, 90% of the time.*
- *Water from the hydrant to supply engine: three minutes or less, 90% of the time.*

The point of the performance measures is to identify the community’s expectations in a quantifiable way and to use the measurement of the fire company’s performance against these objectives to identify areas which may need improvement or additional resources.

VIII-7: *Working collaboratively, the Chester County EMS Council, Inc. and the Chester County Department of Emergency Services should establish EMS demand zones throughout the County based upon the urban, suburban, and rural components of the diverse EMS coverage area.*

VIII-8: *Working collaboratively, the Chester County EMS Council, Inc. and the Chester County Department of Emergency Services should develop a Standard of Response Cover for BLS level response, based upon the established EMS demand zones and response/travel time recommendations contained in NFPA 1710 and/or the CAAS standards, with adjustments as appropriate for Chester County’s unique needs. The SOC adopted should attempt to have benchmark achievement rates of 90% for urban and suburban areas and 80% for rural and remote areas.*

VIII-9: *Working collaboratively, the Chester County EMS Council, Inc. and the Chester County Department of Emergency Services should develop a Standard of Response Cover for ALS level response, based upon the established EMS demand zones and response/travel time recommendations contained in NFPA 1710 and/or the CAAS standards, with adjustments as appropriate for Chester County’s unique needs. The SOC adopted should attempt to have benchmark achievement rates of 90% for urban and suburban areas and 80% for rural and remote areas.*

CHAPTER IX FIRE POLICE OPERATIONS

Fire Police Officers in Pennsylvania are members of a volunteer fire company who are sworn in by their municipality to assist with/handle emergency situations throughout the Commonwealth. The primary duties of the Fire Police are to provide traffic and scene control at fires, motor vehicle crashes, and other types of emergencies providing protection to both emergency responders and the public. These duties include controlling access to emergency scenes, and controlling the flow of traffic to ensure emergency vehicles have a quick, safe entrance and egress to an incident. This can necessitate them closing roads in the area of an incident, stopping traffic if it would present a hazard to emergency responders, and detouring traffic away from the scene of an emergency.

Highway safety is a major concern not only for motorists, but also for the fire, EMS, and police personnel who respond to traffic incidents. Nearly 12% of fire and EMS line of duty deaths occur as a result of some type of a traffic incident. While these deaths were traditionally the result of accidents involving responders responding to or returning from incidents, a rapidly increasing number are occurring from personnel being struck by another vehicle while operating on an emergency scene, most often on a roadway. And the problem is getting worse; in the first three months of 2019, according to the International Association of Fire Chiefs, 16 emergency responders were killed by other vehicles in the first three months of 2019. In short, distracted drivers are a deadly threat to public safety professionals on the road.

As the number of responders being struck on the highways, and seriously injured or killed, has increased significantly over the past decade, the duties performed by the Fire Police, to help keep them safe, has become a much more important and necessary part of the emergency response system. Fire Police are trained to properly deploy early incident warning signs and establish temporary traffic controls that assist with providing scene safety.

On occasion, the Fire Police are also requested to assist the regular police with road closures, traffic control, crowd control at public events, missing person searches, parade details, assisting with scene security, and other miscellaneous tasks as requested.

According to PA-FirePolice.com⁵⁵ Fire Police officers can also have the following duties:

- To protect equipment by keeping all non-emergency personnel away from and off department vehicles, away from equipment, and preventing injury, damage to equipment and looting.

⁵⁵ <https://www.pa-firepolice.com/fire-police-duties>

- To enforce the laws of the Commonwealth of Pennsylvania, relating to firematic activities and firefighting techniques, such as the reckless disregard for safe driving within an emergency area, driving over fire hoses, spectators' disrespect for fire lines and non-emergency vehicle intrusions.
- To protect the property at an emergency scene by allowing no one to enter the emergency scene without proper identification or credentials. This can also involve protecting the scene's evidence and reporting unusual events or activities that may be pertinent to the incident.

This site also notes that an often-overlooked facet of Fire Police operations is the interaction that can occur between them and the public. While they are working at the scene of an emergency, firefighters and EMS personnel will seldom have time to talk with members of the public. The Fire Police at times have the opportunity to speak with bystanders or spectators and answer questions about the operation, their local volunteer fire department, or simply give directions or suggest possible detours (Figures 84 and 85).



Figure 84

1"X 3" Bulleted directions can be distributed to motorists being detoured off the Route 30 bypass. The directions lead motorists to the next on-ramp.

The first Fire Police officers in the Commonwealth of Pennsylvania were appointed in 1896. For nearly a half century their authority was limited to that which was provided by their fire company and the municipality in which they served. In June of 1941, Pennsylvania enacted Title 35, Act 74 which enabled special Fire Police officers to have the necessary police power to provide protection at the scenes of fire and other emergencies. However, they could only act in emergency situations when their fire department or company was involved. Title 35 was amended in 1949 by Act 388 to give the Fire Police power to act without fire department involvement, provided a request to do so was made by the municipality. In 1959, Title 35 was

amended again by Act 209 granting Fire Police the authority to use their police powers in any non-emergency public function conducted by, or under the auspices of any volunteer fire department. Fire police officers are considered sworn law enforcement officers and are required to display a badge when on duty. Fire police officers must also be sworn into office and a signed copy of their oath must be kept on file within the municipalities they serve.

Chester County is proudly served by approximately 200 Special Fire Police Officers. There are currently 33 Fire Police units in the County with every fire company in the County having a unit except for one. The Fire Police are considered a unit of the fire company they are part of; however, they often have their own officers who report to the fire chief. Funding for Fire Police operations comes from their fire company. While many of the County's Fire Police units have dedicated traffic units, there are some companies that utilize a fire department utility vehicle for their assignments.

Figures 85 thru 89 illustrates the Thorndale Fire Company traffic unit. Traffic 38 carries (50) 28" traffic cones, (20) cone topper arrows and signage (6) 8 ft. A-frame road barricades, (72) conventional road flares, (12) electronic flares, (2) 48" "Emergency Scene Ahead" signs, (2) 48" "Road Closed Ahead" signs and additional road closing signage. It is equipped with a 3000-watt light tower and Trafcon power tilt sign board with LED light heads.



Figure 85
Traffic 38 Thorndale Fire Company



Figure 86
Driver's Side Compartments



Figure 87
Passenger side of Vehicle



Figure 88
Rear of Vehicle showing tilt sign board
in the up position.

The Fire Police have eight; 10 foot by six-foot, traffic control trailers deployed strategically throughout the County (Figure 89). These trailers carry 150 traffic cones and seven Jersey barriers. They are located at:

- | | | | |
|--------------|-----------|-----------------|-----------------|
| ➤ Station 23 | Avondale | ➤ Station 49 | East Brandywine |
| ➤ Station 35 | Wagontown | ➤ Station 52 | West Chester |
| ➤ Station 38 | Thorndale | ➤ Station 54/56 | Goshen |
| ➤ Station 44 | Westwood | ➤ Station 73 | Ludwigs Corner |



Figure 89
Avondale Fire Company
Traffic Control Trailer

They also have 11 trailer mounted traffic sign boards and 5 portable sign boards again located strategically throughout the County. Figure 90 shows one of these units which are located at:

Traffic Sign Boards

- | | | | |
|--------------|----------------|--------------|-----------------|
| ➤ Station 3 | Paoli | ➤ Station 44 | Westwood |
| ➤ Station 5 | East Whiteland | ➤ Station 49 | East Brandywine |
| ➤ Station 23 | Avondale | ➤ Station 61 | Kimberton |
| ➤ Station 27 | Cochranville | ➤ Station 62 | Ridge |
| ➤ Station 33 | Honey Brook | ➤ Station 64 | Norco |
| ➤ Station 38 | Thorndale | | |

Portable Sign Boards

- | | | | |
|-------------|-----------------|--------------|----------------|
| ➤ Station 4 | Malvern | ➤ Station 35 | Wagontown |
| ➤ Station 6 | West Whiteland | ➤ Station 73 | Ludwigs Corner |
| ➤ Station 8 | Keystone Valley | | |



Figure 90
Variable Message Traffic Sign Board

Finally, the Fire Police have obtained 15 trailer mounted 4,000-watt portable light towers, each outfitted with four 1,000-watt light heads (Figure 91).

Portable Trailer Mounted Light Towers

➤ 2	Berwyn	➤ 39	West Bradford
➤ 4	Malvern	➤ 44	Westwood
➤ 6	West Whiteland	➤ 52	West Chester
➤ 8	Keystone Valley	➤ 61	Kimberton
➤ 23	Avondale	➤ 64	Norco
➤ 27	Cochranville	➤ 69	Twin Valley
➤ 33	Honey Brook	➤ SCAT	CC SCAT Team
➤ 38	Thorndale		



Figure 91
Honey Brook Fire Company
4,000-Watt Portable Light Trailer

All these resources, and 150 fire police radios, have been acquired through various Department of Homeland Security grant programs secured through the Department of Emergency Services.

The Fire Police are dispatched through the County CAD system. These resources are available for deployment to large scale events anywhere in the region when requested. Most Fire Police operations involve just one or two units to provide traffic and scene control. When additional resources are necessary for large, complex, or potentially long duration incidents, the officer in charge can request a Fire Police Task Force. A task force response involves Fire Police from five additional companies being dispatched to the incident. Of these, at least two must have dedicated traffic units. The other three units are requested primarily for additional personnel. The Fire Police Task Force units respond to the scene and communicate with Command using one of the three County assigned fire police radio talk groups.

Initial Fire Police training consists of three 16-hour classes that are held at the Public Safety Training Campus. These include Basic Fire Police, Advanced Fire Police, and legal concepts. Members are also strongly encouraged to complete additional training modules through the

ResponderSafety.com web site, which focuses on highway safety issues for first responders. The website has a total of 38 modules that the Fire Police can complete. Each takes one hour. If the Fire Police officer completes 10 of the modules, they receive an additional certificate from the National Highway Safety Administration.

The Chester County Fire Police utilizes the Chester County Highway Traffic Incident Management Operating Guidelines Annex (Appendix R) for operations on the higher speed limited access highways; where emergency responder safety is a more critical concern. This includes U.S. Routes 1, 202, 422, and PA Route 100 (in accordance with long standing protocols, the Fire Police do not operate on the Pennsylvania Turnpike). The annex was developed by the Traffic Incident Operating Guidelines Advisory Committee which is comprised of a wide cross section of stakeholders. These include the PA State Police, municipal police and public works agencies, PennDot, Department of Emergency Services, tow operators, Delaware Valley Regional Planning Commission, the Chester County Fire Chiefs Association, the Chester County EMS Council, Inc., and the Chester County Fire Police Association. It is part of the Chester County Emergency Operations Plan and was implemented in August 2016. The MRI study team found the annex to be detailed and professionally written.

Overall, the MRI study team found the Chester County Fire Police to be professional, well organized, well equipped, and operationally prepared to perform their important mission of keeping other first responders and members of the public safe during a wide range of incidents. They deserve credit for their dedication to what can often be long term and unexciting assignments.



Figure 92
Typical Fire Police Road Closure Set-Up

Like every organization, the Fire Police face several challenges. Perhaps the most critical is the same one that is facing every volunteer organization, a dwindling and aging membership. In some ways both challenges are exacerbated for the Fire Police because their members generally tend to be older, long-time members of their fire company. As these members retire from active service, move away, or develop health issues that limit their ability to participate, some of the County's Fire Police organizations may be forced to consolidate with those in neighboring companies in a more regional effort. As with any endeavor that potentially results in mergers or consolidations of volunteer emergency

services providers, those most impacted, the members themselves must be a part of process. Efforts to recruit and retain volunteer members, which are discussed in detail in Chapter XI, *Volunteer Recruitment and Retention*, should include the Fire Police.

It was also reported to the MRI team that one of the issues that often confronts the Fire Police is the lack of a timely response by either Pennsylvania Department of Transportation (PennDOT), or local Departments of Public Works (DPW) crews to major traffic incidents that will necessitate a long duration (more than a two hour) closure of the road. This problem is particularly acute at night and on weekends when PennDOT and DPW crews are not normally working. Although it is appreciated that these crews should not have to sit waiting for a call, there needs to be an understanding that the Fire Police officers, who must stay on scene sometimes for multiple hours until they are relieved, are voluntarily performing their service and should not be expected to commit more hours than necessary to each assignment.

The MRI study team also learned that some Fire Police units still allow personnel to respond onto the high-speed limited access highways with their personal vehicles. This practice is a holdover from earlier eras, when the risk to responders on the highway and secondary crashes involving inattentive motorists and emergency vehicles were far less common. There are several reasons why this practice should be discontinued including potential liability, lack of sufficient visibility for the personal vehicle, and the added congestion of unnecessary vehicles at the scene of the incident. The Highway Traffic Incident Management Operating Guidelines already state, *“Only official emergency vehicles as defined under the Vehicle Code should respond on the highway”*. This provision of the guidelines should be enforced, and the second sentence of paragraph 5.3 should be deleted.

RECOMMENDATIONS:

- IX-1: *Working in conjunction with the stakeholders who comprised the Traffic Incident Operating Guidelines Advisory Committee, the Chester County Fire Police Association should work to obtain commitments from PennDOT, as well as local municipalities with DPWs, to have necessary traffic control personnel and equipment on the scene of major traffic/roadway incidents within two hours of being requested. Part of this process could include the development of a short educational video about Fire Police operations and why the partnership with PennDOT and local DPWs is important for long duration incidents.***
- IX-2: *All Chester County Fire Police units should discontinue the practice of allowing members to respond in their personal vehicles to incidents on high-speed limited access highways. The second sentence in paragraph 5.3 Incident Response in the Highway Traffic Incident Management Operating Guidelines should be deleted.***
- IX-3: *Due to declining numbers, some Fire Police units may be forced to explore alternative methods to ensure adequate response to incidents. This may include forming MOU's with neighboring jurisdictions to permit fire police from multiple companies to mutually respond to incidents without the need to dispatch a full Fire Police Task Force. The***

Chester County Fire Police Association should explore the feasibility of creating some mutual response agreements.

IX-4: ***The Chester County Fire Police Association should continue to monitor its member organizations for continued viability. In the future, if conditions warrant, and working collaboratively with the Chester County Fire Chiefs Association they should help to facilitate discussions on a more regional approach to Fire Police operations.***

IX-5: ***Because many motorists are driving more aggressively and more distracted, Chester County Fire Police Officers are encouraged to continually improve their traffic management and scene safety skills. ResponderSafety.com offers 38 free online one-hour training modules. These excellent modules would benefit all Fire Police. Below are some of the modules that may be most beneficial for the Fire Police Officers:***

- ***Advanced Warning***
- ***Blocking Procedures at Roadway Incidents***
- ***The First 15 Minutes at Highway Incidents***
- ***See and Be Seen Emergency Lighting Awareness***
- ***Traffic Incident Management: Model Practices and Procedures***
- ***Planning for the Long-Term Event***
- ***Traffic Incident Management on Rural Roads***
- ***Termination***
- ***Traffic Incident Management Requirements in NFPA 1500***
- ***Understanding NFPA 1091***

IX-6: ***To improve roadway scene safety for all emergency responders, all fire companies and EMS agencies follow the guidelines established by the Chester County Highway Traffic Incident Management Operating Guidelines.***

CHAPTER X DEPARTMENT OF EMERGENCY SERVICES

The Department of Emergency Services is a multi-faceted County department that provides an expansive list of services; to promote and assist in providing safety and security to Chester County citizens so they can work, live, and grow in a healthy and safe community. The Department of Emergency Services supports highly professional, well-coordinated public safety services through training, education, communications, planning, incident support, and coordination of the response to and recovery from emergencies, natural or human-made disasters, threats and vulnerabilities.



Figure 93
Chester County Emergency
Services Logo

MISSION STATEMENT

The Mission of the Department of Emergency Services is to ***promote and assist in providing safety and security to Chester County citizens so they can work, live, and grow in a healthy and safe community.***

VISION STATEMENT

The Department of Emergency Services is comprised of motivated, dedicated and trained professionals providing exceptional leadership for County-wide emergency services operations.

- Emergency call receipt, interim assistance, response coordination and responder dispatch.
- Fire, emergency medical, hazardous materials and rescue.
- Training coordination and administration.
- Disaster response planning, coordination, recovery, and mitigation.
- Hazardous Materials Emergency Response emergency response.
- Fire prevention and investigation.

MRI conducted site visits to the Chester County Department of Emergency Services at their Government Services Center and Public Safety Training Campus locations.

DES is comprised of an Operations Group which consists of the 9-1-1 center, Fire Services, EMS Services, and Law Enforcement Services; a Planning and Logistics Group which is comprised of Emergency Management and Technical Services; and a Training and Development Group which oversees 9-1-1 training, fire training, EMS training, law enforcement training, training and exercises, and the Public Safety Training Campus. Additionally, Chester County operates a state-certified Hazardous Materials Response Team, and supports fire, EMS and technical rescue task forces including an Urban Search and Rescue (USAR) Team.

The DES Operations Group provides direct support to fire, EMS and law enforcement agencies throughout the County before, during, and after emergencies. The Operations Group provides operational support through various divisions including 9-1-1, Fire Services, EMS, Fire Marshal's, Law Enforcement Services, and Safety and Security of County facilities. The Department of Emergency Services continues to have strong working relationships with the Chester County Fire Chief's Association, Chester County EMS Council, Inc., Chester County Fire Police Association, Chester County Police Chiefs Association, and the Chester County Fraternal Order of Police Lodge #11.

FIRE SERVICES

The Department of Emergency Services Fire Services Group provides a wide range of support to the county's fire companies including incident scene support if needed. The Department of Emergency Services continues to support the Chester County Fire Chief's Association's FEMA SAFER grant, for volunteer retention and recruitment at the highest level as the grant enters its third and final year.

The Fire Services group remains active on the Senate Resolution 6 effort to ensure that Chester County is well represented in the state-wide fire service staffing crisis.

Fire Marshal

The Chester County Fire Marshal's Group is committed to providing a proactive approach to fire safety, prevention, and education through:

- Fire and life safety inspections
- Fire origin and cause investigation
- Youthful fire-setter intervention
- Community outreach
- Assisting municipalities in a wide variety of code issues

- The Fire Marshal's works closely with other County departments, the Pennsylvania State Police, and local law enforcement

Fire Investigation

Fire cause and origin investigations are one of the basic tenets of fire prevention. Fire investigations lead to a recognition of trends in human behavior patterns, product design, building codes and other industrial standards. Through this recognition of trends, public outreach can address human behavior patterns, recalls and problems with workmanship and installation can be addressed; codes and standards can be developed.

In Chester County, fire marshals are requested to conduct fire origin and cause investigations by the fire service, municipalities, or residents as required by law.



Figure 95
Chester County Fire Investigators

Fire and Life Safety Inspections

The Fire Marshal's Group conducts fire and life safety inspections of County owned/leased facilities. The goal of the program is to reduce the number of deaths, injuries, and property loss from fire, and to enhance the public health, safety, and welfare of the community.

Youth Fire and Injury Reduction and Education Program (Y-FIRE)

Children are naturally curious about fire. When this curiosity becomes experimental, it is dangerous, and even deadly. Research suggests that youth fire-setter behavior is significantly under-reported. The Chester County Youth Fire and Injury Reduction and Education Program (Y-FIRE) is a confidential program designed to reduce the risk of fire injury and death caused by youth with fire setting behaviors. The goal is not to give the child a "record" or to send them to "Juvie" but to implement appropriate intervention strategies.

The program partners with families, community organizations, school professionals, fire service, law enforcement, and social services to provide education and intervention resources, materials and training.⁵⁶

⁵⁶ <https://www.chesco.org/217/Emergency-Services>

Hazardous Materials Response Team

The team is certified every three years by the Pennsylvania Emergency Management Agency. The full-time County HazMat Coordinator handles the day to day operations. The team is comprised of 30 members who are part-time employees when they respond to an incident and during team training. Training for the HazMat team members is held twice a month to maintain the certification as HazMat Technicians. In addition to regularly scheduled training, team members participate in specialized training. More than half of the team is National Association of State Fire Marshals Pipeline Technicians, receiving specialized training in handling a pipeline emergency as a Hazardous Materials Technician.

EMERGENCY MEDICAL SERVICES

In addition to their role as an operational division of the Department of Emergency Services, the EMS Division also serves as a contractor to the Pennsylvania Department of Health, Bureau of EMS (BEMS) to serve as the regional EMS council for Chester County.⁵⁷

Responsibilities of the regional EMS council include:

- Administering psychomotor certification examinations for all levels of EMS providers.
- Processing EMS agency licensure applications and performing licensure inspections for all EMS agencies in Chester County.
- Processing accreditation applications and performing inspections for Medical Command Facilities (each of the County's 5 acute care hospital emergency departments) and processing certification applications for all affiliated Medical Command Physicians.
- As authorized by BEMS investigating, documenting, and providing recommendations on EMS complaints.
- Registering EMS certification and continuing education courses and processing continuing education course rosters.
- Collecting and validating EMS patient care report data and forwarding to BEMS.
- Performing Continuous Quality Improvement activities related to the regional EMS system.
- Processing of initial certification materials, and re-registration of certification for all levels of EMS providers.
- Providing technical assistance and serving as a resource for EMS related issues for all EMS system stakeholders.
- Processing applications for EMS Educational Institutes and Continuing Education Sponsors

⁵⁷ <https://www.chesco.org/217/Emergency-Services>

- Liaison between all EMS system stakeholders and the BEMS.
- Assists with planning and resource allocation for Mass Casualty Incident responses, and functions in a variety of roles in staffing the County's Emergency Operations Center.
- Participates as an active member of the Southeastern Pennsylvania Regional Task Force Emergency Responder Workgroup - EMS Sub-Committee.
- Actively participates in the Pennsylvania Emergency Health Services Council activities and committees.
- Offers EMS related education programs to EMS system stakeholders, County employees and the general public.

9-1-1 COMMUNICATIONS

The 9-1-1 Communication Center is staffed 24 hours a day, 7 days a week to provide the citizens and visitors of Chester County with emergency call receipt, interim assistance, response coordination and responder dispatch (Figure 96). The Communications Center staff handles over 900 emergency calls each day. The Center has a translation service for over 200 languages and is equipped to expeditiously handle calls from hearing impaired callers.

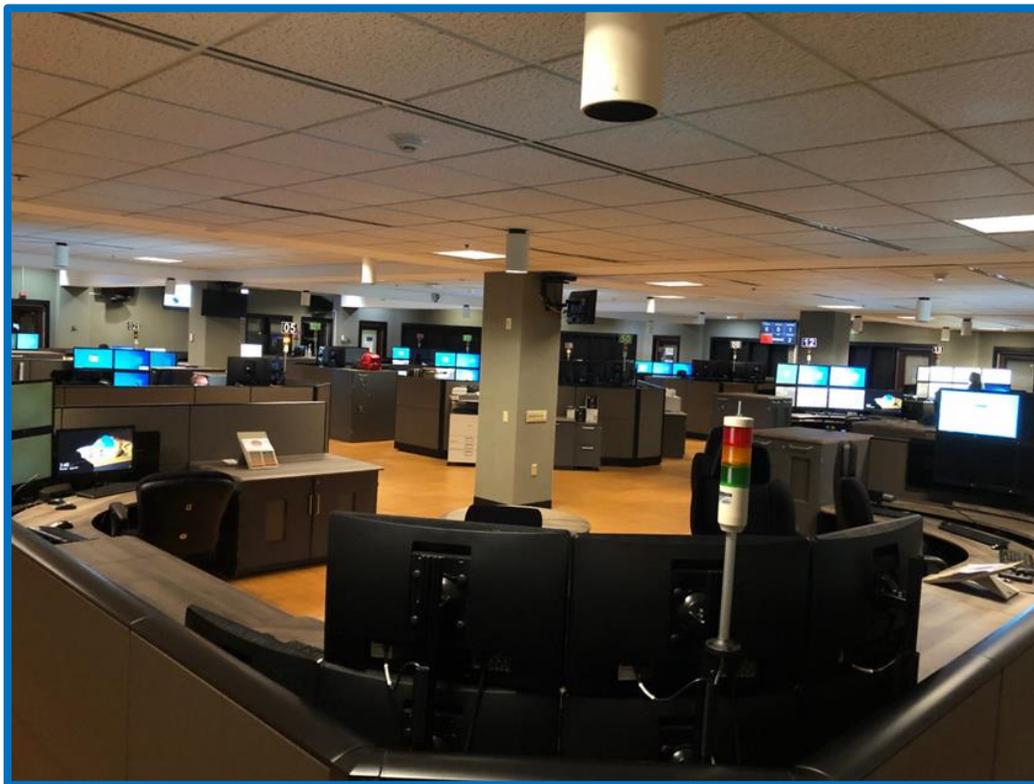


Figure 96
Chester County 9-1-1 Center

Telecommunicators utilize sophisticated networks of computers and other telecommunications equipment providing links to the State Police, Pennsylvania Department of Transportation (PennDOT), the Pennsylvania Emergency Management Agency (PEMA), and other local and regional stakeholders. The operation of the 9-1-1 Center is coordinated with the Chester County Chiefs of Police Association, the Chester County Fire Chiefs Association and the Chester County Emergency Medical Services Council, Inc.⁵⁸

The County also operates an alternate 9-1-1 Communication Center at the Public Safety Training Campus (Figure 97). Using technology allows a seamless integration of these two facilities. The alternate 9-1-1 Communication Center is regularly used to maintain proficiency and ensure readiness.

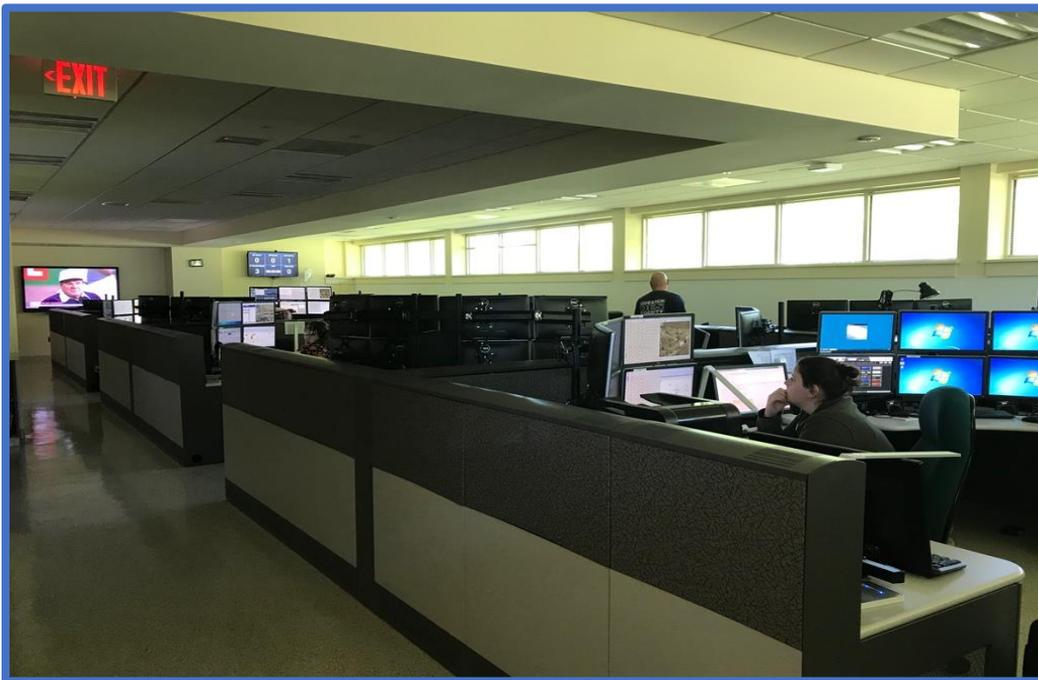


Figure 97
Alternate 9-1-1 / Training Center

⁵⁸ <https://www.chesco.org/3505/9-1-1-Center>

EMERGENCY MANAGEMENT

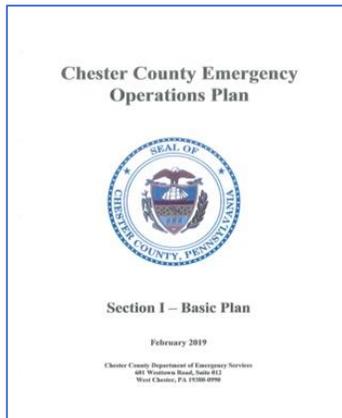


Figure 98
Chester County
Emergency Operations Plan

The Emergency Management Division plans and prepares for emergencies, educates the public about preparedness, coordinates prevention, emergency response, recovery and mitigation from the effects of disaster and collects and disseminates emergency information. The Division is dedicated to assisting all citizens, responders, municipalities, organizations, and stakeholders to be prepared for emergencies through safe schools, radiological and community resilience coordination and health and human services, SARA Title III and emergency planning.⁵⁹

The County has a comprehensive Emergency Operations Plan (EOP) for response to disasters in the County as well as providing support to communities in their emergency disaster planning.

The Chester County EOP outlines how the Chester County government accomplishes this mission and complies with and implements the requirement of the Pennsylvania Emergency Management Services Code (Title 35) to protect the lives and property of the citizens of the County and its visitors. The County EOP serves as a bridge between the County's municipal EOPs and the Pennsylvania State Emergency Operations Plan. The County EOP is organized and published in three sections:

Section I: Basic Plan presents the planning assumptions, policies, and concepts of operations that guide the responsibilities for emergency coordination activities, including prevention, protection, response, recovery, and mitigation in Chester County.

Appendices provide additional information such as authorities and references, terms and definitions, map of the County, etc.

Section II: Position Annexes describe the mission, concept of operations, and responsibilities of each Emergency Operations Center (EOC) position. Each annex establishes position-specific roles, responsibilities, and tasks, ensuring a clear understanding of each position's purpose and duties. Each annex also includes position-specific job aids, including functional checklists for initial, continuing, and demobilization operational periods. The singular nature of each emergency does not allow these checklists to be fully encompassing; however, they provide baseline tasks

⁵⁹ <https://www.chesco.org/828/Emergency-Preparedness>

based on the specific duties of each EOC position.

The annexes are organized according to the Chester County EOC organizational structure: Policy Group, Command, Emergency Services Coordination, Planning/Situational Awareness, Resource Support, and Human Services Coordination Sections.

Section III: Notification and Resource Manual (NARM) contains lists of resources, facilities, personnel, equipment, and supplies available to the County, along with contact information to procure each resource for use during an emergency. Due to the regular changes of resource and contact information, this information is maintained electronically and not in hard copy format.

PUBLIC SAFETY TRAINING

The mission of the Training section is to provide high quality education and training to the dedicated individuals who work and volunteer in the emergency response field to help reduce the loss of life and property, due to fire and other related emergencies in Chester County. Utilizing research, development, and delivery, the training personnel work to enhance all avenues of responder training and education. The Training section provides discipline specific continuing education programs to all stakeholders, to include, members of the responder community as well as County employees, and the general public. Training sessions are held at the Chester County Public Safety Training Campus, the Government Services Center, and local responder and municipal facilities. The Training section offers basic and advanced level of Firefighting, EMS, Law Enforcement and Emergency Management training. Instruction is provided by in-house and external subject matter experts.

The Training section also provides basic and advanced training and certification classes to 9-1-1 Telecommunicators. Trainings include notification and coordination of police, fire, rescue and ambulance responses in a variety of situations at varying levels of severity. Telecommunicators are trained during a nine-week course which is approved by the Pennsylvania Emergency Management Association. Following hours of academics, simulations, extensive on-console/live on-the-job training, Telecommunicators earn the internationally recognized Association of Public Safety Communications Officials (APCO) certification.

INCIDENT SUPPORT TEAM (IST)

The Chester County Incident Support Team (IST) was designed to provide personnel who are trained and organized to support disaster response operations by assisting the Incident Commander using incident management and technical expertise.

The Chester County IST is a designated team of personnel from multiple disciplines across the County who are highly-trained and experienced in the Incident Command System (ICS) and National Incident Management System (NIMS) activated to support the management of major, complex emergencies, planned events and disasters that require a significant number of local and mutual aid resources. The team brings a high level of training, experience, and specialized tools and resources to help better manage incidents or events.



Figure 99
Chester County Incident Support Team Trailer

The team which remains under the direction of the local incident commander responds to a wide variety of emergency situations. Types of incidents that County fire and EMS agencies benefit from the IST include:

- Greater than a 2-alarm fire
- Mass Casualty incident
- Hazardous Materials incident
- Operations that will last more than six hours
- EOC activation is needed to support incident
- Tornado, earthquake, flood
- Planned event with more than 5,000 attendees
- Public Health emergency
- Anything “out of the ordinary”

Community Outreach

Community outreach programs are provided by the Department of Emergency Services on the following topics:

- Emergency preparedness
- Fire prevention education
- 9-1-1 education

DEPARTMENT OF EMERGENCY SERVICES ACCOMPLISHMENTS

The Department of Emergency Services provides valuable professional services to the municipalities within the County. As demonstrated by the multiple areas of support, they provide communities the benefit from their expertise and access to support services to supplement local operations that do not have the funding or manpower. The County also plays a critical role as a liaison with Commonwealth agencies tasked with public safety also.

In 2019, the Department of Emergency Services restructured the organization into three main groups; Training and Development, Operations, and Planning and Logistics to better support and serve staff, programs, and stakeholders.

The Department of Emergency Services organization has met several milestones and achievements towards providing excellence in the delivery of services to its stakeholders. Some of the 2019 achievements include:

- 447,846 events were processed through the 9-1-1 communications center, all while a complete update of the primary 9-1-1 center was under renovation, which required the establishment and transfer to an alternate communications site. This milestone demonstrates the ability of the Department of Emergency Services to plan, organize, and implement complex critical emergency services contingencies, in order to maintain emergency services to stakeholders.
- The County Emergency Management group achieved re-accreditation from the Emergency Management Accreditation Program (EMAP) for a second five-year period. Chester County was the first County in the state to achieve full accreditation for its emergency management program in 2014. EMAP is the only accreditation process for emergency management programs in the nation and recognizes the ability of emergency management programs to bring together personnel, resources and communications from a variety of agencies and organizations in preparation for, and in response to an emergency.

The proven ability to measure these capabilities is also a key part of the EMAP accreditation. The EMAP process evaluates emergency management programs on compliance with requirements in 16 areas including planning, resource management, training, exercises, evaluations and corrective actions, and communications and warnings.⁶⁰

⁶⁰Press Release: (June 2019) Chadds Ford Live; <https://chaddsfordlive.com/2019/06/12/chester-county-keeps-emergency-accreditation/>

- Maintained 100% cybersecurity without interruption of 9-1-1 and communications services using cybersecurity countermeasures during a serious cybersecurity threat.
- The Chester County Public Training Campus hosted a record 36,507 attendees to the various public safety training programs.
- Formation of the Pipeline Safety Advisory Board and the planning, preparation, and training for pipeline emergencies.
- Chester County Department of Emergency Services has provided every fire company and EMS agency with necessary communications equipment including mobile radios, portable radios, mobile data computers (MDCs), fire and EMS pagers, along with patient care report (PCR) writing software and a health data exchange for EMS. Chester County should be commended for this initiative which MRI considers to be a **Best Practice.**
- Additional achievements by the Chester County Department of Emergency Services during 2019 are reflected in Figure 100 from the 2019 Department of Emergency Services Annual Report.⁶¹

⁶¹ Chester County Department of Emergency Services 2019 Annual Report;
https://www.chesco.org/DocumentCenter/View/53794/Annual-Report_Final-3



Figure 100
Chester County Department of Emergency Services 2019 Achievements

The continued delivery of high-quality emergency services in Chester County is a County-wide challenge for both fire and EMS services. The subject of how the delivery of emergency services is accomplished and the need to strategically plan, has been recommended over the past two decades in several public and private studies and through various legislative bodies within the commonwealth. The recommendations for the delivery of emergency services have been consistent throughout this time period, by focus on; recruitment and retention of volunteers, enhancement and incentives to attract and keep volunteer firefighters, regionalization and consolidation, greater participation and higher levels of financial support from municipalities, and recommendations for changes in laws and regulations which would allow county governments to engage in further assisting municipalities with complex staffing needs, equipment and apparatus needs, and other related services because of declining resources.

It is the strong belief of the MRI study team that the Chester County Department of Emergency Services will, at a minimum, continue to play a vital support role in these efforts, and may in the future become more involved in facilitating the delivery of services. There is no question that

the department, and its highly professional and passionate staff will admirably fulfill any mission they are assigned to complete.

RECOMMENDATIONS:

X-1: *Working collaboratively with the Chester County Fire Chiefs Association, Chester County EMS Council, Inc., Chester County Fire Police Association, Chester County Municipal Managers Consortium, Chester County Association of Township Officials, and other interested stakeholders, the Chester County Department of Emergency Services should provide as much support as possible to facilitate the implementation of the recommendations contained in this report.*

CHAPTER XI VOLUNTEER RECRUITMENT AND RETENTION

As was described in the section titled “*The Vanishing Volunteer*” in Chapter III, *Emerging Risk Profile of Chester County Fire and EMS Services*, the number of volunteers across the country is rapidly declining, a trend that has been occurring for several decades (Figure 101). According to the Pennsylvania Fire and Emergency Services Institute, the number of volunteer firefighters in Pennsylvania has declined from around 300,000 in the 1970s to about 60,000 in the early 2000s and to 38,000 in 2018. It should also be noted that Pennsylvania has one of the strongest and proudest traditions of volunteer firefighters in the United States and has more volunteer fire companies than any other state.

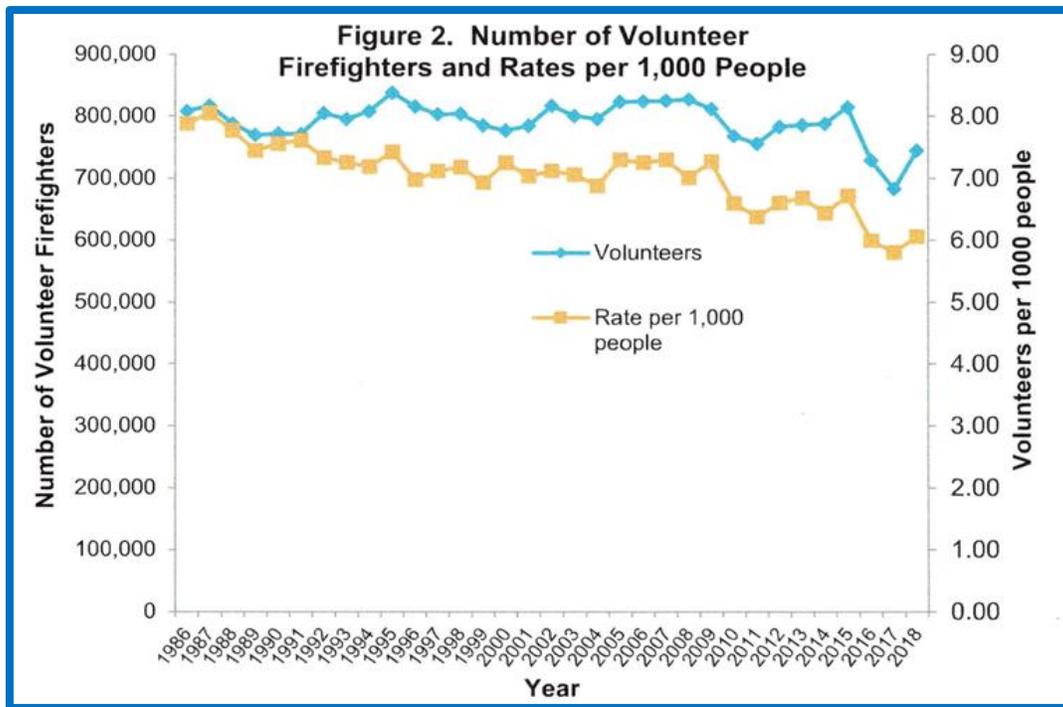


Figure 101
NUMBER AND RATES OF VOLUNTEER FIREFIGHTERS: 1986 – 2018
Source: NFPA U.S. Fire Department Profile – 2018

In its 2016 application for a Staffing for Adequate Fire and Emergency Response (SAFER) grant for volunteer recruitment and retention, the Chester County Fire Chiefs Association noted that in 1992, there were 1,831 volunteer firefighters serving in Chester County which had a population of 386,337 at the time. In 1997, that number dropped to 1,664 firefighters while the population increased to 414,440. The diverging numbers trend continued and by 2016 the number of firefighters stood at 1,332 serving a population of 515,939 (as indicated within the

2016 SAFER Grant application). The application notes that in 1992 there was one volunteer firefighter serving for every 210 residents whereas by 2016 there was one volunteer serving for every 387 residents. Over that time the number of volunteers decreased by 28% while the population increased by 133%.

Many of the issues identified in the March 2004 report issued by the Volunteer and Combination Officers Section (VCOS) of the International Association of Fire Chiefs (IAFC) titled “*A Call for Action: Preserving and Improving the Future of the Volunteer Fire Service*” (Appendix G), and the subsequent November 2005 report, “*Lighting the Path of Evolution: Leading the Transition in Volunteer and Combination Fire Departments*” (Appendix H), and noted in Chapter III, appear to have growing applicability in Chester County. As previously mentioned, these warning indicators are not necessarily an indictment of anything wrong in Chester County; the same problems are facing volunteer fire departments across the country.

Over the next three to five years, a significant effort will need to be put forth to recruit new members, and perhaps more importantly to retain existing personnel. Efforts will need to be made to enhance the participation of those who become inactive and ensure that those who remain on the roll call sheets are truly active and not just filling a space. Although the fire companies in Chester County are far from alone in dealing with this reduction in volunteer staff, it is essential that addressing this situation is clearly identified as a top priority of the County, its municipalities, and the leadership of every fire company and EMS provider (where appropriate), and be adopted as a shared mission of the entire fire and EMS community. To attain success will require the development of new strategies and a monetary investment to maintain the long-term viability of the primarily volunteer fire and EMS delivery system in Chester County.

The fire and EMS agency questionnaire that was completed by all the organizations that serve Chester County indicated that two out of three (66.7%) have an active volunteer recruitment and retention program while 33.3% do not. In the on-line survey for fire and EMS responders, just over half (52.4%) felt recruiting and retention efforts are adequate for the organization(s) they are a member of while 47.6% disagreed.

In the on-line survey for citizens just 16.68% (168 responses) responded “yes” regarding if they have ever volunteered or worked for a fire department or EMS agency in Chester County and do not now. Comments for the reason they left, like a lack of leadership, poor management, egos, and more concerned about the organization than the service, should be reasons for concern.

To the question on the citizen survey, “***Would you be willing to volunteer for your local fire department or EMS agency either as an active emergency responder or in a support/administrative role?***” **just 18.26% stated Yes while 81.74% answered No.** The responses to this question may provide the most accurate snapshot of the recruitment challenges that the fire companies of Chester County face, and the fact that the traditional look of the service delivery system in the County will, out of necessity, need to evolve. **On a positive note, the**

survey generated contact information from 62 individuals who expressed an interest in perhaps volunteering in some capacity to assist the local fire and EMS agencies. This information was forwarded to the Chester County Department of Emergency Services and to the local agency for further follow-up.

The responses to the question on the fire and EMS organization questionnaire provided some unexpected results. The organizations that answered the question reported that a total of 241 personnel left their organizations (an average of 8 per organization) over the previous 12 months. They also reported that a total of 344 new volunteer personnel had joined their organizations (an average of 10 per organization) for a net gain of 103 new personnel. The MRI study team attributes this increase, at least in part, to the County's ongoing coordinated recruitment effort which had identified 218 potential members as of the end of 2019. It is also important to note that these numbers do not in any way suggest that there are going to be 103 new, active volunteer firefighters in Chester County. MRI's experience indicates that perhaps 30 - 40 of these personnel will become longer term contributing members of their respective organizations.

The fire companies that provided responses to what their current recruitment and retention program included many of the traditional efforts in these endeavors. These include, but were not limited to:

- NVFC memberships (2)
- Annual banquet (4)
- Annual stipend for call attendance (2)
- Active social media presence (3)
- Attending local events (3)
- Career days at high schools (5)
- Recruitment tent at local events (6)
- Use the sign message board (3)
- Word of mouth - family and friends (3)
- Advertisement/mailers (4)
- Company picnic (2)
- Retention plan for gas reimbursement, award programs, length of service
- Access to a PT trainer 2x per week
- Provide uniforms & apparel

One company reported that an Eagle Scout candidate performed a project on recruitment at the station including a full day open house and demonstrations. This was a unique one of type initiative but one that deserves acknowledgment for its originality.

Regrettably, one company noted that their incentive programs for member retention is no longer funded. It is the opinion of the MRI study team that this demonstrates a lack of commitment to the volunteer recruitment and retention efforts by whoever made the decision to defund the program.

In August 2017, the Chester County Fire Chiefs' Association was awarded a SAFER grant for \$381,000 for volunteer recruitment and retention. In June 2019, the MRI study team had the opportunity to be present at a committee meeting which was attended by five members,

consisting of two fire chiefs, two firefighters, and a vendor who is providing marketing services. Some of the obstacles to recruitment that have been identified include:

- Prospective members sometimes have difficulty connecting with volunteer fire companies to join, due to stations not being staffed and not having connections.
- Websites often do not market properly. A random sampling of fire company and municipal websites by the MRI study team found that almost none have the need for volunteer firefighters and EMS personnel displayed prominently in a pinned or scrolling heading on the home page of their websites. Many have a tab, but they are often in with the website's other tabs.
- **Recruitment itself is an incredibly involved, time consuming, and labor-intensive endeavor.** It needs to be conducted almost continuously and to be successful it must have follow-through and a true commitment to putting in the effort.
- The cost of housing and rent in many communities is a deterrent to volunteering.
- A growing problem in Chester County is that some communities are too expensive for younger people to live in. Volunteer members, particularly younger ones, are forced to live outside the community.

It was also noted that the fire chiefs need to be the number one advocate for their companies and be an active participant in recruiting efforts. The chiefs must also quickly respond to and answer inquiries from prospective members.

The recruitment and retention committee has developed an advertising and marketing campaign called Help Fight Fire (Figure 102). A website dedicated to this effort is located at: <https://www.helpfightfire.com/>.



Figure 102: Help Fight Fire Website Header

The Help Fight Fire initiative has also developed a multi-media campaign that includes things such as:

- Brochures/mailers
- Movie theater advertising
- Highway billboards (Figure 103)
- Attendance at community events
- Social Media
- Recruitment at schools



Figure 103

Chester County fire and other emergency responders operate at an incident under a billboard for the Help Fight Fire initiative.

Identifying and recruiting new members for fire companies at the high school level has proven to be an excellent source of new members. In Southern Chester County the Octorara Area School District has a long running and successful program that has been used as a model for other programs. The Octorara Homeland Security and Protective Services Program is a three-year Pennsylvania Department of Education approved career program of study. The program prepares students for careers in law enforcement, corrections, pre-hospital emergency medical care, emergency management, military service, and firefighting. The program is taught at the Chester County PSTC. Students can earn a wide variety of state and national professional certifications to assist them with obtaining entry level public safety positions after graduation. Each year of the program focuses on a public safety area. During the EMS year a total of 25 certifications are available including Pennsylvania and National Registry EMT. During the fire year, 30 certifications are available including Firefighter I, Advanced Firefighter I and Firefighter II. Students are required to join their local volunteer fire company to provide for additional training and skills development. The Octorara Area School District should be commended for sponsoring this program which MRI considers to be a **Best Practice**.

The Chester County Intermediate Unit's Technical College High School (TCHS) students developed an advertising campaign to convince their classmates to join their local fire station as junior volunteer firefighters.

Several Chester County fire companies offer unique programs to attract and retain volunteer members. One offers college scholarships to their members to help defray the costs of college education. Another offers low interest mortgages from their relief funds for members who are willing to commit to stringent membership criterion. The MRI study team commends this effort and considers it to be a **Best Practice**. However, the reality is that only a small percentage of volunteer fire companies probably have the financial stability to engage in a program like this.

The SR 6 report prominently features the need for increased volunteer recruitment and retention efforts. Recommendation 1, calls to expand, modernize, and incentivize recruitment and retention efforts while recommendation 2, encourages using financial and non-financial incentives to recruit and retain first responders.

In September 2019, the Pennsylvania House of Representatives unanimously passed House Bill 1786, which was recommended in SR 6. This bill would forgive up to \$16,000 in loans for college graduates who served four years with either a volunteer fire company, volunteer rescue company, or an emergency medical services agency. Other requirements would also be considered for eligibility including the number of emergency calls an individual responded to, and an individual's level of formal training. The bill was referred to a Senate Committee in October 2019 where it is still awaiting action.

New York State had proposed a bill that would fully exempt volunteer fire and EMS providers from state income taxes. However, that bill also stalled in the state legislature.

Even if the recruitment obstacles can be overcome, hurdles remain before a new member is a productive member of the fire company. Once an individual becomes interested in becoming a volunteer firefighter, they must achieve a level of ever-increasing specialized skill that is time-consuming. Exit interviews often reveal that the training commitment alone is daunting, and one of the primary reasons that volunteer personnel resign. It is also costly to the fire company. To become a certified firefighter takes several hundred hours. Once certified, there are dozens of hours of training annually involved in maintaining firefighter, EMT, or paramedic skills and certifications. Younger volunteer firefighters frequently use their training and opportunities as a steppingstone, to seek employment as full-time firefighters elsewhere, which often results in their loss to the community.

It is easy to believe that increasing the number of volunteer firefighters can be a cure-all to eliminate all staffing, and thus response problems. Unfortunately, in 2020, this is an increasingly difficult challenge to overcome. A big question posed by the study team is, *“to what level is there still a sense of community in Chester County?”* This is a key attribute that may increase the likelihood of success for any volunteer firefighter recruitment and retention program. The MRI study team strongly believes that there are undiscovered members of communities throughout Chester County who would be excellent candidates to be members of a fire company. The challenge for the fire companies, however, is not always so much recruiting personnel as much as it is retaining them as active, participating members of the company.

As most suburban communities across the United States are dealing with the reduction of volunteer staff, trying to reverse this trend has become a common issue in many places. When compared to the ever-increasing costs of employing additional full-time career personnel, many communities have concluded that investing in volunteer personnel is the best and more cost-effective practice and, to that end, they have pursued some of the following strategies:

1. Placing a prominent banner or link on the home page of each fire company and municipal website, along with on all social media platforms. This should be done as a priority that can be accomplished for little to no cost.
2. Conducting a recruitment mailing to all residential properties in each municipality with information about the fire company and recruiting new members.
3. Placement of temporary signboards at various locations throughout the County in addition to the billboards from Help Fight Fire. Several fire companies place these in their response area.
4. Placement of a recruitment message on the signboard at the various municipal buildings and fire stations.

5. Working with local businesses to form partnerships that would allow employees to leave work to respond to emergency incidents when needed.
6. Hire a volunteer firefighter “Recruitment and Retention Coordinator” to develop, implement, and coordinate these activities. This should be undertaken as a County endeavor.
7. Provide a reduction in property taxes, or a tax abatement incentive, for volunteer service.
8. Provide volunteer firefighters with community-based benefits such as a limited dollar tax abatement, etc.
9. Provide community-based awards and recognitions such as implementing an incentive for members that attain a level of more than 25% response or participation. An example would be to provide gift certificates for local restaurants, concerts, or other entertainment as a reward for attaining a high level of response or participation.
10. Distribute posters to convenience stores, gas stations, restaurants, and other high traffic locations seeking to recruit new members (Figures 104 and 105).



Figure 104
 Volunteer Recruitment Poster from
 Recruit NY
 Volunteer Recruitment Program



Figure 105
 Recruitment Poster from a
 Fire Department in
 Massachusetts.

One of the challenges that many volunteer organizations face today is that the motivation of newer members is much different than the older, long-time members. The newer members tend to need to receive something tangible quickly to show that their service is appreciated. An associated concern that the MRI study team often hears is the need for better communications within fire companies. This is usually not referring to the company’s formal communications system, but more so, the interpersonal levels of communication that occur within the company and at the station level. This is frequently an area of concern in volunteer organizations, as the cultures and ideas of the older members who have served the company for many years, often clash with those of the younger, newer members. These intergenerational differences can be even more problematic if those older members, who often no longer respond to calls, are perceived as having an excessive say in company operations. Conversely, there is a perception that the younger members do not take things seriously and show the proper respect for the company and the experience of the senior members. Handling this situation is often a delicate balancing act that the company leadership will need to be able to navigate; if they want to maximize the participation of ALL their most important resources, the active firefighters. Portraying a unified and welcoming environment as part of the recruitment and retention strategy of the fire company is an important component necessary for those efforts to be successful.

As Chester County becomes more diverse, the fire companies in the County will need to adjust accordingly to be more inclusive and welcome in new members from different cultures. This is

a changing dynamic that the fire companies will need to maintain awareness of as they try to determine the most effective focus of their recruitment, and perhaps more importantly, retention efforts. One of the most important keys to the latter is that the fire company presents a positive and inclusive atmosphere and there is a sense that the leadership is competent. In addition, disciplined, policy driven volunteer organizations are often more successful than those where there is little to no discipline and the attitude is, “we’re only volunteers, so leave us alone”.

Many fire companies that serve communities where there are one or more residential colleges, have found that implementing a live-in firefighter program can be an excellent way to bolster their available staffing. Well-managed, live-in firefighter programs provide a ready source of staffing to assist with emergency response, provided the live-ins spend significant time in the station. These programs are ideal for college students who are interested in emergency services and are looking for alternative housing accommodations. Live-in programs provide a set of standards to which the member must agree, in exchange for a place to reside. If the firehouse environment is attractive to a potential live-in member, that person will spend most of his/her day at the firehouse, if it provides a positive atmosphere, sufficient privacy, and adequate quarters. Many fire departments in the National Capital Region have utilized live-in programs for decades. The West Chester Fire Department, King of Prussia Fire Company in Upper Merion Township, and the Glassboro Fire Department in New Jersey, all have live-in firefighter programs. Glassboro’s live-in program manual is found in Appendix S.

Some other volunteer recruitment and retention programs that have been implemented elsewhere and might be considered in Chester County include:

- Connecticut has a property tax relief program in the form of a \$1,000 per year abatement on property taxes for volunteer emergency services personnel.
- A program in Wisconsin brings together fire departments, high schools, and a college working to target future volunteer firefighters as a recruitment and retention tool. The program, called Start College Now, brings together area high schools and fire departments to provide training using firefighting equipment to certify students in firefighting, as well as, getting them college credits.
- In Illinois, a recently enacted law creates a hiring preference for career fire service applicants with at least 600 hours of fire suppression work within the previous 12 months in a certified apprenticeship program. Program participants can have up to 20 points added to their eligibility list scores. Several community colleges are working to develop three-year apprenticeship programs.
- North Carolina provides free hunting licenses to volunteer firefighters, a benefit that would probably have significant appeal in Pennsylvania.

- The Ocean City, Maryland Fire Department gives preference to, and almost exclusively hires members of the volunteer fire department for public works and related positions with the City.

In the smaller government entities providing free “benefits”, even to volunteer personnel, may impact the budget. **However, it is imperative to stress that having a volunteer fire service, particularly a top tier one such as what continues to be seen in much of Chester County, does not mean that fire protection is free.** There are still significant operating costs that need to be properly funded to keep the organization functioning. This is true even with volunteer recruitment and retention initiatives. **Successful programs require an investment of both money and - again that most valuable commodity - time from personnel.** The importance of these efforts suggests that they should be made a priority.

One example of an unconventional and innovative best practice that may work in at least some municipalities in Chester County, is to provide a health insurance package for self-employed year-round residents, provided they complete and participate in all required training, obtain certifications, and provide the fire company with a high level of immediate response. Typically, this type of program attracts electricians, plumbers, painters, and other trades as well as self-employed professionals that would be beneficial to the organizations.

An example of this best practice has worked successfully in the Town of Holliston, Massachusetts for several years. Viewed as costly and unconventional, this program has retained a high-level of active personnel that provides an immediate response on a 24/7 basis. This strategy to invest in the on-call force avoided the need for hiring career personnel, and compared to a smaller neighboring community, produced an overall cost (including health insurance) of 50% of what the neighboring community pays for fire protection. MRI believes a program of this nature could be a good fit for at least some communities in Chester County and should be considered.

During the study team’s research for several previous studies in similar communities, a member of the study team visited Chief Michael Cassidy in Holliston and conducted an interview pertaining to this concept. An overview of that interview has been inserted below:

Holliston is a community of approximately 14,500 residents. It has a call firefighting force of 50, with an additional call EMS force of approximately 28 persons. Chief Cassidy is the only full-time employee, other than a few hourly workers who provide dispatch services. All these personnel are eligible to participate in the Town's health insurance program. Chief Cassidy reports that turnout at all incidents regularly exceeds NFPA 1720 standards. A recent structure fire that occurred midweek, midday, drew a response of 32 call firefighting personnel to the incident.

All call firefighters are required to be certified, as least to the level of Firefighter I/II, the roster is currently full at the authorized strength and Chief Cassidy reports a waiting list of approximately 15 to 20 persons. He stated that the health insurance benefit offered to his call firefighters is most definitely the driving factor in his ability to maintain such a robust and adequately trained call firefighting force. Below is a breakdown of some of the numbers associated with the Holliston:

- *Chief Cassidy stated that approximately 55% of the current membership elects to take the health insurance benefit. Additional compensation is provided to the call firefighter should he or she elect not to participate in the benefit group.*
- *Chief Cassidy stated that most of the members that participated were self-employed tradesmen. Many of those who elect not to participate are young adults who might still be on their parents' health insurance. Since members can become call firefighters at age 18, and the department also has a very active Explorer Post, which acts as a feeder pool for the department, a sizable number of the current call force are within the 18 to 26-year-old category.*
- *All call firefighting personnel must first successfully complete Firefighter I/II training, no compensation is provided until after successful completion. If selected for employment, the call firefighter has the option of participating in the Town's health insurance program.*
- *Those that elect to enroll in an HMO program have 60% of their expenses covered by the employer (family or individual plan). Members that prefer a PPO style plan have 50% of that cost paid by the employer.*
- *Holliston call firefighters also enjoy a very generous compensation program. Active members receive a base retainer, as well as hourly compensation for time spent working at incidents. Recently, the compensation package was expanded to provide a flat fee of \$75 per month for those who regularly attend the bi-monthly training sessions.*

MRI asked Chief Cassidy if the rising cost of healthcare had caused local government officials any concern in providing these benefits to such a sizable number of part-time employees. He responded by saying that the trade-off was considered minimal in that the community enjoyed a consistent professional response by its call firefighters and EMTs, without the cost of a full-time unionized workgroup.

Obviously, health insurance is expensive, and costs seem to escalate on an annual basis. However, landscapers, tradespeople, stay at home parents, and self-employed professionals

that work from home are also confronted with this cost. The ability to join a municipality’s insurance may reduce costs. Furthermore, the municipality could develop a sliding scale that would pay a percentage of the health insurance cost equal to the level of response and training provided by the responding firefighter (Figure 106). The study team suggests rate cost-sharing as follows:

PERCENTAGE OF TRAINING AND INCIDENT RESPONSE	PERCENTAGE OF HEALTH CARE EXPENSE PAID BY THE TOWN
90% or greater participation	50%
70% - 89% participation	40%
50% – 69% participation	30%
33% – 49% participation	25%
25% - 33% participation	Eligible to enroll at the employee's cost
Under 25% participation	Not eligible to enroll

FIGURE 106
Proposed Health Insurance Percentages

The National Volunteer Fire Council has excellent resources on the recruitment of new volunteer personnel. They can be found at <https://www.nvfc.org/make-me-a-firefighter-six-steps-to-recruitment-success-2/>. The International Association of Fire Chiefs also has resources that can be found at <https://www.iafc.org/topics-and-tools/resources/resource/guide-to-best-practices-in-volunteer-firefighter-recruitment-and-retention>.

Some of the critical steps to ensuring engagement with potential members during the recruitment process include:

- Keeping prospective members engaged throughout the entire recruitment process with emails and phone calls.
- Clearly articulate expectations.
- Providing them with a clear point of contact if they have any questions, concerns, or issues that may arise during the recruitment process or if they just want additional information or to stay in the loop.
- Invite them to department events, meetings, training sessions, work details, or even just to ride along (if permitted by department policy and insurance regulations).



Once the recruit is accepted into full (or at least probationary) membership of the fire company, the focus should now shift to ensuring their success:

- Consider pairing them with a mentor, an experienced (and positive) member who can help guide them through their fire experience in the fire/EMS service and start to teach them how to do the “job”.
- Implement a tracking program to follow the member’s progress through their probationary period. Are they engaged and showing interest? Are they hitting the right marks? Where do they need help? Any number of programs can also help you track key certifications, schedule duty shifts, hold emergency contact information, and more.
- Create a “*New Member Guide*” with various checklists, progression information, copies of primary response maps, key forms, and other critical details they will need to know as a member of your fire company. Solicit the “what” goes into that document from both your longstanding members (what they wish new members knew sooner) and your newer members (what they wish they had known faster when they first joined). Appendices T, U, and V provide various samples of these types of guides, including one that includes information on “what to expect” for the new member AND their family.

The new member making a connection with, and feeling welcomed into, the company is going to be a major driver in their success and level of involvement with the fire company. If they are successful, then the company will also be as they gain another important asset. To that end, one of the things the Brighton Fire Department near Rochester, New York did to improve their recruitment and retention efforts was to engage with an executive coach from the business community (without fire service experience) to mentor their officers, and to create and facilitate an advisory team to collect input on big issues and decisions from across the membership while bringing the key leadership team members together on “organizational culture improvement.” Changing the long-standing culture of many volunteer fire companies in acknowledgment of the diversification of society will be critical to the long-term survival of the volunteer fire service.

One area that fire and EMS organizations sometimes overlook in their endless quest to recruit more new operations members is the pool of potential volunteers who may be willing to assist the organization or provide support in an administrative capacity. The business of running even a small volunteer fire company has become both complex and time consuming. Community members who have skills such as book-keeping, accounting, financial management, event planning or coordination, or general management and administrative experience can become a valuable resource to a fire company by helping them keep the lights on and the trucks running.

The two studies by the IAFC VCOS previously mentioned were followed up in September 2006 by the White Ribbon Report *“Keeping the Light On, The Trucks Running and The Volunteers Responding – Managing the Business of the Fire Department”* (Appendix W). Among other things this report identified strategies for recruiting and retaining volunteer personnel.

There are no easy or guaranteed solutions to the declining number of volunteer firefighters and the related staffing quandary facing Chester County and many other communities throughout the country. It is also important to stress that what may work in one community or fire company with regards to staffing and volunteer recruitment and retention may not work in another nearby community or the fire company next door. Each community and fire company must individually determine what programs, incentives, and motivations will work, and be most effective in their community or company. It is also very important to advise the stakeholders in the Chester County fire service (more so than EMS) delivery system that should they decide to transition from a mostly volunteer fire service to a more combination one, that the process may be a difficult one. However, this situation is one that many fire companies/departments and communities experience during this period of their evolution, and growing pains would not be unique at all to Chester County.

One huge unknown for the fire and EMS services is the long-term implications of COVID-19 from a personnel standpoint. The implications here could be particularly acute to the volunteer services. In New Jersey, as well as other states, several volunteer EMS organizations were forced to suspend operations due to a lack of personnel to provide coverage and responds to calls. The volunteer emergency services are aging. The average age for a volunteer firefighter in Pennsylvania is 48, so a significant percentage of volunteer responders are going to be at or close to being a higher risk, just based upon their age and without factoring in any other underlying health issues. These personnel may decide it is time to take a well-earned retirement. Younger members with families may find themselves reassessing the risks involved in providing volunteer services and conclude that it is too great and step away. The pandemic is also certain to impact future recruitment efforts. Chester County’s fire and EMS providers need to monitor this situation and be prepared for whatever the results on their memberships ultimately are.

RECOMMENDATIONS:

XI-1: *The Chester County Fire Chiefs Association, Chester County EMS Council, Inc., and the Chester County Fire Police Association should establish a uniform application and screening process for all new members of the fire and EMS services throughout Chester County (Appendix X). Although these personnel are volunteers, they still enjoy all the rights of full-time public safety personnel and should possess the same high ethical and moral character. At a minimum, the screening process should include:*

- *Possession of a valid driver's license (all personnel should have their driver's licenses checked on an annual basis)*
- *State and federal criminal background check including fingerprinting*
- *Drug testing*
- *Credit, employment, and reference checks*

XI-2: *The Chester County Fire Chiefs Association, Chester County EMS Council, Inc., and the Chester County Fire Police Association should create a "New Member Guide" for both the member AND their family with various checklists, progression information, copies of primary response maps, key forms, and other critical details they'll need to know as a member of a fire company (Appendices T, U, and V).*

XI-3: *Working collaboratively, the Chester County Commissioners, the Chester County Fire Chiefs Association, Chester County EMS Council, Inc., the Chester County Fire Police Association, Chester County Municipal Managers Consortium, and the Chester County Association of Township Officials should lobby their legislative delegation, particularly members of the state Senate to get House Bill 1786, which would forgive up to \$16,000.00 in student loan debt for qualifying volunteer firefighters and EMS personnel, passed and enacted into law.*

XI-4: *The Chester County Fire Chiefs Association, Chester County EMS Council, Inc., and the Chester County Fire Police Association should convene focus groups to determine what concepts and recruitment and retention strategies are feasible and most attractive to both current members and potential candidates. SR 6 contains some suggested benefits which are included in Appendix Y.*

XI-5: *Chester County's fire and EMS providers should make a concerted effort to reach out to inactive and former members and attempt to recruit/motivate them back to active status.*

XI-6: *Chester County's fire and EMS providers should consider the implementation of an incentive program for members that attain a level of more than 25% of emergency responses, or other designated level of participation for non-emergency or administrative members. An example would be to provide gift certificates for local restaurants, concerts, or other entertainment as a reward for attaining a high level of response.*

XI-7: *Chester County's fire and EMS providers should attempt to enter partnerships with local businesses to allow their personnel to respond, when needed, to emergency incidents during working hours, without any financial penalty.*

- XI-8:** *Chester County’s fire and EMS providers, in cooperation with their participating municipalities, should explore the feasibility of utilizing, and in fact encouraging, borough and township employees to perform “dual roles” by serving not only in their full-time positions but also serving the fire company as volunteer firefighters, or administrative support personnel.*
- XI-9:** *Chester County’s fire and EMS providers, in cooperation with their participating municipalities, should explore the feasibility of entering into shared services agreements for certain areas of administrative support such as accounting services, or administrative assistant type assistance.*
- XI-10:** *Chester County’s fire and EMS providers, in cooperation with their participating municipalities, should encourage giving priority attention for hiring to selected borough and township positions, such as public works, to personnel who are currently serving as active volunteer firefighters.*
- XI-11:** *Chester County’s fire and EMS providers, in cooperation with their participating municipalities, should consider the development of a program that would provide active responders with the opportunity to obtain health insurance. The municipality should pay a graduated percentage of this program based upon participation levels suggested in Figure 106 including that a minimum number of hours of training be completed.*
- XI-12:** *With support from the Chester County Fire Chiefs Association, Chester County EMS Council, Inc., and the Chester County Fire Police Association, the Chester County Department of Emergency Services should hire a full-time volunteer Recruitment and Retention Coordinator to coordinate and organize efforts throughout the County.*
- XI-13:** *The Chester County Fire Chiefs Association, Chester County EMS Council, Inc., and the Chester County Fire Police Association should approach the colleges in Chester County, as well as areas of nearby counties that are within a reasonable distance, to explore the possibility of implementing live-in firefighter programs with fire companies that have adequate facilities and wish to participate. This program could also be extended to young new residents of Chester County who have relocated to the area for work.*
- XI-14:** *Chester County fire and EMS providers who can afford to do so should consider offering premium benefits for their highest performing members who make long-term commitments to the company and meet stringent eligibility criteria such as college scholarships and/or low- or no-interest student loans, and low-interest mortgages.*
- XI-15:** *Chester County fire and EMS providers who implement in station duty crew programs should explore ways to incentivize those personnel and the program as a whole, such*

as purchasing dinner for the on-duty personnel, with the goal of maximizing buy-in and participation of company members while simultaneously easing the emergency response burden on all members of the company

XI-16: *The Chester County Fire Chiefs Association, Chester County EMS Council, Inc., and the Chester County Fire Police Association should develop a “Welcome Wagon” program that can be used County-wide by the fire and EMS providers to welcome new residents to their area (even if they are relocating from elsewhere in the County) and provide information on, and recruiting information for, the volunteer fire and EMS delivery system.*

CHAPTER XII

EMERGENCY SERVICES FACILITIES AND APPARATUS

EMERGENCY SERVICES FACILITIES

Emergency services stations (for both fire and EMS) are a critical community asset. The station facilities of a modern fire and/or EMS provider are designed to do much more than simply provide a garage for apparatus or other vehicles and a place for on-duty personnel to wait for a call. Well-designed fire and EMS facilities enable staff to perform their duties effectively, efficiently, and safely. A fire/EMS station should, at a minimum, provide adequate, efficiently designed space for the following functions:

- The housing of fire apparatus and other emergency response vehicles such as ambulances, with adequate space for apparatus length and height (and the housing of all equipment, including staff, and service and support vehicles, including trailers).
- On-duty crew quarters, with sufficient toilet/shower/locker room space for both sexes.
- Adequately sized sleeping facilities.
- Personnel and equipment decontamination areas.
- Capability to decontaminate, launder, and dry personal protective equipment and station uniforms.
- Kitchen and eating area.
- Training, exercise, and meeting spaces.
- Administrative offices.
- Vehicle maintenance (as necessary).
- Hose drying and storage (as necessary for fire stations).
- Adequate storage for supplies and equipment including medical and disaster supplies (this includes secure store for drugs used by ALS providers).
- Public entrance/reception area.

Fire and EMS stations are unique facilities in that they must accommodate extremely diverse functions, including living quarters, recreation, administration, training, community education, equipment and vehicle storage, equipment and vehicle maintenance, and hazardous materials storage. While it is usually only occupied by emergency response personnel, the facility may also need to accommodate the members of the public who visit for station tours, public education presentations, blood pressure checks, and other health screenings, etc. Many communities find that an emergency services station is an ideal place to locate the community's emergency operations center (a large room, such as a training classroom, which can be designated to serve as the EOC when needed). Meeting rooms are also frequently made available to community organizations, thus increasing their versatility. However, in today's environment, serious consideration must be given to station security and whether allowing members of the public who are not members of the organization to utilize these facilities is appropriate, particularly if there is open or easy access to the operational areas of the facility.

Fire and EMS facilities are exposed to some of the most intense and demanding uses of any public local government facility. Many fire and EMS stations are occupied twenty-four hours a day, seven days a week, by on-duty personnel standing by to respond to emergency incidents. This is particularly true on the EMS side in Chester County where all the EMS provider organizations in Chester County are using career staffing. The very nature of the fire and EMS operations necessitate that all stations be functional, adequate to fulfill the organization's core missions, and be well maintained.

The adequacy, quality, and appearance of fire and EMS station facilities have a significant impact on the performance of the organization. Stations support the needs of the fire and/or EMS provider and the community in which they are located. Fire and/or EMS stations that meet those needs now, and in the future, are built and maintained with quality products and systems. An attractive, well-maintained, functional, clean, and well-designed emergency services station can contribute to the morale, productivity, and operational effectiveness of the organization. In addition, most citizens have little contact with their local fire or EMS provider and often make judgments that are, at least partially, based upon their impression of station facilities.

It is important that the existing fire and EMS stations are properly maintained, and any future stations are designed and constructed in such a manner that personnel can perform their duties efficiently and effectively. Emergency services stations often have an anticipated useful life of 50 to 75 years, depending upon the patterns of the community. As a facility ages, it may no longer meet the needs of an evolving organization and/or community, thus negatively affecting morale, efficiency, safety, security, technology, and overall efforts to provide quality fire, EMS, and rescue services. Older and/or obsolete facilities are also expensive to maintain due to inefficient energy systems. When these conditions occur, typical remedies include expanding, renovating, and replacing the existing facilities.

There is no specific template for fire and EMS station design and construction. Each station must be designed to meet the unique needs of the community, or area of the community it will serve, and the mission it has been tasked with providing. National best practices, such as guidance provided by the National Fire Protection Association (NFPA) and the Federal Emergency Management Agency (FEMA) recommend that the following features be included in fire and EMS station capabilities:

- Seismic-resistant construction (based on local risk assessment).
- Flood hazard protection (based on local risk assessment).
- Automatic fire sprinkler system and smoke detection system.
- Carbon monoxide detectors.
- Vehicle exhaust extraction system.
- Facility security.
- Emergency power supply.
- Compliance with the Americans with Disabilities Act (ADA).
- Compliance with current fire and building codes.
- Adequate parking for on-duty personnel, administrative staff, and visitors.
- Capability for future expansion.

Fire station facilities should be an important component of a municipal capital improvement plan (CIP). A long-term plan should be in place that takes into consideration the expected life expectancy of a facility, space needs, technology needs, and location requirements, based on response times, travel distance, changes in community development patterns, and regional fire protection capabilities. The construction or renovation of fire stations is a costly proposition that should be planned well in advance to balance other community needs for capital projects.

Chester County currently has 62 emergency services (fire and EMS) deployment locations situated strategically throughout the County. These include facilities that are solely for either fire or EMS operations, as well as many facilities that provide for the deployment of both types of resources. In some cases, resources such as an ALS unit may only be deployed from a specific location during designated hours each day, based upon need. Figure 14 on page 41 and figure 15 on page 42 show the locations of all fire and EMS stations/deployment locations. The

number above does not include the facility-based stations such as the Coatesville VA Hospital Fire Department, although they are shown on the map. In addition, there are several fire and EMS providers that provide first due protection to parts of Chester County whose stations are in adjacent counties, and in some cases are located close to the County boundary. These stations are not included in the above numbers; however, they are also illustrated on the maps.

According to the United States Fire Department Profile for 2018 which was published by the NFPA in February of 2020, average communities with populations between 500,000 and 999,000 have 0.05 fire stations per 1,000 population. For Chester County, with an estimated population of 522,000, this equates to about 26 stations. Looked at from a different perspective, of jurisdictions within that population range (Chester County is at the extreme low end of that population group), 24% have 20 to 29 stations while 71% have 30 or more.

It is worth emphasizing at this point that the numbers presented in this chapter from the U. S Fire Department 2018 Profile reflect apparatus averages and station rates per 1,000 people by population protected, as were reported to the NFPA. They do not represent recommended rates.

Overall, with Chester County's large geographic area (just under 2/3 the size of the entire state of Rhode Island), most of the additional stations located throughout the County appear to be justifiable. The various mapping illustrations, including GIS, presented earlier in this report clearly support that need. Conversely, there are areas where multiple stations located near each other could eventually be consolidated into a single facility, and possibly even be relocated to a more appropriate or centrally located site.

The MRI study team had the opportunity to visit multiple fire and EMS stations in Chester County during this study. In the questionnaires that were distributed to all fire and EMS provider organizations the team also asked them to evaluate the condition of their stations. The number of respondents that each classified the condition of their station(s) is as follows:

- Excellent = 11
- Fair = 8
- Very Good = 17
- Poor = 2
- Good = 25

Site visits to the stations by the MRI study team showed that the stations appear to be clean and generally well maintained, at least to the extent that the personnel who are members there can accomplish. Despite their limitations, and in some cases, the age which makes maintenance and functionality more of a challenge, the members take great pride in the stations where they belong. That perception notwithstanding, several stations are undersized and not adequate for a modern-day fire station. The older stations that were visited lack sufficient storage space and are outfitted with less than adequate living, shower, locker room, sleeping, and physical fitness facilities for on duty personnel, or those who may be staffing the stations for other reasons.

Many of the older stations that were visited are not fully in compliance with the requirements and recommendations of the NFPA Standard 1500, *Standard on Fire Department Occupational Health Program*, 2018 edition. NFPA 1500 is the nationally recognized standard for health and safety in fire departments and includes recommendations for fire station facilities. Selected examples include, but may not be limited to, the need for isolated areas for decontamination of personnel and equipment, vehicle exhaust systems, and life safety code requirements.

The photos on the following pages illustrate a few of the stations in Chester County that are probably nearing – or have reached – the end of their useful life as a fire/EMS station. ***The MRI study team stresses though that the shortcomings identified in these stations are in no way a reflection of the individual fire company or its membership.*** Rather, it is to again drive home the point that if the quality of fire and EMS services currently enjoyed by the residents of Chester County are to be maintained in the future, and perhaps even enhanced, adequate funding is going to be critical to the companies continuing to fulfill their missions.

Figures 107 through 112 show the Union Fire Company No. 1 station in Oxford and some of the issues the members face with an older station that is no longer large enough, or functionally adequate, for the company’s expanded mission and increasing call volume.



Figure 107
Union Fire Company No. 1
Front View with Upper Fire Apparatus Bays



Figure 108
Lower Level Ambulance Bays



Figure 109

As with many older stations there is a lack of adequate storage space requiring equipment and firefighter personal protective equipment (PPE) to be stored in the rear of the engine bays.

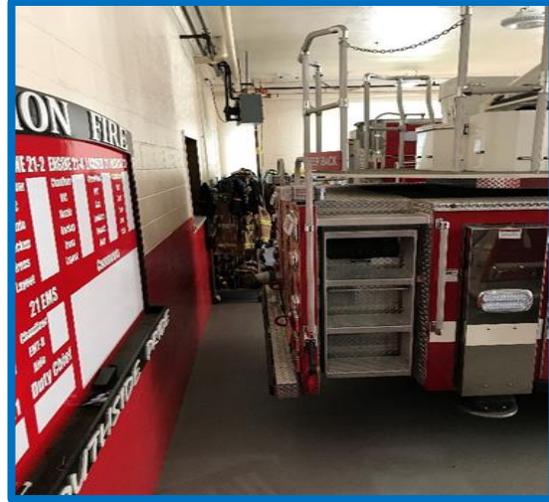


Figure 110

Illustrates the limited clearance between the rear of the ladder truck and the rear wall of the apparatus bay. This situation could limit the company's options for new apparatus when replacement is necessary.



Figure 111

Bunk room for EMS personnel is less than adequate based upon current fire and EMS.

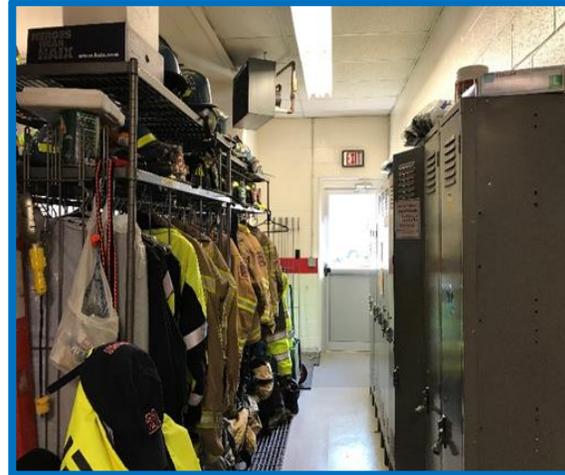


Figure 112

EMS personnel PPE and lockers located at the rear of the ambulance bays.

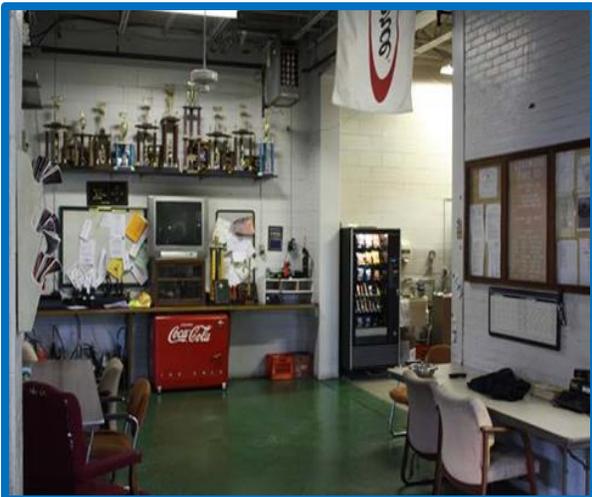
Figures 113 through 116 show the Longwood Fire Company station which the company has been wanting to replace for more than a decade. Once again, as the department's mission has increased and the number of career personnel on duty has likewise; the station no longer effectively supports these operations.



Figure 113
Longwood Fire Company Front View



Figure 114
View inside the Apparatus Bays with Firefighter PPE lining the walls near the apparatus. Also, notice on right how close the two vehicles are to each other.



Figures 115 and 116
Two different views of the day room for the on-duty crew located in an open area at the rear of the apparatus bays.

Figure 117 is of the Berwyn Fire Company's approximately 100-year-old station.



Figure 117

Berwyn Fire Company Station

Notice how the fire truck on the right side of the door would need to leave the station on an angle.
When all apparatus is in the station, there is little room to move around between them.

Chester County has several newer, much more adequate and functional stations such as those of the Goodwill Fire Company in West Chester (Figures 118 to 120), East Whiteland Fire Company (Figure 121), Twin Valley Fire Department (Figure 122), and Avondale Fire Company (Figure 123). These stations have spacious apparatus bays, sufficient storage areas, adequate living quarters, bunk rooms, shower facilities, spaces for training, administrative offices, etc.



Figure 118

Good Will Fire Company of the West Chester Fire Department station opened in 2003.



Figure 119
Good Will Fire Company's new station has spacious apparatus bays.



Figure 120
The station has separate bunk rooms for male and female personnel. Pictured is the female bunk room.



Figure 121
East Whiteland Fire Company's new station opened in 2015.



Figure 122
Twin Valley Fire Department's new station opened in 2009.
Elverson-Honey Brook Area EMS and a Brandywine Hospital medic unit also operate from this multi-functional facility.



Figure 123
Avondale Fire Company's station opened in 2007.
This station also serves as both fire and EMS deployment locations with the fire company operating BLS ambulances and Southern Chester County EMS responding with a medic unit.

The Keystone Valley Fire Department recently significantly renovated and upgraded their existing station (Figure 124) to better meet the needs of their evolving department and its operations. This project left the station in its existing location and was a less costly proposition than constructing a totally new station. This option should be considered for aging stations to determine if it is feasible, and makes economic sense, to renovate an existing station rather than totally replace them.



Figure 124
Keystone Valley Fire Department's existing station
was extensively renovated and updated to meet the department's evolving needs.

Not every new station needs to be a large, costly facility with room for many pieces of apparatus and equipment, and large contingents of members and personnel. Figures 125 through 128 show the smaller, but very functional substations of the Union Fire Company No. 1 of Oxford, and the West Grove Fire Company. Each of these facilities would be more than adequate for the deployment of an engine, rescue engine, or combination engine/water tender, and an ambulance along with a small staff of personnel.



Figure 125
Union Fire Company No. 1
of Oxford substitution in West Nottingham
Township.



Figure 126
West Grove Fire Company station in
London Britain Township.



Figure 127
The Union Fire Company substitution currently houses
an engine and a utility.
The station could easily accommodate an
engine/tender apparatus and an ambulance.



Figure 128
The Union Fire Company substitution has a
comfortable kitchen and day room area for
personnel who may be assigned to or staffing
the station.

Even though many of the fire and EMS stations throughout the County are staffed 24 hours per day by EMS personnel, not all of them are equipped throughout with automatic fire detection systems and carbon monoxide detectors. The MRI study team was informed that fire protection in a few stations may consist solely of one or two battery operated smoke detectors in the sleeping area, or hallway adjacent to it. If these stations are being staffed 24 hours per day, and particularly if on duty personnel are permitted to sleep there, this type of

extremely basic fire detection and protection is unacceptable in facilities of this type. **Remotely monitored automatic fire alarm and carbon monoxide detection systems are mandatory life safety systems for any facility where on duty personnel may be sleeping.** Only a few of the newer stations are equipped with complete automatic fire suppression systems. These primarily consist of the stations that have been built since 2000. For stations that are equipped with automatic fire detection/alarm and/or fire suppression systems, these systems should be tested and inspected on an annual basis to ensure they remain in proper working order.

Not all fire and EMS stations in Chester County are equipped with emergency generators. This effectively renders the station out of service during times of power failures/outages. Generators are a basic and vital component to the continuity of operations for an emergency services provider. Although it was reported to the MRI study team that a few of the stations can be hooked up to, and at least partially powered by portable generators, this is not conducive to effective emergency operations. Hooking up portable generators can be time consuming and may divert needed personnel away from emergency response during times that often result in increased incident activity. If taken off a piece of emergency response apparatus, it also removes an important piece of equipment (the generator) from the apparatus where it may be needed to supply lighting or power on an emergency scene.

Station generators should be run under load on a regular basis to ensure proper operation. They should also be inspected and serviced on an annual basis.

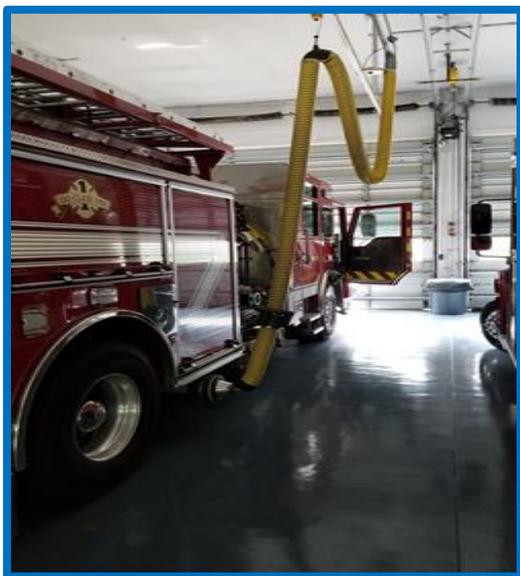


Figure 129

Fire apparatus connected to a source capture vehicle exhaust extraction system.

Photo credit: David Wayne on Quora

The MRI study team was informed, and personally observed, that not all fire stations are equipped with source capture vehicle exhaust extraction systems (Figure 129). These systems are designed to enable apparatus operators to attach a large flexible hose to the exhaust pipe before backing into the station. The system fan automatically discharges vehicle exhaust to the outside atmosphere. When the vehicle is driven out of the station, the discharge hose is automatically released once the apparatus clears the station. As a result of the lack of this type of system, the station's personnel are exposed on a regular basis to the harmful effects of breathing in both diesel and gasoline engine exhaust emissions (Figure 130). This exposure occurs during response to, and return from emergency responses, during training exercises, routine vehicle inspections, and any other time that any vehicle in the station must be started and driven either out of, or backed into, the station.

Short-term, breathing in diesel and gasoline fumes can cause coughing, itchy or burning eyes, chest constriction, wheezing, and difficulty breathing. Over the long-term exposure to these fumes may increase the risk of lung cancer and possibly bladder and other cancers. There is additional evidence that the fine particles found in diesel emissions, particularly the soot, can aggravate heart problems and respiratory illnesses such as asthma. In addition, the members' PPE, which is often stored in the apparatus bays for easy access, is continuously exposed to deposits of soot and other exhaust emission products that are released every time a vehicle is started in the station, resulting in a secondary exposure hazard to personnel as they perform their emergency response duties. At least one major study has concluded that diesel exhaust can penetrate, and be absorbed by clothing, furniture, and other items that firefighters routinely are in contact with, where it can later be absorbed into the firefighter's skin⁶². Every time the firefighters put on this PPE, they are being exposed to these contaminants and potential carcinogens.



Figure 130

Source capture vehicle exhaust systems can be utilized for both diesel and gasoline powered vehicles, and, can be attached to multiple vehicles parked in the same bay.

Photo credit: Plymovent

A National Institute for Occupational Safety and Health (NIOSH) study completed in 2016 (HHE Report No. 2015-0159-3265), continues to recommend a local exhaust ventilation system for fire and EMS stations, even if that station has apparatus equipped with modern engines that employed ultra-low sulfur diesel fuel and contain diesel particulate filter and regeneration systems. The report notes: *“Although exposures are lower in these stations, efforts to further reduce exposures are appropriate because of the potential health risks from exposures to diesel exhaust.”*

Assisting with regional or County-wide Assistance to Firefighters Grant (AFG) applications to ensure all fire and EMS stations are equipped with a minimum of fire and CO detection systems, emergency back-up generators, and source capture vehicle exhaust extraction systems is an area where Chester County could provide valuable support and assistance to various fire and EMS providers. If the grant applications are unsuccessful, the County may also be able to assist companies with the installation of these systems by bidding the projects on a County-wide basis, to take advantage of the economies of scale for any organization that wished to take advantage of a lower cost for installation.

⁶² <https://www.osha.gov/SLTC/dieselexhaust/>
<https://www.arb.ca.gov/toxics/dieseltac/factsht1.pdf>

Periodic inspections of all fire and EMS stations and facilities should be conducted on a regular basis. These inspections can be used to identify potential maintenance, as well as safety issues, and allow them to be addressed before they become problematic. The fire station grounds should also be included in these inspections. Appendix Z-1 includes a sample fire station inspection form.

EMERGENCY APPARATUS AND VEHICLES

The resources that fire departments and EMS providers use to perform their core missions, and mitigate a wide range of emergency incidents, are generally divided into two major categories, apparatus and tools/equipment. Apparatus generally includes the department's motorized vehicle fleet and major emergency response apparatus such as engines (pumpers), aerial apparatus/tower ladders, rescue vehicles, and ambulances. Specialized apparatus includes emergency units such as marine units/boats, lighting units, water tankers, brush trucks, traffic units, and other off-road vehicles. They also often include trailers for specialized applications such as technical rescue, hazardous materials response/equipment, hazardous material decontamination, structural collapse rescue equipment, breathing air/light support units, foam units/supplies, and mass casualty incident supplies. Support vehicles that are critical to the fire department and EMS operations, both routine and emergency, include command post and emergency communications units, command/staff vehicles, paramedic units, and maintenance trucks.

The geography, infrastructure, hazards, and construction features within the community all play a major role in determining the composition of each organization's unique and individualized apparatus/vehicle fleet and equipment inventory. Chester County's environment presents the fire companies/departments and EMS providers with a wide variety of strategic and tactical challenges related to emergency response preparedness and mitigation. For many locations or facilities these challenges may include, but are not limited to, firefighting, emergency medical responses, complex incidents requiring special operations capabilities such as technical rescue and hazardous materials emergencies.

Commercial buildings and target hazards present many different hazards and challenges, particularly during firefighting operations, than those required for operations in single-family dwellings. Congestion and access limitations can present different concerns for fire department tactical operations in areas of the County that have older, narrower streets such as those found in Coatesville City and the 15 boroughs. In other areas, the need to travel long distances to obtain a water supply and refill water tenders can complicate operations in more rural parts of the County. All these factors, as well as projected future needs, must be taken into consideration when specifying and purchasing fire department and EMS apparatus/vehicles and equipment. Every effort should be made to make new apparatus and vehicles as versatile and multi-functional/capable as possible and practical.

Chester County has provided a wide array of equipment to local agencies. These resources are deployed throughout the County to address the diverse needs of the various hazards they must protect. According to the County’s CAD system, the following major types and quantities of apparatus are dispatched throughout the County. The detailed questionnaire that was completed by every fire and EMS agency in Chester County also asked for their information which is also included for reference purposes (Figure 131). However, not all companies answered all questions. MRI considers the CAD provided information to be the most accurate.

APPARATUS TYPE	NUMBER IN SERVICE CAD	NUMBER IN SERVICE QUESTIONNAIRE
ENGINES/PUMPERS	78	80
LADDERS/TRUCKS	23	25
WATER TANKERS	25	27
RESCUES	29	28

Figure 131
Major Apparatus Types and Quantity

For EMS units, there are currently between 80 and 100 transport-capable ambulances in Chester County, with 80 listed in questionnaires.

It should be noted, that not all of these units are necessarily in service at all times, and, that every fire and EMS system also requires a certain number of reserve or spare units that are available in ready condition, when primary response units are out of service for maintenance or repair, or during times of extremely high incident activity such as during severe weather.

The apparatus set that exists within Chester County is above national averages regarding the current size and configuration of its fleet when compared to communities with comparable populations. According to the United States Fire Department Profile for 2018, on average, communities with populations between 500,000 and 999,000 have 0.05 engines/pumpers per 1,000 population. For Chester County, with an estimated population of 522,000, this equates to about 26 engines/pumpers in service at any given time. With 54 fire stations currently in service in the County, (55 if the West End Fire Company #3 in Phoenixville; which has an engine although it is listed as just an EMS provider is included) that number of units would be the absolute minimum that the County would need if just a single engine was deployed from each station. By comparison, in that population grouping (Chester County is at the very low end of that population grouping):

- 64% have 20 to 39 engines/pumpers
- 29% have 40 or more.

For aerial apparatus (ladders/trucks) the rate is calculated 0.01 per 1,000 population. For Chester County, this equates to about five in service. Overall, in that population grouping:

- 31% have five or fewer ladder trucks
- 29% have between six and nine
- 29% have 10 to 19
- 12% have 20 or more.

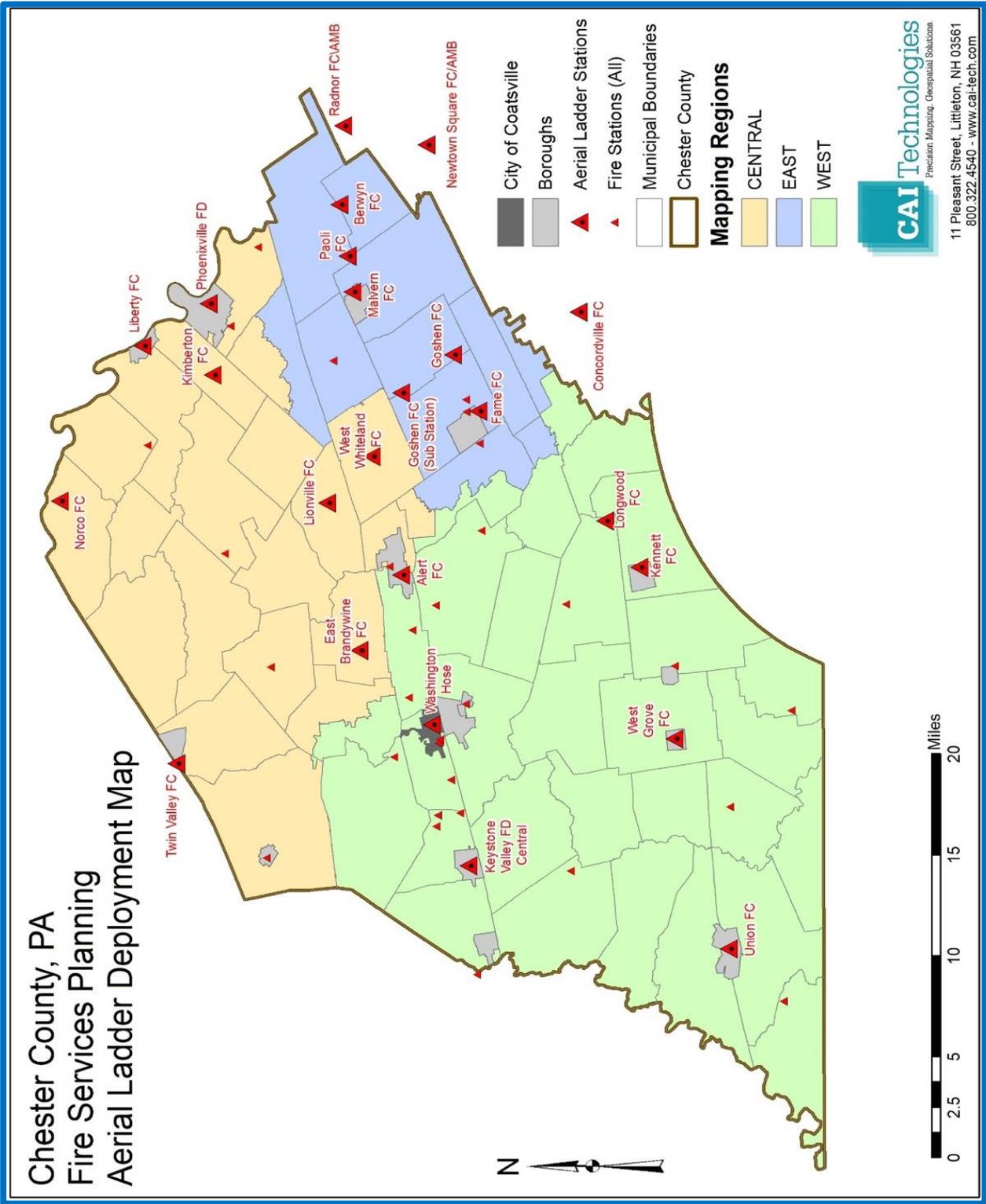
Figure 132 illustrates the stations in Chester County and adjacent companies that deploy a ladder truck.

According to NFPA, “other” fire suppression vehicles include vehicles such as urban interface pumpers with pumps smaller than 1,000 gallons per minute, brush trucks, and water tankers. For this apparatus, the rate is also calculated at 0.01 per 1,000 population. For Chester County, this again equates to about five in service. Overall, in that population grouping:

- 51% have nine or fewer
- 24% have between 10 and 19
- 14% have 20 to 29
- 12% have 30 or more.

Figure 133 shows the stations in Chester County and adjacent companies where water tankers are deployed from.

The profile does not address rescues and EMS units such as ambulances and medic units. Chester County and adjacent fire company stations where rescue trucks are deployed are illustrated in Figure 134.



**Figure 132
Aerial Ladder Deployment**

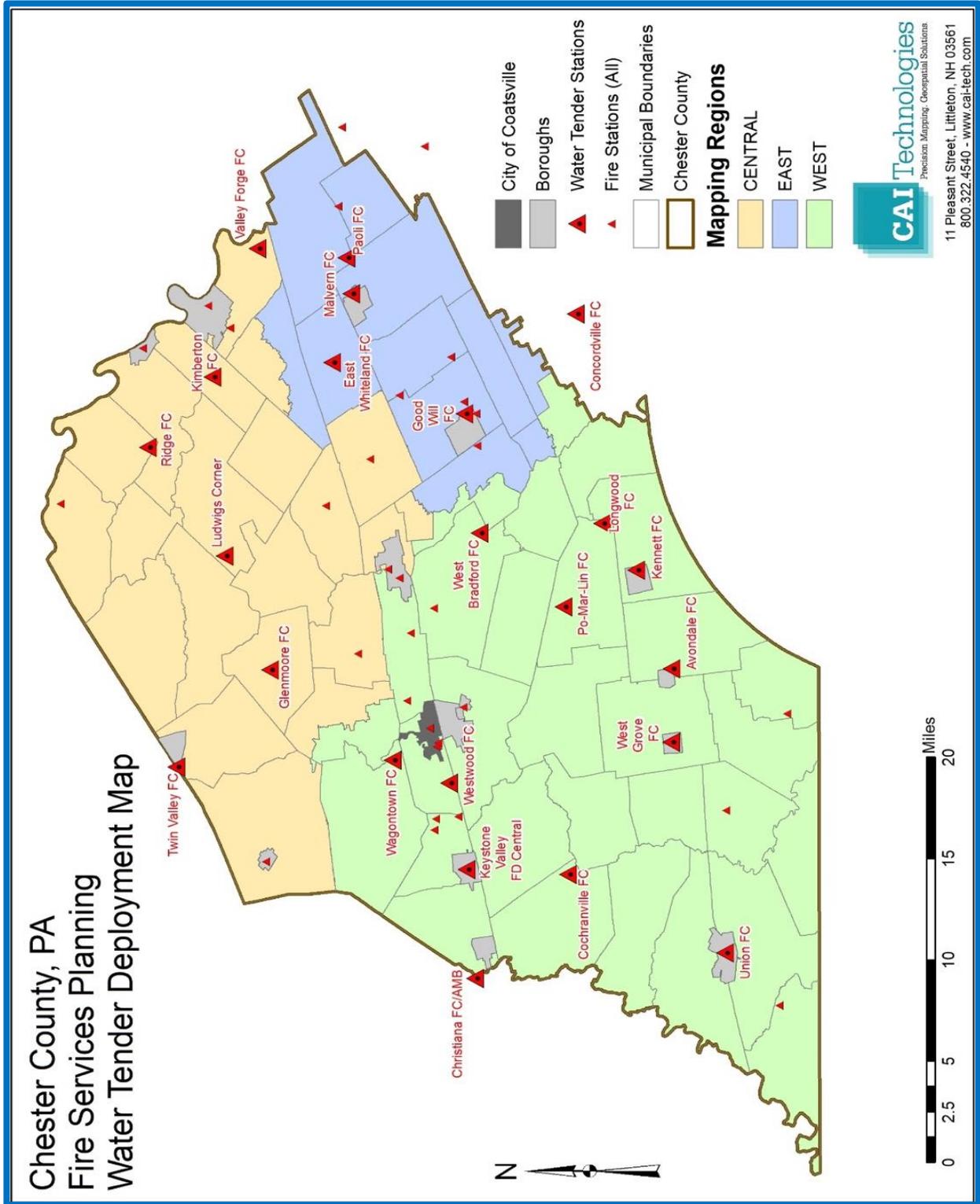
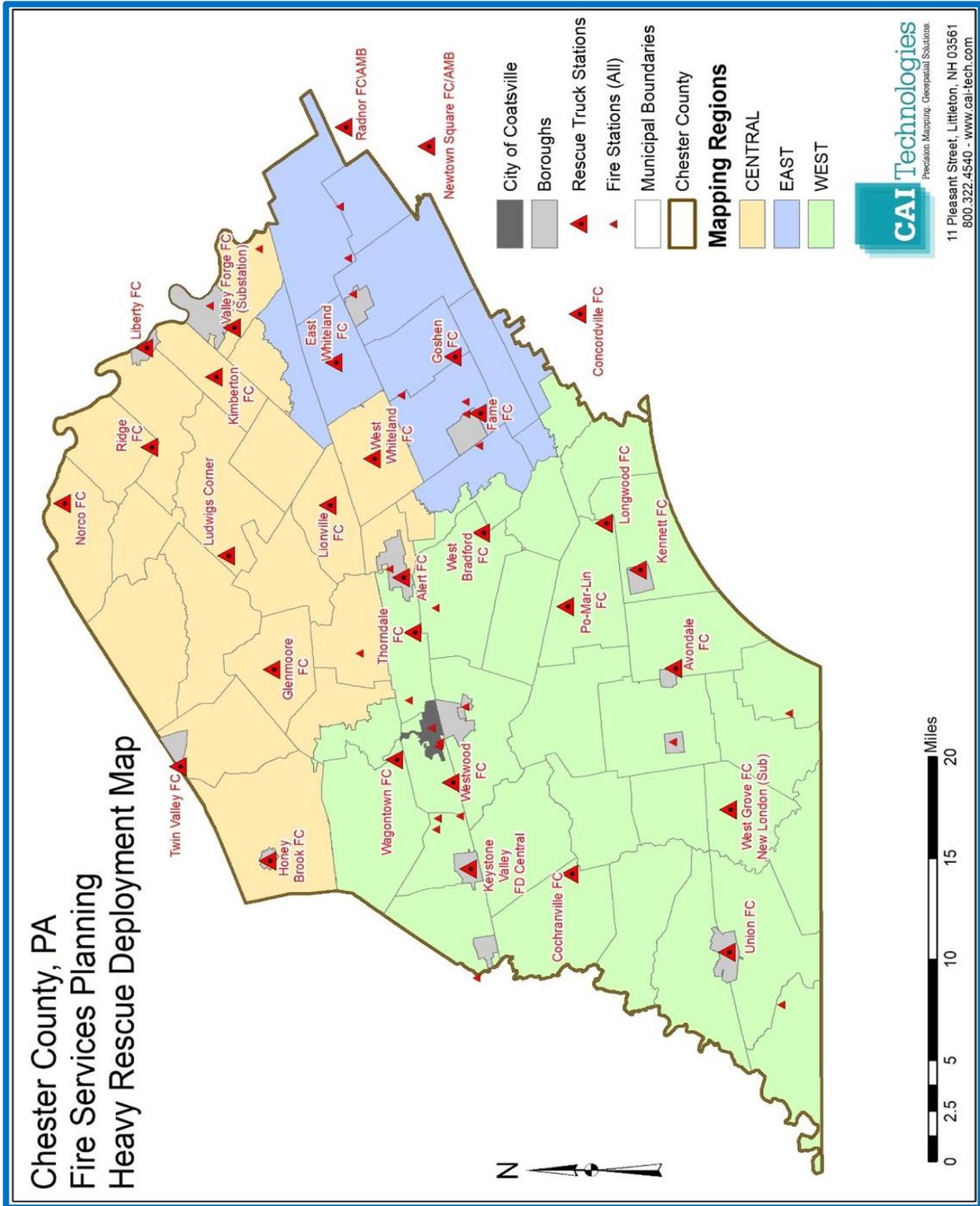


Figure 133
Water Tanker Deployment



**Figure 134
Heavy Rescue Deployment**

The apparatus that the MRI study team had an opportunity to view during the field visits, even the older units, all appear to be in good or better condition. However, the study team only viewed a relatively small sampling of apparatus. For the most part, the vehicles that the team examined were well maintained, and with the equipment stowed in an orderly fashion.

Despite the lack of clear guidance in the various NFPA standards, there is a significant body of knowledge that suggests that fire apparatus has a finite life span. The reasonable serviceable life span of fire apparatus will depend on many variables such as the level of use, local environment and operating conditions, and very importantly, the scope of preventative maintenance. It is generally accepted that lower use fire apparatus, such as units serving communities that are suburban in nature, might still be mechanically sound after twenty years or more, due to their lower frequency of use. However, when considering apparatus usage, hours on the motor and pump hours must be taken into consideration. Fire apparatus typically spend more time idling while at emergency scenes, or, throttled up when operating the fire pump. A rule of thumb that can be used is that each hour on the motor is the equivalent of thirty to thirty-five miles of actual road usage. In addition, after twenty years, technical and functional obsolescence may make apparatus less desirable to use, even if mechanically sound and serviceable. However, that does not mean that it will still not be serviceable as a spare or reserve apparatus.

A white paper developed by the Fire Apparatus Manufacturer's Association (FAMA) suggests that the front-line life span of active duty fire apparatus in a suburban setting ranges from 16 to 19 years, with the possibility of an additional 9 to 10 years in a reserve, or spare status⁶³. The International City/County Management Association (ICMA) suggests that the life span of a fire pumper should be 20 years, and the life span of an aerial ladder should be 25 years.

Like many other things today fire apparatus lasts longer than it did in the past particularly if it receives proper maintenance and is not subject to heavy use. The MRI study team cannot speak definitively to the maintenance question; however, stakeholder interviews indicated that the service and maintenance programs in place varied from company to company throughout the County. From a use perspective, there are no engines (which are typically the busiest fire units) that are excessively busy. In 2017, only two engines in the County responded to more than 400 incidents. In 2018, the numbers increased with one engine responding to just over 600 incidents, one slightly more than 500, and three over 400. In 2019, these numbers decreased again to one engine over 500 runs, and two over 400. Appendix Z-2 includes the number of apparatus responses by each unit for 2017 – 2019.

In today's economic environment, it does not make fiscal sense to continue to just replace low use apparatus at intervals that may be more frequent than necessary, particularly if that is the only criterion that is being utilized. Extending out useable the life span of the County's apparatus fleet will relieve some pressure off the capital equipment purchase account in the various companies and municipalities and make better use of those tax dollars for other needs

⁶³Fire Apparatus Duty Cycle White Paper, Fire Apparatus Manufacturer's Association. August 2004.

such as staffing. Regardless, the decision is left to each locality and represents a balancing of numerous factors: fire department activity levels, maintenance costs and history, individual vehicle reliability, funding availability, technological changes, firefighter safety, and vehicle use. Fire apparatus must be replaced before it becomes unreliable, but it must be held in service for as long as practical to maximize the benefit of the large initial investment from the community.

As mentioned briefly earlier in this chapter, one of the biggest factors that can impact the serviceable life of fire apparatus is the level of preventative maintenance that it receives. NFPA 19-1-1: *Standard for the Inspection, Maintenance, Testing, and Retirement of In-Service Automotive Fire Apparatus* (2017 edition), provides guidance on this important aspect of fire department support operations. Apparatus manufacturers also identify suggested programs and procedures to be performed at various intervals. As apparatus ages, it is reasonable to expect that parts will wear out and need to be replaced. It follows then that maintenance costs and overall operating expenses will increase. As a result, cost history and projected costs for the future must be considered as a factor in determining when to replace or refurbish a fire apparatus. In addition, the reliability of the apparatus must be considered. Experiencing low downtime and high parts availability are critical factors for emergency equipment maintenance and serviceability. A proactive preventative maintenance program can assist with holding costs to an acceptable level. Appendix Z-3 includes a sample vehicle inspection form that should be completed by a certified emergency vehicle technician (EVT) on a periodic basis. Other entities such as Volunteer Firemen's Insurance Service, Inc. have similar forms available for their clients.

Currently, each fire company in the County determines how they will provide maintenance and repairs to their apparatus and vehicle fleet. This includes a combination of local repair facilities and manufacturer's authorized service centers. The levels and types of maintenance and service varies throughout the County. Utilizing outside vendors to perform routine repairs and preventive maintenance activities, as well as some major repairs to emergency vehicles is not always the most cost-effective manner to maintain the operating fleet. In addition, depending upon the type of facility they are sent to, the personnel may not possess the recommended EVT certification for working on emergency vehicles. Regardless of where service and maintenance are performed, fire companies should ensure that any mechanics performing these tasks are professionally trained and capable of performing the specialized mechanical repairs that are required with fire apparatus and emergency vehicles.

There are several ways that the fire and EMS agencies in Chester County can better address the service and maintenance of the large emergency vehicle fleet. Some ideas that might be considered, and result in potential improvements in consistency of quality and efficiency, while providing cost savings, include but are certainly not limited to:

- Sharing a fully trained and EVT certified mechanic between several area fire companies and/or municipalities.
- Developing several vendor contracts for County-wide maintenance services for the fire companies.

- Chester County providing repair and maintenance services to the fire and EMS agencies either as a service, or, on a cost basis.

Whether more complex tasks and specialized repairs (i.e. drive train, fire pumps, aerial ladder systems, etc.) should continue to be contracted out to specialized repair shops, or could be performed in-house would be a decision that the participants would need to make.

During this assessment, the MRI study team was informed during interviews that annual pump and ladder testing on the apparatus is performed by some, but not all fire companies utilizing outside vendors. These tests are required by various NFPA and ISO standards⁶⁴. Test results provide an indicator of apparatus condition and are a valuable tool in budget planning. Often, because of this testing, minor maintenance issues can be resolved which will delay or eliminate the need for major repairs in the future. It is also important to remember that from a safety and performance perspective, this annual testing needs to be completed to ensure the overall rating, capacity, and functionality of the pumps and ladders are reliable during emergency incidents.

It is also the opinion of the MRI study team that Chester County has an abundance of apparatus for the size of the County, its level of fire incidence, and the fire companies' decreasing active staffing levels. Many of the stakeholders that were interviewed also expressed that the County has too much fire apparatus and probably EMS equipment. In some cases, the apparatus configuration is probably a throwback to a previous era when each fire company attempted to be fully self-sufficient and had everything they needed to handle most incidents. That is no longer the case today, as often between four and six different companies may be initially dispatched to incidents like reported structure fires. As times have changed, the process for apparatus deployments has not evolved with the County's more wide-ranging approach and what should be a much more unified fire protection focus moving forward. Many companies have an abundance of apparatus and there is no doubt that the apparatus fleet should be the right size, particularly the more expensive, specialized types of units such as ladder trucks and rescues. In addition, as noted previously, multiple vehicles are being maintained for infrequent responses.

⁶⁴ NFPA 19-1-1, Standard for the Inspection, Maintenance, Testing, and Retirement of In-Service Emergency Vehicles, 2017 Edition

<https://www.isomitigation.com/ppc/fsrs/items-considered-in-the-fsrs/>

To provide some comparison and context, Figure 135 below lists the number of ladders, rescue trucks, and water tankers that other comparable sized (by population) jurisdictions currently have in service.

	CHESTER COUNTY	LOUDOUN COUNTY, VA	PRINCE WILLIAM COUNTY, VA	ANNE ARUNDEL COUNTY, MD
POPULATION	522,000	413,000	470,000	579,000
APPARATUS TYPE				
LADDERS/TRUCKS	23	12	6	9
WATER TANKERS	25	14	6	6
RESCUES	29	6	6	9

Figure 135
Comparable Jurisdiction Major Apparatus Comparison

While much larger jurisdictions, they are not necessarily comparative but can still provide perspective; Fairfax County, VA with a population of 1,150,000 has 14 ladder trucks and eight rescues, while Phoenix, AZ with a population of 1,680,000 and covering 519 square miles also has 14 ladders.

Moving forward, the various stakeholders in the Chester County fire and EMS delivery system should work collaboratively to right size the apparatus fleet and reduce the redundancy in apparatus particularly expensive ladders and rescues. However, the number of engines, ambulances, and other units can also be right sized. No one fire company needs to have at least one of every type of apparatus. In addition, unless they are operating from multiple stations, MRI believes that few, if any, fire companies need to have three or four engines in service as it is unlikely they have the personnel to properly staff them. Resources would be better allocated, and the study team believes operational proficiency increased, by various companies adopting a single specialty that they provide for a wider geographic area of the County.

In addition, the various stakeholders in the Chester County fire and EMS delivery system should work collaboratively to develop standardized specifications for the purchase of new apparatus. Although the specifications can be revised and updated, as necessary, standardization will assist with training, personnel familiarity, and maintenance to name just a few potential benefits. In



addition, if multiple entities are purchasing new apparatus or vehicles, whether for fire or EMS use, there should be cost saving for the purchase of multiple identical units.

Some of the possibilities that several fire companies might consider, is to combine an engine and rescue into a rescue engine which can provide both firefighting and vehicle extrication capabilities into a single vehicle. Combining an engine and rescue into a single unit can satisfy operational needs that may be difficult to meet by attempting to staff two separate pieces of apparatus, particularly in limited staffing situations. Long-term, replacing some of the rescues with rescue engines will provide companies with diverse multi-purpose resources that provide maximum operational flexibility and options for safe, effective, and efficient options, particularly when operating with the minimal staffing levels with which many companies now operate. Full-size rescues should continue to be deployed strategically around the County.

Figures 136 and 137 illustrate a well-designed, multi-functional rescue engine. This unit has the following features:

- 2,000 GPM pump
- 1,000-gallon tank
- 15KW generator
- Will-Burt Night Scan vertical light tower
- 7 – pre-connected lines from 1 ¾” to 3”
- 1,100 feet of 5” LDH
- 3 pre-piped hydraulic lines with Hurst combination tool on the bumper.
- 4 - Auto Cribs
- Electric Reel with reciprocating saw on bumper.
- 2 Sets of Res-Q Jacks
- CMC Truck Cache and Rope for Confined Space Rope Rescue
- Stokes Basket and Fast Board
- RIT Pack and Pac Tracker
- Ice Water Rescue Suits
- Water Rescue sling and rope
- Life Vests



Figure 136

Multi-functional rescue engine.

Photo credit: Edan Davis @ South Jersey Fire News thru Millville, NJ Fire Department.



Figure 137

Rescue engine front bumper with pre-connected fire line, rescue tool, and reciprocating saw.

Photo Credit: Firefighter Alex Hess, Millville Fire Department

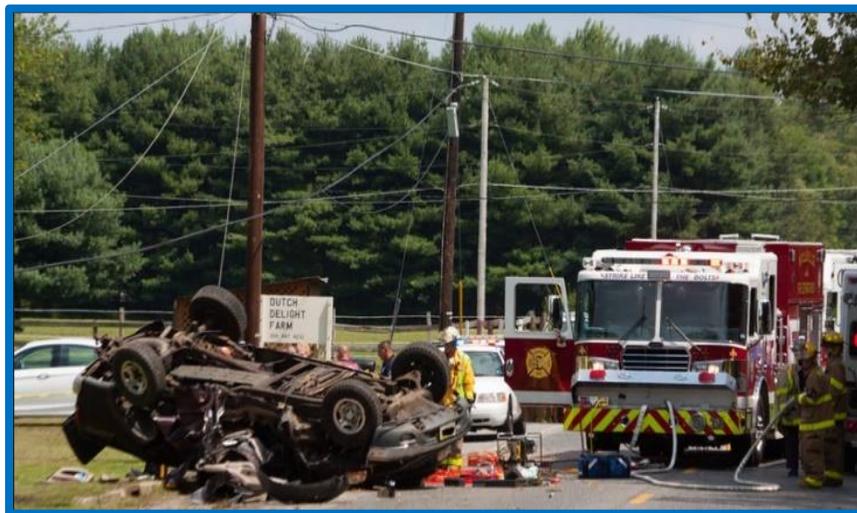


Figure 138

Rescue engine operating at a serious motor vehicle crash.

Photo credit: Edan Davis @ South Jersey Fire News thru Millville, NJ Fire Department.

For companies that operate in areas with limited or no municipal water supply systems where the use of water tankers for fire operations is mandatory, pumpers, tankers, and even a rescue can be combined into a single multi-functional vehicle. An article on the Washington Fire Chiefs Association website notes:

“Tankers are quickly taking on additional roles in fire operations, many of them being not only capable of supplying and shuttling large quantities of water, but also

...serving in the roles of pumpers and rescues. Manufacturers report they are building more tankers that can be classified as multi-purpose vehicles, and departments are using these multi-role tankers to handle situations traditionally dealt with by other types of apparatus.”⁶⁵

The article also notes that over the past two decades or so, water tankers have evolved from vehicles used just for shuttling water that were equipped with large water tanks, small pumps, and low side compartments into multi-functional units outfitted with similar-sized water tanks but much larger pumps, multiple pre-connected hose lines, full size hose beds, hydraulic ladder and folding tank racks, and high side compartment space that can accommodate hydraulic rescue equipment.

As with the rescue engines, combining an engine, water tanker, and rescue into a single unit can satisfy multiple operational needs for companies that may be difficult to meet, by attempting to staff multiple pieces of apparatus. A unit such as this could be deployed as the first-out engine by fire companies whose areas are primarily rural with no fire hydrants providing full engine capabilities, along with increased water carrying capacity. It can also provide the necessary extrication equipment for handling most motor vehicle crashes. MRI believes that a unit such as this will provide companies with diverse firefighting and basic vehicle extrication resources that provide maximum operational flexibility and options for safe, effective, and efficient options, particularly when operating with the minimal staffing levels that many companies are now faced with. Figures 139 and 140 illustrate a well-designed, multi-functional rescue engine/water tender combination. This unit has the following features:

- 2000 GPM pump
- 1500-gallon water tank (could be increased to 2,000 gallons)
- Foam system with 20-gallon foam tank
- Multiple pre-connected hose lines
- 185 cubic foot hose bed
- 30kw hydraulic generator
- Will-Burt 6000-watt light tower
- Front bumper hydraulic rescue tool
- Res-Q-Tec strut system
- Rescue style compartments – 300 cubic feet of compartment space

⁶⁵ <https://www.washingtonfirechiefs.com/Sections/PublicFireEducators/TabId/2346/ArtMID/7884/ArticleID/6573/Tanker-Designs-Reflect-Expanding-Roles.aspx>



Figure 139



Figure 140

Multi-functional rescue engine/water tender.

Image credits: Left - New England Fire Equipment and Apparatus and right – Zacks Fire Truck Pics

A word of caution is warranted here. Any type of emergency vehicles carrying large quantities of water are going to be large, long and heavy vehicles, (over 65,000 pounds, gross vehicle weight [GVW]). These vehicles also tend to be somewhat top heavy. These factors combined with rural roads sometimes being narrow or otherwise less than optimal, requires the drivers to be well trained with a thorough understanding of rollover prevention to ensure that operations are always conducted safely.

The MRI study team was informed during interviews that few apparatuses in Chester County have the capabilities of delivering compressed air foam on the fireground. Compressed Air Foam Systems (CAFS) are a method by which a foam-producing agent and air are added to water, which creates a far more effective tool to extinguish fires. Equipment is available to retrofit most existing fire apparatus. The use of these foam systems in fire suppression has been well documented to reduce fire knockdown time by up to 78%, compared with the use of just water. This means that when using compressed air foam, firefighters are exposed to dangerous operating conditions for less time and can operate at a safer distance from the fire.

CAFSs require about 15 gallons of water to achieve the same knockdown that 70 gallons of straight water achieves. This means that much less water is required with foam. This reduction in water translates into far less structural, smoke, and water damage, which are the typical kinds of damage sustained in a structure fire. Using a CAFS also reduces overhaul and cleanup operations because there is less damage and more evidence preserved for fire investigation.

In addition, it is well documented in the fire service each year that physical fitness and cardiovascular disease continue to be a leading contributor to line of duty injury and death for fire service personnel⁶⁶. ***CAFSs minimize the weight in these attack lines and thus lessen the physical strain placed upon personnel during limited staffing situations. This is a particularly important consideration for volunteer fire service organizations and personnel who may initially be deployed to structure fires.***

EMS units are generally subjected to much more frequent and harder use than fire apparatus is. This is driven by the fact that EMS incidents generally outnumber fire related incidents by 4:1 or even 5:1. As a result, EMS units must be replaced on a much more frequent basis. Because they require more maintenance due to their heavy use, EMS providers must often maintain larger fleets of vehicles. In many cases, EMS agencies attempt to keep an ambulance or other EMS unit in front line, or first-out, position for about three or four years. Once it is replaced from first-out status, it will generally remain in second-out status for another three or four years. It may then spend another three or four years in a reserve or spare status before being removed from service after 10 to 12 years. The age of a unit is just one factor in determining the need to replace it, however. Condition of the unit, its maintenance history, and overall reliability are also major contributing factors.

Both Type 1 (Figure 141) and Type 3 (Figure 142) ambulances are constructed with the ambulance box as an almost standalone module, that is mounted on a commercial chassis of the buyer's choosing. In large part due to the way they are constructed, the ambulance modules last much longer than the original chassis and drivetrain. This is true even in high-use environments. In addition, many ambulance manufacturers provide extended warranties on the boxes that significantly exceed the expected life span of the chassis. For instance, one reputable manufacturer builds their ambulance boxes as standard with 20-year integral construction warranties. In addition, when the time comes, if the ambulance modules are remounted by an authorized manufacturer's facility the warranty is extended for an additional five years.

⁶⁶<https://www.nfpa.org/-/media/Files/News-and-Research/Fire-statistics-and-reports/Emergency-responders/osFFF.pdf>



Figure 141



Figure 142

Type 1 ambulance mounted on a Ford F550 4 x 4 chassis Type III ambulance mounted on a Ford E450 chassis
 Photo credits: Mass Fire Trucks

Current trends indicate that an increasing number of EMS agencies are pursuing the option of remounting their ambulance modules on new chassis. This provides the organization with essentially a new vehicle but at a greatly reduced cost. Multiple chiefs that the MRI study team has interacted with over the past several years stated they will replace the chassis and remount their ambulances rather than replace them. There is at least one reputable ambulance manufacturer which designs and builds their units to be used on three separate chassis, the original and two remounts.



Figure 143

Sprinter Metro Express MN-86 142 x 86 Type III Ambulance.

Image credit: Gloucester County EMS Twitter

With the average cost of a new ambulance now often approaching \$200,000 or more, some agencies are also looking at other less expensive options. Figure 143 shows a Sprinter Metro Express MN-86 142 x 86 Type III Ambulance, utilized by Gloucester County EMS in New Jersey. These units are smaller, and thus less costly to purchase than their somewhat larger counterparts.

Among other features these units include a custom compartment for stair chair storage, back-up camera w/monitor in cab, electric side entry step, SSCOR suction

system, custom interior cabinets, CPR seating, custom overhead glove storage cabinet, and an EVS child restraint tech seat.

As independent, non-government organizations, many of Chester County's fire and EMS agencies are not bound by government bidding requirements, even though government funding allocated for capital purchases can be involved. In most cases, each agency has a preferred brand for fire apparatus and/or EMS vehicles and deals just with that specific vendor throughout the process. With no competition for the sale there is no incentive for

the vendor to “*sharpen their pencil*” on the proposed price. This can lead to higher purchase costs.

Public bidding laws are the set of laws that govern contracts for public works and the purchase of materials and supplies by public entities that meet certain threshold requirements. The purpose of the public bid law is to ensure that public entities receive the best possible price when using public funds for the procurement of materials and supplies or public works.

In any purchasing process that utilizes public funds it is imperative to maintain a system of competitiveness and equal access without any indication of favoritism or preference to an individual dealer or vendor. While many volunteer fire departments and EMS agencies develop specifications for an apparatus manufacturer and purchase from their vendor of choice, this practice is generally not allowed in most local and state governments. The process often gets complex and political, when public entities provide funding to independent volunteer organizations that provide emergency services to the community. However, if public funding is being utilized it is essential that a request for proposal (RFP) and an invitation to bid (ITB) are developed to ensure the product or service provides the intended results, and that technical specifications are written in a way that provides fairness and competitiveness. Unless there are compelling and justifiable reasons to do otherwise, the contract should be awarded to the lowest responsible bidder.

A procurement process for major acquisitions that is rapidly gaining popularity in the public sector, is making purchases through the soliciting multiple written bids. In addition to obtaining bids as a method of cost comparison on the local level, many communities are utilizing a regional approach to create a larger economy of scale. Examples of these purchasing consortiums include Pennsylvania’s COSTARS program and the Houston Galveston Area Council (H-GAC) Buy program (HGACBuy) which is a government to government procurement service that is available nationwide.

COSTARS is the Commonwealth of Pennsylvania's cooperative purchasing program and serves as a conduit through which registered and eligible local public procurement units (LPPUs) and state-affiliated entities (members) can leverage contracts established by DGS to cost effectively and efficiently identify suppliers with whom to do business.

According to its website, the H-GAC is a regional organization through which local governments consider issues and cooperate in solving area wide problems. Through H-GAC, local governments also initiate efforts in anticipating and preventing problems, saving public funds. The HGACBuy website⁶⁷ states, “*As a unit of local government assisting other local governments, HGACBuy strives to make the governmental procurement process more efficient*”

⁶⁷ <https://www.hgacbuy.org/>

by establishing competitively priced contracts for goods and services, and providing the customer service necessary to help members achieve their procurement goals. All contracts available to members of HGACBuy have been awarded by virtue of a public competitive procurement process compliant with state statutes.”

The benefit to communities and government funded entities is that the time consuming and complex process of putting specifications out for public bid has already been completed. As a result, the procurement process for capital acquisitions, while still completely transparent, is greatly simplified.

EQUIPMENT

The tools and equipment that a fire department utilizes cover a wide assortment of resources necessary to effectively, efficiently, and safely respond to, and mitigate a wide range of emergency incidents. These resources include, but are certainly not limited to, the firefighters’ PPE, SCBA, hose, nozzles, adapters, master stream appliances, ground ladders, radios, hydraulic rescue tools and equipment, and various hand and power tools.

The fire service has experienced tremendous technological advances in equipment, procedures, and training, over the past fifty years. Improved PPE, the mandatory use of SCBA, large diameter hose, better and lighter hose lines and nozzles, and thermal imaging cameras are just a few of the numerous advances in equipment that have enabled firefighters to perform their duties more effectively, efficiently, safely, and with fewer personnel. However, the fact remains that emergency scenes present a dynamic, dangerous, frequently unpredictable, and rapidly changing environment where conditions can deteriorate very quickly and place firefighters in extreme personal danger. The technology and standards for fire department equipment are constantly evolving to improve the effectiveness, efficiency, and safety of firefighters.

NFPA 1901, *Standard for Automotive Fire Apparatus* (2016 edition) and ISO, provide standards for the minimum complement of equipment carried on fire apparatus. However, most apparatus carry much more equipment than these minimums. It is important to recognize that each agency has different requirements for apparatus and equipment. NFPA focuses broadly on the safety and performance of the apparatus, while ISO focuses specifically on the fire suppression capabilities of the apparatus as it potentially can impact the fire insurance rating for a community. These differences are most significant for equipment carried on pumpers and aerials. Differences between NFPA and ISO equipment for pumpers include hose, monitors, ground ladders, foam, and radios. Differences for aerial equipment include SCBA, ground ladders, and radios.

PPE includes the full ensemble that encapsulates a firefighter who will be engaging in firefighting operations: helmet, Nomex® hood, turnout coat, turnout pants, boots, SCBA,

gloves, eye shield, and station uniform. The specifications and related requirements for PPE can be found in various NFPA standards. The use of PPE is regulated by OSHA. The current edition of NFPA 1851, *Standard on Selection, Care and Maintenance of Protective Ensemble for Structural Firefighting and Proximity Firefighting* recommends that firefighter PPE be replaced at no greater than 10-year intervals.

Annual flow testing of SCBA is required by NFPA Standard 1852, *Standard on Selection, Care, and Maintenance of Open-Circuit Self-Contained Breathing Apparatus (SCBA)* and manufacturer's recommendations. NFPA and ISO also both require the annual testing of all fire hose. The MRI study team was informed that while many of the fire companies in Chester County do perform these annual tests, there are still some which do not.

It is the current best practice in the fire service that every firefighter who is wearing SCBA and/or entering an atmosphere that is IDLH should be equipped with a portable radio. Should a firefighter become trapped, lost, disoriented, or experience any other type of emergency, he/she can summon help on the portable radio. Many departments now have a portable radio assigned to either every riding position on every piece of apparatus, and/or to every on-duty member. Chester County has provided enough radios to every fire company to provide most of those required to fulfill this important life safety recommendation. Chester County should be commended for this effort which MRI considers to be a **Best Practice**.

Most of the fire companies in the County have hydraulic rescue tools for use on motor vehicle crashes. This equipment is important to these department's overall operations due to the traffic throughout the County. To ensure that they are maintained in proper working order, these units should be covered under an annual service/maintenance contract and serviced on an annual basis as outlined in NFPA 1936 *Standard on Powered Rescue Tools* (2015 edition).

Thermal Imaging Cameras (TICs) are valuable pieces of equipment used by firefighters during fire incidents. By rendering infrared radiation as visible light, such cameras allow firefighters to see areas of heat through smoke, darkness, or heat-permeable barriers. Thermal imaging cameras pick up body and other types of heat and are used to locate and remove trapped fire victims more quickly. They are also often used to find hidden fire behind closed walls. Most thermal imaging cameras are handheld but may also be helmet mounted. Every fire company in the County has at least one of these units, with many having them on multiple pieces of apparatus. Again, to ensure that they are maintained in proper working order, these units should be covered under an annual service/maintenance contract and serviced on an annual basis.

The multi-gas meter is a small hand-held device that can detect lower explosive limit (LEL), CO, and oxygen depleted environments allowing firefighters to identify and monitor hazardous environments. There are numerous types of combustible 5 gas detectors/meters, four gas

meters, and single gas detection meters. Every fire company in the County has at least one of these meters, again, with many having several.

RECOMMENDATIONS:

- XII-1: *Chester County fire and EMS agencies should consider applying for an Assistance to Firefighters Grant (AFG) to attempt to obtain funding to assist with the installation of automatic fire alarm and carbon monoxide detection systems in all fire and EMS stations where personnel may sleep. These systems should not only be equipped with both audible and visible warning devices, they should automatically transmit an alarm to an approved central monitoring station.***
- XII-2: *Chester County fire and EMS agencies should consider applying for an Assistance to Firefighters Grant (AFG) to attempt to obtain funding to assist with the installation of direct capture vehicle exhaust extraction systems in all fire and EMS stations.***
- XII-3: *Chester County fire and EMS agencies should consider applying for an Assistance to Firefighters Grant (AFG) to attempt to obtain funding to assist with the installation of emergency back-up generators in all fire and EMS stations.***
- XII-4: *Working collaboratively, the appropriate stakeholders involved in any proposals for new and/or replacement fire or EMS stations should include a thorough needs assessment including whether multiple stations could be consolidated at a single more operationally appropriate location. When possible, new stations should be smaller but still functional facilities that meet the organization's needs.***
- XII-5: *Inspections of all fire and EMS stations and facilities should be conducted on a regular basis. These inspections can be used to identify potential maintenance, as well as safety issues, and allow them to be addressed before they become problematic.***
- XII-6: *As part of a proactive preventative maintenance program that can assist with reducing maintenance costs, all fire and EMS vehicles should be thoroughly inspected by a certified emergency vehicle technician (EVT) on a periodic basis, but no less than annually.***
- XII-7: *Working collaboratively the Chester County Fire Chiefs Association, Chester County EMS Council, Inc., and Chester County Fire Police Association should consider ways that the fire and EMS agencies in the County can better address the service and maintenance of the large emergency vehicle fleet. This can include the development of standard preventative maintenance and repair protocols. Some ideas that might be considered and result in potential improvements in consistency in quality and efficiency while providing cost savings, include, but are certainly not limited to:***

- *Sharing a fully trained and EVT certified mechanic between several area fire companies and/or municipalities.*
- *Develop several vendor contracts for County-wide maintenance and repair services for all the fire companies and EMS agencies.*
- *Chester County providing repair and maintenance services to the fire and EMS agencies either as a service, or on a cost basis.*

XII-8: *As required by various NFPA and ISO standards, annual testing of the following apparatus components and equipment should continue to be a high maintenance priority including for fire companies who do not currently have these tests performed:*

- | | |
|------------------|---|
| ➤ Fire pumps | ➤ Self-contained breathing apparatus (SCBA) |
| ➤ Fire hose | ➤ Hydraulic rescue tools |
| ➤ Aerial ladders | ➤ Thermal imaging cameras |
| ➤ Ground ladders | ➤ Combustible gas meters |

XII-9: *Working collaboratively, the Chester County Fire Chiefs Association and Chester County EMS Council, Inc. should consider developing several vendor contracts for County-wide inspection and testing services for the all the fire companies and EMS agencies for the apparatus components and equipment listed in Recommendation XIII-8, above.*

XII-10: *The Chester County Fire Chiefs Association and Chester County Fire Police Association should attempt to develop a standardized set of specifications for apparatus such as engines, rescue engines, engine tankers, brush trucks, command vehicles, and traffic units. The apparatus should have similar compartmentation and equipment (even if different manufacturers are selected) which will improve efficiency in emergency operations.*

XII-11: *During the development of the standardized apparatus specifications, the Chester County Fire Chiefs Association should consider equipping new pumping apparatus with Compressed Air Foam System (CAFS) capability to improve fire knock down capabilities, especially in limited staffing conditions.*

XII-12: *The Chester County EMS Council, Inc. should attempt to develop a standardized set of specifications for ambulances. The ambulances should have similar compartmentation and equipment (even if different manufacturers are selected) which will improve efficiency in emergency operations.*

XII-13: Working collaboratively with their partners at Chester County, the Chester County Fire Chiefs Association and Chester County EMS Council, Inc. should explore the feasibility of advertising a County-wide bid specification annually, for units such as engines, rescue engines, ambulances, and command vehicles where the economy often provided by purchasing multiple very similar units can result in significant cost savings for the companies making the purchases.

XII-14: Since most major apparatus and vehicle purchases involve at least some public funding, and in consideration of potential cost savings that could be realized even if they are funded otherwise, all major purchases should be publicly advertised as part of a fair and open competitive bidding process.

XII-15: When making capital purchases such as apparatus any entity, whether an individual fire company or EMS agency, up to a County-wide process should explore the significant cost savings benefits that may be obtained by participating in cooperative purchasing consortiums such as Pennsylvania's COSTARS program, or, the Houston Galveston Area Council (H-GAC) Buy program (HGACBuy).

XII-16: Working collaboratively with their partners at Chester County, the Chester County Fire Chiefs Association, and Chester County EMS Council, Inc. should explore the feasibility of standardizing many of the tools and equipment utilized by the County's fire and EMS providers to allow for cost savings generated by group purchasing arrangements.

- Fire hose
- Nozzles and appliances
- Ground ladders
- Self-contained breathing apparatus (SCBA)
- Hydraulic rescue tools
- Thermal imaging cameras
- Combustible gas meters
- Various hand tools and equipment
- Firefighter PPE
- Ventilation fans
- Saws
- Fire extinguishers
- Automatic External Defibrillators (AEDs)
- Portable suction units
- Oxygen equipment
- EMS disposable equipment
- EMS PPE
- EMS patient moving equipment (stair chairs, Reeves stretchers, etc.)
- Fire Police PPE
- Fire Police supplies

XII-17: The overall size of the fire apparatus and vehicle fleet in Chester County, particularly high cost specialty vehicles such as aerial ladders and rescues, should

be right sized to make it appropriate for the community, as well as, provide increased efficiency in operations.

XII-18: *When practical, EMS agencies should explore the less costly option to replace the chassis, and remount and refurbish as needed, their ambulance boxes rather than always purchasing brand new units.*

CHAPTER XIII

TRAINING AND OFFICER DEVELOPMENT

The primary function of fire companies/departments and EMS providers is to respond to emergency incidents, save lives, and to protect property and the environment. Training is, without question one of the most important functions that should be performed on a regular basis. One could even make a credible argument that training is, in some ways, more important than emergency responses because a department or agency that is not well-trained, prepared, and operationally ready, will be unable to effectively, efficiently, correctly, and safely fulfill its emergency response obligations and mission. A comprehensive, diverse, and ongoing training program is critical to every emergency service provider's level of success.

Education and training programs help to create the character of fire and EMS organizations. Agencies that place a real emphasis on their training tend to be more proficient in carrying out day-to-day duties. Despite this evidence, training within emergency services organizations is often faced with several challenges that impact its overall effectiveness. Often, training does not get the time, attention, and priority that it deserves. However, the prioritization of training helps to foster an image of professionalism and instills pride in the organization.

An effective fire or EMS training program must cover all the essential elements of that specific organization's core missions and responsibilities. The program must include an appropriate combination of technical/classroom training and manipulative or hands-on/practical evolutions. Most of the training, but particularly the practical, standardized, hands-on training evolutions, should be developed based upon the fire or EMS provider's own operating procedures and operations, while remaining cognizant of widely accepted practices and standards that could be used as benchmarks to judge the organization's operations for any number of reasons. Numerous case studies of firefighter fatality and injury incidents have documented the importance of training⁶⁸. For instance, failure to use widely accepted firefighting practices was a significant conclusion in the many investigations that were conducted after the Charleston, South Carolina, Super Sofa Store fire in June 2007, which resulted in the deaths of nine firefighters. As with all other fire and EMS operations, there must be consistency in how the training is being conducted.

The U.S. OSHA has established requirements for minimum emergency services training that must be completed on an annual basis, covering various topics including:

- Bloodborne Pathogens Training (29 CFR 1910.1030)
- Hazardous Materials Training (29 CFR 1910.120)
- Confined Space Training (29 CFR 1910.146)

⁶⁸ <https://www.cdc.gov/niosh/fire/default.html>

In addition, firefighting personnel, or those who may need to wear a respirator in the performance of their duties, are required to complete additional training.

- A review of the respiratory protection standard, SCBA/respirator refresher and user competency training, and SCBA/respirator fit testing (29 CFR 1910.134).⁶⁹
- Structural Firefighting Training (29 CFR 1910.156) for firefighting personnel.

Local government employees in Pennsylvania are exempt from compliance with federal OSHA regulations. In addition, federal OSHA neither has regulations nor jurisdiction over state, municipal, or volunteer fire departments. Instead, the Pennsylvania Department of Labor and Industry (DOLI) administers and enforces all workplace health and safety requirements in public sector workplaces. This can include volunteer fire companies. However, lacking specific, up to date standards of their own the OSHA standards are widely recognized as reasonable benchmarks for public sector personnel including firefighters and EMS providers, to achieve and comply with, so it would be reasonable that fire and EMS personnel should attempt to follow them.

NFPA standards contain numerous recommendations for training on various topics such as a requirement for a minimum of 24 hours of structural firefighting training annually for each fire department member.

On the EMS side of operations, the training programs and requirements are primarily driven by the mandatory nature of continuing education and recertification requirements for various levels of practitioners. In Pennsylvania, the Department of Health establishes the regulations for required EMS training and certification. If individual personnel, or an agency, were to not keep up with required training and/or certification requirements they could lose their ability to practice or provide the prescribed levels of service.

The use of an Incident Management System (IMS) is mandated by federal regulations, as well as numerous other regulations and standards. The Incident Command System (ICS) also known as the National Incident Management System (NIMS) has been in use for several decades. Emergency response personnel are required to have completed (at a minimum) IS I-100 and IS-700 level training. In most cases these are completed as part of basic fire and EMS training programs.

⁶⁹ The OSHA Respiratory Protection Standard CFR 1910-134 requires all personnel who may need to wear self-contained breathing apparatus (SCBA) and/or certain respirators to be fit tested on an annual basis with SCBA masks to ensure proper fit. **It is generally accepted industry practice that personnel with beards cannot pass an SCBA fit test or are not in compliance if their beard was grown after the test.** An increasing number of fire chiefs are informing their mutual aid departments that personnel with beards are not permitted to respond into their communities on mutual aid due to potential liability concerns.

COUNTY LEVEL TRAINING

County level training is available to Chester County fire and EMS agencies, much of it through the Department of Emergency Services. The County has a state-of-the-art Public Safety Training Campus (PSTC) in South Coatesville that is available to fire, EMS, and police first responders. In fact, ***this is one of the most impressive training centers that the members of the MRI study team have ever had the opportunity to tour.*** It is truly a testament to the County's commitment to public safety training. For fire and rescue training, the PSTC has all the normal resources found at the best of these types of facilities including:



Figure 144
Academic Building

The Academic Building (Figure 144) which features four classrooms including two that can be combined into one large area. The alternate 9-1-1 center for Chester County is also located in the building.



Figure 145
Drill Tower/Scenario Building

The Drill Tower/Scenario Building which is five stories tall and includes both residential and commercial mock-ups (Figure 145). Rappelling training can be done from each of the floors, as well as the roof for high angle rope rescue training, or in the simulated elevator shaft. Live-fire training is available in this building and it is also equipped with a smoke generator and sound system for fire and search and rescue training.



Figure 146
Flashover Simulator

The Flashover Simulator (Figure 146) which provides the ability to show firefighters the development of a fire from inception through flashover and to teach firefighters the warning signs of, and ways to survive, an impending flashover. The heat produced by a flashover is not survivable for more than a few seconds, even for a firefighter in full PPE and SCBA.

The Split Flange Fire Prop (Figure 147) is designed to train response personnel to recognize a fire on a high-pressure industrial gas pipe. With the number of pipelines that traverse Chester County, this is an important tool for developing the skills necessary to handle these types of emergencies.



Figure 147
Split Flange Fire Prop



Figure 148
Confined Space Simulator

The Confined Space Simulator (Figure 148) consists of five concrete vaults interconnected with various pipes. The interconnecting pipes are different sizes and at different elevations. All the vaults have access via manholes on the top and through the interconnecting pipes.

Probably the most impressive of the training resources that are found at the PSTC is the Tactical Village, which also includes the live Burn Building. The Burn Building (Figure 149) is a two and a half story Class A burn building. Live fire training is available in eight rooms on the lower and upper level. Roof and attic areas are also available on the third floor of the building for non-live-fire scenario training. A standpipe system is available to all floors of the building. There is also a roof ventilation prop to practice roof ventilation on a residential type of structure.



Figure 149
Tactical Village

The front of the Burn Building is a facade of seven townhomes, which includes mock power lines (Figure 150). The building includes two sets of window bar props, one of which is for fire and rescue training and can be cut and replaced. There is also a built in SCBA confidence maze.



Figure 150
Tactical Village/Burn Building

The PSTC offers a wide array of fire and rescue training opportunities for the County’s first responders. These course offerings include entry level classes such as Firefighter I and Basic Vehicle Extrication up through officer development classes. The latter includes sponsoring classes from the National Fire Academy. Chester County’s course offerings follow the curriculum of the Pennsylvania State Fire Academy or other authorities, as appropriate. The County is an approved Pennsylvania Educational Training Agency.

The PSTC is an approved certification agency through both the National Board on Fire Service Professional Qualifications (NBFSPQ or Pro-Board) and the International Fire Service Accreditation Congress (IFSAC). It is also a certification test site for the Pennsylvania State Fire Academy and can test/certify for nine levels of classes. These classes are:

1. Firefighter I
2. Firefighter II
3. Hazardous Materials Awareness
4. Hazardous Materials Operations
5. Driver-Operator - Pumper
6. Driver-Operator - Aerial
7. Driver Operator – Mobile Water Supply Apparatus
8. Fire Services Instructor I
9. Fire Officer I

The MRI study team was informed that a priority for the PSTC is to increase the levels and quantity of officer development training. The MRI study team fully supports this goal. This topic will be discussed in more detail later in this chapter.

Figure 151 provides a synopsis of the number of classes held and students trained at the PSTC from 2009 through 2019.

Year	Number of Classes	Number of Students	Spring FFI	Summer FFI	Fall FFI
2009	112	1,303	29	23	26
2010	94	1,609	28		30
2011	84	1,390	25		20
2012	70	1,253	23		17
2013	111	1,910	15		20
2014	110	1,989	29		28
2015	125	1,901	28		26
2016	147	2,402	24		11
2017	117	1,916	17		11
2018	138	2,169	16	7	12
2019	142	2,195	13	12	16

Figure 151
Training Class Summary 2009 – 2019

Figures 152 and 153 show training that was being conducted at the PSTC during one of the MRI study team’s field visits in June 2019.



Figure 152
Firefighter I training



Figure 153
Industrial foam demonstration

In addition, in 2019 PSTC fire training staff conducted certification testing for 203 candidates. They also conducted 94 off campus classes for the benefit of 1,606 students.

With motor vehicle crashes involving emergency response personnel responding to, or returning from alarms, accounting for a significant number of fire service and EMS injuries and deaths, driver/operator training should remain a major focus of the center’s training efforts. The PSTC is equipped with multiple driving simulators which can include both fire and EMS apparatus simulations (Figure 154). These provide excellent imitations of real-life of events, by virtual scenarios, for students to successfully complete as they develop their skills.



Figure 154
Driving Simulator

The PSTC fire training staff currently consists of one full-time fire rescue training coordinator, one administrative support person, and approximately 53 part-time instructors. Both the full-time and part-time personnel are employees of Chester County. Part-time instructors start at \$14.00 to \$18.00 per hour depending upon their levels on certification and experience. The top salary is around \$25.00 per hour. The MRI study team was informed that as the number of class requests increase it is at times difficult to find enough qualified instructors who are available to commit the required time. If the County is dedicated to continuing to increase the amount of high-quality fire and EMS training that is provided to the emergency services, the number of full-time personnel will probably need to be increased.

The PSTC apparatus for training consists of apparatus that has been taken out of service by fire companies and donated to the center for use. This currently consists of one engine of 1980s vintage and another from the early 1990s. The center also has a 1990s era rescue truck. It does not have an aerial apparatus so when one is needed, an in-service company must bring theirs for use. The MRI study team was informed that the Department of Emergency Services capital plan has a new engine for the center targeted for fiscal year 2021. MRI urges the County to include funding for that unit in the budget. Long term, consideration should be given to obtaining a good used aerial ladder for use by the PSTC.

It was noted to the MRI team that not all fire companies in Chester County take advantage of the academy. Many of the companies in the northern and eastern areas of the County tend to go to the Montgomery County training center for training. Some of these companies are just 20 minutes from Montgomery County's facility, putting them 15 or 20 minutes closer than traveling to the PTSC. However, as they are Chester County companies and are going to be operating within the Chester County system and with other Chester County companies, at least a percentage of their training should be done at the PTSC.

On the EMS training side, there is also a full-time EMS Training Coordinator, as well as a cadre of part-time instructors. The Department of Emergency Services primarily focuses on EMS continuing education training for both basic life support (BLS) and advanced life support (ALS) personnel. In 2019, the Department of Emergency Services partnered for the first time with four local health care systems to provide a 30-hour EMS refresher series for both BLS and ALS providers based upon the National Continued Competency Program (NCCP). It is anticipated that the County will continue to offer this program on a bi-annual basis.

The Department of Emergency Services EMS training unit also places an emphasis on community education programs offering classes on a regular basis including CPR/first aid and Stop the Bleed training. The Chester County Department of Emergency Services should be commended for these efforts which MRI considers to be a **Best Practice**.

In Pennsylvania, entities that provide initial EMS certification training are accredited as EMS Educational Institutes by the Pennsylvania Department of Health. The following six organizations are currently accredited in Chester County:

1. Good Fellowship Ambulance Club: BLS and ALS (EMT, AEMT, Paramedic)
2. Emergency Training Academy: BLS (EMT)
3. Uwchlan Ambulance Corps: BLS (EMT and AEMT)
4. Octorara Area School District: BLS (EMT)
5. Chester County Intermediate Unit: BLS (EMT)
6. Twin Valley EMT Training Institute: BLS (EMT)

Some of these Institutes will also offer an occasional emergency medical responder (EMR) class but those offering are infrequent.

Most EMS agencies and fire companies in Chester County, as well as some other organizations (private groups, hospitals) are also accredited as EMS continuing education sponsors and offer EMS continuing education to their members/personnel and other interested stakeholders. At the time of this assessment there were approximately 40 sponsors in the County.

Pennsylvania also provides a free on-line EMS continuing education platform for all EMS providers known as TRAIN PA⁷⁰. TRAIN PA is a partnership between the Pennsylvania Emergency Management Agency (PEMA), Pennsylvania Department of Health, and the Public Health Foundation (PHF) to facilitate state-sponsored training for emergency response personnel throughout the Commonwealth. While this type of training provides many opportunities and a high degree of flexibility to personnel who require continuing education credits to maintain their certifications, it does have its shortcomings. The most notable is that Pennsylvania has no restriction or limitation on the number of continuing education units/hours an EMS provider can take on-line. Consequently, it is possible for an EMS provider to obtain all their required continuing education via this platform with no in person or practical hands-on training.

LOCAL LEVEL TRAINING

There are no state statutes/regulations or local ordinances that specify any mandatory fire department training or certification requirements. From a regulatory perspective all training is voluntary. In large part due to the lack of mandatory firefighter training requirements (in many cases even basic Firefighter I training is not mandatory) the training of personnel from fire

⁷⁰ <https://www.pema.pa.gov/Preparedness/Training-Exercises/Pages/TRAIN-PA.aspx>

company to fire company can vary widely. This is particularly true in the volunteer fire service. While the MRI study team did not evaluate individual training programs, interviews suggest that as with any other voluntary requirements, the quality of individual fire company training programs vary throughout the County from excellent programs to ones that have need for significant improvement.

MANY OF CHESTER COUNTY'S VOLUNTEER FIRE COMPANIES HAVE BEEN RECOGNIZED BY THE OFFICE OF THE STATE FIRE COMMISSIONER OF PENNSYLVANIA FOR ACCOMPLISHMENTS IN TRAINING AND EDUCATION THAT MEET OR EXCEED NATIONALLY RECOGNIZED STANDARDS.



Figure 155
Certificate recognizing training accomplishments are displayed in some fire stations.

The fire and EMS questionnaire that was completed by every fire and EMS agency serving Chester County provided the following information:

- Just 55% of the respondents require the members of their company to participate in a minimum number of hours of training per month.
- Overall, most companies, 90% + indicate that they train three to four times per month, or weekly. One company reported they hold training six times per month. Conversely, several companies indicated they did not train regularly or only did so one time per month.
- Only a small number of companies answered the question regarding if they required a certain number of hours of training per year to maintain their active firefighter status. The responses ranged from “a couple of hours per month” to 36 hours.

- For companies that have career personnel also there was a 50/50 split on whether their volunteer and career personnel train together.

Additional daily opportunities for training can be found during related activities such as daily/weekly apparatus and equipment inspections and building pre-planning activities. Fire companies should seek to maximize, support, and encourage these opportunities.

An issue that was mentioned to the MRI study team in Chester County (as well as previous area studies it has completed) which is closely related to the automatic and mutual aid system, and to a wider extent regionalization, is the training of departments and personnel who are participating. Having companies that do little to no training involved in their incidents creates a major dilemma for fire chiefs of well-trained organizations and can create serious operational and safety issues on the emergency scene. In short, personnel who are not adequately trained can be a serious detriment on the emergency scene and present liabilities to the municipality in which the incident occurred. Ultimately, the incident commander is responsible for the safety and conduct of everyone on the scene, regardless of their organizational affiliation.

It is certainly not unreasonable for the fire companies to expect personnel coming into their response area on automatic and/or mutual aid be required to meet certain minimum training requirements provided they are valid and reasonable. These minimum training requirements should be spelled out in the formal, signed automatic/mutual aid agreements that should exist between various communities and/or fire companies. A provision in those agreements could stipulate that the Fire Chief or other designated individual must certify in writing annually that all his/her personnel (at least those that might respond on mutual aid) continue to meet the required training standards.

There are several ways to evaluate the effectiveness of the fire department's training program. One increasingly common way is using annual skills proficiency evaluations where all members of the department are required to successfully perform certain skills, and/or complete standardized evolutions, either individually, or as part of a team.

It is important that all training, no matter how minor or inconsequential, continue to be documented. Failure to do so can expose the company and municipality to increased liability.

The MRI study team would also like to mention that the West Chester Fire Department has a full fire training facility that is available for rent by fire departments throughout Chester County. The West Chester Fire Department Training center is jointly operated by the First West Chester Fire Company, the Good Will Fire Company, and the Fame Fire Company. The center is comprised of six major training areas:

- A classroom that can accommodate up to thirty people.
- Five story tower that has a confidence maze, apartment simulation, and office floor simulation, and can be utilized for high angle rope rescue (Figure 156).

- Two burn buildings for live structural burns (Figure 157).
- Vehicle rescue area.
- Confined space area.



Figure 156
West Chester Fire Department Training
Center Drill Tower



Figure 157
West Chester Fire Department Training
Center Burn Building

Chester County fire companies should be encouraged to periodically utilize this facility for their live fire training and other evolutions for the diversity in facilities and operations that it will present them.

OFFICER DEVELOPMENT

Professional development for fire department personnel, especially officers, is also an important part of overall training. The days when volunteer fire company officers are selected by elections or popular vote should be in the history books. Officers should be selected based on training and documentable qualifications. There are numerous excellent opportunities for firefighters and officers to attend training on a wide range of topics both inside and outside of Chester County, including those offered at various county firefighting academies, the Pennsylvania State Fire Academy, and at the National Fire Academy in Emmitsburg, Maryland. Additional excellent training opportunities, such as the annual Firehouse Expo previously held in Baltimore and now in Nashville, and the Fire Department Instructors Conference (FDIC) in Indianapolis also exist. Beyond the practical benefits to be gained from officers (and future officers) participating in outside training, encouraging personnel to earn and/or maintain various specialized certifications such as Fire Instructor or Fire Officer, increases the positive professional perception of the organization and can help to demonstrate a commitment to continued excellence.

The MRI study team does not believe that it is unreasonable to require volunteer fire officers to have completed certain designated training requirements to continue to hold their current position or be promoted to a higher rank.

Another important component of an effective personnel and officer development program is that these members continue to cultivate their skills through ongoing training and education. This training and education should be in addition to the normal training requirements for all firefighters. Officers unequivocally have more responsibilities, and as a result, should have higher standards for their knowledge, skills, and abilities. Management and leadership skills are important for officers to develop. Appendices Z-4-1 through Z-4-5 contain sample volunteer fire officer continuing education requirements.

RECOMMENDATIONS:

- XIII-1:** *In order to continue to increase the quantity of high-quality training being provided to the County's fire and rescue personnel, the Chester County Department of Emergency Services should conduct a formal needs assessment focused on increasing the number of full-time training personnel.*
- XIII-2:** *Chester County Department of Emergency Services fire rescue training section should develop an inventory of lesson plans and training outlines covering a wide range of topics that can be utilized by the fire companies to conduct their in-house training.*
- XIII-3:** *The fire rescue training section of the Chester County Department of Emergency Services should continue its emphasis on officer training and development. Additional officer training opportunities such as Fire Officer II, Fire Instructor II, and Incident Safety Officer should be developed with NBFSPQ and IFSAC certifications sought.*
- XIII-4:** *The Chester County Department of Emergency Services should consider providing each fire and EMS agency in the County the opportunity to access an on-line training program or platform that would allow certain training to be conducted by personnel at their convenience. There are multiple vendors available to provide this type of platform including Target Solutions whose inventory is comprised of more than 1,000 on-line courses.*
- XIII-5:** *The Chester County Fire Chiefs Association should work to develop minimum training standards for Chester County that are consistent with the recommendations found in NFPA Standard 1001, Standard for Firefighter Professional Qualifications for Firefighter I and II for all "active" members of fire companies who have PPE and respond to emergencies. A reasonable time frame would be to require Firefighter I within one year of joining the company and Firefighter II within two years, or, prior to the completion of the probationary process.*
- XIII-6:** *The Chester County Fire Chief's Association, Chester County EMS Council, Inc., and Chester County Fire Police Association should formalize the requirements for remaining an active "qualified" firefighting, care providing (for EMS) member, or Fire Police Officer of the company, including response percentages and training requirements. The requirements should include a remediation process that members*

are required to complete when they fail to meet the provisions of the policy, particularly from a training perspective.

- XIII-7:** *The Chester County Fire Chiefs Association should work to develop a County-wide policy that sets a realistic goal that all fire company members who respond to emergency incidents receive a minimum of 72 hours of training annually (an average of six hours per month).*
- XIII-8:** *All Chester County fire companies and EMS agencies should ensure that appropriate refreshers of all training areas that are mandated, are completed annually/periodically as required. This is another area where the Chester County Department of Emergency Services fire rescue training section could assist.*
- XIII-9:** *All Chester County fire companies should implement a policy regarding the minimum number of weekly drills/training sessions/hours each member must participate in, to remain an active member permitted to respond to emergency incidents. Personnel who fail to attend a minimum number of drills each quarter, should be suspended from response activity until they have been brought up to date with their training.*
- XIII-10:** *The Chester County Fire Chiefs Association should develop a County-wide policy that personnel who staff fire and rescue units that respond within the County possess minimum specified levels of training such as Firefighter I and II.*
- XIII-11:** *The Chester County Fire Chiefs Association should develop an updated formal automatic/mutual aid agreement for use by all Chester County Fire Companies. The agreement should stipulate the minimum required training standards for personnel who may respond to emergencies. The agreements should also stipulate that the ranking officer of each entity must certify in writing on an annual basis that his/her personnel comply.*
- XIII-12:** *Although not mandated by the Commonwealth of Pennsylvania, the Chester County Fire Chiefs Association should develop a policy for minimum officer training and certification requirements that personnel should possess to be recognized as a fire officer County-wide. Suggested requirements include:*
- *Lieutenant and Captain – Fire Instructor I, Fire Officer I, ICS-300, and Managing Company Tactical Operations (or similar tactics class)*
 - *Chief Officer – Fire Instructor II, Fire Officer II, ICS-400, and Incident Safety Officer*
- XIII-13:** *The Chester County Fire Chiefs should develop a policy that stipulates that all officers must participate in additional officer related training each year to be eligible to retain their position. A reasonable requirement might be 32 hours of training consisting of:*

- *Firefighting strategy and tactics, incident management, or safety training (16 hours)*
- *Leadership or management training (16 hours)*

XIII-14: *All Chester County fire companies should implement periodic training on fire ground tactics and training for both fire officers and firefighters. Part of this training should include tabletop and simulation training exercises for fire officers to enhance their strategic and tactical knowledge, skills, and abilities. The latter is an area where both the Chester County Department of Emergency Services and Chester County Fire Chiefs Association can provide support and assistance.*

CHAPTER XIV

FIRE PREVENTION

The core services that a fire department provides to the public it serves begins with fire prevention. Fire prevention activities are one of the most important missions of a modern-day fire department. A comprehensive fire protection system should include, at a minimum, the key functions of fire prevention, code enforcement, inspections, and public education. Preventing fires before they occur, and limiting the impact of those that do, should be priority objectives of every fire department. Educating the public about fire safety and teaching them appropriate behaviors on how to react should they be confronted with a fire, is also an important life safety responsibility of the fire department.

Fire prevention activities typically include fire safety inspections; fire code enforcement; issuance and oversight of permits; review of construction plans for new buildings and the renovation of existing buildings; and public fire safety education programs. In communities served by all volunteer fire departments the fire prevention functions are often handled by personnel in other municipal departments, and/or are limited in scope.

Fire prevention should be approached in a truly systematic manner, and many community stakeholders have a personal stake and/or responsibility in these endeavors. It has been estimated that 70% to 75% of all the requirements found in building/construction and related codes are related in some way to fire protection and safety. Various activities such as plan reviews, permits, and inspections are often spread among different departments in the municipal government and are often not coordinated nearly as effectively as they should be. This lack of close interaction often results in friction between personnel with overlapping authorities and can allow important issues to “*slip through the cracks*”. It is critical that these important functions are coordinated with similar activities in the municipal building inspection or code enforcement and/or planning departments in each community. In Chester County, the fire prevention aspects of many fire company’s operations are often complicated by the fact that most companies serve portions of more than one township/borough, and therefore must interact with multiple municipalities and their governing bodies relative to code enforcement and inspections.

Any fire prevention program must be organized in a manner that most effectively supports the goals of the community and department. Establishing the goals and objectives to be accomplished should be the priority of every fire prevention program. It is imperative that the organizations involved establish clear, specific goals and objectives they wish to achieve. The overarching goals should be clearly understood by all stakeholders. One of the key interactions that is critical is that the fire marshal or fire prevention/code official must work closely with field suppression forces to ensure a smooth flow of information between the fire companies and the fire prevention or code enforcement office.

In Pennsylvania, inspection and code enforcement procedures and policies must conform to the Commonwealth of Pennsylvania statutory and regulatory requirements. Pennsylvania has adopted a state-wide Uniform Construction Code that regulates the building and numerous other code components (fire, electrical, mechanical, etc.) of new construction throughout the Commonwealth. These codes have replaced individual codes that were enacted in various municipalities. The latest edition of these codes adopted by the state (with amendments and deletions) is the 2015 edition of documents developed by the International Codes Council (ICC). These took effect on October 1, 2018. Regrettably, the new code as adopted by Pennsylvania, do not mandate or even permit the requiring of installing residential sprinkler systems in one- and two-family dwellings (the ICC code does contain the requirement, but it has been regressively and politically deleted by Pennsylvania and other states as a result of intensive special interest lobbying). The UCC contains the following sub codes related to fire protection:

- 2015 International Building Code (All buildings/structures not regulated by the International Residential Code).
- 2015 International Residential Code (One and two-family dwellings no more than 3 stories in height).
- 2015 International Fire Code (Adopted only as referenced in Chapter 35 of the International Building Code).
- 2015 International Existing Building Code.
- 2015 International Urban-Wildland Interface Code (supplementary requirements to mitigate fire and life safety hazards in unique wildland areas).
- 2015 International Fuel Gas Code.

Prior to a building being constructed the developer must have their plans reviewed and approved by the municipality in which it will be built. As part of that process, the building, construction or code enforcement officer and their staff evaluate the plans to be sure that the building is built to the existing codes. The review of plans for construction should give the fire department a direct opportunity to review and suggest fire and life safety features. There is little doubt that an effective plan review process can prevent fires from happening and lessen life threats when they do occur. This type of code enforcement focuses special emphasis on fire detection and protection systems, means of egress, fire department features (sprinkler connections, and so on), and hazardous materials storage issues.

Consistent with national trends, particularly growing suburban communities such as Chester County which continue to experience rapid growth, the greatest fire safety concern is the potential loss of life in fires that occur in non-sprinklered, single- and multi-family residential dwellings during sleeping hours. These fires are often fueled by new “lightweight” construction and more flammable home contents. A series of studies conducted by Underwriters Laboratories (UL) researchers suggested that the time to escape a house fire has dwindled from

about 17 minutes, 20 years ago, to three to five minutes today⁷¹. This poses a severe risk not only to occupants, but also to firefighters as they now have less time to do their job and save residents' lives and property.

The above fact notwithstanding, the most significant and important amendment to the Pennsylvania UCC is the elimination of the requirement in the International Residential Code that all new one and two-family dwellings be equipped with an automatic residential fire suppression (sprinkler) system, at the time they are built. This change occurred because of Act 1 of 2011 (HB 377 PN 1520) which was signed into law on April 25, 2011 and made retroactive to January 1, 2011.

Automatic sprinklers are highly effective elements of total system designs for fire protection in buildings, including one- and two-family dwellings. Sprinklers help prevent fires from reaching flashover in a compartment fire, which is key to reducing fire deaths and injuries. Functional sprinkler systems save lives and property and produce large reductions in the number of deaths and the extent of property damage experienced per thousand fires. They do so much quicker, and often more effectively and with less damage than firefighters do. **No fire safety improvement strategy has as much documented life safety effectiveness as fire sprinklers because they extinguish the fire or, at a minimum, hold it in check and prevent flashover until the arrival of the fire department.**

From 2007 to 2011 for fires in all types of structures, when sprinklers were present in the fire area of a fire large enough to activate sprinklers in a building not under construction, sprinklers operated 91% of the time⁷². When they operated, they were effective 96% of the time, resulting in a combined performance of operating effectively in 87% of reported fires where sprinklers were present in the fire area, and the fire was large enough to activate sprinklers⁷³. **In homes (including apartments), wet-pipe sprinklers operated effectively 92% of the time. When wet-pipe sprinklers were present in the fire area in homes that were not under construction, the fire death rate per 1,000 reported structure fires was lower by 82%, and the rate of property damage per reported home structure fire was lower by 68%⁷⁴.** In all structures, not just homes, when sprinklers of any type failed to operate, the reason most often given (64% of failures) was shutoff of the system before the fire began⁷⁵.

In Chester County, only West Whiteland Township is permitted to require the installation of residential sprinklers in all new residential construction including one- and two-family dwellings. The Township adopted an ordinance requiring their installation in 1988, prior to the

⁷¹ <https://www.today.com/home/newer-homes-furniture-burn-faster-giving-you-less-time-escape-t65826>
https://ulfirefightersafety.org/docs/Analysis_of_Changing_Residential_Fire_Dynamics_and_Its_Implications_on_Firefighter_Operational_Timeframes.pdf

⁷² U. S. Experience with Sprinklers. John R. Hall, Jr. National Fire Protection Association, June 2013.

⁷³ U. S. Experience with Sprinklers. John R. Hall, Jr. National Fire Protection Association, June 2013.

⁷⁴ U. S. Experience with Sprinklers. John R. Hall, Jr. National Fire Protection Association, June 2013.

⁷⁵ U. S. Experience with Sprinklers. John R. Hall, Jr. National Fire Protection Association, June 2013.

adoption of the state-wide fire code. As a result, their requirement was permitted to remain in force. Today, about 20% - 25% are equipped with these life safety systems. There are an additional 2,600 single family dwellings and townhouses which will all be equipped with sprinklers currently in various stages of the planning, approval, and construction process. West Whiteland's code official informed the MRI study team that in his 25 years with the township he can think of about 12 times when the residential sprinklers prevented a serious fire. These incidents will only increase as the number of homes equipped with them increase and age.

The installation of residential sprinklers has also proven their effectiveness several times in nearby Upper Merion Township, which has also had a residential sprinkler ordinance since 1988. According to January 2011 article in Fire Engineering by John Waters and Tim Knisely titled, *"Residential Sprinklers Still Under Fire"*, on December 22, 2006, Upper Merion Township Fire and Rescue Services responded to a house fire in the Candlebrook section of the Township. The first apparatus arrived six minutes after the initial dispatch. The Candlebrook fire achieved flashover and resulted in one fatality (Figure 158).⁷⁶



Figure 158
Fire in a residence that was not equipped with residential sprinklers
Photo credit: Upper Merion Township Fire and Rescue

On January 12, 2009, Upper Merion firefighters responded to a house fire in the Township's Valley Forge Estates section. Figure 159 depicts the conditions on arrival, eight minutes from dispatch.⁷⁷ On January 9, 2009, firefighters responded to a house fire in the Township's Rebel Hill section. Figure 160 depicts conditions on arrival 10 minutes from dispatch; the missing

⁷⁶ <http://www.fireengineering.com/articles/print/volume-164/issue-1/features/residential-sprinklers-still-under-fire.html>

⁷⁷ <http://www.fireengineering.com/articles/print/volume-164/issue-1/features/residential-sprinklers-still-under-fire.html>

object to the left of the washer in Figure 160 is the dryer (Figure 161).⁷⁸ Both the Valley Forge Estates and Rebel Hill fires were well on their way to flashover; however, just one sprinkler head operated at each fire, and neither family had to move out for the evening.⁷⁹



Figure 159
Bedroom fire that was extinguished with the activation of a Single Residential Sprinkler Head and virtually no damage to the room itself.



Figure 160



Figure 161

Dryer fire that was also extinguished with the activation of a single residential sprinkler head with no damage other than to the dryer itself.

Photo credits: Upper Merion Fire and Rescue

⁷⁸ <http://www.fireengineering.com/articles/print/volume-164/issue-1/features/residential-sprinklers-still-under-fire.html>

⁷⁹ <http://www.fireengineering.com/articles/print/volume-164/issue-1/features/residential-sprinklers-still-under-fire.html>

On March 2, 2005, the Schuylkill Township Board of Supervisors enacted Ordinance 2005-01 which mandated the installation of automatic sprinkler systems in a broad range of construction projects, including newly constructed residential homes and major renovations to existing dwellings. The ordinance was challenged in court by multiple entities. After several hearings and appeals, on September 6, 2007 Commonwealth Court issued a ruling invalidating the ordinance.⁸⁰

Though current state law prohibits municipalities from mandating these systems, there is nothing that prohibits advocating for and strongly encouraging their installation. Until such time as the Commonwealth rescinds the provisions of Act 1 of 2011 and adopts the International Building Code and International Residential Code as developed, which requires the installation of automatic fire suppression systems in every habitable structure, including one- and two-family dwellings, Chester County's fire companies, in conjunction with the municipalities they serve should approach the developer/builder/owner to discuss the significant life safety advantages of residential sprinkler systems. This should be done during the approval process for subdivisions and large single-family residences proposed for their communities and should focus on encouraging them to consider the installation of these life safety systems. Among the advantages of these systems in addition to their life saving benefits, are reduced fire flow requirements and the potential for increased spacing between fire hydrants. In addition, long term, fewer fires can ultimately translate into a need for fewer career firefighters. There are several publications that the fire department can use as resources to market the benefits of residential fire suppression systems including from NFPA which has developed the standards for their design and installation. Several of these are included in the tool kit that accompanies this report.

As an alternative to fire sprinkler systems, some communities have adopted ordinances applicable to any new subdivision being built with three or more houses that a water supply cistern to hold water necessary for fire suppression operations be installed in the development. In some cases, individual homes that exceed a certain size (perhaps 3,000 square feet) would be required to comply with the requirements as well (Figures 162 and 163). The requirements for these systems are detailed in several NFPA standards. This is an important fire and life safety initiative for primarily rural communities and fire companies⁸¹.

⁸⁰ <https://caselaw.findlaw.com/pa-commonwealth-court/1009850.html>

⁸¹ <https://www.nfpa.org/assets/gallery/firewise/operationWater/index.htm>
NFPA 1142 Standard on Water Supplies for Suburban and Rural Firefighting



Figure 162



Figure 163

Pump house and fire department connections to access water in below ground cistern stored for firefighting use in a planned subdivision in Berlin, MA. Chester County's fire companies should consider encouraging the municipalities they serve to adopt a proactive fire and life safety regulation requiring these in any planned subdivision of three or more homes, and for any home that exceeds a certain designated square footage that are outside of the limits of a municipal water supply system.

It is important to note, however, that while it is relatively easy to recommend that compelling programs for both residential sprinklers and water supply cisterns being installed, there is the reality that these types of initiatives/programs often require funding to develop. Once developed, they then require an even more valuable commodity, the time of volunteer personnel to deliver them. As is discussed in other chapters of this report, most of Chester County's fire companies have neither of these readily available. While it would be difficult to assign a dollar figure to these initiatives, the ability to develop and deliver them will present challenges to many companies as they attempt to reduce their community risk. However, this is an area where Chester County's Department of Emergency Services with its more robust resources, both technical and financial, can assist with the development of a compelling program that can be used throughout the County.

There are many reasons why existing buildings should be inspected for fire code compliance. The obvious purpose is to ensure that occupants of the building are living, working, or occupying a building that is safe for them to do so. Some buildings are required to have specific inspections conducted based on the type of occupancy and the use of the buildings such as but not limited to healthcare facilities (hospitals, nursing homes, etc.), schools, restaurants, and places of assembly. These inspections are mandated by various statutes, ordinances, and codes. The inspections themselves are often limited to specific areas within the building and to specific time frames. The fire inspectors will also witness tests of required fire protection systems and equipment. Conversely, many businesses are not required to have any type of periodic fire safety inspections.

Fire inspectors can also identify violations and make follow-up inspections to ensure that violations are addressed, and that the fire code is enforced. In fire prevention, the term

"enforcement" is most often associated with inspectors performing walk-throughs of entire facilities, looking for any hazards or violations of applicable codes. Educating the owner to the requirements, as well as the spirit and intent of the code, can also attain positive benefits for fire and life safety. This is an area where there is little consistency throughout Chester County.

With more than 15,000 business located in the County, many of them large, along with numerous schools, multi-family residential complexes, and other hazards, there is no consistent or comprehensive program that ensures that all businesses and commercial occupancies receive a routine *"maintenance"* fire prevention inspection on a regular periodic basis. While some of the larger, more populated townships have full-time personnel dedicated to code enforcement, including fire prevention inspections, and other municipalities utilize part-time personnel, a significant number of the municipalities have little to no ongoing fire prevention code enforcement. Many of the personnel that the MRI team interviewed informed them that much of the traditional fire prevention code enforcement and inspections are done reactively in response to complaints rather than as part of a proactive program.

Periodic fire inspections of high hazard health care facilities are conducted by the Pennsylvania Department of Health, Division of Safety Inspection. This unit has responsibility for surveying these facilities to determine compliance with federal certification and state licensure requirements. These inspections include working to ensure compliance with NFPA Standard 101, Life Safety Code (2012 edition) which took effect on July 5, 2016.

Although there are notable exceptions, particularly with the County and municipalities that have well developed code enforcement and fire prevention programs, in many other cases members of the fire departments informed the MRI study team that they receive very little information on the code status of various buildings within their coverage areas. This appears to be a concern regardless of who is conducting the inspections. In other municipalities there is concern that no inspections are being done at all.

As Chester County continues to expand its economic base, the need to expand the fire prevention and code inspection functions throughout the County will increase. Many of the new facilities, large and/or complex buildings will create significant challenges for the fire departments that protect them, both for fire suppression and for responses to various technical incidents. Performing complex, technical inspections can be a very time-consuming, but necessary endeavor. Nationwide, communities that have proactive fire inspection and code enforcement programs in place often have a lower incidence of fire loss because many potential fire and life safety hazards are identified and corrected before they cause or contribute to a fire. Figure 164 illustrates the inspection form utilized by West Whiteland Township which has adopted the 2015 International Fire Code for ongoing fire prevention inspections.



FIRE PREVENTION INSPECTION REPORT

Business Name:	Business Phone #:
Business Address:	
Number of Stories	Square Footage:
Owner Name:	Owner Phone #:
Owner Address:	
Emergency Contact 1:	Phone #:
Emergency Contact 2:	Phone #:
Number of Employees:	Occupancy Class:
Re-Inspection Required:	Re-Inspection Date:
Notice Delivered To:	
Inspector Name:	Inspection Date:

Inspection Items

Exterior:

<input type="checkbox"/> Address clearly visible from roadway	P F	<input type="checkbox"/> Fire doors not wedged/blocked open	P F
<input type="checkbox"/> Gas meter protected & accessible	P F	<input type="checkbox"/> Electrical equipment properly covered	P F
<input type="checkbox"/> Area around building free of litter & weeds	P F	<input type="checkbox"/> Doorways free from obstruction/combustible storage	P F
<input type="checkbox"/> F.D. Connection visible & unobstructed, proper caps installed	P F	<input type="checkbox"/> All flammable/combustible liquids stored properly	P F
<input type="checkbox"/> All "No Parking", "Fire Lane", & Handicap signs are legible	P F	<input type="checkbox"/> Combustible gas cylinders secured from falling	P F
<input type="checkbox"/> Fire Hydrants- maintain min. 3 ft. clearance around	P F		

Fire/Life:

<input type="checkbox"/> Extinguishers are correct size & type for U&O	P F	<input type="checkbox"/> Storage in non-sprinkler areas maintained 2' below heads	P F
<input type="checkbox"/> Extinguishers tagged/cert within 1 year, mounted & accessible	P F	<input type="checkbox"/> Kitchen hood suppression system serviced w/in 6 months	P F
<input type="checkbox"/> Clearance & visible w/ correct distance between extinguishers	P F	<input type="checkbox"/> Kitchen hood is clean	P F
<input type="checkbox"/> Automatic extinguishers inspected within 6 months	P F	<input type="checkbox"/> Alarm system test, current report provided	P F
<input type="checkbox"/> Sprinkler connections/shut-off valves visible and accessible	P F	<input type="checkbox"/> Systems (incl. pull stations) visible, accessible, good cond.	P F
<input type="checkbox"/> System inspected/tagged annually, reports provided	P F	<input type="checkbox"/> All occupants instructed on evacuation plan	P F
<input type="checkbox"/> Storage is 18" below head	P F	<input type="checkbox"/> Flammable/combustible liquids in excess 10 gal. stored in liquid storage cabinets/red metal cans, stored correctly	P F
<input type="checkbox"/> Fire/life safety systems maintained, in operable condition	P F		

Interior:

<input type="checkbox"/> Electrical panels properly covered & latched	P F	<input type="checkbox"/> Oily rags stored in approved containers	P F
<input type="checkbox"/> Panels are accessible min 30" w/78" h/36" d	P F	<input type="checkbox"/> All storage kept in an approved manner	P F
<input type="checkbox"/> Electrical boxes, outlets, switches properly covered	P F	<input type="checkbox"/> Exit signs present at required exits, 6" letters & tested	P F
<input type="checkbox"/> Extension cords heavy-duty/temp. use, no piggy backing cords	P F	<input type="checkbox"/> Lighted exit signs/emergency lighted operating properly	P F
<input type="checkbox"/> Multi-plug adapters have approved internal circuit breaker type	P F	<input type="checkbox"/> Furnace/boiler/water heater vented & in good condition	P F
<input type="checkbox"/> Exit doors unlocked during business hours	P F	<input type="checkbox"/> Exhaust venting for gas appliances intact/ good condition	P F
<input type="checkbox"/> Doors/corridors/paths free of obstruction/combustible storage	P F	<input type="checkbox"/> All suspended ceiling panels are in place	P F
<input type="checkbox"/> Egress continuous, sufficient to meet occupant load	P F	<input type="checkbox"/> Required fire separation intact	P F
<input type="checkbox"/> Egress doors function properly	P F	<input type="checkbox"/> Gas meter protected and accessible	P F
<input type="checkbox"/> No storage under unprotected stairways/attics/crawl spaces	P F	<input type="checkbox"/> Smoking prohibited in warehouse/other hazardous areas	P F
<input type="checkbox"/> No combustible storage in furnace/boiler rooms	P F	<input type="checkbox"/> Compressed gas cylinders secured from falling	P F

Comments/Corrective Measures:

Figure 164
Example Inspection Report

Of course, having sufficient personnel to perform fire prevention inspections can be a costly proposition. To help offset these costs, many jurisdictions are now assessing registration or inspection fees for businesses. The fees assessed often vary widely by jurisdiction. West



Whiteland has a fee structure based upon the square footage of the building that ranges from \$35.00 to \$250.00. New Jersey has enacted a uniform state-wide fee structure for different types of businesses with the annual registration fees for businesses ranging from \$108.00 to \$4,781.00. Fees for various permits range from \$54.00 to \$641.00. Some jurisdictions also assess a reinspection fee if an inspector must make a return visit to determine if code violations have been abated.

It is the opinion of the MRI study team that an increased emphasis on fire prevention activities throughout Chester County can be achieved, utilizing a multi-pronged approach. First, the municipalities in the County should be encouraged to take a more proactive approach to fire prevention by adopting maintenance codes and requiring periodic inspections of existing businesses and facilities. As an alternative, the Department of Emergency Services can expand their operations to include more wide-ranging fire prevention and code enforcement as one of its missions, which could be offered to municipalities as a shared service. The Department of Emergency Services has previously assisted fire departments and municipalities throughout the County with requests for fire and life safety inspections, and, with a wide variety of code related issues.

The MRI study team believes that utilizing a combination of full and part-time personnel, the Department of Emergency Services can assume responsibility for fire prevention activities and inspections in any municipality that requests them to do so. In addition, since these personnel would be mobile throughout the County much of the time, they could also be utilized to respond to fires and other significant incidents as additional staffing during the day, when volunteer staffing is often at a premium. At one time, before being disbanded during the severe economic recession of 2008-2009, Camden County (estimated 2019 population 506,471), New Jersey's Fire Marshal's Office had a staff of 16 personnel who were able to fulfill this dual role throughout the County. As a start, a staff of 50% or less of that size in Chester County (six to eight personnel) could provide a significant boost at an incident where staffing is at a premium.

In addition, should Chester County decide to start hiring career personnel to supplement and assist the volunteer departments and their personnel, on-duty firefighters can be assigned with the responsibility for "in-service" inspections to identify and mitigate fire hazards in buildings, to identify risks that may be encountered during firefighting operations, and, to develop pre-fire plans. On-duty personnel in many departments are also assigned responsibility for permit inspections and public fire safety education activities. Fire department personnel are often able to recognize hazards or violations, whereas inspectors are often able to identify features of a specific property that could prove important during an emergency. Effective information sharing enhances the ability of the fire department to protect the community.

As was previously discussed in Chapter VI, *Fire Operations*, one issue that was mentioned numerous times by various stakeholders in the online surveys, the questionnaires, and in interviews is the growing issue of fire alarm activations, from both commercial and residential

properties, and the subsequent need for a fire department response. This is at least partially, a fire prevention issue.

Alarm systems can activate for many different reasons other than their intended purpose. One of the debates that occurs in relation to this subject is exactly what constitutes a “false” alarm and what an “unnecessary” alarm is. From MRI’s perspective, a “false” alarm is one where the system activates for no obvious reason. This can include age, equipment that is not being maintained, faulty system components, perhaps even a test of the system that was not preceded by proper notifications. An “unnecessary” alarm can be caused by smoke from cooking, steam from a shower, dust from construction, drops in water pressure for sprinkler systems, even an insect getting into a detector. In most of these examples, the detector did exactly what it was designed to do, detect a change in the air or atmosphere and transmit an alarm. While the alarm may be “unnecessary”, it is not “false”. Reducing the number of these alarms is an area where fire prevention can play a big role.

To be sure, there is no easy solution to this issue. In most cases, successful programs require the implementation of a comprehensive and multi-faceted approach to address the overall issue, not just one small component that will make the problem go away. The components of this program should include an aggressive public education campaign targeted to encourage business and homeowners to maintain their systems, and requirements for comprehensive plan review, and system inspection, testing, and approval prior to new systems being placed on line (including residential systems). It should be noted however, that many of the systems being designed and installed today are highly technical. Although they utilize various forms of smart technology to assist with alarm verification and prevention of unnecessary alarms, the plan review process for these systems may exceed the capabilities of some local code officials, who may need to seek outside assistance with this task.

Additional components of the multi-faceted approach could include registration, servicing and upgrading requirements for existing systems, and adoption of ordinances to assess fines or penalties for repeat false, or unnecessary alarms. Under model ordinances, usually after three false or unnecessary alarms a letter is sent to the owner directing them to repair the system to proper working order. If compliance is not achieved at this time, subsequent false or unnecessary alarms result in the levying of fines or penalties. Some communities only include commercial occupancies in their ordinance, others include residential occupancies as well. It is important to note though that the purpose of the fines or penalties should be to encourage compliance, not to make money.

A fire inspector could also be dispatched to any location where there have been multiple alarm activations within a short period of time to determine if the system is properly installed and being appropriately maintained. If the components of the program recommended in this section are implemented, are enforced, and are successful, the majority of nuisance alarms and alarm malfunctions should be eliminated over time.

As is noted in several sections of this report, the MRI study team believes that Chester County can become a model, state-wide for the proactive delivery of fire and EMS services and their related support functions such as fire prevention inspections. In keeping with that belief, one of the newest trends in fire prevention inspections is the use of Remote Video Inspection (RVI) programs. According to the NFPA, “RVI provides an effective alternative means for building inspection, enabling one or more parties to remotely perform an inspection of a building or building component”.⁸² The NFPA has released a new infographic that emphasizes the five key considerations for an RVI inspection program: procedures, communication, technology, verification, and completion (Figure 165).

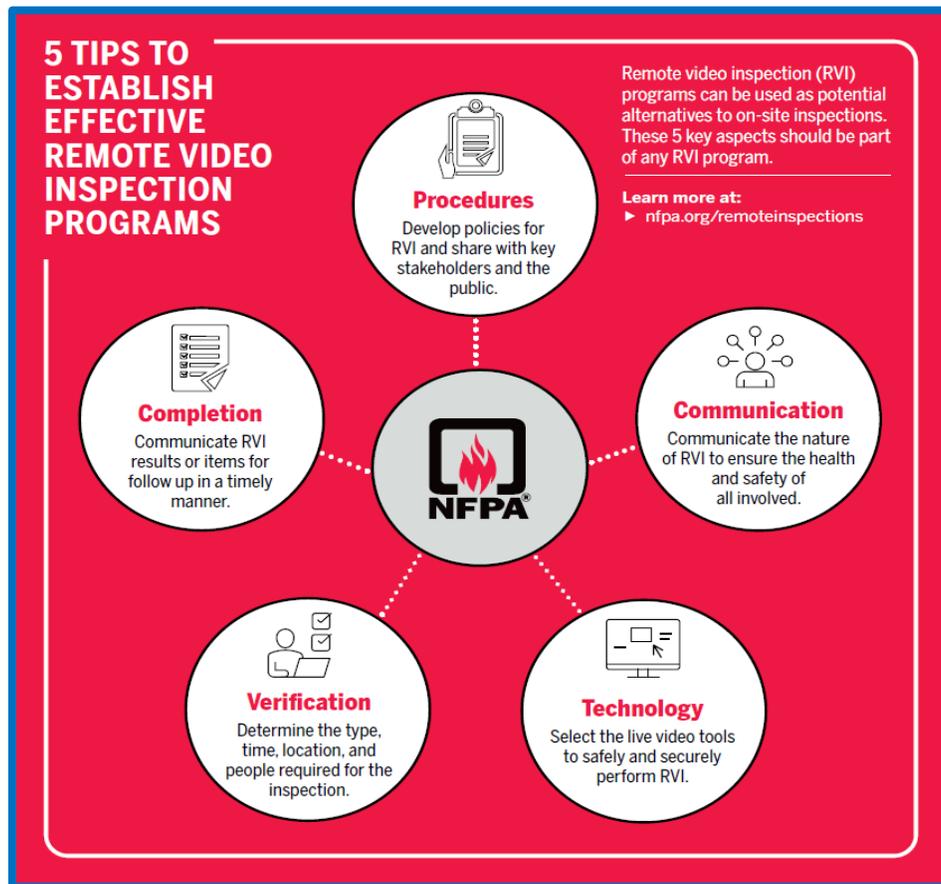


Figure 165
Remote Video Inspection (RVI) Components
 Image credit: National Fire Protection Association

According to the NFPA:

⁸² <https://www.nfpa.org/News-and-Research/Publications-and-media/Press-Room/News-releases/2020/New-infographic-from-NFPA-highlights-remote-inspection>

“RVI provides an effective alternative means for building inspection, enabling one or more parties to remotely perform an inspection of a building, or building component. Just like traditional on-site or in person inspections, an RVI typically occurs as part of a jurisdiction’s permitting or inspection process. Virtual inspections are not intended to be less complete than an on-site inspection; they are meant to achieve the same (or enhanced) results as an on-site inspection.”⁸³

Until recently, use of RVI was limited and sporadic. The current COVID-19 pandemic and remote work conditions, combined with a normal extensive workload, have made more jurisdictions consider alternatives to traditional inspection procedures and processes. Long term, the use of a program such as this, can help any fire prevention entity better manage often unrealistic inspection workloads.

Many of the fire departments within Chester County have active public fire education programs which are an important component of an overall fire prevention program, particularly in communities that are primarily residential in nature. This effort is very commendable and results in time and resources well spent. Nearly 75% of all fires, fire deaths and injuries occur in the home, an area where code enforcement and inspection programs have little to no jurisdiction. Public education is the area where the fire service will make the greatest impact on preventing fires and subsequently reducing the accompanying loss of life, injuries and property damage through adjusting people’s attitudes and behaviors regarding fires and fire safety.

The investigation of the cause and origin of fires is also an important part of a comprehensive fire prevention system. Determining the cause of fires can help with future prevention efforts. In Chester County, this responsibility generally falls under the auspices of the County Fire Marshal; although some municipalities also have their own Fire Marshals. Any time a significant fire occurs, a County and local Fire Marshal is notified to respond. For smaller incidents, the fire officer in charge may begin an initial investigation regarding fire cause and origin determination. However, he/she can then request the appropriate Fire Marshal support to assist with that task, or at any time the fire is deemed to be suspicious or incendiary. Investigators from the Pennsylvania State Police Fire Marshal’s Unit can be requested to assist with large or complex fire investigations, or when specialized investigative resources are required. They are also called in for all fires that result in a fatality. More recently, the Pennsylvania State Police has requested notification for all fires in any jurisdiction where they are the primary law enforcement agency. When necessary, the Bureau of Alcohol, Tobacco, Firearms, and Explosives (BATFE) can provide their assistance and expertise.

The Fire Marshal’s Group maintains the County’s Youth Fire and Injury Reduction and Education Program (Y-FIRE). Children come into the program as referrals from parents, schools, mental

⁸³<https://www.nfpa.org/News-and-Research/Publications-and-media/Press-Room/News-releases/2020/New-infographic-from-NFPA-highlights-remote-inspection>

health agencies, juvenile probation, district courts, fire stations and police departments. The juveniles, due to their actions that have escalated into the court system, are required to attend the complete program as part of the sentencing process.

A relatively new addition to the ISO FSRS, the Community Risk Reduction section, offers a maximum of 5.5 points, resulting in 105.5 total points now available in the FSRS. The inclusion of this section for “*extra points*” allows recognition for those communities that employ effective fire prevention practices, without unduly affecting those who have not yet adopted such measures.

The addition of the Community Risk Reduction section gives incentives to those communities who strive proactively to reduce fire severity through a structured program of fire prevention activities. The areas of community risk reduction evaluated in this section include:

- Fire prevention
- Fire safety education
- Fire investigation

The implementation of successful community risk reduction strategies after completion of a community risk assessment are linked directly to the prevention of civilian and firefighter line of duty deaths and injuries. Virtually every risk reduction program in the fire and emergency services will have elements of what are called “*The 5 Es of Prevention*”. These include:

Education ▪ Enforcement ▪ Engineering

Economic Incentives ▪ Emergency Response

Understanding and addressing only one element will not lead to a successful program. All five “Es” must be integrated into every program for it to be effective⁸⁴ (Figure 166). Strong fire prevention codes have been shown to be an extremely effective means to reduce risk in a community. Fire alarm and sprinkler system mandates for not only commercial buildings but all occupancies including single family dwellings dramatically reduces fire risk and increases life safety. Code implementation that does not require these creates an increased risk. Strong code provisions and enforcement have demonstrated a greater ability to decrease fire problems than continuing to acquire more traditional fire department resources.



Figure 166
Five Es of prevention in a community risk reduction program.
Image credit: www.beaherosaveahero.org

⁸⁴ <http://www.beaherosaveahero.org/2013/10/community-risk-reduction-crr-overview/> February 5, 2016

Fire prevention should be promoted as a key component of the vision of the Chester County fire service, and by the individual fire companies that comprise it, and should be a major aspect of each of their primary missions. Aggressive fire prevention programs are the most efficient and cost-effective way to reduce fire risks, fire loss, and fire deaths and injuries in the community. Fire prevention is a key responsibility of every member of the fire department and to the extent practical, every member of the company should have a responsibility for fire prevention.

RECOMMENDATIONS:

- XIV-1: *With Chester County poised to experience significant growth over the next several decades, the Chester County Commissioners, the Chester County Fire Chiefs Association, the Chester County Municipal Managers Consortium, and the Chester County Association of Township Officials should work collaboratively with the County's state legislative delegation to attempt to get legislation approved that would allow the County to be the pilot for a County-wide requirement that all new one- and two-family dwellings be equipped with a residential automatic fire suppression (sprinkler) system in accordance with the provisions of the International Residential Code.***
- XIV-2: *Working in conjunction with the Department of Emergency Services, and with support from the Chester County Municipal Managers Consortium and the Chester County Association of Township Officials, the Chester County Fire Chiefs Association should develop a compelling public education program that includes discussing the benefits of installing residential fire sprinklers in new one- and two-family dwellings. Although Pennsylvania's construction codes do not currently allow residential fire sprinkler systems to be mandated, there is no prohibition for property owners to install them if they determine that it is in their best interest.***
- XIV-3: *Working in conjunction with, and with support from the Chester County Municipal Managers Consortium and the Chester County Association of Township Officials, the Chester County Fire Chiefs Association should strongly encourage municipalities throughout the County that are not fully served by a municipal water supply system, to consider adopting a municipal ordinance requiring the installation of a fire water supply cistern in any new development consisting of three or more homes, or for any individual home of larger than a designated square footage. Part of this process could also include working in conjunction with the Department of Emergency Services on development of a compelling public education program that explains the significant benefits to residents and property owners of installing cisterns for the storage of fire suppression system water supplies.***
- XIV-4: *Since proactive fire prevention programs are shown to reduce fire incidence and loss, the Chester County Fire Chiefs Association, the Chester County Commissioners, the***

Chester County Municipal Managers Consortium, and the Chester County Association of Township Officials should work collaboratively with the County's state legislative delegation to attempt to get legislation approved that would allow Chester County to be the pilot for a County-wide fire prevention code and periodic inspection requirement utilizing the International Fire Code for occupancies other than one- and two-family dwellings.

- XIV-5: *Chester County should explore the feasibility of increasing staffing in the Department of Emergency Services to include offering fire prevention inspection services to any municipality in the County, which would like to adopt a more proactive approach to ongoing fire prevention activities. A fee-based program of this type would not only serve to reduce fire loss in participating municipalities but could also assist them with improving their ISO ratings by earning them additional community risk reduction points, thus potentially lowering fire insurance premiums for residents and businesses. These personnel could also be utilized throughout the County to provide additional staffing for fires and other significant incidents, particularly during the day, when volunteer availability is often at a premium.***
- XIV-6: *In order to fund the expanded fire prevention activities, Chester County should explore the feasibility of adopting registration, inspection and/or permit fees to help offset the costs of providing these services throughout the County.***
- XIV-7: *Working collaboratively, the Chester County Fire Chiefs Association, and representatives of the County's municipal Fire Marshals, with assistance from the Chester County Department of Emergency Services, should work to develop an aggressive public relations campaign to raise public awareness and educate business owners and residents on the importance of having their fire alarm systems serviced and properly maintained. This campaign should utilize whatever media outlets are available including local newspapers, radio, public access television, municipal and fire company web sites, etc.***
- XIV-8: *All municipalities in Chester County should ensure, that if it is not already required, plans for all fire alarm systems, including residential systems, be thoroughly reviewed prior to installation. Once a system is installed, an acceptance inspection and test should be conducted prior to the issuance of a Certificate of Approval, which will allow the system to be placed on-line. The focus of this initiative should be to ensure that new systems are being installed, utilizing properly specified, quality components, and, that they meet the requirements of NFPA and the International Building Code or International Residential Code.***

- XIV-9: Working collaboratively, the Chester County Fire Chiefs Association, the Chester County Municipal Managers Consortium, the Chester County Association of Township Officials, and representatives of the County’s municipal Fire Marshals should work to develop a model ordinance that can then be adopted by municipalities throughout Chester County to require the registration of all fire alarm systems, including those in one- and two-family dwellings. Part of the registration process should include a stipulation that the provisions found in NFPA 72 – National Fire Alarm and Signaling Code are adhered to. Registration renewal should occur on a periodic basis (one year for commercial, three years for residential), and be contingent upon the business or homeowner providing adequate documentation that the system has been properly serviced and maintained.**
- XIV-10: The ordinance recommended in XIV-9 above should include provisions to issue fines or penalties for repeated alarm malfunctions, or unnecessary alarms. The fines or penalties should increase incrementally as the number of responses increases. Municipalities might want to consider, for first time offenders, a provision that would abate most of the fine or penalty if they provided documentation that repairs have been made to the problem system. However, this option should not be available to repeat offenders.**
- XIV-11: Any municipality that is performing fire prevention inspections should explore the feasibility of utilizing Remote Video Inspections (RIV) to assist with managing the inspection workload.**

CHAPTER XV

RELATIONSHIPS BETWEEN STAKEHOLDERS

An important factor in any emergency services analysis that MRI conducts, is determining how the organization, or in this case organizations, are perceived and viewed within the community, and to some extent the region, that it serves. It is also important to try to determine what the community's expectations are with regards to the types and levels of service that the department provides to its customers, primarily the taxpaying citizens of the community. Every municipality, and the fire and EMS organizations that protect them, have several different stakeholders, whose opinions, perceptions, and input are important for the study team to know as they try to develop recommendations that are most applicable to that community's specific circumstances.

The relationship between the fire and EMS leadership, and to a lesser extent the emergency services organizations, and elected officials is critical to the effective delivery of public safety services and to the ultimate success of the mission of the organization. It is vitally important that the organizational leadership, and again to a lesser extent, the entire organization, have an honest and positive relationship and open productive communications with their local governing body or bodies.

Interviews with various internal and external stakeholders including members of the fire and EMS organizations and local government officials suggests that the range in relationships vary from excellent to less than optimal. However, all the local government officials and members of the public that were spoken to were very positive about the high quality of services that the fire and EMS agencies within Chester county provide. They were also highly complementary of the time and commitment of the volunteer personnel who serve their communities. Conversely though, the officials had significant concerns about the rising costs of providing these services and what some of them perceive as demands for increased funding. Several indicated that there are occasional insinuations that responses may get slower, or not occur at all if funding demands are not met. While the MRI study team does not have direct knowledge of the context in which these comments may have been made, it is possible that the organization was just trying to drive home the point of how critical their request was. This is particularly true if the discussion is related to staffing issues, caused by the dwindling volunteer pool. However, threats and intimidation based on the premise of slowed or no response, *"if we do not get what we want"* are not acceptable under any circumstances.

From the fire and EMS leadership perspective, many chiefs reported good relationships with some, or all the local officials they needed to deal with. Some had mixed results, with one chief stating of the three municipalities his organization provided protection to relations with two were good, the third doesn't want to hear from us. The MRI study team has experienced a lack of response by municipal officials in other studies it has performed in Chester County. This is a major issue that is featured prominently throughout this report.

A common concern from the fire and EMS leadership was the whole issue of who is responsible for funding emergency services operations. There is at least some perception from the municipal officials that in keeping with long held traditions and practice that the fire and EMS organizations are primarily responsible for funding their own operations, with minimal assistance from the municipality. Some chiefs have stated that municipalities suggested the fire company would be required to continue to provide service regardless of whether a contract or funding was in place.

During this study, MRI developed two questionnaires, one focused on the fire and EMS agencies, the other on the municipal governments. The respective questionnaires were provided to every fire and EMS organization in Chester County, as well as those in adjacent counties who have first due district in the County. It was also sent to every municipality in Chester County. The fire and EMS agencies had 100% return, while the municipalities had only a 57.5% (42 of 73) return rate. The municipalities that completed and returned the surveys were:

- Atglen Borough
- Caln Township
- Charlestown Township
- Downingtown Borough
- East Bradford Township
- East Brandywine Township
- East Coventry Township
- East Fallowfield Township
- East Goshen Township
- East Marlborough Township
- East Pikeland Township
- East Whiteland Township
- Easttown Township
- Franklin Township
- Honey Brook Borough
- Kennett Square Borough
- Kennett Township
- London Grove Township
- Londonderry Township
- Lower Oxford Township
- Malvern Borough
- New Garden Township
- Newlin Township
- Oxford Borough
- Parkesburg Borough
- Phoenixville Borough
- Pocopson Township
- South Coventry Township
- Thornbury Township
- Tredyffrin Township
- Valley Township
- Wallace Township
- West Brandywine Township
- West Caln Township
- West Fallowfield Township
- West Grove Borough
- West Marlborough Township
- West Nottingham Township
- West Sadsbury Township
- West Whiteland Township
- Westtown Township
- Willistown Township

These questionnaires, along with summaries of the responses and narratives provided, are included on Appendices E and F.

During the period of January 31, 2020 to June 29, 2020, MRI developed and conducted three on-line surveys to obtain perspectives from: 1) local officials, 2) fire and EMS responders, and 3) citizens of Chester County. These surveys were distributed to a wide range of stakeholders throughout Chester County to provide blanket notification. Participation was both anonymous and voluntary. The comprehensive results of these surveys are found in Appendices B through D.

- A total of 56 local officials completed the survey, representing 34 different municipalities (46.6%).
- A total of 469 fire and EMS providers representing every agency in Chester County completed the survey. The number of responses per organization ranged from one to 66.
- 1,142 citizens participated in the survey representing every municipality in Chester County except two. The number of responses per municipality ranged from one to 154.

In the questionnaires, both groups were asked to rate the communications and relationship between their respective groups.

- From the fire and EMS perspective, 27.5% stated excellent, 35% reported very good, 22.5% felt good, 12.5% rated fair, and just one (2.5%) believed it was poor.
- From the municipal perspective, 29.4% stated excellent, 44.1% reported very good, 20.6% felt good, and just one each (5.8% total) stated fair or poor.

In the local officials' survey asking the same question:

- 39.3% stated excellent, 35.7% felt it was very good, 19.6% reported adequate, and 5.4% believed it was just fair.

In the fire and EMS responder survey asking the same question:

- 17.9% stated excellent, 35.9% felt it was very good, 27.7% reported adequate, 11.2% believed it was just fair, and 7.3% reported it as poor.

To the question in the municipal questionnaire, *“do you feel that the fire and EMS agencies that serve your local jurisdiction are providing you with complete and accurate information regarding their operational capabilities, staffing, and financial needs?”*

- 77.1% stated Yes, while 22.9% responded No. Several noted that they did not believe that the fire and EMS organizations were being totally open and truthful

about their finances. The lack of transparency even with public funding being provided was also mentioned in several interviews.

In the local officials' survey asking the same question:

- 90.7% stated Yes, while 9.3% responded No.

PERCEPTIONS OF THE FIRE AND EMS SERVICES

Obtaining feedback on the quality of the services that are being provided to the emergency services' most important external stakeholders, its customers - the taxpayers of the community - is important to the long-term success of any organization, whether public or private. When there is no mechanism in place to evaluate customer satisfaction, there is no way to measure service levels being provided against customer expectations and/or satisfaction. While there are many ways to identify strengths and weaknesses in emergency operations, obtaining feedback from those who requested the services of the fire department or EMS is one method that can assist with what should be an ongoing and continuous evaluation process. It is also extremely important that the fire and EMS organizations' leadership appropriately handle the occasional, but inevitable, complaint about the service that was provided. Citizen complaints should be documented, investigated, and brought to a logical conclusion with the complainant informed of the outcome, provided they identified themselves. Conversely, formal letters or other acknowledgments by customers that personnel did a good job should be addressed in a positive manner within the organization and to the person making the compliment.

The questionnaires and the online surveys that were utilized during this study asked the stakeholders several questions regarding their perceptions of the fire and EMS service delivery system in Chester County.

On the municipal officials' questionnaire:

- 82.4% of those that responded believe the fire and EMS organizations that protect their local jurisdiction provide an acceptable level of fire and EMS protection, while just 5.9% do not. An additional 11.8% indicated they did not have the information necessary to answer.
- 41.2% of the respondents felt that the overall level of fire protection provided to their jurisdiction was excellent, while 47% believe it is very good. About 8.8% stated that it needs improvement.
- 33.3% of the respondents felt that the overall level of EMS service provided to their jurisdiction was excellent, while 40.5% believe it is very good, and 26.2% stated that it is adequate.

On the local officials' survey:

- 50% of those that responded strongly agree the fire and EMS organizations that protect their local jurisdiction provide an acceptable level of fire and EMS protection based upon NFPA standards, 33.9% agree, and 7.1% are neutral.

On the fire and EMS provider survey:

- 50.9% of those that responded strongly agree the fire company they are a member of, provides the community with an acceptable level of fire protection, 35.6% agree, 9.9% disagree, and 3.7% strongly disagree.
- 58.2 % of those that responded strongly agree the EMS agency they are a member of, provides the community with an acceptable level of emergency medical service, 35.2% agree, 4.5% disagree, and 2.0% strongly disagree.
- 50.2 % of those that responded strongly agree the organization(s) they are a member of, is/are well regarded and appreciated by the residents of the municipality/municipalities they serve, 43.1% agree, while 6.7% either disagree.
- 28.8 % of those that responded strongly agree the organization(s) they are a member of, is/are well regarded and appreciated by the governing body/bodies of the municipality/municipalities they serve, 51.4% agree, 16.3% disagree, and 3.4% strongly disagree.

On the citizen survey:

- 64.9 % of those that responded they had received fire or EMS service from a Chester County organization rated the service as excellent, 20.1% felt it was very good, 7.9% stated adequate, 3.8% reported fair, and 3.4% listed poor.
- 19.7% of respondents felt the overall level of community interaction and involvement by the fire companies and EMS agencies, including educating the public about what they do and why they need adequate funding and training is excellent, 23.4% very good, 19.1% adequate, and 18.4% needs improvement.

Overall, these responses indicate that the fire and EMS services that protect Chester County are perceived well by the various stakeholders, an overwhelming majority of whom, feel they are doing a good job. However, nearly one in five citizens feel the level of interaction with the community including information regarding what the fire and EMS services do, needs improvement. Also of concern, nearly one in five emergency provider feels they are not well regarded and appreciated by the governing bodies of the communities they serve.

SENSE OF COMMON VISION

Having a sense of common vision is important in any organization to ensure that the organization and its personnel are moving in unison toward a common goal(s). Having a common vision is not only about making sure that all parties are aware that they are in the same boat and rowing, but even more importantly, that they are rowing in the same direction. The impact of not sharing a common vision will be very noticeable in the quality and quantity of work performed, but also with the spirit and passion that the work of the organization is accomplished.

The perceptions shared by members of an organization, and its various stakeholders, both internal and external, can be extremely important in either establishing, or conversely, distorting that sense of a unified common vision. Whether accurate or not, and regardless of the myriad of factors that can influence them, the individual and/or shared perceptions of members of an organization can, and often do, become their reality. If there is a perception of distrust, or, lack of mutual respect, between members of the organization, and/or between different stakeholders such as fire or EMS agency leadership, and the local governing body, the goal of successfully achieving that sense of common vision will be difficult, if not impossible.

Development of a shared vision towards the delivery of emergency fire and EMS services in Chester County should not be based on a single idea or initiative by one organization, it should not be imposed by one person, and not as a mandate. **The vision for the future needs to be shared by all stakeholders, and at all levels of government. The driving force for all stakeholders needs to be the best interest of the 9-1-1 caller.**

By studying and understanding the past, a vision for the future can be developed that inspires stakeholders to find their roles and actively participate in achieving the vision. This concept will be significant in Chester County as this vision for the future may result in dramatic changes to the way emergency services are delivered, driven by financial hardships, recruitment and retention issues, and the public's expectation for the delivery of emergency services. An X factor or big unknown is what the long-term implications of the COVID-19 pandemic will be.

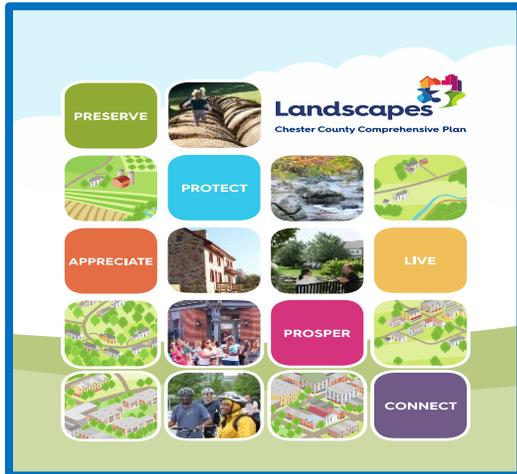


Figure 167
Chester County Comprehensive Plan

In November 2018, the Chester County Commissioners adopted **Landscapes 3 Chester County Comprehensive Plan**. This document provides an excellent foundation relative to the creation of a vision for emergency services in the future.⁸⁵ The comprehensive plan clearly identifies its desire to include all facets of the community in its long term planning. This plan was created over twenty years ago and is continually updated to keep pace with changes in demographics and needs of Chester County.

Within the plan, there is clear visionary goals for the delivery of emergency services. Its importance to the County and why those services matter and is described within the plan which states:

*“Emergency services, human services, and education opportunities strongly impact public safety and community well-being. These services require modern facilities, evolving programs, and adequate staff and volunteers to address community needs. Strong and diverse neighborhoods, robust community facilities, and services that evolve to meet the changing needs of communities will enable Chester County to continue to be a highly desirable place to live, work, and play”.*⁸⁶

A key objective identified in the plan is to maintain and support coordinated systems and organizations for emergency services, human services, and public health to protect and enhance individual and community well-being. The emergency services in Chester County are part of a larger public health system including human services and public health.

Landscapes 3 identified two areas of focus as part of an overall vision for the County. Included in this focus were the following objectives:

1. Provide exemplary emergency services

Continue to provide exemplary emergency services through regular assessment and updates to address evolving community needs.

⁸⁵ Landscapes3 Chester County Planning Commission (November 29, 2018)

⁸⁶ Landscapes3 Chester County Planning Commission (November 29, 2018)

Why:

The provision of a robust emergency services system is essential to ensure that the daily and long-term health and safety needs of County residents are met.

How:

Coordination between the Department of Emergency Services, municipalities, and service providers will continue, and evolve to address contemporary issues as they relate to emergency services. The County will continue to update services (such as operating the 9-1-1 system and providing County-wide hazardous material spill response) and plans (including the Emergency Operations Plan and Hazard Mitigation Plan) as needed. Support of training across all emergency service disciplines will continue. Municipal partners should implement local plans and programs that are both consistent with, and complement County-wide plans.

2. Support emergency service responders

Support effective fire and ambulance services through investigation of mechanisms to better recruit, retain, and train fire and ambulance volunteers in addition to exploring ways to fund fire and ambulance organizations more equitably and effectively.

Why:

Across the Commonwealth, fire and ambulance volunteerism has been in decline, as costs to provide these services have increased.

How:

The County will continue to support recruitment efforts for volunteers as well as training opportunities and seek mechanisms to increase public awareness of the value of these services. The County will increase coordination with municipalities and local providers regarding the most effective and equitable mechanisms to meet the financial needs of local providers.

Mechanisms to achieve these goals could include increased regionalization of service providers and information sharing on successful funding formulas in place within the County. The County's Public Safety Training Campus provides a world-class facility with staff support and diverse training opportunities.⁸⁷

⁸⁷ Landscapes3 Chester County Planning Commission (November 29, 2018)

The Landscapes 3 plan identifies several goals for achieving their vision. The goals include objectives and detailed recommendations that provide guidance to the County and its partners. These goals include to: Preserve, Protect, Appreciate, Live, Prosper, and Connect.

The MRI study team conducted numerous interviews with various stakeholders representing the fire and EMS organizations, local officials, and the general public during multiple site visits in the late Spring, Summer, and early Fall of 2019. As has been mentioned previously, questionnaires and survey instruments were also developed and distributed.



Figure 168
Shared Vision 123RF.com

Our interactions with the various stakeholders revealed different opinions when the topics of regionalization, consolidation, or even group purchasing of like equipment or standardizing of equipment to benefit from economies of scale were introduced. There was a higher level of consistency in the responses to challenges at the local level encompassing subjects such as Standards of Cover, fundraising, financial support from local governments, recruitment and retention, automatic and mutual aid, facilities, apparatus, and equipment.

The questionnaires and/or surveys asked a number of questions to gauge the opinion of the various stakeholders on some of the identified issues regarding the emergency service delivery system, along with some of the potential solutions. The same question was often asked on different questionnaires or surveys to gain perspective on the same question from different groups.

- Regarding whether the leadership of the fire and EMS agencies and the manager and/or local governing bodies of the municipalities they serve meet on a minimum of an annual basis to review progress, discuss operational and budgetary needs, and discuss goals and objectives for the next year:
 - ❖ 78.6% of fire and EMS providers stated Yes while 21.4% replied No.
 - ❖ 81.3% of the municipal managers stated Yes, while 18.7% stated No.
- Regarding whether the level of risk within their local jurisdiction has ever been considered or discussed 54.8% of the municipal questionnaire respondents answered Yes, while 45.2% stated No.
- All the questionnaires and surveys asked who/what should determine the level of services to be provided by the emergency services organizations.

	Fire EMS Agency Questionnaire	Fire EMS Provider Survey	Municipal Questionnaire	Local Officials' Survey	Citizen Survey
The department/company/agency leadership	22.4%	17.32%	5.6%	5.45%	11.93%
The local governing body	6.9%	4.17%	9.4%	3.64%	5.16%
Consensus agreement between department/company/agency leadership and the local governing body	51.7%	62.28%	47.2%	78.18%	64.83%
Research based needs assessment	8.6%	16.23%	20.8%	12.73%	18.08%
Benchmark standard (NFPA 1710/1720; PA Dept. of Health) driven	10.3%		17.0%		

Figure 169
Determination of Service Level

- All the questionnaires and surveys except for the citizen survey asked if *there should be a more regionalized approach to both the funding and operational control (such as standardized response assignments, minimum training standards, AVL based dispatching, etc.) of the fire and EMS delivery system in the County based upon consensus procedures and protocols developed by the Fire Chief's Association and the EMS Council, Inc.?*

	Fire EMS Agency Questionnaire	Fire EMS Provider Survey	Municipal Questionnaire	Local Officials' Survey
Strongly Agree	14.6%	40.9%	38.7%	32.73%
Agree	29.3%	41.3%	29.0%	29.09%
Neutral	31.7%		19.4%	
Disagree	9.8%	12.9%	12.9%	32.73%
Strongly Disagree	14.6%	4.9%	0%	3.64%

Figure 170
Regionalization Opportunities

- Since state law states the municipalities are ultimately responsible for the provision of fire and EMS services, the municipal questionnaire asked the question, *“If there are individual fire companies or EMS agencies who do not want to comply with County-based standards such as those listed above, should they be required to do so for the greater good of the entire system and County?”*

- ❖ 82.1% of those who responded said Yes, while 17.9% said No.

Comments related to the services provided by the Chester County Department of Emergency Services were positive. They recognized that the Department of Emergency Services plays an important role in providing support to the public safety agencies throughout the County who have limited resources in fire prevention and inspections, training, emergency management, hazardous materials response, and emergency incident support.

The results of these surveys provide encouragement regarding the future direction that the MRI study team believes the fire and EMS delivery system in Chester County should head in the future. The concept of the future delivery of emergency services at the County level is far from developed, and has not been fully accepted which makes sense as it would not likely even be possible without enabling legislation. However, the results of these surveys and questionnaires present optimism that the majority of the primary stakeholders, particularly those who are most involved and engaged, are willing to at least see what concept develops, and whether it is feasible and beneficial to work toward building a new, more regional system. The MRI team believes that the engagement of the local fire and EMS services in developing the vision for the future of their services is paramount to addressing the delivery of services in the County. MRI believes the time for starting those discussions is now and they must incorporate the *“local”* concerns expressed by stakeholders. MRI does not suggest that the delivery of emergency services be conducted in a single delivery model, but with a model that has the flexibility to accommodate the various local fire and EMS services unique organizational needs. Like any

successful endeavor, a regional or County-wide system will start small then expand and develop as it demonstrates its success and ability to enhance services.

RECOMMENDATIONS:

- XV-1: *The Chief of every fire and EMS agency in Chester County should provide regular briefings and reports to the Manager/Administrator and/or governing body of every municipality they serve concerning the operations of their organization fire department. The Chief should communicate regularly with the Manager/Administrator and/or governing body to receive feedback on the performance of the department.***
- XV-2: *The Manager/Administrator and/or governing body of each municipality should take an active role in setting appropriate goals and a vision for the fire and EMS providers that serve them. Municipal officials should include residents and the emergency services in an open and honest discussion within the goal setting process.***
- XV-3: *Every fire and EMS agency should consider offering building tours and ride-a-longs to the members of their local governing bodies and other municipal officials to further familiarize them with fire and EMS operations. Officials could also be encouraged to participate in or observe training activities.***
- XV-4: *Fire and EMS agency leadership and the municipal governing bodies should publicly recognize the achievements of the organizations and its members in reaching the various established goals as they are accomplished.***
- XV-5: *Based upon the recommendations contained in this report, the Chester County Commissioners, the governing bodies of the County's municipalities, the Chester County Fire Chiefs Association, Chester County EMS Council, Inc., Chester County Fire Police Association, Chester County Municipal Managers Consortium, Chester County Association of Township Officials, and other interested stakeholders assisted by the Chester County Department of Emergency Services should begin discussions ASAP on the direction that the County's fire and EMS delivery system will take moving to the future. It will be imperative that all stakeholders speak with a unified voice when lobbying local legislators to introduce or support enabling legislation that will be necessary for multiple recommendations to be implemented.***

CHAPTER XVI FUNDING AND FINANCE

Three characteristics are most aligned with the fire service including its traditions, the deep-seated dedication to service, and the significant amount of time focused on readiness to respond to an all hazards type of public safety service. Similar in its mission, EMS has followed the same characteristics, however its growth and general level of support have not been at the same pace as the fire service. This is despite the twin facts that its call volume often is three to four times greater, and EMS probably responds to the greatest numbers of true emergencies where intervention by trained personnel does make a difference.

Both services are further challenged in meeting their service delivery commitments to the community due to the amount of time spent lobbying leaders and governing bodies, often at multiple levels of government, in pursuit of adequate funding and political support in a rapidly changing service environment. Declining revenue streams developed through the once routine and expected volunteer fundraising efforts, competing requests for funding from municipal governments, changes in government Medicare and Medicaid reimbursements, and the future impact that the COVID-19 pandemic will have on the economy and future funding available will all have a significant impact on the emergency services delivery system. Early signs of the pandemic's effect in budgeting has shown local and state governments have lost considerable revenues due to the need to close the country. This brings an immediate concern as to the impact on emergency services delivery. All the elements have created the perfect storm for emergency services throughout the United States and is also evident here in Chester County. The MRI study team heard directly from several volunteer fire service companies during site visits, and all in some form or another, described the concern of the declining volunteer fire service in the County. This same concern has been occurring nationwide over the past few decades.

MRI focused its study and research on finance areas based on input received during the group public input sessions, on site visits to a number of volunteer fire companies, discussions with local and County leadership, and through input obtained during a visit to a Chester County Municipal Managers Consortium. Questions regarding funding and finance were also included in the on-line surveys and questionnaires that were widely disseminated to various stakeholders. Further, MRI obtained additional financing subject matter through SR 6 Final Report published by the 39 member SR 6 Commission. As has been noted in various places in this report, the MRI study team recommends that the SR 6 report become a part of any strategic planning or County fire service delivery initiatives, for its comprehensive information related to legislative bills that have passed and contribute to emergency

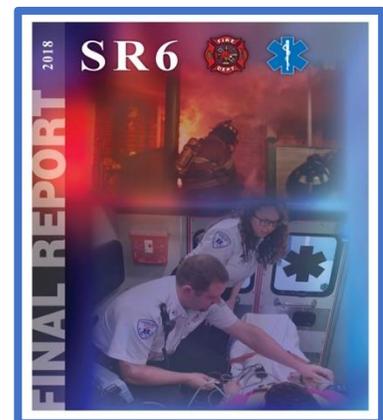


Figure 171
Senate Resolution 6 Final
Report 2018

services delivery, as well as remaining legislative recommendations that should be introduced in order to address the future emergency services delivery models.

The number of volunteer firefighters has been declining from about 300,000 in the 1970s to about 60,000 in the early 2000s and then to 38,000 in 2018 due to a variety of reasons including the demands on time for training and fundraising.⁸⁸

As an extremely difficult economic environment lingers, and the number of firefighters in volunteer fire companies continues to decline more than ever before, fire companies are approaching local governments for assistance. The EMS services are woefully lacking in funding. Funding at the local level in some areas has remained a supplement to fundraising rather than providing adequate funding. Those municipalities that have provided funding at adequate levels are struggling to keep up due to staffing and operational needs.

Small communities have traditionally gotten great value from their volunteer fire and EMS services. In addition to the fact that their personnel costs are extremely low, in many cases, the local municipality or, in this case, municipalities, provides only a fraction of the amount of funding necessary for the department to operate effectively. The expectation, perhaps driven by long-established fund-raising traditions in the volunteer services and the communities they serve, continues to this day. In 2010, during the preliminary discussions on the formation of the Keystone Valley Fire Department, a Pennsylvania Department of Community and Economic Development (DCED) *representative estimated that the average volunteer spends about 80% of their time commitment to the fire department raising funds rather than training or responding to emergencies.* Compounding this issue is the very real fact that volunteerism is declining at a time when the number of incidents continues to increase along with the time required for training.

It is the MRI study team's belief that, current hybrid system notwithstanding, ultimately it is each municipality's responsibility to provide for, and ADEQUATELY fund, the emergency services that protect its residents. Fundraising is a time-consuming effort that in the study team's opinion, does not make effective use of the valuable time of volunteer personnel.

Traditional fundraising activities such as breakfasts, dinners, and bingo no longer provide any significant return on the time and effort it takes to hold them. In addition, most younger members of the volunteer fire and emergency services have little interest in participating in traditional fund-raising activities, believing instead that they are making a significant contribution of time just to train and respond to emergencies. These are not trends that are going to be reversed and municipal governing bodies will need to adjust to these new realities.

When dealing with volunteer emergency services personnel, municipal governing bodies need to be certain to fully include them in the budgetary and decision-making process and be aware of the potential ramifications of making changes they do not fully support or buy into. While

⁸⁸ Senate Resolution 6 Final Report (November 2018)

the governing body should not be held “hostage” by threats to quit, or reduce, or eliminate services, if decisions do not go their way, they do need to understand that volunteers have a much different level of investment than career staff, and thus it is more difficult to mandate change or force them to continue to provide services if they do not feel the services they provide are appreciated, or being adequately funded.

Fire and EMS agencies need to understand that scarce tax dollars that have been stretched to the limit are now in real danger of tearing or breaking. Smaller communities which have far fewer resources and options than their larger neighbors will find it especially difficult to cope with the limitations imposed by the new financial reality. The continuing trend of declining volunteerism will create simultaneous challenges that will stretch the provision of emergency services in many communities even farther. In addition, the fire and EMS providers need to understand that with increased taxpayer supported funding is going to come to an increased demand for accountability and transparency.

Based on the confluence of these sometimes-competing interests, a commitment to strategic planning can be one of the most beneficial instruments today in a fire chief’s tool kit. Described another way that the MRI study team heard multiple times in its Chester County work, is the idea of “*telling a story*”. Not only will strategic planning lay the groundwork for the future and what the agencies needs will be, both short and long term, the appearance of this leadership style and robust commitment to the delivery of public safety will pay dividends with the stakeholders, by embracing the community’s commitment to fire protection.⁸⁹ Current and future budgets should be linked directly to the strategic plan and level of service.

A fire and EMS agency budget is more than the dollar amount allocated for the operation of the emergency services. The budget is the document that reflects the goals and objectives that agency leadership and local governing bodies should collaboratively be establishing for the delivery of services to the community. The budget should be used as a planning tool by the fire and EMS agency leadership and should represent their needs to properly and safely serve the public.

Budget preparation and management must be an ongoing process in every aspect of the organization. Before one budget cycle is completed, the next must already be in process. The agency leadership must continuously monitor its operations and its ongoing needs, as well as anticipate the demands that will be placed upon it in the future.

The fire and EMS agencies should understand the budget impacts of current and long-range apparatus replacement, major station maintenance, and major capital projects. It is important that each organization develop a capital improvement plan that includes all future capital expenses including apparatus, vehicles, equipment, facility repairs and upgrades, and any

⁸⁹ Senate Resolution 6 Final Report (November 2018)

project that meets the general definition of a capital purchase or project; generally anything with an expected serviceable life span of greater than five years.

Figure 172 illustrates 2017 municipal expenditures for fire services state-wide, in dollars. Figure 173 shows a closer view of Chester County. Although many municipalities in Chester County allocated \$100,000 or more, there were also a number that contributed less than \$50,000. With the cost of providing service today, even a contribution of \$100,000 will not go far toward meeting expenses.

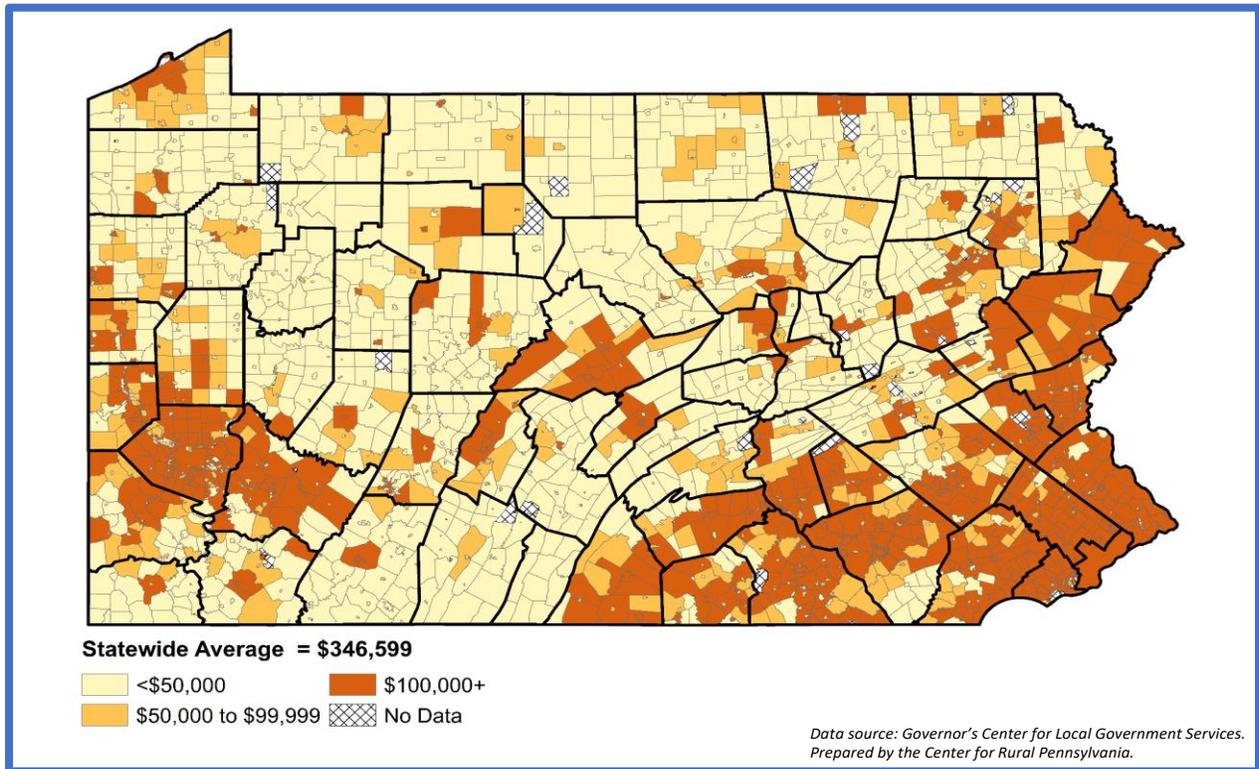


Figure 172: 2017 Municipal Expenditures for Fire Services in Dollars

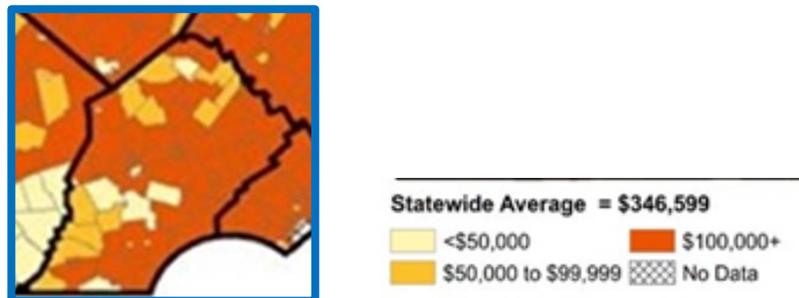


Figure 173: 2017 Municipal Expenditures for Fire Services in Dollars – Chester County

Figure 174 illustrates 2017 municipal expenditures for fire services state-wide, in percentage of total municipal expenditures. Most Chester County municipalities were split between less than 5% of their budgets and between 5% and 9.9%.

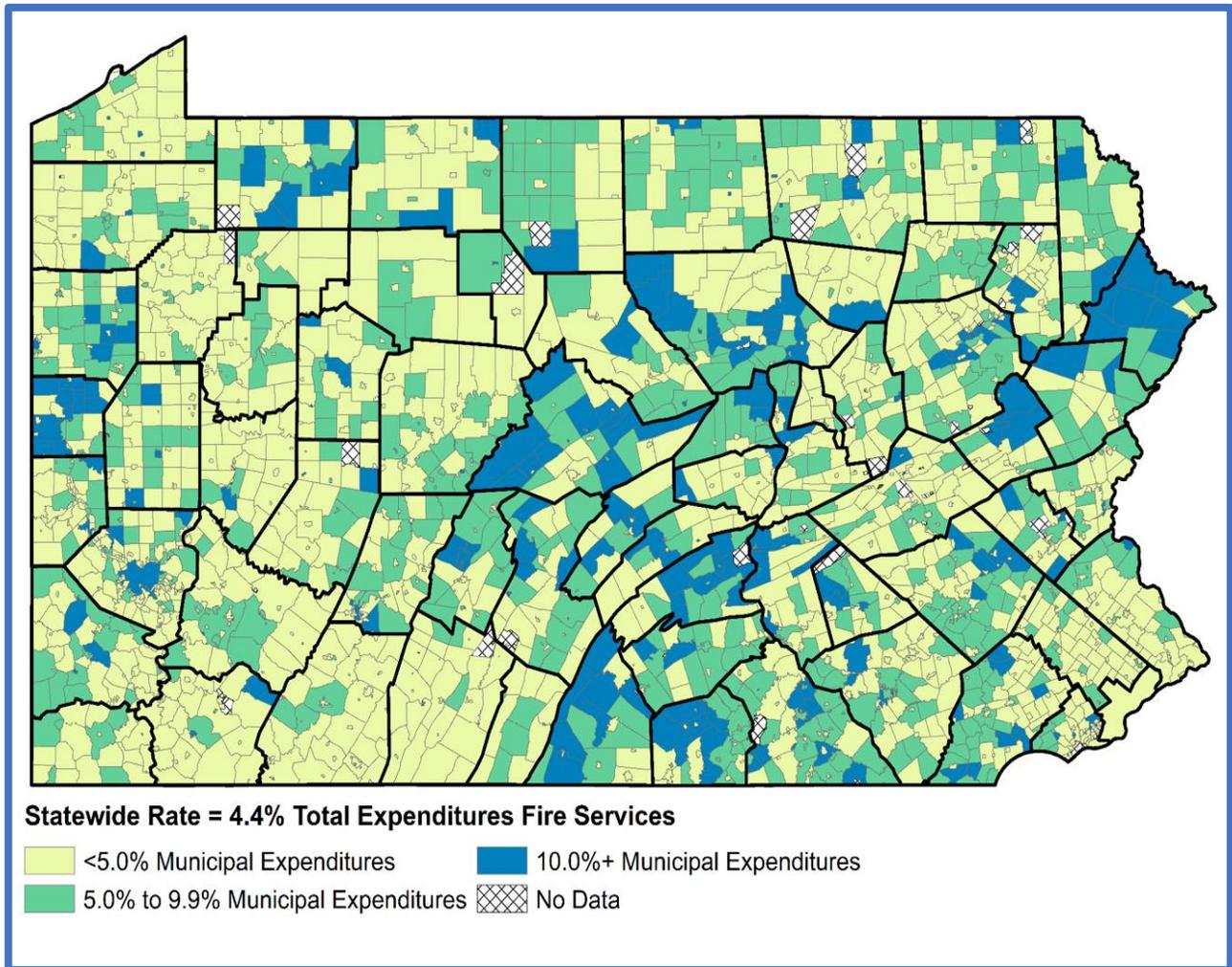


Figure 174
Municipal Expenditures for Fire Services as a Percentage of Municipal Expenditures - 2017
 Source: Governors Center for Local Government Services

Figure 175 illustrates 2017 municipal per capita expenditures for fire services state-wide. Most Chester County municipalities were in the \$20.00 to \$39.00 range with smaller numbers spending less than \$20.00 or more than \$40.00.

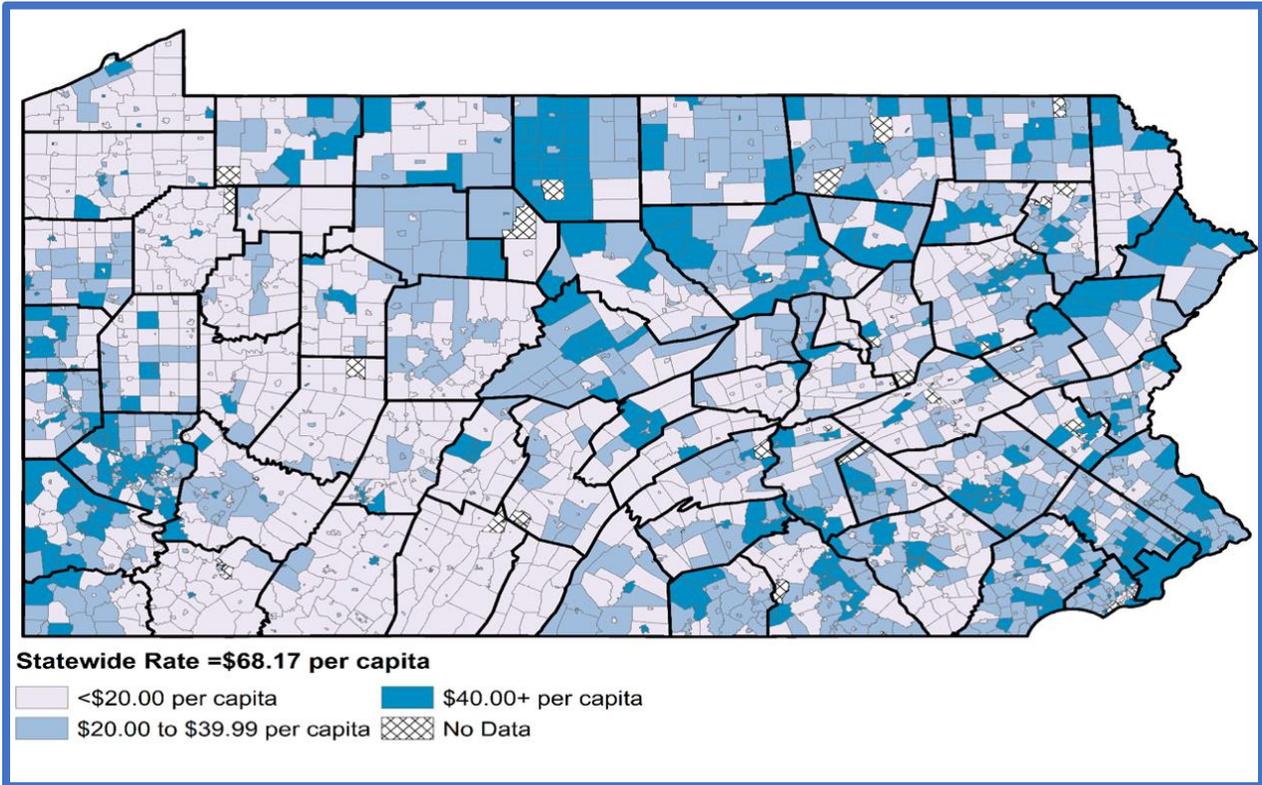


Figure 175
Per Capita Municipal Expenditures for Fire Services 2017
 Source: Governors Center for Local Government Services

While performing this study, the MRI study team obtained data from various sources regarding the amount of money being spent on the fire and EMS delivery systems in Chester County, including both the fire and EMS agency and municipal managers questionnaires.

According to the fire and EMS agency questionnaire:

- The cumulative fire and EMS budgets of all Chester County providers is **\$41,998,255.00**.
- Annual fire and EMS budgets for individual organizations range from **\$100,000.00** to **\$3,254,128.00**.
- For organizations that do both fire and EMS, 47% have separate budgets for each operation, while 53% do not.

- Fire budgets range from **\$80,000.00** to **\$870,000.00**.
- EMS budgets range from **\$30,000.00** to **\$1,980,000.00**.
- Percentage of budget derived from (based upon information reported, NOT all municipalities and/or providers):
 - ❖ Direct funding from municipalities – Range: **0.21% to 100%**
Average: **37.35%**
 - ❖ Emergency Services Tax – Range: **4.5% to 90%** Average: **32.43%**
 - ❖ Organizational fundraising – Range: **1% to 75%** Average: **22.43%**
 - ❖ Subscriptions/memberships – Range: **1% to 30%** Average: **11.83%**
 - ❖ Other sources of fundraising – Range: **3% to 84.5%** Average: **38.31%**
- 66.7% of the respondents have a separate capital budget for apparatus purchases and other major expenses while 33.3% do not.
- For those that have a capital budget, ways it is funded include:

<ul style="list-style-type: none"> ❖ Funded thru system/capital request & purchase ❖ Township Contracts ❖ Fund Drives (2) ❖ Capital Savings ❖ Municipal Bonds/Grants (2) ❖ Self-funding ❖ Depreciation in Budget 	<ul style="list-style-type: none"> ❖ Thru Township (7) ❖ Fire District ❖ Pa Fireman’s Relief ❖ Bank Loans ❖ Tax Money (2) ❖ Relief Association ❖ Budgeted in Borough ❖ Endowment Funds ❖ Investments
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- For those that have a capital budget, 56.3 % reported that all municipalities contributed to it, while 43.7% stated they did not.
- For those that do not have a capital budget, ways they fund capital purchases include:

- ❖ Funded through system/capital request & purchase
- ❖ City funds if available
- ❖ Municipal Bonds/Grants
- ❖ Raise money or borrow
- ❖ Fund Drive
- ❖ General funds
- ❖ PEMA & Loans (2)
- ❖ Savings
- ❖ Fundraising (2)
- ❖ Investment Reserves
- ❖ Municipal Funds (2)
- ❖ State Relief Funds

According to the municipal managers/administrators' questionnaire:

- The cumulative FY 2020 budget contribution for fire and EMS services by the municipalities that returned the survey is **\$12,953,965.00**. This equates to just 30.8% of the money spent in the County to provide these services.
- The range for fire and EMS funding ranged per municipality was from **\$30,250.00** to **\$2,307,728.00** with the average being **\$404,811.00**.
- 54.8% of the municipalities have separate budgets for fire and EMS while 45.2% do not.
- Fire budgets range from **\$32,625.00** to **\$610,481.00** with the average being **\$186,259.00**.
- EMS budgets range from **\$9,000.00** to **\$175,500.00** with the average being **\$51,877.00**.
- By comparison, these same municipalities spent **\$66,871,411.00** on law enforcement services, **\$53,917,446.00** more than they spent on fire and EMS. Looked at a different way, they spent just 19.4% of what they spent on law enforcement of fire and EMS services. The expenditures for law enforcement ranged from **\$12,000.00** to **\$11,500,180.00**, with the average being **\$2,388,265.00**.
- 48.5% of the respondents contribute to a separate capital budget for apparatus purchases and other major expenses while 51.5% do not.

A different survey which had been put together by one municipal manager that generated replies from 21 municipalities, indicated that group had allocated for **\$6,336,239.00** for fire and EMS services.

For fire and EMS organizations that still attempt to conduct their own fundraising activities, it is becoming well documented that traditional activities such as bingo and comedy nights, chicken dinners and pancake breakfasts, and direct mail campaigns to appeal for donations are in steep decline, if not already eliminated. This has forced some fire companies to turn to unique endeavors to try to raise funds. One Chester County fire company purchased a building and uses it as a child-care center. This same company holds a monthly donut sale and an annual fair which they have since 1939. The latter was cancelled in 2020 due to COVID-19 which will have a significant impact on their revenue (Figure 176). Another volunteer fire company provided mortgage loans as a method of raising revenue for the fire company. Many fire companies also still rent out their fire halls for various social events, however, the number of people interested in renting these venues was also in decline prior to the current pandemic. COVID-19 has almost eliminated that revenue source at least for the near future. One fire company in another part of the commonwealth is the part owner of a motorsports racetrack.



Figure 176
Kimberton Fair Cancellation Notice 2020

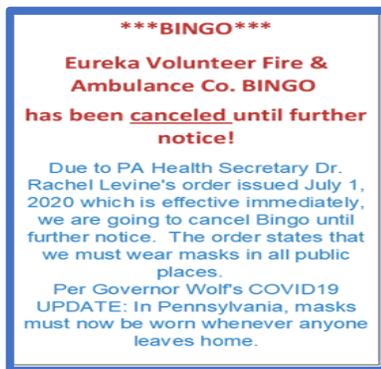


Figure 177
Eureka Volunteer Fire & Ambulance Company Bingo Cancellation Notice

The ability to conduct fundraising events to raise revenue is failing. A lack of volunteer members and the economic downturn has placed a strain on the ability for citizens to donate to their local volunteer fire service. This in turn changes the amount of funding now being requested by the fire companies to the local municipality. To some municipalities this has become a sticker shock scenario that has resulted in a fiscal crisis for public safety. Further contributing to the funding crisis is the loss of revenue to local, county, and state governments also caused by the pandemic induced economic crises.

EMERGENCY MEDICAL SERVICES (EMS) FUNDING

As with the fire services, a mix of long-term stagnant and declining reimbursements, limited alternate sources financial assistance and changes to societal view of volunteerism, have significantly impacted EMS throughout Pennsylvania, leading to EMS agency failures and closures. These changes to the vital resource of emergency medical care, have not only forced service delivery reductions to communities but, have put the ability of EMS to respond effectively to large scale incidents into question. Emergency responders protect the infrastructure of the commonwealth when fires, storms, hazardous material releases, emergency medical situations, rescue challenges, and similar emergencies are encountered.⁹⁰

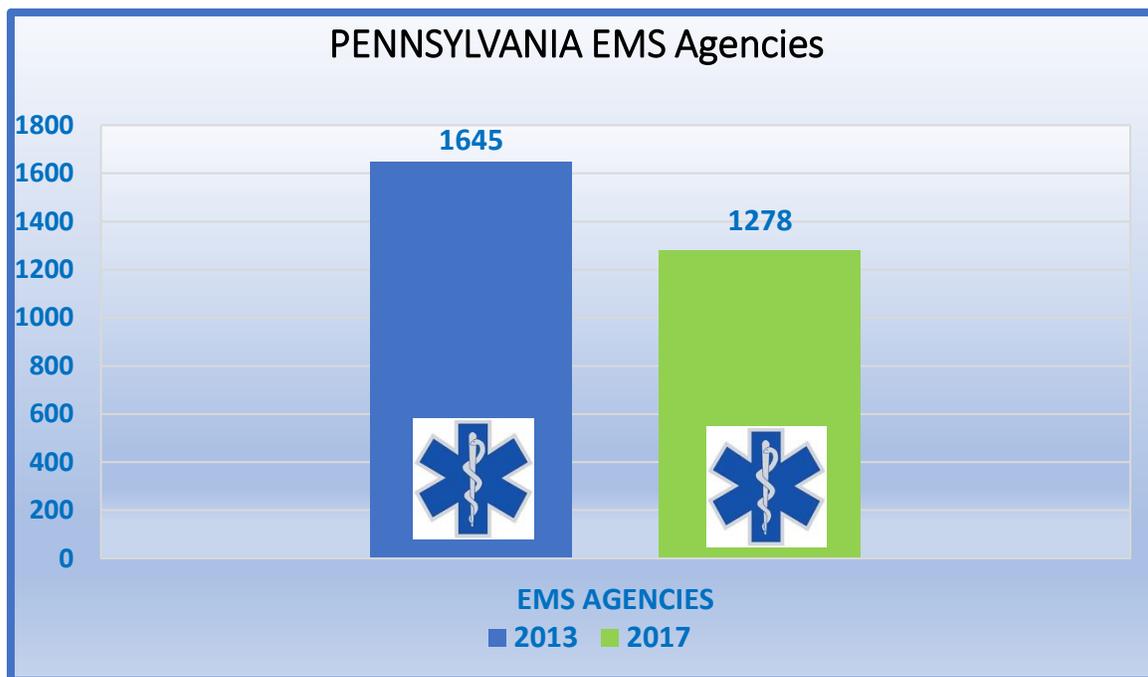


Figure 178
Pennsylvania EMS Agency Decline 2013 to 2017

The financial situation of the state’s EMS agencies is a key reason for the ongoing decline in the number of agencies providing service. From a recent high of 1,645 agencies in 2013, the number fell to 1,278 in 2017, a loss of 367 agencies, or 22.3% of the total. The number of ALS agencies increased slightly state-wide, but the BLS and QRS agencies had the highest losses, and these are the agencies that provide the first line of EMS. Some of the decreases in the number of agencies are due to consolidations and mergers to keep some form of EMS response

⁹⁰ Senate Resolution 6 Final Report (November 2018)

available to the citizenry, but in many cases, agencies have ceased operation due to a lack of funds, staff, or both.⁹¹

Moreover, reduced staffing levels are linked to financial losses. The number of EMTs in Pennsylvania has fallen by over 6,000 since 2012, while the number of paramedics is down by 4,000 providers in the same period. The Bureau of EMS estimate of the number of active providers in the system is approximately 17,000 state-wide, down from recent estimates of over 30,000.⁹²

Continually rising costs for EMS personnel, benefits, vehicles, equipment, fuel, insurance, utilities and facilities coupled with lack of adequate payment for services is eliminating agencies state-wide. Many municipalities provide minimal support for the cost of readiness, including the hard costs for being legally staffed and always equipped to respond. An additional burden on agencies that was recently changed was their inability to collect payment for services except when a patient is transported to an emergency department, regardless of treatments and other services rendered on scene. The legislature recently enacted legislation that now allows for billing when treatment is rendered if there is no transport.

The agency level support is only one aspect of the funding situation. For the system to continue to grow from both a systems perspective and a clinical one, the funding of the state's structure must be increased to support federal initiatives, clinical research for patient care, and needed state-wide system development. The EMSOF (Emergency Medical Services Operating Fund) contributions from 1985 are inadequate to sustain current system operations, and along with the depletion of federal monies, has returned EMS funding to 2006 (or earlier) levels. This issue is identified in the SR 6 report as one that needs to be corrected.

STATE FUNDING ASSISTANCE TO THE FIRE AND EMS SERVICES

The Commonwealth has various funding programs available for fire, EMS, and rescue squads as noted earlier in this chapter. The Fire Company and Emergency Medical Services Grant (FCEMSGP) is an annual grant program for volunteer and career fire personnel, EMS, and volunteer rescue squads. The grants are awarded based on application and project criteria and staff reviews. Eligible organizations may apply for grant funding for a combination of up to two projects in the following categories:

- **Facilities:** Construction and/or renovation of the fire company's or ambulance service's facility and purchase or repair of fixtures and furnishings necessary to maintain or improve the capability of the company to provide fire, ambulance, and rescue services.

⁹¹ Senate Resolution Report 6 (November 2018)

⁹² Senate Resolution Report 6 (November 2018)

- **Equipment:** Purchase or repair of firefighting, ambulance, or rescue equipment. This includes the purchase of fuel for company vehicles.
- **Debt Reduction:** Debt reduction associated with the facility (1) or equipment (2) categories above.
- **Training:** Training and certification of members.
- **Training and Education:** Materials regarding fire prevention for the general public.
- **Career Departments Only:** Overtime costs associated with backfilling positions while firefighters are attending training.

Pennsylvania government currently provides more than \$100 million to local emergency services. There are several grant programs created by statute for volunteer fire, EMS, and rescue squads throughout the state. The three most notable include:

1. Volunteer Loan Assistance Program, created by PA 72 P.S. §3943 et seq.,
2. Volunteer Fire Company and Volunteer Ambulance Service Grant, 35 P.S. §6942.1 01 et seq.

Numerous other grant programs provide vital funding to fire companies and EMS and should be funded at the appropriate levels needed for emergency services delivery. These programs include:

- Volunteer Loan Assistance Program (VLAP)
- Fire and EMS Company Grants
- Volunteer Firefighter Relief Funding
- Department of Community and Economic Development Grants
- Emergency Medical Services Operating Fund (EMSOF)
- Emergency Responders Resources and Training Program
- DCNR Volunteer Fire Assistance Grants



Figure 179
Pennsylvania Fire and EMS Grants

The most critical component of the system is the use of volunteers to provide the services. While the state has taken an active role through VLAP and the \$30 million annual grant program in assisting volunteer emergency service organizations

with the purchase of necessary equipment and facilities, much more remains to be done to assist in the recruitment and retention of volunteers.

The Commonwealth of Pennsylvania taxes property insurance policies written in the state. This is known as the Pennsylvania Foreign Fire Insurance Tax. This money is then distributed to the fire relief association in each municipality with the borough or township serving merely as a conduit for the money to pass from the state. For the fire companies that serve multiple jurisdictions all the money will generally flow through the municipality where the fire company is physically located. The relief associations then often provide money to the fire company to assist in offsetting operational expenses.

In addition, any number of Department of Community and Economic Development Grants find their way to local volunteer agencies. Even with this contribution to local services, many fire and EMS agencies of all types and sizes find themselves seeking more funding. This is due to both a basic need, as well as a lack of definition and agreement on services to be rendered and subsequent purchase of equipment, staffing, etc.

The concerns identified regarding the various state funding programs include the fact that Volunteer Fire Relief monies do not assure all responders receive protection as intended by the statute. The EMSOF funds are largely used by the regional councils (management/oversight) versus providing direct delivery of services. The VLAP program (which functions very well) can be further enhanced via incentive- related increases in funds permitted coupled with lower interest rates on that money.

According to a 2001 Pennsylvania Fire and Emergency Services Institute Study⁹³, the value of the service that volunteers in Pennsylvania provide was estimated at **\$6 billion**. That figure may be as high as **\$10 billion** in today's dollars. The importance of the service provided by the volunteers is invaluable.

To ensure that service levels are maintained, fire and EMS agencies will need to partner with elected officials to develop future funding strategies. During the stakeholder meetings it was noted that several elected officials had varying levels of understanding of their local emergency services delivery models. A training program that provides elected officials with improved understanding and overview of fire and EMS operations, funding and the responsibility of local government should be developed and delivered.⁹⁴

Legislative action to address these levels of service and fiscal issues will be needed to resolve the issues outlined within this report. The issues and concerns of these service providers vary

⁹³ Pennsylvania Fire and Emergency Services Institute Study (2001)

⁹⁴ Senate Resolution 6 Final Report (November 2018)

by location, funding, and community uniqueness. Therefore, a single approach solution will not benefit all organizations. Thus, this report uses a cafeteria style solution approach, allowing each organization the ability to select solutions best able to solve their issues or concerns.⁹⁵

The SR 6 report also recognized and stated the necessity to identify efficient systems, legislative initiatives, and financial incentives. These actions are essential components of:

- Sustaining a volunteer system where pride and community service thrives.
- Building community value and pride.
- Providing necessary services for the protection and well-being of the community.
- Reserving financial assets for other critical services that cannot be provided by volunteers.

The reality is that each community is left to determine:

- "What do I need to protect the community?"
- "How much will it cost?"
- "What are my funding sources?"
- "How do I deliver these services?"

The Senate Resolution 6 Final Report outlines several legislative actions that are recommended and have been introduced to the Legislature. Some of these recommended financial actions have been incorporated into this report as a reflection of what the team believes are essential actions to develop long term funding strategies needed to sustain fire and EMS services in Chester County.

1. Use financial and non-Financial Incentives to recruit and retain First responders.
2. Ensure minimum fire & EMS coverage through government partnerships at the local, county, and state levels.
3. Adjust EMS pay rates to allow for competitive compensation.

⁹⁵ Senate Resolution 6 Final Report (November 2018)

4. Simplify processes to regionalize fire & EMS Services in order to develop financial economies of scale to benefit local municipalities through cost containment in the delivery of emergency services.
5. Streamline audits of and awards to volunteer firefighter relief associations.
6. Protect funding and open eligibility for the Volunteer Loan Assistance Program (VLAP).
7. Clarify the definition of EMS relief associations.
8. Close loopholes in foreign fire Insurance tax.
9. Adjust funding streams for the Emergency Medical Services Operating Fund.
10. Update EMS payment policies including medical assistance (Medicaid) Rates.
11. Provide funding for basic Fire & EMS training at the commonwealth level.
12. Incentivize employees to permit trainees to attend fire and EMS Training.
13. Restore full-time equivalency (FTE) reimbursement for public safety training courses at community colleges.

In addition to the items listed above the pandemic has produced a grant program to support fire and EMS providers in Pennsylvania. The COVID-19 Grant 2020 was passed by the Pennsylvania State Legislature approved \$50,000,000 in additional grants for fire and EMS agencies during the COVID-19 pandemic of which; \$44,000,000 was allocated for eligible fire companies, and \$6,000,000 was allocated to EMS Services.

LOCAL FUNDING SOURCES AND ALTERNATIVES

The funding alternatives available at the local level vary widely, though the ability of the EMS administrator or fire chief to influence changes in these sources will vary considerably based on local preferences, politics, and to some extent even state and local laws. Some enterprising departments have found new revenue streams through the sale of services, or a more user-based fee schedule. A growing number of fire and EMS providers now offer subscriptions that their customers can pay annually that will relieve them of additional fees such as paying the balance that insurance companies will not pay for hospital transport.

The traditional local revenue sources include:

- **Taxes:** These include taxes on real property, personal income, and sales transactions. Other taxes include real estate-transfer taxes and utility-user taxes. New taxes can go into a municipality’s general fund to be allocated by elected officials or can be earmarked specifically for EMS and fire services.
- **Development Impact and User Fees:** These fees are charged to ensure that those benefitting from an activity pay their fair share of the costs related to that activity.
- **Fines, Forfeitures, and Citations:** Some jurisdictions now issue citations to those who engage in high-risk activities that may later require a rescue. Other areas dedicate a portion of fines to fund EMS and fire services.
- **Enterprise Funds and Utility Rates:** Local governments may establish an enterprise fund for municipally operated services. Ambulance service, for example, may be run like a municipal business where it is expected to earn revenue to support its operations.
- **Sale of Assets and Services:** Some EMS and fire agencies sell used equipment or services to produce revenue.
- **Benefit Assessments:** Special districts may be established for the purpose of supporting EMS and fire services. These districts can assess a benefit assessment like a property tax but based on the “benefit” received by each property. These charges are a way to circumvent property-tax limitations and can also improve the equity of charges for EMS.
- **Borrowing:** Municipalities have several options for borrowing revenue needed to purchase capital equipment and facilities including General Obligation bonds and Certificates of Participation.
- Not-for-profit organizations may have access to low-cost 501(c)(3) revenue bond financing or may take out a traditional bank loan.
- Other creative ways fire chiefs and EMS administrators have raised revenue for their agency include creating private ambulance company contracts to reimburse for fire-based EMS, billing for department-operated ambulance services, offering subscription programs, providing inter-facility transports, creating paramedic intercept agreements with surrounding communities, and piloting innovative healthcare programs.
- Time-tested fundraising efforts rural and volunteer fire and EMS agencies include Bingo, Monte Carlo Nights, Donut Days, Country Fairs, direct mail campaigns, firehouse

dinners, auctions, rental of fire halls for weddings and other social events, and door to door fundraising activities.⁹⁶ However, as has been noted in several locations in this report, these types of typical fundraising activities no longer interest the new generation of volunteer firefighters and EMTs, and, are rarely cost effective today. Any fundraising that the fire companies or EMS agencies engage in today should be to raise supplemental funding, not mission critical to their operations.

The on-line surveys and municipal questionnaires asked the question, “*who should be responsible for the primary funding for the provision of fire and EMS services?*”

	Fire EMS Provider Survey	Municipal Questionnaire	Local Officials' Survey	Citizen Survey
Commonwealth of Pennsylvania	4.9%	9.6%	3.6%	6.9%
Chester County	9.0%	11.5%	7.1%	9.5%
Local government/ municipalities	19.0%	21.2%	5.4%	9.7%
Fire and EMS agencies through fundraising	0.2%	9.6%	0%	0.9%
Combination of the above	66.9%	48.1%	83.9%	73.1%

Figure 180
 Survey Question Results
 Who Should be Responsible for Primary Funding for the Provision of Fire and EMS Services?

All three of the surveys asked a variation of the question, “*In your opinion are the fire department(s) and EMS agency/agencies that serve your local jurisdiction adequately funded and equipped?*”

- Local Officials: 50% replied Yes, and 50% replied No.
- Fire and EMS Providers: 44.5% replied Yes, 55.5% replied No.
- Citizen Survey: 21.3% replied Yes, 30.4% replied No, while 48.2% stated they did not know.

⁹⁶ F. (Ed.). (n.d.). *Funding Alternatives for Emergency Medical and Fire Services, April 2012* (Rep. No. FA-331). U.S. Fire Administration. doi: https://www.usfa.fema.gov/downloads/pdf/publications/fa_331.pdf



The citizen survey asked the question, “*would you be willing to pay higher taxes if your additional tax dollars were used to ensure the fire department(s) and EMS agency/agencies that serves you are adequately funded and equipped to achieve National Fire Protection Association (NFPA) benchmarks for service levels to the community?*”

- **Nearly three in four respondents, 73.7% stated Yes**, while just 26.3% stated No.

While a comparative study can evaluate the level of effort and ability of residents to pay, it is still difficult to measure residents’ willingness to pay over the long run. Caution should be used if looking for fixed answers using statistical comparisons on their face value alone. Every emergency service and every municipality has developed creative methods for service delivery and cost labeling based on specific needs.

The municipal managers questionnaire asked several questions about an emergency services tax.

- 47.1% stated their municipality has a local emergency services tax, while 52.9% do not.
- Of those that did not have one but would consider implementing one, 53.8% feel it should be at the local level and 46.2% feel at the County level.

The local officials survey asked if, “*consideration be given to an emergency services tax to assist with funding fire and EMS services throughout Chester County?*”

- 28% stated Yes, at the local level.
- 60% stated Yes at the County level.
- 12% stated No.

As with the level of fire and EMS protection provided, the determination of the exact amount of funding that each community contributes is usually a local decision. It is also important for the municipalities to remember that, without exception, fire companies and ambulance services are not profitable, similar to highway, police, and school districts. They provide a necessary service, which a portion of can be billed to insurance companies for EMS transport services.

It is the opinion of the MRI study team that there is significant inequity in the funding that various municipalities across the County allocate to their fire and EMS providers. While a rural township with just a few hundred residents would obviously not be expected to contribute the same amount of financing as a densely developed township in the County’s east end, everyone should be contributing something to the provision of these services. The MRI study team was informed that there are some municipalities who take the position with their fire and EMS providers of, “*who cares if we don’t give you any funding, help will come anyway when we need*

it". The lack of response and engagement by more than 40% of the County's municipalities would, at least to some degree, seem to support these types of concerns. The municipalities that do provide more appropriate levels of funding to their fire and EMS agencies also have concerns that they are supplementing more than their share of the agencies' operations because they are essentially underwriting the cost of the municipalities which do not want to contribute.

On the EMS side of operations, many fire companies that also operate EMS are finding they must contribute additional scarce financial resources to underwrite the cost of EMS operations. This is having the effect of placing the fire company finances in a more precarious position. While the MRI study team did not review any fire company financial records as part of this project, several of the stakeholders stated that if EMS funding cannot be fixed, it may eventually begin to either bankrupt fire companies, or force them to discontinue that service. In addition, several external environmental factors such as the structure of insurance payments and approved Medicare rates may produce substantial fluctuations in revenue as several changes are currently being considered. This includes both at the national, as well as the state level, where discussions are always ongoing regarding initiatives that are proposed to curb the escalating cost of healthcare. Every EMS provider must closely monitor these changes and develop contingency plans should any change negatively impact the revenue stream.

It is the opinion of the MRI study team that a County-wide tax to fund the provision of fire and EMS services in Chester County is the most equitable way to proceed. A County based tax would ensure that everyone who lives in the County and is protected by the fire and EMS agencies is contributing a share to the provision of those services. We believe that doing so would also bring more consistency to the delivery of services throughout the entire County rather than having vastly different levels on different sides of the same street due to multiple municipalities with different perspectives on funding their emergency services.

If Chester County were to enact a 1 mil tax to fund fire and EMS services throughout the County, it would generate about \$37,500,000 per year, nearly the total current cost of providing these services (as reported on the questionnaires). For a home with an assessed value of \$405,000, the median sale price of a home in July 2020, the homeowner would pay \$405.00 for fire and EMS services. Of course, a tax rate of less than 1 mil would reduce both the cost to taxpayers, as well as the amount of revenue generated. While there are various formulas utilized to determine how funding from these types of assessments are allocated to various entities, in this case the service providers, the most common one includes population, incident volume, and assessed valuation. Another method assesses a per-capita cost.

In addition, there are tens of thousands of people who work in Chester County but who live elsewhere who are protected by the fire and EMS agencies but provide nothing to their funding. If the County were to enact a fire and EMS tax of \$1.00 per week, or \$52.00 per year

for people who work in Chester County but do not live there, and assuming this would apply to 50,000 people, \$2,600,000 could potentially be raised.

Finally, thousands of people stay in Chester County every day for business or pleasure who are protected by the fire and EMS agencies but also provide nothing to their funding. There are currently 50 properties in Chester County that cater to these visitors. Those properties have a total of 4,231 rooms, with an average occupancy rate of 64.5%. If the County enacted a \$1.00 per night assessment onto each room for fire and EMS services, it would generate approximately \$996,083 in additional funding.

While no governing body likes to increase taxes, the fire and EMS services are a critical part of the safety net for citizens at the local level. But today, that safety net is being severely strained by multiple factors, not the least of which is the need for additional, consistent sources of revenue to fund operations and an ever increasing number of requests for service. The surveys that the MRI study team conducted during the course of this project indicate that the majority of those who participated would be willing to pay some level of increased taxes if they were dedicated to the fire and EMS delivery system. While education would need to be a big part of the process leading up to decisions regarding the implementation of new or additional taxes, in the end, MRI once again believes that the County is best positioned to ensure that the funding mechanisms are equitable and fair. We believe the potential long term benefits would significantly outweigh any negatives.

In many areas of Chester County, building and development is booming, whether commercial or residential. New subdivisions, multi-family housing, mixed use, commercial, retail, and industrial developments are being planned, constructed, modified, and enhanced. These developments need permits and approvals from municipalities, including special permits, variances, subdivision approvals, comprehensive permits, site plans, and building permits. This new growth brings tax revenue, but also impacts local services including the emergency services. The tax revenue from these projects, which goes into the general fund, or may not be realized for years due to tax abatements and other incentives, is often not sufficient to offset the anticipated impacts from a development, and is not targeted specifically to those impacts such as the increased call volume they will cause for the EMS provider. Increasingly, cities and towns in many states have sought to offset projected development impacts by requiring, as a condition of a permit, through a development agreement, or by local ordinance, that the applicant provide mitigation or impact relief to the municipality. This mitigation or impact relief can take a number of forms, including payment of a fee, providing off-site mitigation such as water, sewer or street improvements, or conveyance of easements or land to the municipality to address infrastructure impacts.

Impact fees are usually one-time assessments which may be applied by municipalities to new development to fund the expansion or construction of municipal facilities and infrastructure

that benefit the development. Impact fees may be collected to assist in funding construction of streets, sewers, water supplies, parks, schools, police and fire facilities, affordable housing, libraries, open space, or other capital facilities. Impact fees may usually only be imposed for future facilities and infrastructure needs. They provide a regulatory mechanism for generating revenue which will help to pay for new growth in a community and, therefore, are most useful for municipalities that are experiencing or are anticipating growth.

Impact fees help shift the burden of paying for new capital facilities and infrastructure from municipalities to new development and offer a pay-as-you-grow system for accommodating new development. They contribute to "concurrency" management by helping to fund facilities and infrastructure within a reasonable time of the construction of a new development. Therefore, impact fees help synchronize the construction of new or expanded development with the construction of new capital facilities. Impact fees may not pay for the entire cost of capital facility improvements, but they can help to defray those costs and may help communities to hold the line against large tax increases to fund such facilities. Under an impact fee system, new development pays a proportional share that is reasonably attributable to the new development, less credits and other adjustments. Under a typical impact fee system, the larger share of the cost of providing facilities is still paid from the municipality's general fund through a variety of taxes or from other financing sources. Impact fees may or may not be used to upgrade existing facilities which are serving the existing population.

An example of where this has worked is in nearby Upper Merion Township. The western most area of the township where rapid growth is still occurring particularly in the large Village at Valley Forge development was deficient in fire and EMS coverage. The township negotiated an agreement with the developer for the construction of a two bay, approximately 5,000 square foot fire and EMS station within that development. The developer will provide the land, construct the station, then lease it to the township for \$1.00 per year for 99 years.

It does not appear to the MRI study team that the imposition of general impact fees is currently permitted in Pennsylvania. It appears that impact fees are permitted for transportation related issues and are authorized for natural gas drilling and extraction operations. However, our research could not locate any information that these types of revenue generating fees are permitted, or conversely specifically prohibited. This is an area that municipalities that are experiencing significant growth, particularly large developments, should explore.

FEDERAL FUNDING SOURCES

In addition to sources of local revenue derived from taxes and other local government financial mechanisms, EMS agencies and fire companies may be able to obtain considerable funding from federal programs.

Grants are available from key federal agencies that can be used to secure alternative funding for fire protection, EMS, and disaster preparedness and recovery. The federal government is the largest source of grants for the fire and EMS services. There are more than 1,000 grant programs offered by 26 federal grant-making agencies. Since 9/11, billions of federal dollars have been made available to states, local fire departments and companies, and EMS organizations in the form of grants and funding programs for homeland security and related programs, including EMS.⁹⁷

Much of the Federal grant budget is passed to the states through formula or block grants. Examples include the Emergency Management Performance Grants (EMPG) and the Homeland Security Grant Program (HSGP). From there, it is up to the states to decide how to use the money. Although these grants are declining in recent years they should continue to be evaluated and if viable pursued.

There are, however, direct Federal grant programs to fire and EMS agencies such as the Assistance to Firefighters Grant (AFG), Fire Prevention and Safety Grants (FPSG), and the Staffing for Adequate Fire and Emergency Response (SAFER) Grant programs. These programs have been instrumental in providing funding to fire departments for apparatus, equipment, fire prevention and safety, and staffing through the SAFER Grant. The SAFER grant also provides funding to communities for recruitment and retention of volunteer firefighters and EMTs.

Many federal government agencies have their own grant or loan program. Each is intended to serve a particular purpose and comes with its own set of rules and program guidance. Understanding the various types of federal grants is important because the funding mechanism selected will influence the strategy employed to access the funds and how funds can be used. For example, many of the grants identified are competitive grants. A competitive grant, or project grant, is one where applicants vie for limited funds. Peer-reviewers score applications and money are awarded to those applicants with the highest scores. Federal grants may be direct or pass-through. Direct grants are given directly to the agency applying for it; whereas pass-through grants require the state to apply to the federal government, then the state hands out grant money to agencies that request it. Grants may be unrestrictive in terms of use, but usually come with specific guidelines stated in the program guidance.

Federal loan programs are also available as an alternative-funding source. Loan funds go directly to the applicant, which is responsible for repayment. The main advantage of a grant is that it does not have to be paid back if the conditions of the grant program are met.

Federal grants can be grouped into the following major categories.

⁹⁷ F. (Ed.). n.d.). *Funding Alternatives for Emergency Medical and Fire Services, April 2012* (Rep. No. FA-331). U.S. Fire Administration. doi: https://www.usfa.fema.gov/downloads/pdf/publications/fa_331.pdf

Block Grants

A block grant does not involve competition. The federal government simply distributes funds to the states based on an established formula. Formula grants flow directly to state agencies that sub-grant the funds through a proposal process or otherwise turn the funds over to local governments or nonprofit agencies.

Project Grants

Project grants are the most common form of federal grants. Depending on the program requirements, EMS organizations gain access to the funds through a competitive-bidding process. Application to a project grant does not guarantee an award and the amount received by grantees is not predetermined by a formula.

Demonstration Grants

Demonstration grants are pilot projects generally involving a small number of sites to learn more about the effectiveness of a new program. An effective demonstration grant program may lead to further funding in the form of discretionary or project grants. Demonstration grants are awarded competitively and can go to State or local governments or community-based organizations depending on the eligibility requirements.

Congressional Earmarks

Earmarks are explicitly specified in appropriations by the U.S. Congress. They are not competitively awarded and have become highly controversial because of the role of paid political lobbyists in securing them.

The document *Funding Alternatives for Emergency Medical and Fire Services by the U.S. Fire Administration FA-331/April 2012* contains several other funding resources and information relative to funding opportunities for the fire service. This manual is in the tool kit.

CONCLUSIONS

Costs to maintain a level of service that citizens have come to rely on will continue to escalate based upon several factors including:

- Declining revenues from fundraising by fire and EMS companies.
- Loss of volunteers to actively participate in fundraising efforts.
- Diminishing availability of volunteers to respond to emergency incidents necessitating the hiring of career personnel to supplement staffing.

- Limited funding from state and federal resources.
- Inconsistent, and in many cases, inadequate local funding.
- The expected economic downturn is based upon the recent pandemic.

The need to change to part-time or full-time staffing has created an additional fiscal burden on taxpayers and produced unexpected costs for municipalities. The funding models currently in place have provided funding to volunteer fire and EMS services for decades and has allowed this service model to continue to function. Clearly the need for change in the way funding is provided at the state and local level must be developed to prepare for the need to reconfigure emergency service models within Chester County. The funding sources available to volunteers should be centralized to assure all potential resources are known, made available, and benefit the stakeholders in Chester County. Developing a new strategic funding strategy is essential to support fire and EMS delivery agencies in Chester County.

In this era of extremely tight budgets, where every governmental entity is looking for alternative revenue streams to offset declining tax receipts, there are many other sources of potential revenue that the fire companies, EMS agencies, and the municipalities that they serve may want to explore and consider implementing. Among these are grants, both public and private, public/private partnerships, fire prevention business registration, inspection and permit fees, billing insurance companies for response to motor vehicle accidents, registration fees for fire alarm systems, and the issuance of penalties for those whose systems generate repeat false alarms.

The fire companies and EMS providers also need to recognize that if they are going to request, and be the recipients of, additional public funding regardless of the source, they will need to significantly increase the transparency of their financial records. They will need to fully open their books to public review, file detailed annual budgets and financial reports with whatever governmental entity is providing the funding, and implement internal procedures and controls to ensure they are making the most effective and efficient use of the funds they are provided. There is little chance that many municipalities will agree to increased funding of the fire and EMS delivery systems without also greater control over how those funds are expended.

RECOMMENDATIONS:

XVI-1: The fire companies and EMS agencies of Chester County should continue to attempt to negotiate for increased levels of funding for fire operations, EMS operations, and capital projects from the municipalities they serve in order to adequately fund long-term operational and capital funding needs of their organizations. Increased funding levels will be critical to the continued success of every fire and EMS organization.

- XVI-2:** *The fire companies and EMS agencies of Chester County should, with their member municipalities, explore the feasibility of developing and implementing more equitable funding formulas to better balance overall funding between municipalities. One possible formula could use assessed value, population, and call volume, or a per capita cost, to determine funding. This is an area where the Chester County Municipal Managers Consortium and the Chester County Association of Township Officials can provide assistance and support.*
- XVI-3:** *The fire companies and EMS agencies of Chester County should continue to explore alternative sources of funding for the company such as grants, public/private partnerships, etc. stressing the increasing costs of their operations.*
- XVI-4:** *The fire companies and EMS agencies of Chester County should continue to actively search for grant opportunities. Grants for fire protection, fire safety, fire prevention, domestic and emergency preparedness, and homeland security may be available from federal, state, corporate, and foundation sources. Whenever possible, and with the support and assistance of the Chester County Fire Chiefs Association, Chester County EMS Council, Inc., Chester County Fire Police Association, Chester County Municipal Managers Consortium, Chester County Association of Township Officials, and The Chester County Department of Emergency Services, the grant applications should be submitted collaboratively to increase the chances of success, if applicable.*
- XVI-5:** *The fire companies and EMS agencies of Chester County should actively seek out businesses in their response areas that may be interested in establishing public/private partnerships that could provide, or assist with, funding for various programs, projects, or initiatives.*
- XVI-6:** *The fire companies and EMS agencies of Chester County and the governing bodies of the municipalities they serve should explore potential ways to generate additional revenue to offset both fire company and ambulance operating costs. Consideration could be given to billing insurance companies for response to motor vehicle accidents, registration fees for fire alarm systems, the aggressive pursuit of non-residents who have been billed for ambulance transportation, and, the implementation of a fee for ambulance responses that do not result in a transport.*
- XVI-7:** *Working collaboratively the Chester County Fire Chiefs Association, Chester County EMS Council, Inc., Chester County Municipal Managers Consortium, and Chester County Association of Township Officials, with support from the Chester County Department of Emergency Services should conduct a review of the various funding resources from the federal, state, county, and local municipalities that are provided for the delivery of fire and EMS services. A per capita cost should be developed from this*

information to assist with strategic planning efforts towards future service delivery models.

- XVI-8:** *Working collaboratively the Chester County Fire Chiefs Association, Chester County EMS Council, Inc., Chester County Municipal Managers Consortium, and Chester County Association of Township Officials, with support from the Chester County Department of Emergency Services should develop strategic options to encourage regional service delivery and support local staffing needs during the low availability of personnel. Based upon the level of support needed, a financial cost analysis can be used to develop financial resource identification and if necessary seek an increase in revenue to support fire companies and EMS agencies that are forced to change their emergency service delivery models due to the inability to continue providing the services currently in place.*
- XVI-9:** *If future legislation allows, the County of Chester should explore the feasibility of enacting a Fire and EMS tax to provide centralized support for Chester County fire and EMS operations.*
- XVI-10:** *If future legislation allows, the County of Chester should explore the feasibility of enacting a fire and EMS assessment on people that work in Chester County. This would produce a revenue stream to support Chester County fire and EMS operations.*
- XVI-11:** *If permitted, Chester County fire and EMS organizations should work with local municipalities to consider the adoption fees, for large new developments, that would be directed toward the fire and EMS delivery system.*
- XVI-12:** *As a best practice, Chester County fire companies and EMS agencies should ensure the transparency of their financial records to stakeholders and funders.*
- XVI-13:** *Chester County fire companies and EMS agencies should implement internal procedures and controls to ensure they are making the most effective and efficient use of the taxpayer generated funds they are provided. This includes seeking multiple quotes for purchases, preparing open specifications for major purchases, and requiring a fair and open competitive bidding process for major capital expenditures. This is an area where the Chester County Municipal Managers Consortium and the Chester County Association of Township Officials can provide assistance and support.*

CHAPTER XVII

COMPARATIVE JURISDICTIONS

As part of this study, the MRI study team prepared a benchmarking and comparative analysis survey for distribution to a few comparable communities. This was done to meet the specification in the project scope of work that states:

- Identify how Chester County Fire and EMS agencies compare to other similar-sized departments/localities in terms of:
 - ❖ Staffing levels including the past, present, and projected future
 - ❖ Duplication of resources
 - ❖ Funding levels
 - ❖ Coverage areas

Benchmarking and comparative analysis is a process that compares specific data points within similar agencies or jurisdictions, and, is an effective way of making general comparisons between similar communities and identifying trends and patterns, but there are limitations as to how the data should be used. The purpose of this process is to provide a perspective relative to the organizational practices of other similar entities. Ideally, a community would utilize this information to identify needed change and through paced action, work incrementally toward implementation.

The MRI study team developed appropriate points of comparison for benchmarking and comparative analysis. The data provided by these jurisdictions is just one of several tools that MRI is providing to Chester County to assist them with understanding how their emergency services delivery system compares to organizations serving other similar sized jurisdictions. This information indicates how other similar jurisdictions address the areas of interest identified. Allowing them to view their emergency services operations in comparison to other jurisdictions will allow Chester County and its diverse stakeholder groups to have some different perspectives to utilize for comparison as they make decisions for determining the future course of the County's emergency services delivery system.

The methodology for calculating various data categories may vary from community to community and jurisdiction to jurisdiction, so this can have an impact on the comparison. For example, a fire department budget in one community might not include personnel benefit costs, which would skew the comparison. In the past, MRI has encountered departments that have used different formats to assign incident numbers to emergency calls, or that also assign these numbers to routine activities such as public education programs, inspections, and training. As such, when reading and trying to interpret the information in this section of the report it is important to consider that the specific details for the data used could only be extracted with a more detailed and in-depth study of those communities.

All the emergency services organizations contacted (100%) actively responded and provided the data that is included in this study. It should also be noted that while some responses were complete, others either did not supply or lacked the ability to provide the full data set requested. Not every fire and EMS organization maintains or collects the entire set of data requested.

There are similarities between each of these jurisdictions and their fire and EMS delivery systems, but it should be noted that there are also differences in how each jurisdiction delivers fire and EMS services. Each jurisdiction and its fire and EMS organizations provide emergency and other public services based on the expressed desires of that community and its citizens. What may be effective in one community or jurisdiction may not be in a neighboring one. The ability of fire and EMS organizations to provide the services desired by the community they serve is based on its available funding and resources.

The jurisdictions that the MRI study team selected to use for comparison are:

- Gloucester County, NJ (EMS only)
- Loudoun County, VA
- Anne Arundel County, MD
- Prince William County, VA
- Volusia County, FL

It is also important to note that exact comparisons are difficult, because in Maryland, Virginia, and Florida the County has a much larger role in governing as many areas are unincorporated areas of counties as opposed to Pennsylvania where all land is located within an incorporated municipality. As such, these counties have direct control over the provision of fire and EMS services. Gloucester County, NJ, is like Chester County as the entire County consists of incorporated municipalities. It is the opinion of the MRI study team that of these comparison jurisdictions, Gloucester County, NJ, and Loudoun County, VA, are those that are closest to Chester County's needs and should be studied closest as the recommendations contained within this report are considered and implemented.

GLoucester County, NJ (EMS only)

Population: **291,636** (2019)

Area Served: **337.2 Square Miles**

Department name: **GLoucester County Emergency Medical Service**

Type of department: **9-1-1 BLS Service**

Number of units in service: **Peak Hours: 14 BLS Ambulances, 3 Quick Response Vehicles (QRVs) staffed with 1 EMT, 2 Supervisors.**

Non-Peak Hours: 11 BLS Ambulances, 2 Quick Response Vehicles (QRVs) staffed with 1 EMT, 2 Supervisors.

QRVs are deployed in more rural areas of the County where low call volume might not justify the deployment of an additional ambulance.

Additional ambulances are staffed as needed for community events, inclement weather, or periods of increased call volume.

ALS Units: 4 hospital based (Inspira Health System) non-transport units 24/7

Total number of career personnel: **250 Full/Part Time Employees**

Total EMS calls – 2019: **Approximately 30,000.** Increasing 3% per year.

Total EMS budget: **\$10,000,000.00 including \$1,000,000.00 capital.**

EMS station ownership: **County leases space from fire companies or municipalities for deployment points.**

Gloucester County EMS (GCEMS) commenced operations on September 30, 2007 as the first, and as of mid-2020, still the only County-wide EMS system in New Jersey. The catalyst for the implementation of the system was concern expressed by several mayors in the County over increasing response times for EMS services. The mayors approached the County Board of Chosen Freeholders (NJ equivalent to the County Commissioners) who commissioned a study on the feasibility of establishing a County-wide EMS service. As with any regional or County-wide initiative of this type, one of the biggest early hurdles was getting buy-in and support from local officials wary of losing control.

Initially, GCEMS served ten communities who generally had two reasons for deciding to join:

1. They were unable to manage their own service effectively.
2. They already had career staff and wanted to relieve themselves of that direct expense.

The service is funded as a line item in the County budget, so all residents of the County pay for it regardless of whether their municipality participates. Regionalization has also shifted the financial burden from municipal budgets to the County, thus distributing the financial cost of this service in a more equitable way. Since its inception, system efficiency has been perceived as equally important to quality of service. In 2008, the ten municipalities that initially joined in GCEMS in September of 2007 reported budgetary savings of \$2,649,259.00.

As of mid-2020, 22 of the County's 24 municipalities utilize the services of GCEMS. The Chief anticipates that the final two municipalities will join in 2021 or 2022.

The Board of Chosen Freeholders has established the CAAS standard of having an ambulance on scene within eight minutes, fifty-nine seconds (00:08:59) as the service benchmark. However, GCEMS consistently has an average response time of under six minutes (00:06:00).

GCEMS utilizes a dynamic staging model of operation, assisted by AVL, to continuously redeploy available staffed ambulances (those crews that are currently not on a call) in anticipation of additional calls for service. By moving crews around based upon call volume, GCEMS can better assure uniform coverage throughout their coverage area. This deployment strategy potentially lowers actual response times to subsequent incidents and permits crews to arrive at the patient's location more quickly and efficiently.

GCEMS currently has a total fleet of 34 ambulances and multiple support vehicles.

One of the challenges that GCEMS is facing is finding an adequate number of qualified EMS personnel. To help offset this challenge the County provides a one-year (one day per week) training academy to potential employees at no cost to them. In return for receiving free EMT certification training, the students must agree to work for the agency at least part-time, for a minimum of three years. The final three months of the academy primarily involves the students gaining practical experience by riding as a third crew member on an ambulance at least 16 hours per week. There are three full-time personnel dedicated to the academy, and two additional who handle clinical updates and training.

GCEMS also provides a significant amount of provider education to other agencies throughout the County. An annual symposium that was forced to be online in 2020 by COVID-19 still drew 750 participants. They also sponsor "Dialogue with a Doc" monthly where personnel can discuss various topics with doctors and other specialists. An alliance with an organization called MD I allows emergency department physicians to periodically ride with EMS crews to gain a better understanding of street level care and needs.

LOUDOUN COUNTY, VA

Population: **413,538** (2019)

Area Served: **521 square miles**

Department name: **LOUDOUN COUNTY COMBINED FIRE AND RESCUE SYSTEM**

Type of department: **Combination Fire and EMS**

Number of stations: **21**

Total number of volunteer personnel: **400 - 500**

Total number of career personnel: **475 - 500**

Minimum/max per shift: **130 - 140**

Total fire calls – 2019: **6,000** (Approximate) Total EMS calls – 2019: **24,000** (Approximate)

Total emergency incidents – 2019: **30,000** (Approximate)

Total fire/EMS budget(s): **\$72,000,000.00**

All stations staffed 24/7: **No**

If not, how many are?: **15** (All stations will most likely be staffed 24/7 within the next two years.)

For stations that are not staffed 24/7 by career personnel, what hours do they staff the stations:

Three options:

- **Monday – Friday: 6:00 AM to 6:00 PM**
- **7/12: Seven days a week: 6:00 AM to 6:00 PM**
- **24/7**

How are those hours determined?: **Cooperative effort between the volunteer fire company and the County fire and rescue department.**

Are there any stations that are still staffed totally by volunteers (no career staff)?: **No**

Are the volunteer personnel regulated by the County?: **Yes. The County used to have a Fire Commission which was comprised of six volunteer members and the Fire Chief. The Commission would monitor companies missing calls, put stations on notice regarding unacceptable responses and try to provide assistance with remediation. That function is now handled by County fire and rescue staff.**

Does the County have minimum training standards for volunteer participation in operations?: **Yes. Training standards are identical for career and volunteer except for EMT. Volunteer personnel can take up to 18 – 24 months to complete training and obtain certification.**

Who owns the fire/EMS stations?: **County owns seven, with three more in the process of being acquired as part of rebuild projects.**

Who determines the need for staffing/staffing levels at volunteer stations including the hours a station may be staffed?: **Cooperative effort between the volunteer fire company and the County fire and rescue department. Requests for increases in career staff for units or hours must be made at least 18 months in advance of projected deployment.**

Does the department provide EMS?: **Yes** Level: **ALS**

Are all career personnel cross trained fire and EMS?: **Yes**

Number of volunteer EMS personnel: **300** (Approximate)

How many fire units do you normally staff?:

Engines: **18**

Ladders: **4 - 5**

Rescues: **5**

Water Tankers: **8 - 9**

TOTAL number of units in system:

Pumpers: **33**

Ladders: **6**

Rescues (non ems): **5**

Ambulances: **44**

Water Tankers: **15**

Other Units: **3**

Do you have minimum staffing on your fire units?: **Yes**

If so, what?:

Engines: **3**

Ladders: **4**

Rescues: **4**

Water Tenders: **1**

Do you utilize part-time/per diem personnel?: **No**

Can volunteer personnel be utilized toward minimum staffing of fire units? If yes, what are the qualifications for them to do so: **Yes. County utilizes a parallel rank structure with career and volunteer personnel required to meet the same standards. The only exception was that until recently, volunteer personnel were not required to get an NFPA 1582 *Standard on Comprehensive Occupational Medical Program for Fire Departments* physical.**

Does each fire unit have an officer?: **Yes**

How many EMS units do you normally staff?: **21**

BLS:

ALS: **Mostly ALS units**

Do you take personnel off fire units to staff additional EMS units for simultaneous EMS incidents?: **Yes, based upon discretion of station officer.**

Do you take personnel off EMS units to staff fire units for fire incidents?: **Yes, for tankers.**

Who provides funding for the purchase of apparatus (engines, ladders, rescues, ambulances, etc.)?: **The County provides a budget each year with allocations for each fire company and rescue squad. The allocation is based upon call volume and number of units. The minimum allocation is \$130,000.00; however, several companies receive close to \$1,000,000.00 annually. The Commonwealth also provides some additional aid to localities.**

Does the apparatus purchased need to meet County specifications?: **Yes. County schedules the replacement of volunteer company apparatus. There are two funding formulas that can be selected. If the County funds 100% of the vehicle it is painted in County colors, is lettered for Loudoun County, and the County holds title. The other option is a 51% (County)/49% (fire company) funding split. Under this option the company can use their colors, their name, and hold title to the vehicle.**

Do volunteer companies need to obtain County approval before purchasing new apparatus particularly specialty units such as ladders/quints, etc.?: **Yes. If they purchase a type of apparatus that does not fit the master plan, County will not recognize it for dispatch.**

Do volunteer personnel staff stations with in-station duty crews?: **Yes. All stations except one do. They are not mandatory at this time.**

How are your chief officers – career battalion and/or deputy chiefs – volunteer company chiefs/assistant/deputy chiefs – integrated into the command structure on emergency incidents?: **If a volunteer company chief is operationally qualified by the County, they are considered to be equivalent to a career battalion chief and can command incidents in their company's own first due area. Certain company chiefs who have completed a County qualification process can serve as a recognized County battalion chief. Volunteer lieutenants and captains must also meet certain standards to be recognized at the County level. For all ranks this includes an up to date NFPA 1582 physical.**

How are volunteer fire company officers selected?: **Volunteer companies can still elect their own chief. However, unless he/she meets minimum County standards they cannot be an operational chief, they can only be administrative.**

Are volunteer officers required to meet certain minimum training/ certification/testing standards to be formally integrated into the command structure? **Yes. As established by the County.**

In 1990, so just 30 years ago, Loudoun County had 12 career firefighters. However, rapid growth and development as the National Capitol Region expanded westward was straining the ability of the volunteer fire and EMS service to continue to provide an adequate level of service delivery with an increasing number of requests for service. There were also companion issues with the professionalism of services that were delivered. Between 1990 and 2000, the number of career personnel increased to about 100, as they supplemented between 1,200 to 1,400 qualified volunteers who were still active.

By around 2000, some, but not all stations were being staffed with career personnel Monday through Friday from 6:00 AM to 6:00 PM. The most common staffing configuration was three personnel on an engine, and two on an ambulance. Leesburg Fire Company also had three members on the ladder truck, and Leesburg Rescue Squad staffed their units with two paramedics. The Leesburg Rescue Squad was the first organization with 24/7 career staffing consisting of two paramedics. The volunteers did duty crews to provide night and weekend coverage. No station had career staff deployed to it without the approval of that fire company and all requests for staffing needed an 18-month lead time. The County and volunteer fire

company enter into a formal memorandum of understanding regarding the deployment of career personnel.

By 2000, the County also had a Director and Assistant Director of fire and EMS services. However, these personnel had no operational authority, they were strictly administrative. During this time, a reported house fire resulted in the dispatch of three companies; however, it did not include any specific resources such as ladders or rescues. Chiefs from the second and third due company would not take command in another district even if that company's chief was not on the scene.

In approximately 2004/2005 the County appointed a career County Fire Chief as permitted under Virginia Title 27. However, for several years after that volunteer fire company Chiefs continued to outrank even the career County Assistant Fire Chief. As noted above, this scenario has been gradually changed in the subsequent years.

Over the past 20 years, several volunteer organizations have become defunct. In approximately 2004, Loudoun County opened the first County-owned station in partnership with the Arcola Volunteer Fire Company.

Throughout these years of transition one of the things that Loudoun County has noted is that the best fire company Chiefs led the best organizations and had several attributes that they shared. These include, they had effective organizational structures in their company, they enforced the rules and maintained discipline, they supported training and ensured their personnel trained, and they worked to ensure good relationships between the career and volunteer personnel.

ANNE ARUNDEL COUNTY, MD

Population: **537,234** (2019)

Area Served: **588 square miles**

Department name: **ANNE ARUNDEL COUNTY FIRE DEPARTMENT**

Type of department: **Combination fire and EMS**

Number of stations: **31**

Total number of volunteer personnel: **1,512 – 710 riding members, both fire and EMS.**

Total number of career personnel: **931**

Minimum/max per shift: **2 – 7** (per station)

Total fire calls – 2019: **24,834**

Total EMS calls – 2019: **53,433**

Total emergency incidents – 2019: **78,267**

Total fire/EMS budget(s): **\$122,647,000.00**

All stations staffed 24/7: **No.**

If not, how many are?: **30**

For stations that are not staffed 24/7 by career personnel, what hours do they staff the stations:

Monday through Friday 7:00 AM to 3:30 PM

Are there any stations that are still staffed totally by volunteers (no career staff)?: **No.**

Are the volunteer personnel regulated by the County?: **Yes. They follow County wide regulations, procedures, and chain of command up to County Fire Chief.**

Does the County have minimum training standards for volunteer participation in operations?: **Yes. Training standards are the same for both career and volunteer personnel.**

Who owns the fire/EMS stations?: **County = 19. Volunteer companies = 12**

Who determines the need for staffing/staffing levels at volunteer stations including the hours a station may be staffed?: **County Fire Chief.**

Does the department provide EMS?: **Yes.** Level: **ALS**

Are all career personnel cross trained fire and EMS?: **Yes. Both career and volunteer personnel.**

How many fire units do you normally staff?:

Engines: **31** Ladders: **9** Rescues: **6** Water Tankers: **0**

TOTAL number of units in system:

Pumpers: **31+** Ladders: **9** Rescues (non ems): **9**
Ambulances: **42** Water Tankers: **7** Other Units: **10**

Do you have minimum staffing on your fire units?: **Yes.** If so, what?: **3**

Do you utilize part-time/per diem personnel?: **No.**

Can volunteer personnel be utilized toward minimum staffing of fire units? If yes, what are the qualifications for them to do so: **Yes. Career and volunteer both must meet the same standards.**

Does each fire unit have an officer?: **No.**

How many EMS units do you normally staff?: **31**

Do you take personnel off fire units to staff additional EMS units for simultaneous ems incidents?: **No.**

Do you take personnel off EMS units to staff fire units for fire incidents?: **Yes.**

Who provides funding for the purchase of apparatus (engines, ladders, rescues, ambulances, etc.)?: **County. However, some volunteer companies still do their own fundraising and purchase their own apparatus and equipment.**

Does the apparatus purchased need to meet County specifications?: **Yes.**

Do volunteer companies need to obtain County approval before purchasing new apparatus particularly specialty units such as ladders/quints, etc.?: **Yes.**

Do volunteer personnel staff stations with in-station duty crews?: **Yes.**

How are your chief officers – career battalion and/or deputy chiefs – volunteer company chiefs/assistant/deputy chiefs – integrated into the command structure on emergency incidents?: **Seamlessly. In AA County it works very well.**

How are volunteer fire company officers selected?: **By election of their company membership and approval of the County Fire Chief.**

Are volunteer officers required to meet certain minimum training/ certification/testing standards to be formally integrated into the command structure? **Yes. If they are going to have operational authority, they need to meet the same training and certification requirements as career County officers of a commensurate rank.**

PRINCE WILLIAM COUNTY, VA

Population: **470,335** (2019)

Area Served: **348 square miles**

Department name: **Prince William County Department of Fire and Rescue**

Type of department: **Combination Fire and EMS**

Number of stations: **21**

Total number of volunteer personnel: **500** (Approximate)

Total number of career personnel: **750** (Approximate)

Minimum/max per shift: **185**

Total emergency incidents – 2019: **50,000** (Approximate)

Total fire/EMS budget(s): **\$173,000,000.00**

All stations staffed 24/7: **Yes.**

Are there any stations that are still staffed totally by volunteers (no career staff)?: **No.**

Are the volunteer personnel regulated by the County?: **Yes. The County career Fire Chief oversees both career and volunteer personnel (Chapter 9.2 County Code). “Strong Chief Model”.**

Does the County have minimum training standards for volunteer participation in operations?: **The County has a uniform rank structure, requiring all personnel to meet minimum standards based on the rank in which they serve. This includes both career and volunteer personnel.**

Who owns the fire/EMS stations?: **Some are County owned, some are volunteer owned. County owned stations are staffed by 100% career personnel and paid for via the fire & rescue fiscal year budget. Volunteer owned stations have a mix of career and volunteer staffing but are owned and operated by volunteer companies and funded through the fire levy and fundraising.**

Who determines the need for staffing/staffing levels at volunteer stations including the hours a station may be staffed?: **Volunteer organizations determine which volunteer crews staff units. The department has deemed volunteer staffing hours to be Monday - Friday 6:00 PM to 6:00 AM, and 24 hours on weekends and holidays.**

Does the department provide EMS?: **Yes.** Level: **ALS**

Are all career personnel cross trained fire and EMS?: **Yes, all career staff are a minimum of FF/EMT-B.**

How many fire units do you normally staff?: **40 (Includes Engines, Trucks, Rescues, Tankers, Safety Officers, Battalion Chiefs, Division Chief (Shift Commander))**

Engines: **21** Ladders: **4** Rescues: **3** Water Tankers: **4**

TOTAL number of units in system:

Pumpers: **21+** Ladders: **6** Rescues (non ems): **6** Water Tankers: **6**

Do you have minimum staffing on your fire units?: **Yes.** If so, what?:

Engines: **3** Ladders/Rescues (Technical Rescue): **4**

Ladders/Rescues (Non-Technical Rescue): **3**

Do you utilize part-time/per diem personnel?: **No.**

Can volunteer personnel be utilized toward minimum staffing of fire units? If yes, what are the qualifications for them to do so: **Volunteer and Career staff do not combine crews unless prior arrangements are made, however, volunteer personnel cannot be used towards minimum staffing on career units.**

Does each fire unit have an officer?: **Yes.**

How many EMS units do you normally staff?: **14 Career ALS Ambulances. Volunteer EMS unit staffing varies daily.**

Do you take personnel off fire units to staff additional EMS units for simultaneous EMS incidents?: **No.**

Do you take personnel off EMS units to staff fire units for fire incidents?: **No.**

Who provides funding for the purchase of apparatus (engines, ladders, rescues, ambulances, etc.)?: **Department budget purchases County owned (career) units. Volunteer Fire Levy/Fundraising purchases volunteer units.**

Does the apparatus purchased need to meet County specifications?: **Yes, there is a standard specification on all apparatus. All apparatus purchases must be approved by County apparatus committee before order can take place and must be inspected prior to being placed in service.**

Do volunteer companies need to obtain County approval before purchasing new apparatus particularly specialty units such as ladders/quints, etc.?: **Yes, they must be approved by apparatus committee.**

Do volunteer personnel staff stations with in-station duty crews?: Are they mandatory? **Yes, in station duty crews are mandatory for volunteer staffing. No home response/POV response.**

How are your chief officers – career battalion and/or deputy chiefs – volunteer company chiefs/assistant/deputy chiefs – integrated into the command structure on emergency incidents?: **Closest battalion chiefs are added to the incident. Depending on the time of day, there could be all career battalion chiefs, or a mix of career and volunteer battalion chiefs.**

How are volunteer fire company officers selected?: **N/A**

Are volunteer officers required to meet certain minimum training/ certification/testing standards to be formally integrated into the command structure? **Yes, all officers must meet the County uniform rank structure requirements to hold specific ranks.**

VOLUSIA COUNTY, FL

Population: **535,884** (2018)

Area Served: **1,432 square miles**

Department name: **Volusia County Fire Rescue (VCFR)**

Population protected by VCFR: **131,799** (2018)

Area Served by VCFR: **1,126 square miles**

Type of department: **Combination**

Number of stations: **20**

➤ **18 - VCFR**

- ❖ **Each station has one front line fire suppression unit.**
- ❖ **2 stations cross-staff an EMS transport unit.**

- ❖ **Some stations have brush trucks, tenders etc. all cross staffed.**
- **1 - Daytona Beach International Airport station staffed by VCFR.**
- **1 - Volusia County owned facility staffed by Flagler County.**
 - ❖ **1 Engine, staff of 3**

Total number of volunteer personnel: **50**
 Total number of career personnel: **193**
 Minimum/max per shift: **56**
 Total emergency incidents – 2019: **16,760**
 Total fire budget: **\$47,999,864.00** (Operations and capital)
 All stations staffed 24/7: **Yes.**

Are the volunteer personnel regulated by the County?: **Yes. They must meet the same medical and training standards as career personnel.**

Does the County have minimum training standards for volunteer participation in operations?: **Yes. Florida state statutes which specify minimum competencies for firefighters.**

Who owns the fire/EMS stations?: **County.**

Does the department provide EMS?: **Yes.** Level: **ALS fire suppression units.**

Are all career personnel cross trained fire and EMS?: **Yes.**

How many fire units do you normally staff?:

- **VCFR front line response units**
 - ❖ **8 - Engines**
 - ❖ **4 - Tender-Engines (1750 tanks, CAFS, drop tanks, quick dumps)**
 - ❖ **2 - Rescue-Engines (cross staffed at two stations-EMS transport units)**
 - ❖ **3 - Heavy Squad-Engines**
 - ❖ **1 - Light Squad-Engine**
 - ❖ **1 - Haz-Mat Engine**
 - ❖ **1 - 55' Squrt**
 - ❖ **1 - 75' Ladder-Quint**
 - ❖ **4 - Battalions**
 - ❖ **1 - Shift Commander**

Do you have minimum staffing on your fire units?: **Yes.** If so, what?: **2 - 3**

Do you utilize part-time/per diem personnel?: **No.**

Can volunteer personnel be utilized toward minimum staffing of fire units? If yes, what are the qualifications for them to do so: **No.**

Does each fire unit have an officer?: **Yes. Lieutenant.**

Who provides funding for the purchase of apparatus (engines, ladders, rescues, ambulances, etc.)?: **County.**

How are volunteer fire company officers selected?: **No volunteer officers remain that meet training standards.**

Volusia County has 16 independent cities, of which 12 have their own fire departments. VCFR serves the unincorporated areas of the County and three cities through inter-local agreements. There are departments that share resources through auto aid-closest unit response (not all inclusive of all departments). Mutual aid is shared through one inter-local agreement. VCFR began as a volunteer fire department protecting the unincorporated areas of County. In 1984, the volunteer force consolidated into six geographic quads consisting of four taxing entities. In 1986, VCFR was formed as a County department with a single dependent taxing district for the unincorporated areas and three small municipalities who remained a part of the fire district.

EMS is provided through a third service by Volusia County.

Department name: **Volusia County Emergency Medical Services (VCEMS)**

Total number of career personnel: **219**

Total emergency incidents – 2019: **73,632**

Inter-facility Transports – 2019: **50,091**

Total EMS budget: **\$26,579,184.00** (Operations and capital)

Number of units: Peak Hours: **28 - 9-1-1 ALS Ambulances, 4 - Inter-Facility Transport Units**

Non-Peak Hours: **12 - 9-1-1 ALS Ambulances, 1 - Inter-Facility Transport Unit.**

Non-peak hours = 12:00 AM to 5:30 AM

E-9-1-1 Nurse triage 12 hours/day Monday-Saturday

Five city fire departments also provide EMS through an inter-local agreement with the County. Each has a single ambulance; four are 24/7, one is 12/7.

VCEMS uses dynamic deployment and AVL.

STAFFORD COUNTY, VA

One other jurisdiction that is worth mentioning, although with an estimated 2018 population of 149,960 in 280 square miles is not comparably sized is Stafford County, VA. It is worth looking closer at since where they are at now could provide Chester County with some career staffing benchmarks to attempt to achieve within the next several years. Stafford County continues to be one of the fastest growing counties in Virginia. Stafford County ranks as the 7th wealthiest County in the country according to the U.S. Census (2010). In 2006, and again in 2009, Stafford was ranked by Forbes magazine as the 11th highest-income County in the United States.

The Stafford County Fire and Rescue Department is a combination volunteer/career system consisting of approximately 200 active volunteers and 138 career staff operating from 13 stations in partnership with 14 volunteer fire/rescue or EMS squads. The department operates in two battalions with 18 engines, four ladder trucks, three heavy rescue squads, 20 ambulances, three fire-rescue boats, and various other support equipment to respond to more than 13,000 emergency calls annually. Daily career staffing includes six paramedic transport units, four fire suppression apparatus, one battalion chief and one deputy chief. Daily volunteer staffing typically includes two engine companies. Qualified volunteer chief officers routinely respond and command incidents in cooperation with County command officers.

CHAPTER XVIII

REGIONAL FIRE AND EMS SERVICE OPPORTUNITIES

Government is a monopoly usually defined by geography, and our geographic boundaries, often laid-out a century or more ago that frequently determines what services we receive and who provides them. In some cases, the provision of services, particularly volunteer emergency services, commenced in response to a community void that was filled by the local citizens. This protection was often targeted to small, specific areas with little to no consideration given to the larger area or “big picture”. In other cases, multiple fire companies (more so than the ambulance or EMS squads) were formed in the same community due to political splits within the original organization, or even due to long ago discrimination against certain ethnic or racial groups. In many cases, the traditional deployment of resources and provision of services has not kept pace with the changing and evolving needs of the community particularly those that have experienced significant growth or other major changes in their demographics.

A June 2005 report prepared by the Pennsylvania Legislative Budget and Finance Committee titled *“The Feasibility of Regionalizing Pennsylvania’s Volunteer Fire Companies”* notes *“Pennsylvania has more fire companies than any other state and, in some cases, multiple fire companies in close proximity are resulting in the unnecessary and inefficient overlap and duplication of firefighting resources”*⁹⁸.

In most forms of municipal government residents of the community, the voters/stakeholders/taxpayers, choose the elected officials who will represent their interests and serve as the governing body. A key question that should be asked is: *“If taxpayers could choose their public services, would they choose the services they receive today?”* This question can grow even more complicated when the emergency services providers, both fire and EMS, are autonomous or independent organizations.

The idea of giving up total local control is always a proposition that gives elected officials and their constituents pause and has been one of the obstacles to true regionalization or consolidation particularly in the northeast where small communities, and the time honored concept of home rule, are deeply ingrained in their cultures. However, the constantly escalating costs of attempting to provide the same level of service is becoming a more and more difficult task. Scarce tax dollars that have been stretched to the limit are now in real danger of tearing or breaking. And no one can predict the long-term economic costs and implications of the COVID-19 pandemic. Smaller communities which have far fewer resources and options than their larger neighbors will find it especially difficult to cope within the limitations imposed by the new financial reality. The continuing trend of declining volunteerism

⁹⁸ <http://www.newpa.com/download/feasibility-of-regionalizing-pa-volunteer-fire-companies-house-resolution-148/?wpdmdl=56795>

will create simultaneous challenges that will stretch the provision of emergency services in many communities even farther.

It is important to understand that regionalization and consolidation although often used interchangeably are quite different. Regionalization occurs when two or more jurisdictions share the cost for a service or item. Consolidation occurs when jurisdictions combine their personnel and their inventory into a single entity. Consolidations are typically more costly than just leaving things as they were (although there still may be good reasons for them). The reason is that any labor costs involved in a consolidation trend toward those of the highest-paying entity being consolidated, and the "overhead" savings from shedding management and administrative staff are seldom realized⁹⁹.

Forms of Regionalization in the DCED Process
Consolidation: The combination of two or more companies which results in the termination of all companies and the creation of a new company with a new name. All assets and liabilities of the former companies are transferred to the new company.
Merger: The combination of two or more companies which results in all but one relinquishing its name. All assets and liabilities of joining companies are transferred to the surviving company.
Association: Agreement of two or more companies to combine and administer similar activities through an umbrella organization. Does not normally involve transfers or combination of assets, as most costs of operations or programs are shared. In some instances, associations may be a prelude to a merger or consolidation.
Regionalization: Although the term "regionalization" can and is used to generically refer to almost any form of regional partnership or joint venture, DCED uses the term in a specific sense in its Shared Municipal Services Program. As used by DCED, regionalization is the combination of some assets of two or more companies to accomplish specific objectives and tasks. Each participating company retains its identity.

Figure 181
Pennsylvania Department of Community and Economic Development definitions of various forms of regionalization or shared services.

Notwithstanding these types of limitations, regionalization can often provide better services, at a better overall cost to the citizens. If implemented properly, regionalization can successfully:

⁹⁹ <http://mrsc.org/Home/Stay-Informed/MRSC-Insight/November-2012/Regionalizing-Local-Government-Services.aspx>

- Lower costs and increased efficiencies.
- Increase purchasing power, allowing for higher-end acquisitions.
- Improve access to state and federal grants.
- Increase citizen satisfaction.

One of the keys to successful regionalization is to understand what not to do. There are plenty of ideas for regionalization that, at first glance, are wonderful. The trick is to triage these and pick the ones that really will work for each specific organization¹⁰⁰. **In addition, when dealing with volunteer emergency services personnel, the governing bodies need to be certain to include them in every step of the process and be aware of the potential ramifications of making changes they do not fully support or buy into.** While the governing body should not be held “hostage” by threats to quit if the decision does not go their way, they do need to understand that volunteers have a much different level of investment than career personnel do and thus it is more difficult to mandate changes such as a forced regionalization or consolidation.

Like many other communities, particularly suburban communities that may have existed since colonial times but only experienced major growth and development in the past half century, fire and EMS services in Chester County are currently provided through a broad network of primarily independent fire companies and EMS organizations whose service areas are seldom defined strictly by municipal political boundaries. The latter fact can complicate any discussions on regionalization even further. Through a robust system of automatic and mutual aid they can handle a wide range of incidents that without assistance may be beyond their capabilities to handle. In fact, in most communities, all of Chester County included, automatic or mutual aid is often required to handle even the proverbial “bread and butter” type of house fire involving just one or two rooms. More significant incidents and incidents in larger, more complex structures, require a greater commitment of resources and additional assistance.

When automatic and mutual aid become an integral and in fact mission critical component of daily operations it is probably time to consider what the next logical step is to better integrate those operations. During another fire department study that we conducted several years ago a firefighter in the community informed us that through frequent inter-jurisdictional training and exercises, and strong automatic and mutual aid agreements and responses, “*we already are in reality a County fire department, we just need to change the names on our trucks and the patches on our sleeves*”. This same scenario is found throughout the Philadelphia and Wilmington suburbs and all over both Pennsylvania and New Jersey. One needs only look to the Baltimore and National Capital Region metropolitan areas to observe a number of extremely successful County-wide fire departments, all of them combination fire departments with

¹⁰⁰ <http://mrsc.org/Home/Stay-Informed/MRSC-Insight/November-2012/Regionalizing-Local-Government-Services.aspx>

various approaches to career/volunteer integration, that provide exemplary service to their citizens.

Chester County already provides several County-wide services to the fire and emergency medical services. Primary among these is providing fire and emergency services dispatching and communications to all the fire and EMS organizations. They have also provided each organization with mobile and portable radios, pagers and other technology needed to perform their duties more effectively, efficiently, and safely. The County also provides a state-of-the-art public safety training facility and focuses on standardized training. It also provides specialized emergency response assets and equipment that are deployed at strategic locations throughout the County. They coordinate several deployable specialty teams including fire task forces, foam task force, EMS strike teams, incident support team, technical rescue team, hazardous materials response team, and a comprehensive CISM and peer support team. Finally, the County provides fire investigation assets to all County municipalities.

In addition to the County-wide assets which are staffed by members from fire and EMS organizations throughout the County, there are some additional more localized specialty teams such as ones that can perform surface and swift water rescue operations.

The reluctance of local officials to cede control is one of the primary reasons that steps toward consolidation of services and regionalization have been slow to catch on in many places in the northeast. Pennsylvania has made some inroads in that regard however, particularly with respect to the emergency services. The legislative report *“The Feasibility of Regionalizing Pennsylvania’s Fire Companies”* noted that between January 1997 and December 2004 a total of 23 successful mergers and consolidations occurred involving 58 volunteer fire companies in 34 different municipalities. There were also additional efforts being considered that involved 188 fire companies in 104 municipalities¹⁰¹. There have been numerous ones since then including the York Area United Fire and Rescue in 2008, Garden Spot Fire Rescue in 2012, and Keystone Valley Fire Department in Chester County in 2013.

Robert McCoy, Chief of the York Area United Fire and Rescue in York County shares simple advice for any local departments that are considering consolidation: ***“Put public safety before monetary concerns and be prepared for a long, drawn-out consolidation process. I fully, truly believe in the concept of regionalization and the concept of shared services as long as the safety of residents comes first”***. McCoy cautions that communities should not consider consolidation for the sake of saving money. That process likely will not result in immediate savings. Savings stem from bulk purchasing and capital purchases that would cost a regional department less than it would for neighboring communities to make duplicate purchases¹⁰².

¹⁰¹<http://www.newpa.com/download/feasibility-of-regionalizing-pa-volunteer-fire-companies-house-resolution-148/?wpdmdl=56795>

¹⁰² <http://standardspeaker.com/news/york-area-chief-shares-experience-in-creating-regional-fire-department-1.1467623>

Under the York area model, member communities turned all emergency service responsibilities over to the regional department, which is recognized as an intergovernmental agency capable of applying for its own grants. **Of great importance when considering the impact of regionalization on volunteer members, fire stations were encouraged to embrace their respective identities, even though they now operate as a single unit.**

The Pennsylvania Department of Community and Economic Development (DCEP) supports that concept when they note: ***“As used by DCED, regionalization is the combination of certain assets of two or more companies to accomplish specific objectives and tasks. Each participating company retains its identity.”***

Although consolidation efforts do often focus primarily on saving money, Jeff Wertz, Co-Executive Director, North Hudson Regional Fire & Rescue in New Jersey once noted, ***“the number one charge that we had in putting this (regionalization of the North Hudson Fire & Rescue Department) together is not how much money it was going to save, but will it save lives and provide a better fire protection to our citizens.”***

In a February 2000 article in Fire Chief Magazine, then Assistant Fire Chief Robert Giorgio noted that the consolidation of six independent fire districts into the Cherry Hill, NJ Fire Department in 1994 brought about specific improvements for the community including stronger incident command, higher staffing levels, first responder EMS, an expanded role for volunteers, certification-based training, improved training facilities, a streamlined organization, a newer apparatus fleet, savings on day-to-day supplies, and centralized record keeping¹⁰³. Giorgio pointed out ***“The true measure of our success is the performance and commitment of our department’s members”***¹⁰⁴. However, he also cautions, ***“Whether consolidation is carried out for reasons of economy, efficiency, or both, you’re certain to experience a period of organizational uncertainty following such transition”***¹⁰⁵.

The legislative report notes, ***“Mergers, consolidations and other forms of regionalization of fire services are feasible and have significant potential to do much to enhance and perpetuate the volunteer fire system in Pennsylvania and could go a long way toward addressing many of the issues and challenges currently facing volunteer fire companies”***. It is the belief of the MRI study team that Chester County has a need for a more regional approach to fire and EMS service delivery. Chester County has too much apparatus and significant unnecessary duplication of various assets such as ladders and rescue trucks. It would seem logical that fewer, more strategically placed resources, with better staffing and training (companies can specialize more without the need to be generalists) can make more effective use (not

¹⁰³ Giorgio, R. (2000, February). The consolations of consolidation. Fire Chief Magazine, 106-115.

¹⁰⁴ Giorgio, R. (2000, February). The consolations of consolidation. Fire Chief Magazine, 106-115.

¹⁰⁵ Giorgio, R. (2000, February). The consolations of consolidation. Fire Chief Magazine, 106-115.

necessarily reducing) of financial resources which can ultimately result in improvements and enhancements to existing service levels.

A series of articles in June 2019 in the Sentinel of Carlisle, PA examined issues related to fire company consolidation in Cumberland County, PA. Links to these articles are found in Appendix Z-5. From an article in the series titled, *“Better together?: Fire companies try to overcome the fear of mergers”* it noted that when many people hear merger they hear obliteration of tradition and history, power struggles, and inter-municipal squabbling¹⁰⁶. According to Carlisle Fire and Rescue President Michael Snyder, firefighting is primarily about keeping the public safe, but there is also a communal aspect that makes firehouses feel like family and is part of what some volunteer firefighters’ value. He believes it is critical to have the ability to explain and change gradually, instead of issuing top-down edicts, because that often results in increased opposition and pushback¹⁰⁷. **It has been well documented that when mergers are forced upon emergency services entities, they often do not go smoothly.**

In the same article, Jerry Ozog, Executive Director of the Pennsylvania Fire and Emergency Institute, states that consolidation or merger issues often come down to control. He states, **“For consolidation of different organizations to come together, everyone has to give something up”**¹⁰⁸. Taking a step back from the details that can bog down mergers, Ozog believes fire company leaders should not forget a simple fact: the goal is to serve the public, which needs effective fire and emergency services no matter where it comes from¹⁰⁹. Ozog goes on to state that, **“If done right, regionalization can actually help with recruitment and retention because there is a centralized administration that can focus its resources on that goal. That’s particularly true when it comes to recruiting millennials who are less concerned about local history and identity”**¹¹⁰. “The young guys don’t care about that stuff,” he said. “They like the physical aspect of being a firefighter”¹¹¹.

In another article in the same series, *“Better Together?: Frederick County leader touts single-chief, County-wide fire service”* the single County-wide fire department in Frederick County, MD, with a population 258,000, is discussed. Frederick County’s Fire and Rescue Services Division consists of 450 career firefighters who ensure even coverage throughout the County, working side-by-side with the volunteers. The article notes that there are still 25 independent

¹⁰⁶ https://cumberlink.com/news/hold/better-together-fire-companies-try-to-overcome-the-fear-of-mergers/article_8fc13332-0350-5dcd-8407-7daf282dfc95.html

¹⁰⁷ https://cumberlink.com/news/hold/better-together-fire-companies-try-to-overcome-the-fear-of-mergers/article_8fc13332-0350-5dcd-8407-7daf282dfc95.html

¹⁰⁸ https://cumberlink.com/news/hold/better-together-fire-companies-try-to-overcome-the-fear-of-mergers/article_8fc13332-0350-5dcd-8407-7daf282dfc95.html

¹⁰⁹ https://cumberlink.com/news/hold/better-together-fire-companies-try-to-overcome-the-fear-of-mergers/article_8fc13332-0350-5dcd-8407-7daf282dfc95.html

¹¹⁰ https://cumberlink.com/news/hold/better-together-fire-companies-try-to-overcome-the-fear-of-mergers/article_8fc13332-0350-5dcd-8407-7daf282dfc95.html

¹¹¹ https://cumberlink.com/news/hold/better-together-fire-companies-try-to-overcome-the-fear-of-mergers/article_8fc13332-0350-5dcd-8407-7daf282dfc95.html

volunteer fire corporations with more than 2,000 volunteers that operate as independent businesses, but the County’s career contingent has “seamless” integration with those companies¹¹². Tom Coe, the County’s Deputy Chief of Emergency Services notes there are some challenges — including determining each community’s financial responsibility and dealing with minimal levels of inter-municipal squabbling — but it has bigger benefits¹¹³.

The SR 6 report candidly states ***“Fire and EMS service agencies are failing or are going to fail, while it is important to do what is possible to shore up the existing system, we must also look to the future of potential regional or County-wide emergency services.”*** The report recommends looking to other states, like Virginia, as a model for a system in which career firefighters could handle most calls and volunteers will still be called when more manpower is needed.

There are already multiple regional endeavors in place in Chester County. The County’s 73 municipalities are served by just 12 regional school districts, several of which even traverse County boundaries. Multiple police departments provide coverage to more than one municipality through inter-local agreements including the Southern Chester County Regional Police Department. The key to these types of efforts gaining traction is to convince the local politicians and governing bodies that the benefits to regional approaches outweigh the perceived negatives associated with a partial loss of local control.

For fire and EMS services, the Keystone Valley Fire Department was officially formed as a regional entity on March 19th, 2013 when the Pomeroy, Parkesburg, and Atglen fire companies voted to disband their individual organizations and consolidate operations in the new department. This was the culmination of a process that had begun four years earlier in 2009. The governing bodies of the four municipalities involved approved an Intergovernmental Cooperation Agreement (ICA) in August 2012, that approved the formation of the Keystone Valley Regional Fire District (the official governing body of the new operation) provided appropriate agreements had been executed with the various fire companies that would disband to form the new regional department. The consolidation of resources was estimated to save Keystone Valley more than \$188,000.00 annually and produce more than \$1,800,000.00 in long-term savings. Consolidating services also was projected to improve emergency response time to the surrounding communities.

The Governor's Center for Local Government Services (GCLGS), housed within DCED, aided with the consolidation. GCLGS provides technical resources and assistance for companies considering mergers, consolidations, or regional efforts, and serves as a resource for local

¹¹² https://cumberlandlink.com/news/local/closer_look/better-together-frederick-county-leader-touts-single-chief-countywide-fire/article_27cdc74a-3dac-5272-a300-5ffa2389214a.html

¹¹³ https://cumberlandlink.com/news/local/closer_look/better-together-frederick-county-leader-touts-single-chief-countywide-fire/article_27cdc74a-3dac-5272-a300-5ffa2389214a.html

government officials, developers, and citizens interested in planning to improve, grow, and enhance communities.

As one stakeholder noted, ***"The consolidation was made possible by the coordinated efforts of the fire companies and the municipalities to achieve one goal: to enhance and ensure consistent and efficient emergency services in the area served by Keystone Valley Fire Company"***. Although Keystone Valley has experienced some challenges including a loss of volunteer personnel who previously served in the Atglen and Pomeroy fire companies who perceived the new department as too Parkesburg centric, overall, it has met expectations.

The Keystone Valley Regional Fire District was recognized as part of the 17th annual Governor's Awards for Local Government Excellence with an award for intergovernmental cooperation. The Governor's Awards for Local Government Excellence are presented annually to communities and individuals by the Governor's Center for Local Government Services, an office within the Department of Community and Economic Development that works to assist Pennsylvania's 2,562 local governments. In total, eight local government leaders and 12 communities across the state received awards.

In the Kennett Square area, the Kennett Regional Fire and EMS Commission is an inter municipal regional commission serving six municipalities: Kennett Square Borough, Kennett Township, East Marlborough Township, Newlin Township, Pennsbury Township, and Pocopson Township. These municipalities are protected by three fire companies: the Kennett Fire Company, the Longwood Fire Company, and the Po-Mar-Lin Fire Company, while two ambulance divisions—Kennett and Longwood—handle the EMS services. The six municipalities share the responsibility to fund the three fire companies and two ambulance divisions, and the Kennett Regional Fire and EMS Commission, which was created in January 2018 for an initial three year term, was charged with creating a multi-municipal approach to analyze the area's needs and to develop a strategy on how to meet those needs. The Commission also oversees funding for operating and capital expenses for the fire companies and EMS services. During the MRI study team's interviews with various stakeholders, the success and effectiveness of this endeavor received mixed reviews. However, at that point it was less than two years old, so more time is definitely needed to determine its level of success and effectiveness.

Although not officially designated as regional entities, there are several fire and EMS providers in Chester County that provide primary protection to multiple municipalities, some as many as five or six. We believe that some of these have long demonstrated that fewer, more strategically placed resources, with better staffing and training, can make more effective use of financial resources, which ultimately result in better service levels.

The MRI study team believes that as part of the concept that long-range strategic plans are living and evolving documents that must be continually evaluated, revised, and updated as necessary, that the municipalities within Chester County, and the fire and EMS agencies that serve them should give consideration to entering into discussions with other local governments and emergency services organizations to explore the possible opportunities for a more regional approach to the delivery of their fire, rescue and EMS services. There are numerous resources that can assist municipalities and fire and EMS providers with undertaking this type of endeavor such as:

- The Governor’s Center for Local Government Services (GCLGS) provides technical and financial assistance to support cooperative partnership ventures, including mergers, consolidations, and regional fire and emergency services operations.
- Fire Department Consolidation, Why & How to Do It...Right by VFIS (Volunteer Fireman’s Insurance Services) in York, PA.
- New York Department of State. "How to Consolidate Fire Protection in Fire Districts, Fire Protection Districts, and Villages."

One of the challenges that confront municipalities and fire and EMS organizations that might want to consider regionalization is that current Pennsylvania law remains outdated and is not conducive to easily accomplishing these initiatives. Recommendation 8, of SR 60 from 2004 recommends legislation to: *“Authorize/Enable Regional Fire/EMS Board/District/Authorities”*, which would provide optional organizational structure and a consistent revenue generating system. In notes that multiple states including New Jersey, New York, Florida, and Colorado have these systems. In an update provided in SR 6 it states that no action has been taken but notes, *“much of this recommendation can be achieved by signing an Inter-Municipal Agreement”*.

The status update on the recommendation from SR 60 notwithstanding, Recommendation 6, of SR 6 recommends, *“Simplify Process to Regionalize Fire and EMS Services”*. The report identifies the issue that, *“Communities/regions/counties may wish to organize their delivery of fire and EMS services in a regional/county fashion which is not traditionally supported by Pennsylvania statutes and regulations”*. It suggests that the resolution to this issue is, *“statutes/regulations/policies necessary to enable counties or other regional organizations to form county-wide or region wide fire and EMS through regional boards/fire-EMS authorities, or districts. This would include enabling legislation to permit counties to organize and tax to provide these services”*. SR 6 notes that much of this has been, or is under development, in the Commonwealth of Virginia.

New York currently has a bill that has been introduced in the state legislature that would amend general municipal law to allow any county, city, town, or village to *“establish a special district for the financing and operation of general ambulance services”*. However, the bill

appears stalled. In the interim though, the state’s Municipal Restructuring Fund gave rural Essex County, which had hoped to form an EMS special district county-wide with taxing powers, \$2,280,000.00 for initial small-scale implementation of the first phase of a four-phase plan to consolidate the County’s local ambulance services into a county-wide system. If the small-scale implementation is successful, the Municipal Restructuring Fund has additional funding available for the County to complete the EMS consolidation. This is the type of pilot program that would be ideal to be initiated in Chester County.

In Washington State, a popular form of fire and EMS service delivery and governance is through the formation of a Regional Fire Authority (RFA). Officially designated as a Regional Fire Protection Service Authority (RFPSA abbreviated to RFA) is a special purpose district created by the vote of the people residing in the proposed district. Its boundaries are coextensive with two or more adjacent fire protection jurisdictions (fire district, city, town, port district, municipal airport, or Indian tribe). It is a municipal corporation, and an independent taxing authority and district. Under Washington law if two or more entities can agree on a recommendation to form an RFA, voters decide whether to form it, and if so, approve how it is funded. RFAs are generally governed by a commission appointed by the elected officials of the municipalities involved and are usually proportional to the population and financial investments of the member jurisdictions. It is not uncommon after several years of operation for multiple RFAs to then consolidate into a single larger RFA that can provide even more enhanced levels of service.

In Pennsylvania there has been some preliminary discussion regarding introducing legislation that would permit the creation of Regional Public Safety Authorities. Under the authority model the provision of services could be governed by a contract or shared services agreement. Conceptually the Public Safety Authority could provide:

- Funding
- Centralized purchasing
- Administrative and financial Services
- Grant support
- Regional coordination or direct management

Fire and EMS agencies that are participants could provide:

- Direct services
- Standards of cover
- Higher degree of regional cooperation

The MRI study strongly supports the continued exploration of this option as a potential long-term system that might work in Chester County. Once again, with its proactive focus, Chester County could also be an excellent candidate for implementation of a pilot program. Appendix Z-6 provides some preliminary conceptual information on this model of fire and/or EMS delivery system.

While we certainly understand that true regionalization of services in Chester County is realistically probably at least several years away, and maybe longer, these are major decisions that will affect generations to come. The time to start discussions and exploring possible options is now, not five to ten years into the future. Entering into discussions now is particularly important for any community that is looking at major capital investments as it may help to determine the correct course of action to take regarding new, existing and/or relocated/consolidated stations, and, to a lesser extent the purchase of fire apparatus. While there are many hurdles to be overcome toward regionalization it is a path definitely worth traveling down. Perhaps the need to consider these options is best summed up by Shippensburg Fire Chief Randy O'Donnell when he stated, ***“We recognize that if we don’t make significant changes in how we operate, we’re going to fail as leaders”***¹¹⁴.

The MRI study team views the Chester County fire and EMS services as proactive in planning for the future, and we believe they can be a true leader and trail blazer in Pennsylvania’s emergency services delivery system. There is no reason they cannot continue to fulfill that proactive role by initiating these discussions among the various stakeholders.

An issue that is closely related to automatic and mutual aid, and to a wider extent regionalization, is the training of departments and personnel who are participating. This issue was discussed in detail in Chapter XIII – *Training and Professional Development*. It is certainly not unreasonable for the fire companies to expect that personnel coming into their response area on automatic and/or mutual aid be required to meet certain minimum training requirements provided they are valid and reasonable.

Considering consolidation of multiple entities, or the development of a shared services partnership, requires a well thought out, phased approach. The success of shared services in the Northeast is somewhat limited based on fiscal, political, and culture issues that develop as a partnership is explored. Therefore, to attain success in consolidation, or the development of a shared services project, a realistic timeframe must be established, and all stakeholders should be involved as the project is developed.

The largest benefit derived from the development of a consolidation, or shared service model, is most often an increase in the level of service provided to both communities. Although many believe that the primary benefit is a cost reduction created by the economy of scale, MRI’s collective experience indicates that consolidation and shared services projects are usually developed based on a service level issue. Therefore, cost reduction may be a secondary

¹¹⁴ https://cumberlink.com/news/hold/better-together-fire-companies-try-to-overcome-the-fear-of-mergers/article_8fc13332-0350-5dcd-8407-7daf282dfc95.html

benefit. It should be noted that the level of savings attained is usually well below the expectations of those that believe consolidation of operations is a fiscal silver bullet.

Benefits of consolidation or shared service development often includes the following:

- A larger pool of personnel to respond to emergencies.
- Elimination of municipal service boundaries.
- Decreased response times.
- During periods of high activity, a consolidated organization may allow for more effective deployment of apparatus and avoidance of extended response times.
- The ability of consolidated departments to create uniform procedures to serve a larger geographic area (as opposed to several independent companies with their own procedures covering the same area) produces higher efficiency and enhanced safety to firefighters, EMTs, and paramedics.
- Proponents also argue that consolidation of several small companies can present an important opportunity to establish a strong organizational culture in a new department that replaces outdated standards and norms and emphasizes best practices.

As discussions are initiated between the potential partners regarding consolidation or shared services, current organizational configurations and costs should be documented. The second level of consideration is to determine the extent and configuration of a shared services model. Finally, the potential partners would need to determine how a proposed consolidation or shared services model would impact their respective communities. This includes determining budgets, staffing levels, coverage in the community, response times, and the use of existing resources. This will entail a multi-phase process:

- **Planning Phase** – Decisions regarding participation, funding formulas, organizational structure, governance model, and human resources issues occur in this phase.
- **Implementation/Transition Phase** – Activating the newly agreed upon consolidation or shared service model.
- **Post Consolidation/Shared services Phase** – This is the time immediately after activation of the newly consolidated system or shared service.

- ❖ Service and technology issues are common during this phase.
- ❖ Not usually indicative of the long-term success of the shared service model.
- ❖ Keeping these issues in proper perspective is vital.

RECOMMENDATIONS

XVIII-1:*Working collaboratively, the Chester County Commissioners, Chester County Fire Chiefs Association, Chester Council EMS Council, Inc., Chester County Fire Police Association, Chester County Municipal Managers Consortium, and Chester County Association of Township Officials should lobby their commonwealth legislative delegation to introduce and aggressively pursue legislation to implement Recommendation 6 of SR 6: “Simplify Process to Regionalize Fire & EMS Services”.*

XVIII-2:*Working collaboratively, the Chester County Commissioners, Chester County Fire Chiefs Association, Chester Council EMS Council, Inc., Chester County Fire Police Association, Chester County Municipal Managers Consortium, and Chester County Association of Township Officials should engage in further discussions regarding the feasibility and potential benefits to seeking the introduction of legislation that would allow the creation of Public Safety Authorities.*

XVIII-3:*The municipalities of Chester County and fire and EMS organizations that serve them should try to identify potential partners, and then attempt to enter in discussions on more regional approaches, including shared services, to the provision of fire and EMS services.*

XVIII-4:*Any municipalities and/or fire and EMS organizations that are interested in exploring consolidations and/or shared services should engage the services and resources of the Pennsylvania Department of Community and Economic Development and the Governor’s Center for Local Government Services to seek to identify additional potential partners/opportunities for regionalization and/or shared services and then work collaboratively with them to attempt to move them from vision to reality.*

XVIII-5:*Any discussions regarding opportunities to regionalize or share services by the fire and EMS services MUST involve fire company and EMS stakeholders in every aspect of the process and must get their buy-in for there to be any realistic chance of success.*

XVIII-6:*The potential formation of any regional fire and/or EMS delivery system in Chester County, even eventually a possible County-wide configuration, should allow the individual fire companies and EMS agencies to maintain their own unique identities as part of the overall system.*

XVIII-7: Any potential consolidation of multiple fire and EMS entities into new regional fire and EMS organizations should be handled as a merger of equals rather than an acquisition.

CHAPTER XIX

STRATEGIC PLANNING ON A LOCAL, REGIONAL, AND COUNTY LEVEL

The future delivery of fire and EMS services in Chester County requires an innovative approach, active stakeholder driven participation, and the ability to implement long term strategic plans within a manageable timeframe that deliver quantifiable results.

Strategic planning is an organizational management tool that produces fundamental decisions and actions that:

- Shapes and guide what an organization is,
- who it serves,
- what it does,
- and why it does it, with a focus on the future.



Figure 182: Strategy Plan Development
Image credit: MTDTraining.com

Strategic planning is an organization’s process of defining its direction and making decisions relative to the optimization of limited resources to pursue a strategy. During the strategic planning process priorities are established and set. The strategic plan is also instrumental to identify control mechanisms which guide implementation of the strategy. Effective strategic planning articulates not only where an organization is going and the actions needed to make progress, but also how it will know if it is successful.

The history of strategic planning dates back hundreds of years and was derived from the word “strategy,” which was used heavily in warfare. Originating from the military leaders’ strategic planning, two critical facts that remain unchanged through generations are the emphasis in thinking about the big picture, watching closely as things vary, bearing in mind all possibilities, and concentration on absolute and steady enduring aims to be attained.

Strategic planning became prominent in corporations during the 1960s as the business world caught on to the positive attributes of strategic planning, and corporations both large and small began to plan intrinsically. Nearly a half century later it remains an important aspect of strategic management. It is executed by strategic planners or strategists, who involve many parties and research sources in their analysis of the organization and its relationship to the environment in which it competes.¹¹⁵ As the process developed corporations started to engage lower-level leaders and division supervisors with the executive or senior-level management in planning.

¹¹⁵ Mintzberg, Henry; Quinn, James B. (1996). *The Strategy Process: Concepts, Contexts, Cases*. Prentice Hall.

This led to a broader cross section of stakeholders being engaged in the planning process, which is a remarkable difference from the military models of yesteryear. ¹¹⁶

In the 1980s, as the reform of public sector agencies was in the air, people were seeking a more result-oriented and cost-conscious approach to public management practices, and strategic planning was introduced. This was a result of the recognition that business and government are alike in that goals and objectives should be embraced for any progressive results. ¹¹⁷

Strategic planning has many definitions, but generally involves setting strategic goals, determining actions to achieve the goals, and mobilizing resources to execute the actions. A strategy describes how the ends (goals) will be achieved by the means (resources). The senior leadership of an organization is generally tasked with determining strategy, however the input of all stakeholders in shaping the strategy must become part of the strategic planning process. Strategy can be planned (intended) or can be observed as a pattern of activity (emergent) as the organization adapts to its environment or competes. ¹¹⁸ The strategy currently in place in Chester County appears to be a progressive and forward thinking one, by virtue of the fact that the County's main fire and EMS organizations were the ones who requested this study be performed. Through this document, it is our goal to assist Chester County's fire and EMS organizations in moving toward an even more planned, or intended, strategic posture.

Strategy includes processes of formulation and implementation; strategic planning helps coordinate both. However, strategic planning is analytical in nature (i.e., it involves "finding the dots"); strategy formation itself involves synthesis (i.e., "connecting the dots") via strategic thinking. As such, strategic planning occurs around the strategy formation activity. ¹¹⁹

Strategic implementation is analytical in nature and involves identifying how to best reach a goal or desired outcome. The recommendations contained in this document form the framework for action and indicate where change is necessary. The strategic implementation process considers the intricacies of the organizational environment including the following:

- **Inputs** – information utilized to formulate recommendations
- **Outputs** – development of a plan of implementation
- **Outcomes** – that require evaluation

¹¹⁶ Lentz, J. (2019, September 23). Benefits of Strategic Planning in Today's Fire Service. *FIRERESCUE*. com: <https://firerescuemagazine.firefighternation.com/2019/09/23/benefits-of-strategic-planning-in-todays-fire-service/#gref>

¹¹⁷ Lentz, J. (2019, September 23). Benefits of Strategic Planning in Today's Fire Service. *FIRERESCUE*. com: <https://firerescuemagazine.firefighternation.com/2019/09/23/benefits-of-strategic-planning-in-todays-fire-service/#gref>

¹¹⁸ Mintzberg, Henry; Quinn, James B. (1996). *The Strategy Process: Concepts, Contexts, Cases*. Prentice Hall.

¹¹⁹ Mintzberg, Henry; Quinn, James B. (1996). *The Strategy Process: Concepts, Contexts, Cases*. Prentice Hall.

Inputs

Data is gathered from a variety of sources, such as interviews with key fire and EMS service personnel, review of pertinent data and documents on the community, service demand, desired service level, standard of response cover selected, organizational performance, and observations gathered through field visits. Inputs are then collected to help support an understanding of the environment and its opportunities and risks. Other inputs include an understanding of the values of stakeholders. These values may be captured in an organization's mission statement, and in the observed organizational culture which provides an emergent perspective on the actual values present within an organization. The inputs gathered during the organizational analysis form the basis for each of the recommendations that have been developed.

Outputs

The output of strategic planning includes documentation and communication describing the organization's strategy and how it should be implemented, sometimes referred to as the strategic plan. The strategy may include a diagnosis of the competitive situation, a guiding policy for achieving the organization's goals, and specific action plans to be undertaken for the implementation of the recommendations listed. A strategic plan may cover multiple years and is a flexible document that should be updated periodically.

Outcomes

The strategic planning process produces outputs, as described above; the implementation of the strategic plan produces outcomes. Ultimately, the implementation of the recommendations contained in this report will produce significant change and place the organization on an intended path. Change within a public sector organization typically produces some level of initial skepticism, discomfort, and places personnel in a situation that is unfamiliar. As the process of implementing change moves forward, each action often elicits a reaction. Therefore, the team working to implement desired organizational change should be ready to address unanticipated outcomes, which often manifest themselves as barriers to continuous change. The process of implementing change should be considered a learning process.

Performance measures should be easily understood and easily calculated. Suggested performance measures for the fire and EMS services often have a range depending on local factors. The point of the performance measures is to identify the community's expectations in a quantifiable way, and to use the measurement of the fire and rescue's performance against these objectives to identify areas, which may need improvement, or require additional resources.

One approach to safeguarding support from all stakeholders, especially officials charged with producing an annual budget, is the implementation of a strategic plan. The engagement of all stakeholders in this process provides inclusion, which leads to buy-in and support for the agency.¹²⁰

Fire, rescue, and EMS operations and service delivery can be dramatically improved in those departments that commit resources to goal setting, strategic planning, risk assessment, and performance measurement. A number of tools and resources are available to guide management in these efforts from organizations such as the US Fire Administration (USFA), National Fire Protection Association (NFPA), International Association of Fire Chiefs (IAFC), International Association of Fire Fighters (IAFF), Center for Public Safety Excellence (CPSE), and U.S. Department of Transportation (USDOT). Resources are also available at the state level. A 2006 Volunteer Fireman’s Insurance Service (VFIS) report notes:

“No business is successful without some type of strategic planning – making sure that the business will survive. The emergency service organization (ESO) is no different. Strategic Plans in business (and ESOs) lay the ground-work for effective organizational management and performance.”¹²¹

The fire service, particularly the volunteer fire service, has a long and proud history which is based on traditions, dedication, and a steadfast sense of pride. The journey the volunteer fire service has taken over many decades has served their communities well. Today, many of the customs the fire service has developed over the years struggle to be maintained and considerable effort continues to be expended to maintain these tenets particularly in volunteer organizations. The fire and EMS services will continue to embrace these traditions and customs some of which provide the very foundations of the emergency services; however, that realization will need to be integrated with the reality that to continue meeting the demands of today’s emergency services will require innovation, forward thinking, and a commitment to embrace the inevitable changes with the same commitment and drive as demonstrated over the many decades of service to the community. Organizations that do not anticipate and embrace change will end up being reactive, and the changes will be forced upon them.

Lentz in his 2019 article, *“Benefits of Strategic Planning in Today’s Fire Service”* opined that in today’s fire service and economic times, the need for strategic planning is greater than ever before. From large metropolitan fire departments receiving grants in the millions to hire firefighters all the way to Irwin, Pennsylvania, where the fight over a proposed \$16,000.00

¹²⁰ Lentz, J. (2019, September 23). Benefits of Strategic Planning in Today's Fire Service. *FIRERESCUE*. com: <https://firerescuemagazine.firefighternation.com/2019/09/23/benefits-of-strategic-planning-in-todays-fire-service/#ref>
¹²¹ <http://www.msfa.org/content/recruit/file/CEO%20MANUAL%20ARIAL%20-%20disc.pdf>

budget cut will force a small rural fire company to cut services, firefighters are feeling the budget squeeze, but the service demands often continue to increase.

As has been previously discussed in this report, traditionally, many municipalities in Pennsylvania have provided only limited financial support to their local fire and EMS providers. Because the amounts they contributed were generally small and it was to a highly regarded community organization, oversight of those funds was typically minimal. However, as costs for apparatus and equipment have skyrocketed and traditional fundraising is often no longer cost effective, an increasing number of organizations have come to the realization they lack the means to accomplish what needs to be done, and the local governing body gets more involved or engaged. That results in a reactive, crisis management approach that can impact the credibility of the emergency services provider.



Figure 183: The Strategic Planning Roadmap

In 2020, to garner the support of local government, the fire and EMS leadership must educate all stakeholders in what the needs of the fire company or EMS squad are and how they relate to service to the community. This does not appear to be consistently happening in Chester County. The most progressive means to accomplish this is by sharing a vision – telling a story - of what the organization’s needs will be, and what it should look like in one, three, five, or even ten years into the

future. This is the foundation of a “strategic plan” and is a means to simply provide a road map that outlines goals and objectives to be achieved, or a destination they would like to arrive at, and how long the trip will take to accomplish. It also contains tools to navigate along the way, concluding in a living document that must be continually evaluated and updated, as necessary.

There are various approaches to strategic planning which may include, but are not limited to, the following:

- Understanding and engaging in a process by which members of the organization envision what its future holds and the ability to develop the necessary procedures and operations to achieve that future.
- Identifying the organization’s long-term goals and objectives and then determining the best approach for achieving those goals and objectives.
- Planning for a set of managerial decisions and actions that determine the long-term performance of the organization.

Regardless of which approach to strategic planning a fire company chooses a substantial challenge is getting the enthusiastic engagement of the members, especially in volunteer departments. All too often, members try to avoid involvement in these types of endeavors. There are several reasons for this, the most common being a lack of available time to complete such a daunting task, and a belief that it is a waste of time as the final product will never get implemented. But it is imperative for the rank-and-file to recognize that for the process to work, a wide cross section of stakeholders must be involved, and progressive thinking must take place, incorporating the most efficient application of resources by identifying priorities and chief officers receiving buy-in from all stakeholders¹²².

The strategic planning process can provide many tangible and non-tangible benefits to an organization. The tangible element is the ability to develop short- and long-term identification of personnel, fire apparatus, facilities, and equipment needs by providing an analysis of operational needs as seen from a span of time rather than requesting those resources annually. In other words, it helps to tell a story, and allows other stakeholders who may need to provide funding the opportunity to plan for major expenditures through their budgetary process. The strategic planning process also strengthens an organization's ability to learn how to anticipate and plan with the development of strategies for future use in many initiatives as part of a tool kit for organizational growth. When an organization learns to think strategically, develop solutions to problems before they arise, and encourage participation from all stakeholders the organization becomes more productive and balanced. Most importantly, the bigger picture or vision which emerges will better result in ensuring that the organization's members are all rowing in the same direction.

The strategic planning process can also teach fire and EMS personnel, particularly senior leadership, techniques and procedures to develop future planning. Another benefit is the feeling of inclusion from all participants which is key to obtaining the all-important buy-in. A critical part of the strategic planning process is also the workshops that engage not only the members of the emergency services but government leaders, managers/administrators, residents, and business owners, all of whom have an interest in the future of the emergency services delivery system in their communities. With group participation of key stakeholders, the implementation of the plan should be more streamlined, as any costs associated with the plan have been previously reviewed, and at least tentatively, been approved by the stakeholders. This early involvement and support can assist an organization with obtaining the financial resources it needs to not only operate, but to grow and improve, as dictated by the plan. Planning is the only means by which an emergency service organization will thrive; without it, companies risk a grim future.¹²³ In a broader sense participation in workshops also

¹²² Lentz, J. (2019, September 23). Benefits of Strategic Planning in Today's Fire Service. *FIRERESCUE*. com: <https://firerescuemagazine.firefighternation.com/2019/09/23/benefits-of-strategic-planning-in-todays-fire-service/#gref>

¹²³ Lentz, J. (2019, September 23). Benefits of Strategic Planning in Today's Fire Service. *FIRERESCUE*. com: <https://firerescuemagazine.firefighternation.com/2019/09/23/benefits-of-strategic-planning-in-todays-fire-service/#gref>

provides stakeholders at the organizational level an opportunity to interact with external stakeholders at the leadership level and with various levels of interest and need.

Lentz in his 2019 article *“Benefits of Strategic Planning in Today’s Fire Service”* and during a telephone interview with a Chester County fire Chief, it was noted how significantly the fire service has changed over the past several decades. Clearly the decline in the number of volunteers has forced government agencies in many places to pay more attention to volunteer fire companies, subsequently questioning their financial and operational stability as they simultaneously face recruitment and retention challenges. Concerns regarding the continued viability of traditional fire and EMS delivery systems is resulting in an increasing number of governing bodies more closely examining their local fire and EMS organizations and their ability to continue to provide one of the primary responsibilities of local government.

During the open forums facilitated by the MRI study team during our field visits, and in our interactions with the fire and EMS providers, we were informed multiple times how the revenue generated for their organizations through fundraising was substantially diminished. This fact, coupled with either a reluctance to provide any significant direct funding to organizations they do not control, or just a general decline in financial support from local governments who are struggling with their own budgetary issues, has in some cases, resulted in increasingly strained relationships between the volunteer fire and EMS personnel and the local governing bodies of the municipalities they serve. One of the predominant reasons for this friction is the assertion by the local municipalities that there was no plan that would provide a long-term strategic look down the road and that annual requests for financial support were often void of a strong strategic plan or justification other than *“we need it”*. This has led local governments to believe that the volunteer organizations were becoming reactive to annual needs rather than proactively looking forward for future needs.

In his 2019 article, Lentz further opined that organizations without a plan will be stifled by the response of stakeholders, ultimately forcing additional oversight, or even disbanding of volunteer organizations resulting in loss of critical public safety services¹²⁴. Whether in small fire companies or large metropolitan fire departments, strategic planning has the same positive effect, but regardless of the size of the community the stakeholders are in, they are key in determining the final direction.

When thinking of the fire service, the words tradition and culture are commonly used. However, enlightened emergency service leaders today realize there is a growing demand for a progressive approach to strategic planning. As operational costs increase in all areas, local governments are forced to scrutinize and prioritize every dollar allocated more than ever

¹²⁴ Lentz, J. (2019, September 23). Benefits of Strategic Planning in Today's Fire Service. *FIRERESCUE*. com: <https://firerescuemagazine.firefighternation.com/2019/09/23/benefits-of-strategic-planning-in-todays-fire-service/#gref>

before, forcing the emergency services, including volunteer fire companies, into a new age of fiscal justification that they have not been previously subjected to. Technology driven data has created an increased emphasis on the use of statistics, and if these statistics do not support the vision of even volunteer fire and EMS organizations, the risk of losing critical support quickly becomes more likely. Without a plan, an organization is doomed, and this hypothesis is an accurate reflection of what is already occurring in places nationwide with, no doubt, more to follow.¹²⁵

When organizations can justify the annual requests for support, local governments will be more inclined to promote the means necessary to meet their needs. By providing a written plan of where the organization is going, supported by performance-based results and future goals, stakeholders will be much more likely to maintain a high level of trust and satisfaction in any fire or EMS organization. It then follows, that it is more likely the stakeholders will support funding and other improvements needed by the organization moving forward.



Figure 184: Managing for Results- Example of justifying needs.

As difficult economic forecasts continue – and may in fact grow more dire with the impacts of COVID-19 - and the number of volunteer firefighters continues to decline, volunteer fire companies are being forced to approach their local governing bodies for increased financial assistance. The cost of apparatus, safety equipment, and in some cases, personnel costs continue to climb, in many cases at rates above inflation, making it difficult to balance budgets. Once this door opens, managers and administrative leaders are forced to hold the organizations and their leadership more accountable regarding the allocation of resources provided through tax revenues and the levels of service being provided. This new reality makes strategic planning one of the most beneficial instruments in a Fire Chief’s Tool Kit. Not only will strategic planning lay the groundwork for the future, the appearance of this leadership style and robust commitment to the delivery of public safety will pay dividends with the stakeholders by embracing the community’s commitment to fire protection and emergency medical services.¹²⁶

One of the greatest challenges when agencies attempt to utilize customer feedback as part of the development of a strategic plan is a lack of clarity of the services provided. This is

¹²⁵ Lentz, J. (2019, September 23). Benefits of Strategic Planning in Today's Fire Service. *FIRERESCUE*. com: <https://firerescuemagazine.firefighternation.com/2019/09/23/benefits-of-strategic-planning-in-todays-fire-service/#gref>

¹²⁶ Lentz, J. (2019, September 23). Benefits of Strategic Planning in Today's Fire Service. *FIRERESCUE*. com: <https://firerescuemagazine.firefighternation.com/2019/09/23/benefits-of-strategic-planning-in-todays-fire-service/#gref>

particularly true when dealing with volunteer fire and EMS organizations in a rapidly growing area where just keeping up with increasing requests for service while attempting to prepare for future needs can be all consuming. For this reason, we encourage the fire and EMS organizations who serve Chester County to attempt to understand the value and importance of the community's perceptions and beliefs of services they provide, and to clearly identify opportunities to improve the transparency in operations to bolster an ongoing dialogue. Doing so can only be beneficial to the process.

Early in the strategic planning process, two questions should be asked:

- What do you believe your external customer expectations are?
- What feedback do you get from your customers?

As the process of strategic planning develops, the following are important:

- Conducting a review of the agency's history, culture, and evolution.
- Identification of the current status of the organization.
- Determining where and what the agency desires to be in the future.
- Organizational Mission Statement:
 - ❖ What is it?
 - ❖ Is it accurate? (Key elements to guide organizational efforts)
 - ❖ Does it accurately reflect the organization's overall mission?
 - ❖ Does it need revision?
- Department Vision (Statement):
 - ❖ Where is the organization now?
 - ❖ Where do you see the organization in:
 - ✓ 5 years?
 - ✓ 10 years?
 - ✓ 15 years?
- Organizational Values Statement:
 - ❖ Values that represent the beliefs, behaviors, and actions of all the members of the organization.
 - ❖ What are they?
 - ❖ Are they accurate?
 - ❖ Do they accurately reflect the organization's values?
 - ❖ Do they need revision?

The mission and values are the foundation of any successful organization. Every effort should be made to keep these current and meaningful so that the individuals who make up the organization are well guided by them in the accomplishment of the organization's goals, objectives, and day-to-day tasks. Other key questions including conducting a SWOT analysis include:

- Why is the organization's work important?
- What are the organization's core services and what are its support services?
- Organizational Strengths.
- Organizational Weaknesses.
- Organizational Opportunities:
 - ❖ Organizational
 - ❖ Apparatus/Equipment
 - ❖ Response Capabilities
 - ❖ Programs
 - ❖ Community Engagement
- Organizational Threats.

Upon completion of the SWOT Analysis, the stakeholders should then refine their lists to capture the most critical issues and service gaps. These service gaps and critical issues should then be utilized as the framework for establishing the goals for the strategic planning period.

- Critical issues facing the organization.
- Service gaps.
- Goals and objectives:
 - ❖ Goals and objectives that are reasonable and obtainable over the next five/10-year, possibly 15-year planning period. Select, through consensus, the critical issues and service gaps with the highest priority.
- How will the organization get to where it wants to be in 5-10-15 years?
 - ❖ Station configuration
 - ❖ Staffing levels
 - ❖ Response capabilities
 - ❖ Regional player

❖ Organizational programs

One sometimes overlooked, or perhaps more accurately neglected part of the strategic plan is the inclusion of a Capital Improvement Plan (Program), or CIP. A CIP is a plan of varying duration, in government usually five (5) to ten (10) years in duration, which identifies major (capital) projects and equipment purchases, organizes long term projects, provides a planning schedule and identifies options for financing the plan. The plan serves as a mechanism for decision-making, to identify priorities early to allow for more deliberate planning of financial resources. It can provide an important link to Chester County's long-range fire and EMS strategic plan, and to communicate those plans and needs to businesses and the community.

Budgetary pressures often divert government resources away from capital renewal. At a time when many governments are challenged by citizen demands for additional or improved services and taxpayer resistance to higher tax levies to pay for these services, the capital budget is often the first to be cut in an effort to balance the budget. Careful planning is required to ensure that strategic and capital needs receive the full attention and commitment of government officials. A well-planned CIP is a crucial tool to systematically plan for and manage capital needs. On-going service delivery can be assured only if adequate consideration is given to capital needs. If facilities and infrastructure are not maintained, they will deteriorate until costly maintenance is required, services are threatened, and community growth stagnates or declines.

The MRI study team strongly believes that a major key to the delivery of emergency services in Chester County in the future will be driven by comprehensive strategic plan(s) developed by all stakeholders responsible for providing fire and EMS services. The strategic planning roadmap should be completed as part of the process for very long-term, more than 10 years, consideration of a fire and EMS service delivery model for the County. MRI has previously completed several strategic plans for fire and EMS organizations in Chester County and adjacent counties. These, as well as a multitude of other similar documents that can be easily found online should, be referenced to gain ideas and suggested formats that can be used as the basis for plan development. Other alternatives include seeking the assistance of a consultant as some organizations have done, or a more recently to purchase software that uses a template and inputting of information that results in development of a complete strategic plan.

RECOMMENDATIONS:

XIX-1: Each fire and EMS organization in Chester County should consider the development of a strategic plan to guide their organization for the next three to five years and assist them with planning for future needs and meeting the challenges they may confront. The development of these plans should include input from a wide range of both internal and external stakeholders.

- XIX-2:** *As part of the strategic planning process, and working collaboratively with their member organizations, the Chester County Fire Chiefs Association, Chester County EMS Council, Inc., and Chester County Fire Police Association, assisted and supported as appropriate by other stakeholders such as the Chester County Department of Emergency Services, Chester County Municipal Managers Consortium, Chester County Association of Township Officials, and the local governing bodies of municipalities that are interested, should explore areas where more regional systems for the delivery of emergency services can be developed. These opportunities should then be included in the strategic plans of the potential partners/participants.*
- XIX-3:** *Working collaboratively the Chester County Commissioners, the Chester County Fire Chiefs Association, Chester County EMS Council, Inc., Chester County Fire Police Association, Chester County Municipal Managers Consortium, and Chester County Association of Township Officials, supported by Chester County Department of Emergency Services, should begin the development of a longer range strategic plan that provides for the County to assume a greater role in the provision of fire and emergency medical services such as implementation of a County-wide EMS system, and hiring career firefighters to staff the stations of fire companies that need and request them.*
- XIX-4:** *Every strategic plan should be considered a living – not static – and flexible document that should be reviewed on an annual basis to evaluate progress toward established goals. The plan should also be revised periodically to remain both current and forward looking.*
- XIX-5:** *Working collaboratively, the Chester County Fire Chiefs Association, the Chester County EMS Council, Inc., and the Chester County Fire Police Association, with support from the Chester County Department of Emergency Services, and with involvement of the Chester County Municipal Managers Consortium, Chester County Association of Township Officials, and other interested stakeholders should form a strategic planning task force to bring forth and implement recommendations that have been made throughout this report including elements of Senate Resolution 60 from 2004 and Senate Resolution 6 from 2018. The task force should identify and prioritize elements of this initiative that can be implemented immediately, and those elements which must seek legislative changes to provide higher levels of service to communities. It should also include task groups that will be assigned the implementation of various recommendations. The recommendations of the task force should be presented by December 31, 2021.*

CHAPTER XX

CONCLUSIONS AND LOOKING TO THE FUTURE

The missions performed by fire and EMS departments are some of the most basic and fundamental functions of government; to ensure the safety and protection of its residents and visitors. The real issue facing Chester County, the County's fire and EMS agencies, and the municipalities they serve, is to determine an acceptable level of risk and then define an appropriate level of service for the community. There is no "right" amount of fire protection or EMS delivery. It is a constantly changing level based upon the expressed needs of the community. Determining the appropriate level of service also involves deciding upon the communities' fiscal ability and willingness to pay for the desired level of service. But to do that as the system is currently structured requires that all the municipalities must be actively engaged and involved in the process, something that was lacking during not only this study, but previous studies that MRI has completed in Chester County.

Based on our analysis of the current operations of the Chester County fire and EMS service delivery systems, the MRI study has found organizations that are, for the most part, well-equipped, well-managed, and appear to be well-trained. As would be expected, most fire companies have a dedicated core group of members who are trying to make their organization one that provides dependable, high quality, emergency services to the municipalities that it serves. From all accounts, once most organizations arrive on the scene of an emergency, their personnel perform their duties very well and can be counted upon to complete assignments given to them. **They should be commended for their efforts and given the support they need to continue to try to be successful.**

However, although the fire companies possess many very definitive, positive attributes, they are also facing some significant challenges both today and looking toward the future. With volunteerism declining, and the ranks of volunteer emergency services personnel dwindling nationwide, Chester County's fire companies face the dual challenges of attempting to balance a credible emergency response system staffed primarily with volunteer members, while simultaneously facing an increasing number of requests for service, both emergency and non-emergency, fueled by ongoing residential and commercial development. Chester County is one of the fastest growing counties in Pennsylvania with 30% growth projected over the next several decades, so long-term, many organizations will be faced with the prospect of major potential growth in their districts occurring at any time. It is essential that emergency services providers in areas such as this are proactive, and prepare for the inevitable increases in call volume, and potential expansion of their mission, before they occur. Not doing so leads to a reactive approach to operations, which can result in diminished service levels while the emergency services attempt to "catch up", something that is exceedingly difficult to do.

As with many emergency response organizations in 2020, the biggest challenge facing the fire companies of Chester County is continuing to be able to field sufficient personnel, consistently and in a timely manner, to respond to the emergency incidents they are called upon to mitigate. For many companies, this challenge is becoming increasingly difficult, particularly during the day when most members are at work. In addition, the senior fire company members, who have provided the backbone of many response forces, particularly during the day, are getting older and will eventually not be able to continue to respond at the level they once did. The ability to properly fund the necessary operational expenses, a standard pumper costs upward of \$500,000.00 and personal protective equipment for a single firefighter can cost between \$2,000.00 and \$2,500.00, of each company will present significant competing challenges.

Most fire companies that provide EMS have found that over time the number of EMS incidents grows to far outnumber those that are fire related. This reality eventually necessitates hiring full-time staff to continue to adequately provide the designated level of EMS service. This is true also for the organizations that still are just EMS focused. All of Chester County's EMS providers now utilize career personnel to provide their primary response.

EMS responses notwithstanding, for a growing number of fire companies the number of requests for service on the fire side of operations are now also reaching a critical point. Although there has never been any formal research done to study the numbers scientifically, it is widely accepted in the fire service that when a volunteer fire company consistently is responding to between 400 and 500 incidents a year, the volunteer personnel are going to be severely strained trying to continue to keep up. It is the opinion of the MRI study team that an increasing number of Chester County fire companies have reached or are approaching this junction. Complicating the challenge facing them is that they are doing so during an era when the number of volunteers is decreasing substantially, and recruitment and retention efforts are challenging and do not produce enough new, and active, personnel.

To adequately address the ongoing staffing issues, both short- and long-term, Chester County fire companies need to undertake a multi-pronged strategy. First, and perhaps most importantly, they need to continue to expand their volunteer recruitment efforts. They also need to focus heavily on retaining active members and attempting to motivate personnel to be more involved and respond to more incidents. Fire companies also need to seriously consider the implementation of an in-station volunteer duty crew to relieve the burden on their entire company to respond to potentially less serious incidents or still alarms.

MRI fully supports the continued use of a strong primarily volunteer fire service delivery system in Chester County, and believes that this model can continue to serve the needs of the County for the foreseeable future. However, the project team also believes that the call volume, which

will most likely continue to increase each year, along with the multitude of other daily tasks which need to be performed indicate that the time has arrived for the transition to a more combination - career and volunteer - fire protection delivery system utilizing career staff to supplement the volunteer force. The need for additional career staffing, particularly during the day is becoming more apparent. The biggest questions here will be who will hire them, how will they be paid for, and how will they be deployed?

Within each municipality, the powers and privileges designated by the state are exercised by a governing body elected by the people. Municipal government is basically the response of the state government to the individualized local need for certain public services (*i.e.*, waste disposal, police and fire protection, water supply, health services, etc.) in addition to what is available from the state and/or County. The municipal governing body is the one which is tasked with providing emergency services or designating which entity, or entities, are authorized to provide them on their behalf. As permitted by statute, most - but not all - municipalities in Chester County have traditionally delegated the provision of fire and EMS services in their respective municipalities to the independent fire and EMS providers. However, under all the state codes, the municipality is ultimately responsible for providing that service including the means, extent, and financing.

During this project, the MRI study team had the opportunity to interview representatives of the governing bodies of multiple municipalities and receive feedback from them through a questionnaire, and an online survey. For the most part, these representatives are very happy with the services they receive from their local fire and EMS agencies. They stated that the majority of what they hear about them is positive. Conversely, some of the municipal representatives expressed some concerns and identified interactions with various governing bodies, as an area where fire companies and EMS agencies have not done as good a job as they possibly could have. The MRI team was informed by several of the municipal stakeholders that although their fire and EMS providers generally provide a monthly report to the municipality, there may be a perception that the community in general is not as well informed about the organizations and their operations as they should be. Moving forward, the fire and EMS organizations that this applies to will need to take steps to eliminate that perception. However, the reality of the time commitment necessary to effectively communicate, and personally interact with the governing bodies of multiple municipalities can be substantial.

It is also particularly important for the MRI study team to again point out that more than **40%** of the municipalities in the County **did not** respond to the questionnaire, and representatives of an even smaller percentage participated in the online survey. **This lack of engagement and involvement, regardless of how small the municipality is, is simply unacceptable and an abdication of a basic duty.** It is also, at least in part, the catalyst for the MRI study team recommendations throughout this report that the County should gradually become the lead agency for the provision of fire and EMS services in Chester County.

From a fiscal perspective, small communities have traditionally gotten great value from their volunteer fire and EMS services. In addition to the fact that their personnel costs are extremely low, in many cases the local municipality or, in many places in Chester County, municipalities provide only a fraction of the amount of funding necessary for the organization to operate effectively. The expectation, perhaps driven by long-established fundraising traditions in the volunteer emergency services and the communities they serve, continues to this day. In 2010, during the preliminary discussions on the formation of the Keystone Valley Fire Department, a Pennsylvania Department of Community and Economic Development (DCED) representative estimated that the average volunteer spends about 80% of their time commitment to the fire department raising funds rather than training or responding to emergencies. Compounding this issue is the very real fact that volunteerism is declining at a time when the number of incidents continues to increase along with the time required for training. **It is the MRI study team's belief that at the present time, it is ultimately each municipality's responsibility to provide for, and ADEQUATELY fund, the emergency services that protect its residents. Fundraising is a time-consuming effort that in our opinion, does not make effective use of the valuable time of volunteer personnel.**

Traditional fundraising activities such as breakfasts, dinners, and bingo no longer provide any significant return on the time and effort it takes to hold them. In addition, most younger members of the volunteer fire and emergency services have little interest in participating in traditional fund-raising activities, believing instead that they are making a significant contribution of time just to train and respond to emergencies. These are not trends that are going to be reversed and municipal governing bodies will need to also adjust to these new realities.

It is the opinion of the MRI study team that a significant number of municipalities in Chester County are not paying what would be considered a fair share for the services that are provided to them. Based on our collective experiences, the per capita cost that some municipalities are contributing toward fire and EMS services is below average. However, for both fire and EMS the determination of the exact amount that each community contributes is a local decision. But, to provide some comparison during a study we completed several years ago in New England on a regional dispatch center operation, the participating municipalities were paying \$16.26 per capita just for police and fire dispatching. The town managers and administrators were unanimous in their belief and understanding that the per capita rate was artificially low and would need to be increased incrementally to continue to provide the same level of service that is currently available. Another study we did of a rural community with a population of about 2,866 that was slowly transitioning to suburban had a fire budget of \$120,121.00, and a per capita cost for fire protection of \$41.91.

For EMS providers who are doing patient transports, several external environmental factors such as the structure of insurance payments and approved Medicare rates may produce

substantial fluctuations in revenue as several changes are currently being considered. This includes both at the national, as well as the state level, where discussions are always ongoing regarding initiatives that are proposed to curb the escalating cost of healthcare. Chester County's EMS organizations should closely monitor these changes and develop contingency plans should any change negatively impact the revenue stream.

It is also important for the municipalities to remember that, without exception, fire companies and EMS agencies regardless of their organizational structure are not profitable, similar to public works, police, and school districts. They provide a necessary service, a portion of which can be billed to insurance companies. In the long run, the municipal governing bodies will need to determine the exact level of contribution they are willing to make to supplement other sources of emergency services revenue, such as ambulance third party insurance billing, and determine the level of service that will be supported by the community.

When dealing with volunteer emergency services personnel, municipal governing bodies need to be certain to fully include them in the budgetary and decision-making process and be aware of the potential ramifications of making changes they do not fully support or buy into. While the governing body should not be held "hostage" by threats to quit, reduce, or eliminate services, if decisions do not go their way, they do need to understand that volunteers have a much different level of investment than career staff, and thus it is more difficult to mandate change, or force them to continue to provide services if they do not feel the services they provide are appreciated, or being adequately funded.

On the other hand, the fire and EMS organizations need to understand that scarce tax dollars that have been stretched to the limit are now in real danger of tearing or breaking. The COVID-19 pandemic is predicted to make finances even more dire. Smaller communities which have far fewer resources and options will find it especially difficult to cope with the limitations imposed by the new financial reality. The continuing trend of declining volunteerism will create simultaneous challenges that will stretch the provision of emergency services in many communities even farther. **This will of necessity require a serious and objective look at the benefits that can be realized by consolidations or mergers of companies that are struggling into a new, stronger organization.**

Looking ahead, planned growth of the fire and EMS delivery system throughout Chester County is essential to provide a consistent service level to the diverse communities that make up the County, while keeping pace with increased demands for service caused by continued development. Currently, it is the responsibility of the local governing body in each municipality to determine how fire and EMS services are provided. In theory, it is their unenviable task to translate needs into reality, maximize the delivery of fire, rescue, and EMS services, and do so in the most fiscally responsible manner possible. However, a major challenge that will need to be overcome is convincing the governing bodies of the municipalities that are not currently

engaged that their involvement is critical, and their support particularly fiscally, is a good investment. Unfortunately, the MRI study team is not optimistic that this will occur. It is at least partially for that reason that the MRI study team strongly believes that Chester County needs to take a much more active role in the delivery of fire and EMS services throughout the County. We believe that doing so will provide for adequate and level funding of these critical public safety services, as well as allow for the most consistent delivery of fire and EMS services to all the citizens of the County.

To that end, the MRI study team envisions the creation of an emergency services delivery model (spanning a number of years) that would consist of the following:

- The creation of a task force of County and local stakeholders to develop a vision and strategic plan focused on the implementation of a County-wide system of fire and EMS service delivery for municipalities and organizations who wish to change their local emergency services delivery model. Any recommended service delivery model should contain priority provisions for attempting to maintain a strong volunteer firefighting force as part of the system for those dedicated personnel who choose to continue to serve their community.
- Implementation of necessary legislative changes that will allow county governments to expand upon the delivery of services to local fire and EMS agencies to support their unique local needs.
- Chester County assuming a more supportive role in the delivery of the emergency services by expanding its services within the Operations Division of the Department of Emergency Services. The Department of Emergency Services could then provide career personnel, apparatus, equipment, and contractual services to develop and supplement local area, regional, or County-wide fire and emergency medical services delivery to those municipalities that need – or desire – the support to continue protecting the community. Any initiative would be on a voluntary basis and contain a governance provision that allows the local municipality to engage in oversight of the program as part of a commission or board established at the County level.
- The establishment of a County-wide Standard of Cover with different demand zones that will provide consistent and improved response to emergencies based partly on AVL technology, and the response of incident specific apparatus that meets the needs of the type of incident occurring.
- Chester County having an increased ability to obtain federal and state funding and grants through various programs currently available to support the delivery of these services, particularly for regionalization efforts. Funding for this endeavor would also

encompass the creation of one or more County tax assessment(s) for the sole purpose of funding the delivery of fire and emergency medical services.

- Development of a single standardized manual of standard operating procedures or standard operating guidelines (SOPs/SOGs), and response assignments for use by all fire and EMS organizations throughout Chester County.
- Development of standardized fire apparatus and ambulance specifications that provide similar fire apparatus and ambulance models and capacities throughout the Chester County in order to benefit from economies of scale and to have consistent apparatus configurations and procedures which will contribute efficient fire scene operations.

Change in the way fire and EMS services are delivered in Chester County is inevitable. Most of the stakeholders agree that the need for a different model is quickly approaching, yet they continue giving their best efforts to slow the decline of services and prolong the time when the major change in service delivery models becomes unavoidable.

It is our sincere hope that this report and the accompanying strategic plan and “Tool Kit” will be used by Chester County, its municipalities, the fire and EMS organizations’ leadership, the dedicated firefighters and EMS personnel who faithfully serve the County, and the many other interested stakeholders who have a vested interest in the emergency services as a road map for improving the delivery of fire and emergency medical services throughout Chester County. **The citizens of Chester County should feel confident that the fire and EMS organizations that proudly and faithfully serve the County are professional public safety organizations that are continuing to try their best to provide a high quality level of service to the community 24/7/365. We continue to be impressed with the dedication and commitment of the members of the Chester County fire and EMS services.**

Looking forward, the MRI study team further believes that the fire and EMS services of Chester County, assisted by the Department of Emergency Services has the skills, capabilities, and motivation to become an effective, highly trained, and motivated County-wide delivery system that meets or exceeds nationally recognized standards for operational readiness. We believe it can be a model for the success of the carefully planned out transition of multiple organizations into a more unified delivery system and from being fully volunteer to combination, designed to improve the levels of service available, and do so both effectively and economically. **We believe it has the potential to become a national model for not only developing that type of system but doing so in the northeast.**

To be sure, there are challenges ahead, but we are also quite confident the members of the fire and EMS community will rise to the occasion. We hope that the municipal governing bodies will do the same, by making long-term commitments to the fire and EMS delivery system, and,

most importantly, by providing adequate funding that allows fire and EMS personnel to concentrate their efforts on training and emergency response, while simultaneously being confident they will have the financial resources they need to effectively, efficiently, and safely perform their duties.

This report should be studied and considered in its entirety to gain a complete picture of MRI's recommendations. While the recommendations are numbered in each section, they have NOT been listed in any preferential manner or order of importance. The numbering is for reference purposes only. The areas that need improvement are by no means insurmountable, or beyond the County, its municipalities, and the leadership of its fire and EMS organizations and their representative organizations ability to deal with them. In the strategic plan implementation document, we have prioritized recommendations as we see them and developed the strategic plan and its implementation timetable based upon that perspective. However, the various primary stakeholders in this process may decide to develop their own priorities, modify our recommendations on timelines based on the ever-changing needs of the County and its fire and EMS organizations, and coordinate solutions based on time, personnel, and fiscal realities.

To address the recommendations that have been identified in this report, and implement the strategic plan, Chester County and its fire and EMS organizations and partners should:

1. Approach them strategically and systematically.
2. Use them as the basis for the development of a long-range strategic plan for change and improvement.
3. Break them down to reasonably sized components. Categorize them as short-term and long-term goals, i.e., items that can be accomplished within existing resources and items that will require additional funding and/or time to accomplish in the coming years.
4. Refer to them when making recommendations, check them off as they are accomplished, revise the plan as necessary moving forward just making sure to maintain forward progress, and most importantly, recognize the positive achievements publicly.

Throughout this report, the MRI study team has made multiple recommendations that could, if adopted, increase expenditures of the fire and EMS organizations and the overall emergency services delivery system. We believe that these recommendations are essential for the effective, efficient, and safe operation of the fire and EMS delivery systems throughout Chester County. Other recommendations are intended to reduce overall financial risk and liability. Ideally, fire and EMS expenditures should result in programs that are well-justified and cost-effective, and that have measurable outcomes that result in an improved level of safety and protection for the citizens and visitors of Chester County.

CHAPTER XXI PROJECT TEAM

In keeping with Municipal Resources' hallmark multi-disciplinary approach to our organizational assessments, we have utilized the following team for this project:

PRINCIPAL-IN-CHARGE

Alan S. Gould, President and Chief Operating Officer, is a graduate of Saint Anselm College with a BS degree in Criminal Justice. He is certified as a Public Manager by the American Academy of Certified Public Managers and has completed numerous management and leadership programs including the Babson Command Training Institute and the FBI's LEEDS program. He is recognized for his creativity in community policing and his leadership in promoting ethics in the law enforcement community. Mr. Gould began his public-sector career with the Salem, NH, Police Department where for 21 years, he served at all ranks of the Department. He served as Chief of Police in Rye, NH, where, upon retirement from law enforcement, he was appointed and served as Town Administrator until joining MRI in 2008. Mr. Gould served as the Ethics Instructor at the New Hampshire Police Academy for 15 years and has been an instructor of college courses in Criminal Code, Criminal Investigation, Report Writing, Constitutional Law, and Juvenile Delinquency. Among his many community involvements, Alan served as an initial incorporator of the Greater Salem Council Against Family Violence; a founder of New Hampshire's second "visitation center" designed to protect children from abusive parents; an initiator of Rye Senior SERVE, a non-profit organization established to help seniors remain in their homes as they age; and he continues as the Emergency Management Director in the coastal community of Rye, NH, located within the Seabrook Nuclear Power Plant's Emergency Planning Zone. In addition to his responsibilities as MRI's President and Chief Operating Officer, Mr. Gould manages many of the company's projects and occasionally serves in interim municipal management roles. Since joining MRI in 2008, Mr. Gould has managed more than 100 projects in six states including organizational studies, executive recruitments, internal investigations, and interim assignments.

PROJECT MANAGER

Peter J. Finley, Jr., Senior Consultant and Project Manager, Fire and EMS, most recently served as Chief of the Winslow Township, NJ Fire Department, which protects a large suburban township where he was responsible for the planning, establishment, and initial deployment of the career component of the department as the community transitioned to a combination fire department. He previously served for 4 ½ years as the Chief of Department for the City of Vineland, New Jersey Fire Department, also a combination fire department where he initiated significant changes within the department including updating and modernizing equipment,

providing the department's first ever formal officer training, and significantly increasing the capabilities of the regional hazardous materials response team. During his tenure, the department received more than one million dollars in various grants. He formerly commanded the Vineland Rescue Squad gaining significant EMS operations and command experience, as well as completing an overhaul of that organization's operations. Chief Finley serves as program coordinator and professor in the Fire Science Program at Camden County College. Chief Finley received his Associate in Applied Science degree from Atlantic Community College in New Jersey, and, earned his Bachelor of Science degree in Fire Science/Administration from the University of Maryland. He is a graduate of the National Fire Academy's Executive Fire Officer Program, earning perfect scores on three of his four Applied Research Projects. He was awarded an Outstanding Research Award for his 2002 paper titled, "Residential Fire Alarm Systems: The Verification and Response Dilemma". Chief Finley holds nearly two dozen state and national certifications and is a member of multiple fire service organizations, including achieving the prestigious Chief Fire Officer designation from the Center for Public Safety Excellence. He is a member of multiple fire service organizations and in November 2009 completed a two-year term as President of the New Jersey Career Fire Chiefs Association where he has been involved in the development and administration of fire service promotional examinations. From 2003-2005 he served on the Training and Education Committee of the Governor's Fire Service and Safety Task Force. He also previously served on the state committee that developed New Jersey's first Firefighter I Instructor Manual.

PROJECT TEAM

Brian P. Duggan, Director, Fire and EMS Group recently retired as the fire chief in Northampton, Massachusetts, where he instituted substantial changes to modernize and restructure the entire department including equipment, facilities, personnel, and training. In conjunction with his staff, Brian has created a regional Advanced Life Support Program that currently serves eighteen communities within the Northampton Area. He formerly commanded the Northborough, Massachusetts, Fire Department, a combination fire department and has significant experience with the Massachusetts Department of Fire Services where he held several key positions. Mr. Duggan developed and directed the Graduate and Undergraduate Fire Science Programs at Anna Maria College in Paxton Massachusetts from 1995 - 2003. Mr. Duggan has a Business Management/Fire Science degree from Providence College and a Master's Degree of Business Administration (MBA) from Nichols College in Dudley, Massachusetts. He is also a graduate of the National Fire Academy Executive Fire Officer Program and the Senior Executive Program for State and Local Leaders at Harvard University. In December 2012, Mr. Duggan received a second Master's Degree in Homeland Security through the Naval Post Graduate School based in Monterey, California, where his thesis entitled "*Enhancing Decision-making during the First Operational Period of Surge Events*" was selected as an outstanding thesis. He is one of only a few fire service professionals to be designated as a Chief Fire Officer by the Commission on Fire Accreditation International. He leads the

Massachusetts fire service through his affiliation as Chairman of the Fire Chief Association of Massachusetts Technology Committee and as a Regional Director on the Massachusetts State Fire Mobilization Committee. Mr. Duggan has authored several publications, inclusive of writing Section 7, Chapter 3, Fire Department Information Systems, in the Nineteenth and Twentieth Editions of the National Fire Protection Association's Fire Protection Handbook. Chief Duggan has served as a subject advisor to MRI since 2002 and will occasionally work on a project team.

Robert C. Craig, Senior Consultant, Fire and EMS, most recently served as Interim Director of Fire and EMS for the Town of Acton, Massachusetts. Immediately prior to this he had served the Town of Acton during his entire career of almost 44 years of service as a member of the Acton Fire Department which included his last 22 years as Fire Chief. The Town of Acton Fire Department is staffed by 42 career personnel, housed in three Fire/EMS stations and provides full fire, rescue and emergency services including EMS for approximately 23,000 residents. During his career Bob administered an annual fire department budget of approximately 3 million dollars. Together with the Acton Police Chief, he also managed a joint Public Safety Dispatch Center. Bob holds an Associate Degree in Fire Science and Technology as well as a Bachelor of Arts Degree and is a graduate of the Executive Fire Officer Program of the National Fire Academy. He is a member of the International Association of Fire Chiefs; the New England Association of Fire Chiefs; the Fire Chief's Association of Massachusetts and the National Fire Protection Association. Bob has served for over twenty (20) years as a member of the Massachusetts Fire Training Council as one of the representatives of the Fire Chiefs Association of Massachusetts and now continues to serve as appointed by the Governor to represent the Citizens of the Commonwealth. He has attained professional status and recognition as a credentialed Fire Chief in Massachusetts. Bob has a diverse background and expertise in Firefighting, EMS, Dispatch, Fire Prevention and Investigation, Emergency Planning and Operations, Municipal Finance and Government and Labor/Management relations. During his career he has also participated in the study of and /or implementation of a number of regional programs including Fire Investigation, Dispatch, and EMS to include ALS services. In addition, he has been instrumental with the planning and construction of a public safety facility which included a joint dispatch center and Fire/EMS station construction and renovations. He has participated in multiple Fire/EMS management studies.

Shawn Murray, Senior Consultant, Fire and EMS, is a graduate of the State University of New York – Empire State College with a BS in Business, Management, and Economics with a concentration in Fire Administration. He is also a graduate of the National Fire Academy Executive Fire Officer Program and holds the Chief Fire Officer Designation from the Commission on Professional Credentialing. Chief Murray retired as the Fire Chief in Hudson, New Hampshire, where he served since 2001. His retirement spanned a career of almost 37 years collectively in the Fire Service serving in the USAF, Federal, State, and municipal organizations. Shawn began his career in the Goffstown, N.H. Fire Department, a combination

department where he served as Training Officer with distinction. Shawn then served as Assistant Fire Chief of the Hudson N.H. Fire Department and within two years was appointed Chief of the Department. Chief Murray also served the Commonwealth as Director of the Mass Fire Academy. Chief Murray is a Certified Fire Officer in accordance with NFPA 1021; a Certified Fire Service Instructor in accordance with NFPA 1501; and a Certified Safety Officer in accordance with NFPA 1521. Chief Murray is a member of the International Association of Fire Chiefs; served as a Director with the New England Association of Fire Chiefs, and Past President of the New Hampshire Fire Chiefs Association. Chief Murray is a creative and innovative problem solver with the ability to develop collaborative solutions to complex organizational, business, and technical challenges including organizational change and transition.

Christopher W. Norris, Consultant, Fire and EMS, has been a member of the Westhampton Fire Department since April 1994. He has served in numerous capacities in the organization up until his appointment to Fire Chief in January 2007. Chief Norris completed his Master's Degree in Fire Science and Administration from Anna Maria College in 2003, a Master's Degree in Public Administration from Westfield State University in 2011, and he attended Springfield College in 2004-2005, obtaining his paramedic certification. Chief Norris has completed the *Executive Fire Officer Program* through the United States Fire Administration and the prestigious *Senior Executive in State and Local Government Program* through the Kennedy School of Government at Harvard University. Most recently, Chief Norris was recognized by the Center for Public Safety Excellence (CPSE) as only one of thirty-one individuals in the entire Country to earn both International designations as a Chief Fire Officer (CFO) and Chief Emergency Medical Services Officer (CEMSO). In 2012, Chief Norris completed the requirements for the designation within the Institution of Fire Engineers (IFE) of MIFireE indicating the degree of qualification and membership grade within the organization. In May 2014, Chief Norris was selected as one of twenty fire service personnel across the Country to participate in the Fire Service Executive Development Institute (FSEDI) Program through the International Association of Fire Chiefs sponsored by Motorola. This is a yearlong program that examines current issues, challenges, innovations, and leadership models in the fire service. Chief Norris also teaches for the Massachusetts Firefighter Academy as one of the Lead Instructors in the Structural, Flashover, and Instructor Methodology Programs, and is the Statewide Program Coordinator for the Call/Volunteer Training Program. Chief Norris is a member of the International Association of County/City Managers Association (ICMA), Fire Chiefs Association of Massachusetts (FCAM), New England Association of Fire Chief's (NEAFC), National Fire Protection Association (NFPA), Hampshire County Fire Chiefs, Western Massachusetts Fire Chief's Association (WMFCA), Hampshire County EMS, and the International Association of Fire Chiefs (IAFC), in which Chief Norris was just elected to serve a three year term (2015-2018) on the Board of Directors for the International Association of Fire Chiefs in the Executive Fire Officer Section.

Raymond Gretz, Consultant, Fire and EMS, is a Deputy Fire Chief of professional standards in Washington, D.C. He became a volunteer firefighter EMT in 1990 at the College Park Volunteer

Fire Department in College Park Maryland. His volunteer service included serving as a line officer to the rank of Captain and being an elected member of the Board of Directors. Ray has considerable experience in operations, as well as training, special operations, and a variety of administrative positions. Other experience includes serving as the agency Finance Section Chief for National Security Special Events such as Presidential Inaugurations. He is a certified public manager and a graduate of the National Fire Academy's Executive Fire Officer program. He holds a Master's Degree in Homeland Security from the Naval Postgraduate School in Monterey, California.