CENTER FOR PUBLIC SAFETY MANAGEMENT, LLC

Fire-Rescue System Comprehensive Plan

Augusta County, VA

March 2024

Augusta County Fire-Rescue Department
Deerfield Valley Volunteer Fire Department-Station 2
Middlebrook Volunteer Fire Department-Station 3
Churchville Volunteer Fire Department & Rescue Squad-Station 4
Staunton-Augusta Rescue Squad-Rescue 5
Weyers Cave Volunteer Fire Company-Station 5
Stuarts Draft Rescue Squad-Rescue 6
Verona Volunteer Fire Company-Station 6
Stuarts Draft Volunteer Fire Company-Station 7
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Dooms Volunteer Fire Company-Station 9
Swoope Volunteer Fire Company-Station 14
New Hope Volunteer Fire Department-Station 18
Wilson Volunteer Fire Company-Station 19
Mount Solon Volunteer Fire Department & Rescue Squad-Station 21
Riverheads Volunteer Fire Department-Station 25
Waynesboro First Aid Crew

CPSM®

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ICMA

Exclusive Provider of Public Safety Technical Services for
International City/County Management Association

THE ASSOCIATION & THE COMPANY

The International City/County Management Association is a 110-year old, nonprofit professional association of local government administrators and managers, with approximately 13,000 members located in 32 countries.

Since its inception in 1914, ICMA has been dedicated to assisting local governments and their managers in providing services to its citizens in an efficient and effective manner. ICMA advances the knowledge of local government best practices with its website (www.icma.org), publications, research, professional development, and membership. The ICMA Center for Public Safety Management (ICMA/CPSM) was launched by ICMA to provide support to local governments in the areas of police, fire, and emergency medical services.

ICMA also represents local governments at the federal level and has been involved in numerous projects with the Department of Justice and the Department of Homeland Security.

In 2014, as part of a restructuring at ICMA, the Center for Public Safety Management (CPSM) was spun out as a separate company. It is now the exclusive provider of public safety technical assistance for ICMA. CPSM provides training and research for the Association's members and represents ICMA in its dealings with the federal government and other public safety professional associations such as CALEA, PERF, IACP, IFCA, IPMA-HR, DOJ, BJA, COPS, NFPA, and others.

The Center for Public Safety Management, LLC, maintains the same team of individuals performing the same level of service as when it was a component of ICMA. CPSM's local government technical assistance experience includes workload and deployment analysis using our unique methodology and subject matter experts to examine department organizational structure and culture, identify workload and staffing needs, and align department operations with industry best practices. We have conducted 341 such studies in 42 states and provinces and 246 communities ranging in population from 8,000 (Boone, Iowa) to 800,000 (Indianapolis, Ind.).

Thomas Wieczorek is the Director of the Center for Public Safety Management.
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Augusta County-County Administrator
Augusta County Fire-Rescue Department
Augusta County Emergency Communications Center
Augusta County Community Development and Economic Development
Augusta County Emergency Services Officers Association
Augusta County Volunteer Fire Companies and Departments
Augusta County Volunteer EMS Agencies
Augusta County In-County Automatic and Mutual Aid Partners
Augusta County Out-of-County Automatic and Mutual Aid Partners
Augusta County Operational Medical Director
Central Shenandoah Emergency Medical Services Council

CONTENTS

SECTION 1. INTRODUCTION

The 2024 *Augusta County Fire-Rescue System Comprehensive Plan* serves as a strategic planning guide for the delivery of Fire, EMS, Community Risk Reduction, Training and Education, and department support programs over the near, mid, and longer terms. The *Fire-Rescue System Comprehensive Plan* strives to provide a balanced analysis and approach between Fire and EMS services, while also considering the demand for service and meeting that demand with essential resources through a combination fire-rescue system. The *Fire-Rescue System Comprehensive Plan* is constructed to meet the needs and circumstances of Augusta County as assessed against the community risk, planned community growth, industry trends and benchmarks, and the current Augusta County combined fire-rescue system operating platform.

Throughout this document CPSM refers to Fire and EMS as the *ACFR system*. While there is a system approach to delivering Fire and EMS services, it is important that neither the volunteer agencies nor the fire-rescue department lose their identity. Each has much pride in what they do for the Augusta County community, and this should never be diminished. In fact, it should be celebrated as often as possible.

The *Fire-Rescue System Comprehensive Plan* is county, department, and volunteer system in scope, and includes a gap analysis of: Fire and EMS service delivery; training and education; all-hazards community risk profile; fire-rescue system infrastructure that includes the fleet and facilities; and the response platform. Throughout the gap analysis, the current ACFR system operating platform was benchmarked against national standards that include the National Fire Protection Association, Insurance Services Office, and pre-hospital emergency care best practices.

The primary objective of the *Fire-Rescue System Comprehensive Plan* is to provide all stakeholders with a document that includes measurable and achievable strategic planning goals and objectives, which are planning initiatives to improve all facets of Fire and EMS service deliverables and reduce community risk. CPSM has no bias for an all-volunteer, all career, or combination system. Our goal with this analysis and subsequent planning initiatives, as it is with all of our studies, is to provide information to the County to make informed decisions on levels of service for Fire and EMS.

The Fire Master Plan contains six strategic initiatives with objectives that focus on priority areas of the ACFR system and the county in terms of Fire and EMS service delivery, as outlined in the gap analysis, and information received through stakeholder meetings. There are also nine recommendations that will be included in a strategic initiative where applicable. The six strategic initiatives include:

Strategic Initiative 1: ACFR System Resiliency

Strategic Initiative 2: Organizational Growth and Excellence

Strategic Initiative 3: Advancing Training and Education

Strategic Initiative 4: Infrastructure

Strategic Initiative 5: Resource Optimization and Effective Deployment

Strategic Initiative 6: Ensuring a Resilient Augusta County

The *Fire-Rescue System Comprehensive Plan* also includes Mission and Vision, and Value Statements CPSM developed from the gap analysis, stakeholder meetings, and the community survey CPSM conducted. These plan elements are intended to shape the organizational culture, and provide clarity, direction and provide a true sense of purpose for the system.

Augusta County Fire-Rescue System

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Staunton Fire Department
Waynesboro Fire Department
Bridgewater Rescue Squad
Bridgewater Fire Department
Grottoes Volunteer Fire Company
Grottoes Rescue Squad
Walkers Creek Volunteer Fire Company
Raphine Volunteer Fire Company
Wintergreen Fire Department
Wintergreen Rescue Squad
Shenandoah Valley Regional Airport

SECTION 2. CPSM METHODOLOGY AND COMPREHENSIVE PLAN CONCEPTS

CPSM Work Plan and Approach to Project

CPSM has developed a universal approach to public safety operational, administrative, and Standards of Cover analyses and reports. Our project work plan begins with a thorough review of the client's scope of work and is followed up with a project kick off meeting with our client to discuss the purpose of the project, ensure a mutual understanding of the scope of work, and discuss the desired outcomes. Through this dialogue CPSM's and the client's expectations are managed throughout the analysis process. More specifically, for this Comprehensive Plan and Organizational Gap Analysis project, CPSM utilized the following analysis methodology:

Data Analysis

The CPSM Fire and EMS Team used numerous sources of data to support our conclusions, recommendations, and strategic initiatives for the Augusta County Fire-Rescue system. Information was obtained from the county, department, and volunteer agencies along with numerous sources of internal information garnered from a CPSM document/information request. Internal sources included data from the computer-aided dispatch (CAD) system for response time and workload information, the fire-rescue system's National Incident Reporting System (NFIRS) records management system for calls for service, and the county's community development and economic development departments regarding current and future growth and population projections.

Stakeholder Interviews

This study relied extensively on interviews and interaction with fire-rescue system members and county officials. On-site and in-person interviews to include virtual meetings were conducted with the senior fire department staff, middle managers, and field staff regarding the administration and operations of the department. CPSM also held forums with all volunteer departments, mutual and automatic aid partners, and the Augusta County Emergency Services Officers Association. Stakeholder input also included a community-wide survey.

Document Review

CPSM Fire and EMS Team consultants were furnished with numerous reports and summary documents by the Augusta County Fire Rescue Department, and some volunteer departments as well. Information on system-wide staffing and deployment of resources; mutual aid; policies and procedures; community risk; fleet and facilities; and distribution of fire and EMS companies was reviewed by CPSM project team staff. Follow-up phone calls, emails, and virtual meetings were used to clarify information as needed.

Operational/Administrative Observations

Over the course of the evaluation period, numerous observations were conducted. These included observations of fire and EMS operations; community risk; administrative functions; deployment of apparatus from a coverage perspective as benchmarked against national standards; and operational staffing benchmarked against national standards as it relates to assembling an effective response force. The CPSM Fire and EMS Team engaged all facets of fire-rescue system operations from a ground floor perspective and as well from a management perspective.

Deployment Analysis

In virtually all CPSM Fire and EMS studies, we are asked to identify appropriate staffing and resource deployment levels to include proper distribution of fire and EMS assets, response times, and workload as it relates to resiliency and levels of service. This is the case in this comprehensive plan gap analysis as well. In this document we discuss operational workload; critical tasking; assembling an effective response force; operational deployment, station locations, and the feasibility of locating deployable assets in different locations to improve current response coverage and as future growth may occur; and other factors to be considered in establishing appropriate deployment levels. Staffing and deployment recommendations are based upon our comprehensive evaluation of all relevant factors and are benchmarked against national standards such as the National Fire Protection Association (NFPA) 1720 Standard, ISO Public Protection Classification rating system, and the Center for Public Safety Excellence, Standards of Cover concepts.

Key Concepts of a Fire and EMS Comprehensive Plan Gap Analysis

Phase 1: Comprehensive Plan Gap Analysis. The primary concepts of a fire and EMS operational gap analysis of a combination fire-rescue department are to review and analyze an integrated response plan to emergent 911 calls that links the identified community's risk, and to the safe and effective fire and EMS system's response force to fire suppression, emergency medical services, and specialty response incidents.

An important component includes a comprehensive review of the community risk to which the fire and EMS system might respond to or as the result of. Community risk factors have an impact on all fire and EMS responses and include fire, non-fire related, and EMS responses. The analysis of community risk includes components such as community demographics; community growth and future development; natural and environmental hazards; transportation networks and hazards; fire management zone analysis for call type and demand; building risks and hazards; and hazards specific to a community.

Where applicable in this report CPSM utilizes national benchmarking as follows:

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, 2020 edition (National Fire Protection Association, Quincy, MA): NFPA 1720 provides guidelines for the organization and deployment of fire suppression, emergency medical services (EMS), and special operations by volunteer fire departments (combination departments as well with majority volunteer members). It aims to establish minimum criteria for the organization, operation, training, and deployment of volunteer fire departments to ensure effective and efficient delivery of services to the public.[1] This standard serves as a benchmark to measure staffing and deployment of resources to certain building types in urban, suburban, rural, and remote areas.

A fire and EMS gap analysis involves also serves to assess the current state of fire and EMS services within a community and the organization to identify gaps or areas for improvement from which recommendations can be made, and strategic initiatives developed.

1. NFPA 1720 is a nationally recognized standard, but it has not been adopted as a mandatory regulation by the federal government or the Commonwealth of Virginia. It is a valuable resource for establishing and measuring performance objectives for the Augusta County Fire Rescue system but should not be the only determining factor when making local decisions about the county's fire and EMS services.

Key concepts involved in conducting such an analysis include:

- Evaluation of Service Coverage: This includes the geographical coverage of fire and EMS services to ensure that all areas within the jurisdiction are adequately served. This also includes assessing response times, availability of resources, and areas with limited coverage.
- Analysis of Resource Allocation: This includes the allocation of resources such as personnel, equipment, and funding to ensure efficient and effective service delivery. Key to this will be the identification of any disparities or deficiencies in resource distribution that may hinder response capabilities.
- Assessment of Emergency Response Capabilities: This includes assessing the capabilities of fire and EMS personnel to respond to various types of emergencies, including fires, medical incidents, hazardous materials incidents, and natural disasters. Additional assessment includes evaluation of training programs, equipment availability, and protocols for handling emergencies.
- Engagement of the Community: This includes surveying the community to gauge their understanding of fire and EMS services provided, and to understand the specific needs and priorities of the population. Additional analysis includes factors such as demographic trends, population density, socioeconomic status, and prevalent risks or hazards that drive fire and EMS responses.
- Regulatory Compliance: This includes analysis of the fire-rescue system compliance with relevant regulations, standards, and guidelines governing fire and EMS services. This may include standards set by the commonwealth as well as local ordinances and regulations. This also includes benchmarking against national standards and accreditation agencies.
- Analysis of Interagency Coordination: This includes the analysis of coordination and collaboration between fire, EMS, and other emergency response agencies through internal agreements, and through mutual and automatic aid agreements. The analysis also includes the identification of opportunities for improving communication, joint training exercises, and integrated response protocols.
- Infrastructure Assessment: This gap analysis will assess the infrastructure supporting fire and EMS operations, including vehicle fleet, equipment, and facilities. The gap analysis will identify areas where investments in infrastructure upgrades may be needed to enhance service delivery.
- Performance Metrics: The gap analysis will define key performance indicators to measure the effectiveness and efficiency of fire and EMS services. This includes metrics such as response times, resource utilization, resiliency, and workload.
- Long Term Planning: The gap analysis will lead to the development of long-term strategic planning initiatives based on the findings of the gap analysis and will enable the county to address identified gaps and improve overall service delivery. This involves setting goals, establishing implementation timelines, and allocating financial resources so that the accepted and approved recommended actions can be implemented.

When considering these key concepts, fire and EMS agencies can then identify areas for improvement and enhance their ability to respond to emergencies more effectively.

Phase 2: Developing Comprehensive Plan Outcomes. Strategic planning is an important process for organizations, as it serves as a clear and concise roadmap for the future. The strategic planning process can be challenging for agencies to undergo because strategic planning

requires an honest assessment of the department's current state of performance, and realistic understanding of ways to improve.

The strategic planning process is crucial for organizations as it helps them set a clear direction, make informed decisions, and achieve their long-term goals. Here are some key reasons why the strategic planning process is important:

- Goal Alignment: Strategic planning ensures that organizational goals and objectives are aligned with its mission and vision. This alignment helps create a sense of purpose and direction for the entire organization.
- Resource Allocation: Strategic Planning helps in allocating organizational and operational resources effectively by identifying priorities and identifying gaps in service delivery and organizational support.
- Adaptability: In a rapidly changing emergency services environment, strategic planning allows fire and EMS organizations to be adaptable and responsive to emergency services trends, technological advancements, the labor market, the economy, and other external factors.
- Communication and Collaboration: The strategic planning process involves communication and collaboration among different levels of the organization. This ensures that all organizational members are on the same page regarding department strategic initiatives, fostering a cohesive and collaborative work environment.
- Decision Making: Strategic planning better aligns the ability to make informed and timely decisions based on strategic initiative goals and timelines. The strategic plan will provide a roadmap for decision-makers to follow, reducing uncertainty and promoting consistency in decision-making across the organization and with County leadership.
- Long Term Vision: Strategic planning encourages organizations to think long-term. It helps in creating a vision for the future and identifying the steps required to realize that vision, fostering sustainability and longevity.
- Employee Engagement: Involving employees in the strategic planning process fosters a sense of ownership and commitment. When employees understand the organization's goals and their role in achieving them, it enhances motivation and engagement.

The overall methodology for the fire-rescue system Comprehensive Plan includes concepts from the Customer-Centered Strategic Planning (CCSP) process. This planning process places a strong emphasis on understanding and meeting the needs of customers. In the case of a fire-rescue combined system (volunteer and career), this includes internal system members and external customers or users of system services. The process is designed to align an organization's strategies and actions with the expectations and preferences of its members and customers.

The key components of the Customer-Centered Strategic Planning process concepts CPSM utilized in our plan development methodology included:

- In-person stakeholder meetings to understand better fire-rescue system operations and to gain input on system strengths, weaknesses, and opportunities, what is working or not working, needs of the system, current state of the system, and the future. Stakeholder meetings included:
  - Augusta County Board of Supervisors.
  - Augusta County Administration and key departments such as Community Development and Economic Development.

- Augusta County Fire Rescue Department.
- All volunteer fire and EMS departments/companies of the Augusta County Fire Rescue System.
- City of Staunton FD Fire Chief, City of Waynesboro Fire Chief, Waynesboro First Aid Crew, Wintergreen FD Fire Chief, and Shenandoah Valley Airport officials.
- Augusta County Emergency Services Officers Association.
- Mutual Aid partners included Grottoes VFD, Grottoes Rescue Squad, Bridgewater VFC, Bridgewater Rescue Squad, Raphine VFC, and Walkers Creek VFD.

- Community Survey: CPSM conducted a Community Survey from October 16, 2023, through November 15, 2023. The community survey focused on services provided to the public by the Augusta County fire-rescue system, use of services provided, knowledge of services provided, and thoughts on what are the public's expectations are regarding the fire-rescue system. There were 514 responses. Specific survey sections included:
  - Community interactions with the Augusta County fire-rescue system.
  - Performance and prioritization of services.
  - Response to calls for service.
  - Communication and branding;
  - Types of service requests.

Lastly, CPSM comprehensive plan consultants were furnished with numerous reports and summary documents by the ACFR and some volunteer agencies. Information on department strengths, weaknesses, organizational and operational needs, and deployment of emergency resources was reviewed by the CPSM strategic plan team staff and utilized throughout this document.

In summary, the strategic planning process is a comprehensive and forward-thinking approach that guides organizations in navigating challenges, seizing opportunities, and achieving sustained success. For fire and EMS agencies, this means contemporary leadership, decision-making, and service deliverables.

As a Fire and EMS System, we ask……

SECTION 3. COMMUNITY OVERVIEW

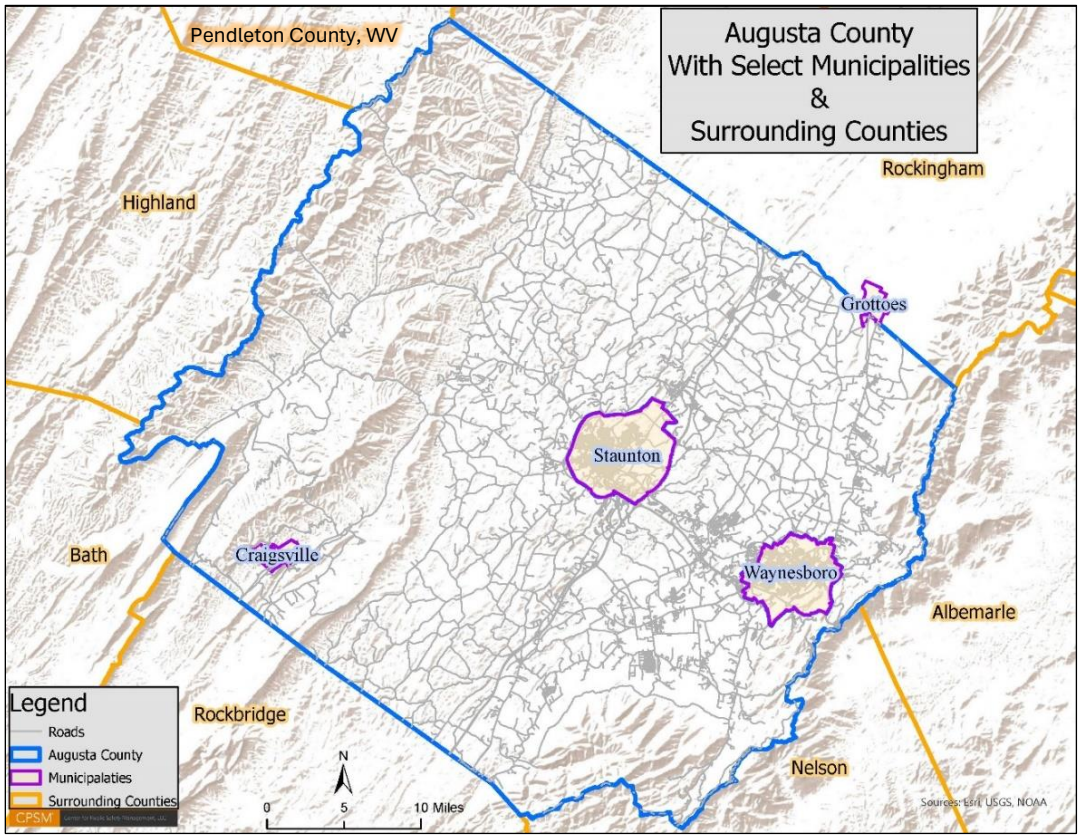
Augusta County, VA

Augusta County (County) is located in western Virginia's Shenandoah Valley. The County is the second largest county in Virginia and totals 971 square miles. Included within the boundaries of the County are the independent cities of Staunton and Waynesboro, and the Town of Craigsville. Also, the Town of Grottoes is partially located in Augusta County. There are also several unincorporated communities with populations of 2000 or more that include Stuarts Draft, Fishersville, Verona, Weyers cave, and Crimora. The 2020 U.S. Census population was 77,487.

The County is bordered by several counties that includes Rockingham, VA to the north, Pendelton County, WV to the northwest, Highland County, VA to the west, Bath County, VA to the southwest, Rockbridge County, VA and Nelson County, VA to the south, and Albemarle County, VA to the east.

In addition to the unincorporated communities with populations of 2000 or more as indicated above, Augusta has several other census-designated and/or unincorporated communities which include, and which also may have community fire and EMS departments are: Augusta Springs; Churchville; Deerfield; Dooms; Greenville; Harriston; Jolivue; Lyndhurst; Middlebrook; Mount Sydney; New Hope; Sherando; Fort Defiance, Love, Mint Spring; Mount Solon; Springhill; Steeles Tavern; Swoope; West Augusta; and Wintergreen (mostly in Nelson County).

Figure 1: Augusta County and Surrounding Area



Governance Structure

A seven member Board of Supervisors (Board) governs Augusta County. The Board is the policy making body of the County's local government structure as conferred by Title 15.2 of the Code of Virginia.

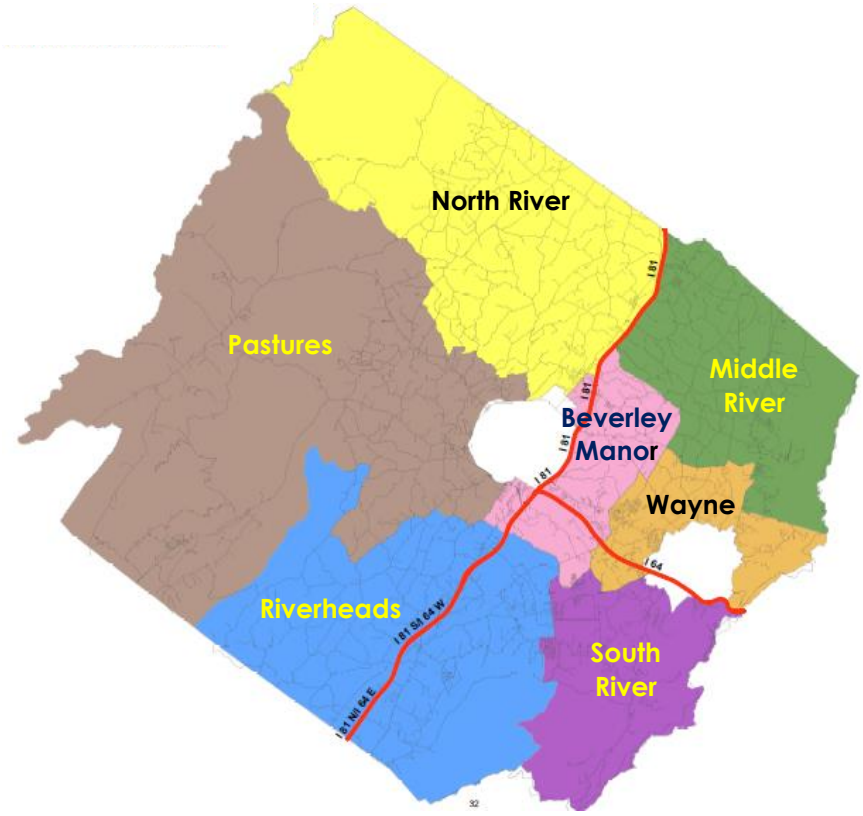
Article 1 §2-1(A) of the Augusta County Code establishes the County Administrator position. This article further establishes "The Board of Supervisors shall appoint a County Administrator who shall devote his full time to the work and service of the county under the direction of the Board of Supervisors, to whom he shall be accountable."

The Augusta County Sheriff's Office is the primary law enforcement agency for the unincorporated areas of the County and the Town of Craigsville.

Augusta County has seven magisterial districts that include Beverley Manor; Middle River; North River; Pastures; Riverheads; South River; and Wayne.

Figure 2: Augusta County Magisterial Districts

Approved by the Board of Supervisors on December 8, 2021



Jeffrey A. Slaven, Chairman
North River Magisterial District

Pam L. Carter, Vice-Chair,
Pastures Magisterial District

G.L. "Butch" Wells
Beverley Manor Magisterial District

Gerald W. Garber
Middle River Magisterial District

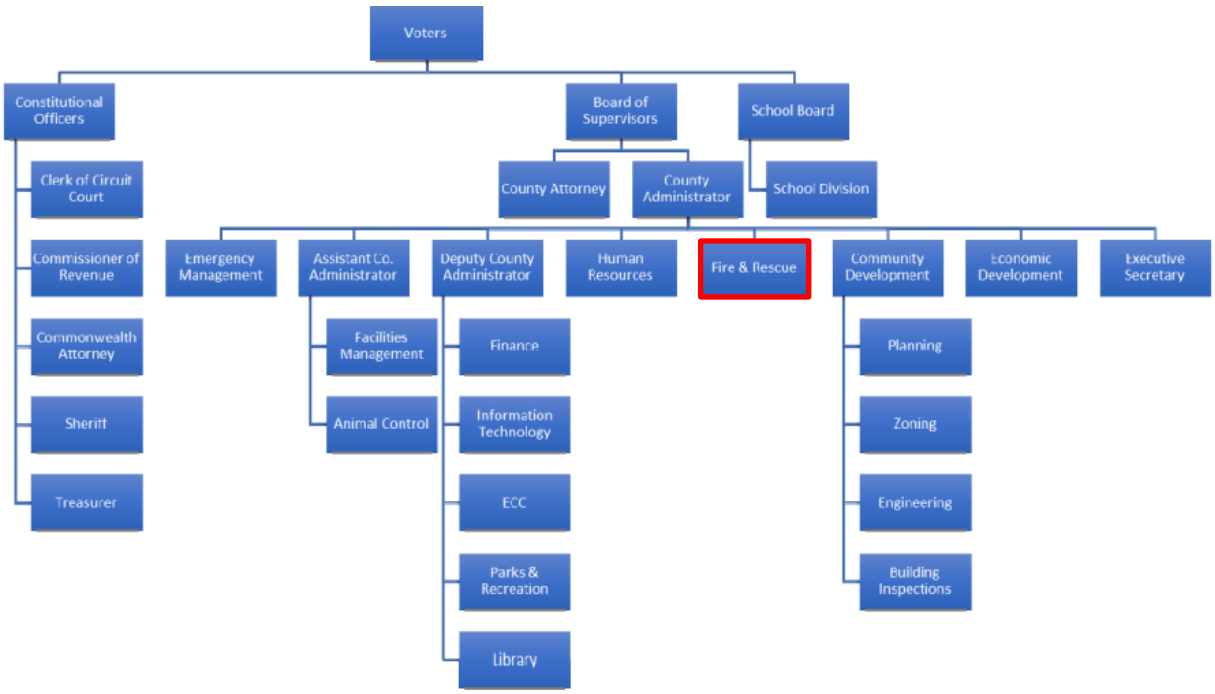
Michael L. Shull
Riverheads Magisterial District

Carolyn Bragg,
South River Magisterial District

Scott Seaton,
Wayne Magisterial District

The next figure illustrates the organizational chart of the county and establishes where the Fire-Rescue Department aligns with the County Administrator, the Board of Supervisors and other county departments and functions.

Figure 3: Augusta County Organizational Chart



Article 2 §2-13(A) of the Augusta County Code establishes the emergency services departments of Fire and Rescue Services and the operation of the Emergency Communications Center.

Article 2 §2-13(B) further establishes *the departments shall consist of the Chief of Fire-Rescue, the Director of the Emergency Communications Center, and such additional employees as may be necessary to administer fire and rescue services and to operate the Emergency Communications Center.*

All fire and rescue agencies in Augusta County shall be formed into one large fire/rescue district, forming a partnership in public safety under the jurisdiction of the Chief of Augusta County, in accordance with §27-6.1 and § 27-23.1 of the Code of Virginia.

> **§ 27-6.1** of the Code of Virginia: Establishment of fire departments; chiefs, officers, and employees.
>
> *The governing body of any county, city, or town may establish a fire department as a department of government and may designate it by any name consistent with the names of its other governmental units. The head of such fire department shall be known as "the chief." As many other officers and employees may be employed in such fire department as the governing body may approve.*
>
> **§ 27-23.1** of the Code of Virginia:
>
> *The governing bodies of the several cities or counties of the Commonwealth may create and establish, by designation on a map of the city or county showing current, official parcel boundaries, or by any other description which is legally sufficient for the*

conveyance of property or the creation of parcels, fire zones or districts in such cities or counties, within which may be located and established one or more fire departments, to be equipped with apparatus for fighting fires and protecting property and human life within such zones or districts from loss or damage by fire, illness, or injury.

In the event of the creation of such zones or districts in any city or county, the city or county governing body may acquire, in the name of the city or county, real or personal property to be devoted to the uses aforesaid and shall prescribe rules and regulations for the proper management, control, and conduct thereof. Such governing body shall also have authority to contract with, or secure the services of, any individual corporation, organization, or municipal corporation, or any volunteer firefighters for such fire protection as may be required.

To raise funds for the purposes aforesaid, the governing body of any city or county in which such zones or districts are established may levy annually a tax on the assessed value of all property real and personal within such zones or districts, subject to local taxation, which tax shall be extended and collected as other city or county taxes are extended and collected. In any city or county having a population between 25,000 and 25,500, the maximum rate of tax under this section shall be $0.30 on $100 of assessed value.

The amount realized from such levy shall be kept separate from all other moneys of the city or county and shall be applied to no other purpose than the maintenance and operation of the fire departments and companies established under the provisions of this section.

Additionally, and important to this analysis, Article 2 §2-13(C), (D), and (E) of the Augusta County Code establishes:

Article 2 §2-13(C): *The county has recognized the following in county fire companies or departments or rescue squads as an integral part of the official safety program of the county for the purpose of qualifying them under the Virginia Line of Duty Act:*

- *Augusta County Fire Department Volunteers, Inc.*
- *Augusta County Fire Rescue (Career)*
- *Craigsville Volunteer Fire Department, Incorporated*
- *Churchville Volunteer Fire Department and First Aid Crew, Incorporated*
- *Deerfield Valley Volunteer Fire Department, Inc.*
- *Dooms Volunteer Fire Company, Incorporated*
- *Middlebrook Volunteer Fire Department, Incorporated*
- *Stuarts Draft Volunteer Fire Company, Incorporated*
- *Verona Volunteer Fire Company, Incorporated*
- *Weyers Cave Volunteer Fire Department, Incorporated*
- *Stuarts Draft Rescue Squad, Inc.*
- *ACFR, Inc. (Craigsville-Augusta Springs First Aid Crew Station)*
- *ACFR, Inc. (Preston L. Yancey Station)*
- *Swoope Volunteer Fire Company*

- *Wilson Volunteer Fire Company*
- *Mount Solon Volunteer Fire Co. & Rescue Squad, Inc.*
- *New Hope Volunteer Fire Department, Inc.*
- *Riverheads Volunteer Fire Department, Inc.*

Article 2 §2-13(D): *The county has further recognized the following out of county fire companies or departments or rescue squads as an integral part of the official safety program of the county for the purpose of providing for public safety per individual or jurisdictional mutual aid agreements and having first due response areas within Augusta County. They will be covered by their jurisdiction where they are geographically located for the purpose of the Virginia Line of Duty Act:*

- *Bridgewater Volunteer Fire Company, Incorporated*
- *Raphine Volunteer Fire Company, Inc.*
- *Grottoes Volunteer Fire Department, Incorporated*
- *Staunton-Augusta Rescue Squad, Inc.*
- *Waynesboro First Aid Crew, Incorporated*
- *Grottoes Rescue Squad, Inc.*
- *Bridgewater Volunteer Rescue Squad, Inc.*
- *Walkers Creek Fire Department*
- *Wintergreen Fire and Rescue*
- *Clover Hill Volunteer Fire Company, Inc.*

Article 2 §2-13(E): *There is hereby established within the departments the Augusta County Emergency Services Officers Association which may adopt policies and procedures governing the operations of its represented organizations consistent with applicable state and county laws and policies and subject to the approval of the Board of Supervisors. The Association shall consist of the Chief Officer, or their designee, of each of the fire companies or departments or rescue squads listed in subparagraphs C and D of this section who shall represent their respective organizations within the Association.*

The next figure illustrates county and out-of-county fire-rescue system locations.

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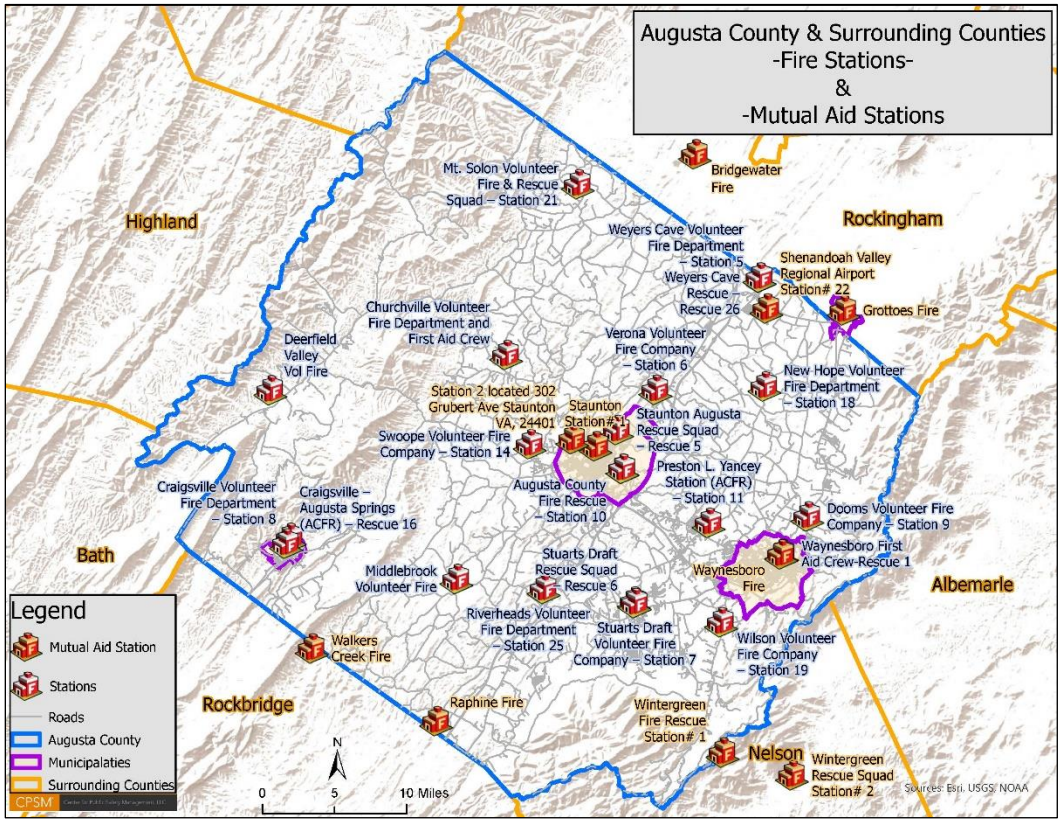
Figure 4: Augusta County Fire Rescue System (County and Out of County)



In addition to the out of county fire and rescue organizations noted by the Augusta County Code, the City of Staunton Fire Department and the City of Waynesboro Fire Department provide significant automatic and mutual aid to the Augusta County Fire Rescue System.

These two fire departments are not included in Article 2 §2-13(D) of the Augusta County Code.

Further, the current membership of the Augusta County Emergency Services Officers Association (as listed on the ACFR department website) includes:

- Fire Chiefs of each fire department that answers calls in Augusta County.
- Captain of each rescue squad that answers calls in Augusta County.
- Augusta County Sheriff.
- Augusta County Emergency Communications Center Director.
- Central Shenandoah Emergency Medical Services Council Director.

The above does not match the membership identified in Article 2 §2-13(E) of the Augusta County Code.

Recommendation:

CPSM recommends the ACFR Fire Chief review and update, for Board of Supervisors consideration and approval, Article 2 §2-13(D) and Article 2 §2-13(E) of the Augusta County Code to ensure the appropriate departments and member organizations are included.

Road Network

The characteristically rural roadway network in Augusta County is predominantly comprised of two-lane roadways and the occasional divided highway. For the most part, traffic volumes on these roads are minimal to moderate and roadway congestion is infrequent. While there has been considerable development on several of the major corridors that intersect or run parallel to I-64 and I-81, such as US 11, US 250, US 340, and State Route 285/608, the majority of the county's transportation system remains rural in character. On roadways serving many of the newly developed areas, traffic volumes have increased and there are periods of the day when intersection congestion is commonplace.[2]

The county's highway network is comprised of two interstate facilities, the state primary system, and the state secondary system. The *2021 VDOT State Highway System Mileage Table* shows that the state maintains 2,662 lane- miles of hard surface roads with Augusta County. Lane-miles include the length of travel lanes in both directions along a street and as well as accounts for multilane roads.[3]

Interstate Facilities

Interstates 64 and 81 run through Augusta County.

- I-64 runs in a generally east/west orientation through central Virginia, merging with I-81 near Staunton.
- I-81 runs in a generally north/south orientation along the western edge of Virginia. The majority of the I-81 corridor in Augusta County is rural in character. Throughout the I-81 corridor, in Augusta County, high volumes of heavy trucks substantially impact traffic conditions.

High traffic volumes on I-64 and I-81 indicate that state to state, county to city, and city to county trips are being made on the interstate corridor.

State Primary System – Primary Routes

Routes within this classification include the network of major US and state routes throughout the county. This system includes principal arterials, minor arterials, and major collectors. Typically, these roads have higher traffic volumes and carry a more significant proportion of through traffic than State Secondary Roads. Examples of primary routes include US 250, US 340, US 11, State Route 42, State Route 252, and State Route 285.

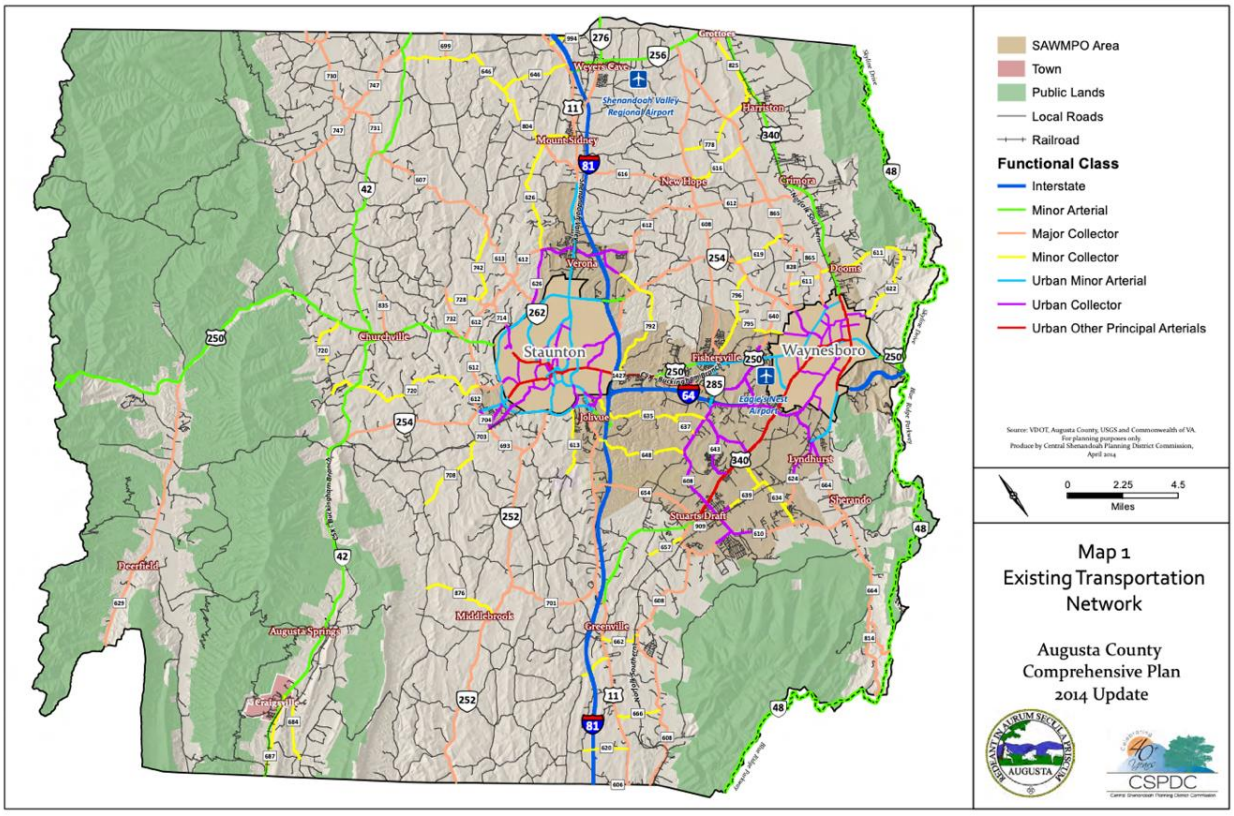
State Secondary System – Secondary Roads

Routes within this classification include the network of minor state routes throughout the county. Similar to the State Primary System, facility types within this system include arterials, major and minor collectors, and local streets. Within these roadway systems, several different roadway class exist and include:

2. Augusta County Comprehensive Plan, Update 2014/2015, Transportation Chapter, August 26, 2015 – Amended July 22, 2020.
3. Virginia Department of Transportation State Highway Systems Mileage Tables, December 31, 2021, p.87. https://www.vdot.virginia.gov/media/vdotvirginiagov/about/vdots-transportation-system/highways/mileage-tables/mileage_table_2021.pdf, (accessed October 15, 2023).

- Arterials - are the highest classifications of street. They include facilities with full access control (Freeway and expressways) as well as several types of thoroughfares. Typically, they provide high mobility, operate at higher speeds, provide significant roadway capacity, and serve longer distance travel.
- Collectors - typically provide less overall mobility, have more frequent and greater access flexibility, and lower speeds. The majority of collector streets connect with one another, with local streets and with non-freeway/expressway arterials.
- Locals – provide a high level of access to adjacent land uses/development, serve short distance travel, and have lower speed limits. Local streets typically connect to one another, to collector streets, and less frequently to arterials.

Figure 5. Augusta County Road Network



Level-of-Service (LOS) is a qualitative assessment of a road's operating conditions and is utilized when analyzing roadway segments. The term refers to a measurement which reflects the relative ease of traffic flow on a scale of A to F, with free-flow being rated LOS-A and congested conditions rated as LOS-F. Level-of-Service data was analyzed for Augusta County roadway segments using the VDOT Statewide Planning System (SPS) database. LOS D-F is considered failing according to the Augusta County Comprehensive Plan update-2014 analysis.

The 2009 and 2035 LOS are displayed in the following maps: 2009 Level-of-Service and 2035 Level-of-Service.[4]

4. Comprehensive Plan Update 2014/2015, August 26, 2015, - Amended July 22, 2020.

Figure 6. Augusta County 2009 Level of Service[5]

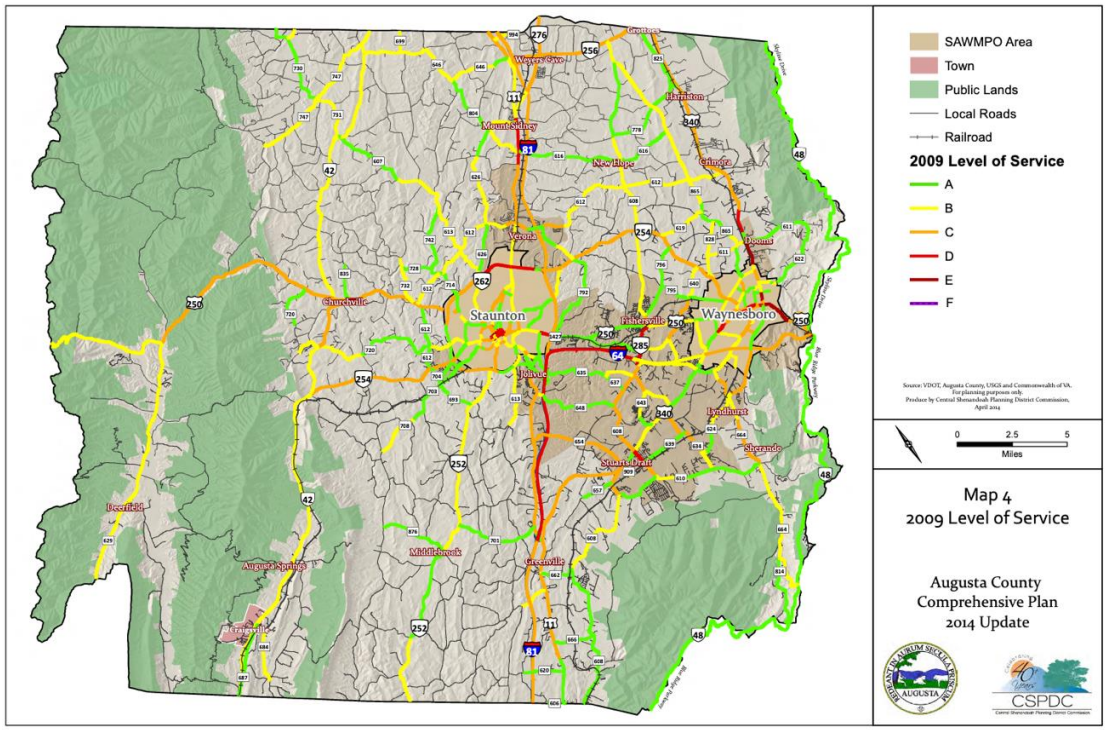
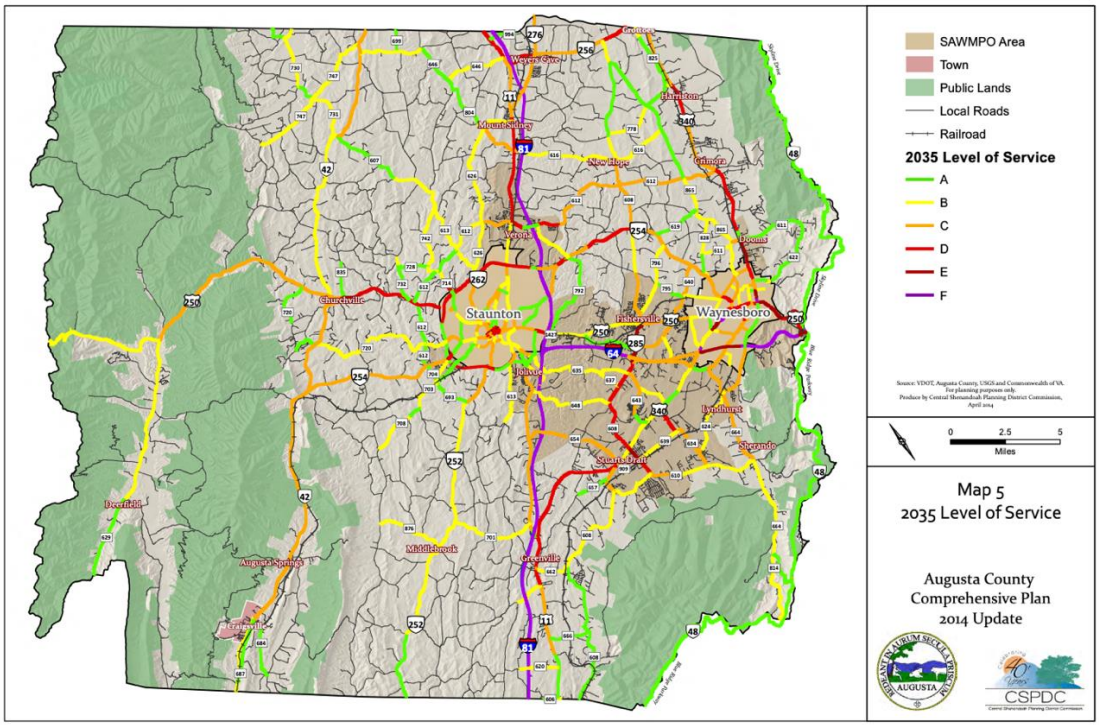


Figure 7. Augusta County 2035 Level of Service[6]

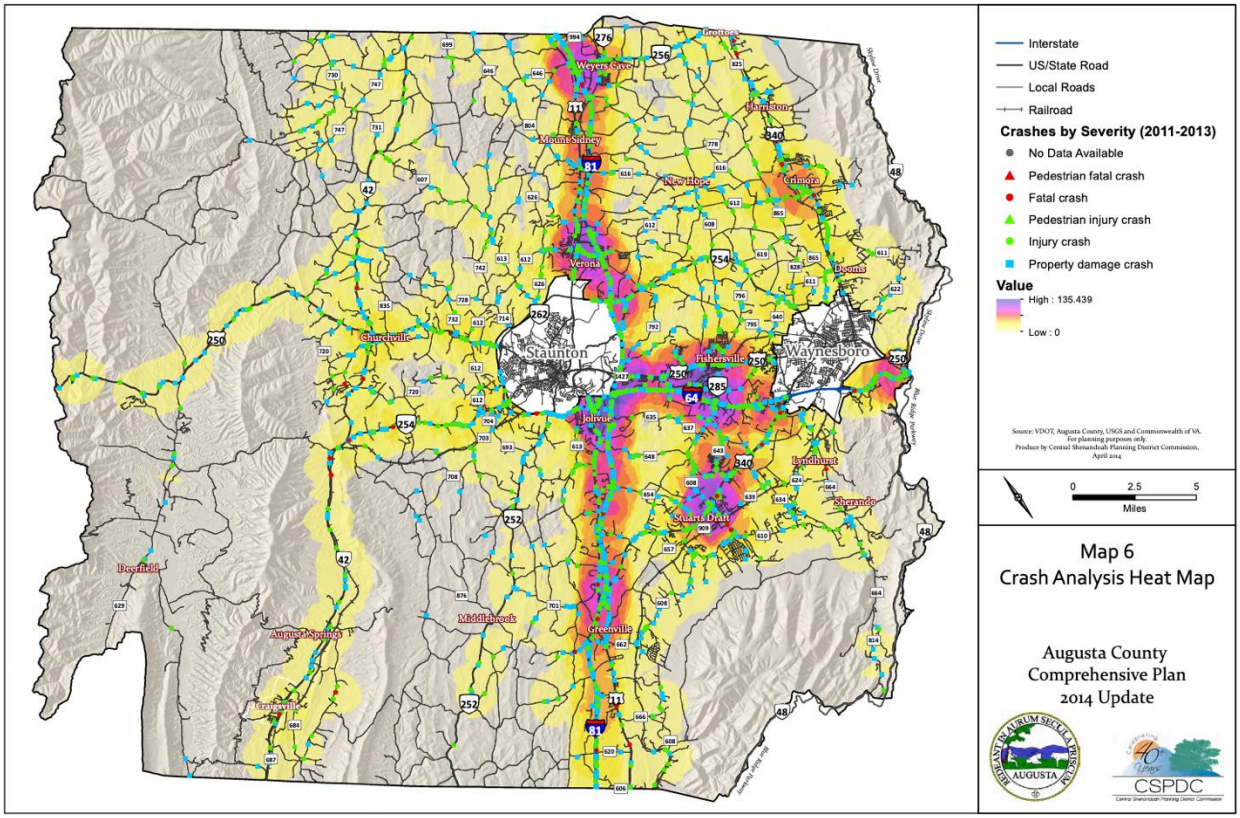


5. Ibid.
6. Ibid.

Level of service is important to fire and EMS in terms of ability to respond to emergencies over the existing road network and understanding where, at certain times of the day, the level of service is reduced, and alternate routes may have to be taken to ensure timely response.

Next, we review the motor vehicle accident locations and demand in the County. The Crash Analysis Heat Map displayed next shows the number, severity, and density of crashes throughout Augusta County between 2011 and 2013 as provided by VDOT.[7] I-81 and I-64 in Augusta County have major crashes occurring regularly which often involve trucks and other heavy vehicles. The high number of crashes on the two interstates is evident on the map. These major crashes can block the shoulder, individual travel lanes, and the roadway entirely. VDOT estimates the time needed to restore traffic flow following the arrival of responders to one of these major crashes is typically 45 minutes to an hour.

Figure 8. Augusta County Crash Analysis Heat Map

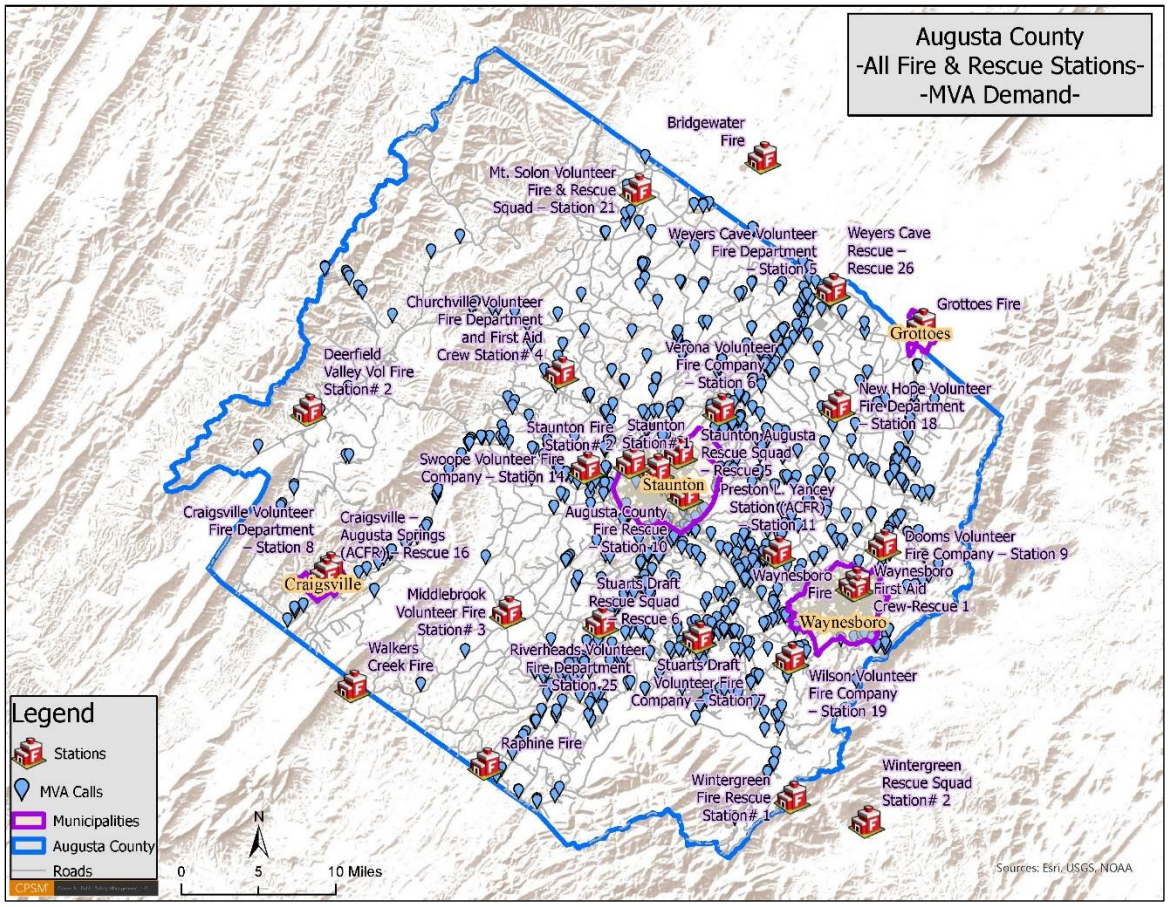


CPSM conducted a workload and respond time analysis for a one year period as a segment of this gap analysis (July 1, 2022-June 30-2023). During this one year period there were 941 motor vehicle accidents in the County responded to by fire companies (17 percent of all fire calls), and 828 motor vehicle accidents in the County responded to by EMS units (7 percent of all EMS calls). Many motor vehicle calls are responded to by both fire and EMS units, as well as law enforcement units.

The next illustrates motor vehicle accident demand for the one year CPSM analysis period. If overlayed on the 2014 Comprehensive Plan maps (Crash Analysis and Level of Service), it will show very similar motor vehicle accident location patterns on LOS challenged roads.

7 Ibid.

Figure 9. CPSM Motor Vehicle Accident Demand Map



The road and transportation network In Augusta County poses risks for a vehicular accident, some at medium to greater than medium speeds, as well as vehicular-versus-pedestrian risks. There are additional transportation risks since tractor-trailer and other commercial vehicles traverse the roadways of Augusta County to deliver mixed commodities to business locations. The extreme nature of roads built in mountainous areas provides potential to increase risk and the severity of emergency incidents on those roads.

Fires or releases of products involving these commodities can produce vapors, smoke and other products of combustion that may be hazardous to health. Additionally, there is risk for a mass casualty incident involving mass-transit buses either on specific bus routes/roads in the county or utilizing the road network in the County for stops in jurisdictions external to the county.

Public Transit

Public transit in Augusta County consists of on-demand service and three deviated fixed-route bus lines. On-demand service is currently extremely limited in scope. Additional public transit service within the cities of Staunton and Waynesboro is provided by Brite Bus Transit Service provides connections to the three county routes. The following three lines offer deviated fixed-route service.

- 250 Connector - provides service between the cities of Staunton and Waynesboro along US 250, stopping at Augusta Health and the Woodrow Wilson Campus.

- 340 Connector –provides service between Stuarts Draft and the Blue Ridge Community College in Weyers Cave operating along US 340 through Waynesboro and Grottoes.
- Blue Ridge Community College Shuttles – the Blue Ridge Community College (BRCC) Shuttles offer two routes. The BRCC South Shuttle provides service between Staunton and the BRCC Campus in Weyers Cave. A BRCC North Shuttle also provides service from the campus up to Harrisonburg.

Rail Transportation

Augusta County has rail transportation risks that include passenger and freight rail. Rail runs north-south and east-west and is primarily located in the eastern areas of the county with a main line in the southwest and central west area of the county that goes in and out of Staunton.

Limited passenger rail service in Staunton is offered on the Amtrak Cardinal/Hoosier State route that runs between New York City and Chicago. This route runs on CSX-owned rail lines through the County. Westbound and eastbound trains operate three times a week.

Currently, Augusta County is served by two Class I freight railroads; Norfolk Southern Corporation and CSX Transportation. Within Augusta County, Norfolk Southern operates a predominantly north/south rail line and CSX operates a predominantly east/west line.

In addition to Norfolk Southern and CSX lines in Augusta County, there are two short-line railroads operating in Augusta County. Buckingham Branch Railroad operates on rail lines owned by CSX through Augusta County and then generally parallels SR 42 south and west to Clifton Forge, in Alleghany County. The Shenandoah Valley Railroad runs north from Staunton, approximately paralleling the I-81 corridor.

Freight commodities are the primary consist of the trains. Typical freight loads may include intermodal freight cars carrying various containerized consumer goods, agricultural products, industrial goods, lumber, and tank cars carrying liquids or gases.

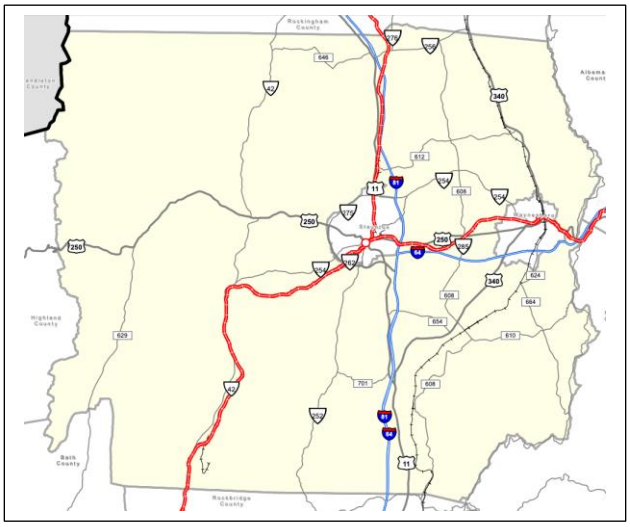
While not all the commodities carried may be considered hazardous materials, fires involving these commodities can produce smoke and other products of combustion risks that may be hazardous to health. Hazardous materials themselves present hazards to health risks if being transported and involved in a rail accident.

There is a combination of 71 private and 66 public railroad crossings throughout Augusta County according to the U.S. Department of Transportation, Federal Railroad Administration[8] and include both at-grade and grade separated crossings; the majority of which are at grade vehicle/rail crossings. These crossing can restrict and impede traffic flow. More importantly, these crossings can hamper emergency vehicle traffic, extending response travel times.

These crossings also pose transportation accident risks. Trains travel through parts of the county transporting flammables, combustibles, and other hazardous materials the ACFR system needs to be prepared to handle and mitigate in an emergency.

8. U.S. Department of Transportation, Federal Railroad Administration, https://railroads.dot.gov/safety-data/crossing-and-inventory-data/crossing-inventory-county-and-id, (accessed November 10,2023).

Figure 10: Augusta County Passenger and Freight Rail Lines

Passenger Rail (Red Highlight)	Freight Rail (Red and Yellow Highlight)
	

Airports

Two public-use airports are located in Augusta County; the Shenandoah Valley Regional Airport and Eagle's Nest. The county's primary airport is the publicly owned Shenandoah Valley Regional Airport, which is centrally located between Harrisonburg, Staunton, and Waynesboro in northern Augusta County. Eagle's Nest is a privately owned, public use facility that is located west of Waynesboro, north of the I-64 corridor.

Shenandoah Valley Regional Airport (SHD) has a single asphalt runway approximately 6,000 feet long and 150 feet wide. This airport serves general aviation and commercial airline traffic.

Shenandoah Regional Airport is adjacent to 200 acres of land intended for industrial development to include air transportation/distribution facilities.

Eagle's Nest (W13) has a single asphalt runway approximately 2,000 feet long by 50 feet wide. This airport exclusively serves general aviation traffic.

Utilities

Water and Sewer Service[9]

Augusta Water, a separate entity from the county and provides water and sewer service to some Augusta County residents. Ten separate water systems are maintained, including seven microfiltration treatment systems, and a water distribution network comprised of over 412 miles of water mains and more than 2,093 fire hydrants.

9. Augusta Water, https://www.co.augusta.va.us/residents/water-wastewater-trash-recycling, (accessed 22 November 2023)

Wastewater

Augusta Water provides wastewater collection, conveyance, and treatment through four major facilities and five smaller facilities including the Middle River Regional Wastewater Treatment Plant, which is jointly owned by Augusta Water and the City of Staunton.

Solid Waste

Augusta Water operates the Augusta Regional Landfill, providing solid waste and recycling services for residents of Augusta County, the City of Staunton, and the City of Waynesboro.

Energy Utilities

There are no power generation sources within Augusta County. County are served by five electricity suppliers that include Dominion Energy, Shenandoah Valley Electric Cooperative, BARC Electric Cooperative, Strategic Energy LLC, and Texas Retail Energy. Dominion Energy is the largest electric energy provider.

Augusta County also has a growing electric vehicle (EV) infrastructure. Charging stations are concentrated in the Staunton/Waynesboro area at this time.

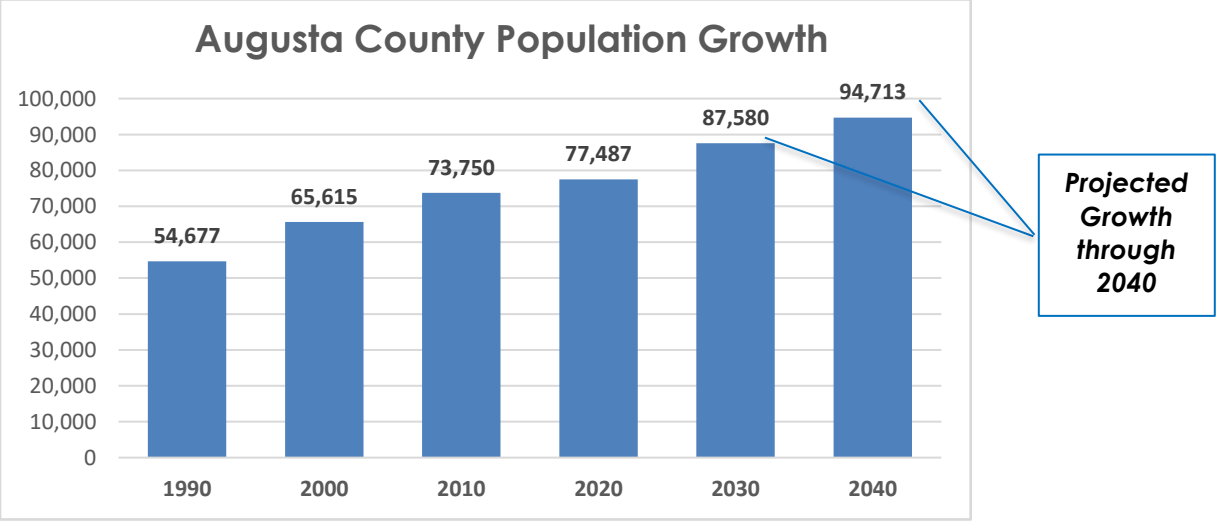
Natural Gas

Natural gas is provided to the area by Columbia Gas of Virginia through a 20-inch, high pressure pipeline that crosses the southeastern portion of the county. Distribution lines connect to the main line and serve the areas of Staunton, Verona, Fishersville, Stuarts Draft, and Waynesboro.

Population and Growth

The U.S. Census Bureau indicates the population of Augusta County in 2020 was 77,487. This is a 5.06 percent increase in population since the 2010 census of 73,750. The county has 971 total square miles. The population density is 80.1 per square mile. This is an increase of 3.8 people per square mile over the 2010 census numbers.

Figure 11: Augusta County Population Growth: 1990-2040



Population Sources:

- 1990 and 2000 – Augusta County Comprehensive Plan Update 2014/2015.
- 2010 and 2020 – U.S. Census Bureau QuickFacts: Augusta County, Virginia.
- Projections for 2030 and 2040 – Augusta County Comprehensive Plan Update 2014/2015, (Source: Weldon Cooper Center for Public Safety).

The population of Augusta County grew significantly between 1990 and 2013, with the largest increase coming between 1990 and 2000 when it was over 20%. Growth continued to be strong from 2000 to 2010 with a 12.4% increase. However, the growth began slowing down in the county, seeing only a 5 percent increase between the 2010 and 2020 census. The county's population is expected to continue to grow, but at a somewhat slower pace than in previous decades.

In terms of fire and EMS risk, the age and socio-economic profiles of the population can have an impact on the number of requests for fire and EMS services. Evaluation of the number of seniors and children by fire management zones can provide insight into trends in service delivery and quantitate the probability of future service requests. In a 2021 National Fire Protection Association (NFPA) report on residential fires, the following key findings were identified for the period 2015-2019:[10]

- Males were more likely to be killed or injured in home fires than females and accounted for larger percentages of victims (57 percent of the deaths and 55 percent of the injuries).
- The largest number of deaths (20 percent) in a single age group was among people aged 55 to 64.
- 48 percent of the victims of fatal home fires were between the ages of 25 and 64, and three of every five (62 percent) of the non-fatally injured were between the ages of 25 and 64.
- Slightly over one-third (36 percent) of the fatalities were age 65 or older; only 17 percent of the non-fatally injured were in that age group.
- Children under the age of 15 accounted for 11 percent of the home fire fatalities and 9 percent of the injuries. Children under the age of 5 accounted for 5 percent of the deaths and 4 percent of the injuries.
- Adults of all ages had higher rates of non-fatal fire injuries than children.
- Smoking materials were the leading cause of home fire deaths overall (23 percent) with cooking ranking a close second (20 percent).
- The highest percentage of fire fatalities occurred while the person was asleep or physically disabled and not in the area of fire origin, key factors to vulnerable populations.

In Augusta County, the following age and socioeconomic factors are considered herein when assessing and determining risk for fire and EMS preparedness and response:[11]

- Children under the age of five represent 4.1 percent of the population.
- Persons under the age of 18 represent 18.1 percent of the population.

10. M. Ahrens, R. Maheshwari "Home Fire Victims by Age and Gender," Quincy, MA: NFPA, 2021.
11. U.S. Census Bureau QuickFacts: Augusta County, Virginia.

- Persons over the age of 65 represent 22.9 percent of the population.
- Female persons represent 49.1 percent of the population.
- There are 2.44 persons per household in Augusta County, (2017-2021).
- The median household income (in 2021 dollars), 2017-2021 was $69,082.
- People living in poverty make up 8.5 percent of the population.

Black or African American alone represents 4.9 percent of the population. The remaining percentage of population by race includes White alone (not Hispanic or Latino) at 89.0 percent, American Indian or Alaska Native alone at 0.3 percent, Asian alone at 0.7 percent, two or more races at 1.9 percent, and Hispanic or Latino at 3.9 percent.

The demographics in Augusta County overall pose a moderate risk in totality. While not a high risk, a single call involving vulnerable population (fire or EMS) poses a higher risk on that particular response. Through pre-fire planning and response district knowledge of residential and other structures housing a vulnerable population as identified above, the ACFR system will have the necessary situational awareness and be better prepared to mitigate the emergency once on the scene of the incident.

The Augusta County Comprehensive Plan Update 2014/2015, adopted August 26, 2015, serves as an extensive update to the Comprehensive Plan 2007-2027 and together is considered to be Augusta County's current Comprehensive Plan. In addition, the Fishersville Small Area Plan was adopted on January 28, 2009. Information from this plan is utilized when discussing planned future growth and what effect that may have on the delivery of fire and EMS services.

Strategies for growth includes four Planning Policy Areas and 12 Future Land Use Categories:[12]

Planning Policy Areas

Planning Policy Areas are geographic areas designated in the Plan as appropriate for a particular range of future land uses and public facilities. The location and extent of these areas are based primarily upon the existing land use pattern, the location of public facilities and natural resources, and the expected demand for development. The Planning Policy Area/Future Land Use Map shows the locations of these Policy Areas. ***Overall, there is a potential for continued growth in these areas and the ACFR system should continuously plan for this.***

Urban Service Areas: Urban Service Areas, (USA), are defined as areas which are appropriate locations for development of a full range of public and private land uses of an urban character on public water and sewer, in either the immediate or long term future.

Urban Service Areas are characterized by relatively substantial amounts of existing development and public utilities and facilities, substantial amounts of available developable land, and good transportation access. The development that is expected to take place in the USA is expected to be compact, interconnected, and pedestrian oriented while remaining sensitive to the context of the surrounding development as well as the surrounding natural features.

Community Development Areas: Community Development Areas, (CDA), are local community settlements which have existing public water or public sewer systems in place, or which have relatively good potential for extensions of either of those utilities. These areas are appropriate locations for future low density, rural land uses based upon road access, the existing land use

12. Augusta County Comprehensive Plan Update 2014/2015, August 26, 2015.

pattern, and proximity to existing public facilities and services, although they are planned to remain predominantly residential in character.

Community Development Areas do not have either public water or sewer service; therefore, they are only suitable for lower density, primarily residential uses. As development occurs over the very long term and public water and sewer service is extended, some Community Development Areas may evolve to the point that they are designated Urban Service Areas. The development that is expected to take place in CDA is expected to be compact, interconnected, and pedestrian oriented while remaining sensitive to the context of the surrounding development as well as the surrounding natural features.

Rural Conservation Areas: Rural Conservation Areas, (RCA), are areas which are substantially subdivided and/or developed with residential uses, which have no public water or sewer service, and which have few existing intensive agricultural operations. They are therefore priority locations for moderate amounts of future rural residential development. Any development taking place in RCA would be expected to be sensitive to the context of the surrounding agricultural areas as well as the surrounding natural features.

Agricultural Conservation Areas: Agricultural Conservation Areas, (ACA), are areas which have mainly farm or forest uses and have generally the lowest overall density of residential uses, have no public water or sewer service, and have most of the county's intensive agricultural operations. These areas are planned to remain predominantly agricultural and forestal uses with very little additional residential development. Any development taking place in ACA would be expected to be sensitive to the context of the surrounding agricultural areas as well as the surrounding natural features.

Future Land Use Categories

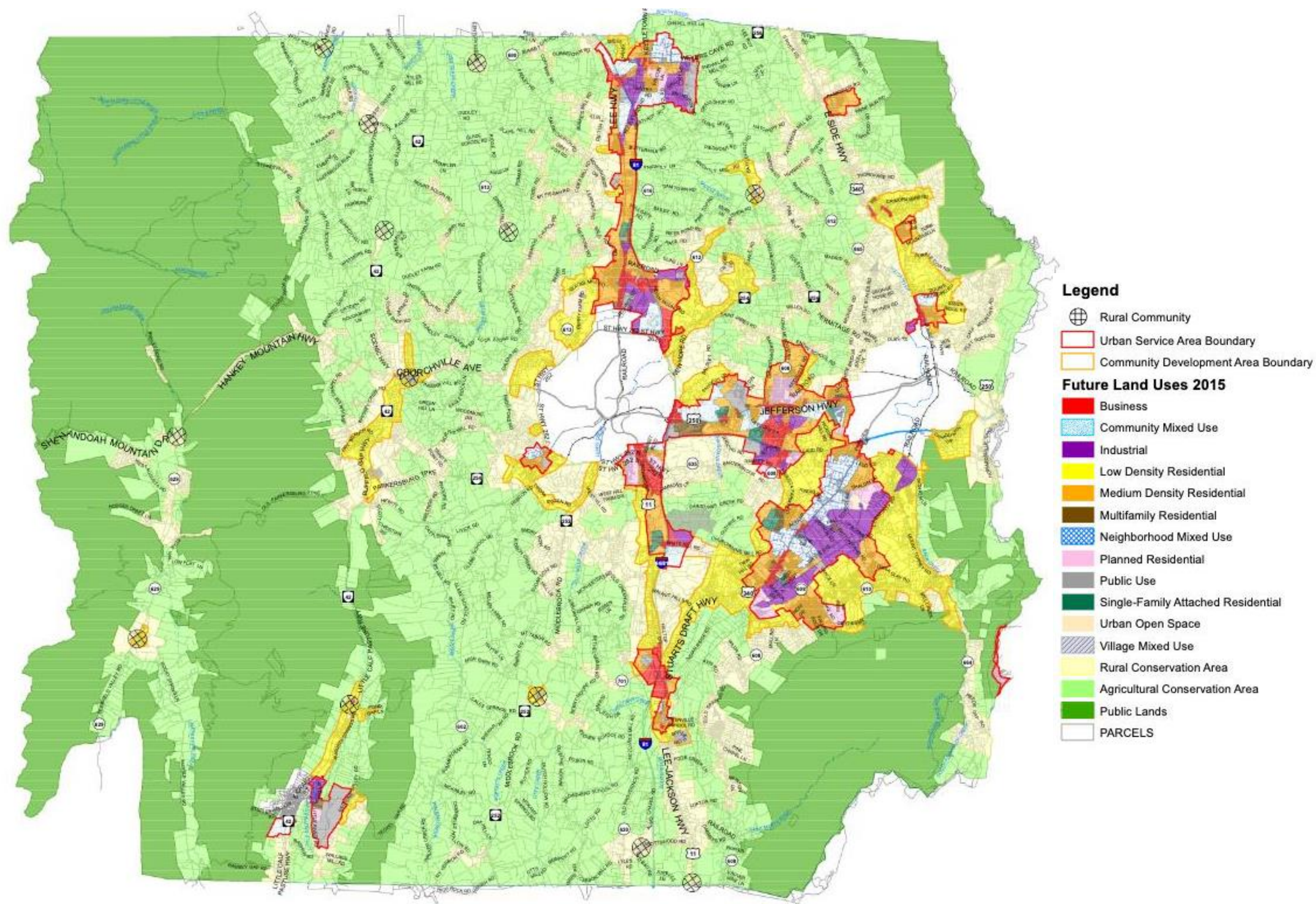
The future land use categories function within the geographic areas defined by the Urban Service and Community Development Areas. They serve to identify the specific use and density that is proposed for a parcel. There are twelve future land use categories identified by the Planning Policy Area/Future Land Use Map. ***Again, it is important for the ACFR system to monitor planned and real growth in these areas to ensure adequate Fire and EMS response coverage.***

These areas include:

- Industrial: Where industrial uses of varying scale and scope would be appropriate.
- Business: Where business uses of varying scale and scope would be appropriate.
- Public Use: Identifies land owned by, or utilized by, a federal, state, or local government agency.
- Community Mixed Use: Includes a variety of residential uses at a density of six to twelve dwelling units per acre and, on up to 40% of the total land area, retail and office uses and in some, but not all cases, industrial uses.
- Neighborhood Mixed Use: Includes a variety of residential uses at a density of four to eight dwelling units per acre and convenience retail and office uses on up to 20% of the total land area.
- Village Mixed Use: Encourages the adaptive reuse of existing structures, as well as infill development conforming to the existing or historic development pattern in the community; will be found only in the Community Development and Urban Service Areas.

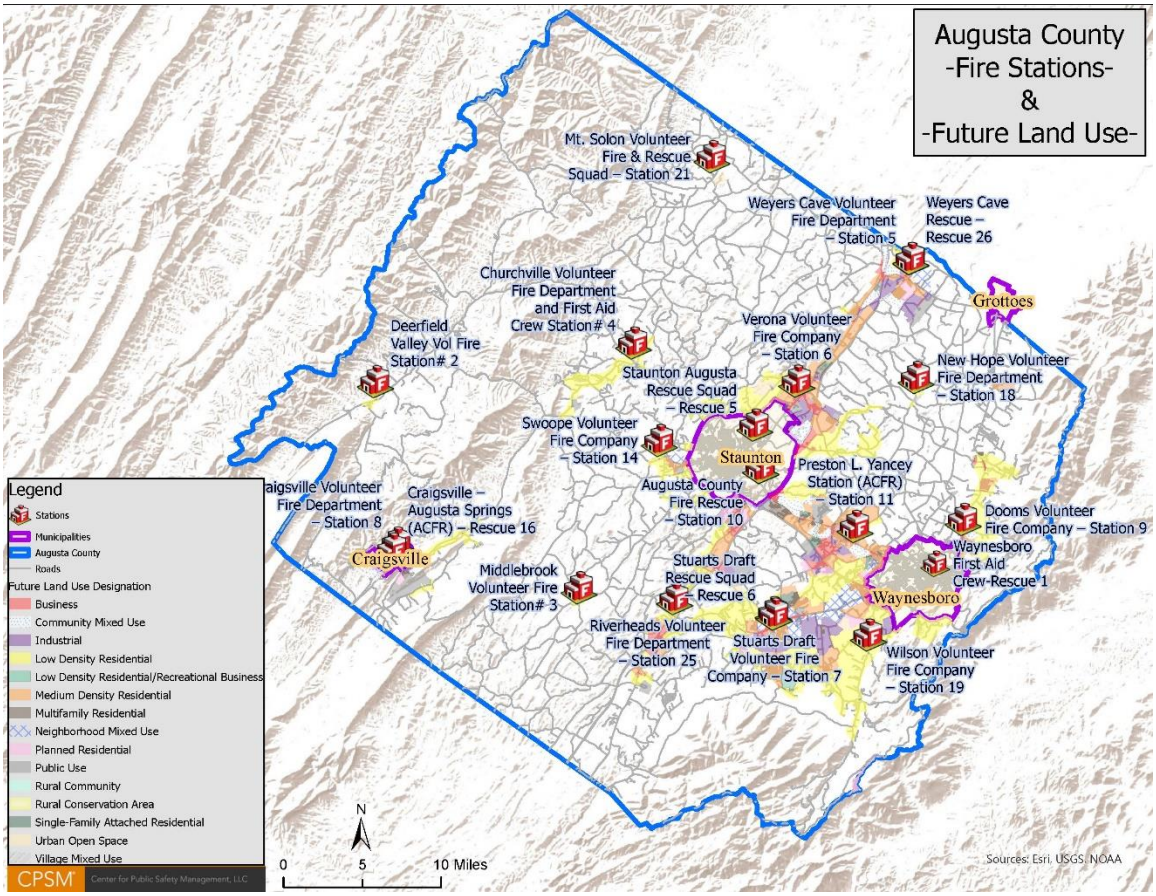
- Planned Residential: Includes a variety of residential uses at a density of four to eight dwelling units per acre.
- Multifamily Residential: Includes residential buildings housing between nine and sixteen dwelling units per acre, as well as manufactured home developments.
- Single-Family Attached Residential: Includes attached residential units like townhouses and duplexes at a density of between four and eight dwelling units per acre; will be found only in the Urban Service Area.
- Medium Density Residential: Includes detached residential units at a density of between three and four dwelling units per acre.
- Low Density Residential: Includes detached residential units at a density of between one-half and one dwelling unit per acre; will be found only in the Community Development Area.
- Urban Open Space: Identifies land permanently set aside for open space uses such as conservation easements and county recreation areas.

Figure 12: Future Land Use Map[13]



13. Ibid.

Figure 13: Future Land Use with ACFR System Stations



Land use in Augusta County is primarily agriculture conservation and public lands. These land uses are not heavily built upon with exception of a ring around Staunton along VA Route 262; north and south of Staunton along the I-81 and U.S. Route 11 corridors; east of Staunton along the I-64 and U.S. 250 corridors; and the Stuarts Draft and Fishersville areas, which already have substantial industrial, business, and residential development. There is the potential for additional low and medium density residential in the Crimora area, which is north of the Fishersville area along the U.S. 340 corridor.

Population, demographics, and growth impacts must be included in any strategic master planning the ACFR system conducts in the near, mid, and long terms. Increases in development will increase call demand and will impact the deployment analysis in future ISO-PPC community ratings, and the ability of the ACFR system to meet deployment benchmarks and community expectations.

§§§

SECTION 4. COMMUNITY RISK PROFILE

Environmental Factors

Augusta County is prone to and will continue to be exposed to certain environmental hazards and risks that may impact the community and which will create call demand for the fire-rescue system.

Augusta County has identified its community risk through a regional perspective. The following localities make up the Central Shenandoah Region and united to develop the Central Shenandoah ***Hazard Mitigation Plan Update 2020*** (CSHMP).

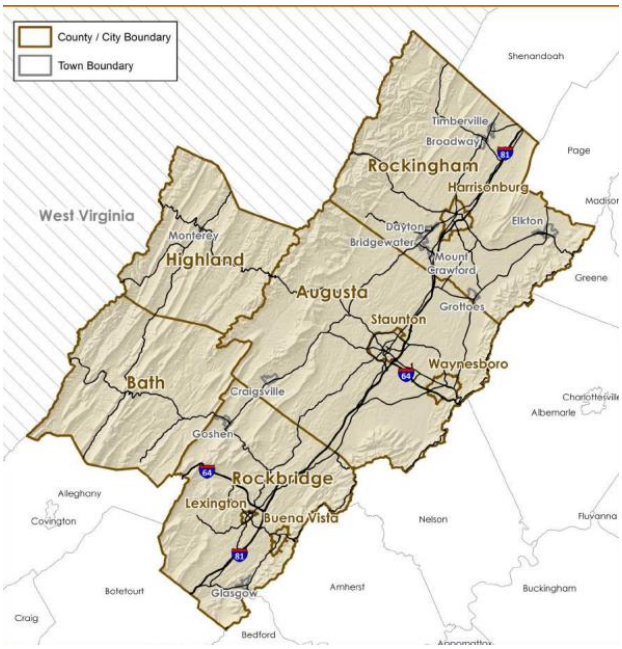
The Central Shenandoah Planning District Commission (CSPDC) consists of 21 jurisdictions. With a land area of 3,439 square miles, the CSPDC is the largest geographic planning district in the Commonwealth of Virginia.

The CSHMP includes a hazard identification risk assessment (HIRA), developed to serve as a guide to all communities in the region for assessing potential vulnerabilities to natural and other hazards.

CSPDC Counties, Cities, and Towns[14]

- Augusta County
- Bath County
- Highland County
- Rockbridge County
- Rockingham County
- City of Buena Vista
- City of Harrisonburg
- City of Lexington
- City of Staunton
- City of Waynesboro
- Town of Bridgewater
- Town of Broadway
- Town of Craigsville
- Town of Dayton
- Town of Elkton
- Town of Goshen
- Town of Glasgow
- Town of Grottoes
- Town of Monterey
- Town of Mount Crawford
- Town of Timberville

CSPDC Area Map[15]



Source Credit

14. Central Shenandoah Planning District Commission Hazard Mitigation Plan Update: 2020.
15 Ibid.

The following table shows the most likely hazards that could potentially affect the communities in the Central Shenandoah Planning District, ***which includes those in Augusta County***. Hazards are ranked to determine what hazards have the largest impact on communities.

Table 1: Central Shenandoah PDC Planning Consideration Levels[16]

Hazard Identification Results	
Flooding or Dam Failure	Significant
Drought	High
Hurricane	High
Severe Winter Weather	High
Land Subsidence/Karst	Medium
Wind (Tornado, Derecho or Straight-Line Winds)	Medium
Wildfire	Medium
Hazardous Materials (Transportation and Industrial)	Medium
Power Outages	Medium
Terrorism	Low
Landslide	Low
Earthquake	Low

Since 1969, there have been 22 Major Disaster Declarations in the region. As of July 23, 2019, individual communities in the region have been included within the Major Disaster Declarations a combined total of 108 times. ***Fourteen of these have included Augusta County.***

Augusta County was included in four of the five FEMA Declared Disasters from July 2012 to date within the region and include:

- FEMA DR-4072, severe storms/straight line winds; 2012: Public Assistance.
- FEMA DR-4092, Hurricane Sandy; 2012; Public Assistance.
- FEMA DR-4262, Severe winter storm and snowstorm; 2016; Public Assistance.
- FEMA DR-3403, Hurricane Florence; 2018; Public Assistance.
- FEMA DR-4512; COVID-19 Pandemic; 2021; Individual and Public Assistance.

Next, we further define the environmental hazards identified in the plan that have the potential of affecting Augusta County (unincorporated and incorporated).[17]

Flooding: *A flood is a natural event for rivers and streams. Excess water from snowmelt, rainfall, or storm surge accumulates and overflows onto the banks and adjacent floodplains. Floodplains are lowlands, adjacent to rivers, lakes, and oceans that are subject to recurring floods. Under natural conditions, a flood causes little or no damage. Flood problems only exist when the built environment is damaged by nature's water or when property and lives are jeopardized. Floods in the Region are almost always associated with hurricanes, tropical storms, and tropical depressions. However, some of the Region's flooding is caused by sustained heavy rains, severe thunderstorms, and even rapid snowmelts.*

Dam Failure: *The Dam Safety Impounding Structure Regulations require that dams be classified based upon potential impacts from dam failure. The classifications are not based upon the condition of the dam itself. The classifications consider the potential for impact in the area*

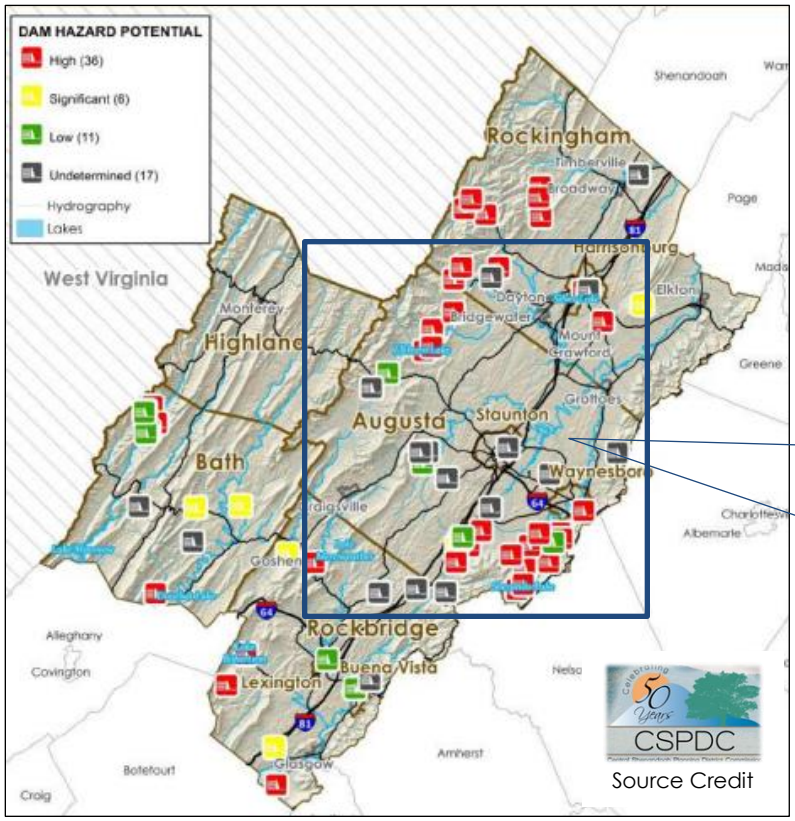
16. Ibid.
17. Ibid.

downstream, known as the inundation zone, by assessing potential impacts on loss of life and property damage. The classifications include:

- *High: Upon failure would cause probable loss of life or serious economic damage.*
- *Significant: Upon failure might cause loss of life or appreciable economic damage.*
- *Low: Upon failure would lead to no expected loss of life or appreciable economic damage.*

Within Augusta County, 18 dams have a high hazard potential, one dam has a significant hazard potential, four dams have a low hazard potential, and the hazard potential of seven dams is undetermined.

Figure 14: Dam Inventory and Hazard Potential



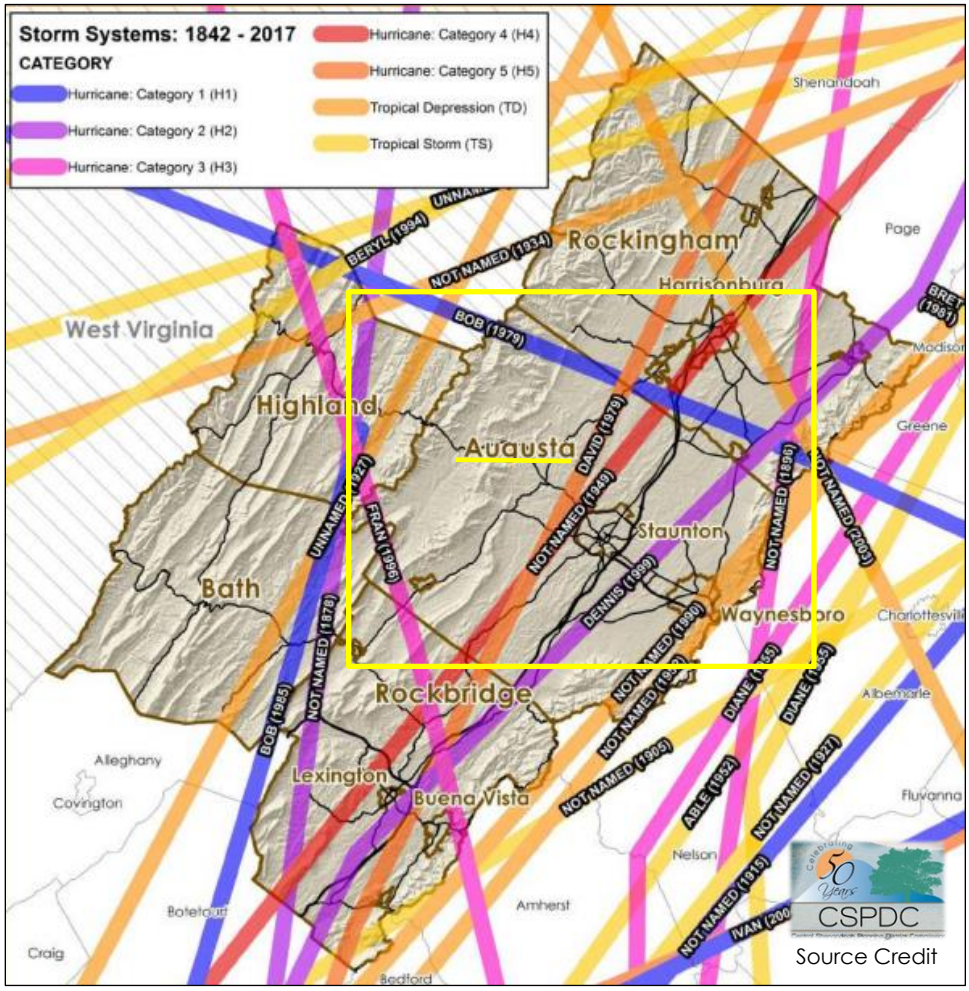
Within Augusta County, 18 dams have a high hazard potential, one dam has a significant hazard potential, four dams have a low hazard potential, and the hazard potential of seven dams is undetermined.

Drought (High Ranking): *Droughts are a normal and recurrent feature of climate that can affect vast regions and large population numbers. A drought is a period of abnormally dry weather that persists long enough to produce serious effects like agricultural losses, water supply shortages, and impacts on public health and energy production. Drought increases the risk of other hazards like fire, flash flood, and possible landslide and debris flow.*

Hurricane (High Ranking): *Depending on strength, tropical cyclones are classified as tropical depressions, tropical storms, or hurricanes. Tropical cyclones and remnants of these storms involve both atmospheric and hydrologic characteristics, such as severe windstorms, surge flooding, extreme rainfall, thunderstorms, lightning, and, in some cases, tornadoes. Storm surge flooding can push inland, and riverine flooding associated with heavy inland rains can be extensive. High winds are associated with hurricanes and hurricane remnants, with two*

significant effects: widespread debris and power outages. Widespread debris is due to damaged and downed trees and damaged buildings. The region is subject to remnants of tropical cyclone weather and indirectly from coastal and inland storm surge.

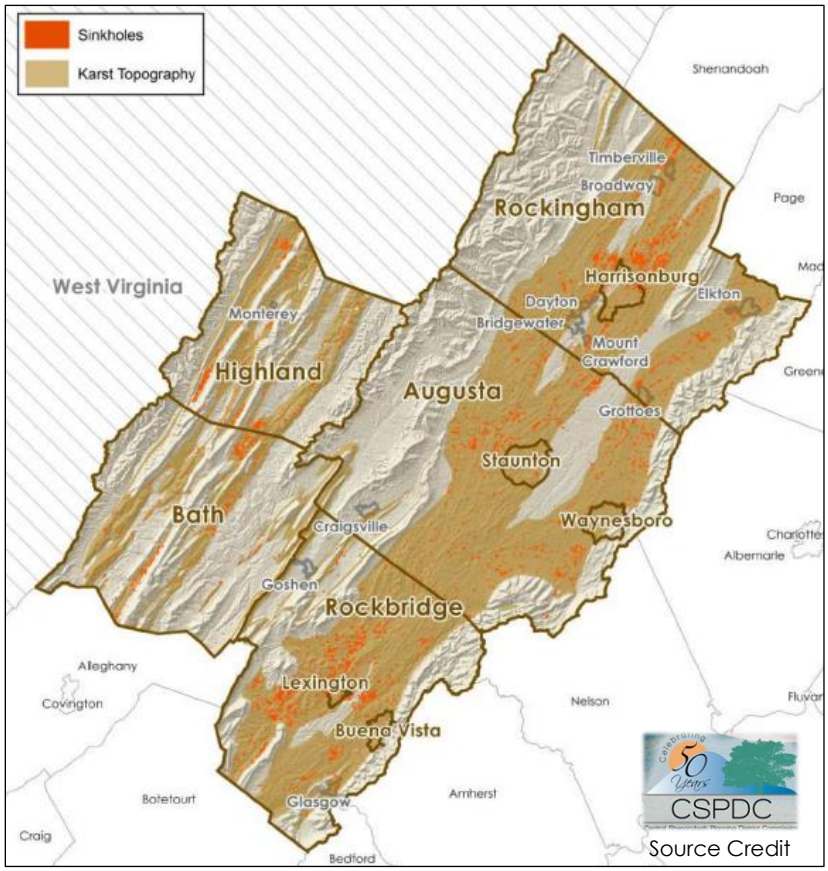
Figure 15: Hurricane Tracks CSPDC Region



Severe Winter Weather (High Ranking): *Winter storms may include a variety of cold weather conditions such as heavy snowfall, extreme cold temperatures, freezing rain, sleet, ice, and high winds. Blizzards are a type of winter storm with high winds and considerable blowing snow. Winter storms may last from just a few hours to several days and affect the entire region. The impacts of winter storms include downed power lines and trees, hazardous walking and driving conditions, road closures, and business, government facilities and school closures.*

Land Subsidence/Karst (Medium Ranking): *Land subsidence is caused by the gradual settling or sudden sinking of the ground due to subsurface movement. It commonly occurs in areas with karst terrain, which is a type of topography formed by dissolution of soluble rock such as limestone and dolomite. The soluble rock dissolves when acidic water percolates through the soil. Karst terrain is characterized by the presence of sinkholes, caves, springs, sinking streams and solution valleys.*

Figure 16: Karst Zones CSPDC Region



Structures and Critical Facilities Near Karst Zones

Augusta County

53,833 Structures

356 Critical facilities

City of Staunton

14,497 Structures

39 Critical Facilities

City of Waynesboro

11,270 Structures

80 Critical Facilities

CSPDC
Source Credit

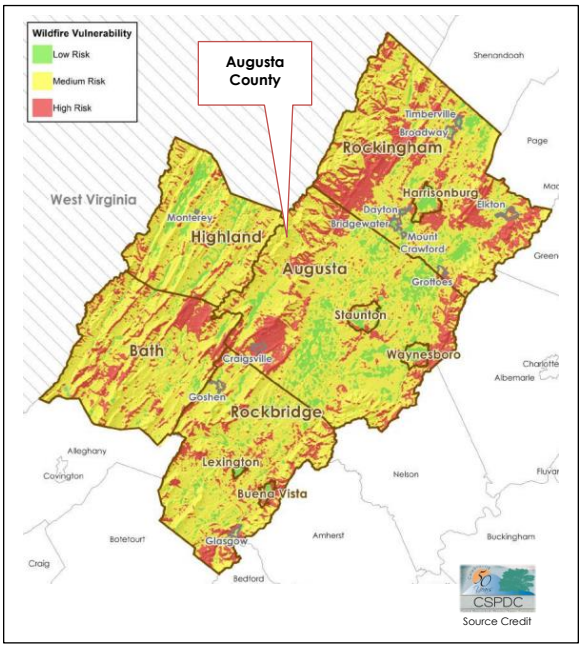
Wind (Tornado, Derecho, or Straight-Line Winds) (Medium Ranking): *Tornadoes are classified as a violently rotating column of wind that extends between a thunderstorm cloud and the earth's surface. The rotating column of air often resembles a funnel shaped cloud. The tornadoes that the region does experience are most frequently spawned from thunderstorms and have little to no warning time. Tornadoes often cause property damage, injuries, and fatalities. The Region has also experienced non-rotational wind events including isolated "downburst" or "straight-line" winds, as well as a derecho. Straight-line winds are associated with thunderstorms and can cause extensive property damage. A more severe type of damage occurs from straight-line winds experienced during a derecho. A derecho is a windstorm that is widespread and long-lived. During the storm, straight-line wind damage from downbursts, microbursts and burst swaths occurs, but the damage is similar to that produced by a tornado. Between 1911 and 2018 Augusta County experienced two F/EF 0, four F/EF 1, six F/EF 2, three tornadoes of unspecified strength, and three additional storms with extreme winds (including straight line winds).*

Wildfire (Medium Ranking): *A wildfire is an uncontrollable fire spread through vegetative fuels, exposing and possibly consuming structures. They often begin unnoticed and spread quickly and are usually signaled by dense smoke that fills the area for miles around. Naturally occurring and non-native species of grasses, brush, and trees fuel wildfires. Wildfire behavior is based on three primary factors; fuel, topography, and weather.*

Many rural areas of Augusta County are located within the Wildland Urban Interface (WUI). A WUI is defined as a zone of transition between unoccupied land and human development. It is

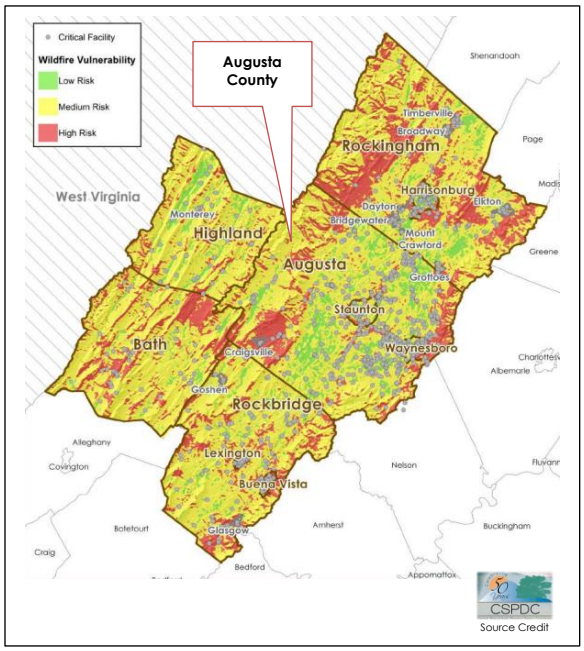
the line, areas, or zone where structures and other human development meet or intermingle with in developed wildland or vegetative fuels.[18] *Any development that occurs outside city limits would therefore be within the WUI. While developed communities may be an urban setting, fire embers play a large role in spreading wildfires because they easily become airborne. During a large fire with strong winds, embers can start spot fires several miles away from the fire front.*

Figure 17: Wildfire Vulnerability



Source Credit

Figure 18: Wildland Fire Incidents



Source Credit

According to the hazard mitigation plan, in Augusta County, 48% of the woodland homes, (580 of 1,073 homes) are considered to have high potential to be exposed to a wildfire event, while 54% of woodland communities, (19 of 40 communities) are considered at high risk for wildfire as designated by the Virginia Department of Forestry.


Source: Blueridgelife.com

The third largest wildland fire in the region, designated the Tye River Fire, occurred in 2018. This fire was caused by a vehicle fire that quickly spread onto National Forest lands and nearby private lands. The fire burned approximately 2,057 acres in Augusta and Rockbridge Counties.

18. https://www.usfa.fema.gov/wui/what-is-the-wui.html

Hazardous Materials (Transportation and Industrial) (Medium Ranking): *There have not been any catastrophic Hazardous Materials Incidents in recent history. There has been minor to major incidents at manufacturing/industrial sites or during transportation of hazardous materials. The Region has a vulnerability to Hazardous Materials Incidents based on its agriculture, industry and manufacturing, and transportation network. A broad transportation network that includes interstate highways, rail and air also covers the Region. Because of these factors, it is possible that a Hazardous Materials Incident could impact any of the 21 localities in the Region.*

Power Outage (Medium Ranking): *A power outage is an unplanned loss of the electric power network's supply to an end user. Faults at power stations, damage to any part of the electric distribution system, short circuits, cascading failures, or problems with fuses or circuit breaker operations can cause a power outage. This damage to the electric power network may be caused by natural hazards, such as wind, fire, and severe weather; human-causes; the results of mechanical failure; or a variety of other factors.*

Additional **low risk** environmental risks include:

- Terrorism
- Landslide
- Earthquake

Building and Target Hazard Risks

Building and target hazards are defined as significant hazards that can strain the fire department response capability—a plausible scenario in which a fire department could quickly become overwhelmed and for which additional resources would be needed to mitigate the incident.

The purpose of evaluating community risk is to evaluate the community as a whole, and regarding buildings, it will review all buildings and the risks associated with each property and then classifying the property as either a high medium, or low hazard depending on factors such as the life and building content hazard and the potential fire flow and response force, (equipment and staffing) required to mitigate an emergency in the specific property. According to the NFPA *Fire Protection Handbook*, these hazards are defined as:

High-hazard occupancies: Schools, hospitals, nursing homes, explosives plants, refineries, high-rise buildings, and other high life-hazard (vulnerable population) or large fire-potential occupancies.

Medium-hazard occupancies: Apartments (including townhomes, condominiums, residential over commercial), single-family housing units with basements, offices, and 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 occupancies.[19]

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

Augusta County has the following building types.

- Single family housing units: 25,252 existing, (predominate building risk and primarily wood frame construction; Type V).
- Multi-family housing units (townhomes, duplexes etc.): 808 existing, (varying number of vertical floors and primarily wood frame construction; Type V).
- Multi-family housing units (apartment building units - garden style): 306 existing, (varying number of vertical floors and primarily wood frame construction; Type V).
- Assisted living/nursing homes: 12, (varying square footage, with a mix of construction materials to include Type V and II).
- Commercial/industrial structures: 1,159 buildings, (varying square footage with a mix of construction materials to include Types V, III, II and I).
- Strip malls: 35, (varying square footage with a mix of construction materials to include Types V, III and II).
- Educational and day-care facilities, (one head start school, nine elementary schools, four middle schools, five high schools, one Governor's School, seven private schools, one community college, and a variety of day-care facilities).
- High rises: Currently there are no high-rise structures (vertical elevation of 75 feet or more).
- Hospitals: one, 4-story.

In terms of identifying target hazards, consideration must be given to the activities that take place (public assembly, life safety vulnerability, manufacturing, processing, etc.), the number and types of occupants (elderly, youth, handicapped, special needs, incarcerated, etc.), and other specific aspects related to the construction of the structure.

Augusta County has a variety of target hazards that meet an established hazard class:

High Hazard

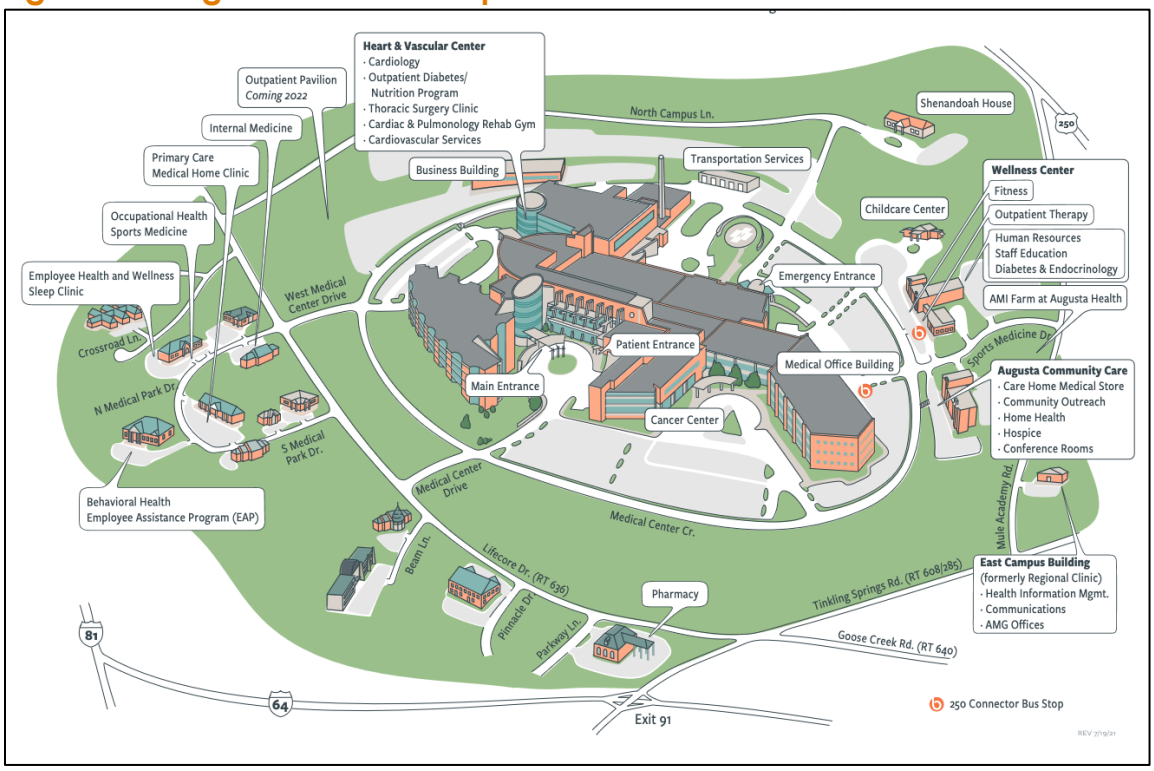
- Commercial building/occupancies that include assisted living/nursing facilities/development disability.
- Hospital.
- Public and private educational and day care facilities.
- Detention/correctional facility (multi-story)
- Facilities classified as high hazards due to processes/hazardous materials use.

Medium Hazard

- Multifamily dwelling buildings.
- Large footprint commercial and industrial buildings/facilities.
- Medical facilities.
- Businesses/Occupancies classified as Public Assembly.
- Shopping centers/retail suites/strip malls.
- Single family residential over 3,000 square feet, particularly those built with light frame construction, with or without a basement.

Augusta Medical Center opened in 1994 and includes high hazard and vulnerable population risks. The center began with a single 400,000 square foot building with 255-beds. An additional 400,000 square feet of space has been added to the campus since that time. The current campus includes the main hospital building, a cancer center, an 85,000 square foot medical office building, an 8,000 member health and fitness center, a branch of Blue Ridge Community College, a community care building, and several individual medical office buildings located on the Medical Center's South Campus.[20]

Figure 19: Augusta Health Campus



The greatest amount of building risk in Augusta County is of a low hazard (single family dwellings-predominately wood frame construction). Augusta County does have a number of high and medium risk/vulnerable population risks (nursing/assisted living facilities/hospital, medical facilities), educational facilities/institutional facilities and multifamily residential structures (apartments/townhomes). All of these building risks present the ACFR system with life-safety concerns. The industrial and mercantile building risk, and large footprint commercial buildings while a lower life safety risk, are generally a higher hazard risk based on processes, storage, and overall occupancy type. In some cases, close proximity of wood-frame residential buildings (greatest percent of construction materials for residential buildings) means a greater chance for fire to spread to exposed buildings.

Primary Fire-Rescue Department Risk Factors

An indication of the community's fire risk is the type and number of fire-related, non-fire related, EMS, technical rescue, and hazard incidents the fire department responds to. The entire service area is subject to these types of calls for service.

20. Fishersville Small Area Plan, County of Augusta, January 28, 2009.

Statistically, fires are more likely to occur in residential structures, and are more likely due to human causes. Statistically, EMS calls for service involve one patient whose symptoms are such that the capabilities of the initial arriving unit(s) can handle the call. Mass casualty incidents may occur in Augusta County, and the impacts on the fire-rescue system may be overwhelming, likely triggering the need for mutual aid.

Technical Rescue incidents in Augusta County will typically involve vehicle/machinery extrication. There is also the potential for trench and/or structural collapse, and rope rescue (moderate risk). Rope rescue may include rigging systems in mountainous areas, as well as over steep road embankments. Additionally, it is likely the fire-rescue system will be alerted for a search and rescue (lost trail hiker) or for a swift water incident along one of the country's rivers, creeks, or runs.

Hazardous Materials or hazard calls for service may include transportation incidents/accidents with leaks/spills/release of hazardous materials (rail, road), and natural gas leaks (moderate risk). Augusta County has fixed sites that store/use hazardous materials as well (moderate risk).

The following table details the call types and call type totals for these types of **fire-related risks** between July 1, 2022, and June 30, 2023. During this time period the ACFR system **fire units** responded to 5,540 calls. Of these, 2,930 calls were EMS related and 1,688 were fire related.

Table 2: Fire Unit Calls by Type

Call Type	Total Calls	Calls per Day
EMS assist	1,989	5.4
MVA	941	2.6
EMS Subtotal	**2,930**	**8.0**
False alarm	150	0.4
Good intent	145	0.4
Hazard	353	1.0
Outside fire	244	0.7
Public service	607	1.7
Structure fire	148	0.4
Technical rescue	41	0.1
Fire Subtotal	**1,688**	**4.6**
Canceled	699	1.9
Mutual aid	223	0.6
Total	**5,540**	**15.2**

Cancelled calls (calls received and units cancelled prior to responding or cancelled while enroute) make up 13% of all calls (Fire and EMS).

Mutual aid responses (ACFR system units responding to cities or outside of Augusta County) make up 4% of all calls (Fire and EMS).

- There were 5,540 Fire and EMS calls in Augusta County during the one year study period in which ***fire units*** responded to.
- Overall, the ACFR system responded to 15 fire calls per day.
- 63% of the Fire and EMS calls are EMS related.
- Motor vehicle accidents make up 20% of Fire & EMS calls.
- Fire and Fire related calls make up 37% of Fire & EMS calls.
- Structure & Outside/Other Fires make up 23% of Fire related calls.
- Non fire calls (typically fire alarm, good intent, hazard, and public service) make up 74% of Fire related calls.
- Tech Rescue calls make up 3% of Fire related calls.




The following table details the call types and call type totals for these types of **EMS-related risks** between July 1, 2022, and June 30, 2023. During this time period the ACFR system **EMS units** responded to 12,177 calls. Of these, 10,599 calls were EMS related and 748 were non-EMS related.

Table 3: EMS Unit Calls by Type

Call Type-EMS Related	Total Calls	Calls per Day
Breathing difficulty	1,108	3.0
Cardiac and stroke	1,052	2.9
Cardiac arrest	148	0.4
Fall and injury	2,173	6.0
Illness and other	3,797	10.4
MVA	828	2.3
Overdose and psychiatric	234	0.6
Seizure and unconsciousness	1,259	3.4
EMS Subtotal	**10,599**	**29.0**
Fire assist	630	1.7
Law assist	118	0.3
Non-EMS Subtotal	**748**	**2.0**
Mutual aid	830	2.3
Total	**12,177**	**33.4**

- There were 10,599 EMS calls in Augusta County during the one year study period in which ***EMS units*** responded to.
- Overall, the ACFR system responded to 33 EMS calls per day.
- There were 630 responses to fire calls by EMS units (5% of total).
- There were 118 responses to law enforcement calls by EMS units (1% of total).
- 36% of the EMS calls were Illness and Other call determinants (the largest % of EMS calls).
- Motor vehicle accidents make up 8% of EMS calls.
- Breathing Difficulty and Cardiac and Stroke related call determinants make up 20% of EMS calls.
- There were 148 Cardiac Arrests (1% of EMS calls).
- Fall and Injury call determinants make up 21% of EMS calls.

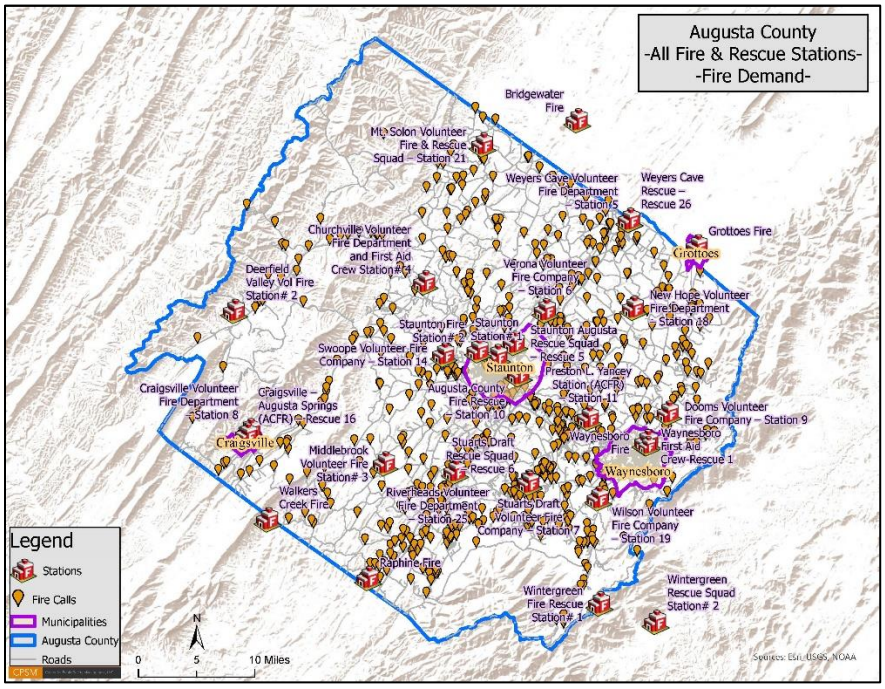
Mutual aid responses (ACFR system units responding to cities or outside of Augusta County) make up 4% of all calls (Fire and EMS).



Fire and EMS Incident Demand

Analyzing where the fire and EMS incidents occur, and the demand density of fire and EMS incidents, helps to determine adequate fire and EMS management zone resource assignment and deployment. The following figures illustrate fire and EMS demand in a more defined manner by specific call types.

Figure 20: Fire Demand (All Fire Related Calls)



Fire demand is more concentrated in unincorporated communities, census designated places and along main roads.

Overall fire workload for the one-year CPSM analysis was 1,688 calls.

Of the 244 Outside Fires, fire department personnel extinguished 134 fires.

Of the 148 Structure Fires, fire department personnel extinguished 54 fires.

Figure 21: Fire Demand (Structure and Outside Fires)

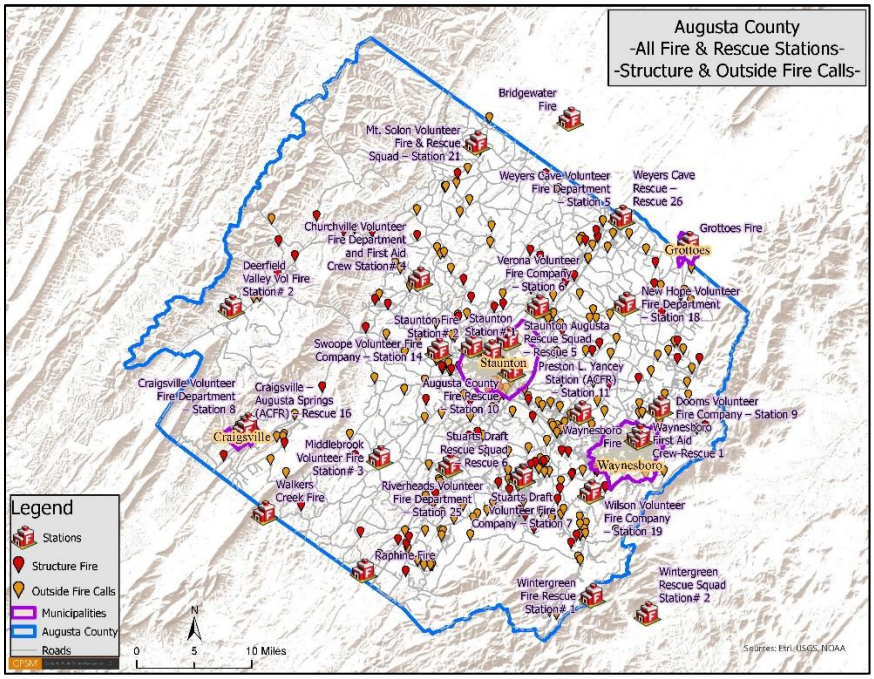


Figure 22: EMS Demand (All EMS Related Calls)

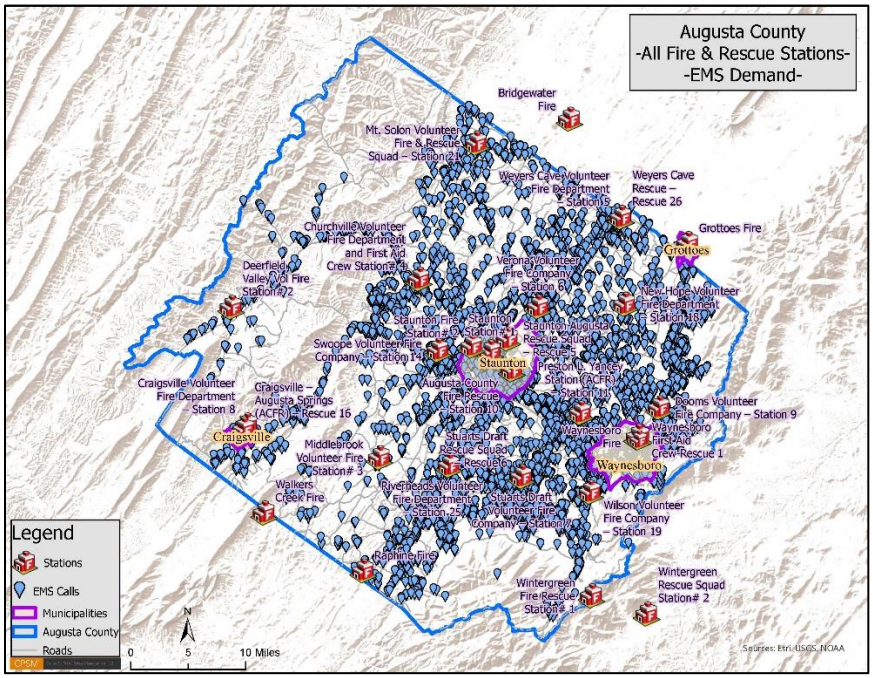
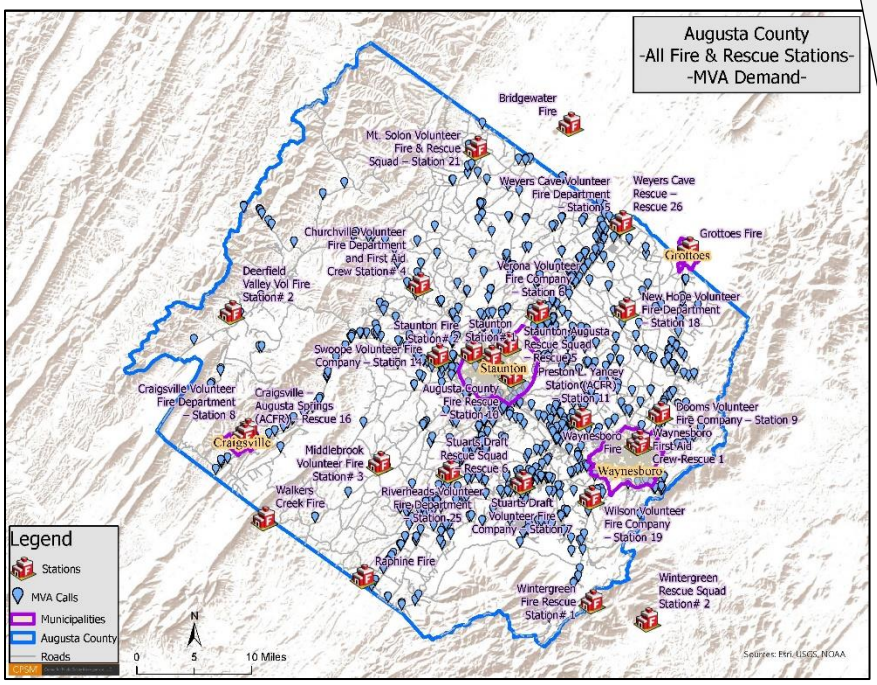


Figure 23: Motor Vehicle Accident Demand



EMS demand, like fire demand, is more concentrated in unincorporated communities, census designated places and along main roads. EMS demand, however, is much heavier in these areas. Additionally, there is heavy demand around the City of Staunton.

Motor Vehicle Accident demand is more concentrated in the more heavily populated areas and along main roads such as I-81, I-64, U.S.-11, U.S.-250, VA-42, U.S.-340, VA-254, and VA-262.

Overall EMS in-county workload for the one-year CPSM analysis was 10,599 calls.

There were 7,474 transports completed (70.5% of the EMS responses).

Resiliency

Resiliency is an organization's ability to quickly recover from an incident or event, or to adjust easily to changing needs or requirements. Greater resiliency can be achieved by constant review and analysis of the response system and focuses on three key components:

- Resistance: The ability to deploy only resources necessary to control an incident and bring it to termination safely and effectively.
- Absorption: The ability of the agency to quickly add or duplicate resources necessary to maintain service levels during heavy call volume or incidents of high resource demand.
- Restoration: The agency's ability to quickly return to a state of normalcy.

For the CPSM data analysis study period, July 1, 2022, through June 30, 2023, the ACFR system responded to 17,717 calls for service. This includes 5,540 fire and fire related calls by fire companies, and 12,177 calls by EMS agencies.

The following tables and figures analyze ACFR system resiliency. In this analysis, CPSM included all calls that occurred inside and outside of Augusta County (to include cancelled calls). We did this because responses outside of the county and canceled calls impact the resiliency of the entire system to respond to calls.

The first tables examine the workload in terms of runs for each station.

Table 4: Workload by ACFR System Fire Station

Fire Company	Total Runs	Runs per Day
2 - Deerfield	102	0.3
3 - Middlebrook	147	0.4
4 - Churchville	430	1.2
5 - Weyers Cave	623	1.7
6 - Verona	736	2.0
7 - Stuarts Draft	839	2.3
8 - Craigsville	324	0.9
9 - Dooms	622	1.7
10 - Augusta County	1,929	5.3
11 - Preston L. Yancey	1,188	3.3
12 - Raphine	214	0.6
14 - Swoope	499	1.4
15 - Bridgewater	115	0.3
18 - New Hope	256	0.7
19 - Wilson	418	1.1
20 - Grottoes	214	0.6
21 - Mount Solon	270	0.7
25 - Riverheads	835	2.3
80 - Walkers Creek	38	0.1
Wintergreen FD	20	0.1
Total	**9,819**	**26.9**

Fire Workload

Stations 10 and 11 are the busiest in terms of workload.

Stations 6, 7, and 25 have moderate to higher workload.

Deerfield and Middlebrook have the lowest workload.

Raphine, Bridgewater, Grottoes, Walkers Creek, and Wintergreen are listed here as they have response areas in Augusta County and contribute to the overall system response and resiliency.

Table 5: Workload by ACFR System Rescue Station

Rescue Station	Total Runs	Runs per Day
1 - Waynesboro	1,045	2.9
2 - Deerfield	133	0.4
4 - Churchville	1,061	2.9
5 - Staunton-Augusta	2,012	5.5
6 - Stuarts Draft	2,458	6.7
10 - Augusta County FD	11	0.0
11 - Preston L. Yancey	2,849	7.8
15 - Bridgewater	137	0.4
16 - Craigsville	556	1.5
18 - New Hope	623	1.7
20 - Grottoes	464	1.3
21 - Mount Solon	512	1.4
Rescue 25	1,274	3.5
Rescue 26	1,088	3.0
Wintergreen	46	0.1
Total	**14,269**	**39.1**

EMS Workload

Stations 5, 6, and 11, have the highest EMS workload and are the busiest in the County.

Stations 1, 4, 25, and 26 have elevated workload.

Stations 16, 18, and 21 have a moderate workload.

Station 2 has the lowest County workload due to its remote location.

Staunton-Augusta, Waynesboro, Bridgewater, and Wintergreen have response areas in Augusta County and contribute to the overall system response and resiliency.

Staunton-Augusta responded to 1,803 calls in the unincorporated area.

Waynesboro responded to 934 calls in the unincorporated area.

Each station's availability to respond to calls in their first due area is examined in the next set of tables. The lower the availability percentage the less resilient the entire station's fire or EMS management zone (district) is.

Table 6: Rescue Station Availability to Respond to Calls

First Due Area	Calls in Area	First Due Responded	Percent Responded	First Due Arrived	Percent Arrived	First Due First	Percent First
1 - Waynesboro	712	686	96.3	684	96.1	680	95.5
2 – Deerfield	109	102	93.6	99	90.8	98	89.9
4 - Churchville	722	677	93.8	667	92.4	650	90.0
5 - Staunton-Augusta	1,460	1,400	95.9	1,384	94.8	1,319	90.3
6 - Stuarts Draft	2,072	1,887	91.1	1,832	88.4	1,732	83.6
11 - Preston L. Yancey	2,310	2,235	96.8	2,229	96.5	2,207	95.5
15 - Bridgewater	12	10	83.3	10	83.3	10	83.3
16 - Craigsville	522	498	95.4	495	94.8	489	93.7
18 - New Hope	497	446	89.7	442	88.9	434	87.3
20 – Grottoes	419	385	91.9	379	90.5	377	90.0
21 - Mount Solon	320	320	100.0	315	98.4	289	90.3
Rescue 25	916	824	90.0	809	88.3	790	86.2
Rescue 26	636	584	91.8	572	89.9	548	86.2
Wintergreen	13	12	92.3	12	92.3	12	92.3
Total	**10,720**	**10,066**	**93.9**	**9,929**	**92.6**	**9,635**	**89.9**

Note: For each station, we count the number of calls occurring within its first due area. Then, we count the number of calls to where at least one unit arrived. Next, we focus on units from the first due station to see if any of its units responded, arrived, or arrived first.

In review of EMS station availability to respond to calls in their first due area:

- Stations 1 and 11 are the most available to respond and arrive first in their district.
- Station 6 is the least availability (Bridgwater only had 10 calls to analyze) to respond and arrive first in their district.
- Rescues 25 and 26 have moderate availability (compared to all others) to arrive first in their response districts.
- ***Overall, the entire system is available to respond and arrive first in their respective districts 89.9 percent of the time.***

Table 7: Fire Company Availability to Respond to Calls

First Due Area	Calls in Area	First Due Responded	Percent Responded	First Due Arrived	Percent Arrived	First Due First	Percent First
2 - Deerfield	58	58	100.0	58	100.0	56	96.6
3 - Middlebrook	79	74	93.7	73	92.4	72	91.1
4 - Churchville	221	212	95.9	210	95.0	205	92.8
5 - Weyers Cave	333	321	96.4	311	93.4	288	86.5
6 - Verona	501	479	95.6	467	93.2	436	87.0
7 - Stuarts Draft	423	418	98.8	416	98.3	403	95.3
8 - Craigsville	111	111	100.0	111	100.0	109	98.2
9 - Dooms	409	403	98.5	401	98.0	392	95.8
10 - Augusta County FD	550	534	97.1	527	95.8	510	92.7
11 - Preston L. Yancey	777	719	92.5	711	91.5	676	87.0
12 - Raphine	81	77	95.1	73	90.1	61	75.3
14 - Swoope	251	224	89.2	220	87.6	205	81.7
15 - Bridgewater	16	16	100.0	16	100.0	16	100.0
18 - New Hope	97	87	89.7	84	86.6	75	77.3
19 - Wilson	143	138	96.5	135	94.4	128	89.5
20 - Grottoes	129	129	100.0	129	100.0	126	97.7
21 - Mount Solon	149	147	98.7	146	98.0	141	94.6
25 - Riverheads	396	378	95.5	360	90.9	335	84.6
80 - Walkers Creek	23	23	100.0	23	100.0	22	95.7
Wintergreen FD	9	8	88.9	7	77.8	5	55.6
Total	**4,756**	**4,556**	**95.8**	**4,478**	**94.2**	**4,261**	**89.6**

Note: For each company, we count the number of calls occurring within its first due area. Then, we count the number of calls to where at least one fire unit arrived. Next, we focus on fire units from the first due station to see if any of its fire units responded, arrived, or arrived first.

In review of EMS station availability to respond to calls in their first due area:

- Stations 2, 7, 8, 9, 21, Bridgewater, Grottoes, and Walkers Creek are the most available to respond and arrive first in their district.

- Stations 14, 18, and Raphine had the least availability to respond and arrive first in their district.
- Stations 5 and 25 have moderate availability (compared to all others) to arrive first in their response districts.
- ***Overall, the entire system is available to respond and arrive first in their respective districts 90 percent of the time.***

The next resiliency measure is the frequency distribution of calls, or how many calls are occurring in an hour. The next set of tables looks at fire and EMS distribution of calls in an hour.

The first table tells us that countywide (fire calls), 56 percent of the time there are no calls in an hour; 30 percent of the time there is one call in an hour; and 14 percent of the time there are two or more concurrent or overlapping calls.

Table 8: Frequency Distribution of the Number of Calls, Fire Service

Calls in an Hour	Frequency	Percentage
0	4,926	56.2
1	2,610	29.8
2	883	10.1
3	248	2.8
4	68	0.8
5+	25	0.3
Total	**8,760**	**100.0**

The next table tells us that countywide (EMS calls), 29 percent of the time there are no calls in an hour; 32 percent of the time there is one call in an hour; 22 percent of the time there are two calls in an hour; and 17 percent of the time there are three or more concurrent or overlapping calls.

Table 9: Frequency Distribution of the Number of Calls, Rescue Service

Calls in an Hour	Frequency	Percentage
0	2,515	28.7
1	2,793	31.9
2	1,905	21.7
3	925	10.6
4	393	4.5
5	170	1.9
6	42	0.5
7+	17	0.2
Total	**8,760**	**100.0**

71% of the time the Augusta County EMS system is operating on a call.

The next figures look at when calls are occurring over a 24-hour period for both fire and EMS services.

In Augusta County, the peak time for fire calls is between the hours of 7 a.m. and 10 p.m., with the greatest number of calls being EMS assist calls.

Figure 24: Calls per Hour by Hour of Day, Fire Service

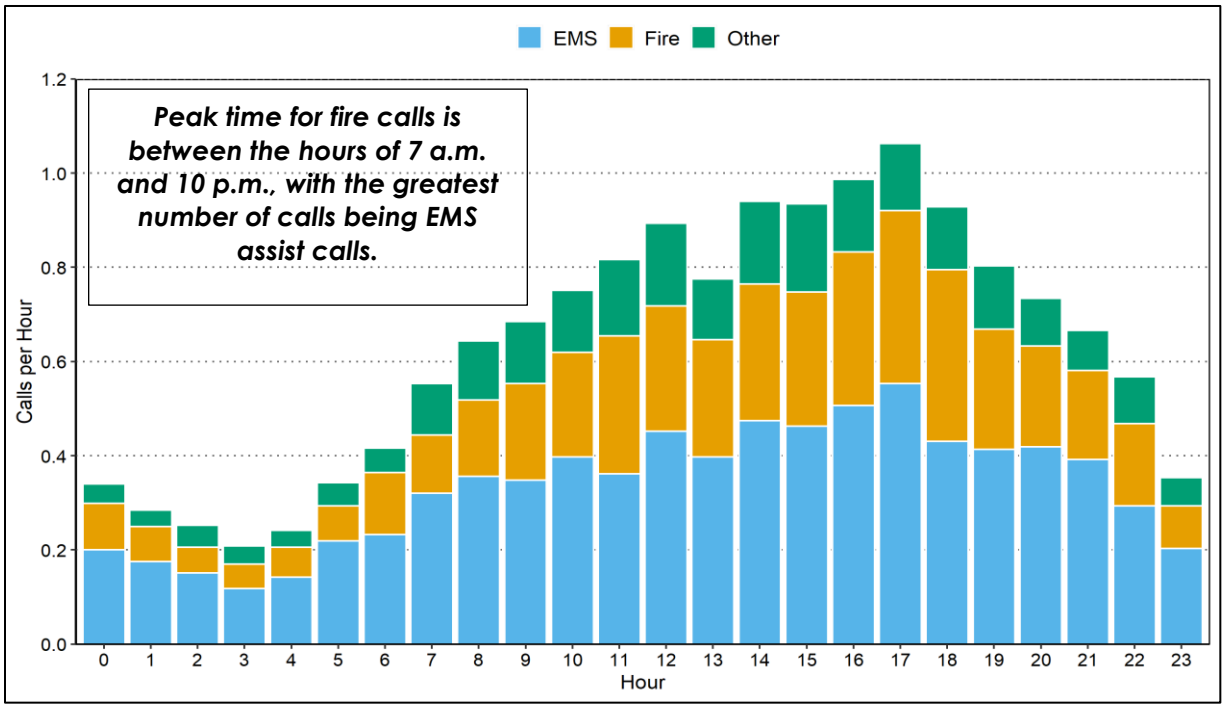
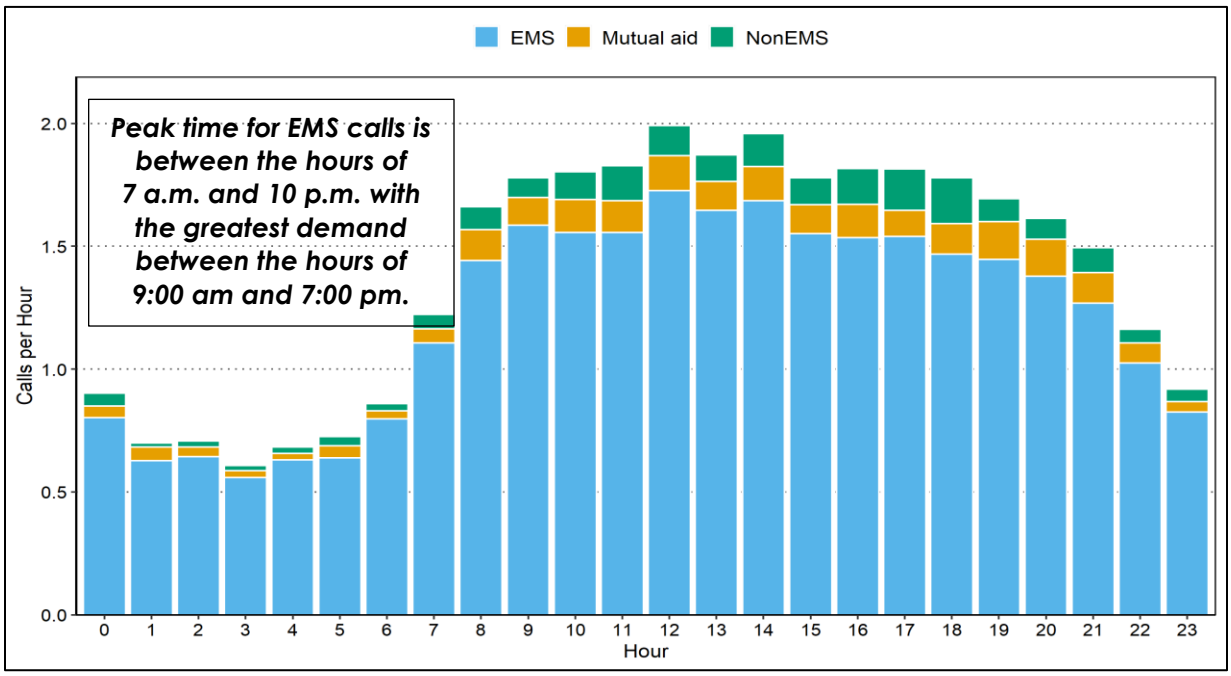


Figure 25: Calls per Hour by Hour of Day, Rescue Service



The next resiliency analysis component is mutual aid given calls for service. The next two tables analyze where ACFR system fire companies and EMS units give mutual aid.

Table 10: Annual Mutual Aid Workload of Rescue Units by Location

Location	Calls	Runs	Runs Per Day
Albemarle County	3	4	0.0
Bath County	14	14	0.0
Harrisonburg City	22	23	0.1
Highland County	6	10	0.0
Nelson County	22	27	0.1
Rockbridge County	68	70	0.2
Rockingham County	290	302	0.8
Staunton City	345	400	1.1
Waynesboro City	58	62	0.2
Outside ACFR System Area Total	**828**	**915**	**2.5**

The greatest amount of EMS aid given is in the City of Staunton and Rockingham County.

Table 11: Annual Mutual Aid Workload of Fire Units by Location

Location	Calls	Runs	Runs Per Day
Bath County	5	7	0.0
Harrisonburg City	6	6	0.0
Nelson County	27	39	0.1
Rockbridge County	12	22	0.1
Rockingham County	104	112	0.3
Waynesboro City	60	77	0.2
Other*	9	10	0.0
Outside ACFR System Area Total	**223**	**273**	**0.7**

The greatest amount of Fire aid given is in the Rockingham County and the City of Waynesboro.

Note: There were also three calls in Albemarle County and two calls in Highland County.

The next two tables look at the duration of calls (restoration), a measure that can contribute to overlapping calls in fire and EMS management zones, particularly those that last one or more hours.

The first table looks at EMS unit response (and includes transport time). Analysis of this table tells us:

- 39 percent of EMS responses last one-two hours (the highest percentage of time on a call).
- 34 percent of EMS responses last 30 minutes to one hour.
- 20 percent of EMS responses last < 30 minutes.
- 7 percent of EMS responses last two or more hours.

EMS calls lasting more than one hour make up 46 percent of EMS responses. This has an impact on EMS unit resiliency, particularly in the more remote areas of the county, and those with the higher demand.

Table 12: EMS Calls by Type and Duration, Rescue Service

Call Type	Less than 30 Minutes	30 Minutes to One Hour	One to Two Hours	Two or More Hours	Total
Breathing difficulty	70	358	575	105	1,108
Cardiac and stroke	80	348	528	96	1,052
Cardiac arrest	41	43	50	14	148
Fall and injury	506	842	703	122	2,173
Illness and other	595	1,375	1,559	268	3,797
MVA	311	257	217	43	828
Overdose and psychiatric	38	104	79	13	234
Seizure and unconsciousness	116	416	631	96	1,259
EMS Subtotal	**1,757**	**3,743**	**4,342**	**757**	**10,599**
Fire assist	354	133	77	66	630
Law assist	45	37	32	4	118
Non-EMS Subtotal	**399**	**170**	**109**	**70**	**748**
Mutual aid	299	176	300	55	830
Total	**2,455**	**4,089**	**4,751**	**882**	**12,177**

Aggregately 46% of EMS responses.

Next, we look at fire unit response. Analysis of this table tells us:

- 61 percent of all calls were handled in 30 minutes or less.
- 25 percent of all calls were handled in 30 minutes to one hour.
- 10 percent of all calls were handled in one to two hours.
- 4 percent of all calls were handled in two or more hours.

Fire calls lasting less than one hour make up 61 percent of fire and fire-EMS assist responses. Only 14 percent of all fire responses last one hour or longer. Time on calls has little impact on fire unit resiliency other than those occurring in the more remote areas of the county, and those in higher demand areas where the next station(s) may have moderate to higher demand as well.

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Table 13: Fire Unit Calls by Type and Duration

Call Type	Less than 30 Minutes	30 Minutes to One Hour	One to Two Hours	Two or More Hours	Total
EMS assist	1,417	463	98	13	1,991
MVA	354	337	214	31	936
EMS Subtotal	**1,771**	**800**	**312**	**44**	**2,927**
False alarm	95	45	9	1	150
Good intent	104	28	8	5	145
Hazard	193	102	43	15	353
Outside fire	103	84	39	18	244
Public service	388	125	57	37	607
Structure fire	28	35	47	38	148
Technical rescue	11	12	8	10	41
Fire Subtotal	**922**	**431**	**211**	**124**	**1,688**
Canceled	555	110	24	6	695
Mutual aid	140	49	22	19	230
Total	**3,388**	**1,390**	**569**	**193**	**5,540**

Resistance is the ability to deploy only resources necessary to control an incident and bring it to termination safely and effectively.

The first table analyzes EMS response resistance.

Table 14: Calls by Type and Number of Arriving Units, Rescue Service

Call Type	Number of Units			Total Calls
	One	Two	Three or more	
Breathing difficulty	839	225	25	1,089
Cardiac and stroke	922	96	9	1,027
Cardiac arrest	57	60	24	141
Fall and injury	1,933	165	15	2,113
Illness and other	3,435	183	16	3,634
MVA	502	135	45	682
Overdose and psychiatric	199	15	1	215
Seizure and unconsciousness	1,041	171	21	1,233
EMS Subtotal	**8,928**	**1,050**	**156**	**10,134**
Fire assist	389	60	35	484
Law assist	95	7	0	102
Non-EMS Subtotal	**484**	**67**	**35**	**586**
Mutual aid	181	14	5	200
Total	**9,593**	**1,131**	**196**	**10,920**
Percentage	**87.8**	**10.4**	**1.8**	**100.0**

Table Analysis

- The largest percentage of calls involved only one EMS unit (88%).
- 10% of EMS calls involved two units.
- Only 2% of EMS calls involved 3 or more units.

Overall EMS call resistance is good.

Note: 1,257 out of the 12,177 calls (10 percent) did not have an arriving unit, including 465 EMS, 162 non-EMS calls, and 630 mutual aid calls. The total number of arriving calls in the ACFR system service area was 10,920 – 200 = 10,720.

The next table analyzes Fire response resistance.

Table 15: Calls by Call Type and Number of Arriving Units, Fire Service

Call Type	Number of Units					Total Calls
	One	Two	Three	Four	Five or More	
EMS assist	1,734	118	7	5	5	1,869
MVA	457	280	115	28	17	897
EMS Subtotal	**2,191**	**398**	**122**	**33**	**22**	**2,766**
False alarm	58	23	23	17	10	131
Good intent	83	22	11	6	1	123
Hazard	197	71	27	15	19	329
Outside fire	79	76	34	27	19	235
Public service	434	45	29	14	1	523
Structure fire	29	13	14	19	66	141
Technical rescue	13	4	9	4	6	36
Fire Subtotal	**894**	**254**	**147**	**102**	**122**	**1,519**
Canceled	251	118	61	29	12	471
Mutual aid	65	8	2	1	1	77
Total	**3,401**	**778**	**332**	**165**	**157**	**4,833**
Percentage	**70.4**	**16.1**	**6.9**	**3.4**	**3.2**	**100.0**

Note: 707 out of the 5,540 calls (13 percent) did not have an arrival unit, including 228 canceled, 164 EMS, 169 fire, and 146 mutual aid calls. Total arriving calls in the ACFR system service area was 4,833 - 77= 4,756; Total arriving calls outside the ACFR system service area was 77.

Table Analysis

- The largest percentage of calls involved only one Fire unit (70%).
- 16% of Fire calls involved two units.
- 7% of Fire calls involved 3 or more units.
- 7% of Fire calls involved 4 or more units.

Overall Fire call resistance is good and matches a typical county fire system response pattern.

Last, we look at EMS transport resiliency. The next three tables discuss overall transport call duration by call type and then by first due district.

Table 16: Transport Call Duration by Call Type (in Minutes)

Call Type	Non-transport		Transport	
	Average Duration	Number of Calls	Average Duration	Number of Calls
Breathing difficulty	40.0	168	80.1	940
Cardiac and stroke	37.4	149	78.3	903
Cardiac arrest	49.8	112	93.3	36
Fall and injury	33.0	873	72.4	1,300
Illness and other	31.3	947	73.7	2,850
MVA	33.0	539	83.3	289
Overdose and psychiatric	36.4	72	72.4	162
Seizure and unconsciousness	40.6	265	77.6	994
EMS Subtotal	**34.4**	**3,125**	**75.8**	**7,474**
Fire & Other	**48.7**	**1,442**	**93.2**	**136**
Total	**38.9**	**4,567**	**76.1**	**7,610**

Note: The duration of a call is the longest deployed time of any of the units responding to the same call.

Table 17: Transport Call Duration by First Due Area (in Minutes)

First Due Area	Non-transport		Transport	
	Average Duration	Number of Calls	Average Duration	Number of Calls
1 - Waynesboro	27.1	266	60.1	500
2 – Deerfield	57.5	60	154.9	58
4 - Churchville	38.5	325	99.9	427
5 - Staunton-Augusta	30.5	540	68.5	1,025
6 - Stuarts Draft	35.5	607	69.2	1,519
11 - Preston L. Yancey	36.2	656	48.8	1,720
15 - Bridgewater	54.3	6	110.9	6
16 - Craigsville	39.5	155	126.3	386
18 - New Hope	37.6	146	95.7	381
20 – Grottoes	36.8	103	94.7	329
21 - Mount Solon	40.8	104	119.3	229
Rescue 25	41.6	411	91.3	560
Rescue 26	36.6	289	90.2	383
Wintergreen	113.5	5	101.4	10
Out of County	50.0	894	96.6	77
Total	**38.9**	**4,567**	**76.1**	**7,610**

Destination	Transport	Percentage
Augusta Health	7,053	91.6
Rockingham Memorial Hospital	523	6.8
UVA Health	13	0.2
Non-Hospital	40	0.5
Unknown	69	0.9
Total	7,698	100.0

Some incidents resulted multiple ambulances transporting to a hospital.

7,610 transport calls resulted in 7,698 unit transports.

- Overall non-transport EMS responses take 34 minutes on average.
- EMS transport calls take 76 minutes on average.
- Out-of-County EMS responses have the fourth longest transport call duration: 97 minutes.
  - 14 percent of Out-of-County calls overlap with one call.
  - 2 percent of Out-of-County calls overlap with two calls.
- Deerfield Valley station has the longest call duration time when transporting: 155 minutes. Non transport call duration is 56 minutes.
  - 5 percent of Deerfield Valley station EMS are overlapped with one additional call.
- Craigsville-Augusta Springs EMS station has the second longest transport call duration: 126 minutes.
  - 8 percent of Craigsville-Augusta Springs station are overlapped with one or more calls.
- Mount Solon station has the third longest transport call duration: 119 minutes.
  - 5 percent of Mount Solon station calls overlap with one or more calls.
- Staunton-Augusta is highlighted because of the overall demand in this district coupled with the moderate - average transport time.
  - 14 percent of Staunton-Augusta station calls overlap with one call.
  - 1 percent of Staunton-Augusta station calls overlap with two calls.

- Stuarts Draft is highlighted because of the overall demand in this district coupled with the moderate average transport time.
  - 19 percent of Stuarts Draft station calls overlap with one call.
  - 2 percent of Stuarts Draft station calls overlap with two or more calls.
- Churchville station is highlighted because of the overall demand in this district coupled with the moderately high average transport time.
  - 8 percent of Rescue 16 station calls overlap with one or more calls.
  - 5 percent of Mount Solon EMS calls overlap with one or more calls.
  - Average transport time is just under 100 minutes.
- Grottoes station is highlighted because of the overall demand in this district coupled with the moderate average transport time.
  - 7 percent of Rescue 26 station calls overlap with one or more calls.
- Rescue 25 is highlighted because of the overall demand in this district coupled with the moderately high average transport time.
  - 13 percent of Rescue 25 station calls overlap with one call.
  - 1 percent of Rescue 25 station calls overlap with two calls.
- Rescue 26 is highlighted because of the overall demand in this district coupled with the moderately high average transport time.
  - 7 percent of Rescue 26 station calls overlap with one or more calls.
- Station 11 is highlighted because of the high demand in this district.
  - 15 percent of Station 11 calls overlap with one call.
  - 2 percent of Station 11 calls overlap with two calls.

Overall, the ACFR system has increased resiliency issues in terms of fire workload at Stations 10, 11, and 25. EMS resiliency issues when analyzing workload are increased at stations 5, 6, 11, 25, and 26. Across the system, 71 percent of the time (number of calls in an hour) the Augusta County EMS system is operating on a call. Conversely fire services are operating 44 percent of the time (number of calls in an hour).

The greatest potential resiliency challenges are in the EMS system. This is due to the workload and the duration of calls. The overall EMS system workload was 14,269 runs in the one year workload analysis CPSM performed. The time on a call for EMS may impact the system's ability to absorb additional calls as 46 percent of EMS calls last more than one hour in duration. Further impacting EMS resiliency is the time on task for transports to the hospital, which average 76 minutes per transport. The remoteness of a high number of EMS calls are remote from a receiving hospital, which extends overall call duration.

The ACFR systems ability to absorb multiple calls and restore response capabilities to a state of normalcy can be challenging at certain times such as during working structural fires and other multi-company responses (runs), either fire or EMS. The ACFR system units are available to respond to calls occurring in their primary districts on average 90 percent of the time for both fire and EMS services, although some stations are below this percentile. Those stations that are below the 90th percentile of arriving first in their fire management zone should be monitored,

Regarding resistance (call response matrix), both fire and EMS services have typical response protocols regarding the number of units that respond to calls. 70 percent of the time fire services respond one unit to a fire related or fire-EMS assist call. For EMS, 80 percent of all calls are handled by one EMS unit (and, depending on the call type, a fire unit).

In summation, the ACFR system's resiliency can be challenged due to the workload (particularly in EMS), remoteness of some calls (increases duration time on the call for responding units) and average time for an EMS transport call.

Community Loss Information

Fire loss is an estimation of the total loss from a fire to the structure and contents in terms of replacement. Fire loss includes contents damaged by fire, smoke, water, and overhaul. Fire loss does not include indirect loss, such as business interruption.

In a 2022 report published by the National Fire Protection Association on trends and patterns of U.S. fire losses, it was determined that home fires still cause the majority of all civilian fire deaths, civilian injuries, and property loss due to fire. Key findings from this report include:[21]

- Public fire departments in the U.S. responded to 1,504,500 fires in 2022, an 11.2 percent increase from the previous year.
- 522,500 fires occurred in structures (35 percent of the reported fires). Of these fires, 382,500 occurred in residential structures and 80,000 occurred in apartments or multifamily structures.
- 2,760 civilian fire deaths occurred in residential fires, and 470 deaths occurred in apartments or multifamily structures.
- Home fires were responsible for 10,320 civilian injuries.
- An estimated $18.07 billion in direct property damage occurred as a result of fire in 2022.

The following table shows overall fire loss in Augusta County in terms of dollars for the year as assessed and estimated by the ACFR system. This information should be reviewed regularly and discussed in accordance with response times to actual fire incidents, company level training, effectiveness on the fire ground, and effectiveness of incident command.

Table 18: Historical Property and Content Loss in Augusta County[22]

2018	2019	2020	2021	2022
$2,367,766	$1,844,335	$1,522,852	$1,736,288	$901,253

Risk Categorization

A comprehensive risk assessment is a critical aspect of assessing and creating a deployment analysis to meet the community's risk and can assist the ACFR system in quantifying the risks that it faces. Once those risks are known and understood, the department is better equipped to

21. Fire Loss in the United States During 2022, National Fire Protection Association. https://www.nfpa.org/education-and-research/research/nfpa-research/fire-statistical-reports/fire-loss-in-the-united-states, (accessed 23 November 2023).
22. Based on ACFR department reporting – reflects estimates from NFIRS fire reports.

determine if the current response resources are sufficiently staffed, equipped, trained, and positioned.

Risk is often categorized in three ways: the probability the event will occur in the community, the impact on the fire department, and the consequence of the event on the community. The following three tables look at the probability of the event occurring, which ranges from unlikely to frequent; consequence to the community, which is categorized as ranging from insignificant to catastrophic; and the impact to the organization, which ranges from insignificant to catastrophic.

Table 19: Event Probability

Probability	Chance of Occurrence	Description	Risk Score
Unlikely	2%-25%	Event may occur only in exceptional circumstances.	**2**
Possible	26%-50%	Event could occur at some time and/or no recorded incidents. Little opportunity, reason, or means to occur.	**4**
Probable	51%-75%	Event should occur at some time and/or few, infrequent, random recorded incidents, or little anecdotal evidence. Some opportunity, reason, or means to occur; may occur.	**6**
Highly Probable	76%-90%	Event will probably occur and/or regular recorded incidents and strong anecdotal evidence. Considerable opportunity, means, reason to occur.	**8**
Frequent	90%-100%	Event is expected to occur. High level of recorded incidents and/or very strong anecdotal evidence.	**10**

Table 20: Impact on ACFR Fire Rescue System

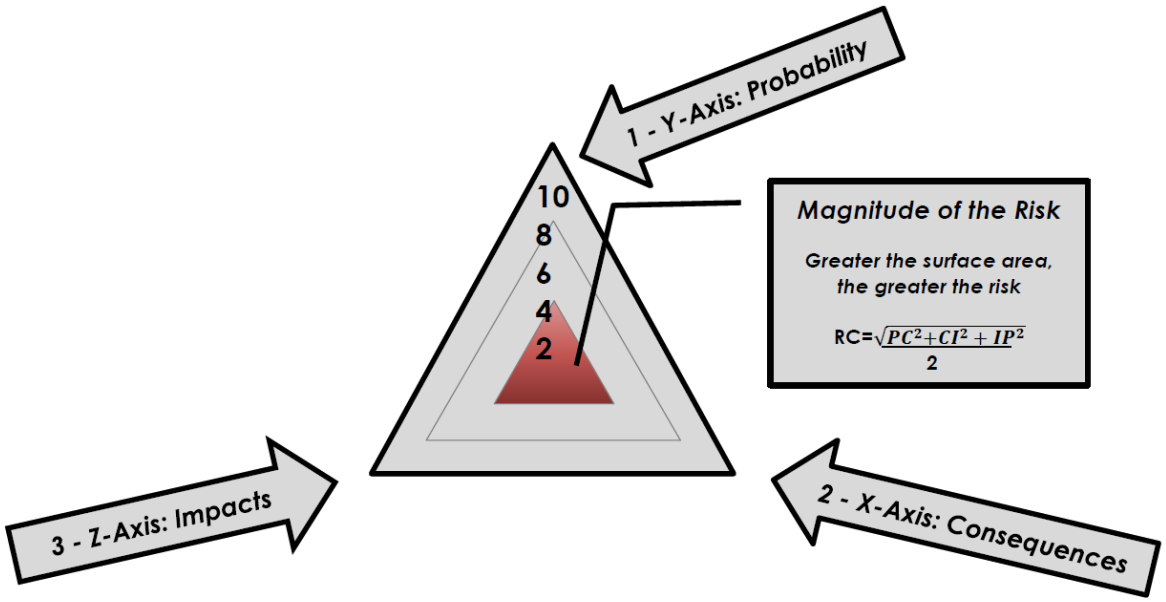
Impact	Impact Categories	Description	Risk Score
Insignificant	Personnel and Resources	One apparatus out of service for period not to exceed one hour.	**2**
Minor	Personnel and Resources	More than one but not more than two apparatus out of service for a period not to exceed one hour.	**4**
Moderate	Personnel and Resources	More than 50 percent of available resources committed to incident for over 30 minutes.	**6**
Significant	Personnel and Resources	More than 75 percent of available resources committed to an incident for over 30 minutes.	**8**
Catastrophic	Personnel, Resources, and Facilities	More than 90 percent of available resources committed to an incident for more than two hours or event which limits the ability of resources to respond.	**10**

Table 21: Consequence to Community Matrix

Impact	Consequence Categories	Description	Risk Score
Insignificant	Life Safety	■ 1 or 2 people affected, minor injuries, minor property damage, and no environmental impact.	**2**
Minor	Life Safety Economic and Infrastructure Environmental	■ A small number of people were affected, no fatalities, and a small number of minor injuries with first aid treatment. Minor displacement of people for <6 hours and minor personal support required. ■ Minor localized disruption to community services or infrastructure for <6 hours. Minor impact on environment with no lasting effects.	**4**
Moderate	Life Safety Economic and Infrastructure Environmental	■ Limited number of people affected (11 to 25), no fatalities, but some hospitalization and medical treatment required. Localized displacement of small number of people for 6 to 24 hours. Personal support satisfied through local arrangements. Localized damage is rectified by routine arrangements. ■ Normal community functioning with some inconvenience. Some impact on environment with short-term effects or small impact on environment with long-term effects.	**6**
Significant	Life Safety Economic and Infrastructure Environmental	■ Significant number of people (>25) in affected area impacted with multiple fatalities, multiple serious or extensive injuries, and significant hospitalization. ■ A large number of people were displaced for 6 to 24 hours or possibly beyond. External resources required for personal support. Significant damage that requires external resources. Community only partially functioning, some services unavailable. Significant impact on environment with medium- to long-term effects.	**8**
Catastrophic	Life Safety Economic and Infrastructure Environmental	■ A very large number of people in affected area(s) impacted with significant numbers of fatalities, large number of people requiring hospitalization; serious injuries with long-term effects. General and widespread displacement for prolonged duration; extensive personal support required. Extensive damage to properties in affected area requiring major demolition. ■ Serious damage to infrastructure. Significant disruption to, or loss of, key services for a prolonged period. ■ Community unable to function without significant support. ■ Significant long-term impact on environment ■ and/or permanent damage.	**10**

Prior risk analysis has only evaluated two factors of risk: probability and consequence. Contemporary risk analysis considers the impact of each risk to the organization, thus creating a three-axis approach to evaluating risk as depicted in the following figure. A contemporary risk analysis now includes probability, consequences to the community and impact on the organization, in this case the ACFR system. In this analysis, information presented and reviewed in this section (Community Risk Profile) has been considered. Risk is categorized as Low, Moderate, High, or Special.

Figure 26: Three-Axis Risk Calculation (RC)



The following factors/hazards were identified and considered:

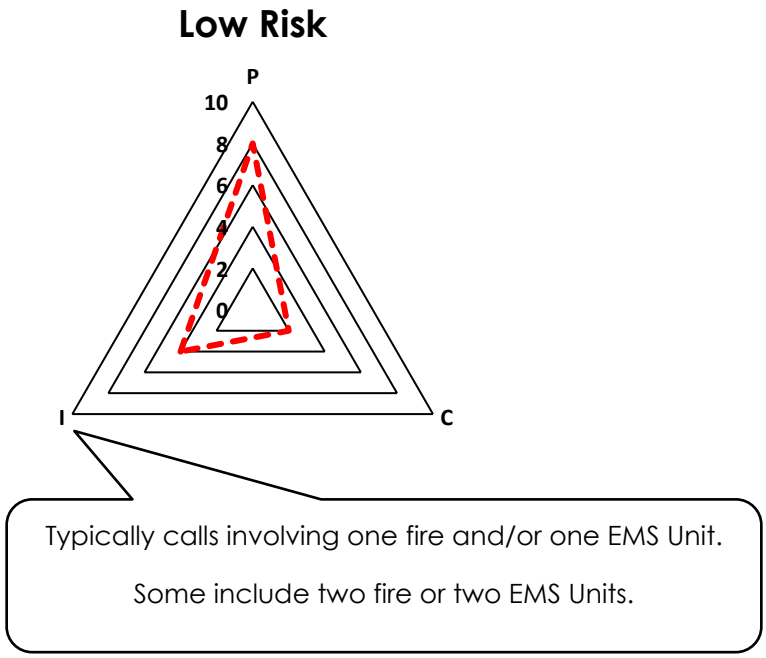
- **Demographic factors** such as age, socio-economic, vulnerability.
- **Natural hazards** such as flooding, snow and ice events, wind events, summer storms.
- **Manufactured hazards** such as transportation risks (road and rail) and target hazards.
- **Structural/building risks**.
- **Fire and EMS incident numbers and density**.
- **Resiliency.**

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 ACFR system's ability to deliver emergency services, which includes ACFR system resiliency and mutual aid capabilities as well. The list is not all-inclusive but includes categories most common or that may present to the county and the ACFR system.

Low Risk

- Automatic fire/false alarms.
- Low-acuity BLS EMS Incidents.
- Low-risk environmental event.
- Motor vehicle accident (MVA)-no entrapment, 1-2 patients, low hazards.
- Good intent/hazard/public service fire incidents with no life-safety exposure.
- Outside fires such as grass, rubbish, dumpster, vehicle with no structural/life-safety exposure.

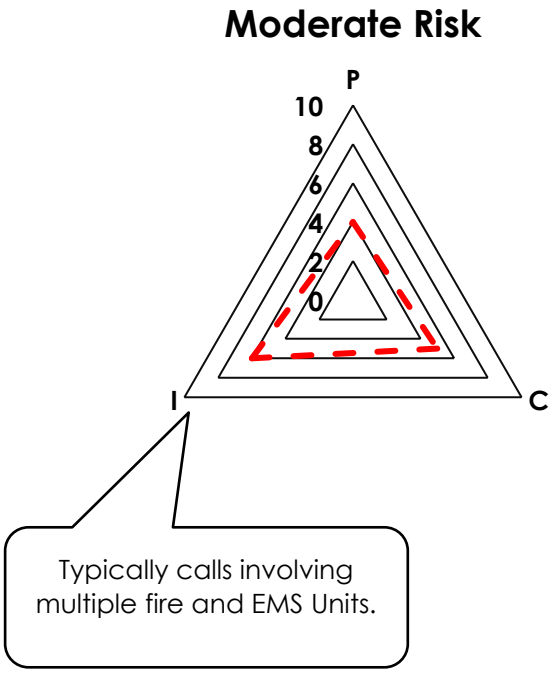
Figure 27: Low Risk



Moderate Risk

- Fire incident in a single-family dwelling where fire and smoke or smoke is visible, indicating a working fire.
- Suspicious substance investigation involving multiple fire companies and law enforcement agencies.
- ALS EMS incident.
- MVA with entrapment of passengers.
- Grass/brush fire with structural endangerment/exposure.
- Low-angle rescue involving ropes and rope rescue equipment and resources.
- Surface water rescue.
- Good intent/hazard/public service fire incidents with life-safety exposure.
- Rail or road transportation event with no release of product or fire, and no threat to life safety.

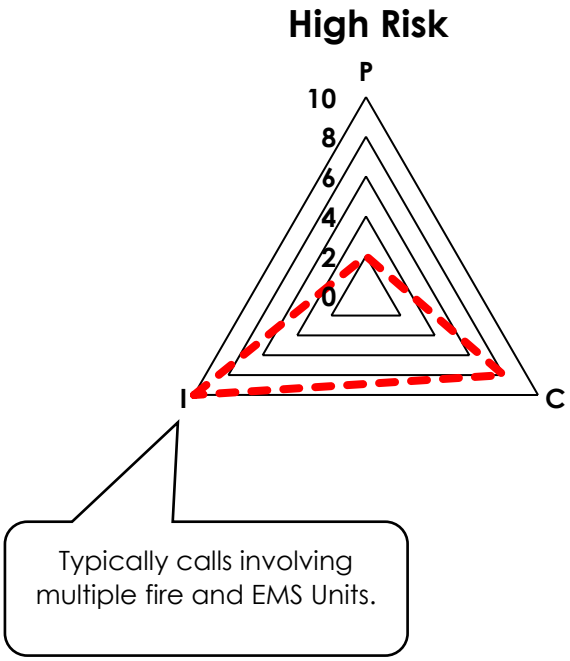
Figure 28: Moderate Risk



High Risk

- Working fire in a target hazard.
- Cardiac arrest.
- Mass casualty incident of more than 10 patients but fewer than 25 patients.
- Confined space rescue.
- Structural collapse involving life-safety exposure.
- High-angle rescue involving ropes and rope rescue equipment.
- Trench rescue.
- Suspicious substance incident with multiple injuries.
- Wildland fire burning through extensive acreage and threatening/consuming structures and property.
- Industrial leak of hazardous materials that causes exposure to persons or threatens life safety.
- Weather events that create widespread flooding, heavy snow or ice, heavy winds, building damage, and/or life-safety exposure.

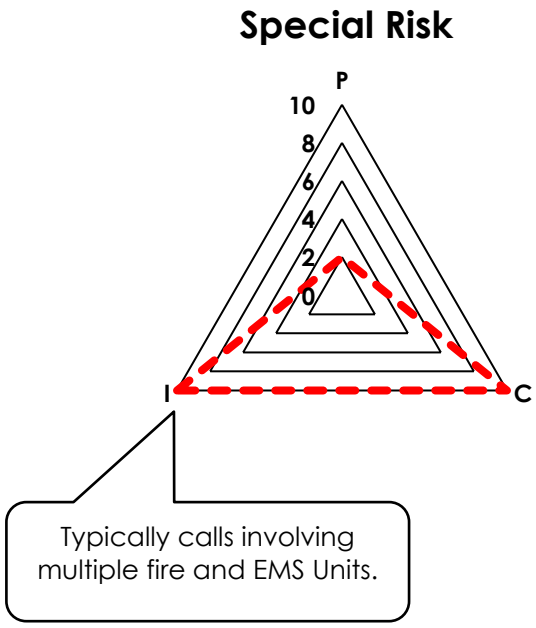
Figure 29: High Risk



Special Risk

- Working fire in a structure of more than three floors.
- Fire at an industrial building or complex with hazardous materials.
- Fire in an occupied targeted hazard with special life-safety risks such as age, medical condition, or other identified vulnerabilities.
- Mass casualty incident of more than 25 patients.
- Transportation incident that causes life-safety exposure or threatens life safety through the release of hazardous smoke or materials and evacuation of residential and business occupancies.
- 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.
- Massive estuary flooding, fire in an occupied public assembly or medical institution, high-impact environmental event, pandemic.
- Mass gathering with threat of fire and threat to life safety or other civil unrest, weapons of mass destruction release.

Figure 30: Special Risk



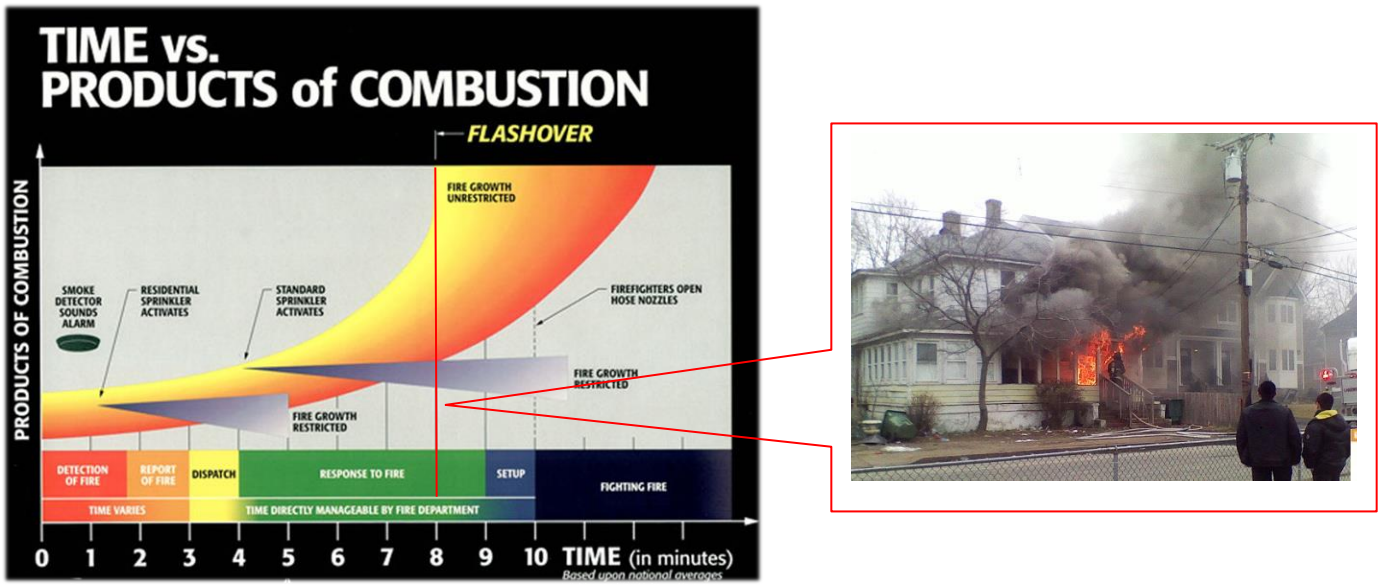
SECTION 5. RESPONSE TIME ANALYSIS

Response times are typically a primary measurement for evaluating fire and EMS services. Response times can be used as a benchmark to determine how well EMS and fire services are 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 and EMS system.

ACFR System Fire Response Times

Response times for fire incidents are based on the concept of "flashover." A flashover is the near-simultaneous ignition of most of the directly exposed combustible material in an enclosed area. When certain organic materials are heated, they undergo thermal decomposition and release of flammable gases. Flashover occurs when the majority of the exposed surfaces in a space are heated to their auto ignition temperature and emit flammable gases. "Flashover is the transition phase in the development of a contained fire in which surfaces exposed to thermal radiation, from fire gases in excess of 600 degrees Celsius, reach ignition temperature more or less simultaneously and fire spreads rapidly throughput the space."[23]

Figure 31: Fire Growth[24]



The illustration above shows how a fire grows over a brief period of time from inception (event initiation) through flashover. The time-versus-products of combustion curve shows activation times and effectiveness of residential sprinklers (approximately one minute), commercial sprinklers (four minutes), flashover (eight to ten minutes), and firefighters applying first water to the fire after notification, dispatch, response, and set-up (ten minutes). ***This illustrates the demand on the fire department to have a quick response to the building fire.***

23. National Institute of Standards and Technology, Definition of Flashover.
24. Fire Protection System Designs, Grant, 2018

When the fire does reach this extremely hazardous state, initial firefighting forces are often overwhelmed, a larger and more destructive fire occurs, the fire escapes the room and even the building of origin, and significantly more resources are required to affect fire control and extinguishment.

The next figure illustrates the overview of response time performance for fire response under NFPA 1720.

A crucial factor in the whole response time question is what we term "**detection time**." This is the time it takes to detect a fire or a medical situation and notify 911 to initiate the response. In many instances, particularly at night or when automatic detection systems (fire sprinklers and smoke detectors) are not present or inoperable, the fire detection process can be extended.

The same holds true for EMS incidents. Many medical emergencies are often thought to be something minor by the patient, treated with home remedies, and the true emergency goes undetected until signs and symptoms are more severe. When the fire-rescue department responds, they often find these patients in acute states. Fires that go undetected and are allowed to expand in size become more destructive, are difficult to extinguish, and require more resources for longer periods of time.

Response time is the total time elapsed between receiving a call to arriving on scene. In the data analysis, we included all calls within the primary service areas of the ACFR system to which at least one unit responded.

Dispatch time is the difference between the time a call is received and the earliest time an agency is dispatched. Dispatch time includes call processing time, which is the time required to determine the nature of the emergency and the types of resources to dispatch. The NFPA 1221 standard for this component of response times is the most utilized benchmark.

The next component of response time is **turnout time**, an aspect of response ***which is controlled by the responding Fire and/or EMS agency.*** Turnout time is the difference between the earliest dispatch time and the earliest time an agency's unit is en route to a call's location.

The last component of response time is **travel time**, an aspect of response time that is affected by factors such as station location, road conditions, weather, and traffic control systems. Travel time is the difference between the earliest en route time and the earliest arrival time.

The next table shows the response time of and minimum staffing level for low-hazard structural firefighting incidents (to include out-buildings and up to a 2,000 square-foot, one- to two-story, single-family dwelling without a basement and no exposures) in each demand zone as defined by NFPA 1720. This table reflects the minimum staffing and response time in minutes to assemble the minimum staffing in each demand zone type (urban, suburban, rural, and remote). The minimum staffing represents the minimum response force to begin to combat a structural fire.

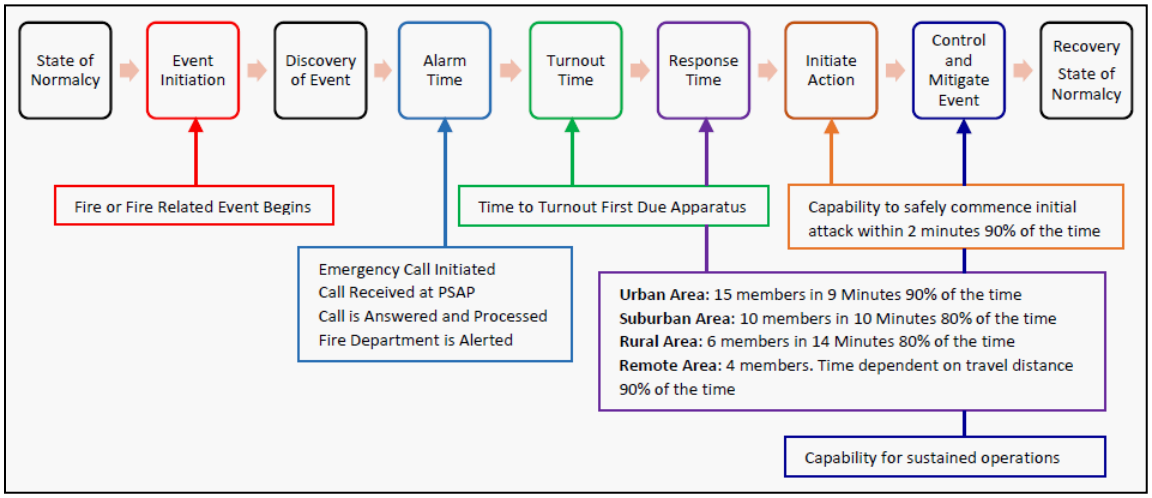
Urban and suburban demand zones differ as these demand zones have a higher population density, and have a higher percentage of multifamily, townhouse, condominium, and multistory apartment building structures, which require a greater response force to complete the critical tasking necessary to mitigate the fire and life-safety emergency.

Table 22: NFPA 1720 Staffing and Response Times, Low-Hazard Structural Fire

Demand Zone	Demographics	Minimum Staff to Respond	Response Time in Minutes- Assembling Staff	Meets Objective Percentile
Urban Area	>1000 people/mi	15	9	90%
Suburban Area	500-1000 people/mi	10	10	80%
Rural Area	<500 people/mi	6	14	80%
Remote Area	Travel Distance ≥ 8 miles	4	Directly dependent on travel distance	90%

The next figure illustrates NFPA 1720 cascade of events in totality.

Figure 32: NFPA 1720 Response Time Performance Measures



Response times for the ACFR system are discussed next. In this analysis, we included all calls responded to by ACFR system's non-administrative units while excluding canceled and mutual aid calls. We included only calls whose response types were identified as "emergent." In addition, calls with a total response time of more than 30 minutes were excluded. Finally, we focused on units that had complete time stamps, that is, units with all components recorded, so that we could calculate each segment of response time.

Based on the methodology above, for 5,540 calls, we excluded 699 canceled, 223 mutual aid calls, 507 calls where one or more segments of the first arriving unit's response time could not be calculated due to missing or faulty data, and 38 calls with a total response time exceeding 30 minutes. As a result, in this section, a total of 4,073 calls are included in the analysis.

The next tables break down the average and 80th percentile total response times (in minutes). An 80th percentile means that 80 percent of calls had response times at or below that number. 80th percentile is the NFPA 1720 benchmark to collect the Effective Response Force in the suburban and rural areas. While this benchmark does not include the response or travel time of a first arriving fire suppression unit, a fire company cannot initiate action without a fire suppression unit. That said, we measure here the response times of the first arriving unit to a building fire by the ACFR system.

Table 23: Average Response Time of First Arriving Fire Unit, by Call Type (Minutes)

Call Type	Dispatch	Turnout	Travel	Total
EMS assist	0.9	2.8	5.0	8.8
MVA	1.3	2.9	6.0	10.2
EMS Subtotal	**1.1**	**2.8**	**5.4**	**9.2**
False alarm	3.0	2.0	5.5	10.5
Good intent	2.5	2.1	5.0	9.6
Hazard	2.1	3.1	6.4	11.6
Outside fire	2.9	2.6	6.8	12.4
Public service	1.4	2.1	5.0	8.5
Structure fire	3.5	1.9	6.8	12.2
Technical rescue	1.0	1.5	4.5	7.0
Fire Subtotal	**2.2**	**2.4**	**5.8**	**10.3**
Total	**1.4**	**2.7**	**5.5**	**9.6**

Table 24: 80th Percentile Response Times of First Arriving Fire Unit, by Call Type

Call Type	80th Percentile Response Time			
	Dispatch	Turnout	Travel	Total
EMS assist	1.3	4.4	7.1	11.9
MVA	1.9	4.3	8.4	13.8
EMS Subtotal	**1.5**	**4.4**	**7.5**	**12.7**
False alarm	3.7	2.5	7.2	13.5
Good intent	4.3	3.0	7.6	14.2
Hazard	3.4	4.9	9.6	15.8
Outside fire	3.8	4.3	9.8	16.4
Public service	2.2	3.4	8.3	13.8
Structure fire	4.7	2.4	9.2	15.1
Technical rescue	1.3	2.4	7.4	10.8
Fire Subtotal	**3.5**	**3.6**	**8.8**	**14.9**
Total	**2.3**	**4.1**	**8.1**	**13.5**

It is important to understand that measuring and analyzing response times and response time coverage are measurements of performance. When we discussed community risk, we identified that the ACFR system, like most other fire departments in the nation, is an all-hazards response agency. While different regions of the country respond to different environmental risks, the majority of hazards that fire departments confront remain the same. Linking response data to community risks lays the foundation for future fire department planning in terms of fire station location, the need for additional fire stations, and staffing levels whether supplied by the fire department or a combination of a jurisdiction's resources plus mutual/automatic aid.

Managing fire department response capabilities to the identified community's risk focuses on three components, which are:

- Having a full understanding of the total risk in the community and how each risk impacts the fire department in terms of resiliency, what the consequences are to the community and fire department should a specific risk or combination of two or more occur, and preparing for and understanding the probability that the risk may occur.
- Linking risk to the deployment of resources to effectively manage every incident. This includes assembling an Effective Response Force for the response risk in measurable times benchmarked against NFPA standards, deploying the appropriate apparatus (engines, ladders, heavy rescues, ambulances), and having a trained response force trained to combat a specific risk.
- Understanding that each element of response times plays a role in the management of community risk. Lower response times of the initial arriving engine and low time to assemble an Effective Response Force on fire and other incidents are associated with positive outcomes.

As a note, the NFPA 1720 standard measures the assembling of an Effective Response Force in the suburban and rural areas at the 80th percentile and not apparatus response times. It is important however to evaluate turnout and travel times as key benchmarks, as you must have at minimum one engine apparatus on scene when assembling an Effective Response Force within the same 80th percentile, so that members have the means to begin fire suppression efforts.

Additionally, and when measuring the collection of an Effective Response Force response time element under NFPA 1720, to effectively benchmark 14 firefighters in 10 minutes for a suburban demand zone response, and 6 firefighters in 14 minutes for a rural demand zone, the incident commander must announce to the dispatcher when the response force by head count is collected (utilizing the required personnel accountability board for instance is one way to count firefighters on scene). By doing so, this announcement is recorded in the CAD times and can be evaluated periodically.

In analysis of the overall ACFR fire system response times:

- The average turnout time was 2.7 minutes.
- The average travel time was 5.5 minutes.
- The average total response time was 9.6 minutes.
- The 80th percentile dispatch time was 2.3 minutes.
- The 80th percentile turnout time was 4.1 minutes.
- The 80th percentile travel time was 8.1 minutes.
- The 80th percentile total response time was 13.5 minutes.

The next two tables analyze the response for each fire company in the ACFR fire system.

Analysis of these tables tell us (for in-county departments):

- On average turnout time is below six minutes.
- On average travel times are consistent with the locations of calls, with some travel times extended due to the remoteness of the call.
- At the 80th percentile turnout and travel times increase as they are measured at a higher level. ***This benchmark applies to all stations.*** Turnout and travel times when measured against the 80th percentile shows the extended travel times, (due to large response districts and remote areas), and extended turnout times for some.

Table 25: Average and 80th Percentile Response Time of First Arriving Fire Unit, by First Due Area (Minutes)

	Average				80th Percentile				
First Due Area	Dispatch	Turnout	Travel	Total	First Due Area	Dispatch	Turnout	Travel	Total
2 - Deerfield	1.8	2.8	9.0	13.5	2 - Deerfield	3.6	5.4	14.4	19.2
3 - Middlebrook	1.4	3.5	5.5	10.5	3 - Middlebrook	1.9	6.5	8.2	16.4
4 - Churchville	1.4	3.3	5.3	10.1	4 - Churchville	2.1	5.2	8.5	14.0
5 - Weyers Cave	1.4	2.2	4.8	8.4	5 - Weyers Cave	2.5	3.2	7.4	12.6
6 - Verona	1.2	2.5	4.9	8.6	6 - Verona	1.6	3.0	7.5	12.2
7 - Stuarts Draft	1.7	3.2	4.9	9.8	7 - Stuarts Draft	2.7	5.0	6.7	12.7
8 - Craigsville	2.1	2.3	6.1	10.4	8 - Craigsville	3.3	3.8	8.8	14.4
9 - Dooms	1.6	2.7	6.4	10.6	9 - Dooms	2.2	4.7	8.6	13.5
10 - Augusta County FD	1.4	1.5	4.9	7.8	10 - Augusta County FD	2.2	2.1	6.8	10.1
11 - Preston L. Yancey	1.2	1.3	4.1	6.7	11 - Preston L. Yancey	2.0	2.0	5.3	8.7
12 - Raphine	1.8	6.5	9.0	17.3	12 - Raphine	3.0	8.7	12.6	22.7
14 - Swoope	1.3	3.9	5.9	11.1	14 - Swoope	2.2	6.2	8.8	15.6
15 - Bridgewater	1.7	2.6	9.7	14.0	15 - Bridgewater	1.7	3.7	10.7	16.8
18 - New Hope	1.9	3.0	7.2	12.1	18 - New Hope	3.2	3.9	10.2	16.1
19 - Wilson	1.7	3.7	5.8	11.1	19 - Wilson	2.7	5.4	7.7	14.1
20 - Grottoes	1.3	2.0	5.7	9.0	20 - Grottoes	1.8	3.2	8.2	11.7
21 - Mount Solon	1.4	4.3	7.0	12.7	21 - Mount Solon	2.3	7.0	10.3	18.2
25 - Riverheads	1.5	3.6	6.8	11.9	25 - Riverheads	2.4	6.7	9.8	16.7
80 - Walkers Creek	1.2	5.3	8.9	15.5	80 - Walkers Creek	1.8	7.5	13.1	20.4
Wintergreen FD	2.5	5.9	11.7	20.1	Wintergreen FD	4.0	7.0	15.8	25.6
Total	**1.4**	**2.7**	**5.5**	**9.6**	**Total**	**2.3**	**4.1**	**8.1**	**13.5**

As a review from a previous discussion, NFPA 1720 calls attention to additional staffing/response requirements worth noting here:

- *The fire department shall identify minimum staffing requirements to ensure that the number of members that are available to operate are able to meet the needs of the department.*
  - For the volunteer component this can include scheduled staffing at predetermined stations or pre-determined staff responding to stations to assemble and response apparatus.
  - *Where staffed stations are provided, when determined by the authority having jurisdiction, they shall have a turnout time of 90 seconds for fire and special operations and 60 seconds for EMS incidents, 90 percent of the time.* ***Applies to ACFR fire system stations with on-premises staffing.*** This should be measured at those staffed stations.
- *Upon assembling the necessary resources at the emergency scene, the fire department shall have the capability to safely commence an initial attack within 2 minutes 90 percent of the time.*

- The assembling of the Effective Response Force should be announced by the incident commander over the radio and measured through the computer-aided dispatch (CAD) system after the arrival of the initial arriving members, companies, and response teams.

- *Personnel responding to fires and other emergencies shall be organized into company units or response teams and have the required apparatus and equipment.*
  - This avoids freelancing by personnel before and after the arrival of the fire suppression units; enables the incident commander to size-up available on-scene resources, ensures fireground accountability, and ensures a coordinated assignment of critical tasks.

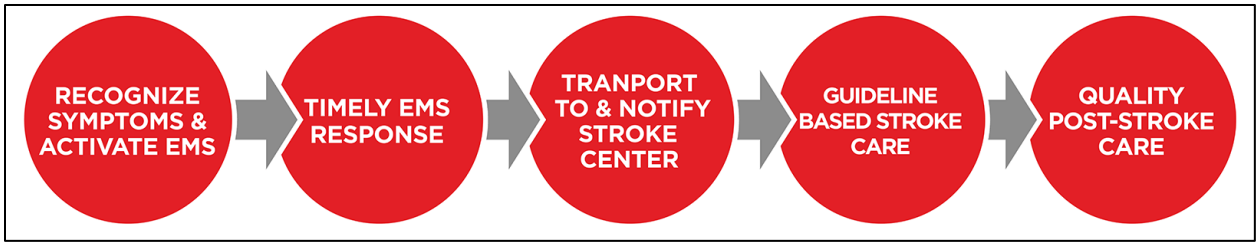
EMS Response Times

The focus of EMS response times should be directed to the evidence-based research relationship between clinical outcomes and response times. Much of the current research suggests response times have little impact on clinical outcomes of low acuity calls. Higher acuity calls such as cerebrovascular accidents (stroke), injury or illness compromising the respiratory system, injury or illness compromising the cardiovascular system to include S-T segment elevation emergencies, certain obstetrical emergencies, and certain other medical emergencies. Each requires rapid response times, rapid on-scene treatment and packaging for transport, and rapid transport to the hospital. There are also other EMS incidents that are truly life-threatening, and the time of response can clearly impact the outcome. These involve emergencies such as 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 is lower on average when looking at the totality of EMS responses.

As a low percentage of 911 patients have time-sensitive and advanced life support (ALS) needs, for those patients that do, time can be a critical issue. This becomes more critical in the rural setting where response times are longer. For the remainder of those calling 911 for a medical emergency, though they may not have a medical necessity, they still expect rapid customer service. Response times for patients and their families are often the most important measurement of the EMS department. ***Regardless of the service delivery model, appropriate response times are more than a clinical issue; they are also a customer service issue and should not be ignored.***

The next figure illustrates the out-of-hospital chain of survival for a stroke emergency, which is a series of actions that, when put in motion, reduce the mortality of a stroke emergency. ***An important component is timely EMS response.***

Figure 33: Cerebrovascular Emergency (Stroke) Chain of Survival



Source: https://nhcps.com/lesson/acls-acute-stroke-care/

The next figure illustrates the out of hospital chain of survival, which is a series of actions that, when put in motion, reduce the mortality of sudden cardiac arrest. Adequate EMS response times coupled with community and public access defibrillator programs can positively impact

the survival rate of sudden cardiac arrest victims. ***Again, timely basic and advanced EMS response is an important component of the overall patient care system.***

Figure 34: Sudden Cardiac Arrest Out of Hospital Chain of Survival

From: 2020 American Heart Association Guidelines for Cardiopulmonary Resuscitation and Emergency Cardiovascular Care.

Next, we review EMS response times. In this analysis, we included all calls to which at least one non-administrative unit arrived. In addition, calls with a total response time exceeding 30 minutes were excluded. Finally, we focused on units that had complete time stamps, that is, units with all components recorded, so that we could calculate each segment of response time.

Based on the methodology above, for 12,177 calls (Table 31), we excluded 830 mutual aid calls, 870 calls that did not have an arrival unit, one call where one or more segments of the first arriving unit's response time could not be calculated due to missing or faulty data, and 65 calls with a total response time exceeding 30 minutes. As a result, in this section, a total of 10,411 calls are included in the analysis.

Table 26: Average Response Time of First Arriving Unit by Call Type (Minutes), Rescue Service

Call Type	Dispatch	Turnout	Travel	Total
Breathing difficulty	2.4	1.7	7.2	11.4
Cardiac and stroke	2.4	1.9	7.0	11.3
Cardiac arrest	2.4	1.4	6.1	9.8
Fall and injury	2.3	1.8	7.1	11.2
Illness and other	2.5	1.8	7.3	11.6
MVA	1.3	1.7	7.4	10.3
OD	3.2	1.8	7.3	12.3
Seizure and UNC	2.5	1.7	6.9	11.1
EMS Subtotal	**2.4**	**1.8**	**7.1**	**11.3**
Non-EMS Subtotal	**1.3**	**1.6**	**6.4**	**9.4**
Total	**2.3**	**1.8**	**7.1**	**11.2**

Table 27: 80th Percentile Response Times of First Arriving Unit by Call Type (Minutes), Rescue Service

Call Type	80th Percentile Response Time			
	Dispatch	Turnout	Travel	Total
Breathing difficulty	3.0	2.3	10.1	14.7
Cardiac and stroke	3.0	2.5	9.8	14.5
Cardiac arrest	3.2	1.9	8.8	13.0
Fall and injury	3.0	2.4	9.7	14.4
Illness and other	3.2	2.4	10.3	15.1
MVA	1.8	2.4	10.1	13.8
OD	4.1	2.5	10.2	16.1
Seizure and UNC	3.2	2.3	9.6	14.3
EMS Subtotal	**3.1**	**2.4**	**10.0**	**14.7**
Fire Subtotal	**2.1**	**2.3**	**9.9**	**13.8**
Total	**3.0**	**2.4**	**10.0**	**14.6**

In analysis of the overall ACFR EMS system response times:

- The average turnout time was 1.8 minutes.
- The average travel time was 7.1 minutes.
- The average total response time was 11.2 minutes.
- The 80th percentile dispatch time was 3.0 minutes.
- The 80th percentile turnout time was 2.4 minutes.
- The 80th percentile travel time was 10.0 minutes.
- The 80th percentile total response time was 14.6 minutes.

The next two tables analyze the response for each rescue agency in the ACFR EMS system.

Analysis of these tables tell us (for in-county departments):

- On average turnout time is well below six minutes (1.8 minutes).
- On average travel times are consistent with the locations of calls, with some travel times extended due to the remoteness of the call.
- At the 80th percentile turnout and travel times increase as they are measured at a higher level. Turnout and travel times when measured against the 80th percentile shows the extended travel times, (due to large response districts and remote areas), however turnout times remain reasonable at 2.4 minutes.

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Table 28: Average and 80th Percentile Response Time of First Arriving EMS Unit, by First Due Response (Minutes)

	Average				80th Percentile			
First Due Area	Dispatch	Turnout	Travel	Total	First Due Area	Dispatch	Turnout	Travel
1 - Waynesboro	2.6	2.7	8.1	13.4	1 - Waynesboro	3.3	3.5	9.6
2 – Deerfield	2.2	1.8	9.4	13.5	2 – Deerfield	3.1	2.4	15.6
4 - Churchville	2.1	1.8	7.4	11.2	4 - Churchville	2.9	2.4	10.0
5 - Staunton-Augusta	2.2	2.0	8.3	12.5	5 - Staunton-Augusta	3.0	2.6	10.5
6 - Stuarts Draft	2.4	1.8	6.9	11.1	6 - Stuarts Draft	3.1	2.5	9.7
11 - Preston L. Yancey	2.3	1.4	4.5	8.3	11 - Preston L. Yancey	3.0	1.9	5.6
15 - Bridgewater	2.6	2.9	10.7	16.2	15 - Bridgewater	3.0	3.8	12.6
16 - Craigsville	2.3	1.6	5.7	9.7	16 - Craigsville	3.0	2.2	8.5
18 - New Hope	2.2	1.6	9.6	13.4	18 - New Hope	3.0	2.1	12.3
20 – Grottoes	2.5	2.0	8.4	12.9	20 – Grottoes	3.2	2.5	10.8
21 - Mount Solon	2.3	1.9	8.7	12.9	21 - Mount Solon	3.1	2.6	12.1
Rescue 25	2.4	1.6	9.6	13.5	Rescue 25	3.2	2.1	13.5
Rescue 26	2.2	1.6	6.5	10.3	Rescue 26	3.0	2.2	9.9
Wintergreen	3.9	3.8	11.2	18.8	Wintergreen	5.3	4.8	12.7
Total	**2.3**	**1.8**	**7.1**	**11.2**	**Total**	**3.0**	**2.4**	**10.0**

Turnout time is important for a combination fire system such as Augusta County. The ACFR system has a 6-minute turnout time of the first fire suppression and EMS unit. There has been discussion that the 6-minute turnout time is too stringent. The turnout time, or response of the first unit is governed by the Augusta County Emergency Services Officers Association Standard Operating Guideline: Response Check-Timeline. According to this guideline:

> *The goal of the Augusta County Emergency Services Officers Association is to have Fire-Rescue apparatus responding to a dispatched Fire-EMS emergency five (5) minutes from the time of dispatch until the next due agency(s) is dispatched.*
>
> ***Augusta County Incidents:*** *In the event an Augusta County Fire-Rescue agency does not respond to a dispatched Fire-EMS event within five (5) minutes, The Augusta County Emergency Communications Center will conduct a response check. Unless otherwise specified, if apparatus is not responding from the specified agency (s) within one (1) minute, Augusta ECC will add the appropriate* response according to the event type.

There has been discussion that the 6-minute turnout time is too stringent. While it may not be a popular standard, response times are important, as described herein, and should be held to a high standard. It is paramount that turnout of emergency apparatus with proper staffing is highly responsive to the emergency, as travel time to the incident will only add additional time until the emergency can be evaluated, and mitigation initiated. This is especially important in the rural and remote areas of the county.

Dispatch time or call processing times are another component in the overall fire and EMS response time matrix. The NFPA 1720 document refers to NFPA 1221 *Standard for the Installation, Maintenance, and Use of Emergency Services Communications Systems* when discussing call processing times. The NFPA 1221benchmark for call processing times include:

- 90 percent of alarms received on emergency lines are answered within 15 seconds.
- 95 percent of alarms received on emergency lines are answered within 20 seconds.
- Emergency alarm processing is completed within 60 seconds 90 percent of the time.
- Emergency alarm processing is completed within 90 seconds 99 percent of the time.

CPSM did not complete a full analysis of the Augusta County Emergency Communications Center (ACECC), but did evaluate call processing time at the average, 80th percentile, and 90th percentile. The next table outlines these times. In each, the ACECC exceeds the 90th percentile benchmark.

Table 29: Call Processing Times: Average, 80th and 90the Percentile

Fire Call Processing	EMS Call Processing
Average: 84 seconds	Average: 138 seconds
80th Percentile: 138 seconds	80th Percentile: 180 seconds
90th Percentile: 192 seconds	90th Percentile: 216 seconds

EMS call processing inherently takes longer as the call taker asks additional questions to establish the correct call determinant (i.e. how significant is the chest pain and are there any additional issues and/or symptoms; are there injuries as a result of the motor vehicle accident-if so, how significant; where the person is injured-is there significant bleeding and so on).

An emergency medical dispatch or priority medical dispatch system will assist with processing EMS calls more efficiently. A call processing system such as this utilizes clinical protocols and call taking processes to assign a response determinant or code to an EMS request generated in the 911-Center. These response determinants or codes are used in EMS systems to determine the priority of a response, and the appropriate level of care likely necessary to meet the patient's clinical needs. The response determinants also aid in informing the responding units specifically what type of medical call to which they are responding. Additionally, they provide the call-taker with pre-arrival instructions that can be communicated to the caller.

Appropriate use of an EMD system typically includes the active engagement of Operational Medical Director, and a robust quality assurance (QA) process, which helps assure that EMD call taking, EMD determinant or code assignments, and pre-arrival instructions if included in the program, are being conducted appropriately and reliably. ***The county should continue efforts to add a full EMD system in the ACECC. Appropriate response protocols should be included in ACFR system strategic planning over the near-term.***

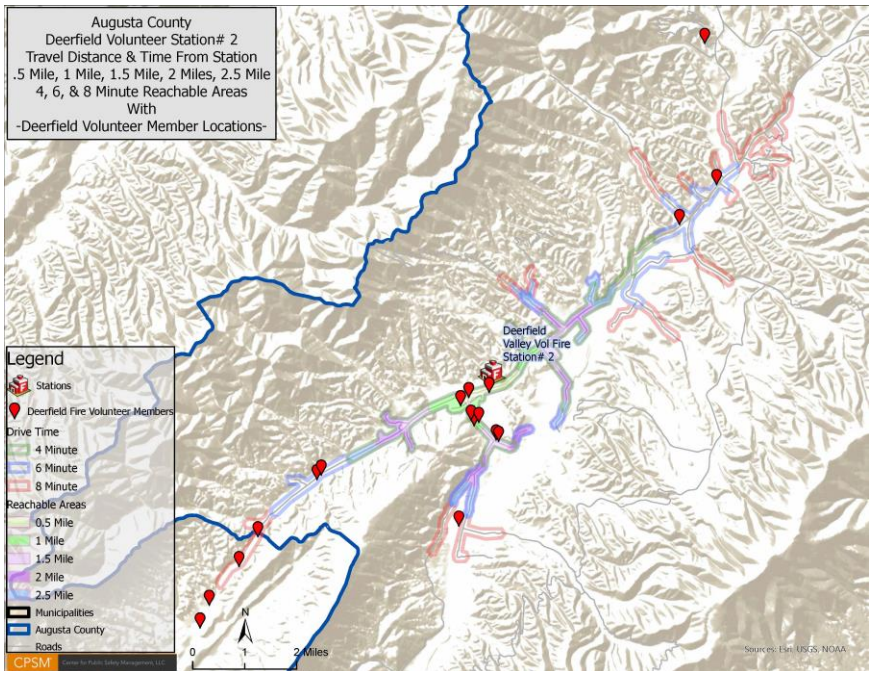
The next set of maps shows member locations for each fire agency in the County with response travel time from these locations. CPSM utilizes ArcGIS for response travel time mapping. ArcGIS drive time/bleeds are calculated from the stations towards the outer locations from the station using traffic laws (posted speed limit, stop signs, one-way streets, etc.) that are applied to the roads network. The CPSM GIS Specialist uses the *Drive-Time Areas* feature. Member locations were provided to CPSM by the ACFR department volunteer coordinator. As a note, only addresses were provided-no names. Members with P.O. Boxes are not included.

Utilizing the Augusta County (and municipalities where applicable) road network, CPSM, using ArcGIS, measured out from each station 4, 6, and 8-minutes. Then CPSM pinned each member location. The purpose of this exercise is to illustrate where members live in relation to their

volunteer station. It is noted here that not all volunteer member responses originate from home, however, at night a majority typically does unless the department has in-station duty crews. It is important therefore to have a sense of membership location within the proximity of each fire station. Each station is analyzed separately. Most stations have members in proximity to their station. Some do not, which may affect turnout times when members are not in the station.

Fire Agencies Volunteer Member Locations: 4, 6, 8 Minute Travel Time to Stations

Deerfield Valley Station 2



Analysis

The core of members lives within one mile of the station and four minutes travel time.

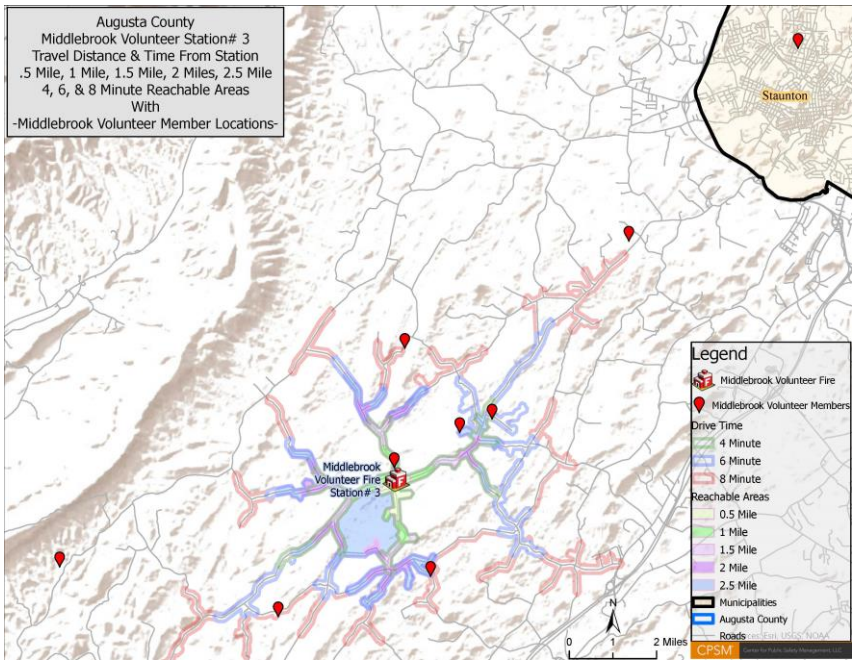
Other members live within six to eight minutes of the station.

Some members live beyond eight minutes and 2.5 miles of the station.

Includes 28 member addresses.

Some pins include clusters of close addresses.

Middlebrook Station 3



Analysis

Some members live within 4-6 minutes from the station.

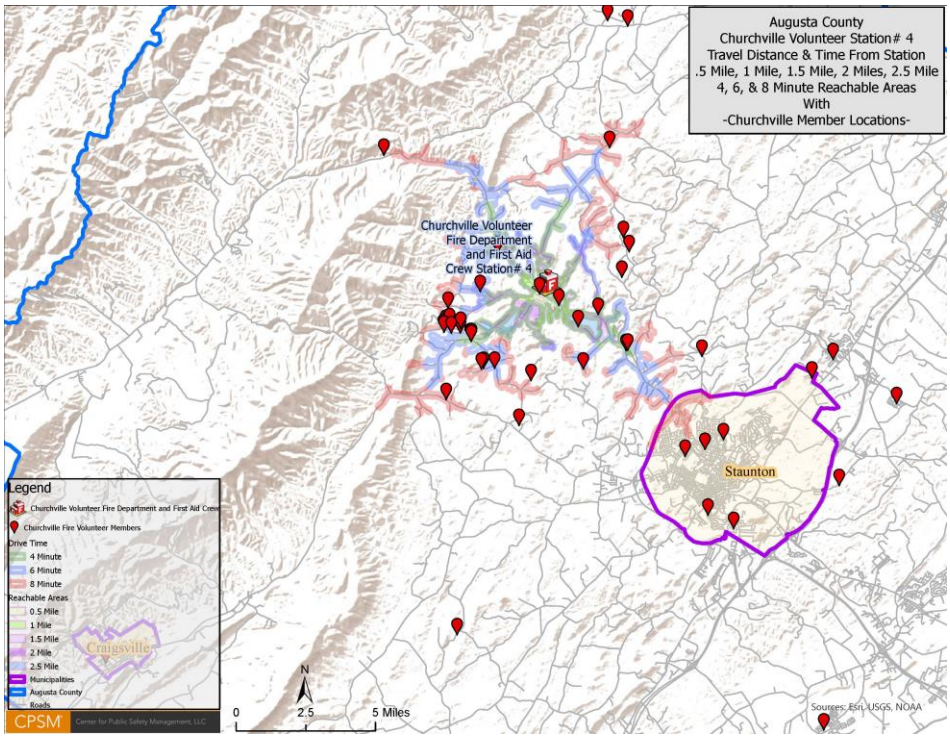
Some members live eight minutes and beyond 2.5 miles from the station.

Includes 11 member addresses.

One member has a PO Box.

Some pins include clusters of close addresses.

Churchville Station 4



Analysis

A core of members lives within four – six minutes travel time of the station.

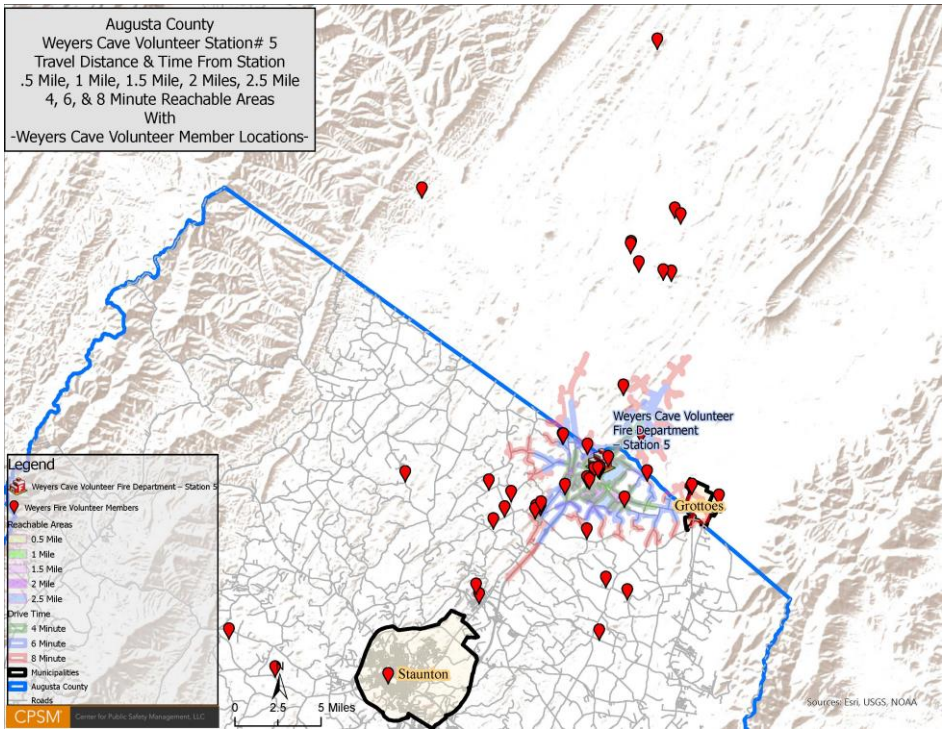
Other members live within eight minutes of the station.

Some members live beyond eight minutes and 2.5 miles of the station.

Includes 68 member addresses.

Some pins include clusters of close addresses.

Weyers Cave Station 5



Analysis

The core of members lives within four – six minutes travel time of the station.

Some members live within eight minutes of the station.

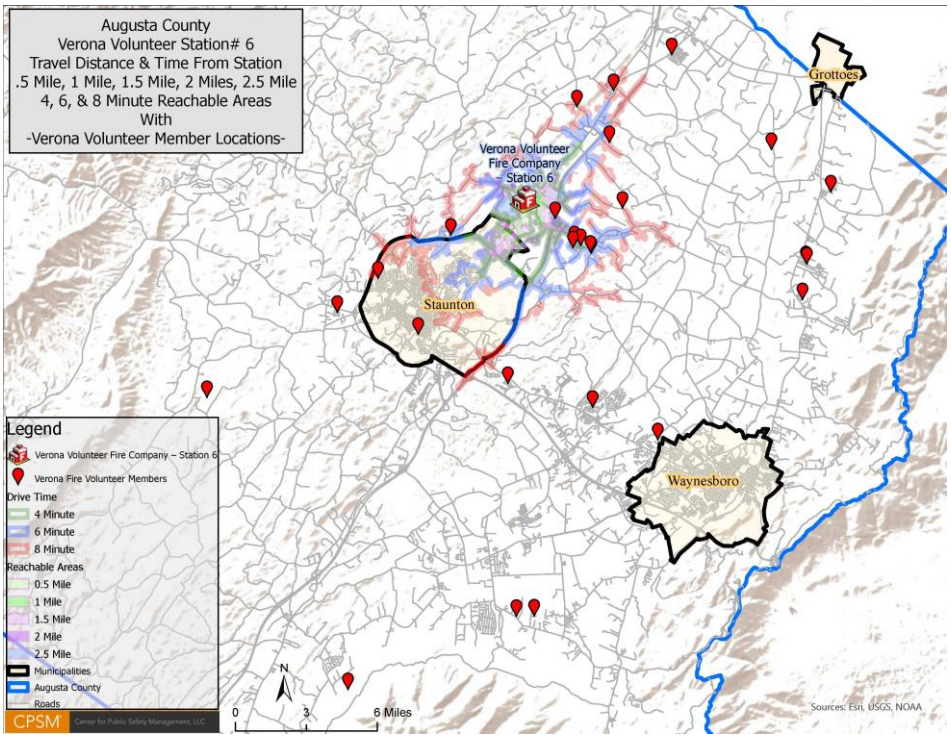
Some members live beyond eight minutes and 2.5 miles of the station.

Includes 56 member addresses.

One member has a PO Box.

Some pins include clusters of close addresses.

Verona Station 6



Analysis

A core of members lives within four – six minutes travel time of the station.

Other members live within eight minutes of the station.

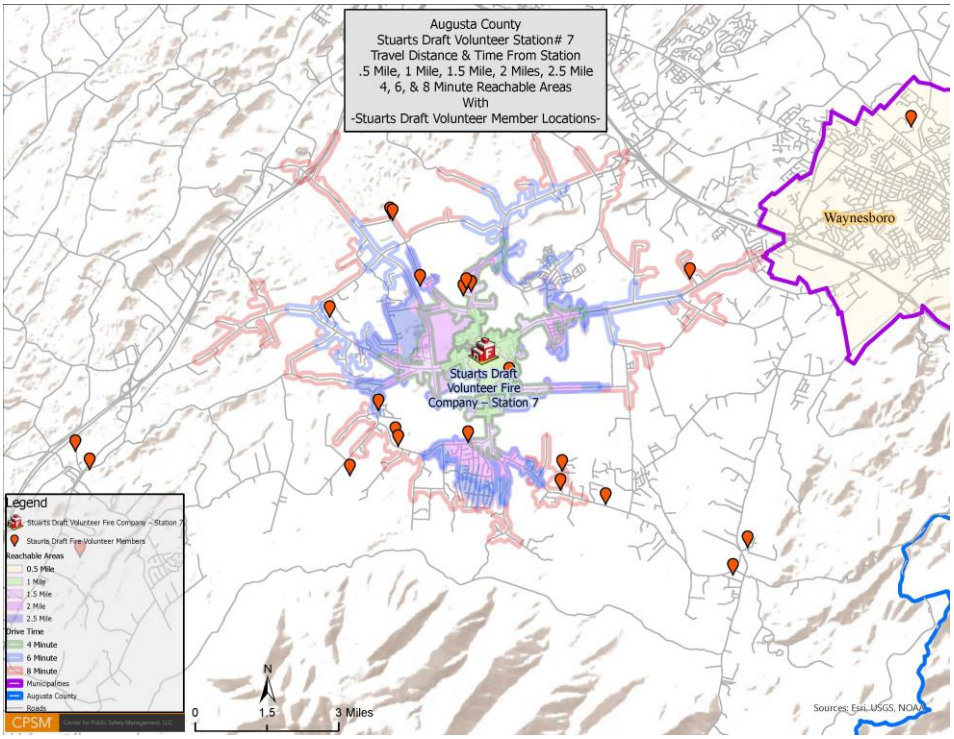
Some members live beyond eight minutes and 2.5 miles of the station.

Includes 38 member addresses.

One member has a PO Box.

Some pins include clusters of close addresses.

Stuarts Draft Fire Station 7



Analysis

A core of members lives within four – six minutes travel time of the station.

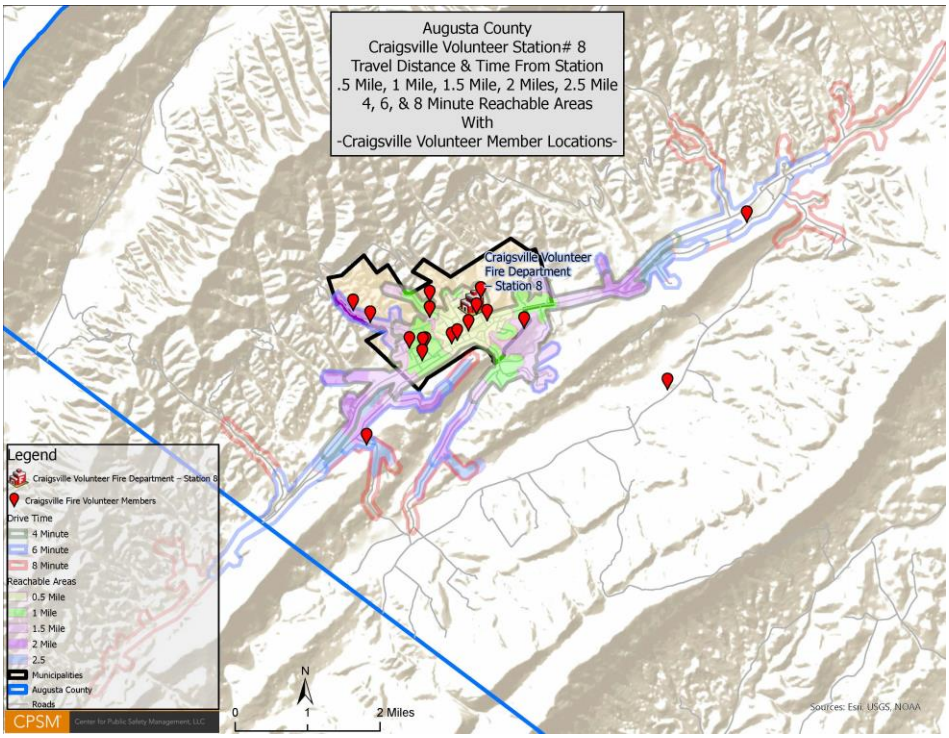
Other members live within eight minutes of the station.

A few members live beyond eight minutes and 2.5 miles of the station.

Includes 25 member addresses.

Some pins include clusters of close addresses.

Craigsville Station 8



Analysis

The core of members lives within four – six minutes travel time of the station.

A few members live within eight minutes of the station.

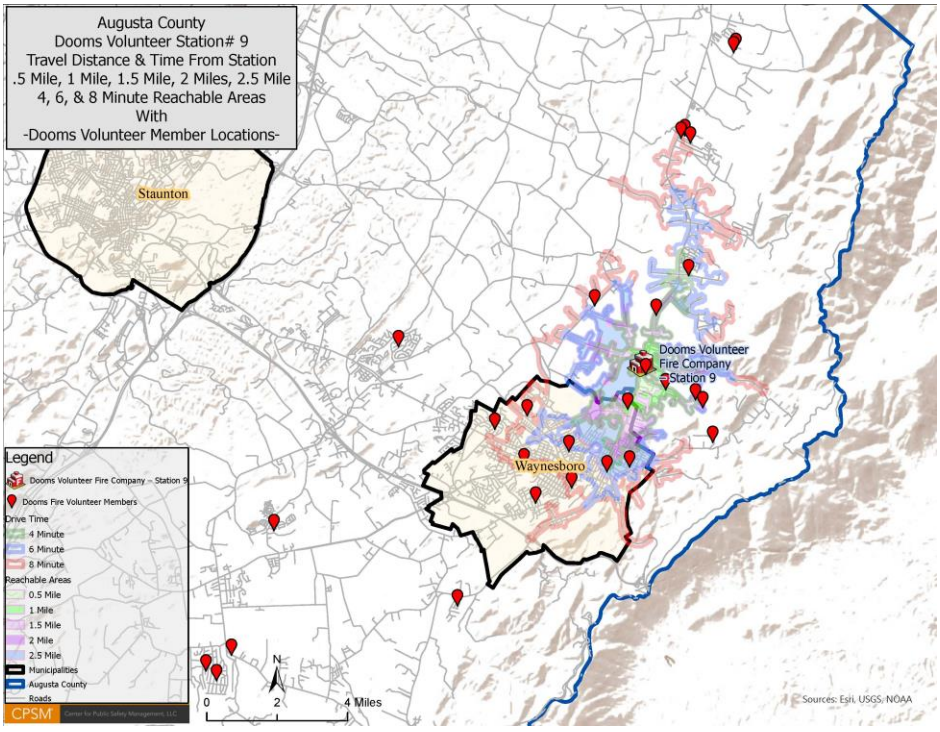
A few members live beyond eight minutes and 2.5 miles of the station.

Includes 35 member addresses.

Seven member have a PO Box.

Some pins include clusters of close

Dooms Station 9



Analysis

The core of members lives within four – six minutes travel time of the station.

Some members live within eight minutes of the station.

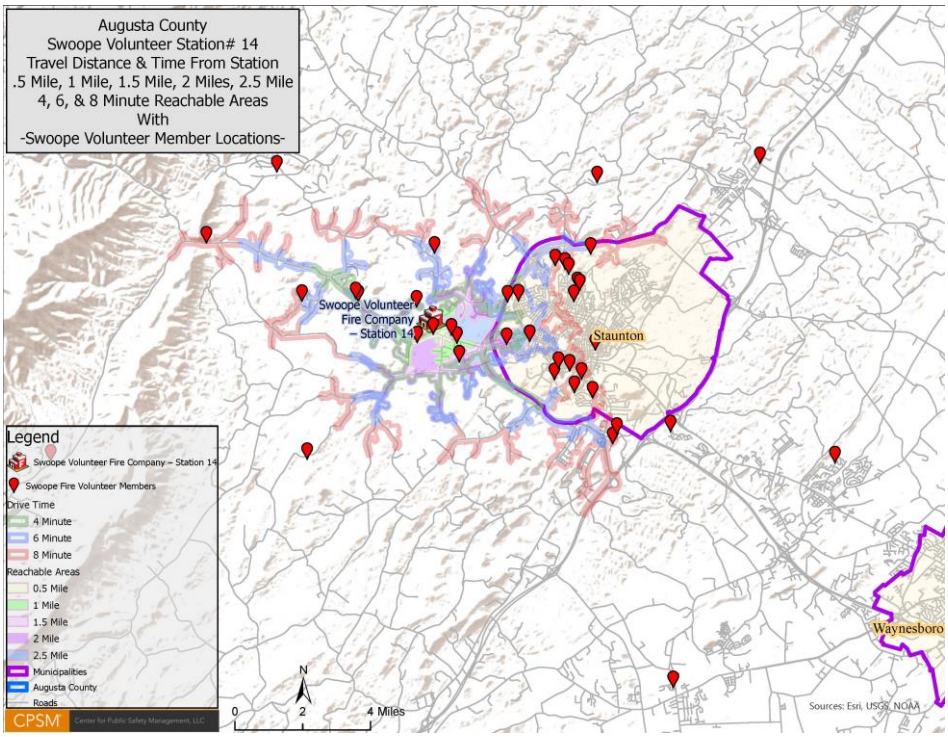
Some members live beyond eight minutes and 2.5 miles of the station.

Includes 30 member addresses.

One member does not record an address.

Some pins include clusters of close addresses.

Swoope Station 14



Analysis

The core of members lives within four – six minutes travel time of the station.

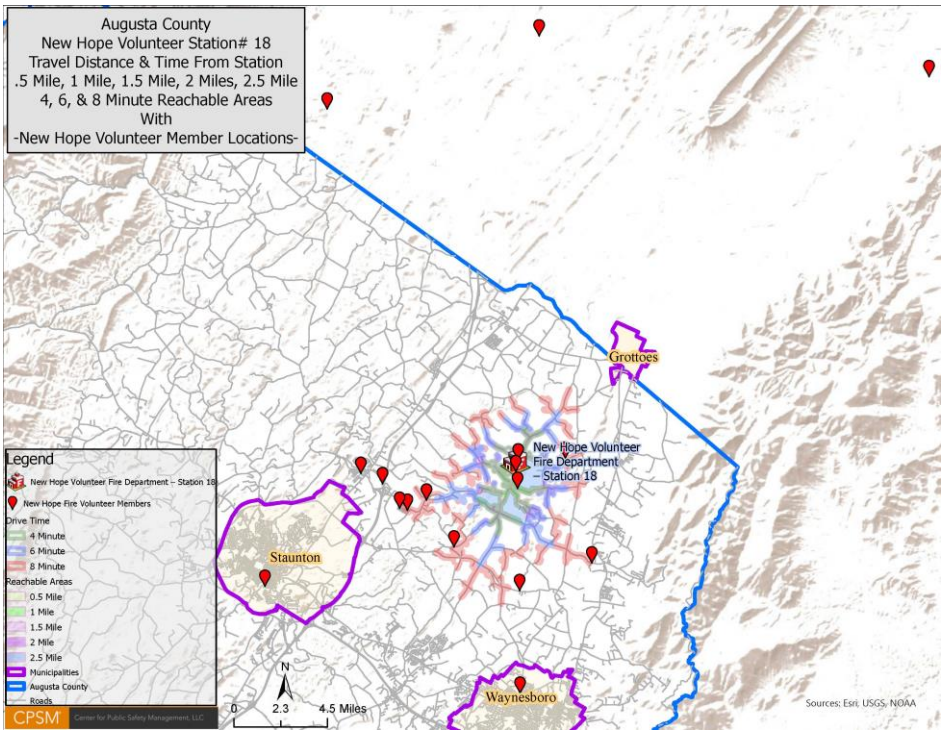
Some members live within eight minutes of the station.

Some members live beyond eight minutes and 2.5 miles of the station.

Includes 30 member addresses.

Some pins include clusters of close addresses.

New Hope Station 18



Analysis

A few members live within four – six minutes travel time of the station.

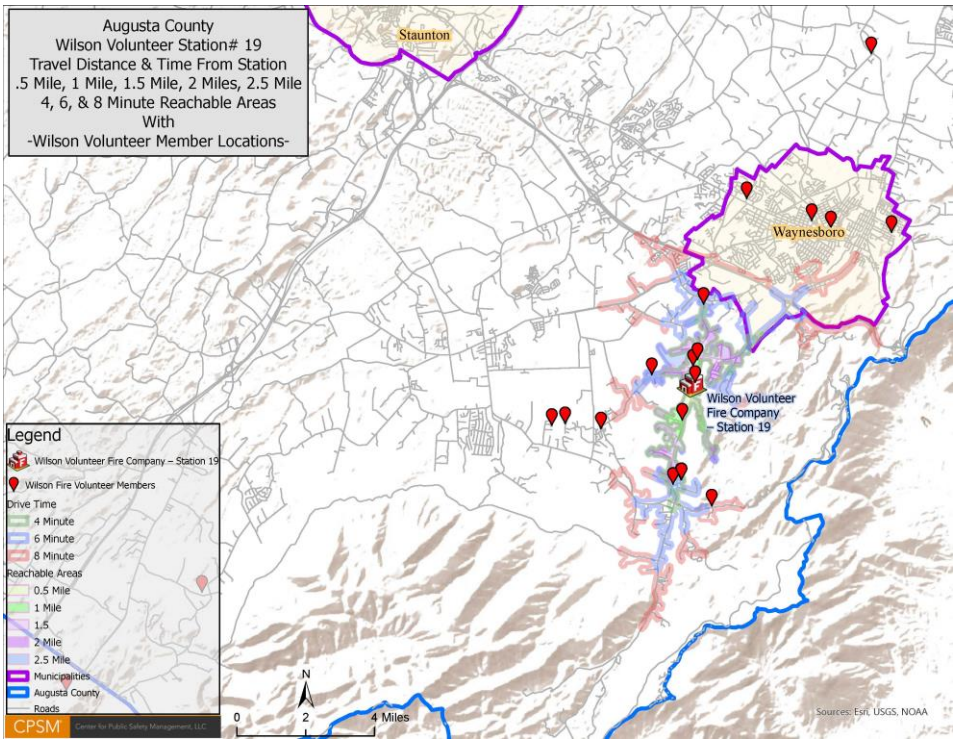
Some members live within eight minutes of the station.

Some members live beyond eight minutes and 2.5 miles of the station.

Includes 22 member addresses.

Some pins include clusters of close addresses.

Wilson Station 19



Analysis

The core of members lives within four – six minutes travel time of the station.

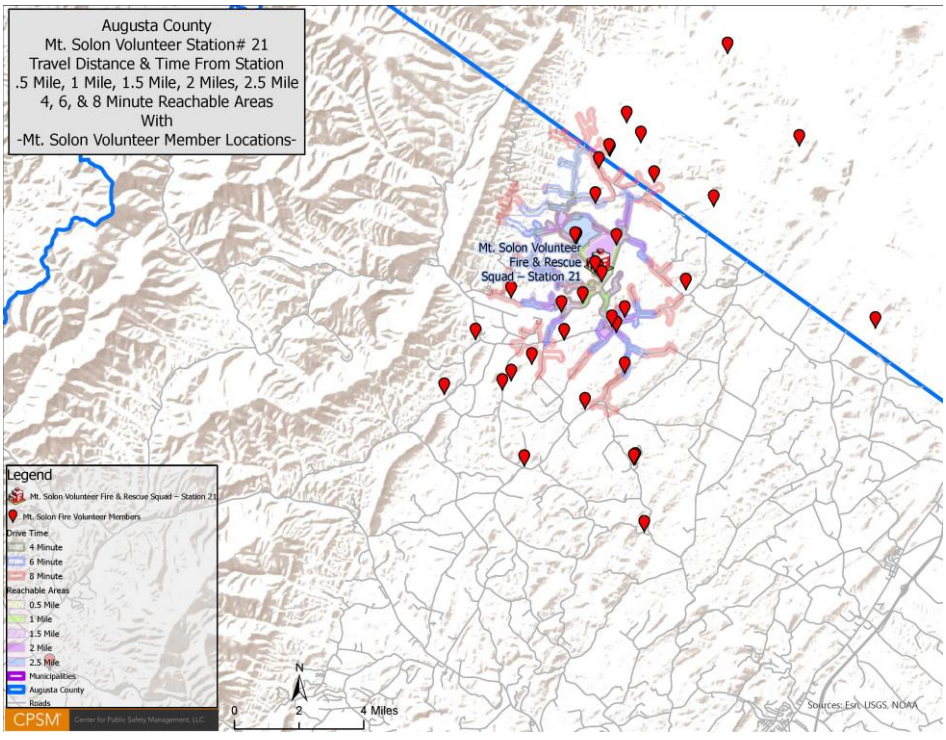
A few members live within eight minutes of the station.

Some members live beyond eight minutes and 2.5 miles of the station.

Includes 30 member addresses.

Some pins include clusters of close addresses.

Mount Solon Station 21



Analysis

A core of members lives within four – six minutes travel time of the station.

Other members live within eight minutes of the station.

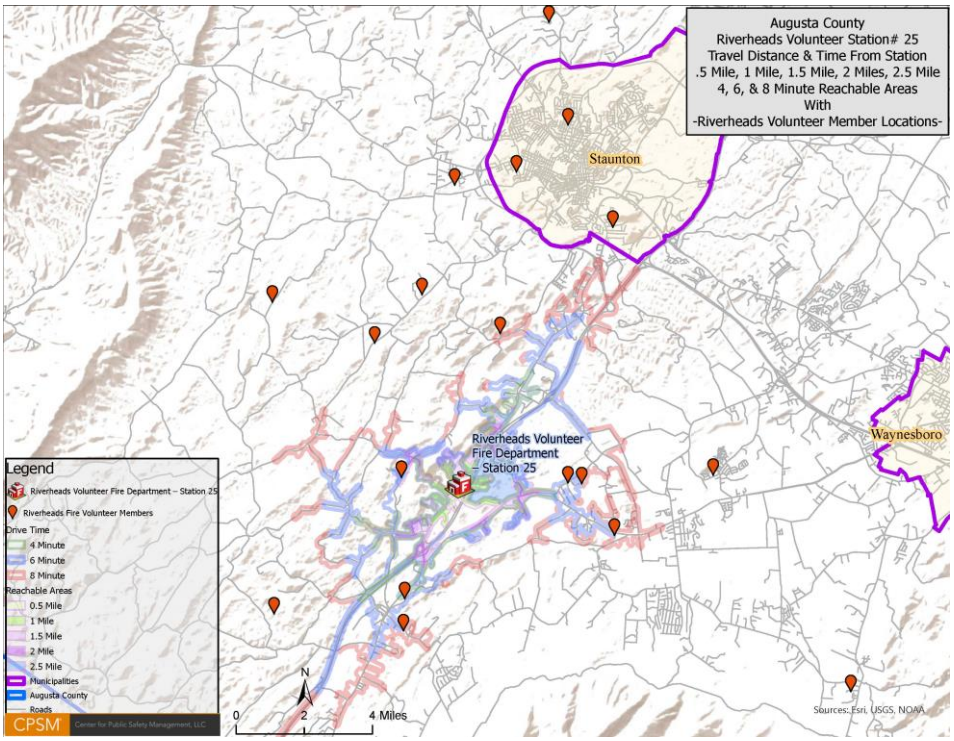
Several members live beyond eight minutes and 2.5 miles of the station.

Includes 47 member addresses.

One member has a PO Box.

Some pins include clusters of close addresses.

Riverheads Station 25



Analysis

The core of members lives within six minutes travel time of the station.

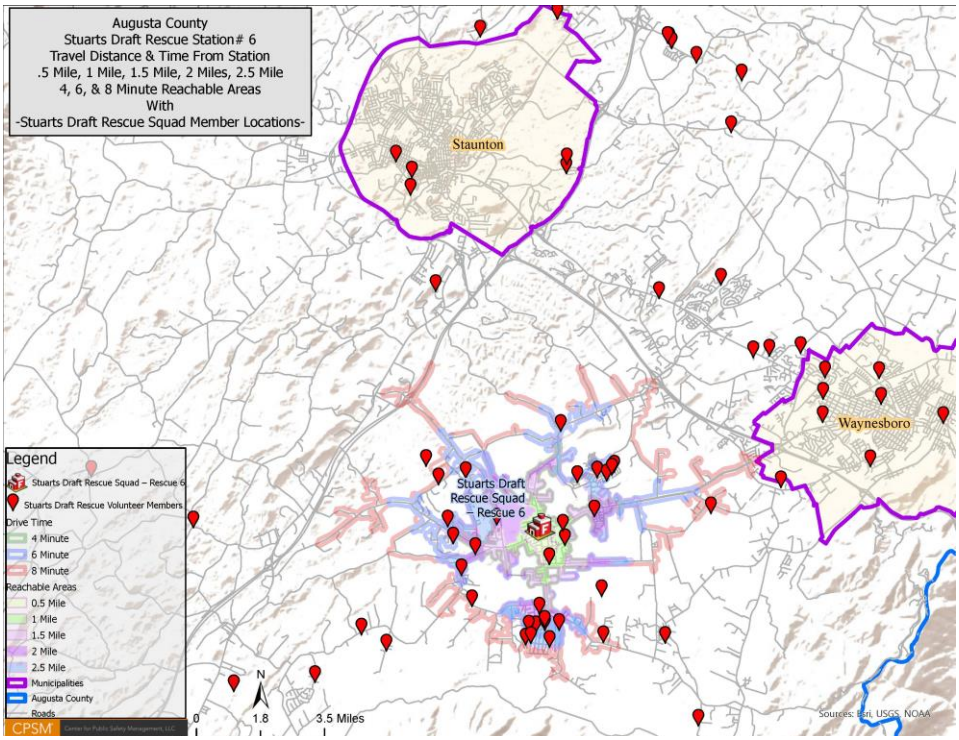
A few members live within eight minutes of the station.

Several members live beyond eight minutes and 2.5 miles of the station.

Includes 24 member addresses.

Some pins include clusters of close addresses.

Stuarts Draft Rescue 6



Analysis

The core of members lives within four-six minutes travel time of the station.

A few members live within eight minutes of the station.

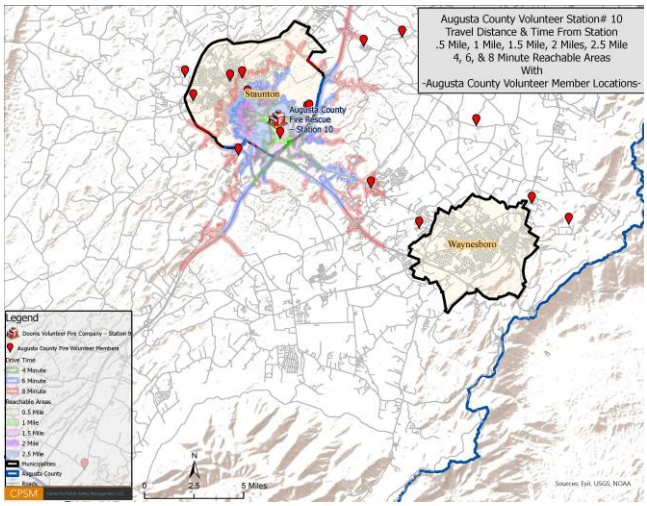
Several members live beyond eight minutes and 2.5 miles of the station.

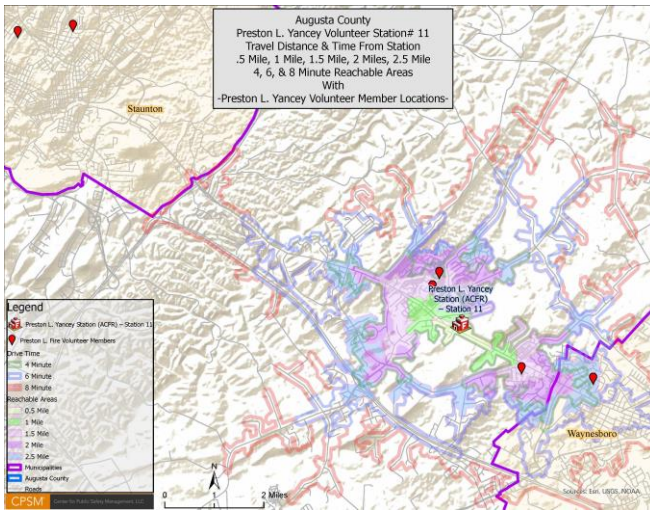
Includes 75 member addresses.

One member has a PO Box.

Some pins include clusters of close addresses.

ACFR Stations 10 & 11





Analysis: For station 10-a few members live within four-six minutes, some members live within eight minutes of the station, most members live beyond eight minutes and 2.5 miles of the station. Includes seventeen member addresses.

For station 11- members live within four-six minutes Includes eight member addresses.

For both maps, some pins include clusters of close addresses.

GIS Response Time Analysis

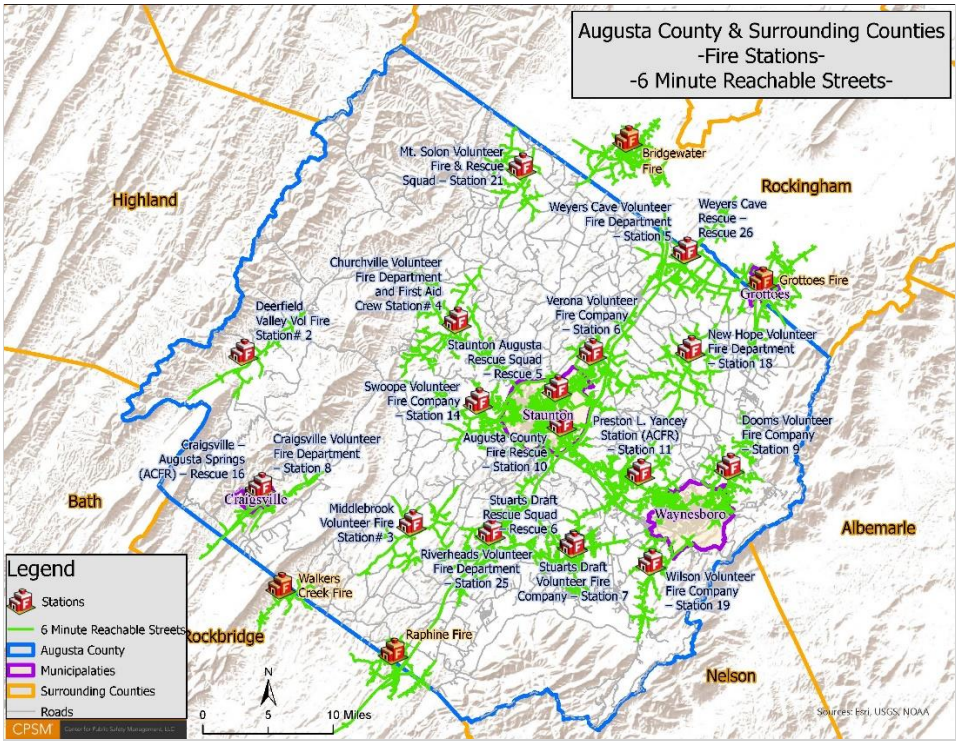
CPSM also looked at response travel times from a GIS perspective. The next figures illustrate travel time bleeds from ACFR system stations utilizing the county road network, speed limits, traffic signal lights, stop signs, U-turns etc. These maps are intended to show the response travel times separately from the ACFR system stations.

Travel time is a key point to understanding how fire and EMS station location influences a community's aggregate response time performance. Travel time can be mapped when existing and proposed station locations are known. The location of responding units is one key factor in response time; reducing response times, which is typically a key performance measure in determining the efficiency of department operations, often depends on this factor.

When analyzing these maps, we can determine what the travel time coverage is and where any gaps are in the ACFR system home districts, and then the travel from one district to another and visualize any gaps. Traveling from one district to another is important when a response unit responds to another either on an initial call, and when assisting on multi-unit incidents such as structure fires, where the assembling of an Effective Response Force is important. These maps evaluate 6, 9, 10, and 14 minute travel times.

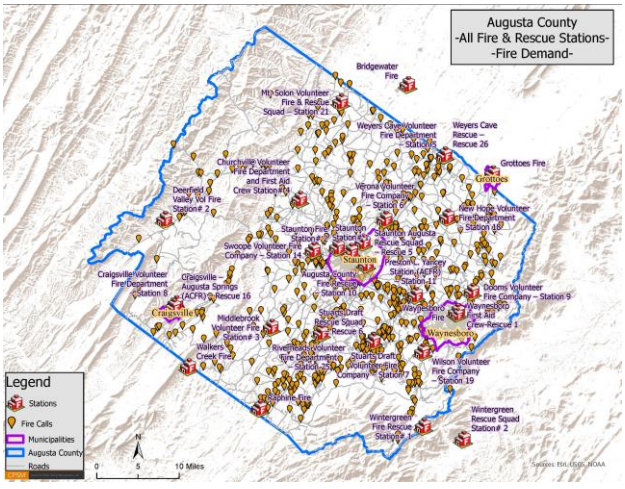
Again, and related to NFPA 1720, the importance is having a fire suppression engine company on scene as the Effective Response Force is assembling, so that when the appropriate personnel arrive, the initial mitigation/attack can commence.

Figure 35: 6 Minute Bleed Response Time



Analysis: In review of the 6-minute travel time bleed from ACFR system stations, each station is able to serve the core and heaviest demand of their response districts. This is important when evaluating EMS response and travel times and benchmarking these against the higher acuity calls that require a quicker response to initiate basic and advanced pre-hospital care.

Fire Demand



EMS Demand

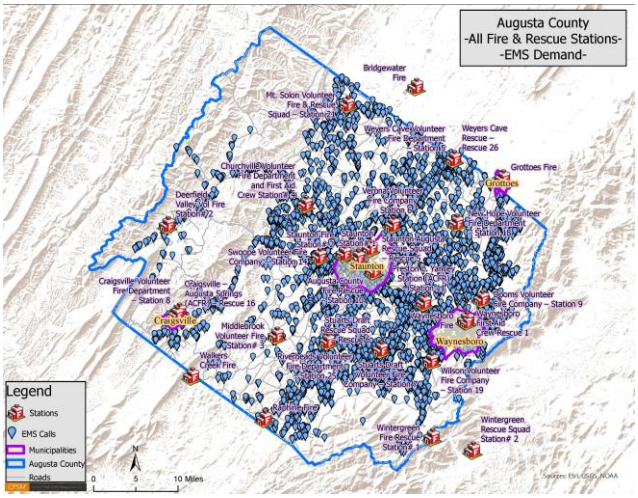
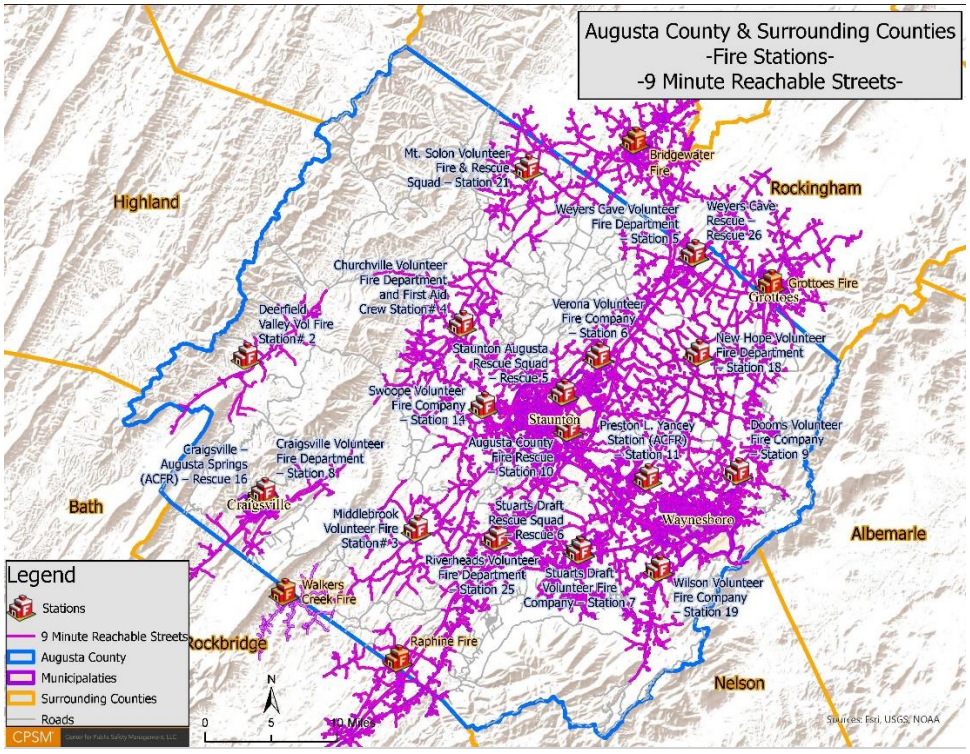
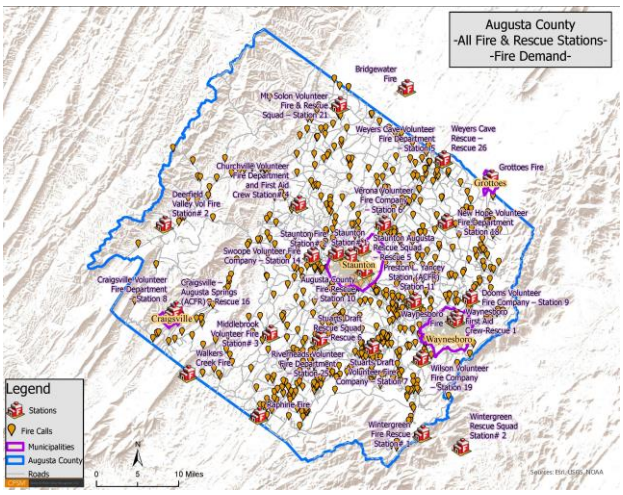


Figure 36: 9 Minute Bleed Response Time



Analysis: In review of the 9-minute travel time bleed from ACFR system stations, each station is able to serve demand that is outside of the core demand areas within their response district. As with the 6-minute travel times, this is important when evaluating EMS response and travel times and benchmarking these against the higher acuity calls that require a quicker response to initiate basic and advanced pre-hospital care.

Fire Demand



EMS Demand

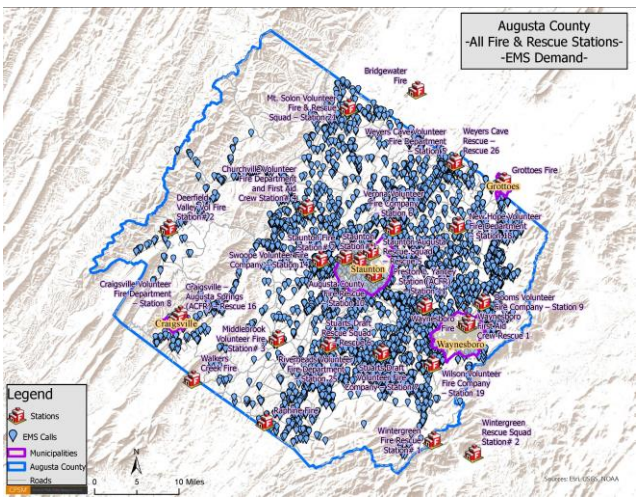
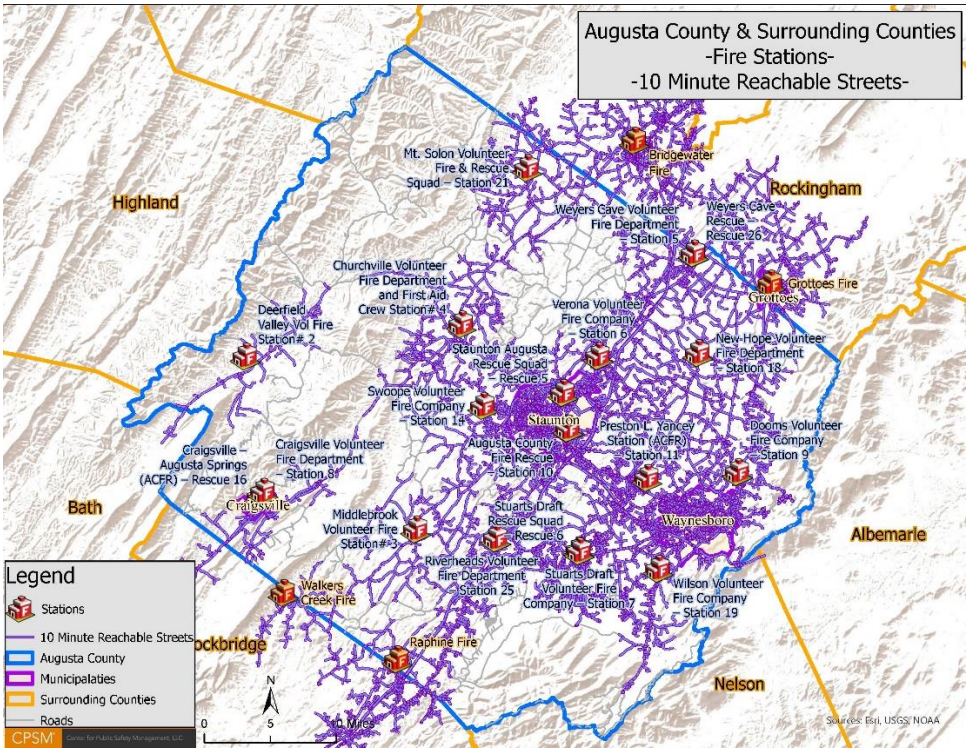
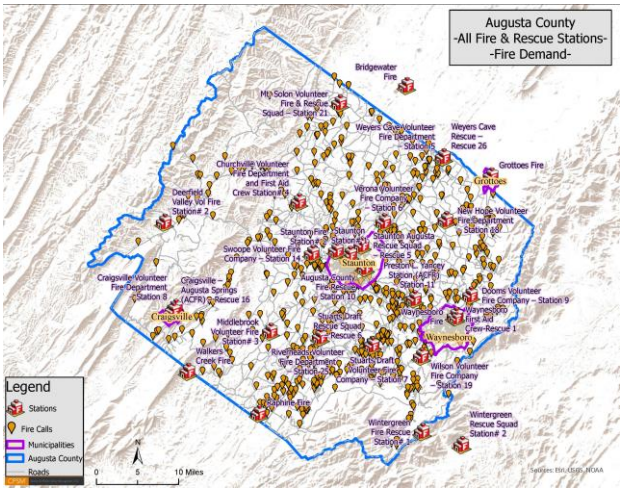


Figure 37: 10 Minute Bleed Response Time



Analysis: In review of the 10-minute travel time bleed from ACFR system stations, this bleed analysis is similar to 9-minute travel times in that each station is able to serve demand that is outside of the core demand areas within their response district. Additionally, the suburban response zones are covered when considering the travel times for the first arriving fire suppression unit.

Fire Demand



EMS Demand

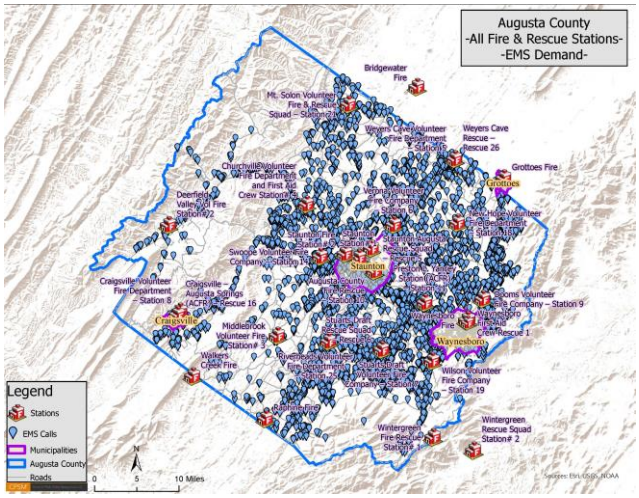
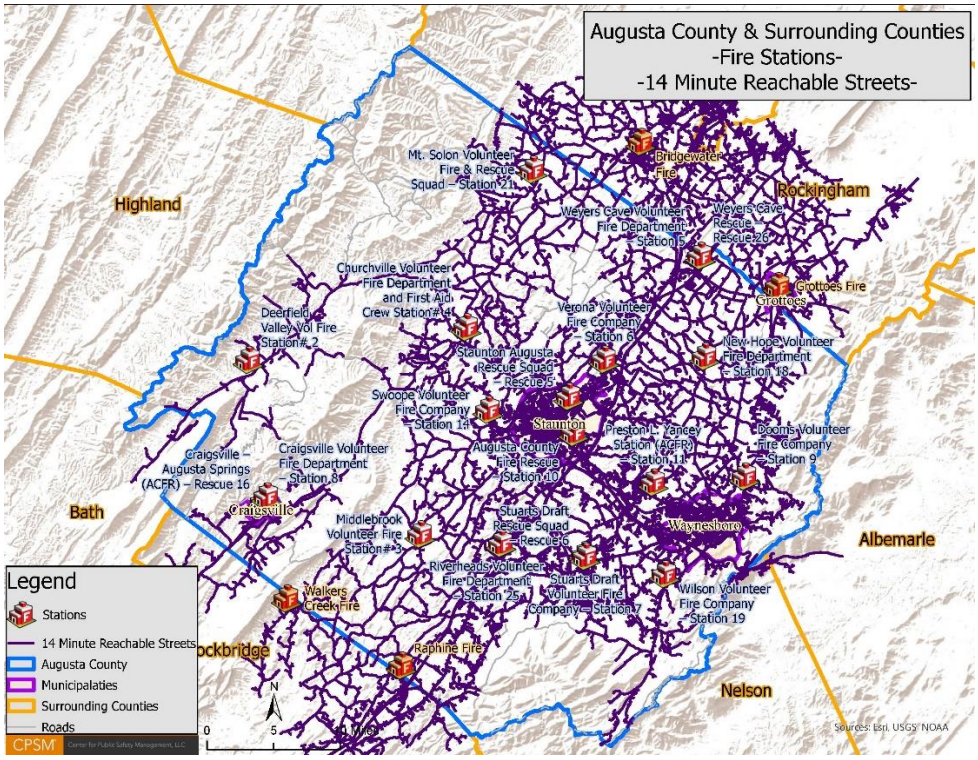
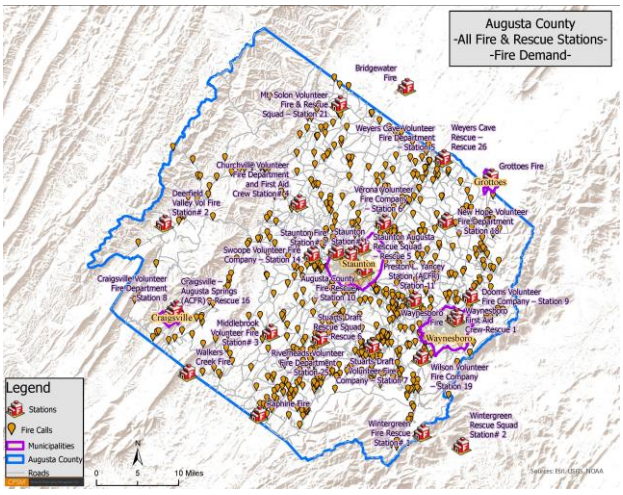


Figure 38: 14 Minute Bleed Response Time

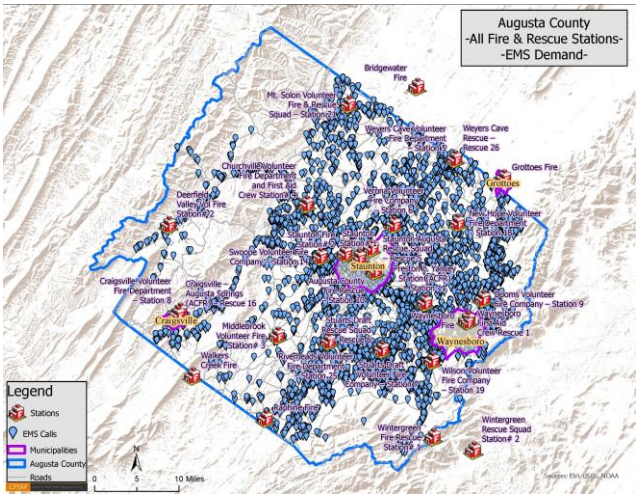


Analysis: In review of the 14-minute travel time bleed from ACFR system stations, almost all demand is served, with exception of remote areas in the western and southeastern areas of the county. Additionally, the rural response zones are almost all covered when considering the travel times for the first arriving fire suppression unit.

Fire Demand



EMS Demand



SECTION 6. AUGUSTA COUNTY FIRE-RESCUE SYSTEM

Fire-Rescue System and Service Area Overview

The Augusta County Fire-Rescue system is a combination career and volunteer member fire protection and EMS service delivery system. Together, the system provides these operational services to 77,000+ citizens living in 971 square miles of mostly rural areas.

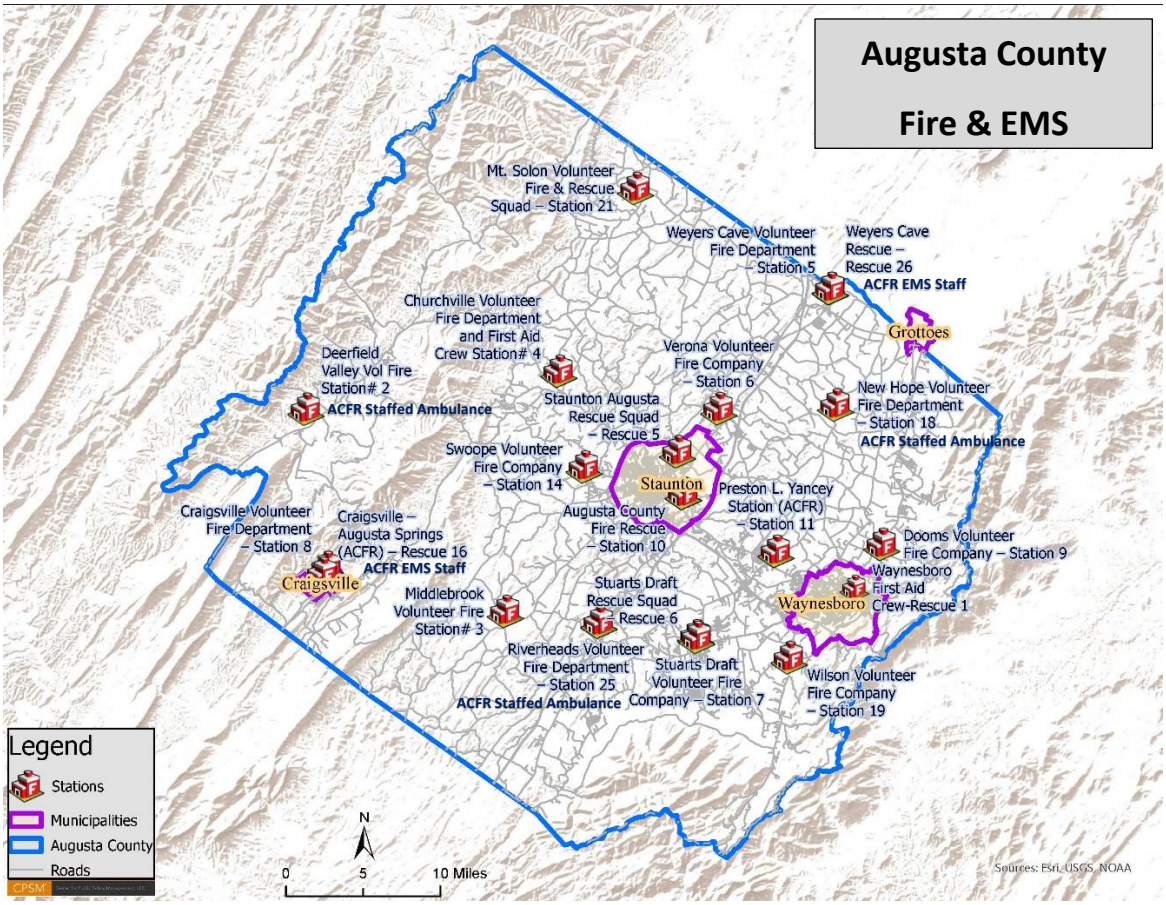
The operational system components (staffing and equipment response) are delivered from nineteen stations and include twenty response deliverables (Weyers Cave Volunteer Fire Station 5 houses ACFR department Rescue 26).

The in-county ACFR system stations and primary services include:

- Waynesboro First Aid Crew Station 1: EMS ground transport.
- Deerfield Valley VFD Station 2: Fire suppression, EMS ground transport (ACFR staff), fire EMS response on respiratory/cardiac arrest incidents.
- Middlebrook VFD Station 3: Fire suppression and fire EMS first tier response.
- Churchville VFD and Rescue Squad Station 4: Fire suppression, fire EMS first tier response, EMS ground transport.
- Staunton-Augusta Rescue Squad Rescue 5: EMS ground transport.
- Weyers Cave VFC Station 5: Fire suppression and EMS first tier response.
- Stuarts Draft Rescue Squad 6: EMS ground transport; Light Rescue Unit.
- Verona VFC Station 6: Fire suppression and fire EMS first tier response.
- Stuarts Draft VFC Station 7: Fire suppression and EMS first tier response on respiratory/cardiac arrest incidents.
- Craigsville VFD Station 8: Fire suppression and EMS first tier response on respiratory/cardiac arrest incidents.
- Dooms VFC Station 9: Fire suppression and EMS first tier response.
- ACFR Station 10: Fire suppression and Heavy Rescue.
- ACFR Station 11: Fire suppression and EMS ground transport.
- Swoope VFC Station 14: Fire suppression and EMS first tier response.
- Craigsville-Augusta Springs Rescue 16: EMS ground transport.
- New Hope VFD Station 18: Fire suppression, fire EMS first tier response, EMS ground transport (ACFR staff).
- Wilson VFC Station 19: Fire suppression and EMS first tier response on respiratory/cardiac arrest incidents.
- Mount Solon Volunteer Fire & Rescue Squad Station 21: Fire suppression, fire EMS first tier response, EMS ground transport.
- Riverheads VFD Station 25: Fire suppression, fire EMS first tier response, EMS ground transport (ACFR staff).
- Weyers Cave Rescue 26: EMS ground transport.

Included in the in-county system are those stations noted in the next map.

Figure 39: Augusta County Fire-Rescue System Station and Resource Map



In addition to the traditional fire, fire related, and EMS services, the system also provides technical rescue (vehicle and machinery extrication, rope rescue, structural collapse, and hazardous material response services). ACFR is a regional Haz-Mat response team that works closely with the Virginia Department of Emergency Management on chemical and technological emergencies. Additionally, ACFR is one of several agencies that make-up the Virginia Division 2 Technical Rescue Team. Across the system, response resources include a heavy rescue vehicle assigned to Station 10, along with engine, ladder, and light rescue apparatus that is equipped with hydraulic rescue tools, rope and rope rigging equipment, and other rescue and operational level Haz-Mat equipment.

As a combination emergency response system, station and unit staffing is provided through a combined effort of volunteer and career staff. Volunteer hours are 24/7/365 either through assigned crew and/or duty times, or response from home, work, or when out and about in the county and an alarm comes in. Career staffing is either 24/7/365 in some stations, and daylight hours Monday-Friday in others (6:00 am – 6:00 pm).

The next table outlines staffing by station.

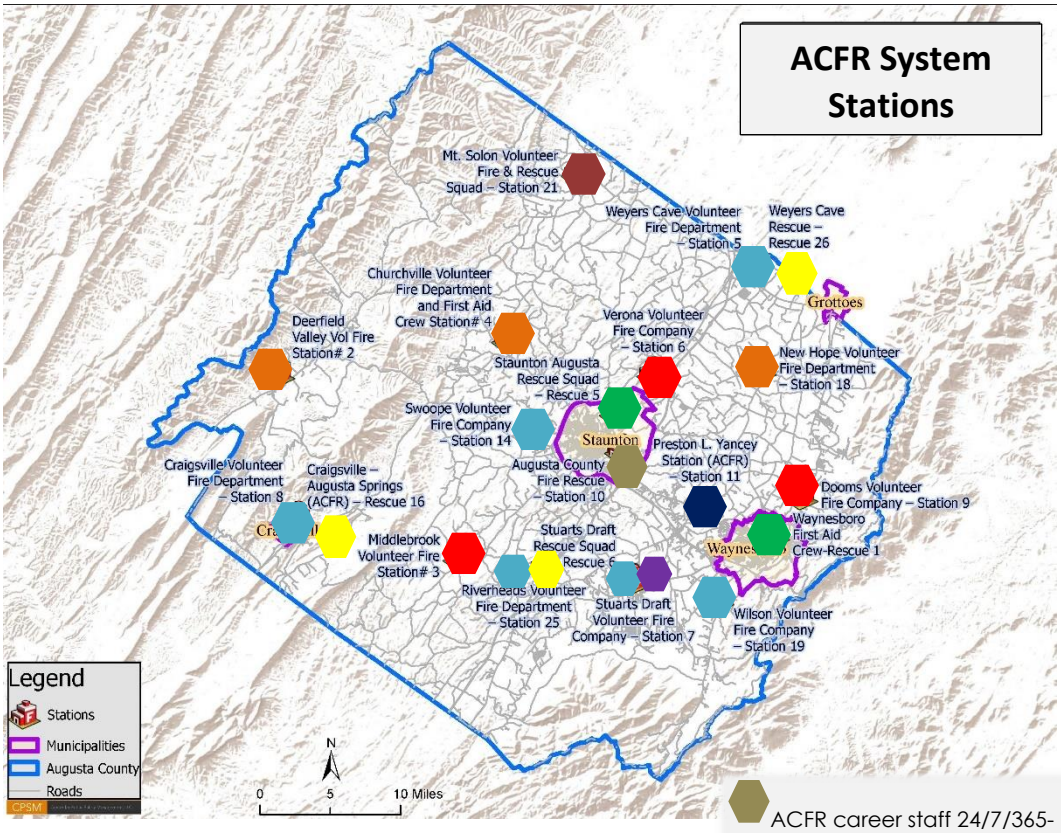
Table 30: ACFR System Staffing by Station

Station	Staffing Matrix
Waynesboro First Aid Crew Station 1	Volunteer Staff Agency provided career staff
Deerfield Valley VFD Station 2	Volunteer Staff EMS - Career Staff 24/7/365
Middlebrook VFD Station 3	Volunteer Staff Career Staff M-F 6a-6p
Churchville VFD & Rescue Squad Station 4	Volunteer Staff Career Staff 24/7/365
Staunton-Augusta Rescue Squad-Rescue 5	Volunteer Staff Agency provided career staff
Weyers Cave VFC Station 5	100% Volunteer
Stuarts Draft Rescue Squad-Rescue 6	Volunteer Staff Career Staff M-F 6a-6p
Verona VFC Station 6	Volunteer Staff Career Staff M-F 6a-6p
Stuarts Draft VFC Station 7	100% Volunteer
Craigsville VFD Station 8	100% Volunteer
Dooms VFC Station 9	Volunteer Staff Career Staff M-F 6a-6p
ACFR Station 10	Career Staff 24/7/365 Supplemented by Volunteer
ACFR Station 11	Career Staff 24/7/365 Supplemented by Volunteer
Swoope VFC Station 14	100% Volunteer
Craigsville-Augusta Springs Rescue 16	Career Staff 24/7/365
New Hope VFD Station 18	Volunteer Staff EMS - Career Staff 24/7/365
Wilson VFC Station 19	100% Volunteer
Mount Solon VFD & Rescue Squad Station 21	Volunteer Staff Career Staff M-F 6a-6p
Riverheads VFD Station 25	Fire-100% Volunteer EMS- Career Staff 24/7/365
Weyers Cave Rescue 26	EMS - Career Staff 24/7/365

Review of this table tells us:

- Six stations provide 100% volunteer fire protection for their community.
- Two EMS stations/agencies (Staunton-Augusta Rescue Squad and Waynesboro First Aid Crew) are all volunteer agencies supplemented by agency funded career staff.
- ACFR department provides daylight staffing in one station during daylight hours (M-F 6a-6p) primarily for EMS ground transport response. The crew also cross-staffs fire apparatus as needed.
- ACFR department provides daylight staffing in one station during daylight hours (M-F 6a-6p) for EMS ground transport response.
- ACFR department provides 24/7/365 staffing in three stations primarily for EMS ground transport response. These crews also cross-staff fire apparatus as needed.
- ACFR department provides daylight staffing in three stations during daylight hours (M-F 6a-6p) primarily for fire protection and EMS first tier response.
- ACFR department provides 24/7/365 staffing in two stations and staffs EMS ground transport units (Station 11) and fire suppression/heavy rescue apparatus.
- ACFR department provides 24/7/365 staffing in three stations (one location has a separate building) that are 100% volunteer fire and staff one EMS ground transport unit at each station.

Figure 40: Augusta County Fire-Rescue System Staffing Resource Map



Map Legend

100% Volunteer Fire.

Volunteer EMS Station supplemented by agency funded career staff.

Volunteer staff with ACFR career staffing M-F 6a-6p. Career staff cross-staffs EMS and Fire units, as necessary.

Volunteer staff with ACFR career staffing M-F 6a-6p for fire protection and EMS first response.

Volunteer staff with ACFR career staff M-F 6a-6p (SDVRS-Rescue 6).

Volunteer staff with ACFR career staffing 24/7/365. Career staff cross-staffs EMS and Fire units, as necessary.

ACFR career staff 24/7/365-staffs EMS ground transport and fire suppression units.

ACFR career staff 24/7/365-staffs fire suppression and heavy rescue unit.

ACFR career staff 24/7/365-staffs EMS ground transport unit.

As discussed, the ACFR system membership includes both volunteer and career members. The volunteer system in Augusta County is made up of 596 members of which 238 are considered active call runners.[25] These include fire and EMS members some of which may respond for both.

Each of the volunteer departments has an administrative side, who runs the volunteer corporation. Officers of the administrative side typically include a President, Vice President, Secretary, Treasurer and Board of Director members. The administrative side may include administrative members who assist with membership recruitment, fund raising, accounting, training, and other non-operational tasks and duties.

There is also an operational side for each department that includes operational members who go through initial and continuing training and respond to calls, typically from home or work. Officers of the operational side will typically include a Fire Chief and or Rescue Captain or Chief, Deputy Chiefs, Assistant Chiefs, Captains, and Lieutenants. These members are the responders who work with other system members to mitigate emergencies. Volunteer operational members in some stations have assigned duty nights or weekend days or sign up to fill open duty nights and weekend days as required by individual stations.

In addition to volunteer administrative and operational members, the Staunton-Augusta Rescue Squad and Waynesboro First Aid Crew have operational career staff that are funded by the two agencies.

The ACFR department includes 125 full time employees. One innovative staffing solution the ACFR department has implemented includes single certified EMS personnel, which avails the department to an alternative recruitment and retention plan for EMS. The ACFR department is broken down as:

- 1-Fire Rescue Chief
- 1-Executive Secretary
- 1-Deputy Chief-Operations
- 1-Deputy Chief-Support Services
- 1-Division Chief-EMS
- 1-Division Chief-Training
- 1-Lt/Volunteer Coordinator
- 1-LT/Training Specialist-Fire
- 2-LT/ Training Specialist-EMS
- 3-Operational Battalion Chiefs
- 21-Lieutenants
- 4-EMS Supervisors (All Paramedics)
- 71-Firefighters (Paramedics, Advanced EMTs, and EMTs). These FTEs are dual certified.
- 16-EMS single certified (Paramedics, Advanced EMTs, and EMTs).

ACFR department members work varying shifts that include:

- 24/48 – ACFR dual certified staff works this shift (Stations 2, 4, 10, 11, 18, 25) and includes one (1) Battalion Chief per shift.
- 24/72 – ACFR EMS Division single certified staff work this shift, staff two stations (16 and 26) and includes one (1) EMS Supervisor per shift.
- 12 hours/5 Days/Week – ACFR department staffs five (5) stations with this shift (Stations 3, 6, 9, 21, and Rescue 6), 0600-1800, Monday through Friday on a rotating schedule.

25. Information provided by ACFR department.

The key elements of the ACFR system include:

- Fire protective services.
- EMS first-tier response and EMS ground transport.
- Technical rescue response and mitigation.
- Hazardous materials response and mitigation.
- Wildland and brush fire response.
- Search and Rescue response.
- Rural, Suburban, and Urban Operations.
- Community outreach and life safety education.
- Employee training and education.
- Fleet, facility, and logistical support and management.

Fire and EMS services are delivered though a combined system of career and volunteer members.

As discussed earlier, the ACFR system responded to 17,717 calls for service in the one year data analysis period CPSM analyzed. Overall, the system averaged 33 EMS service calls per day (ambulance dispatches) and 15 fire service calls per day (fire and EMS first response). ***The ACFR EMS system is a busy service delivery system!***

Fire Services

Call Type	Total Calls	Calls per Day
EMS assist	1,989	5.4
MVA	941	2.6
EMS Subtotal	**2,930**	**8.0**
False alarm	150	0.4
Good intent	145	0.4
Hazard	353	1.0
Outside fire	244	0.7
Public service	607	1.7
Structure fire	148	0.4
Technical rescue	41	0.1
Fire Subtotal	**1,688**	**4.6**
Canceled	699	1.9
Mutual aid	223	0.6
Total	**5,540**	**15.2**

EMS Services

Call Type-EMS Related	Total Calls	Calls per Day
Breathing difficulty	1,108	3.0
Cardiac and stroke	1,052	2.9
Cardiac arrest	148	0.4
Fall and injury	2,173	6.0
Illness and other	3,797	10.4
MVA	828	2.3
Overdose and psychiatric	234	0.6
Seizure and unconsciousness	1,259	3.4
EMS Subtotal	**10,599**	**29.0**
Fire assist	630	1.7
Law assist	118	0.3
Non-EMS Subtotal	**748**	**2.0**
Mutual aid	830	2.3
Total	**12,177**	**33.4**

Augusta County Emergency Services Officers Association

The Augusta County Emergency Service Association was created through Article 2 §2-13(E) of the Augusta County Code. The overall mission of this organization through the County Code is to adopt system-wide policies and procedures (as approved by the Board of Supervisors) that apply to and govern the fire and EMS operations in the county. Consistent with the Augusta County Code the association membership includes the Chief Officer, Rescue Chief/Captain or designee from those departments identified in the code (departments that answer calls in Augusta County). Over time the membership has grown to include the Augusta County Sheriff, Augusta County ECC Director, the Central Shenandoah EMS Council, and departments outside of those identified in the Augusta County Code. Agregately there are 42 members with votes.

The Augusta County Emergency Service Association is currently operating under By-Laws that were effective January 2020. The By-Laws ensure the voting membership by agency, when/how regular meetings, work sessions, and special called meetings occur, identifies the officers of the association and when elections are held for officer positions, the rules and order of business, and the duties if the association, which is:[26]

> *… promote all phases of emergency services in general, to the betterment of the County of Augusta, its Citizens and/or all political subdivisions therein to obtain any goal the Augusta County Emergency Services Officers Association, as a body deems to its cause and in its best interest. Formulate annual proposed budget/needs for volunteer fire and rescue organizations for submission to Augusta County Government.*

Aggregately, there are 126 administrative and operational (primarily operational) policies the association has developed and implemented. In review of these policies and procedures, CPSM finds them to be comprehensive and align with current county operations.

Automatic and Mutual Aid

Automatic aid is a system whereby fire, rescue, and EMS units respond automatically to another community through agreement based on proximity to the incident. **Mutual aid** is a system whereby surrounding communities provide fire, rescue, and EMS resources to another community through agreement and specific request from the jurisdiction in need of resources (not automatically but case by case). In an automatic aid scenario, resources from neighboring jurisdictions are built into run cards in the home jurisdiction for again, an automatic response; this aid is designed to supplement and bolster the Effective Response Force of the home jurisdiction and provide a faster response of EMS ground transport units.

There are several advantages to engaging surrounding jurisdictions in automatic aid. First, it can get the closest emergency units to the call for service faster as auto-aid can be based on the closest location to the request for service regardless of the jurisdiction. This is especially helpful for large rural counties such as Augusta, where the location of primary fire and EMS resources is more broadly located. Second, it is a force multiplier (supplemental response) as neighboring jurisdictions respond to multi-unit incident responses to the home jurisdiction and assist in bolstering the Effective Response Force (ERF) for the completion of critical fireground and EMS tasks as discussed herein.

26 Augusta County Emergency Services Officers Association By-Laws.

Augusta County has reciprocal automatic and mutual aid agreements for fire protection, EMS resources, and Haz-Mat response and mitigation resources with the following jurisdictions:

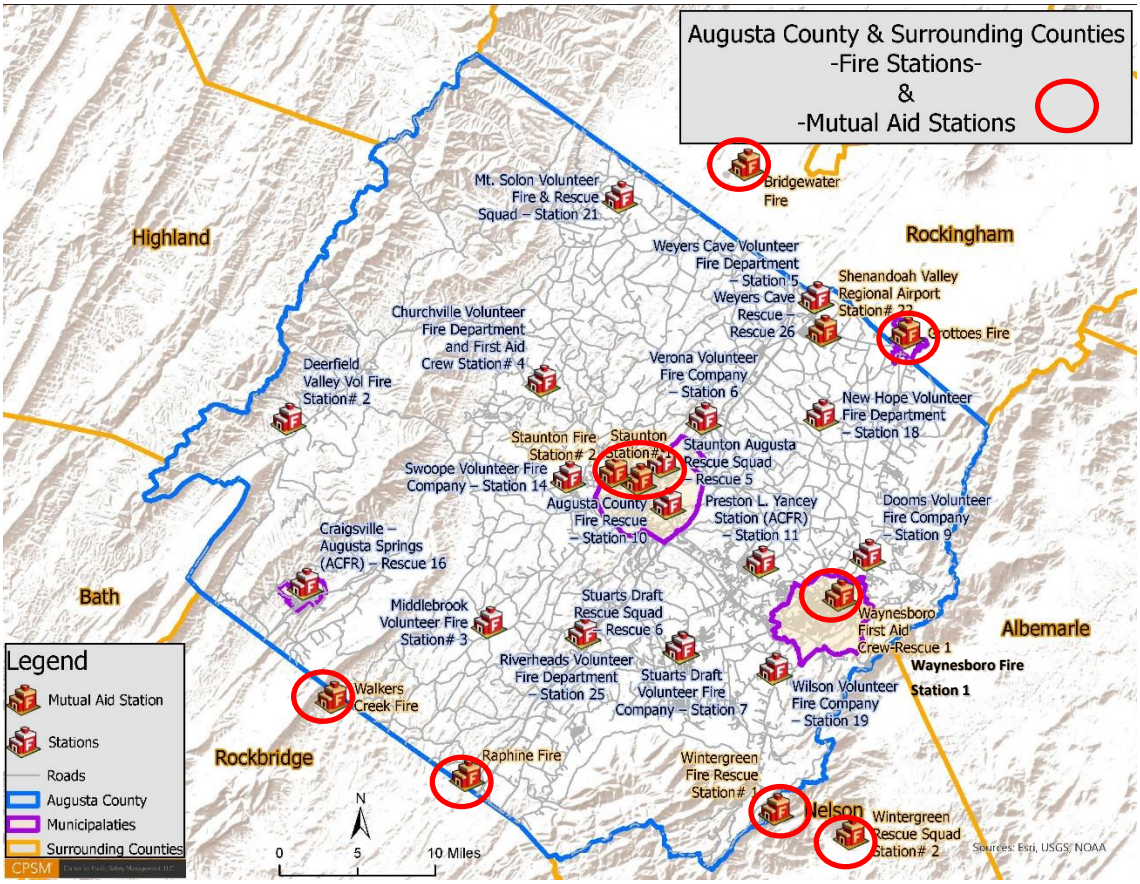
- City of Staunton: Automatic and Mutual Aid –Technical Rescue Response.
- City of Waynesboro: Automatic and Mutual Aid – Includes Technical Rescue Response.
- City of Harrisonburg: Mutual Aid.
- City of Charlottesville: Mutual Aid.
- Rockingham County: Automatic and Mutual Aid.
- Bridgewater Volunteer Fire Company (Station #15).
- Grottoes Volunteer Fire Department (Station #20) and Grottoes Rescue Squad.
- Albemarle County: Mutual Aid.
- Nelson County: Mutual Aid.
- Wintergreen Fire Rescue (Station #1) and Wintergreen Rescue Squad (Station #2).
- Rockbridge County: Automatic and Mutual Aid.
- Raphine Volunteer Fire Company (Station #12).
- Walkers Creek Volunteer Fire Company (Station #80).
- Bath County: Mutual Aid.
- Pendleton County, W. VA: EMS Mutual Aid.
- Staunton – Augusta County First Aid Rescue Squad (Rescue 5).
- Shenandoah Valley Regional Airport Commission: Mutual Aid.
- Virginia Department of Emergency Management (VDEM): Level III Hazardous Materials Emergency Response.
- E. I. DuPont De Nemours & Co.: Mutual Aid – Hazardous Materials Spill Response.
- Priority Patient Transport: Mutual Aid for EMS transport.

The next figure illustrates the jurisdictions and organizations outside of Augusta County that routinely provide automatic and mutual aid to the ACFR system. The detailed automatic aid response workload for these organizations is discussed above.

The following in-county fire departments and EMS agencies provide regular automatic and mutual aid to the ACFR system.

- Staunton-Augusta Rescue Squad has first due area in the unincorporated Augusta County.
- Waynesboro First Aid Crew has first due area in the unincorporated Augusta County.
- Staunton Fire Department provides automatic aid with fire resources and does respond to EMS first tier incidents when the primary ACFR system unit is not available.
- Waynesboro Fire Department provides automatic aid with fire resources and does respond to EMS first tier incidents when the primary ACFR system unit is not available.

Figure 41: Regular Automatic and Mutual Aid Stations



The next tables examine aid received by jurisdiction for fire responses. These agencies have first-due areas in Augusta County.

In all tables we refer to runs. A call is an emergency service request or incident. A run is a dispatch of a unit (i.e., a unit responding to a call). Thus, a call may include multiple runs.

Table 31: Fire-Automatic Aid Received by External Agency
(First Due Area in Augusta County)

Agency	Annual Runs	Runs per Day
Station 15 Bridgewater	115	0.3
Station 20 Grottoes	214	0.6
Station 12 Raphine	214	0.6
Station 80 Walkers Creek	38	0.1
Wintergreen	20	0.1
Total	**601**	**1.7**

Overall, the ACFR system averages just under two automatic aid calls/day from outside County fire agencies who have first due areas in Augusta County.

Table 32: Fire-Automatic or Mutual Aid Received by Internal and External County Agencies

Fire Company	Runs				Runs Per Day
	EMS	Fire	Cancel	Total	
1- Waynesboro	16	78	72	166	0.5
17- Cloverhill	0	5	0	5	0.0
22 – SVRA (Airport)	2	0	0	2	0.0
90 - Rockingham	0	1	0	1	0.0
Goshen FD	0	13	1	14	0.0
South River FD	1	8	0	9	0.0
Station 1, City of Staunton	26	134	74	234	0.6
Station 2, City of Staunton	33	54	23	110	0.3
Total	**78**	**293**	**170**	**541**	**1.5**

Table 33: EMS-Automatic Aid Received by External Agency
(First Due Area in Augusta County)

Agency	Annual Runs	Runs per Day
Station 15 Bridgewater	137	0.4
Station 20 Grottoes	464	1.3
Wintergreen	46	0.1
Total Ground Ambulance	**647**	**1.8**
Life Guard Air Ambulance	8	
PHI Air Care 5*	30	11
Pegasus Air Medical	5	
Total Air Ambulance	**13**	

Overall, the ACFR system averages just under two automatic aid calls/day from outside County EMS agencies who have first due areas in Augusta County.

*****Shenandoah Valley Regional Airport medevac data.

Table 34: EMS-Automatic or Mutual Aid Received by Internal and External County Agencies

Rescue Station	Total Runs	Transport
7 - Fairfield	3	2
13 - Goshen	1	1
17 - Cloverhill	1	0
Total	**35**	**14**

We also analyzed ACFR system units responding outside of Augusta County. The next table shows this analysis.

Table 35: ACFR System Fire-Automatic/Mutual Aid Given (In and Out of County)

Location	Calls	Runs	Runs Per Day
Grottoes Town	8	11	0.0
Staunton City	413	639	1.8
Bath County	5	7	0.0
Harrisonburg City	6	6	0.0
Nelson County	27	39	0.1
Rockbridge County	12	22	0.1
Rockingham County	104	112	0.3
Waynesboro City	60	77	0.2
Other*	9	10	0.0
Total	**644**	**923**	**2.5**

*Includes three calls in Albemarle County, two calls in Highland County.

Overall, the ACFR system averages 2.5 Fire automatic/mutual aid runs/day to jurisdictions inside and outside of Augusta County.

Table 36: ACFR System EMS-Automatic/Mutual Aid Given (In and Out of County)

Location	Calls	Runs	Runs Per Day
Grottoes Town	6	7	0.0
Rockingham County	430	444	1.2
Albemarle County	3	4	0.0
Bath County	14	14	0.0
Harrisonburg City	22	23	0.1
Highland County	6	10	0.0
Nelson County	22	27	0.1
Rockbridge County	68	70	0.2
Staunton City	345	400	1.1
Waynesboro City	58	62	0.2
Total	**974**	**1,061**	**2.9**

Overall, the ACFR system averages 2.9 EMS automatic/mutual aid runs/day to jurisdictions inside and outside of Augusta County.

ISO Overview

The ISO is a national, not-for-profit organization that collects and evaluates information from communities across the United States regarding their capabilities to combat building fires. ISO conducts field evaluations in an effort to rate communities and their relative ability to provide fire protection and mitigate fire risk. This evaluation allows ISO to determine and publish the Public Protection Classification (PPC). The data collected from a community is analyzed and applied to ISO's Fire Suppression Rating Schedule (FSRS) from which a Public Protection Classification (PPC) grade is assigned to a community (score from 1 to 10). This is an analysis of the structural fire suppression delivery system in a community.

Class 1 (highest classification/lowest numerical score) represents an exemplary community fire suppression program that includes all of the components outlined below. A Class 10 indicates

that the community's fire suppression program does not meet ISO's minimum criteria. It is important to understand the PPC is not just a fire department classification, but a compilation of community services that include the fire department, the emergency communications center, and the community's potable water supply system operator.[27]

A favorable PPC numerical rating potentially may translate into lower insurance premiums for business owners and homeowners. This more favorable classification makes the community more attractive from an insurance risk perspective. How the PPC for each community affects business and homeowners can be complicated because each insurance underwriter is free to utilize the information as they deem appropriate. Overall, many factors feed into the compilation of an insurance premium, not just the PPC.

A community's PPC grade depends on:

- **Needed Fire Flows** (building locations used to determine the theoretical amount of water necessary for fire suppression purposes). ***Augusta County's needed fire flow is 3,500 gallons per minute.*** This is based on the fifth-largest needed fire flow in the county.
- **Emergency Communications** (10 percent of the evaluation).
- **Fire Department** (50 percent of the evaluation).
- **Water Supply** (40 percent of the evaluation).

Augusta County has an ISO rating of *Class 04/4y* for the Fire Protection Service Area (FPSA). The first number of the rating indicates a fire suppression system is present that includes a creditable dispatch center, fire department, and water supply (fire hydrants). The second number is the class that applies to properties within five road miles of a fire station but beyond 1,000 feet of a creditable water supply (fire hydrant). The county's ISO rating was effective February 1, 2019.

Augusta County's 2019 ISO report included the following credit points by major category:

- **Emergency Communications**: 9.90 earned credit points/10.00 credit points available.
- **Fire Department**: 24.49 earned credit points/50.00 credit points available.
- **Water Supply:** 26.82 earned credit points/40.00 credit points available.
- **Community Risk Reduction** (Fire Prevention/Inspection, Public Education, and Fire Investigation activities): 2.65 earned credit points/5.50 credit points available.

Overall, the community PPC rating yielded 60.25 earned credit points/105.50 credit points available. There was a -3.61 point divergence reduction assessed as well, which is automatically calculated based on the relative difference between the fire department and water supply scores. **60.00 points or more qualify a community for a rating of 4/4y.**

The following figures illustrate the PPC ratings across the United States and in Virginia.

27. Augusta County ISO PPC report Effective February 2019.

Figure 42: PPC Ratings in the United States[28]

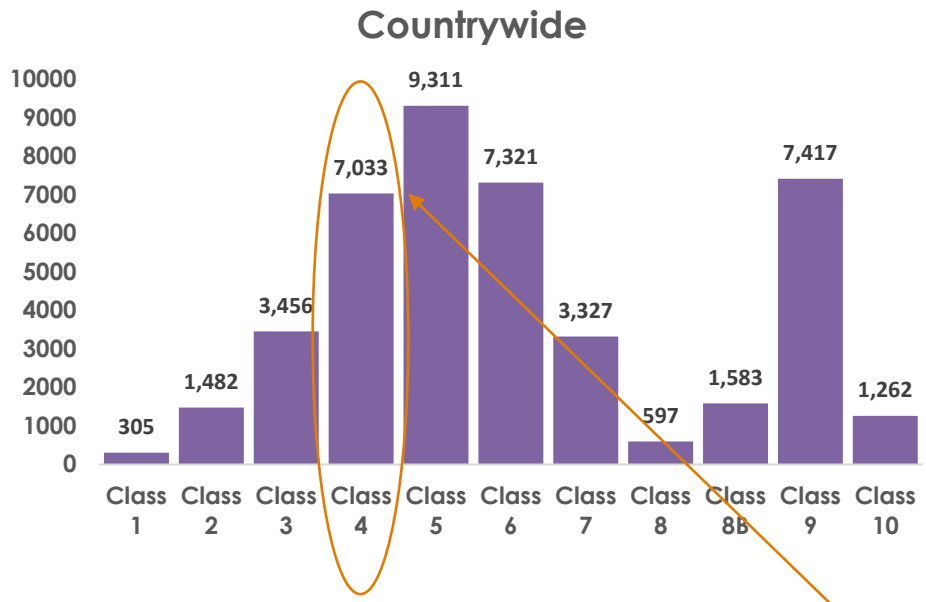
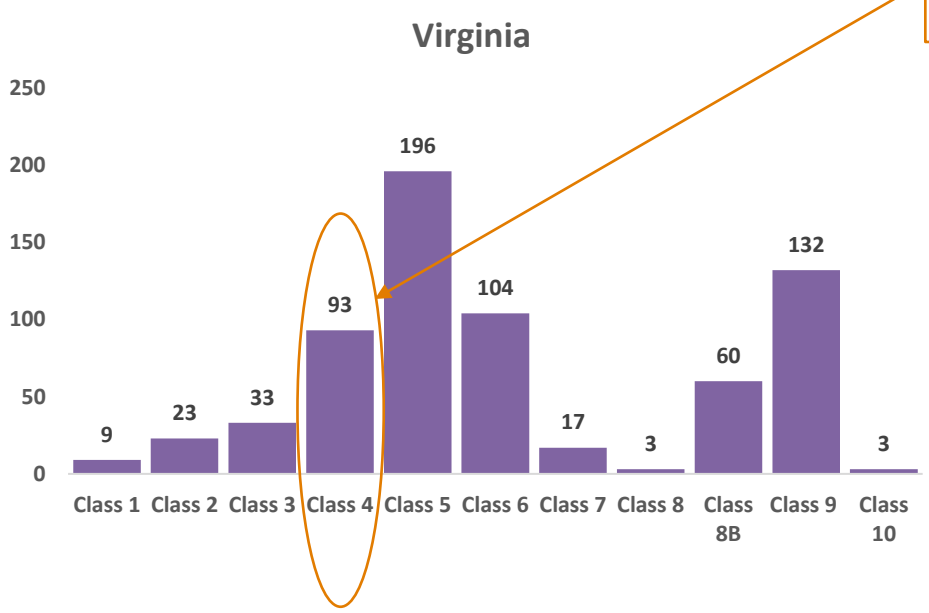


Figure 43: PPC Ratings in Virginia[29]



The following table outlines the scoring for Augusta County's ISO-FSRS components.

28. https://www.isomitigation.com/ppc/program-works/facts-and-figures-about-ppc-codes-around the country/
29. Ibid.

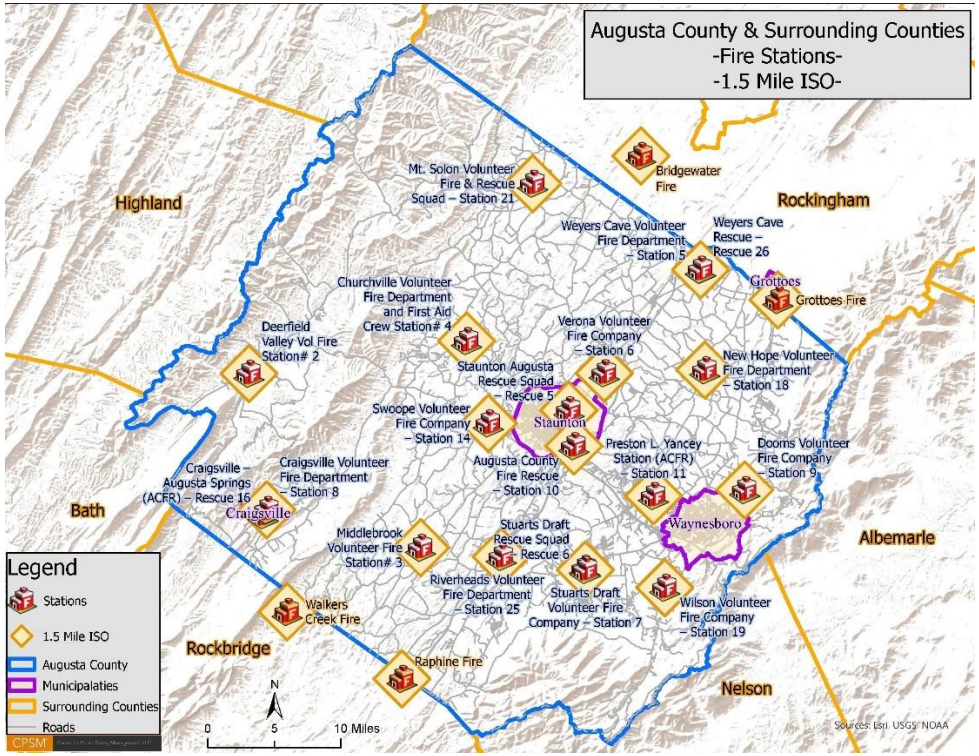
Table 37: Augusta County ISO Earned Credit Overview

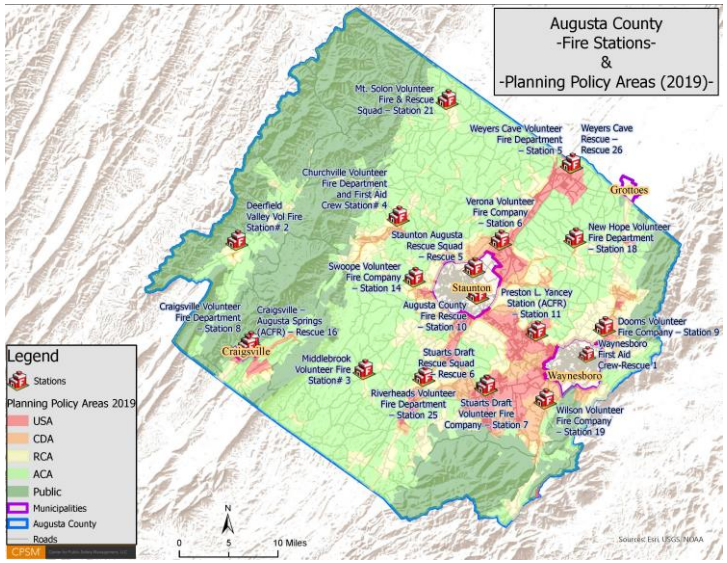
FSRS Component	Earned Credit	Credit Available
414. Credit for Emergency Reporting	3.00	3
422. Credit for Telecommunicators	3.99	4
432. Credit for Dispatch Circuits	2.91	3
440. Credit for Emergency Communications	**9.90**	**10**
513. Credit for Engine Companies	5.80	6
523. Credit for Reserve Pumpers	0.49	0.50
532. Credit for Pump Capacity	3.00	3
549. Credit for Ladder Service	3.10	4
553. Credit for Reserve Ladder and Service Trucks	0.16	0.50
561. Credit for Deployment Analysis	3.36	10
571. Credit for Company Personnel	4.18	15
581. Credit for Training	2.40	9
730. Credit for Operational Considerations	2.00	2
590. Credit for Fire Department	**24.49**	**50**
616. Credit for Supply System	19.82	30
621. Credit for Fire Hydrants	3.00	3.00
631. Credit for Inspection and Flow Testing	4.00	7
640. Credit for Water Supply	**26.82**	**40**
Divergence	**-3.61**	-
1050. Community Risk Reduction	2.65	5.50
Total Credit	**60.25**	**106.50**

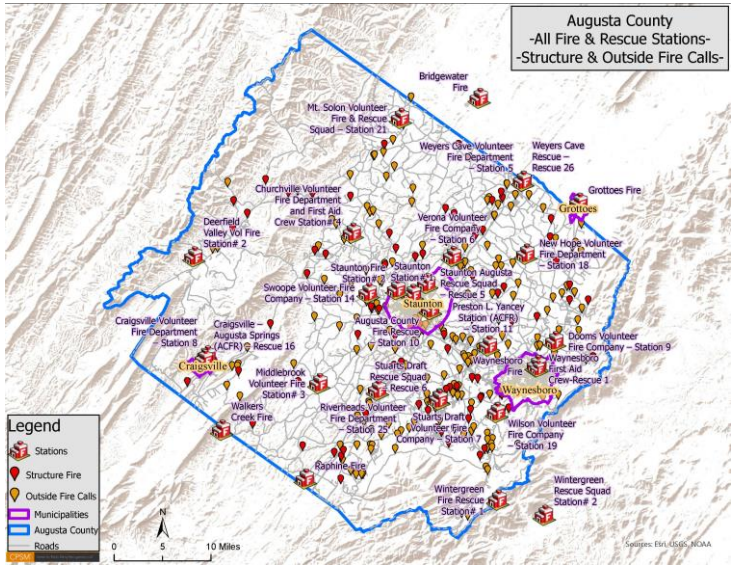
Under the ISO-PPC grading system, a jurisdiction is graded on the distribution of engine and ladder companies within built-upon areas (deployment analysis). For full credit in the Fire Suppression Rating Schedule (FSRS), a jurisdiction's fire protection area with residential and commercial properties should have a first-due engine company within 1.5 road miles and a ladder service company within 2.5 road miles.[30] As engine and ladder companies both respond from fire facilities, and because engine companies are the more prevalent fire suppression company, fire facilities are predictably sited based on the response needs of engine companies.

30. Insurance Services Office, ISO Mitigation, Deployment Analysis.

Figure 45: Current Stations: 1.5 Mile Engine Company Locations
(ISO-PPC Benchmark)



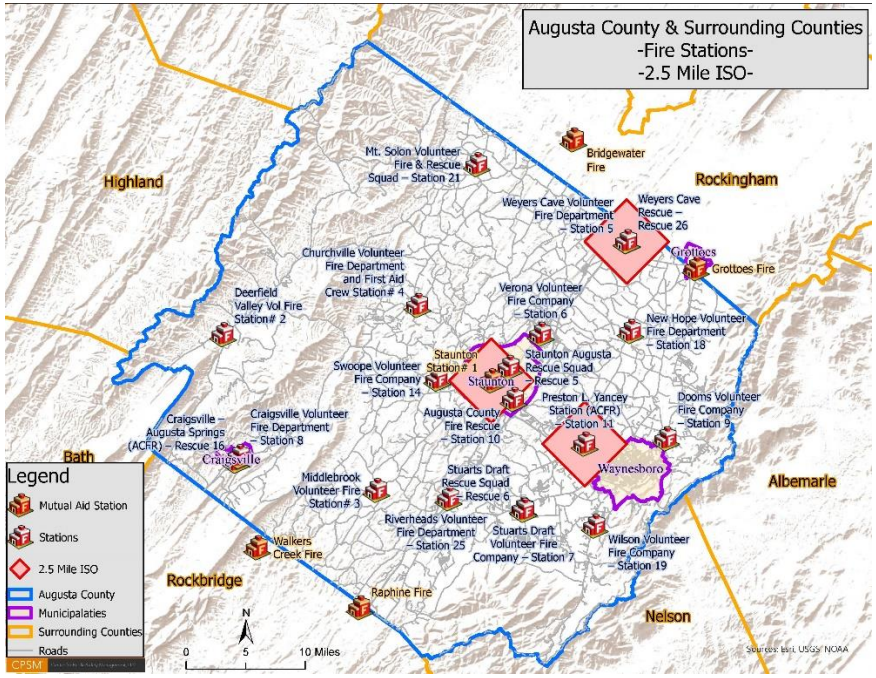


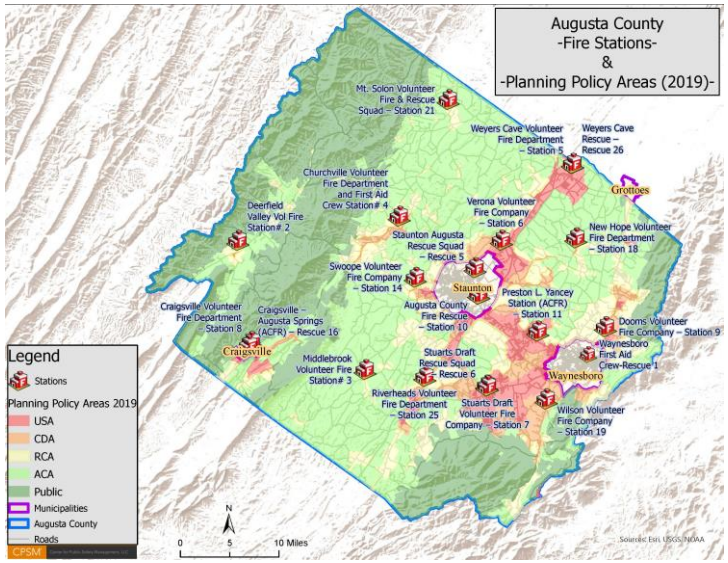


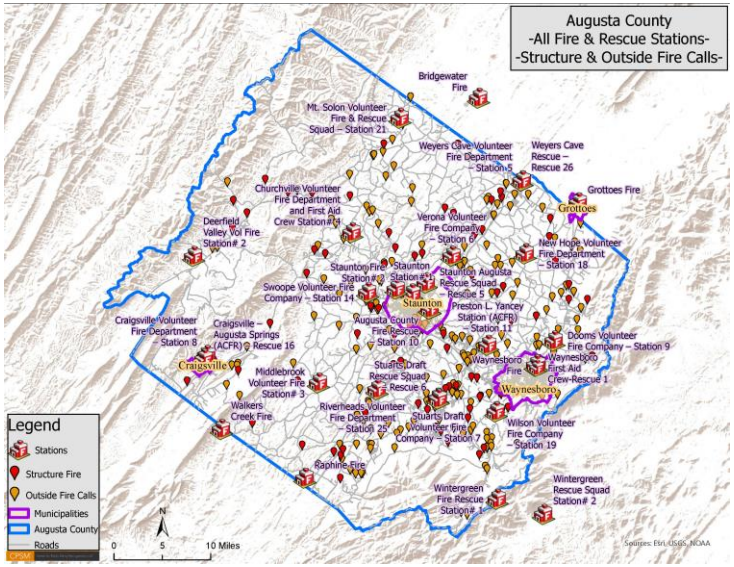
In review of the 1.5 mile ISO-PPC map, the first observation is the county is large in landmass and the greatest percent of land area is rural and without or with minimal built upon land. Further observations include: the greater percent of built upon land is illustrated in the planning policy area map; the greater building fire demand follows the planning policy map and incorporated or unincorporated communities, which have fire stations; and there are outlying areas (outside of incorporated or unincorporated communities) where building fires have occurred.

Currently the County received 5.80/6.00 for Engine Companies.

Figure 46: Current Stations: 2.5 Mile Engine Company Locations
(ISO-PPC Benchmark)







In review of the 2.5 mile ISO-PPC map, again the first observation is the county is large in landmass and the greatest percentage of land area is rural and without or with minimal built upon land. The same observations regarding built-upon area and building fire demand are the same when assessing the 2.5 mile benchmark for ladder companies. Different for ladder company grading is the number of response areas within the jurisdiction with five buildings that are three or more stories (or 35 or more feet in height), or with five buildings that have a needed fire flow greater than 3,500 gallons per minute, or a combination of these two criterion. These areas already exist in the county and are primarily in or potentially can be in based on future growth the Stations 5, 7, 10, 11, districts.

Currently the County received 3.10/4.00 for Ladder Service.

The following categories have different credits earned and are discussed here.

- Deployment Analysis: #561 (3.36/10 credits).

  - This category contemplates the number and adequacy of engine and ladder companies to cover the built-upon areas of the Fire Protection Service Area. Credits for engine companies (#513 – 5.80/6.00) and ladder companies (#549 – 3.10/4.00) are considered in this rating section. The ISO benchmark is one engine company sighted for every 1.5 miles of built upon land, and a ladder company sighted for every 2.5 miles of built upon land. The determination for Augusta County deployment analysis service area is made based on the percentage of built upon area is covered by existing engine companies (1.5 miles) and existing ladder companies (2.5 miles).

    Overall, and as discussed earlier, the county is large in landmass and the greatest percentage of land area is rural and without or with minimal built upon land. There is built upon area county-wide that is outside of the 1.5 and 2.5 mile benchmarking as noted in the mapping herein.

    In sparsely built-upon areas that have little fire demand, there is little advantage to adding an engine or ladder company to achieve additional 1.5 or 2.5 mile coverage in a 900+ square mile county. That said, there are planning policy areas (Urban Service Areas and Community Development areas), that have the potential for growth and could drive densification and certain building types, which may subsequently drive additional fire stations. Additionally, there are current land use areas (community mixed use, industrial, medium density residential, multifamily residential, neighborhood mixed use, and single family attached) that could drive additional fire stations and resources as well.

- Company Personnel: #571 (4.18/15 credits).

  - This item reviews the average number of existing firefighters and company officers available to respond to first alarm structure fires. The FSRS recognizes 24.29 on-duty personnel and an average of 47.50 on-call personnel responding to first alarm structure fires.

    - Because the ACFR system volunteer companies, or companies that only have career staffing partial time, may not have personnel at the station all the time, the ISO-FSRS grading schedule credits company personnel as follows: For personnel not normally at the fire station, *the number of responding firefighters and company officers is divided by 3 to reflect the time needed to assemble at the fire and the reduced ability to act as a team due to the various arrival times at the fire location when compared to personnel on-duty at the fire station during the receipt of the alarm.*

    - Automatic Aid companies are considered here if there is an automatic aid agreement in place, are dispatched for structural fires on the initial alarm, and the aid is available 24/7/365.

    - On-duty strength and subsequent credit considers the yearly average of total firefighters and company officers on-duty after considering scheduled and unscheduled leave (career), and the avarage number staffing of apparatus on first alarms.

- Credit is given to firefighters staffing ambulances that regularly respond to fires and participate in firefighting operations to the extent they are available, after reviewing the data.

Training: #581 (Overall: 2.40/9.0).

- Training: #581 (A) Facilities and Use (5.95/35 credits).
  - For maximum credit, each firefighter should receive 18 hours per year in structure fire-related subjects as outlined in the NFPA 1001 standard at a training facility where props and fire simulation buildings can be used. ***The ACFR system is not meeting this section to its fullest potential.***

- Training: #581 (B) Company Training (5.47/25 credits).
  - For maximum credit, each firefighter should receive 16 hours per month in structure fire-related subjects as outlined in the NFPA 1001 standard. ***The ACFR system is not meeting this section to its fullest potential.***

- Training: #581 (C) Classes for Officers (4.21/12 credits).
  - For maximum credit, each officer should be certified in accordance with the general criteria of NFPA 1021 standard. In addition to this benchmark, each officer should receive 12 hours of continuing education on-or off-site. ***The ACFR system is not meeting this section to its fullest potential.***

- Training #581 (F) Training on Hazardous Materials (0.17/1).
  - For maximum credit, each firefighter should receive 6 hours of training for incidents involving hazardous materials in accordance with NFPA 472. ***The ACFR system is not meeting this section to its fullest potential.***

- Training: #581(H) Pre-Fire Planning Inspections (0.00/12 credits).
  - For maximum credit, company members should annually make pre-fire planning inspections of each commercial, industrial, institutional, and other similar type building (all buildings except one- to four-family dwellings). Pre-fire planning inspections are company-level walk-throughs of multi-family residential, vertical residential, commercial, industrial, institutional, hotels/motels, and larger footprint buildings to become familiar with floor plans, hose connections, means of egress, concentrations of population, hazardous materials storage, and the like. Typically, fire departments have templates they fill in while conducting these pre-fire plan inspections that include pertinent owner/occupant information, sketched floor plans, hydrant locations, fire department connections, sprinkler risers, fire alarm panels, elevator locations, hazardous storage, or process locations in the building, etc. Another purpose of a pre-fire plan is its use when an actual incident is occurring at the target hazard site or building. In this case the incident commander has at his/her disposal vital information that he/she can reference when making incident decisions. A record of inspections is important as well to gain appropriate credits. ***The ACFR system is not meeting this section to its fullest potential.***

Water Supply: (Overall: 26.82/40).

- Supply System: # 616 (19.82/30 credits). This item reviews the rate of flow that can be credited at each of the *Needed Fire Flow* test locations considering the supply works capacity, the main capacity, and the hydrant distribution. The lowest flow rate of these items

is credited for each representative location. A water system capable of delivering 250 gpm or more for a period of two hours plus consumption at the maximum daily rate at the fire location is considered minimum in the ISO review. For maximum credit, the *Needed Fire Flows* should be available at each location in the district. *Needed Fire Flows* of 2,500 gpm or less should be available for 2 hours; and Needed Fire Flows of 3,000 and 3,500 gpm should be obtainable for 3 hours.

The fifth largest *Needed Fire Flow* for the Augusta FPSA is 3,500 gpm. The *Basic Fire Flow* is determined by the review of *Needed Fire Flows* for selected buildings. The *Basic Fire Flow* for the Augusta FPSA therefore has been determined to be 3,500 gpm. It was reported to CPSM that the current public water system has challenges delivering 3,500 gpm in some areas it serves, which presents potential challenges for economic and community development, and may affect the extinguishing efforts of the ACFR fire system.

- Water Supply: #631 (4.00/7)
  - This item also reviews the frequency of flow testing of hydrants. ***The points received (4.00) means the hydrants have not been flow tested for ten or more years.***

Community Risk Reduction

- Credit for Public Safety Education (Overall 10.32/40)
  - For the Public Fire Safety Educators Qualifications and Training category, the system achieved 2.27/10 credits.
  - For the Public Fire Safety Education Programs (evaluation of programs for public fire safety education), the system received 8.05/30 credits.

Overall, the ACFR system has deficiencies in trained public fire safety educators, as well as fire safety education programs and program delivery.

Recommendation:

- CPSM recommends the ACFR department and system (as applicable) review and address, to the extent possible, deficiencies in the current ISO Public Protection Classification report as outlined in this analysis. Special attention should be given to developing methods and opportunities for members to achieve the training as required in the ISO analysis, as it is focused on firefighter safety, improved competencies, and overall improved fireground effectiveness and functionality. This includes live fire, multi-company, and training facility hands-on training as required; developing an officer training program targeted at ensuring officers have opportunities for the various levels of officer education and certifications and that they receive structured annualized officer training; developing appropriate training programs for hazardous materials for all new and incumbent system personnel; and address the deficiencies pre-fire planning inspections through the development of a pre-fire plan program for the entire system.

- CPSM recommends ACFR department and Augusta Water review the deficiencies in the Supply System section as outlined in this analysis to ensure flow requirements are met and improvements made where possible.

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Facilities

Fire facilities must be designed and constructed to accommodate both current and forecast trends in fire service vehicle type and manufactured dimensions. A facility must have sufficiently sized bay doors, circulation space between garaged vehicles, departure and return aprons of adequate length and turn geometry to ensure safe response, and floor drains and oil separators to satisfy environmental concerns. Station vehicle bay areas should also consider future tactical vehicles that may need to be added to the fleet to address forecast response challenges, even if this consideration merely incorporates civil design that ensures adequate parcel space for additional bays to be constructed in the future.

Personnel-oriented needs in fire facilities must enable performance of daily duties in support of response operations. For personnel, fire facilities must have provisions for vehicle maintenance and repair; storage areas for essential equipment and supplies; space and amenities for administrative work, training, physical fitness, laundering, meal preparation, and personal hygiene/comfort; and—where a fire department is committed to minimize "turnout time"—bunking facilities.

A fire department facility may serve as a de facto "safe haven" during local community emergencies, and also serve as a command center for large-scale, protracted, campaign emergency incidents. Therefore, design details and construction materials and methods should embrace a goal of having a facility that can perform in an uninterrupted manner despite prevailing climatic conditions and/or disruption of utilities. Programmatic details, such as the provision of an emergency generator connected to automatic transfer switching—even going as far as to provide tertiary redundancy of power supply via a "piggyback" roll-up generator with manual transfer (should the primary generator fail)—provide effective safeguards that permit the fire department to function fully during local emergencies when response activity predictably peaks.

Personnel/occupant safety is a key element of effective station design. This begins with small details such as the quality of finish on bay floors and nonslip treads on stairwell steps to decrease tripping/fall hazards, or use of hands-free plumbing fixtures and easily disinfected surfaces/countertops to promote infection control. It continues with installation of specialized equipment such as an exhaust recovery system to capture and remove cancer-causing byproducts of diesel fuel exhaust emissions. A design should thoughtfully incorporate best practices for achieving a safe and hygienic work environment.

An ergonomic layout and corresponding space adjacencies in a fire station should seek to limit the travel distances between occupied crew areas to the apparatus bays. Likewise, facility design should carefully consider complementary adjacencies, such as lavatories/showers in proximity of bunk rooms, desired segregations, and break rooms or fitness areas that are remote from sleeping quarters. Furnishings, fixtures, and equipment selections should provide thoughtful consideration of the around-the-clock occupancy inherit to fire facilities. Durability is essential, given the accelerated wear and life cycle of systems and goods in facilities that are constantly occupied and operational.

Sound community fire-rescue protection requires the strategic distribution of fire station facilities to ensure that effective service area coverage is achieved, that predicted response travel times satisfy prevailing community goals and national best practices, and that the facilities are capable of supporting mission-critical personnel and vehicle-oriented requirements and needs.

Additionally, and depending on a fire-rescue department's scope of services, size, and complexity, other facilities may be necessary to support emergency communications, personnel training, fleet and essential equipment maintenance and repair, and supply storage and distribution.

National standards such as NFPA 1500, Standard on Fire Department Occupational Safety, Health, and Wellness Program, outlines standards that transfer to facilities such as infection control, personnel and equipment decontamination, cancer prevention, storage of protective clothing, and employee fitness. NFPA 1851, Standard on Selection, Care, and Maintenance of Protective Ensembles for Structural Firefighting and Proximity Fire Fighting, further delineates laundering standards for protective clothing and station wear. Laundry areas in fire facilities continue to evolve and are being separated from living areas to reduce contamination. Factors such as wastewater removal and air flow need to be considered in a facility design.

Facility Profiles (Facilities in Unincorporated Augusta County and Craigsville)

Deerfield Valley Volunteer Fire Department
Station 2 was organized in 1964 and houses fire apparatus and EMS transport unit out of their facility. The current facility is owned by the Deerfield Valley Volunteer Fire Department and has a living area of 6,839 square feet. The building was built in 1977 and is located at 2927 Deerfield Valley Rd in Deerfield, VA. The building is situated on a 4.15 acre lot. This facility accommodates administrative and operational volunteer personnel and ACFR department career staff (two staff) 24/7/365.

Middlebrook Volunteer Fire Department (MVFD) Station 3 was organized in 1948. The current facility is owned by the MVFD and has a living area of 4,569 square feet. The original facility (right) was built in 1959. A second facility (left) was built in 2022. Both are located in the 54 block of Cherry Grove Rd in Middlebrook. The facilities are situated on 2+ acres and situated across the street from one another. The facilities accommodate administrative and operational volunteer company personnel and ACFR department career staff (two staff) during daylight hours Monday through Friday 6 a.m. to 6 p.m.

Churchville Vol. Fire Department and Rescue Squad Station 4 was organized in 1959 with fire and rescue squad services in one building. The current facility is owned by the Churchville Vol. Fire Department and Rescue Squad and has a living area of 8,129 square feet. The building was built in 1961 and is located at 3829 Churchville Avenue in Churchville. The facility is situated on 4.62 acres. The facility accommodates administrative and operational volunteer personnel and ACFR department career staff (two staff) 24/7/365.

Weyers Cave Volunteer Fire Company Station 5 was organized in 1923. It was the first "organized" station in Augusta County. The current facility is owned by the Weyers Cave Volunteer Fire Company and has a living area of 8,760 square feet. The building was built in 1970 (currently being remodeled) and is located at 1235 Keezletown Road in Weyers Cave. The facility is situated on 1 acre. The facility accommodates administrative and operational volunteer company personnel (one of six 100% volunteer fire in the county) and ACFR EMS staff 24/7/365.

Verona Volunteer Fire Company Station 6 was organized in 1958. The current building is owned by Verona Volunteer Fire Company and has a living area of 17,027 square feet. The facility was built in 1981 and is located at 304 Lee Hwy in Verona. The facility is situated on 4.73 acres. This facility accommodates administrative and operational volunteer company personnel and ACFR department career staff (two staff) during daylight hours Monday through Friday 6 a.m. to 6 p.m.

Stuarts Draft Rescue Squad Rescue 6 has been serving the citizens of Stuart Draft and Augusta County for over 50 years. The current facility is owned by the Stuarts Draft Rescue Squad and has a living area of 11,088 square feet. The building was built in 1977 and is located at 10 manor Road in Stuarts Draft. The facility is situated on 1.28 acres. The facility accommodates administrative and operational volunteer personnel (overnight crews) and ACFR department career staff (two staff) during daylight hours Monday through Friday 6 a.m. to 6 p.m.

Stuarts Draft Volunteer Fire Company Station 7 was organized in 1950. The current facility is owned by Stuarts Draft Volunteer Fire Company and has a living area of 5,588 square feet. The facility was built in 1929 and is located at 118 Draft Ave in Stuarts Draft. The facility is situated on 2.96 acres. The facility accommodates administrative and operational volunteer company personnel (one of six 100% volunteer fire in the county).

Craigsville Volunteer Fire Department Station 8 was organized in 1960. The current facility is owned by Craigsville Volunteer Fire Department and has a living area of 3,971 square feet. The facility was built in 1962 and is located at 120 E 1st St in Craigsville. The facility is situated on a 1 acre lot. The facility accommodates administrative and operational volunteer company personnel (one of six 100% volunteer fire in the county).

Dooms Volunteer Fire Company Station 9 was organized in 1962. The current building is owned by Dooms Volunteer Fire Company and has a living area of 8,016 square feet. The facility was built in 1955 and is located at 27 Sandy Ridge Road in the Dooms community. The facility is situated on 1.3 acres. The facility accommodates volunteer personnel and ACFR department career staff (two staff) during daylight hours Monday through Friday 6 a.m. to 6 p.m.

Augusta County Fire Rescue Station 10 is owned by Augusta County and has a living area of 9,100 square feet. The facility was built in 1971 and is located at 1026 Richmond Avenue in Staunton. The structure is situated on 1.12 acres. ACFR Station 10 accommodates career staff 24/7/365 (primary staffing with 1 BC, 1 EMS Supervisor, and up to one LT and 6 FFs/day) and volunteer members.

Augusta County Fire Rescue Station 11 (also known as Preston L. Yancey Fire Station is owned by Augusta County and has a living area of 11,622 square feet. The building was built in 1987 and is located at 2015 Jefferson Hwy in Fishersville. The structure is situated on 2 acres. ACFR Station 11 accommodates career staff 24/7/365 (primary staffing with up to two Lts. and eight FFs/day) and volunteer members.

Swoope Volunteer Fire Company Station 14 was organized in 1979. The current facility is owned by Swoope Volunteer Fire Company and has a living area of 6,739 square feet. The building was built in 1982 and is located at 697 Parkersburg Turnpike in Swoope. The facility is situated on 2 acres. The facility accommodates administrative and operational volunteer company personnel (one of six 100% volunteer fire in the county).

Augusta County Fire Rescue Station 16 is owned by Augusta County and has a living area of 3,907 square feet. The building was built in 1982 and is located at 68 W. Railroad Ave. in Craigsville. The facility is situated on .5 acres. The facility accommodates ACFR department career staff (two staff) 24/7/365.

New Hope Fire Department Station 18 was organized in 1990 with fire apparatus and rescue squad services in one building. The current facility is owned by Augusta County and has a living area of 12,906 square feet. The building was built in 1999 and is located at 691 Battlefield Road in the New Hope community. The structure is situated on a shared lot consisting of 6 + acres. This facility accommodates administrative and operational volunteer personnel and ACFR department career staff (two staff) 24/7/365.

Wilson Volunteer Fire Company Station 19 was organized in 1986. The current facility is owned by Wilson Volunteer Fire Company and has a living area of 10,186 square feet. The building was built in 1989 and is located at 892 Mount Torrey Road in Lyndhurst. The facility is situated on 2.43 acres. The facility accommodates administrative and operational volunteer company personnel (one of six 100% volunteer fire in the county).

Mount Solon Volunteer Fire Department and Rescue Squad Station 21 was organized in 1989 and organized the rescue squad in 1995. The current facility is owned by Sangerville-Towers Ruritan Club and has a living area of 16,000 + square feet. The facility on the right was built in 1980. The addition on the left was constructed in 2006. The facilities are located at 86 Emmanuel Church Road in Mount Solon. The structure is situated on 6+ acres. The facility accommodates volunteer personnel (overnight crews) and ACFR department career staff during daylight hours Monday through Friday 6 a.m. to 6 p.m.

Riverheads Volunteer Fire Department Station 25 facility is owned by Augusta County and has a living area of 7,800 square feet. The building was built in 2010 and is located at 49 Swartzel Shop Road. The structure is situated on 2.79. The facility accommodates administrative and operational volunteer company personnel (one of six 100% volunteer fire in the county) and ACFR department career staff (two staff) 24/7/365 who staff an EMS ground transport unit.

CPSM visited each fire facility during our site visit in September 2023. Facility visits included a walk-around of each facility with a focus on living space, safety features such as CO capture systems, decon areas, separation from living areas and the apparatus bays, and any visible issues. ***This was not an engineering assessment of mechanical systems or building construction.***

The following table describes the major facility elements that CPSM reviews during station visits, which focus on health and safety, living space, and best practices. The next table captures an aggregate of our findings.

Table 38: Facility Review

Facility Component	% of yes Component Exists	Notes
Sleeping Quarters	64%	
Gender Separation		44% of stations with sleeping quarters have some type of separation. 50% have bathroom separation.
Office Space	100%	
Fitness Area	79%	64% of fitness equipment is in the apparatus bay.
Day Room	93%	15% of this space shared with other space.
Kitchen	100%	
Community and Training Space	100%	43% of this space shared with other space.
PPE Storage	100%	93% of stations store PPE in apparatus bay.
Airflow	93%	Airflow for PPE drying.
Separated From Living	100%	PPE separated from living area.
General Storage	Negligible	There is little general storage in each station.
Decon Area	14%	14% of the stations have a decon room or area.
Station Washer/Dryer	57%	Washer/Dryer for station wear.
PPE Extractor & Dryer	50%	29% of extractor only for PPE.
CO capture of vehicle exhaust	50%	43% of are filter systems 14% are exhaust fan only
Smoke Detectors	86%	25% of yes are only in certain rooms
Back Up Generator	100%	

Decisions on renovating and/or replacing facilities (those not recommended to be re-located) are better made by an engineer who specializes in facility assessments to include mechanical systems and structural components. In general however, a building goes through a life cycle that includes general maintenance/repair and some mechanical component replacement in the first 16 years of facility life; the next phase in the building life cycle (age 17-29) goes beyond the general maintenance and repair and includes larger replacement items such as roofs and HVAC systems, windows, apparatus aprons, exterior finish upgrades, obsolete electrical components, and major living space renovation due to expansion of services; the next phase (age 30-49) include replacement of building components that were replaced in earlier years (1-16), interior and exterior renovations, and continuation of replacement of mechanical system components (plumbing, electrical, HVAC).

Facilities that remain active after 50 years of age, while still functional, will continue to need regular maintenance and repair, continued cosmetic updating, and replacement of mechanical and structural components that were replaced in previous life cycle segment years.[31]

The seventeen ACFR system fire facilities range in age (original building-may not include any building footprint additions) from 1929-2010 and in 2024 will fall into a building life cycle range as follows:

Age 10-16 years: 2 (Riverheads and second Middlebrook facility).

Age 17-29 years: 2 (New Hope, and second Mount Solon facility).

Age 30-49 years: 6 (Deerfield Valley, Verona, Stuarts Draft Rescue, ACFR-11, Swoope, ACFR-16, Wilson).

Age 50+: 7 (Middlebrook, Churchville, Weyers Cave, Stuarts Draft Fire, Craigsville, Dooms, ACFR-10).

Overall, the ACFR system does have aging fire facilities, which requires strategic planning at the system and Board level regarding a funding mechanism for renovations (interior and exterior) and maintenance as described above, and which should be included in near, mid, and longer term ACFR system strategic planning initiatives. Additionally, many facilities lack contemporary fire facility health and safety components such as vehicle CO capture systems, lack good separation from the apparatus bays to the living areas, decon areas or separate decon rooms for equipment and personnel (to include washer and dryers for station or response wear.

All renovation and new Fire and EMS facilities planning should contemplate the following:

- Maximization of access from the living space to the apparatus bay space to reduce turnout times.
- Apparatus bay space to store spare fire and EMS fleet out of the elements, so that they are maintained as reserve ready (ready at a moments notice the same as frontline apparatus). ***CPSM noted that the ACFR department does not have apparatus bay space at stations 10 or 11 to store reserve ambulance fleet. This fleet is kept outside at Station 11 and is not ready reserve (ready to roll) due to temperature sensitive equipment and medical supplies that must be stored in the station.***

31. What happens over the life of a building, Albrice, 2010.

- Attention to the health and safety of all staff and visitors to include security; carcinogen exposure; decon rooms for staff, gear, station wear, PPE, and equipment; efficient HVAC systems that provide maximum ventilation and air movement; porous free surfaces throughout; living spaces free of contaminants; contemporary physical training space and equipment located away from the apparatus bays and well ventilated; and gender separate bathroom, shower, and bunking areas.
- Auxiliary power that will power the entire facility.
- Separate and ventilated room for structural/wildland protective clothing.
- Decon room for staff that has an exterior entry point to reduce contamination and gross decon shower.
- Ice machine placed in a room separate from the apparatus bays and industrial/shop areas.
- Apparatus bay space that accommodates the current and future department Fire and EMS mission, and that are drive through to reduce backing apparatus.
- Living space that will accommodate current and future Fire and EMS personnel.
- Adequate size day room that can also accommodate training.
- EMS supply storage that is separated from apparatus bays to avoid contamination.
- Incorporated engineering for the proper disposal of medical waste generated during EMS operations.
- Controlled entry onto public roads from the apparatus bay ramp (where necessary).
- Site security such as keypad entry into the building; security cameras; site fencing, and other safeguards for building occupants either department or public.
- Low maintenance construction and finish materials.

Fleet

The provision of an operationally ready and strategically located fleet of mission-essential fire vehicles is fundamental to the ability of a fire department to deliver reliable and efficient public safety within a community.

The procurement, maintenance, and eventual replacement of response vehicles is one of the largest expenses incurred in sustaining a community's fire department. While it is the personnel of the fifteen fire companies who provide emergency services within the community, each fire company's fleet of response vehicles is essential to operational success. Modern, reliable vehicles are needed to deliver responders and the equipment/materials they employ to the scene of dispatched emergencies within the township.

Apparatus maintenance for county fleet is handled by the apparatus dealer or vendor. This is important as the intricacies and scope of fire pumps and fire pump controls, aerial ladder hydraulic systems and controls, and apparatus electrical control systems (the main components outside of the motor, chassis, and drive train) are best left in the hands of specialists for diagnosis, maintenance, and repair.

The volunteer owned fleet is managed by each volunteer company. As with county vehicles, routine maintenance is handled by a selected vendor. Motor and fire pump work is handled by select vendors, or an apparatus manufacturer dealer, much the same as county apparatus.

One discussion point regarding fleet maintenance is there is no consistency in fire apparatus manufacturer, and to some degree, pumps, motors, drivetrains, and chassis components. There has been some progress made in consistency of motors and drive trains, however overall, each company may utilize a certain manufacturer, or a combination of manufacturers for heavy apparatus. Overall consistency is important, particularly with the major components such as motor, drive train, chassis components, electrical systems, fire pumps, and aerial devices as these are the central components of the apparatus. The County should strive to be more consistent with heavy apparatus from an efficiency standpoint regarding fleet maintenance and interoperability apparatus from company to company.

The fifteen-fire company's heavy operational apparatus is outlined in the next table with the remaining apparatus in the following table.

Table 39: Profile of Heavy Response Fleet

Agency	Year	Unit	Unit Type
Deerfield FD (STA-2)	**2000**	Engine 27	Engine
	2003	Tanker 21	Tanker
	2021	Engine 26	Engine
Middlebrook FD (STA-3)	**2000**	Engine 31	Engine
	2004	Engine 32	Engine Tanker
Churchville FD (STA-4)	**1996**	Engine 41	Engine
	2006	Tanker 45	Tanker
	2019	Engine 47	Engine
Weyers Cave FD (STA-5)	**1994**	Truck 5	Ladder
	1994	Tanker 50	Tanker
	1998	Engine 54	Engine
	2008	Engine 53	Engine
	2021	Engine 52	Engine
Verona FD (STA-6)	**1997**	Tanker 66	Tanker
	2003	Engine 63	Engine
	2004	Tanker 119	Tanker
	2008	Engine 62	Engine
Stuarts Draft FD (STA-7)	**1998**	Engine 74	Engine
	2002	Tanker 76	Tanker
	2012	Engine 73	Engine
	2017	Engine 71	Engine

Aggregate ACFR System Heavy Response Fleet

- Engines: 31
- Engine Tanker: 3
- Engine Rescue: 1
- Total Engines: 33
- Tankers: 8
- Ladders: 3
- Heavy Rescue: 1
- Specialty Service: 3

Note: apparatus in red font are over twenty-five years old.

Agency	Year	Unit	Unit Type
Craigsville FD(STA-8)	1993	Engine 83	Engine
	1999	Engine 87	Engine
	1999	Squad 85	Squad
	2013	Engine 84	Engine
Dooms FD (STA-9)	2009	Engine 90	Engine
	2022	Engine 91	Engine
ACFR (STA-10)	1994	Truck 106	Ladder (reserve)
	2008	Squad 10	Heavy Rescue
	2010	Engine 102	Engine
	2020	Engine 101	Engine
ACFR Fishersville (STA-11)	2001	Squad 11	Haz Mat
	2007	Engine 112	Engine (reserve)
	2017	Truck 11	Ladder
	2020	Engine 111	Engine
Swoope FD (STA-14)	2000	Engine 145	Engine
	2009	Tanker 147	Tanker
	2018	Engine 144	Engine
New Hope FD (STA-18)	2002	Engine 181	Engine
	2007	Engine 182	Engine
Wilson FD (STA-19)	2003	Engine 192	Engine
	2006	Tanker 195	Tanker Engine
	2010	Engine 191	Engine
Mt Solon FD (STA-21)	2000	Tanker 214	Tanker Engine
	2006	Engine 213	Engine Rescue
	2022	Engine 216	Engine
Riverheads FD (STA-25)	1998	Tanker 259	Tanker
	2006	Engine 254	Engine
	2017	Engine 255	Engine

Aggregate ACFR System Heavy Response Fleet

- Engines: 31
- Engine Tanker: 3
- Engine Rescue: 1
- Total Engines: 33
- Tankers: 8
- Ladders: 3
- Heavy Rescue: 1
- Specialty Service: 3

Note: apparatus in red font are over twenty-five years old.

The ACFR system also has an array of light and specialty vehicles as included in the next tables.

Table 40: All Terrain Vehicles

Agency	Year	Unit	Unit Type	Unit
Wilson FD (STA-19)	2003	Polaris	UTV	ATV 19
Deerfield FD (STA-2)	2011	Polaris Ranger	UTV	ATV 2
Mt Solon FD (STA-21)	2013	Polaris Ranger	UTV	ATV 21
Craigsville FD(STA-8)	2020	Polaris	UTV	ATV 8

Table 41: Brush Trucks/Mini Pumpers

Agency	Year	Unit	Unit Type
ACFR (STA-10)	2008	Brush 10	Brush Truck
ACFR Fishersville (STA-11)	1999	Brush 113	Brush Truck
Churchville (STA-4)	1967	Brush 42	Brush Truck
Craigsville Fire (STA-8)	2009	Brush 86	Brush Truck
Craigsville Fire (STA-8)	1999	Support 81	Brush Truck
Craigsville Fire (STA-8)	2006	Attack 81	Mini-Pumper
Dooms (STA-9)	2011	Brush 94	Brush Truck
Dooms (STA-9)	2000	Brush 93	Brush Truck
Middlebrook (STA-3)	2013	Brush 33	Brush Truck
Mt Solon (STA-21)	2004	Brush 215	Brush Truck
Riverheads (STA-25)	2012	Brush 253	Brush Truck
Stuarts Draft Fire (STA-7)	1966	Brush 72	Brush Truck
Swoope (STA-14)	2009	Brush 148	Brush Truck
Verona (STA-6)	1996	Mini 61	Mini Pumper
Weyers Cave (STA-5)	2002	Brush 55	Brush Truck
New Hope (STA 18)		Brush 185	Brush Truck
Wilson (STA-19)	2008	Brush 194	Brush Truck
Wilson (STA-19)	1967	Brush 193	Brush Truck
Riverheads (STA-25)	2001	Attack 251	Brush Truck

The next table reviews EMS ground transport and EMS support apparatus.

Table 42: EMS Ground Transport and Support Vehicles

Agency	Year	Unit Type
ACFR Department	**2012**	Ambulance
ACFR Department	**2013**	Ambulance
ACFR Department	**2013**	Ambulance
ACFR Department	**2015**	Ambulance
ACFR Department	**2015**	Ambulance
ACFR Department	2016	Ambulance
ACFR Department	2019	Ambulance
ACFR Department	2020	Ambulance
ACFR Department	2020	Ambulance
ACFR Department	2021	Ambulance
ACFR Department	2022	Ambulance
Staunton-Augusta Rescue Squad	**2014**	Ambulance
Staunton-Augusta Rescue Squad	2016	Ambulance
Staunton-Augusta Rescue Squad	2017	Ambulance
Staunton-Augusta Rescue Squad	2019	Ambulance
Staunton-Augusta Rescue Squad	2020	Ambulance
Staunton-Augusta Rescue Squad	2020	Ambulance
Waynesboro First Aid Crew	**2012**	Ambulance
Waynesboro First Aid Crew	**2014**	Ambulance
Waynesboro First Aid Crew	2017	Ambulance
Waynesboro First Aid Crew	2019	Ambulance
Waynesboro First Aid Crew	**2012**	Ambulance
Stuarts Draft Rescue Squad	**2009**	Ambulance
Stuarts Draft Rescue Squad	**2010**	Ambulance
Stuarts Draft Rescue Squad	2016	Ambulance
Mount Solon	**2006**	Ambulance
Mount Solon	**2011**	Ambulance

1 - ACFR 2012 Ambulance is assigned to training, is capable of frontline service, and is considered a ready reserve.

Aggregate ACFR System EMS Fleet

- Ambulances: 27
- Light Rescue: 1
- Support Vehicles: 14 (Volunteer Agencies)

Note: apparatus in red font are ten or more years old.

Stuarts Draft Rescue Squad **1994** – Light Rescue Unit

From a community perspective, available fleet, where stations are located, and how the fleet is staffed are the three major factors in mitigating emergencies. As previously discussed, Augusta County has several risks to include basic and advanced life support EMS responses; building fires; wild land and brush to include wild land urban interface; transportation to include road and rail; expansive open areas with varying terrains and topography to include mountainous areas; and rivers and creeks that during heavy rain become swift water risks to name a few of those major risks that require the fleet the ACFR system have assembled.

This said, CPSM offers the following considerations regarding the fleet:

- The ISO Fire Suppression Rating System grades reserve engines (pumpers) as one reserve engine for every eight frontline engines. ***The ACFR system is in line with this benchmark and should maintain a fleet that ensures frontline engines can be replaced when out-of-service for maintenance and mechanical reasons. When necessary, the fleet should be shared amongst system companies.***
- ***The ACFR system should maintain the two aerial ladder apparatus currently in service*** and the one reserve aerial at Station 10, as this aligns with the current ISO-PPC rating.
- ***The ACFR EMS system services the community from twelve locations.*** Typically, busy EMS service delivery systems ensure an ambulance deployment of one reserve for every two-three frontline units. The ACFR system aligns with this methodology.
- There is one heavy rescue apparatus in the fleet, and one light squad. The heavy rescue is located at Station 10 (somewhat centrally located in the county). This unit is staffed 24/7/365. The light squad is located at Stuarts Draft Rescue 6 and provides support in the southeastern area of the county, and beyond when needed. This unit is staffed by available in-station and from home/work crews. Additionally, some engine apparatus also carries technical rescue equipment, primarily for vehicle/machinery extrication and some light rescue. ***Given the size of the county, the transportation and potential for vehicle and machinery extrication, and technical rescue incidents to include high angle-mountainous rescue procedures, the county should maintain support for the heavy rescue and light rescue capabilities.***
- There are eleven tanker or engine-tanker apparatus. As the county has large areas with no municipal water system of which have structures and do have fires of all types (building, grass/wildland), as surface water and/or other available drafting sites may not be in close proximity of the fire, ***the number of tankers is appropriate to establish a rural water supply shuttle system.***
- Specialty units and trailers (UTVs, foam, technical rescue, swift water) are appropriate and diverse for the types of risk the fire and EMS system may be presented with.

Fire Apparatus Replacement

NFPA 1901, *Standard for Automotive Fire Apparatus*, serves as a guide to the manufacturers that build fire apparatus and the fire departments that purchase them. This document is updated every five to eight years (or shorter time periods) using input from the public and industry stakeholders through a formal review process. The committee membership is made up of representatives from the fire service, manufacturers, consultants, and special interest groups. The committee monitors various issues and problems that occur with fire apparatus and attempts to develop standards that address those issues. A primary interest of the committee over the past years has been improving firefighter safety and reducing fire apparatus crashes.

The Annex Material in NFPA 1901 (2016) contains recommendations and work sheets to assist in decision making in vehicle purchasing. With respect to recommended vehicle service life, the following excerpt is noteworthy:

> *"It is recommended that apparatus greater than 15 years old that have been properly maintained and that are still in serviceable condition be placed in reserve status and upgraded in accordance with NFPA 1912, Standard for Fire Apparatus Refurbishing (2016), to incorporate as many features as possible of the current fire apparatus standard. This will ensure that, while the apparatus might not totally comply with the current edition of the automotive fire apparatus standards, many improvements and upgrades required by the recent versions of the standards are available to the firefighters who use the apparatus."*

Under the NFPA1912 standard there are two types of refurbishments a fire department can choose. These are Level 1 and Level 2 refurbishments. According to NFPA 1912, a Level 1 refurbishment includes *the assembly of a new fire apparatus by the use of a new chassis frame, driving and crew compartment, front axle, steering and suspension components, and the use of either new components or components from existing apparatus for the remainder of the apparatus.* A Level 2 refurbishment includes *the upgrade of major components or systems of a fire apparatus with components or systems of a fire apparatus that comply with the applicable standards in effect at the time the original apparatus was manufactured.*

A few important points to note regarding the NFPA 1912 standard regarding the refurbishment of heavy fire apparatus. These are:[32]

- **Apparatus that was not manufactured to applicable NFPA fire apparatus standards or that is 25 years old should be replaced.** The ACFR system has apparatus that exceeds 25 years of age. Some departments will utilize vehicles such as this (frontline but not regularly utilized) for longer than 25 years. CPSM does not recommend this practice; however, we understand the financial burden of replacing heavy fire apparatus. It is up to the department and locality regarding the management of older fire apparatus and the risks these may pose to firefighters and the public who share the road with them.
- A vehicle that undergoes a Level 1 refurbishing receives a new make and model designation and a new Certificate of Origin for the current calendar year. Apparatus receiving a Level 1 refurbishing are intended to meet the current edition of the NFPA automotive fire apparatus standard. *This is the optimal level of refurbishing*.
- A vehicle that has undergone a Level 2 refurbishing retains its original make and model identification as well as its original title and year of manufacture designation. Apparatus receiving Level 2 refurbishing are intended to meet the NFPA automotive fire apparatus standard in effect when the apparatus was manufactured.

The impetus for the recommended service life and refurbishment thresholds is the continual industry advances in vehicle and occupant safety. Despite good stewardship and maintenance of emergency vehicles in sound operating condition, there are many advances in occupant and vehicle component safety, such as fully enclosed cabs, enhanced rollover protection and air bags, three-point restraints, antilock brakes, increased visibility, cab noise abatement/hearing protection, a clean cab free from carbon products, and a host of other improvements as reflected in each revision of NFPA 1901. These improvements provide safer response vehicles for

32. NFPA 1912 Standard for Fire Apparatus Refurbishing, 2016 Edition.

those providing emergency services within the community, as well those "sharing the road" with these responders.

Many departments use a 10-5 rule (10 years front-line service, then 5 years of reserve service) when programming replacement of fire apparatus such as engines, ladders, water tenders, heavy rescues, and heavy squad type haz-mat vehicles. Annex D of the current NFPA 1912 edition states:

> *To maximize firefighter capabilities and minimize risk of injuries, it is important that fire apparatus be equipped with the latest safety features and operating capabilities. In the last 10 to 15 years, much progress has been made in upgrading functional capabilities and improving the safety features of fire apparatus. Apparatus more than 15 years old might include only a few of the safety upgrades required by the recent editions of the NFPA fire department apparatus standards or the equivalent Underwriters Laboratories of Canada (ULC) standards. Because the changes, upgrades, and fine tuning to NFPA 1901, Standard for Automotive Fire Apparatus have been truly significant, especially in the area of safety, fire departments should seriously consider the value (or risk) to firefighters of keeping fire apparatus more than 15 years old in first-line service.*
>
> *It is recommended that apparatus more than 15 years old that have been properly maintained and that are still in serviceable condition be placed in reserve status, be upgraded in accordance with NFPA 1912, and incorporate as many features as possible of the current fire apparatus standard. This will ensure that, while the apparatus might not totally comply with the current editions of the automotive fire apparatus standards, many of the improvements and upgrades required by the current editions of the standards are available for firefighters who use the apparatus.*

EMS Apparatus Replacement

Given that NFPA 1901 targets specifications for only fire suppression vehicles, NFPA 1917, *Standard for Automotive Ambulances*, was published in 2013 (updated in 2019) to provide similar recommendations governing the design and construction of ambulances. The U.S. General Services Administration also promulgates ambulance standards under KKK-A-1822. Additionally, the Commission on Accreditation of Ambulance Services (CAAS) has established a Ground Vehicle Standard (2016).

While NFPA 1917, KKK, and CAAS standards do not include recommended service-life replacement standards for EMS vehicles, common industry practice suggests typical replacement intervals of four to eight years (busy systems), with some implementing replacement schedules of ten years (less busy systems). This schedule depends on a number of variables, most notably vehicle mileage, escalation of annualized repair expenses, and frequency with which the subject vehicle is out of service.

After replacement, serviceable vehicles may be retained in ready-reserve status for an additional two to four years. In light of the inherently shorter service life of ambulances, owing to a higher frequency of emergency responses handled than corresponding suppression vehicles, there are fewer legitimate concerns regarding "missing" essential improvements in occupant/operator safety standards.

ACFR System Vehicle Replacement

Vehicle replacement (heavy fire apparatus and ambulances) is funded and conducted separately across the ACFR system.

Volunteer companies in rural settings typically replace apparatus between 15-25 years dependent on use, wear and tear, maintenance costs, and ability to fund. Volunteer fire and EMS departments either raise funds internally through various fund raising programs or have the opportunity to participate in a County funded revolving loan fund designated for apparatus or equipment.

The Volunteer revolving loan fund is funded through the County's allotment from the Virginia Department of Fire Programs Aid to Locality (ATL) fire funds. ATL funds are provided to counties, cities, and towns to support fire services programs and infrastructure and includes training, construction of training centers, procurement of firefighting equipment, and protective clothing. ATL funding comes from the Virginia Fire Programs Fund, which is derived from 1 percent of fire-related insurance coverage collected in the previous calendar year.

The Augusta County revolving loan fund operates as such:

Maximum Loan guidelines:[33]

- Major Loans for apparatus require a 15% match (minimum) from the fire company of the loan amount. Any one Major Loan request not to exceed $500,000 and the grantee will only repay 60% of requested loan amount up to $500,000.
- Per Year $ 500,000 (repayable 60%).
- Each year during the budget process, the County will review the cash flow of the Fund to ensure there are adequate funds available to meet the expenditure appropriations to fund future apparatus purchases. If there would be a significant change in the cash flow of the fund, the County may review the program at that time and revise future apparatus purchase procedures.
- Per Company $ 500,000 (repayable 60%)
- Non-repayable allocation amount is 40% of the loan request; this amount must be applied to the apparatus being purchased or equipment for the purchased apparatus. The apparatus must be for fire suppression duties, and not more than 5 years old. The apparatus must meet the minimum spec as approved by the Augusta County Emergency Services Officers Association.
- Vehicles eligible to utilize this program will include: Pumpers/Tankers/Aerials – Shall meet the minimum spec as approved by the Augusta County Fire-Rescue Chief, the Augusta County Board of Supervisors, and the Augusta County Emergency Services Officers Association.
- Loan funds shall be available after July 1st of the year the application is approved.

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33. Major revolving apparatus and/or equipment loan fund for Augusta County Volunteer Fire Departments.

One concern the volunteer companies voiced to CPSM is the current cost of heavy fire apparatus when compared to available loan funds, and the repayment cost. For instance, current custom chassis engine apparatus can range between $650,000 to 1 million depending on manufacturer.[34] If a volunteer company were to receive a loan of $500,000 for a $700,000 engine, the volunteer company's initial 15% match is $75,000; the 60% repayment is $255,000 (500,000-75,000 x .60); the 40% non-repayable allocation is $170,000 (500,000-75,000 x .40).

The total volunteer financial commitment for the $700,000 engine then is $530,000 (700,000-330,000 [15% match + 60% loan repayment+ $200,000]). The volunteer fire companies stressed to CPSM that they cannot sustain this large cost with other day-to-day company costs such as station maintenance, vehicle and equipment maintenance, uniforms, and other member costs. CPSM was further advised this leads to volunteer companies holding on to apparatus longer and/or opting to buy used apparatus, which, when aligned with the NFPA 1901 25-year max life benchmark standard, extends these apparatus beyond this benchmark.

ACFR department fire apparatus and ambulances are replaced, or when a new service is implemented, through the County's general fund capital budget. The ACFR department has researched industry standards and benchmarks for fire apparatus and ambulance replacement. This includes:

- Engine apparatus replacement at the 10-year mark, with additional years as a reserve or rotation through the training division.
- ACFR EMS division has researched fleet maintenance programs and replacement intervals of other emergency ambulance service agencies, federal-recommended guidelines, and previous department replacement guidelines. The result of this research is the development of an ambulance life-cycle replacement plan of 10-years, 125,000-mile life cycle for all ambulances. New ambulances would rotate over the ten-year period between high, medium, and low volume assignments to extend the units life cycle.[35]

As a note here, current heavy fire apparatus replacement lead times are 30-42 months or more dependent on type of apparatus, manufacturer, and if the purchase is a typical design/build or in-process stock engine. Lead times on ambulance replacement are largely dependent on the chassis and potentially can be 20-36 months dependent on the selected chassis.

Currently across the ACFR system there are:

- 9 of 35 Engine or Engine/Tanker Apparatus that are or will be over 25 years old in 2025.
- 2/3 Ladder Apparatus that are over 25 years old now.
- 4 of 8 Tankers that are or will be over 25 years old in 2025.
- 13 of 26 Ambulances that are or will be over 10 years old in 2025.

Overall, the ACFR system has fire and EMS fleet that has aged out or will age out in the next 18 months when benchmarked against national standards and industry best practices. Funding for volunteer company apparatus replacement beyond the major revolving apparatus loan fund will require strategic planning at the system and Board level regarding a funding mechanism to sustain the volunteer response system.

34. Review of Houston-Galveston Area Fire Apparatus Cooperative Contracts (National Cooperative Purchasing Program).
35. ACFR Department EMS Division.

This planning should include, if possible and considering all funding types, one Engine Apparatus per ACFR system station that serves as the frontline Engine and that is not older than 25; an Engine Apparatus reserve that is not older than 25-years; two frontline Ladder Apparatus and one reserve Ladder Apparatus (that can be cross-staffed at Sta. 10 if needed) that are not older than 25 years; a strategically placed Tanker Apparatus fleet that is not 25 years or older; and an ambulance fleet that has no ambulances older than 10 years.

Apparatus planning should also include a replacement cycle for front-line Engine Apparatus between 12-15 years, Ladder, Tanker, and Heavy Rescue Apparatus between 15-20 years, and ambulances between 8-10 years.

Heavy fire apparatus replacement should be given strong consideration for refurbishing frontline apparatus in accordance with NFPA 1912 as outlined herein.

Supportive Programs and Services

Training and Education

Training is, without question, one of the most essential functions that a fire-rescue system should perform on a regular basis. One could even make a credible argument that training is, in some ways, as important as emergency responses because a department that is not well trained, prepared, and operationally ready will be unable to fulfill its emergency response obligations and mission. Education and training are vital at all levels of fire service operations to ensure that all necessary functions are completed correctly, safely, and effectively. A comprehensive, diverse, and ongoing training program is critical to the fire-rescue system's level of success.

An effective fire and EMS system training program must cover all the essential elements of that system's core missions and responsibilities. The level of training or education required for a set of tasks varies with the jobs to be performed. The program must include an appropriate combination of technical/classroom training, manipulative or hands-on/practical evolutions, and training assessment to gauge the effectiveness of these efforts. Much of the training, and particularly the practical, standardized, hands-on training evolutions should be developed based upon the department's own operating procedures and operations while remaining cognizant of widely accepted practices and standards that could be used as a benchmark to judge the department's operations for any number of reasons.

The Virginia Department of Fire Programs provides certification guidelines for fire service in the state and includes firefighter, hazardous materials operations, driver operator, technical rescue, and officer certifications. Additionally, the Virginia Department of Emergency Management provides certification guidelines for advanced Haz-Mat certifications, which are typically provided to those who operate on these specialized teams.

The Virginia Department of Health, Office of Emergency Medical Services, provides certification guidelines for EMS providers to include Emergency Medical Responder, Emergency Medical Technician, Advanced Emergency Medical Technician, and Paramedic levels. To obtain certification, candidates must successfully complete an approved certification course to include final certification written and practical examination. EMS providers must also complete continuing education requirements to be recertified as outlined for their specific certification. At the time of this analysis, the ACFR system training center is a Virginia Office of EMS Accredited Training Site, which enables the center to conduct and provide certification examinations (written and skills) for Emergency Medical Responder, EMT, and Advanced EMT.

Certain Occupational Safety and Health Administration (OSHA) regulations dictate that minimum training must be completed on an annual basis. The Commonwealth of Virginia operates an approved state OSHA program that applies to public employees at the state or political sub-division level(e.g.: municipal/county). The Virginia State Plan includes certain federal OSHA regulations found in 29 Code of Federal Regulations (CFR). As such, the ACFR system members should ensure the following courses/programs are included in the training/operational matrix for all system personnel:

- Initial and annual review of the respiratory protection standard, self-contained breathing apparatus (SCBA), respirators, user competency training, and SCBA and respirator fit testing (29 CFR 1910.134) and Virginia Department of Fire Programs.
- Initial and annual Blood Borne Pathogens Training (29 CFR 1910.1030) and Virginia Department of Health.
- Initial and annual hazardous materials emergency response (29 CFR 1910.120) and Virginia Departments of Fire Programs and Emergency Management.

Other training requirements the ACFR system must manage include:

- The ISO-PPC has certain training requirements for which fire departments receive credit during the ISO-PPC review that includes:
  - Every firefighter: 18 hours/year of structural firefighting training at a training facility (includes live fire, hose and ladder deployment, and search and rescue training) as outlined in NFPA 1001.
  - Every firefighter: 16 hours/month in structure fire related subjects as outlined in NFPA 1001.
  - Every officer: 12 hours/annually of continuing education (on or off site) within the general criteria of NFPA 1021.
  - Every new driver/operator: 60 hours of driver/operator training in accordance with NFPA 1002 and NFPA 1451.
  - Every existing driver/operator: 12 hours/annually of driver/operator training in accordance with NFPA 1002 and NFPA 1451.
- State firefighter, fire officer, driver operator, and specialty fire services and related initial certification training, and any associated fire services continuing education.
- State Department of Health and Office of Emergency Medical Services initial and recertification requirements for all EMS certifications levels and EMS providers.

Currently, the state does not require a specific certification for fire service company or officer level participation. The Authority Having Jurisdiction is responsible for oversight of minimum training requirements for both volunteer and career members, and therefore may establish certification standards.

Virginia Emergency Medical Services Regulations set general and specific requirements and standards of conduct for personnel to affiliate with EMS agencies and to practice as an EMS provider. Applicable regulatory sections include, but are not limited to;

- 12VAC5-31-300. Requirement for EMS agency licensure and EMS certification.

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Training and education in the ACFR department, which also provides training for the ACFR system, is managed by a Division Chief who reports to the Deputy Chief of Support Services. The Division Chief of Training is supported by two EMS training specialists and one fire programs specialist. Together this group plans, develops, and coordinates the various fire and EMS training for the ACFR department, and those volunteer system members who go through initial and continuous training.

Program coordination and instruction of ACFR training specialists staff includes: ACFR fire and EMS recruit school coordination and instruction (includes EMT school and initial fire certification courses); Advanced EMT initial and continuing education; Paramedic continuing education; quarterly in-station EMS training (ACFR staff); ACFR system annual fire course offerings; management of training records management systems to include the system's virtual training platform Vector Solutions.

The ACFR department did communicate to CPSM that they offer little incumbent continuing education. In fact, there is no formal annual training program for system members such as EMS skills evaluations, fire proficiency skills review, and required annual burns at the system burn building. The reason stated for this deficiency is the current staff devotes most of the workday to ACFR department recruit schools and AEMT training, and the follow-up clinical and preceptor scheduling and coordination required.

Volunteer agencies as well provide their own training, which includes initial training for new firefighter members, which is governed by Augusta County Emergency Services Officers Association Fire-EMS Standard Operating Guideline *Training of a New Member*. This includes:

■ Familiarization of company apparatus, equipment, procedures, and operations. ■ Personal protective clothing and firefighter safety. ■ Ability to don and use self-contained breathing apparatus, cleaning, inspection of and changing cylinders. ■ Ability to advance attack lines; demonstrate knowledge of nozzles and waterflow for suppression of Class A and B fires.	■ Know and demonstrate search and rescue techniques. ■ Demonstrate the proper use of ladders. ■ Complete NIMS training (100, 200, 700, 800) within first 3-months of membership. ***This training is required before the new member is able to ride fire apparatus or become an active firefighter. Firefighter I is recommended.***

There are currently no ACFR system imposed requirements for fire services certification for volunteer firefighters or volunteer officers, with the exception of the two top operational officer position in each volunteer fire and EMS department. Required training for these two positions include:

- 3 years of fire (for fire companies/departments) or EMS (for rescue squads) service experience.
- Minimum of FF I certification (for fire companies/departments) or EMT (rescue squads).
- Have served one year as an operational officer in the ACFR system.
- Vehicle Extrication Awareness, NIMS courses (ICS 100, 200, 300, 700, 800)
- Attending eight hours of officer level training per year.

ACFR department minimum training requirements include:

■ Firefighter □ Valid VA driver's license. □ Firefighter II. □ Hazardous Materials Operations. □ EMT. □ EVOC – Class 3.	■ EMS Provider □ Valid VA driver's license. □ Minimum of VA EMT. □ Hazardous Materials Awareness. □ NIMS courses (ICS 100, 200, 300, 700, 800).
■ Lieutenant □ Valid VA driver's license. □ Fire Instructor I. □ Fire Officer I. □ Minimum of VA EMT.	■ Training Specialist □ Valid VA driver's license. □ Fire Instructor II (for Fire Training Specialist). □ VA EMS Education Coordinator (or within 18 months of hire). □ Minimum of VA EMT.
■ Battalion Chief □ Any combination of education and experience equivalent to graduation from high school or GED. □ Three (3) current consecutive years of experience in an emergency service agency comparable to Augusta County at the rank of Lieutenant or higher. □ Certification as a Fire Officer III.	■ EMS Supervisor □ Certified as a Virginia Office of EMS Paramedic. □ Emergency Vehicle Operator Course Class 2. □ Designated Infection Control Officer. □ VA Fire Instructor I and Officer I or equivalent leadership/management training. □ Introduction to Technical Rescue Modules 1 and 2 and Vehicle Rescue Level 1.
■ Division Chief of Training □ Any combination of education and experience equivalent to graduation from high school or GED. □ Three (3) years current, consecutive experience in an emergency service system comparable to Augusta County in a management or administrative position.	■ Division Chief of EMS □ Any combination of education and experience equivalent to graduation from high school and extensive experience in Emergency Medical Services operations and instruction. □ Valid VA driver's license. □ Minimum of 1 year as Office of EMS Paramedic. □ Have or obtain CSEMS Regional Preceptor within 12 months of hire.

◻ Fire Instructor Level III certification or equivalent level of recognized instructor certification. ◻ A proven background in education or instructional delivery in the field of emergency services.	◻ Have or obtain VA EMS Education Coordinator within 12 months of hire.
■ Deputy Chief of Operations ◻ Any combination of education and experience equivalent to graduation from an accredited college or university with an Associate's or Technical degree with coursework in fire science or related field and extensive experience at the rank of captain or above. ◻ Three (3) years' experience working in a combination system in an operational command level, education and/or experience with a career or volunteer agency. ◻ Certified as EMT, VA Fire Officer IV and Inspector NFPA 1031	■ Deputy Chief of Support Services ◻ Any combination of education and experience equivalent to graduation from an accredited college or university with an Associate's or Technical degree with coursework in fire science or related field and extensive experience at the rank of captain or above. ◻ Three (3) years of experience working in a combination system in an operational command level, education and/or experience with a career or volunteer agency. ◻ Certified as a VA Fire Officer IV
■ Fire Chief ◻ Any combination of education and experience equivalent to Bachelor's Degree fire science, Emergency Services, or related field 10 years of experience as a command level officer managing multiple company operations in a combination system, as well as be a board-certified Emergency Medical Technician.	Fire Chief continued ◻ The preferred candidate would have certifications that indicate professional achievement such as; National Fire Academy Executive Fire Officer, Center of Public Safety Excellence Chief Fire Officer (CFO), Incident Command System (ICS) 400, VA Fire Officer IV and Instructor III.

For volunteer fire services, the ACFR department training division offers a *Volunteer Fire Academy* once a year that begins in January and ends in May. This academy includes Firefighter I & II certification courses. Additional training and certification courses (firefighter and officer level) are offered throughout the calendar year in the many specialties in fire services of which are offered to the entire ACFR system.

For volunteer EMS, the ACFR department training division has offered, at minimum, one volunteer EMT course per year. The ACFR department reports there were some years, because of demand, an EMT certification course was offered twice a year. ACFR department reports that in recent years they have not received enough interest from volunteer department leadership to continue this certification course. Current system EMS personnel participate in continuing education when offered. Additionally, the ACFR department reports they offer one Advanced EMT program per year at the training center in Verona.

The ACFR department conducts a twenty-week recruit school for new hires. This is coordinated regionally with seven local jurisdictions (Augusta County, Rockingham County, Rockbridge County, City of Staunton, City of Waynesboro, City of Harrisonburg, and the City of Lexington) who work together regularly to conduct these recruit academies. ***This is a best practice.***

Recruit academy scheduling aligns with the hiring processes for the regional partners, meaning there is not a standard start and end date. The recruit academies include: EMT, FF I, FF II, EVOC, Mayday FF Down, Vehicle Rescue Level I, and Introduction to Technical Rescue Module II.

EMS only personnel are certified EMT, AEMT, or Paramedic when hired. This group of employees receives initial on-boarding training and skills evaluation and then are assigned to the field.

Professional development occurs outside of the required state certifications. ACFR system staff can avail themselves to training opportunities at the national Fire Academy in Emmitsburg, MD, as well as Virginia Departments of Fire Programs, Emergency Management, and Office of EMS course offerings around the state.

CPSM was advised however by both ACFR department and system members that the current cadre of training staff is more often dedicated to ACFR department new-hire training, leaving little time for volunteer training (new member fire and EMT training) as well as incumbent training, which for fire services is noted in the most recent ISO-PPC report as being deficient in some areas.

The volunteer system overwhelmingly expressed the need for:

- Annualized EMT certification course offering.
  - Without this option, volunteer members seeking this certification must go elsewhere to include the Community College system and other regional departments who may be offering this class, and at a cost to the member and/or volunteer department.
- Separate Firefighter I certification course offering.
  - Several volunteer chiefs expressed a need to split the volunteer academy into two course offerings (FFI & FFII), as the January to May timeline was difficult for all members to meet. Some volunteer chiefs have sent their members to surrounding counties for FFI training, at a cost to the volunteer department.
- Separate Firefighter II certification course offering.
- Incumbent training and workshops in fire and EMS subjects in volunteer stations.
  - A common theme for all system members is the lack of incumbent training.
- EMS preceptor availability and coordination on a more efficient level.

The ACFR system training center is located in Verona at the Government Center. Fire and EMS classroom training occurs here as well as practical hands on training. The training center facility houses the ACFR system training staff offices, classrooms, training equipment, and storage of essential training supplies. It is noted here that there are no shower facilities and bathroom facilities are limited. Both impact scheduling of activities during recruit and system training, particular system training of large numbers of attendees.

Not far from the training center classroom facilities is the ACFR system burn building site and fire training grounds. The training grounds include a 4-story training tower with an attached 2 ½ - story residential building for live fire training. The live fire portion is propane gas fueled and is

incorporated into the building. Additional emergency scene props are also located on the training grounds such as a propane gas fueled vehicle fire prop, and areas for ladder and hose training, fire extinguisher training, vehicle extrication training, and other props utilized for fire and rescue related hands-on training.

Recommendations:

- CPSM recommends in the ***near term*** that, due to the importance of training as outlined herein, consideration is given to funding two additional training specialists (one fire training specialist; one EMS training specialist) over the near term to develop, coordinate, manage, and deliver consistent training and education programs for volunteer fire and EMS members with an emphasis on coordinating and implementing:
  - One EMT course on an annual basis during the evening and weekend hours when volunteer members are more readily available to participate.
  - Incumbent EMS continuing education during the evening hours when volunteer members are more readily available to participate.
  - One Firefighter I course on an annual basis (when needed a Firefighter II course) during the evening and weekend hours when volunteer members are more readily available to participate. When demand exists, substitute a Firefighter II course.
  - Incumbent Fire continuing education at the individual station level during the evening hours when volunteer members are more readily available to participate.

  CPSM further recommends the Augusta County Emergency Services Officers Association expand Standard Operating Guideline *Training of a New Member* to include the following language: *Volunteer members must successfully complete the VA Firefighter I certification course to be eligible for interior structural firefighting or operating in an incident area where self-contained breathing apparatus is required.*
- CPSM recommends over the ***near term***, and as the system continues to grow, consideration is given to funding two additional training specialists (one fire training specialist; one EMS training specialist) to coordinate, manage, and deliver consistent training and education programs for incumbent ACFR system members. These positions will have primary responsibility to ensure system personnel are proficiently trained to perform assigned tasks; that they maintain state, national, and ISO standards; and that required certifications and annual coursework are current and properly documented.

Community Risk Reduction

Community Risk Reduction activities are important undertakings of a modern-day fire department. A comprehensive fire protection system in every jurisdiction 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.

Fire suppression and response, although necessary to protect property, have negligible impact on preventing fire. Rather, it is public fire education, fire prevention, and built-in fire protection systems that are essential elements in protecting citizens from death and injury due to fire, smoke inhalation, and carbon monoxide poisoning. The fire prevention mission is of utmost importance, as it is the only area of service delivery that dedicates 100 percent of its effort to the reduction of the incidence of fire.

Currently, the ACFR department is not involved in a formal fire prevention inspection-code enforcement program. Community Risk Reduction components that fire departments typically are involved with, or manage, are managed in Augusta County as follows:

- Building plans review, to include fire protection systems is managed by the Augusta County Building Official.
- Final inspection of fire protection systems for new or other construction is managed by the Augusta County Building Official.
- The ACFR department works with the building inspector office during the plans review phase ensuring hydrant distances, locations, and that a dedicated hydrant is within fifty feet of any building fire department connection in accordance with the Augusta County Fire Protection Design Policy.
- The ACFR department works with the building inspector office during the plans review phase regarding the needed fire flow of a structure, based upon the type of construction and the largest square footage, using ISO Fire Flow Calculations.
- Fire investigations: Augusta County does not have a Fire Marshal's Office. The ACFR system completes the initial origin and cause investigations for all fires in Augusta County. If the fire is considered suspicious or there may be criminal activity involved, the ACFR department will request a fire investigator from the Virginia State Police who has authority (§27-56 of the state code) to examine the origin and cause of fires in the county.
- Fire prevention inspections of state-owned facilities is handled by the Virginia State Fire Marshal's Office.
- The ACFR department is engaged with public life safety education and completed 42 in 2020, 56 in 2021, and 186 in 2022.

A primary reason for fire prevention inspections is to protect the lives and property of residents and businesses and business occupants. By ensuring that buildings and facilities meet fire safety standards, the risk of fire-related injuries, fatalities, and property damage is significantly reduced. Overall, fire prevention is crucial for safeguarding public safety, protecting property, and promoting the resilience and sustainability of communities. It serves as a proactive measure to reduce the risk of fire incidents and mitigate their impact when they occur.

Recommendation:

CPSM recommends over the ***midterm*** the Board of Supervisors consider some level of fire prevention inspections on those buildings and occupancies covered under the Virginia Statewide Fire Prevention Code. This can include fire safety reviews over the mid term with a progression to fire code enforcement over the longer term. CPSM further recommends the development of a Fire Marshals Office in the ACFR department, pursuant to Title 27, Chapter 3 of the Virginia State Code, whose initial charge should be to develop and implement a Board approved community risk reduction plan for the County that includes fire prevention and fire investigation program work. The Fire Marshals Office should consist of a Fire Marshal (***mid-term hire***), certified in Virginia fire inspector and fire investigator courses, and Virginia certified fire inspector and fire investigator (dual certified) personnel; the number to be determined based on inspectable properties and workload, and as approved by the Board of Supervisors.

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Health, Safety, and Wellness

The prevention and reduction of accidents, injuries and occupational illnesses should be established goals of any fire-rescue department and should be primary considerations at all times (emergency and non-emergency activities). This concern for safety and health must apply to all members of the fire-rescue department and should include others who may be involved in fire department activities.

The ACFR system should strive to make every reasonable effort to provide a safe and healthy work environment, recognizing the dangers involved in the types of service fire-rescue departments deliver. Included in this effort should be appropriate and continuous training, supervision, procedures, program support and review to achieve department health and safety objectives in all department functions and activities.

Firefighting and EMS service delivery are inherently dangerous activities occurring in environments over which the participants have no engineering control. NFPA 1500, *Standard on Fire Department Occupational Safety and Wellness Programs* was developed to provide a "consensus standard for an occupational safety and health program for the fire service." NFPA 1500 is intended to be an umbrella document, establishing the basic framework for a comprehensive safety and health program, and providing for its implementation and management. Additionally, OSHA and the Centers for Disease Control promulgate safe working environment protective measures, which should be included in training programs.

The Health and Safety function for the system is handled primarily by officers in each company. The Augusta County Emergency Services Association addresses some aspects of health and safety through system SOGs that includes: Emergency Incident Rehab; Infectious Control Guidelines; Critical Incident Stress Management; Infectious Control Notification; Accountability System; Personal Protective Equipment; and Rapid Intervention Team.

In 2021, the NFPA produced *The Fifth Needs Assessment of the U.S. Fire Service* and revealed the following:

- 72 percent of departments lack a program to maintain basic firefighting fitness and health.
- 61 percent of departments don't provide medical and physical evaluations for all firefighters that comply with *NFPA 1582: Standard on Comprehensive Occupational Medical Program for Fire Departments.*
- 73 percent of departments lack a behavioral health program (larger departments are much more likely to have such a program).
- 56 percent of fire stations are not equipped for exhaust emissions control; this number rises to 82 percent in the smallest communities.
- Many departments do not engage in cancer prevention best practices.[36]

A successful health, safety, and wellness program requires:

- Senior Management buy-in.
- The establishment of a Health & Wellness Committee.
- A department needs assessment.

36. Creating a Health & Wellness Program for Your Department, Firehouse Magazine, October 2022.

- The establishment of obtainable goals and objectives.
- The establishment of a budget for health, safety, and wellness.
- Implementation.
- Evaluation.[37]

Primary goals of a comprehensive health, safety, and wellness should include:

- Reducing injury leave and light duty due to on-the-job injuries.
- Potentially lowering workers' compensation and health care costs.
- Reduction of injuries.[38]

Firefighter injuries and deaths are devastating to families, fellow responders, local governments, and the community. The National Institute for Occupational Safety and Health (NIOSH) has studied firefighter fatality root causes, and found five key factors, which are commonly referred to as the NIOSH 5:

- Lack of fireground firefighter accountability.
- Lack of fireground communication methods.
- Lack of standard operating procedures related to response and fireground operations.
- Lack of incident management/command.
- Lack of appropriate risk assessment of the incident as whole, the building, the emergency scene, and basic fireground knowledge to understand the risk.

These five fireground factors should be etched in every firefighter's brain. A fire department training regimen, equipment, guidelines, and culture should center on these five factors. A lack of understanding of these five factors leads to sloppy, ineffective, and unsafe fireground operations. ***They should be taken seriously.***

An important component for firefighter health and safety as well includes entry medical physicals and annualized SCBA mask fit testing. Annualized fit testing and annualized medical physicals go hand-in-hand. OSHA 1910.134 and NFPA 1500 both require annualized fit-testing of SCBA masks. As part of a ACFR system respiratory protection program, and in accord with OSHA 1910.134, NFPA 1500, and NFPA 1582 *Standard on Comprehensive Occupational Medical Program for Fire Departments,* medical physicals are and should be required prior to the initial mask fit test and annualized thereafter, when new respiratory protective masks are introduced, or when a member has undergone physical changes that may affect the previous mask fit test and assigned mask size. Not all volunteer members receive entry or annualized medical physicals or mask-fit testing.

Recommendation:

- Currently health, safety, and wellness are the responsibility of the ACFR Fire Chief and Deputy Chief of Operations, the shift Battalion Chiefs, and the Volunteer System Officers at each volunteer station. Managing the health, safety, and wellness components of a fire-rescue department are as important as any other, as the concepts of health, safety, and wellness

37. ibid
38. ibid

apply to both emergency and non-emergency activities. For the ACFR system this will take dedicated staff hours and oversight from a command and station level, career, and volunteer. CPSM recommends the ACFR system develop a health, safety, and wellness committee, which includes the Augusta County Human Resources Department, and develop a comprehensive health, safety, and wellness initiative program that aligns with NFPA 1500, *Standard on Fire Department Occupational Safety and Wellness Programs, 2021 edition.* CPSM further recommends the system designate one career chief officer and one volunteer chief officer as system health, safety, and wellness Health and Safety Officers.

- CPSM recommends the ACFR system develop a plan that ensures all combat fire members receive at a minimum, an entry and annual basic respiratory fit-test medical physical to ensure combat members are medically fit to don and wear self-contained breathing apparatus (SCBA), and that all combat members receive an SCBA mask fit test on an annual basis.

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SECTION 7. EMERGENCY MEDICAL SERVICES ANALYSIS

Ensuring the seamless operation of Emergency Medical Services (EMS) is a pivotal aspect of maintaining public safety within any community. With the ever-changing landscape of healthcare demands and the potential growth in Augusta County, it is important to continually assess and seek improvement to the delivery of EMS services.

The significance of effective Emergency Medical Services (EMS) cannot be overstated when it comes to safeguarding the welfare of a community. As Augusta County undergoes expansion and experiences shifts in healthcare requirements, it has become paramount for the ACFR system to align its operational strategies with the broader EMS service delivery initiatives at both the state and regional levels.

State and Regional Strategic Plan Review

We began our analysis with a review of the ***Virginia State Office of EMS State Strategic and Operational Plan, 2020-2022.*** The State EMS Strategic and Operational Plan serves as the foundational framework for EMS services throughout the state. Our assessment of this plan reveals key points of relevance for the ACFR system strategic planning process:[39]

- Strategic Initiative 1.1-Promote Collaborative Approaches: Objective 1.1.2 emphasizes collaborative efforts between local governments, EMS agencies, hospitals and health systems, and other related entities to increase recruitment and retention of recruitment of certified EMS providers. Direct objectives in the State Plan may not be usable in the ACFR system, however ***alignment with the vision of the state strategic initiative is important when considering strategies for recruitment and retention of EMS personnel, both volunteer and career.***
- Strategic Initiative 1.1-Promote Collaborative Approaches: Objectives 1.1.4, 1.1.5, and 1.1.6 communicate the need to work collaboratively with state and other agencies to improve processes and patient outcomes. The state plan encourages collaboration and integration with state and regional EMS efforts. ***The ACFR system should align with these objectives in strategic planning and should actively participate in state and regional initiatives to ensure coordinated service delivery across boundaries.***
- Strategic Initiative 2.1-Sponsor EMS Related Research and Education: Objective 2.1.3 communicates the need to evaluate challenges that impact the workforce (volunteer and career) on service provisions around the state. ***The ACFR system's alignment with this is the continual evaluation of system personnel information related to the challenges that impact the ACFR system EMS workforce (volunteer and career) when analyzing retention and developing retention strategies.***
- Strategic Initiative 2.2-Training and Education: The plan highlights the significance of continuous training and education for EMS personnel. ***The ACFR system should align strategic planning initiatives with this State Plan Strategic Initiative and ensure initial EMS provider and incumbent provider training has adequate and dedicated resources to deliver training, and that all staff remains up to date with the latest techniques and best practices in the EMS discipline.***
- Strategic Initiative 3.2-Focus Recruitment and Retention Efforts: This State Plan Strategic Initiative has a direct link to the ACFR EMS system. This Strategic Initiative promotes

39. Virginia Office of EMS State Strategic and Operational Plan, 2020-2022.

comprehensive recruitment and retention campaigns for EMS personnel and promotes the development of EMS leadership programs. ***The ACFR system should align strategic planning initiatives with this State Plan Strategic Initiative.***

- Strategic Initiative 3.3-Upgrade technology and Communication Systems: Objective 3.3.2 promotes the use of Emergency Medical Dispatch (EMD) and accreditation in 911 Public Safety Answering Points (PSAPs) in Virginia. As discussed later in this section, EMD is important in determining the appropriate response of resources to EMS calls, which is particularly important in a system such as that in Augusta County where there are EMS responses to remote areas, EMS transports in excess of 1.5 hours, and EMS staffing resources that may be challenged at times. ***The ACFR system should align strategic planning initiatives with this State Plan Strategic Initiative.***
- Strategic Initiative 4.3-Pursue Initiatives that Support EMS: This Strategic Initiative outlines the following, which the ACFR system should align strategically with, and include:
  - Education EMS providers in unintentional injury, illness, and violence prevention efforts.
  - Promote programs for EMS personnel that emphasize safety, health, and wellness of first responders.
  - Educate EMS providers on best practices that relate to response to active shooter and hostile environments.
  - Development of Mobile Integrated Healthcare programs to improve community health.
  - Research and educate the EMS system members on evidence-based practices to improve EMS care.

CPSM also reviewed the ***Central Shenandoah EMS Regional Plan (2022-2025).*** The regional EMS plan is similar to the state EMS strategic plan in that the strategic initiatives are the same. The regional plan does have different objectives that are tailored to the region. Our assessment of this plan reveals key points of relevance, which may differ from the State EMS Plan for the ACFR system strategic planning process:[40]

- Strategic Initiative 2.2-Supply Quality Education and Certification of EMS Personnel: Objective 2.2.1 promotes agencies assisting regional EMS education programs through the provision of qualified instructors, instructor development opportunities, and coordinated clinical scheduling to improve student learning/certification efficiencies. ***The ACFR system should align strategic planning initiatives with this Regional Plan Strategic Initiative.***
- Strategic Initiative 3.2- Focus Recruitment and Retention Efforts: Objective 3.2.1 promotes EMS agencies developing EMS education programs (First Responder and EMT) in high schools. Objective 3.2.2 promotes a diverse and inclusionary EMS workforce (volunteer and career). . ***The ACFR system should align strategic planning initiatives with this Regional Plan Strategic Initiative.***
- Strategic Initiative 4.2-Assess and Enhance Quality of Education for EMS Services: Objective 4.2.1 promotes EMS continuing education in agencies and in the region. Action steps include the coordination of critical care education for regional providers, and the coordination of the annual EMS conference to provide continuing education opportunities in collaboration with regional stakeholders. ***The ACFR system should align strategic planning initiatives with this Regional Plan Strategic Initiative.***

40. Central Shenandoah EMS Council, Inc. Regional EMS Plan, 2022-2025.

- Strategic Initiative 4.3-Pursue Initiatives that Support EMS: Objective 4.3.2 promotes increased provider engagement in the future of the EMS profession. ***The ACFR system should align strategic planning initiatives with this Regional Plan Strategic Initiative.***

This review underscores the importance of aligning Augusta County Fire Rescue's EMS services with both the Virginia State Office of EMS State Strategic and Operational Plan and the Central Shenandoah EMS Regional Plan. By incorporating the principles and recommendations from these plans, ***not only on a state or regional level, but locally using the same strategic initiatives and objectives,*** the ACFR system can better serve its residents, respond effectively to emergencies, and contribute to the overall health and safety of the community. It is essential that this alignment effort be ongoing, with periodic reviews and adjustments as the needs of Augusta County evolve over time.

Regulatory[41]

The Office of Emergency Medical Services within the Virginia Department of Health is responsible for certifying EMS providers in the Commonwealth of Virginia across various levels, including Emergency Medical Responder, Emergency Medical Technician, Advanced Emergency Medical Technician, and Paramedic. To become eligible for certification, candidates are required to successfully complete an approved certification course in Virginia, followed by the certification examination administered by the National Registry of EMTs.

EMS providers are also obligated to meet continuing education requirements for recertification. To maintain their EMS credentials, individuals must fulfill specific continuing education criteria as established by the Board of Health and undergo the recertification process before the expiration of their relevant certification or reentry period. The Board of Health determines the necessary continuing education hours and topic categories for each certification level.

The Virginia Emergency Medical Services Regulations establish both general and specific prerequisites and codes of behavior for individuals seeking affiliation with EMS agencies and practicing as EMS providers. These regulations encompass various sections, including but not limited to:

- Section 12VAC5-31-300, which outlines the requirements for EMS agency licensure and EMS certification.
- Section 12VAC5-31-900, which presents general prerequisites.
- Section 12VAC5-31-910, addressing criteria related to criminal or enforcement history.
- Section 12VAC5-31-1040, which pertains to the authorization to practice granted by the Operational Medical Director.
- Section 12VAC5-31-1050, which defines the scope of practice for EMS providers.

These regulatory sections collectively define the standards and conditions that EMS personnel must adhere to in the state of Virginia.

For this systematic review, we can place performance into two categories of Clinical and Operations. Each area of performance is primarily related to an operational element of performance, while the other clinical category focuses on areas of performance that impact patient outcomes.

41. Virginia Department of Health, Office of Emergency Medical Services.

Below is a list of EMS-related documents that has also been reviewed as part of this comprehensive review:

- ACFR system Continuous Quality Improvement Plan
- ACFR system OMD Biannual Report (7/1/22-12/31/22) with redactions
- ACFR system Designated Emergency Response Agency Standards Compliance Report for CY22
- Central Shenandoah EMS Council Regional Patient Care Protocols
- ACFR system Supplemental Prehospital Standard Patient Treatment Protocols
- ACFR system EMS Response Plan
- Operational Medical Director Contract (32010-21-01, 2021)
- SAW Mass Casualty Incident Plan, including Dispatch Guidelines
- SAW COVID-19 EMS Surge Operations and Crisis Standards of Care Plan and Protocols
- Ambulance Restocking Plan
- Central Shenandoah EMS Council General Performance Improvement Plan
- Hospital Diversion Protocols
- Regional Mass Casualty Incident Plan
- Regional Trauma Triage Plan
- Virginia EMS Regulations

These documents encompass a wide range of EMS-related information and plans, contributing to the comprehensive understanding and effective management of emergency medical services.

Clinical Review

Medical Direction/Oversight

In the Commonwealth of Virginia, Operational Medical Directors (OMDs) play a pivotal role in ensuring the effectiveness, safety, and quality of Emergency Medical Services (EMS) within their respective agencies and regions. These healthcare professionals are entrusted with significant responsibilities and wield considerable influence over the provision of prehospital care. In Virginia, authority to practice originates in the Virginia Administrative Code. Additionally, 12VAC 5-31-1040, affirms that EMS personnel can only provide emergency medical care under the explicit authority of the operational medical director affiliated with their EMS agency. This reinforces the pivotal role OMDs play in ensuring safe and effective prehospital care.

Overall EMS Medical Directors provide invaluable guidance and direction in several key areas that include:

- Patient Safety: Medical direction is instrumental in safeguarding the well-being of patients. OMDs establish and oversee clinical protocols, ensuring that EMS providers deliver care that is evidence-based and aligned with best practices. This commitment to quality care directly benefits patients.

- Enhanced Training: OMDs offer valuable guidance through training programs, helping EMS personnel stay updated on the latest medical advances and techniques. Training ensures that EMS providers are well-prepared to handle a wide range of medical emergencies.
- Resource Allocation: OMDs advise on the appropriate deployment of medical resources. Their expertise aids in resource allocation during critical incidents and mass casualty events, optimizing patient care under challenging circumstances.
- Quality Improvement: OMDs lead quality improvement efforts within EMS agencies. They oversee the review of patient care reports, identify areas for improvement, and implement changes to enhance care quality continuously.
- Legal and Ethical Guidance: Medical direction offers legal and ethical guidance to EMS agencies, ensuring that providers operate within the bounds of the law and adhere to ethical standards in their practice.
- Credentialing and Oversight: OMDs possess the authority to grant, suspend, or revoke medical credentials for EMS providers. This power ensures that only qualified individuals are entrusted with the care of patients.

The requirements for OMDs in Virginia include:

- Medical Licensure: OMDs must possess an active medical license in the Commonwealth of Virginia. This requirement ensures that they have met the state's rigorous standards for medical practice, including education, training, and ongoing competency.
- Board Certification: In addition to licensure, OMDs are often expected to be board-certified in their respective medical specialties, such as emergency medicine or critical care. Board certification signifies a higher level of expertise and knowledge in their chosen field.
- EMS-Specific Education: OMDs should have specialized education in EMS and prehospital care. This education equips them with an in-depth understanding of the unique challenges and protocols governing EMS practice.
- Experience: Experience in emergency medicine or a related field is typically required. OMDs must have a practical understanding of prehospital care dynamics, as this enables them to provide valuable guidance and support to EMS personnel.
- Collaborative Skills: Effective communication and collaboration are crucial for OMDs. They must work closely with EMS agencies, providers, and regional authorities to ensure seamless coordination and adherence to standards.
- Regulatory Familiarity: OMDs must be well-versed in state and federal regulations governing EMS practice. This knowledge is essential for guiding EMS agencies in compliance with legal requirements.

Operational Medical Directors in Virginia are central figures in the EMS landscape, with requirements that reflect their crucial roles. Medical direction is indispensable for ensuring patient safety, maintaining high standards of care, and driving continuous improvement in the EMS system. OMDs are at the forefront of this mission, providing leadership, guidance, and expertise to the benefit of both EMS providers and the communities they serve.

The Primary Medical Director for the Augusta County EMS system at the time of this report is Dr. Asher Brand. Dr. Brand is an experienced EMS Medical Director and Serves as a Board member and Medical Director for the Central Shenandoah Regional EMS Council.

It is noted at the time of our review and on-site evaluation, Dr. Asher Brand is dedicated to the ACFR EMS system, advancing the pre-hospital continuum of care, espoused a wealth of

knowledge and experience regarding pre-hospital emergency care and is eager to support and constantly encourage EMS providers across multiple regions. In 2020 Dr. Brand received the Central Shenandoah EMS Council - Physician with Outstanding Contribution to EMS award.

These intersections provide for a high level of EMS Physician involvement in addition to medical direction, clinical oversight, and training. This high level of engagement was evident by a documented and outlined robust training program, QA/QI monitoring, staff/physician engagement, and protocol development.

It is assessed that the Augusta County Medical Direction program /practices are consistent with current EMS best practices for EMS Physician engagement, clinical oversight, and program development.

Medical Protocols

EMS protocols serve as the bedrock of clinical procedures and standards that guide the actions of emergency medical service professionals, encompassing paramedics and emergency medical technicians (EMTs). These protocols provide comprehensive directives on how to approach patient assessments, administer treatment, manage transportation, and deliver definitive care. The development and maintenance of these protocols are a critical aspect of ensuring the highest quality of prehospital care.

Key Components of EMS Protocols:

- Established Standards: EMS protocols are firmly grounded in established clinical standards and evidence-based best practices. These standards are continually updated and refined to reflect the latest advancements in medical science and prehospital care.
- Medical Direction Collaboration: Protocols are often developed in close collaboration with Medical Direction, a critical component of EMS. Medical directors, who are experienced healthcare professionals, contribute their expertise to crafting protocols that align with the specific needs and challenges of EMS practice.
- Local and State Adaptation: While there may be overarching national guidelines, EMS protocols are customized to meet the unique requirements of local communities and regions. State and local regional EMS boards play a pivotal role in tailoring these protocols to fit the specific healthcare landscape.
- Regulatory Compliance: EMS protocols are subject to regulatory oversight and compliance with laws and regulations. They must align with state and federal guidelines to ensure legal and ethical care delivery.

EMS protocols for the ACFR system originate primarily from the Central Shenandoah EMS Council-Patient Care Protocols. These protocols form the foundation for the management, treatment, and transport of medical emergencies identified in the protocol manual for the region. Certain procedures and levels of care that can be provided by the various certified practitioners are designated in these protocols as well. Additionally, these medical protocols are authorized by the Central Shenandoah EMS Operational Medical Directors.

EMS agencies like the ACFR system may also develop supplemental prehospital standard patient treatment protocols to address specific local requirements or challenges not covered by broader protocols. Through ACFR system Protocol Number EMS-1, supplemental EMS protocols have been established that are not addressed by the Central Shenandoah EMS Council-Patient Care Protocols.

In summary, EMS protocols are a dynamic and evolving set of guidelines that are essential for ensuring consistent, high-quality prehospital care. Collaborative efforts, regulatory oversight, and the expertise of Operational Medical Directors all converge to shape and improve these protocols, reinforcing their crucial role in the EMS system.

It is assessed that the Central Shenandoah EMS Council-Patient Care Protocols and ACFR system supplemental EMS protocols are consistent with current EMS best practices for medical protocols and patient care.

Continuous Quality Improvement

The Continuous Quality Improvement (CQI) Program represents an ongoing and dynamic process designed to meticulously assess the performance of an EMS system. This comprehensive evaluation encompasses not only how the system functions but also the performance of individual EMS providers within the system. The primary aim of this continuous scrutiny is to gain valuable insights that enable both Medical Direction and EMS providers to enhance operational efficiency and, most critically, elevate patient outcomes.

At its core, CQI embodies the concept of an unceasing journey towards excellence in healthcare. This journey is a collaborative effort that encourages healthcare professionals at all levels to work together cohesively, leveraging their collective expertise and experiences to develop and refine the healthcare system in which they operate. This approach is rooted in a shared commitment to delivering the highest standards of care within the EMS community.

Key Components of a Quality Assurance/Quality Improvement Program:

- Patient-Care Report Reviews: Central to a QA/QI program is the thorough examination of patient-care reports to gauge their compliance with protocols and policies. This review process ensures that EMS providers are consistently delivering care within established guidelines.
- Assessment of Current Quality: QA/QI programs conduct a comprehensive evaluation of existing quality standards. This assessment encompasses all aspects of patient care, from initial assessment to treatment and transportation, with the aim of identifying areas of improvement.
- Development of Improvement Strategies: Based on the findings of the assessment, QA/QI programs actively design strategies for improvement. These strategies are designed to address identified deficiencies in care and operational processes.
- Outcome-Based Focus: A critical aspect of QA/QI is its emphasis on the achievement of desired health outcomes for patients. It aims to improve these outcomes through systematic evaluations and evidence-based practices.
- Protocol Compliance: Compliance with treatment protocols is a critical aspect of the CQI process. Auditing adherence to these protocols helps ensure that care is consistent and aligned with established standards.

The ACFR department has a CQI plan and program in place (revised March1, 2022), which covers the ACFR system. The plan aligns with the Virginia EMS regulations requiring such a program, as well as the Central Shenandoah EMS Council performance improvement program. Specifically, the ACFR system CQI plan's purpose is:

…to establish a department-wide process and provide an effective tool for evaluating and improving the quality of prehospital care. This tool will focus on improvement efforts to identify root causes of problems and interventions to eliminate or reduce those problems. While striving to improve the system, the CQIP will also recognize excellence in performance and service to the community.

CPSM reviewed the ACFR system CQI plan and found the content valid and that it aligns with current EMS best practices for continuous quality improvement and is aimed at consistently improving patient outcomes through medical incident review and the sustainment of high EMS provider competency levels.

EMS Training

Training plays an indispensable role in ensuring that workers within the field of emergency medical services (EMS) are not only well-prepared but also continually updated on the latest advancements, skills, and emerging technologies essential for maintaining their EMS certifications. This ongoing education is vital for several reasons:

- Staying Current with Advancements: Medicine and technology are constantly evolving. In the realm of EMS, new techniques, equipment, and treatment protocols emerge regularly. Continual training ensures that EMS professionals are well-informed about these developments and can integrate them into their practice for the benefit of patient care.
- Enhancing Skills: Just as new knowledge is important, refining and enhancing existing skills are equally critical. Continuing education programs often provide opportunities for hands-on practice and simulation exercises, allowing EMS personnel to sharpen their skills and become more proficient in their roles.
- Licensure and Certification Maintenance: EMS personnel in the ACFR system hold specific certifications or licenses that enable them to practice. Regularly completing continuing education is a requirement for the renewal of these credentials. Failure to meet these requirements can result in the loss of licensure or certification, which could jeopardize an individual's ability to work in the field avail themselves to the system for response.

EMS professionals are not only evaluated during the initial credentialing process but also throughout their careers. Continuous competency assessment is crucial for ensuring that EMS providers stay current with evolving best practices and maintain the highest standards of care. Ongoing competencies may include.

The ACFR department expresses immense pride in its accredited EMS education programs, which have earned recognition from the Virginia Office of EMS, specifically at the EMT and Advanced EMT levels. The ACFR department reports commitment to educational excellence is evident in a consistent offering of at least one Advanced EMT program each year at the ACFR training center.

One of the key advantages of the ACFR accredited status is the convenience it affords system students. Practical testing is seamlessly integrated into the classroom experience, ensuring that our learners are well-prepared for their National Registry examinations. What is more, these crucial tests are administered locally, at the Valley Career and Technical Center situated in Fishersville.

The ACFR Department Training Division operates with a dedicated training team that encompasses one (1) Division Chief and three (3) Training Specialists. Among these specialists, two divide their focus between Basic Life Support (BLS) and Advanced Life Support (ALS) initial

training and continuous education initiatives. ACFR system instructors also make themselves available to assist with EMS education.

While recognizing and commending ACFR's department dedicated Training Division and its status as a Licensed Agency of Pre-Hospital Education, it is important to acknowledge that there exists a significant gap in training opportunities within the organization. CPSM's assessment, based on a consensus of all stakeholder groups involved, highlights the inadequacy of training opportunities, particularly concerning incumbent career members, incumbent volunteer members, and new volunteer members who often grapple with work/life balance constraints.

The current emphasis on career staff on-boarding recruit training, while undoubtedly crucial, inadvertently results in gaps in volunteer and incumbent education. These gaps can pose challenges to the comprehensive preparedness and effectiveness of the entire EMS workforce. To ensure the highest level of service delivery and patient care, it is imperative to bridge this educational divide between career and volunteer staff.

At the time of this review, the ACFR department reports, the provision of volunteer EMT courses was once a steadfast tradition, with offerings typically occurring once, and sometimes even twice, annually. However, an evolving trend has become apparent over the past few years and that is a reduction, and at times a cessation of volunteer EMT certification classes.

This discernible shift underscores the need for a reevaluation of the ACFR volunteer engagement strategies and the EMT training program itself. The ACFR system must seek innovative and sustainable approaches to attract, train, and retain volunteers who will contribute their valuable services to the community of Augusta County.

Addressing the training GAP issue, specifically for volunteer membership and developing customized training programs tailored to the specific needs and limitations of volunteers can lead to several positive outcomes for the ACFR system. It will enhance the department's overall operational capabilities, elevate the skills and knowledge of its personnel, and ultimately raise the standard of emergency medical care provided to our communities. This proactive approach not only recognizes the invaluable role played by volunteers but also cultivates a more inclusive and versatile EMS workforce.

EMS Staffing and Deployment

The current EMS service delivery system in Augusta County is a multi-pronged approach and includes volunteer based rescue squads that provide basic and advanced level ambulance ground transport, career stations that provide ALS ambulance ground transport, and volunteer stations that have career staff who either staff an ambulance only, or who staff either an ambulance or fire apparatus dependent on the call that comes into the assigned station.

In all there are eleven stations that are staffed with on premises personnel. Of the eleven, nine are staffed with on-premises personnel around the clock with either career staffing (county or agency provided) and volunteer crews. The next table outlines the EMS ground transport staffing model.

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Table 43: ACFR System EMS Ground Transport and Deployment Model

Station	Deployment	Staffing Type
Waynesboro First Aid Crew Station 1	BLS/ALS Transport Ambulance	Agency provided career staff Volunteer Staff
Deerfield Station 2	BLS/ALS Transport Ambulance	Career Staff 24/7/365* Volunteer Staff
Churchville Station 4	BLS/ALS Transport Ambulance	Career Staff M-F 24/7/365* Volunteer Staff
Stuarts Draft Rescue Station 6	BLS/ALS Transport Ambulance	Career Staff M-F 6a-6p Volunteer Staff
Staunton-Augusta Rescue Station 5	BLS/ALS Transport Ambulance	Agency provided career staff Volunteer Staff
ACFR Station 10	EMS Supervisor	Career Staff 24/7/365 Volunteer Staff 24/7/365
ACFR Station 11	BLS/ALS Transport Ambulance	Career Staff 24/7/365 Volunteer Staff
Craigsville-Augusta Springs ACFR Rescue Station 16	BLS/ALS Transport Ambulance	Career Staff 24/7/365
New Hope Station 18	BLS/ALS Transport Ambulance	Career Staff 24/7/365* Volunteer Staff
Mount Solon Station 21	BLS/ALS Transport Ambulance	Career Staff M-F 6a-6p* Volunteer Staff
Riverheads Station 25	BLS/ALS Transport Ambulance	Career Staff 24/7/365
Weyers Cave ACFR Rescue 26	BLS/ALS Transport Ambulance	Career Staff 24/7/365

*Indicates the career staff cross-staff assigned station fire apparatus, as necessary.

In addition to ground transport ambulances, the ACFR system also has fire companies that are dispatched to motor vehicle accidents and certain life threatening calls. Not all of these fire companies are EMS agencies and respond to assist to the capability of their training. These fire companies, while not possessing EMS licenses, have received County authorization to respond to critical situations involving respiratory arrest or cardiac arrest. These companies are equipped with CPR-trained personnel and are equipped with life-saving AEDs to provide immediate assistance when needed.

The next table outlines these EMS response capabilities.

Table 44: ACFR System Fire Company EMS Deployment Model

Station	Deployment	Staffing Type
Deerfield Station 2	Not an EMS Agency Dispatched on respiratory/cardiac arrests	Volunteer
Middlebrook Station 3	ALS first responder agency, licensed under ACFR department.	Career Staff M-F 6a-6p Volunteer Staff
Weyers Cave Station 5	ALS first responder agency	Volunteer
Verona Station 6	ALS first responder agency	Career Staff M-F 6a-6p Volunteer Staff
Stuarts Draft Fire Station 7	Not an EMS Agency Dispatched on respiratory/cardiac arrests	Volunteer
Craigsville Station 8	Not an EMS Agency Dispatched on respiratory/cardiac arrests	Volunteer
Dooms Station 9	BLS first responder agency	Career Staff M-F 6a-6p Volunteer Staff
ACFR Station 10	ALS first responder agency	Career Staff 24/7/365
ACFR Station 11	ALS first responder agency	Career Staff 24/7/365
New Hope Station 18	BLS first responder agency	Career Staff M-F 6a-6p Volunteer Staff
Wilson Station 19	Not an EMS Agency Dispatched on respiratory/cardiac arrests	Volunteer
Mount Solon Station 21	BLS first responder agency	Career Staff M-F 6a-6p Volunteer Staff
Riverheads Station 25	BLS first responder agency	Volunteer Staff

Additionally, there are a number of Automatic / Mutual Aid partnerships that provide mutual and automatic aid to the ACFR EMS system and include:

- Staunton Fire Department: Provides ALS EMS first response in Augusta County when the primary response agency is not available.
- Waynesboro Fire Department – Provides ALS EMS first response in Augusta County when the primary response agency is not available.
- Grottoes Fire Department (ALS): Provides first tier response in Augusta County.

- Grottoes Rescue Squad: Provides EMS ground transport in Augusta County.
- Bridgewater Fire Department (ALS): Provides first tier EMS response in Augusta County.
- Bridgewater Rescue Squad: Provides EMS ground transport in Augusta County.
- Raphine Fire Department (BLS): Provides first tier response in Augusta County.
- Walkers Creek Fire Department (BLS): Provides first tier response in Augusta County.
- Wintergreen Fire Department: Provides first tier response and EMS transport in Augusta County.

The ACFR system also has a dedicated EMS Supervisor, who is stationed around the clock at ACFR Station 10. This role encompasses a wide array of operational and administrative responsibilities. These include:

- Support and work as part of a team to fulfill the mission, vision, and values of ACFR.
- Provide oversight for EMS CQI program review reports on a daily basis.
- Acts as Infection Control Officer.
- Precepts ALS and BLS providers.
- Respond to major incidents; fill various positions within the Incident Command System as assigned or required.
- Respond to and assist with emergent EMS, i.e., Cardiac Arrest, MVC's w/entrapment, MCI's and others as deemed necessary.
- Assist with or coordinate Triage and other EMS functions during large scale incidents.
- Responsible for setting the monthly schedule for EMS Providers including oversight of their annual leave and compensatory time, assures staffing requirements are maintained and adequate number of trained and qualified personnel are available to deliver EMS services.
- Supervises/mentors subordinate staff and is responsible to ensure all personnel assigned are knowledgeable of policies, procedures, and general orders, responsible to ensure daily assigned duties are carried out. Provides oversight as necessary to ensure stations meet staffing and operational needs on a daily basis, assures all assigned personnel are response ready at all times.
- Assists with and/or provides for training needs of staff and ensures that staff receives necessary training for assigned duties, reviews requests for professional development opportunities, assuring assigned staff have met requirements for present duties prior to forwarding additional training requests for advanced training.
- Addresses any concerns and/or deficiencies in apparatus, equipment, and/or personnel, and provides notifications, as necessary.

As noted in the primary job duties, the EMS Supervisor's role extends to dispatch for various incident types, underscoring their pivotal role in augmenting Advanced Life Support (ALS) when required. This includes responding to a diverse range of situations, such as serious traffic collisions, Mass Casualty Incidents (MCIs), intricate specialized rescue missions, cardiac arrests, high-risk trauma cases, and medical emergencies that necessitate ventilator support. ***At times, the supervisor is utilized more so responding to incidents and providing ALS skills rather than supervising the operations of the system. This should be periodically reviewed, and if needed, a model shift to staffing all transport units with ALS personnel may be needed.***

EMS Critical Tasking

EMS is a vital 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 net.

In terms of overall incidents responded to by the emergency agencies in most communities, it could be argued that EMS incidents constitute the greatest number of "true" emergencies, where intervention by trained personnel makes 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. Contemporary pre-hospital clinical care deploys many clinical treatments one will receive in the Emergency Department, truly matching the long-time EMS saying, "we bring the Emergency Room to you."

Critical tasks by specific call type in EMS-only agencies assisted by fire departments are not as well-defined as critical tasks in the fire discipline. Notwithstanding, critical tasking in EMS is typical of that in the fire service in that there are certain critical tasks that need to be completed either in succession or simultaneously.

EMS on-scene service delivery is based primarily on a focused scene assessment and patient assessment, followed by the appropriate basic and advanced clinical care through established medical protocols. Thus, EMS critical tasking is typically developed in accordance with the U.S. Department of Health and Human Services, Centers for Medicare & Medicaid Services (CMS):

- Basic Life Support (BLS), which is an emergency response by a ground transport unit (and crew) and the provision of medically necessary supplies and services occurs.
- Advanced Life Support, Level 1 (ALS1), which is the transportation by ground ambulance vehicle and the provision of medically necessary supplies and services including the provision of an ALS assessment or at least one ALS intervention.
- Advanced Life Support, Level 2 (ALS2), which is the transportation by ground ambulance vehicle and the provision of medically necessary supplies and services including:
  - *at least three separate administrations of one or more medications by intravenous push/bolus or by continuous infusion (excluding crystalloid fluids) or*
  - *(2) ground ambulance transport, medically necessary supplies and services, and the provision of at least one of the ALS2 procedures listed below:*

    a. Manual defibrillation/cardioversion.

    b. Endotracheal intubation.

    c. Central venous line.

    d. Cardiac pacing.

    e. Chest decompression.

    f. Surgical airway.

    g. Intraosseous line.

The next set of tables provides recommended critical tasking for Augusta County Fire / Rescue

system continuum of care. As indicated above, this critical task is based on the current CMS ground transport definition of ambulance services.

Table 45: BLS Critical Tasking

Critical Task	# Responders
Primary Patient Care Incident Command	**1**
Secondary Patient Care Vehicle Operations	**1**
Effective Response Force	**2**

Resource Deployment

1 Transport Ambulance/Crew

Table 46: ALS1 Critical Tasking

Critical Task	# Responders
Incident Command	**1**
Primary Patient Care	**1**
Secondary Patient Care Vehicle Operations	**1-2** **1**
Effective Response Force	**4-5**

Resource Deployment

1 Transport Ambulance

1 Fire or EMS Crew

Table 47: ALS2 Critical Tasking

Critical Task	# Responders
Incident Command	**1**
Primary Patient Care	**1**
Secondary Patient Care	**1**
Tertiary Patient Care Provider	**1-2**
Vehicle Operations	**1**
Effective Response Force	**5-6**

Resource Deployment

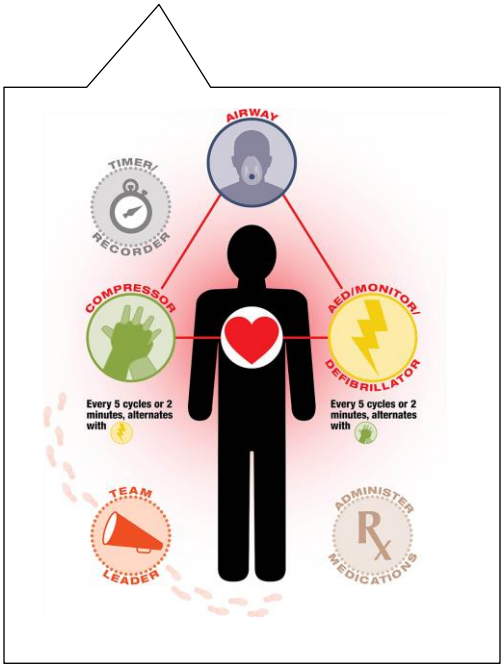
1 Transport Ambulance
1 Fire /EMS Supervisor
1 Fire / EMS Crew

Table 48: Pulseless/Non-Breathing Critical Tasking

Critical Task	# Responders
Incident Command	**1**
Primary Patient Care	**1**
Secondary Patient Care	**1**
Tertiary Patient Care Provider	**1-2**
Vehicle Operations	**1**
Effective Response Force	**5-6**

Resource Deployment

1 Transport Ambulance
1 Fire / EMS Supervisor
1 Fire or EMS Crew or
Equipment augmentation
(CPR DEVICE, VENTILATOR)



ACFR EMS System Linkage to EMS Agenda 2050

The assessment of the current EMS system in Augusta County, Virginia, and the identification of strengths, weaknesses, and opportunities for improvement can be linked to the broader framework outlined in "EMS Agenda 2050." EMS Agenda 2050 is a visionary document that seeks to shape the future of EMS in the United States. It provides a roadmap for EMS stakeholders to adapt to evolving healthcare needs and delivery models. Here is how the assessment aligns with EMS Agenda 2050 principles:

1. Patient-Centered Care and Integration:

The tiered EMS response system in Augusta County reflects a patient-centered approach by ensuring that patients receive appropriate care based on the severity of their conditions (aligning with EMS Agenda 2050's principle of "patient-centered care").

Collaborative partnerships with neighboring agencies exemplify the integration principle, fostering efficient cross-boundary responses and maximizing available resources to benefit patients.

2. Systems Integration:

Collaborative partnerships and efficient resource utilization in Augusta County exemplify the principle of systems integration, where EMS agencies collaborate with other healthcare and public safety entities to provide seamless care.

3. EMS Personnel:

The commitment to training and quality assurance in Augusta County aligns with EMS Agenda 2050's emphasis on the ongoing education and development of EMS personnel.

Acknowledging training gaps and working to bridge them reflects the commitment to building a skilled and competent EMS workforce, which is in line with EMS Agenda 2050's focus on the professionalism and education of EMS personnel.

4. Data-Driven Performance Improvement:

Identifying weaknesses and opportunities for improvement within the Augusta County EMS system reflects a data-driven approach to performance improvement, as it is essential to use data and assessments to guide system enhancements.

5. Health and Safety of EMS Personnel:

Addressing staffing issues, mentorship programs, and improved scheduling in Augusta County aims to enhance the health and safety of EMS personnel, aligning with EMS Agenda 2050's principle of prioritizing the well-being of those providing care.

6. Public Policy and Oversight:

The need for additional funding and transparent communication regarding resource allocation aligns with the recognition in EMS Agenda 2050 that effective public policy and oversight are essential to support EMS system sustainability and growth.

7. Technology and Evidence-Based Practice:

While not explicitly mentioned, efforts to bridge training gaps and standardize practices in Augusta County may involve the integration of evidence-based practices and technology to enhance the quality of care provided.

Mobile Integrated Healthcare (Community Paramedicine)

One of the fastest-growing value-added service enhancements in EMS is that of Mobile Integrated Healthcare/Community Paramedicine (MIH/CP) programs. An MIH/CP program is comprised of a suite of potential services that EMS could provide to fill gaps in the local healthcare delivery system. In essence, such a service is intended to better manage the increasing EMS call volume and better align the types of care being provided with the needs of the patient. To be effective, an MIH/CP program is commonly accomplished through a collaborative approach with healthcare and social service agencies within the community.

Given the ongoing initiatives and the collaborative spirit demonstrated by ACFR system, there is a significant opportunity to develop a MIH/CP program that builds upon existing healthcare services. A MIH/CP program can provide valuable services such as:

- **Post-discharge Follow-up**: Ensuring that patients who have been discharged from healthcare facilities receive adequate follow-up care to prevent readmissions, which may mean re-use of the EMS system.
- **Chronic Disease Management**: Offering support and education to patients with chronic illnesses to manage their conditions effectively and reduce emergency calls.
- **Medication Management**: Assisting patients in managing medications to prevent adverse reactions and overdoses, particularly for those at risk of opioid-related issues.
- **Mental Health Crisis Response**: Expanding services related to mental health crises, which can include providing immediate support and facilitating access to appropriate mental health resources.
- **Vulnerable Population Outreach**: Collaborating with organizations addressing vulnerable populations and access to healthcare needs.

The development of a MIH/CP represents a significant opportunity for the Augusta County EMS system to expand its role in enhancing community health and well-being. Implementing an MIH/CP program would align with the State EMS Strategic Plan and the Central Shenandoah EMS Council Strategic Plan.

This initiative also aligns with national trends and offers opportunities for post-discharge follow-up, chronic disease management, mental health crisis response, and community education. Assessing the community's unique healthcare needs will guide the integration of additional practices and personnel. By building upon existing initiatives and partnerships, the system can take a proactive stance in addressing a broader spectrum of healthcare needs within the community.

Deployment Consideration

Given the demand, length of transport times from some areas of the county, and the moderate resiliency of the EMS system overall, it is assessed that the ACFR EMS system is challenged at times to ensure timely delivery of services. As a review, the overall EMS system workload was 14,269 runs in the one year workload analysis CPSM performed. The time on a call for EMS may impact the system's ability to absorb additional calls as 46 percent of EMS calls last more than one hour in duration. Further impacting EMS resiliency is the time on task for transports to the hospital, which average 76 minutes per transport.

EMS demand will continue to increase as population increases. Additional peak time and around the clock resources (career and volunteer) will be needed to handle this increase in demand in the Rescue 6, Station 6, Station 9, and Station 10 districts. EMS demand is moderate-heavy in these districts now and stations providing EMS response are among the busiest.

The ACFR department should continue to, where applicable, hire EMS single-certified personnel to staff current and additional ambulances. This practice overall has been successful for both recruitment and retention. Additionally, each ambulance should include one ALS provider, which will provide quicker delivery of these services in the rural areas, and free up the EMS Supervisor position to supervise countywide operations more effectively.

It is recommended that expanding EMS deployable assets be included in all ACFR system strategic planning over the near, mid, and longer terms.

Section 8. Fire Operational Analysis

Fire Staffing and Response Methodologies

When exploring staffing and deployment of fire departments it is prudent to design an operational strategy around the actual circumstances that exist in the community and the fire and risk problems that are identified. The strategic and tactical challenges presented by the varied hazards that a department protects against need to be identified and planned for through a community risk analysis planning and management process *as completed in this report.*

Effectively managing a combination fire system requires an understanding of and an ability to demonstrate how changes to resources will affect community outcomes. It is imperative that fire department leaders, as well as policy makers, know how fire department resource deployment in their local community affects community outcomes in three important areas: firefighter injury and death; civilian injury and death; and property loss. If fire department resources (both mobile and personnel) are deployed to match the risk levels inherent to hazards in the community, it has been scientifically demonstrated that the community will be far less vulnerable to negative outcomes in all three areas.[42]

Staffing and deployment of fire services is not an exact science. While there are many benchmarks that communities and management utilize in justifying certain staffing levels, there are certain considerations that are data driven and reached through national consensus (NFPA Standards, Fire Accreditation through the Commission of Fire Accreditation International, and ISO-PPC benchmarking that serve this purpose as well.

In addition to these considerations, staffing is also linked to station location, demand for service, and what type of apparatus is responding such as an engine, ladder, ambulance, or specialty piece. CPSM takes a wholistic approach when evaluating staffing and deployable resources, and when making staffing and deployment recommendations. These include:

Fire Risk and Vulnerability of the Community: The community risk and vulnerability assessment are used to evaluate potential risks, hazards, and community vulnerabilities, to include those evaluated in a community's Hazard Mitigation Planning. With regard to individual or groups of buildings, the assessment is used to measure the risk associated with the building(s) and then segregate the building(s) as either a high, medium, or low hazard depending on factors such as the life and building content hazard, the potential fire flow required to mitigate a fire, and the staffing and apparatus types required to mitigate an emergency at the specific property. Included in the community risk assessment should be both a structural and nonstructural (weather, wildland-urban interface, transportation routes, and community infrastructure) analysis that again, segregates risk into a high, medium, or low risk category.

Population and Demographics of a Community: Population, demographics, and population density drive calls for local government service, particularly public safety. The risk from fire is not the same for everyone, with studies telling us age, gender, race, economic factors, and what region in the country one might live, all contribute to the risk of death from fire. Studies also tell us these same factors affect demand for EMS, particularly population increase and access to care challenges for vulnerable population. Many uninsured or underinsured patients rely on

42. Fire Service Deployment, Assessing Community Vulnerability, Metropolitan Chiefs, 2011.

emergency departments for their primary and emergent care, utilizing pre-hospital EMS transport systems as their entry point.

Call Demand: Demand includes the types of calls to which fire and EMS units are responding to, the frequency, and the location of the calls. Demand drives workload and station staffing and location considerations. Higher population centers with increased demand require greater resources. High demand affects the resiliency of fire and EMS departments, which can translate into longer response times.

Workload of Units: The types of calls to which units are responding and the workload of each unit in the deployment model. This tells us what resources are needed and where; it links to demand and station location, or in a dynamic deployed system, the area(s) in which to post units. The higher the workload, the more effect it has on the resiliency of the department.

Travel Times from Fire Stations: The ability to cover the response area/district in a reasonable and acceptable travel time when measured against national benchmarks. Links to demand, risk assessment, resiliency. This also includes turnout times for on-premises staffing and response from home/work to the station for turnout.

NFPA Standards, ISO-PPC, OSHA requirements (and other national benchmarking): CPSM considers national benchmarks, standards, and applicable laws when making recommendations or alternatives regarding the staffing and deployment of fire and EMS resources.

EMS Demand: Community demand; demand on available units and crews; demand on non-EMS units responding to calls for service (fire/police units); availability of crews in departments that utilize cross-trained EMS staff to perform fire suppression.

Critical Tasking: The ability of a fire and EMS department to collect an Effective Response Force as benchmarked against national standards when confronted with the need to perform required critical tasks on a fire or EMS incident scene defines its capability to provide adequate resources to mitigate each event. Department-developed and measured against national benchmarks. Links to risk and vulnerability analysis.

Community Expectations: Measuring, understanding, and meeting community expectations.

Ability to Fund: The community's ability and willingness to fund all local government services and understanding how the revenues are divided up to meet the community's expectations.

While each component presents its own metrics of data, consensus opinion, and/or discussion points, aggregately they form the foundation for informed decision making geared toward the implementation of sustainable, data- and theory-supported, effective fire and EMS staffing and deployment models that fit the community's profile, risk, and expectations.

NFPA 1720 Standard

The Augusta County Fire Services system is as a combination fire services delivery system aligns with 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*, 2020 edition (National Fire Protection Association, Quincy, Mass.).

This standard outlines organization and deployment of operations by volunteer and combination (a fire department having emergency service personnel comprising less than 85 percent majority of either volunteer or career membership) fire and rescue organizations. It serves as a benchmark to measure staffing and deployment of resources to certain fire incidents and emergencies.

NFPA 1720 is a nationally recognized standard, but it has not been adopted as a mandatory regulation by the federal government or the Commonwealth of Virginia. It is a valuable resource for establishing and measuring performance objectives for the Augusta County Fire Services system but should not be the only determining factor when making local decisions about the county's fire services.

Critical Tasks, and Effective Response Force

Emergency events occur at all hours, on all days, and under all conditions. The fire and EMS service's response to these unpredictable conditions has been to develop a methodology for being prepared to respond and deploy adequate resources in a timely fashion when they occur.

The rapid and effective performance of highly coordinated assigned tasks is the hallmark of a successful emergency response force whether it be Fire or EMS or combined. Time and on-scene performance expectations are the target indicators established for measuring the operational elements (individuals, crews, and work units) that comprise response-ready resources.

Critical tasks are those activities that must be conducted on time and preferably simultaneously by responders at emergency incidents to control the situation and minimize/stop loss (property and life-safety).

Critical tasking for fire operations is the minimum number of personnel needed to perform the tasks needed to effectively control and mitigate a fire or other emergency.

Critical tasking for EMS operations is those activities (clinical and operational) that must be conducted, some in succession, and some simultaneously to rapidly assesses the patient, determine the level of intervention needed, if any, and connect the patient with the appropriate level of pre-hospital clinical care.

To be effective, critical tasking must assign enough personnel so that all identified functions can be performed as described above. However, it is important to note that initial response personnel may manage secondary support functions 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 tasking assignment will provide adequate resources to immediately begin bringing the incident under control.

The specific number of people required to perform all the critical tasks associated with an identified risk or incident type (Fire, EMS, and Fire/EMS) is referred to as an ***Effective Response Force*** (ERF). The goal is to deliver an ERF within a prescribed period of time as outlined in national standards and the ISO-PPC benchmarking.

Fire Critical Tasking

According to NFPA 1720, combination fire departments should base their specific role on a formal community risk management plan, as discussed earlier in this analysis, and taking into consideration:[43]

- Life hazard to the population protected. The number and type of units assigned to respond to a reported incident shall be determined by risk analysis and/or pre-fire planning.
- Fire suppression operations shall be organized to ensure that the fire department's fire suppression capability includes personnel, equipment, and other resources to deploy fire suppression resources in such a manner that the needs of the organization are met.
- The Authority Having Jurisdiction shall promulgate the fire department's organizational, operational, and deployment procedures by issuing written administrative regulations, standard operating procedures, and departmental orders.
- The number of members that are available to operate on an incident is sufficient and able to meet the needs of the department.
- Provisions for safe and effective firefighting performance conditions for the firefighters.
- Personnel responding to fires and other emergencies shall be organized into company units or response teams and have the required apparatus and equipment to respond.
- 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.
- The capability to sustain operations shall include the personnel, equipment, and resources to conduct incident specific operations.

Fire and rescue work are task-oriented and labor intensive, performed by personnel wearing heavy, bulky personal protective equipment (PPE). Many critical fireground tasks require the skillful operation and maneuvering of heavy equipment.

The speed, efficiency, and safety of fireground operations are dependent upon the number of firefighters performing the tasks. If fewer firefighters are available to complete critical fireground tasks, those tasks will require more time to complete. This increased time is associated with elevated risk to both firefighters and civilians.

To ensure civilian and firefighter safety, fireground tasks must be coordinated and performed in rapid sequence. Assembling an Effective Response Force (ERF) is essential to accomplish on-scene goals and objectives safely and efficiently. Without adequate resources to control a building fire, the building and its contents continue to burn. This increases the likelihood of a sudden change in fire conditions, and thus the potential for failure of structural components leading to collapse. An inadequate ERF limits firefighters' ability to successfully perform a search and potential rescue of any occupants.

As a fire grows and leaves the room and then floor of origin, or extends beyond the building of origin, it is most probable that additional personnel and equipment will be needed, as initial response personnel will be taxed beyond their available resources. From this perspective it is critical that the Augusta County Fire Services system units respond quickly and initiate extinguishment efforts as rapidly as possible after notification of an incident. It is, however,

43. NFPA 1720

difficult to determine in every case the effectiveness of the initial response in limiting the fire spread and fire damage. Many variables will impact these outcomes, including:

- The time of detection, notification, and response of fire units.
- The age and type of construction of the structure.
- The presence of any built-in protection (automatic fire sprinklers) or fire detection systems.
- The contents stored in the structure and its flammability.
- The presence of any flammable liquids, explosives, or compressed gas canisters.
- Weather conditions and the availability of water for extinguishment.

Subsequently, in those situations in which there are extended delays in the extinguishment effort, or the fire has progressed sufficiently upon arrival of fire units, there is actually very little that can be done to limit the extent of damage to the entire structure and its contents. In these situations, suppression efforts may need to focus on the protection of nearby or adjacent structures (exterior exposures) with the goal being to limit the spread of the fire beyond the building of origin, and sometimes the exposed building. This is often termed ***protecting exposures***. When the scope of damage is extensive, and the building becomes unstable, firefighting tactics typically move to what is called a ***defensive attack***, or one in which hose lines and more importantly personnel are on the outside of the structure and their focus is to merely discharge large volumes of water until the fire goes out. In these situations, the ability to enter the building is extremely limited and if victims are trapped in the structure, there are very few safe options for making entry.

Today's fire service is actively debating the options of interior firefighting vs. exterior firefighting. These terms are self-descriptive in that an ***interior fire attack*** is one in which firefighters enter a burning building in an attempt to find the seat of the fire and from this interior position extinguish the fire with limited amounts of water. An ***exterior fire attack***, also sometimes referred to as a ***transitional attack***, is a tactic in which firefighters initially discharge water from the exterior of the building, either through a window or door and knock down the fire before entry in the building is made. The concept is to introduce larger volumes of water initially from the outside of the building, cool the interior temperatures, and reduce the intensity of the fire before firefighters enter the building.

A transitional attack is most applicable in smaller structures, typically single-family, one-story detached units that are smaller than 2,500 square feet in total floor area. For fires in larger structures, the defensive-type, exterior attacks involve the use of master streams, typically from an elevated aerial device, and capable of delivering large volumes of water for an extended period of time.

The exterior attack limits the firefighter from making entry into those super-heated structures that may be susceptible to collapse. From CPSM's perspective, there is the probability, depending on the time of day, an Augusta County Fire Services system response crew of a limited number of personnel on the initial response will encounter a significant and rapidly developing fire situation. ***It is prudent, therefore, that the Augusta County Fire Services system builds at least a component of its training and operating procedures around the tactical concept of this occurring.***

The variables of how and where personnel and companies are located, and how quickly they can arrive on scene, play major roles in controlling and mitigating emergencies. ***The reality is that Augusta County Fire Services system relies largely on volunteer member response from home or work to make up the teams and crews of the Effective Response Force.*** The Augusta

County Fire Services system volunteer member availability at any time of the day may have an impact on assembling enough personnel and resources on the scene. This factor has to be considered at all times by those responding to the scene, those responding to the station to pick up apparatus, career staff responding with two or more personnel from surrounding stations, and command officers responding who must manage and coordinate available responding and on-scene resources.

NFPA 1720 establishes the minimum response staffing for a predominately volunteer department for low-hazard structural firefighting incidents (to include out buildings and up to a 2,000 square-foot, one- to two-story, single-family dwelling without a basement and no exposures) for specific demand zones as shown in the following table.

Each demand zone takes into consideration certain risk elements such as population density, exposed occupied buildings (more predominant in urban and suburban demand zones), water supply, and proximity to responding apparatus and members (incident and fire station).

NFPA 1720 demand zone response criterion is described in the next table.

Table 49: NFPA 1720 Staffing for Effective Response Force, Residential Structure

Demand Zone	Demographics	Minimum Staff to Respond to Scene*	Response Time Standard to Collect Minimum Staff
Urban Area	>1000 people/mi^2	15	Within 9 minutes 90 percent of the time
Suburban Area	500-1000 people/mi^2	10	Within 10 minutes 80 percent of the time
Rural Area	<500 people/mi^2	6	Within 14 minutes 80 percent of the time
Remote Area	Travel Distance ≥ 8 miles	4	Directly dependent on travel distance, determined by AHJ, 90 percent of the time

Note: *Minimum staff responding includes automatic and mutual aid. Minimum staff responding to scene by apparatus and personal owned vehicle.

The next figure shows the areas of the Augusta County Fire Services system response area that are urban, suburban, and rural as benchmarked against the NFPA 1720 demographics. The purpose of this map is to identify where the NFPA 1720 demand zones exist in the county and how this links to the Effective Response Force for each zone the Augusta County Fire Services system should strive to meet for building fires. The largest built-upon land area of the ACFR fire system response area meets the NFPA 1720 rural demand zone minimum staff to respond benchmark, that is, 6 personnel to initiate fire suppression. There is a large area as well of suburban demand zone, which has response benchmark of 10 personnel to initiate fire suppression.

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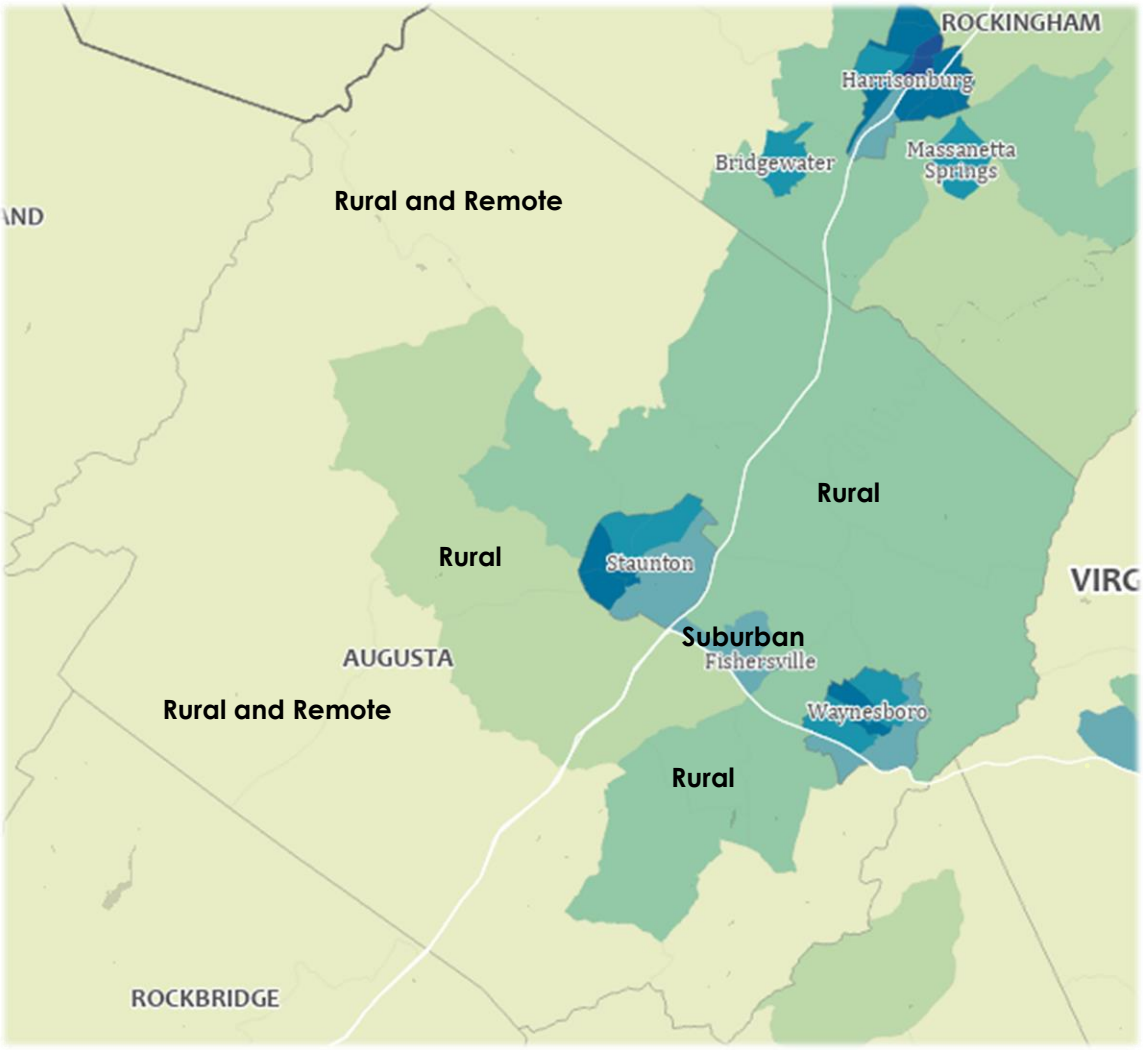
Figure 47: Augusta County Fire Services System NFPA 1720 Demand Zones



The next three tables provide examples of operational critical tasking utilizing the NFPA 1720 minimum staffing criteria. As discussed above, the urban demand zone stipulates the largest minimum staffing. In the urban demand zone, when the minimum staffing assembles, critical tasks are completed simultaneously. ***The Augusta County Fire Services system*** does not have ***urban demand zones in its response district as defined by NFPA 1720.***

In the suburban, rural, and remote demand zones, critical tasks are combined more frequently than in the urban demand zone, creating circumstances where these critical tasks are completed in sequence, rather than simultaneously. ***The Augusta County Fire Services system has a suburban demand zone in its response district as defined in NFPA 1720.***

The rural and remote demand zone minimum staffing can place one attack line in service, and then combine two-person crews (two for rural; one for remote) to handle one or two other critical tasks until additional crew members arrive on scene. Achieving completion of the basic fireground critical tasks as outlined in the suburban demand zone is less than optimal in the rural and remote demand zones. ***The Augusta County Fire Services system has rural and remote demand zones in its response district as defined in NFPA 1720.***

Table 50: Critical Tasking in an Urban Demand Zone, Single-Family Dwelling

Critical	# of Responders Assigned to Task
Attack Line (2-In)	2
Backup/Second Line	2
Ventilation	2
Search and Rescue	2
Rapid Intervention (2-out)	2
Attack Engine Pump Operator	1
Water Source Engine Pump Operator	1
Outside Crew for: utility control, hose	
Incident Commander	1
Total Minimum Response for Urban Demand Zone	**15**

Table 51: Critical Tasking in a Suburban Demand Zone, Single-Family Dwelling

Critical	# of Responders Assigned to Task
Attack Line/Search and Rescue (2-In)	2
Backup/Second Line	2
Attack Engine Pump Operator	1
Water Source Engine Pump Operator	1
Outside crew for: rapid intervention crew	
Incident Commander	1
Total Minimum Response for	**10**

Table 52: Critical Tasking in a Rural Demand Zone, Single-Family Dwelling

Critical	# of Responders Assigned to Task
Attack Line/Search and Rescue (2-In)	2
Backup/Second Line	2
Outside crew for: initial engine pump operator	
Total Minimum Response for Rural Demand Zone	**6**

Code of Federal Regulations, NFPA 1500, and Two-In-Two-Out

Another consideration, and one that links to critical tasking and assembling an Effective Response Force, is that of two-in/two-out. Prior to initiating any fire attack in an immediately dangerous to life and health (IDLH) environment (and with no confirmed rescue in progress), the initial two-person entry team shall ensure that there are sufficient resources on-scene to establish a two-person initial rapid intervention team (IRIT) located outside of the building.

One standard that addresses this is NFPA 1500, *Standard on Fire Department Occupational Health, Safety, and Wellness*, 2018 Edition. NFPA 1500 addresses the issue of two-in/two-out by stating during the initial stages of the incident where only one crew is operating in the hazardous area of a working structural fire. By this standard, a minimum of four individuals shall be required consisting of two members working as a crew in the hazardous area and two standby members present outside this hazard area available for assistance or rescue at emergency operations where entry into the danger area is required.[44]

NFPA 1500 also speaks to the utilization of the two-out personnel in the context of the health and safety of the firefighters working at the incident. *The assignment of any personnel including the incident commander, the safety officer, or operations of fire apparatus, shall not be permitted as standby personnel if by abandoning their critical task(s) to assist, or if necessary, perform rescue, the clearly jeopardize the safety and health of any firefighter working at the incident.*[45]

As is common with many volunteer/combination fire departments, the fire companies do not respond to structural fires with a pre-determined staffing regimen or a guaranteed command officer on the initial alarm dispatch. Under this response model, each fire company may or may not have the minimum number of firefighters on the initial response in order to comply with CFR 1910.134(g)(4), regarding two-in/two-out rules and initial rapid intervention team (IRIT). Responding members must be mindful of who and what apparatus is on scene and the Two-In/Two-Out concept.

In order to meet the intent of NFPA 1500, fire companies must utilize two personnel to commit to interior fire attack while two firefighters remain out of the hazardous area or immediately dangerous to life and health (IDLH) area to form the IRIT, while attack lines are charged, and a continuous water supply is established.

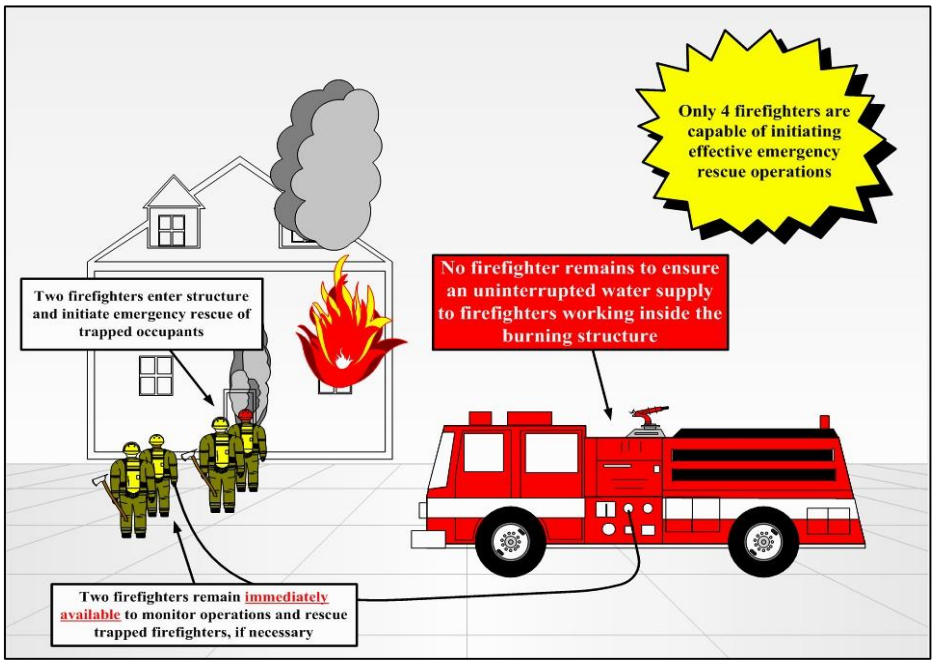
NFPA 1500 does allow for fewer than four personnel under specific circumstances. It states, Initial attack operations shall be organized to ensure that if on arrival at the emergency scene, initial attack personnel find an imminent life-threatening situation where immediate action could

44. NFPA 1500, 2018, 8.8.2.
45. NFPA 1500, 2018, 8.8.2.5.

prevent the loss of life or serious injury, such action shall be permitted with fewer than four personnel.[46]

In the end, the ability to assemble adequate personnel, along with appropriate apparatus to the scene of a structure fire, is critical to operational success and firefighter safety. NFPA 1720 addresses this through the minimum staff to respond matrix this standard promulgates.

Figure 48: Two-In/Two-Out Interior Firefighting Model



Augusta County Fire Services System Operations and Deployment

As discussed, the ACFR fire system responds from fifteen in-county locations, and six out-of-county locations that, due to their close proximity to Augusta County, have first-due areas in the county.

The system has broad Standard Operating Guidelines (SOGs) for fire operational services, which have been developed by the Augusta County Emergency Services Association. These include:

- Emergency Personnel Evacuation Plan
- Emergency Incident Rehabilitation
- Self-Contained Breathing Apparatus
- Emergency Radio Traffic
- Accountability System
- Response Types
- Fire Department Operations
- Personal Protective Clothing
- Rapid Intervention Team
- Tanker Strike Team
- Two-In-Two-Out
- Working Incident

46. NFPA 1500, 2018 8.8.2.10.

The response matrix for fire, fire related, and fire assist responses is outlined next.

Table 53: ACFR Fire Services Response Matrix

Structural Fire-Residential (4) Engines, (1) Ladder, (1) Heavy Rescue, (2) Staffed Transport units, (2) Chief Officers, (1) EMS Supervisor, (1) Rehab Unit.	**Structural Fire-Commercial/Multi Family** (4) Engines, (2) Ladders, (1) Heavy Rescue, (2) Staffed Transport units, (2) Chief Officers, (1) EMS Supervisor, (1) Rehab Unit.
Brush/Grass Fire (1) Brush Truck, (1) Tanker/Tender.	**Vehicle Fire** (1) Engine, (1) Staffed Transport Unit. Interstates 64 & 81 (2) Engines, (2) Staffed Transport Units.
Trash/Outside Fire Service/Good Intent Calls (1) Engine.	**EMS Local** (1) Staffed Transport Unit, non-life-threatening incidents. (1) Engine/Response vehicle for life threatening incidents or Ambulance request.
Motor Vehicle Accidents with Injuries (1) Engine, (1) Staffed Transport Unit.	**Motor Vehicle Accidents with Injuries with Entrapment.** (1) Engine, (1) Staffed Transport Unit, (1) Heavy Rescue, (1) Chief Officer, (1) EMS Supervisor.
Motor Vehicle Accidents with Injuries I 64/81 (2) Engines, (2) Staffed Transport Units.	**Motor Vehicle Accidents with Injuries I 64/81 with Entrapment** (2) Engines, (2) Staffed Transport Units, (1) Heavy Rescue, (1) Chief Officer, (1) EMS Supervisor.
Technical Rescue Calls (1) Engine, (1) Staffed Transport Unit, (1) Heavy Rescue, (1) Chief Officer, and (1) EMS Supervisor. If the incident escalates the Division 2 Technical Rescue Regional Team will be activated.	**Hazardous Materials Calls** (3) Engines, (1) Truck, (1) HazMat Unit, (1) Staffed Transport Unit), (1) Chief Officer, and (1) EMS Supervisor. If the incident escalates, (1) Heavy Rescue, Central Shenandoah Regional HazMat Team will be activated.

In review of the response matrix, CPSM finds these to be valid and in-line with best practices, particularly in combination systems to ensure an adequate response from on-premises staffed stations in tandem with stations that are not normally staffed and ready to respond when the call is received.

Volunteer Member and Two-Person Career Response Considerations

The ACFR volunteer system utilizes the *IamResponding* software notification and response system. *IamResponding* is an app that integrates smart phones with web-based software, which is used to alert stations, officers, and other crew members that a member is responding to the station or scene and what the estimated time of arrival is. Essentially, a call is dispatched and received through the group paging system. The volunteer member activates his/her response through one touch of a button on their smartphone phone, and their response is registered on all fixed or mobile display monitors and system member phones. Monitors are connected to any computer system fixed or mobile.

This **best practice** creates efficiencies in response and improves the effectiveness of overall operations. Volunteer members, officers, and responding units can continuously monitor each response. Volunteer members can adjust response based on numbers of members responding and an individual's relative response time to the station or scene as compared to others, and what equipment may or may not be needed for response. Additionally, members can alert responding members if their response will be delayed by a train, traffic, etc.

It is critical in a combination call response methodology that all off-premises members utilize the *IamResondng* software on their cellular phones and available response hardware to identify member response and availability. ***This response tool should be mandatory. It is also critical that all calls and IamResponding inputs be monitored in the ACECC.*** Included in this responsibility is monitoring the *IamResponding* station hardware and app for member response by the station(s) that have been alerted for a call. Logically if no members signal a response through the app, another station may need to be activated for the response. Lastly, all volunteer members should register through *IamResponding* when they are available and can respond to the station and deploy the apparatus when needed. This ensures accountability to the overall system of available responding members.

There are several methods a combination system can consider and implement to ensure safe and effective response and service deliverables to the end user of the fire department response system. ***Overall, what needs to be achieved for a safe and effective fire unit response in volunteer departments and where there are two-person career staffing, is a fire apparatus minimum staffing plan of 2 personnel on the heavy fire apparatus (prior to leaving each station-wait if a third is close to the station per IamResponding software for a safe and effective operational response. Further, the ACFR system should continue with its current structural fire response matrix that recognizes the building and other risks in the county, and also recognizes that not all stations have on-premises staffing and that resources most likely will have extended travel times.***

Should members elect to or are allowed to respond to the scene and not the station on calls for service, there are several factors system leadership must consider. These considerations must ensure the effective use of resources and the safety of the public and firefighters, and are as follows:

- Accountability of responding and on-scene resources, and in the case of firefighters responding in personal vehicles, their ability to arrive safely and function safely prior to the initial arriving fire apparatus.
- Meeting the intent of NFPA 1720 standards, in particular ensuring personnel responding to fires and other emergencies are organized into company units or response teams consisting of a team of at least two.

- The avoidance of freelancing on the fireground, particularly early arriving POC firefighters to an incident in personal vehicles.
- Organizing initial firefighting operations, ensuring that at least four members are assembled before interior fire suppression operations are initiated in a hazardous area.
- It is of the highest importance that firefighters are trained and disciplined not to freelance or enter a hazardous area or building on fire without the proper equipment beyond their issued personal protective clothing if they arrive to an emergency scene prior to responding fire apparatus.
- Ensuring assembled personnel have radio communication with Incident Command at all times so that they may transmit urgent messages, critical task progress, incident updates, and their team's location, accountability of their actions, and receive from Incident Command and/or other teams operating at the scene urgent messages, updates, critical task progress, other team locations, and receive new assignments.

The 2021 edition of NFPA 1500 standard on *Fire Department Occupational Safety, Health, and Wellness Program* is equally clear on the critical emergency scene function of personnel accountability. Additionally, the 2020 edition of NFPA 1561 *Emergency Services Incident Management System and Command Safety* more specifically addresses emergency scene accountability.

Accountability systems include tracking systems where responding apparatus crews or individuals deliver accountability tags to Incident Command for use when command assigns members and companies, and forms crews and groups (interior, roof, hazard control etc.).

The ACFR fire system utilizes an accountability system, which is governed through an Augusta County Emergency Services Officers Association SOG.

These standards include language as outlined in the following table.

Table 54: Emergency Scene Accountability–NFPA 1500 and NFPA 1561

NFPA 1500	NFPA 1561
8.5.1: The fire department shall establish written standard operating procedures for a personnel accountability system; this is in accordance with NFPA 1561.	**4.6.1:** The ESO shall develop and routinely use a system to maintain accountability for all resources assigned to the incident with special emphasis on the accountability of personnel.
8.5.3: It shall be the responsibility of all members operating at the emergency incident to actively participate in the personnel accountability system.	**4.6.2:** The system shall maintain accountability for the location and status condition of each organizational element at the scene of the incident.
8.5.4: The incident commander shall maintain an awareness of the location and function of all companies or crews at the scene of the incident.	**4.6.3:** The system shall include a specific means to identify and keep track of responders entering and leaving hazardous areas, especially where special protective equipment is required.
8.5.8: Members shall be responsible for following personnel accountability system procedures.	**4.6.5:** Responder accountability shall be maintained and communicated within the incident management system when responders in any configuration are relocated at an incident.

8.5.9: The personnel accountability system shall be used at all incidents.	**4.6.6:** Supervisors shall maintain accountability of resources assigned within the supervisor's geographical or functional area of responsibility.
NFPA 1500	**NFPA 1561**
8.5.10: The fire department shall develop, implement, and utilize the system components required to make the personnel accountability system effective.	**4.6.10:** Responders who arrive at an incident in or on marked apparatus shall be identified by a system that provides an accurate accounting of the responders on each apparatus.
	4.6.11: Responders who arrive at the scene of an incident by other means other than emergency response vehicles shall be identified by a system that accounts for their presence and their assignment at the incident scene.
	4.6.14: The system shall also provide a process for the rapid accounting of all responders at the emergency scene.

As with EMS, fire demand will continue to increase with additional growth and population. Overall, the fire system is operating on a call 44% of the time and has increased resiliency challenges at Station 10, 11, and 25. Station 10 and 11 are the busiest fire companies, with Stations 6, 7 and 25 moderately busy.

Turnout times at the 80th percentile (comparison to the NFPA 1720 benchmark) is overall good with all but three stations able to turnout at or below the six-minute mark. The three stations above the six minutes include Swoope (6.2 minutes-slightly over with 8.8 minute travel times), Mount Solon (7.0 minutes-significantly over with 10.3 minute travel times) and Riverheads (6.7 minutes-moderately over with 9.8 minute travel times).

Overall, the current station locations are able to service the core fire demand areas in their respective districts in a 10 minute travel time (suburban demand zones, which include Stations 10 and 11), and in a 14 minute travel time (rural demand zones, which include Stations 2, 3, 4, 5, 6, 7, 8, 9, 14, 18, 19, 21, and 25). Continued growth in the Urban Service and Community Development planning policy areas potentially may make these areas suburban demand zones when benchmarked against the NFPA 1720 population standard. Although the Stuarts Draft area does not have the population density of a suburban area, this district does have increased building risks and land use density that have tendencies of a suburban demand zone for fire and EMS response services. ***This should be considered in all future service delivery planning.***

Inevitably, future staffing requests for daylight hours are a reality for the fire system. In 2023, Weyers Cave Station 5 requested daylight hours. This request was not funded however by the Board. Based on the response district, that this station has an aerial apparatus that is included in the response matrix beyond the first due area, and that the first due area includes industrial and business building risks beyond that of other districts, this staffing request should have been given stronger Board consideration.

The heavier demand areas, land use and building/population risks and collective long response times should always be a consideration for fire and EMS staffing requests, either by the volunteer system, or the career department. Either is done with the foundational principle of ensuring responsive service delivery to the collective communities served.

As a review, the ACFR department staffs these stations as follows:

- Deerfield Valley Station 2: 24/7/365 with two dual certified firefighters. Cross-staff, an ambulance and fire apparatus.
- Churchville Station 4: 24/7/365 with two dual certified firefighters. Cross-staff, an ambulance and fire apparatus.
- Middlebrook Station 3: M-F 6am-6pm with two dual certified firefighters. Staff fire apparatus.
- Stuarts Draft Rescue 6: M-F 6am-6pm with two dual certified firefighters. Staff EMS unit.
- Verona Station 6: M-F 6am-6pm with two dual certified firefighters. Staff fire apparatus.
- Dooms Station 9: M-F 6am-6pm with two dual certified firefighters. Staff fire apparatus.
- ACFR Stations 10 and 11: 24/7/365 with dual certified firefighters. Staff fire apparatus (includes heavy rescue and aerial ladder) and two ambulances from Station 11.
- Craigsville-Augusta Rescue Station 16: 24/7/365 with EMS single certified staff.
- New Hope Station 18: 24/7/365 with two dual certified firefighters. Cross-staff, an ambulance and fire apparatus.
- Mount Solon Station 21: M-F 6am-6pm with two dual certified firefighters. Cross-staff, an ambulance and fire apparatus.
- Riverheads Station 25: 24/7/365 with two dual certified firefighters. Staff an ambulance.
- Weyers Cave Rescue Station 26: 24/7/365 with EMS single certified staff.

Optimization of Deployment and Expansion of Capacity

In review of the current system demand, transport times, overall resiliency, remoteness of some stations, and capacity, CPSM recommends the following be considered to optimize current fire and EMS deployment:

- Station 2 should remain staffed 24/7/365 with two dual certified ACFR department staff over the near term. Over the ***midterm***, consideration should be given to staffing this station with four dual certified ACFR department staff per shift 24/7/365 (2-Engine; 2-Ambulance). This station is remote and several miles/minutes away from other fire and rescue stations and should have one staffed ALS ambulance around the clock, and a staffed fire suppression unit and response force around the clock that is capable of commencing the initial mitigation tasks on any emergency responded to.
  - **Additional dual certified FTEs: 6 (recommend a permanent Lieutenant on each of the three shifts).**
- **Rescue 6** should remain staffed by the ACFR department Monday-Friday from 6:00 am-6:00 pm. Over the ***near term***, the current dual certified ACFR department staff should be changed to EMS single certified staff (one ALS and one BLS).
  - **Dual certified FTEs (3 staff) should be shifted to Station 10 to upstaff apparatus at this station (detailed in the Station 10 bullet).**
  - **Additional EMS single certified staff: 3**
- **Station 5:** Station 5 requested Monday-Friday 6:00 am – 6:00 pm career staffing in the FY 23 budget. This request was not approved by the Board. Should Station 5 request staffing over the ***near term***, this should be given strong consideration based on the response district, that

this station has an aerial apparatus that is included in the response matrix beyond the first due area, and that the first due area includes industrial and business building risks beyond that of other districts.

  - **Additional dual certified FTEs needed: 3**

- **Fire Company 6** should remain staffed by the ACFR department Monday-Friday from 6:00 am-6:00 pm.

  - As discussed in the EMS section, and based on current EMS demand, long transport times for Rescue 26, current demand on Staunton-Augusta Rescue Squad, and to add resiliency to the overall EMS system, additional EMS response resources should be considered in the Station 6 district. Over the ***midterm*, *consideration should be given to peak time EMS transport*** and staffing resources in this district utilizing EMS single certified staffing. **This unit could also be used for dynamic deployment and moved to cover busier areas when those EMS units are dedicated.**

  - **Additional EMS single certified staff: 4**

- **Station 9 District:** As discussed in the EMS section, and based on current EMS demand, long transport times for the EMS transport unit out of Station 18, current demand on the two EMS units at Station 11, and to add resiliency to the overall EMS system, additional EMS response resources should be considered in the Station 9 district. Over the ***long term*, *consideration should be given to 12-hour peak time*** EMS transport and staffing resources in this district utilizing EMS single certified staffing. **This unit could also be used for dynamic deployment and moved to cover busier areas when those EMS units are dedicated to an incident.**

  - **Additional EMS single certified staff: 4**

- **Station 10** should maintain their current staffing as they provide first due district engine responses, and county-wide services with the Heavy Rescue unit. The current minimum staffing is four/shift. Over the ***near term***, and if staffing at Rescue 6 is adjusted to EMS single certified staff, consideration should be given to moving the dual certified staff from Rescue 6 to Station 10, to increase minimum daily staffing from four to six (3-Engine and 3-Heavy Rescue). Staffing should be adjusted to ensure the Heavy Rescue is staffed with a minimum of a company officer and two firefighters. Station minimum staffing increased to six/shift.

  - **Dual certified FTEs moved from Rescue 6: 3**

  - **Additional dual certified FTEs needed: 3**

  An alternative to avoid hiring new FTEs is to commit one floating position to regular staffing. This leaves two FTEs available to float out to cover open shift vacancies due to scheduled or unscheduled leave).

  - As discussed in the EMS section and based on current EMS demand in the Staunton-Augusta Rescue Squad unincorporated district, and the Station 11 district, and to add resiliency to the overall EMS system, additional EMS response resources should be considered in the Station 10 district. Over the ***long term*, *consideration should be given to 12-hour peak time*** EMS transport and staffing resources in this district utilizing EMS single certified staffing.

    - **Additional EMS single certified staff: 4**

- **Station 11** should maintain their current 24/7/365 staffing as they provide first due district engine, ambulance, and county-wide services with the aerial ladder. The current minimum staffing is eight/shift. Over the ***midterm***, consideration should be given to staffing one ambulance at Station 11 with EMS single certified staff. Consideration should then be given

to shifting the two dual certified ambulance staff to permanent staffing on the aerial ladder. Staffing should be adjusted to ensure the aerial ladder is staffed with a minimum of a company officer and two firefighters. Station minimum staffing increased to ten/shift (3-Engine, 3-Aerial Ladder, 2 dual certified-Ambulance, 2-EMS single certified-Ambulance).

  - **Additional EMS single certified FTEs: 8**

- Rescue 16 and Rescue 26 should remain staffed by ACFR department EMS single certified staff 24/7/365.
- Station 21 should remain staffed by ACFR department dual certified staff Monday-Friday from 6:00 am-6:00 pm. Over the ***midterm***, consideration should be given to staffing this station with four dual certified ACFR department staff, Monday-Friday from 6:00 am-6:00 pm (2-Engine; 2 Ambulance). This station is remote and several miles/minutes away from other fire and rescue stations and should have one ALS ambulance, and a staffed fire suppression unit and response force capable of commencing the initial mitigation tasks on any emergency responded to Monday-Friday during daylight hours when the volunteer force is least available.

  - **Additional dual certified FTEs: 3 (recommend a permanent Lieutenant).**

Staffing increases over the near term:

- EMS Single certified: 3
- Dual Certified: 6

Staffing increases over the midterm:

- EMS Single certified: 12
- Dual Certified: 9

Staffing increases over the long term:

- EMS Single certified: 8
- Dual Certified: 0

Hub Model Considerations

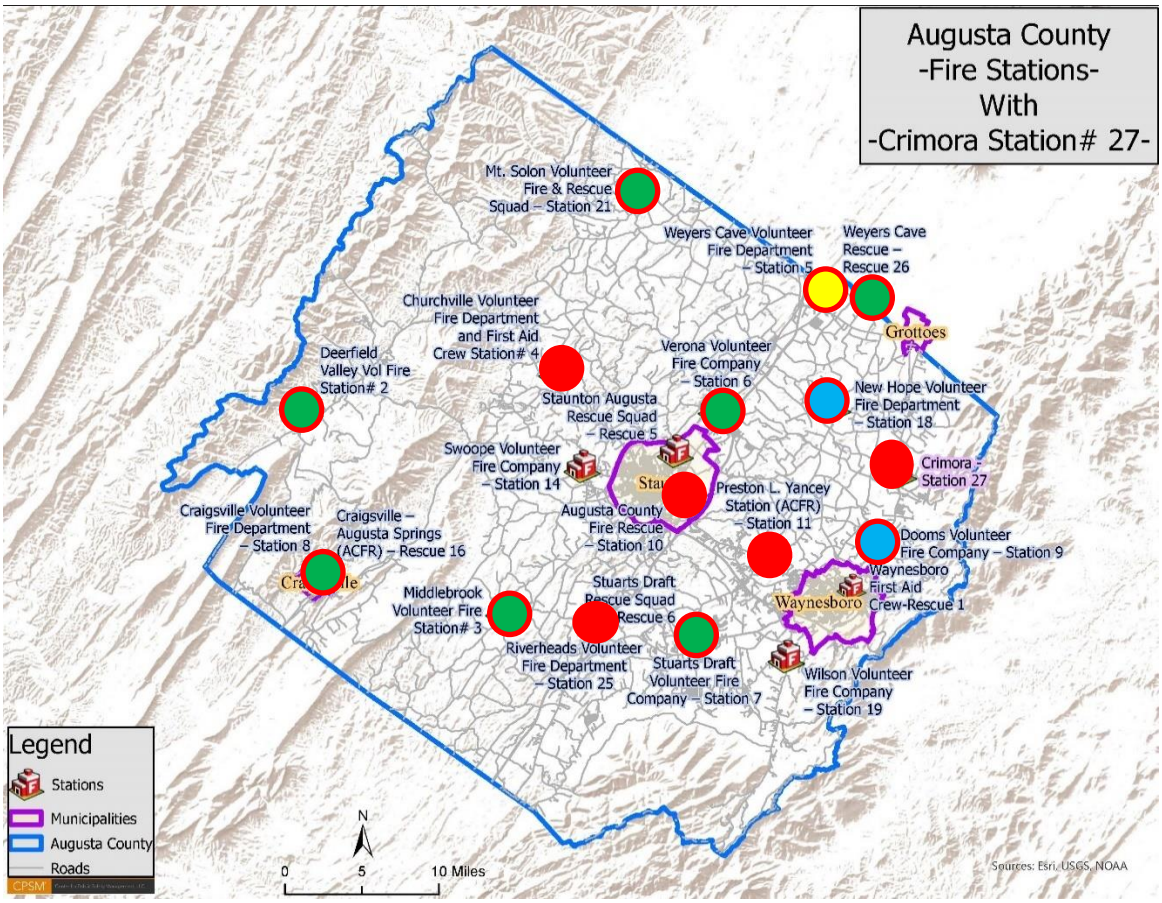
CPSM was presented with a hub model for ACFR department staffing that warrants a review here. The genesis of this model is:

- 24/7 career staffing in locations that can serve the first due district and beyond to other districts based on the road network and location of the incident.
- Maintaining staffing in remote areas that are away from core resources such as Mount Solon, Deerfield Valley, Craigsville-Augusta EMS, and Weyers Cave EMS.
- Maintaining staffing in all currently staffed stations with the exception of Stations 9 and 18. CPSM provides an alternative staffing model for these two stations as well.

The hub model includes 24/7 career staffing at Churchville Station 4, ACFR Station 10, ACFR Station 11, Riverheads Station 25, and the construction of a new Station 27-Crimora located on East Side Highway. In this model, each station would staff a primary engine with three dual certified staff and a primary ambulance with two EMS single certified staff.

The map below identifies the hub stations, additional stations CPSM supports continued staffing, where staffing should be considered, and where staffing could remain as an alternative if the Hub Model is implemented.

Figure 49: ACFR System Hub Model



In reference to the map above:

Hub Stations: 4, 10, 11, 25, 27
Staffing: 24/7/365

- **Station 4:** Consideration over the ***near term*** should be given to increasing the staffing at Station 4 to five/shift (*to include a Lieutenant on each shift*). This will create a staffing model of two EMS single certified staff on the ambulance (one ALS and one BLS) and three dual certified staff on a fire suppression apparatus to respond in the district and regionally as a hub station. Staffing should remain 24/7/365.
  - **Additional dual certified FTEs-3.**
  - **Additional EMS single certified FTEs-8**
- **Stations 10 & 11**: staffing as outlined previously-no changes.
- **Station 25:** Consideration over the ***midterm*** should be given to increasing the staffing at Station 25 to five/shift (*to include a Lieutenant on each shift*). This will create a staffing model of two EMS single certified staff on the ambulance (one ALS and one BLS) and three dual

certified staff on a fire suppression apparatus to respond in the district and regionally as a hub station. Staffing should remain 24/7/365.

- **Additional dual certified FTEs-3.**
- **Additional EMS single certified FTEs-8**

- **Station 27:** Consideration over the ***long term*** should be given to a Hub Station in eastern Augusta County; Station 27. Station 27 is a proposed new station along the Route 340 corridor in the Crimora area. This station includes the acquisition of land, the construction of a facility, the procurement of one engine apparatus, one ambulance apparatus, an additional nine dual certified FTEs to staff the Engine with one Lieutenant and two firefighters (*to include a Lieutenant on each shift*), and 8 new EMS single certified FTEs to staff the ambulance with two (one ALS and one BLS). This staffing model is 24/7/365. As the Crimora station is in between the New Hope and Dooms stations, consideration should also be given to relocating current staffing from Station 9 (3 dual certified staff) and Station18 (six dual certified staff) to Station 27, which will cover the nine FTEs needed to staff the Engine.
  - **Additional FTEs: 8 EMS single certified to staff ambulance.**

Hub Model staffing increases over the near term.

- EMS Single certified: 8
- Dual Certified: 3

Hub Model staffing increases over the midterm.

- EMS Single certified: 8
- Dual Certified: 3

Hub Model staffing increases over the long term.

- EMS Single certified: 8
- Dual Certified: 0 (Nine if current staffing remains at Stations 9 and 18).

Hub Model Alternative

Should the Board of Supervisors adopt the Hub Model and desires to maintain staffing at Stations 9 and 18, this will take an additional nine dual certified ACFR department staff as described next.

- Station 27: Maintain current staffing at Station 18 (24/7/365 cross-staffed fire and EMS units-6 FTEs) and station 9 (M-F 6am-6pm with two dual certified firefighters to staff fire apparatus-3 FTEs).

Additional dual certified FTEs to staff Station 27-9

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Staffing Totals by Term

Staffing totals by near term.

- EMS Single certified: 11
- Dual Certified: 9

Staffing totals by midterm.

- EMS Single certified: 20
- Dual Certified: 12

Staffing totals by long term.

- EMS Single certified: 16
- Dual Certified: 0 (9 if current staffing remains at Stations 9 and 18)

Other Gap Analysis Staffing Considerations/Recommendations

Near Term

- Two additional training specialists (one fire training specialist; one EMS training specialist) to develop, coordinate, manage, and deliver consistent training and education programs for volunteer fire and EMS members.
- Two additional training specialists (one fire training specialist; one EMS training specialist) to coordinate, manage, and deliver consistent training and education programs for incumbent ACFR system fire and EMS members.

Midterm

- One Fire Marshal position to begin the implementation of a Community Risk Reduction program in Augusta County.

Additional Staffing Over All Terms

- EMS Single certified: 47
- Dual Certified: 21 (30 if current staffing remains at Stations 9 and 18)
- Training Specialists: 4
- Fire Marshal: 1

Total FTEs: 73

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Comprehensive Plan Outcomes

SECTION 9. OPPORTUNITIES, RECOMMENDATIONS, AND STRATEGIC PLANNING INITIATIVES

Summary of Gap Analysis Findings

The ACFR System Comprehensive Plan gap analysis includes staffing and strategic planning considerations, and recommendations that are included in this section. Each is included in the appropriate strategic initiative as a goal or objective. Most are linked to strategic initiative-goals and objectives timelines as near term (1-2 years), midterm (3-5 years), and long term (6-8 years).

- The ACFR system membership includes both volunteer and career members.
  - The volunteer system in Augusta County is made up of 596 members of which 238 are considered active call runners. Those that do not run calls serve in administrative, fund raising, corporate, and other capacities.
  - The career department has 125 members and includes the ACFR department Fire Chief, senior operational staff officers, operational field officers, training specialists, and fire and EMS practitioners.
- The Augusta County Code establishes and defines the Augusta County Fire-Rescue System.
  - Article 2 §2-13(A) of the Augusta County Code establishes the emergency services departments of Fire and Rescue Services and the operation of the Emergency Communications Center.
  - Article 2 §2-13(B) further establishes the departments shall consist of the Chief of Fire-Rescue, the Director of the Emergency Communications Center, and such additional employees as may be necessary to administer fire and rescue services and to operate the Emergency Communications Center.
    - Article 2 §2-13(B) also stipulates - *All fire and rescue agencies in Augusta County shall be formed into one large fire/rescue district, forming a partnership in public safety under the jurisdiction of the Chief of Augusta County, in accordance with §27-6.1 and § 27-23.1 of the Code of Virginia.*
  - Article 2 §2-13(C) recognizes in county fire companies or departments or rescue squads as an integral part of the official safety program of the county for the purpose of qualifying them under the Virginia Line of Duty Act (includes all Augusta County volunteer fire and EMS agencies in the unincorporated areas and the ACFR department).
  - Article 2 §2-13(D) recognizes the out of county fire companies or departments or rescue squads as an integral part of the official safety program of the county for the purpose of providing for public safety per individual or jurisdictional mutual aid agreements and having first due response areas within Augusta County (includes volunteer fire and EMS agencies in incorporated cities in Augusta County, and volunteer fire and EMS agencies outside of Augusta County).
  - Article 2 §2-13(E): establishes the Augusta County Emergency Services Officers Association which may adopt policies and procedures governing the operations of its

represented organizations consistent with applicable state and county laws and policies and subject to the approval of the Board of Supervisors. The Association shall consist of the Chief Officer, or their designee, of each of the fire companies or departments or rescue squads listed in subparagraphs C and D of this section who shall represent their respective organizations within the Association.

- A concern raised to CPSM during volunteer stakeholder meetings is diminished assistance from the ACFR department volunteer coordinator with formal recruitment and retention planning, coordinated on-boarding of new members, and marketing of the volunteer system staffing needs.
- Augusta County has an ISO rating of *Class 04/4y* for the Fire Protection Service Area (FPSA) (Augusta County unincorporated area and Town of Craigsville). The first number of the rating indicates a fire suppression system is present that includes a creditable dispatch center, fire department, and water supply (fire hydrants). The second number is the class that applies to properties within five road miles of a fire station but beyond 1,000 feet of a creditable water supply (fire hydrant). The county's ISO rating was effective February 1, 2019. The community rating noted deficiencies in the following categories:
  - Deployment Analysis: #561 (3.36/10 credits).
  - Company Personnel: #571 (4.18/15 credits).
  - Training: #581 (Overall: 2.40/9.0).
  - Water Supply: #631 (4.00/7): frequency of flow testing of hydrants.
- The ISO analysis determined the fifth largest *Needed Fire Flow* for the Augusta FPSA is 3,500 gpm. The *Basic Fire Flow* is determined by the review of *Needed Fire Flows* for selected buildings. It was reported to CPSM that the current public water system has challenges delivering 3,500 gpm in some areas it serves, which presents potential challenges for economic and community development, and may affect the extinguishing efforts of the ACFR fire system.
- Land use in Augusta County is primarily agriculture conservation and public lands. These land uses are not heavily built upon with exception of a ring around Staunton along VA Route 262; north and south of Staunton along the I-81 and U.S. Route 11 corridors; east of Staunton along the I-64 and U.S. 250 corridors; and the Stuarts Draft and Fishersville areas, which already have substantial industrial, business, and residential development. There is the potential for additional low and medium density residential in the Crimora area, which is north of the Fishersville area along the U.S. 340 corridor.
  - Population, demographics, and growth impacts must be included in any strategic master planning the ACFR system conducts in the near, mid, and long terms. Increases in development will increase call demand and will impact the deployment analysis in future ISO-PPC community ratings, and the ability of the ACFR system to meet deployment benchmarks and community expectations.
- The demographics in Augusta County overall pose a moderate risk in totality. While not a high risk, a single call involving vulnerable population (fire or EMS) poses a higher risk on that particular response. Through pre-fire planning and response district knowledge of residential and other structures housing a vulnerable population as identified in the gap analysis, the ACFR system will have the necessary situational awareness and be better prepared to mitigate the emergency once on the scene of the incident.

- The greatest amount of building risk in Augusta County is of a low hazard (single family dwellings-predominately wood frame construction). Augusta County does have a number of high and medium risk - vulnerable population risks (nursing/assisted living facilities/hospital, medical facilities), educational facilities - institutional facilities and multifamily residential structures (apartments/townhomes). All of these building risks present the ACFR system with life-safety concerns. The industrial and mercantile building risk, and large footprint commercial buildings while a lower life safety risk, are generally a higher hazard risk based on processes, storage, and overall occupancy type. In some cases, close proximity of wood-frame residential buildings (greatest percent of construction materials for residential buildings) means a greater chance for fire to spread to exposed buildings.
- Fire demand is more concentrated in unincorporated communities, census designated places and along main roads. Overall fire workload for the one-year CPSM analysis was 1,688 calls.
- EMS demand, like fire demand, is more concentrated in unincorporated communities, census designated places and along main roads. EMS demand, compared to fire demand, is much heavier in these areas. Additionally, there is heavy demand around the City of Staunton. Overall EMS in-county workload for the one-year CPSM analysis was 10,599 calls.
- Motor Vehicle Accident demand is more concentrated in the more heavily populated areas and along main roads such as I-81, I-64, U.S.-11, U.S.-250, VA-42, U.S.-340, VA-254, and VA-262.
- Augusta County has reciprocal automatic and mutual aid agreements for fire protection and EMS resources with the 20 jurisdictions and/or agencies.
    - Overall, the ACFR system averages:
        - Just under two automatic aid calls/day from outside County fire agencies who have first due areas in Augusta County.
        - Just under two automatic aid calls/day from outside County EMS agencies who have first due areas in Augusta County.
        - 2.5 Fire automatic/mutual aid runs/day to jurisdictions inside and outside of Augusta County.
        - 2.9 EMS automatic/mutual aid runs/day to jurisdictions inside and outside of Augusta County.
- Overall, the ACFR system has increased resiliency issues in terms of fire workload at Stations 10, 11, and 25. EMS resiliency issues when analyzing workload are increased at stations 5, 6, 11, 25, and 26. ***Across the system, 71 percent of the time (number of calls in an hour) the Augusta County EMS system is operating on a call. Fire services are operating 44 percent of the time (number of calls in an hour).***
- ***The greatest potential resiliency challenges are in the EMS system.*** This is due to the workload and the duration of calls. The overall EMS system workload was 14,269 runs in the one year workload analysis CPSM performed. The time on a call for EMS may impact the system's ability to absorb additional calls as 46 percent of EMS calls last more than one hour in duration. Further impacting EMS resiliency is the time on task for transports to the hospital, which average 76 minutes per transport. The remoteness of a high number of EMS calls are also remote from a receiving hospital, which extends overall call duration.

- EMS demand will continue to increase as population increases. Over the mid and longer planning terms, additional around the clock resources (career and volunteer) will be needed to handle this increase in demand in the Rescue 6, Station 6, Station 9, Station 10 districts. EMS demand is moderate-heavy in these districts now and stations providing EMS response are among the busiest.
- The ACFR department should continue to, where applicable, hire EMS single-certified personnel to staff current and future ambulances. This practice overall has been successful for both recruitment and retention. Additionally, each ambulance should include one ALS provider, which will provide quicker delivery of these services in the rural and remote areas, and free up the EMS Supervisor position to supervise countywide operations more effectively.
- The EMS Supervisor's role extends to dispatch for various incident types, underscoring their pivotal role in augmenting Advanced Life Support (ALS) when required. This includes responding to a diverse range of situations, such as serious traffic collisions, Mass Casualty Incidents (MCIs), intricate specialized rescue missions, cardiac arrests, high-risk trauma cases, and medical emergencies that necessitate ventilator support. ***At times, the supervisor is utilized more so responding to incidents and providing ALS skills rather than supervising the operations of the system. This should be periodically reviewed, and if needed, a model shift to staffing all transport units with ALS personnel may be needed.***
- The ACFR system has aging fire facilities, which requires strategic planning at the system and Board level regarding a funding mechanism for renovations (interior and exterior), maintenance, and infrastructure repair and equipment replacement as described in the gap analysis, and which should be included in near, mid, and longer term ACFR system strategic planning initiatives. Additionally, many facilities lack contemporary fire facility health and safety components such as vehicle CO capture systems, good separation from the apparatus bays to the living areas, decon areas or separate decon rooms for equipment and personnel (to include washer and dryers for station or response wear).
- The ACFR system has fire and EMS fleet that has aged out or will age out in the next 18 months when benchmarked against national standards and industry best practices. Funding for volunteer company apparatus replacement beyond the major revolving apparatus loan fund will require strategic planning at the system and Board level regarding a funding mechanism to sustain the volunteer response system.
    - This planning should include, if possible and based on all funding types, one Engine Apparatus per ACFR system station that serves as the frontline Engine and that is not older than 25-years; an Engine Apparatus reserve that is not older than 25-years; two frontline Ladder Apparatus and one reserve Ladder Apparatus (that can be cross-staffed at Sta. 10 if needed) that are not older than 25 years; a strategically placed Tanker Apparatus fleet that is not 25 years or older; and an ambulance fleet that has no ambulances older than 10 years.
    - Apparatus planning should also include a replacement cycle for front-line Engine Apparatus between 12-15 years, and Ladder, Tanker, and Heavy Rescue Apparatus between 15-20 years.
    - As an efficiency measure, heavy fire apparatus replacement should be given strong consideration for refurbishing frontline apparatus in accordance with NFPA 1912 as outlined herein.
- CPSM was advised by both ACFR department and system members that the current cadre of training staff is more often dedicated to ACFR department new-hire training, leaving little time for volunteer training (new member fire and EMT training) as well as incumbent training,

which for fire services is noted in the most recent ISO-PPC report as being deficient in some areas.

- The volunteer system overwhelmingly expressed the need for:
  - Annualized EMT certification course offering.
  - Separate Firefighter I certification course offering.
  - Separate Firefighter II certification course offering.
  - Incumbent training and workshops in fire and EMS subjects in volunteer stations.
  - EMS preceptor availability and coordination on a more efficient level.

- Currently, the ACFR department is not involved in a formal fire prevention inspection-code enforcement program. Community Risk Reduction components that fire departments typically are involved with, or manage, are managed in Augusta County as follows:
  - Building plans review, to include fire protection systems is managed by the Augusta County Building Official.
  - Final inspection of fire protection systems for new or other construction is managed by the Augusta County Building Official.
  - The ACFR department works with the building inspector office during the plans review phase ensuring hydrant distances, locations, and that a dedicated hydrant is within fifty feet of any building fire department connection in accordance with the Augusta County Fire Protection Design Policy.
  - The ACFR department works with the building inspector office during the plans review phase regarding the needed fire flow of a structure, based upon the type of construction and the largest square footage using ISO Fire Flow Calculations.
  - Fire investigations: The ACFR fire system completes the initial origin and cause investigations for all fires in Augusta County. If the fire is considered suspicious or there may be criminal activity involved, the ACFR department will request a fire investigator from the Virginia State Police who has authority (§27-56 of the state code) to examine the origin and cause of fires in the county.
  - Fire prevention inspections of state-owned facilities is handled by the Virginia State Fire Marshal's Office.
  - The ACFR department is engaged with public life safety education and completed 42 in 2020, 56 in 2021, and 186 in 2022.
- An important component for firefighter health and safety includes entry medical physicals and annualized SCBA mask fit testing. Annualized fit testing and annualized medical physicals go hand-in-hand. OSHA 1910.134 and NFPA 1500 both require annualized fit-testing of SCBA masks. Not all volunteer members receive entry or annualized medical physicals or mask-fit testing.
- Overall, the current station locations are able to service the core fire demand areas in their respective districts in a 10 minute travel time (suburban demand zones, which include Stations 10 and 11), and in a 14 minute travel time (rural demand zones, which include Stations 2, 3, 4, 5, 6, 7, 8, 9, 14, 18, 19, 21, and 25). Continued growth in the Urban Service and Community Development planning policy areas potentially may make these areas suburban demand zones when benchmarked against the NFPA 1720 population standard. Although the Stuarts Draft area does not have the population density, this district does have

increased building risks and land use density that have tendencies of a suburban demand zone for fire and EMS response services. ***This should be considered in all future service delivery planning.***

- In review of the 6-minute travel time bleed from ACFR system stations, each station is able to serve the core and heaviest demand of their response districts. This is important when evaluating EMS response and travel times and benchmarking these against the higher acuity calls that require a quicker response to initiate basic and advanced pre-hospital care.
- In review of the 10-minute travel time bleed from ACFR system stations, this bleed analysis is similar to 9-minute travel times in that each station is able to serve demand that is outside of the core demand areas within their response district. Additionally, the suburban response zones are covered when considering the travel times for the first arriving fire suppression unit.
- In review of the 14-minute travel time bleed from ACFR system stations, almost all demand is served, with the exception of remote areas in the western and southeastern areas of the county. Additionally, the rural response zones are almost all covered when considering the travel times for the first arriving fire suppression unit.

- The variables of how and where personnel and companies are located, and how quickly they can arrive on scene, play major roles in controlling and mitigating emergencies. ***The reality is that Augusta County Fire Services system relies largely on volunteer member response from home or work to make up the teams and crews of the Effective Response Force.*** The Augusta County Fire Services system volunteer member availability at any time of the day may have an impact on assembling enough personnel and resources on the scene. This factor has to be considered at all times by those responding to the scene, those responding to the station to pick up apparatus, career staff responding with two or more personnel from surrounding stations, and command officers responding who must manage and coordinate available responding and on-scene resources.
  - There has been discussion that the 6-minute turnout time is too stringent. While it may not be a popular standard, response times are important, as described herein, and should be held to a high standard. It is paramount that turnout of emergency apparatus with proper staffing is highly responsive to the emergency, as travel time to the incident will only add additional time until the emergency can be evaluated, and mitigation initiated. This is especially important in the rural and remote areas of the county.
    - CPSM examined volunteer member proximity to their station. Most stations have members in proximity to their station. Some do not, which may affect turnout times when members are not in the station.

- Overall, what needs to be achieved for a safe and effective fire unit response in volunteer departments and where there are two-person career staffing, is a fire apparatus minimum staffing plan of 2 personnel on the heavy fire apparatus (prior to leaving each station-wait if a third is close to the station per IamResponding software for a safe and effective operational response. Further, the ACFR system should continue with its current structural fire response matrix that recognizes the building and other risks in the county, and also recognizes that not all stations have on-premises staffing *and that resources most likely will have extended travel times*.

Recommendations:

1. Reference the Augusta County Emergency Services Officers Association membership, CPSM recommends the ACFR Fire Chief review and update, for Board of Supervisors consideration and approval, Article 2 §2-13(D) and Article 2 §2-13(E) of the Augusta County Code to ensure the appropriate departments and member organizations are included.
2. CPSM recommends the ACFR department and system (as applicable) review and address, to the extent possible, deficiencies in the current ISO Public Protection Classification report as outlined in this analysis. Special attention should be given to developing methods and opportunities for members to achieve the training as required in the ISO analysis, as it is focused on firefighter safety, improved competencies, and overall improved fireground effectiveness and functionality. This includes live fire, multi-company, and training facility hands-on training as required; developing an officer training program targeted at ensuring officers have opportunities for the various levels of officer education and certifications, and that they receive structured annualized officer training; developing appropriate training programs for hazardous materials for all new and incumbent system personnel; and address the deficiencies pre-fire planning inspections through the development of a pre-fire plan program for the entire system.
3. CPSM recommends the ACFR department and Augusta Water review the deficiencies in the Supply System section as outlined in this analysis to ensure flow requirements are met and improvements made where possible.
4. CPSM recommends in the ***near term*** that, due to the importance of training as outlined herein, consideration is given to funding two additional training specialists (one fire training specialist; one EMS training specialist) over the near term to develop, coordinate, manage, and deliver consistent training and education programs for volunteer fire and EMS members with an emphasis on coordinating and implementing:
    - One EMT course on an annual basis during the evening and weekend hours when volunteer members are more readily available to participate.
    - Incumbent EMS continuing education during the evening hours when volunteer members are more readily available to participate.
    - One Firefighter I course on an annual basis (when needed a Firefighter II course) during the evening and weekend hours when volunteer members are more readily available to participate. When demand exists, substitute a Firefighter II course.
    - Incumbent Fire continuing education at the individual station level during the evening hours when volunteer members are more readily available to participate.

    CPSM further recommends the Augusta County Emergency Services Officers Association expand Standard Operating Guideline *Training of a New Member* to include the following language: *Volunteer members must successfully complete the VA Firefighter I certification course to be eligible for interior structural firefighting or operating in an incident area where self-contained breathing apparatus is required.*
5. CPSM recommends over the ***near term***, and as the system continues to grow, consideration is given to funding ***two additional training specialists*** (one fire training specialist; one EMS training specialist) to coordinate, manage, and deliver consistent training and education programs for incumbent ACFR fire and EMS members. These positions will have primary responsibility to ensure system personnel are proficiently trained to perform assigned tasks; that they maintain state, national, and ISO standards; and that required certifications and annual coursework are current and properly documented.

6. CPSM recommends over the ***mid-long terms*** the Board of Supervisors consider some level of fire prevention inspections on those buildings and occupancies covered under the Virginia Statewide Fire Prevention Code. This can include fire safety reviews over the mid term with a progression to fire code enforcement over the longer term. CPSM further recommends the development of a Fire Marshals Office in the ACFR department, pursuant to Title 27, Chapter 3 of the Virginia State Code, whose initial charge should be to develop and implement a Board approved community risk reduction plan for the County that includes fire prevention and fire investigation program work. The Fire Marshals Office should consist of a Fire Marshal (***midterm hire***), certified in Virginia fire inspector and fire investigator courses, and Virginia certified fire inspector and fire investigator (dual certified) personnel; the number to be determined based on inspectable properties and workload, and as approved by the Board of Supervisors.
7. Currently health, safety, and wellness are the responsibility of the ACFR Fire Chief and Deputy Chief of Operations, the shift Battalion Chiefs, and the Volunteer System Officers at each volunteer station. Managing the health, safety, and wellness components of a fire-rescue department are as important as any other, as the concepts of health, safety, and wellness apply to both emergency and non-emergency activities. For the ACFR system this will take dedicated staff hours and oversight from a command and station level, career, and volunteer. ***CPSM recommends*** the ACFR system develop a health, safety, and wellness committee, which includes the Augusta County Human Resources Department, and develop a comprehensive health, safety, and wellness initiative program that aligns with NFPA 1500, *Standard on Fire Department Occupational Safety and Wellness Programs, 2021 edition.* CPSM further recommends the system designate one career chief officer and one volunteer chief officer as system health, safety, and wellness Health and Safety Officers.
8. CPSM recommends the ACFR system develop a plan that ensures all combat fire members receive at a minimum, an entry and annual basic respiratory fit-test medical physical to ensure combat members are medically fit to don and wear self-contained breathing apparatus (SCBA), and that all combat members receive an annual SCBA mask fit test on an annual basis.
9. The final recommendation CPSM makes is based on the complexity, issues, challenges, and responsibilities to deliver contemporary, credible, and competent Fire and EMS deliverables to a large county (900+square miles), that although is mostly rural, has suburban response areas, robust industry and commerce, transportation risks to include passenger and freight rail and two interstate highways, vulnerable population, and a combination of volunteer and career staff that requires on-boarding and orientation, initial and continuing education, management of infrastructure and equipment, and the well-being of all system members.

   Given this, ***CPSM recommends*** the Board of Supervisors consider full alignment with Article 2 §2-13(B) … *All fire and rescue agencies in Augusta County shall be formed into one large fire/rescue district, forming a partnership in public safety under the jurisdiction of the Chief of Augusta County, in accordance with §27-6.1 and § 27-23.1 of the Code of Virginia* and designate the Augusta County Fire-Rescue Department Fire Chief as the system-wide Chief with all responsibilities and accountability to manage the entire Fire-Rescue system.

In review of the current system demand, transport times, overall resiliency, remoteness of some stations, and capacity, CPSM recommends the following be considered to optimize current fire and EMS deployment:

- Station 2: Over the ***midterm***, and due to the remoteness of this station, consideration should be given to staffing this station with four dual certified ACFR department staff per shift 24/7/365 (2-Engine; 2-Ambulance).
- Rescue 6: Over the ***near term***, the current dual certified ACFR department staff should be changed to EMS single certified staff (one ALS and one BLS).
- Station 5: Over the ***near term***, this should be given strong consideration based on the response district, that this station has an aerial apparatus that is included in the response matrix beyond the first due area, and that the first due area includes industrial and business building risks beyond that of other districts.
- Station 6: Over the ***midterm, consideration should be given to peak time EMS transport*** and staffing resources in this district utilizing EMS single certified staffing.
- Station 9: Over the ***long term, consideration should be given to 12-hour peak time*** EMS transport and staffing resources in this district utilizing EMS single certified staffing.
- Station 10: Over the ***near term***, and if staffing at Rescue 6 is adjusted to EMS single certified staff, consideration should be given to moving the dual certified staff from Rescue 6 to Station 10, to increase minimum daily staffing from four to six (3-Engine and 3-Heavy Rescue).
- Station 10: Over the ***long term, consideration should be given to 12-hour peak time*** EMS transport and staffing resources in this district utilizing EMS single certified staffing.
- Station 11: Over the ***midterm***, consideration should be given to staffing one ambulance at Station 11 with EMS single certified staff. Consideration should then be given to shifting the two dual certified ambulance staff to permanent staffing on the aerial ladder. Staffing should be adjusted to ensure the aerial ladder is staffed with a minimum of a company officer and two firefighters.
- Station 21: Over the ***midterm***, and due to the remoteness of this station, consideration should be given to staffing this station with four dual certified ACFR department staff, Monday-Friday from 6:00 am-6:00 pm (2-Engine; 2 Ambulance).

Staffing increases over the near term:

- EMS Single certified: 3
- Dual Certified: 6

Staffing increases over the midterm:

- EMS Single certified: 12
- Dual Certified: 9

Staffing increases over the long term:

- EMS Single certified: 8
- Dual Certified: 0

CPSM was presented with a hub model for ACFR department staffing that warrants a review here. The genesis of this model is:

- 24/7 career staffing in locations that can serve the first due district and beyond to other districts based on the road network and location of the incident.
- Maintaining staffing in remote areas that are away from core resources such as Mount Solon, Deerfield Valley, Craigsville-Augusta EMS, and Weyers Cave EMS.
- Maintaining staffing in all currently staffed stations with the exception of Stations 9 and 18. CPSM provides an alternative staffing model for these two stations as well.

The hub model includes 24/7 career staffing at Churchville Station 4, ACFR Station 10, ACFR Station 11, Riverheads Station 25, and the construction of a new Station 27-Crimora located on East Side Highway. In this model, each station would staff a primary engine with three dual certified staff and a primary ambulance with two EMS single certified staff.

Hub Model staffing increases over the near term.

- EMS Single certified: 8
- Dual Certified: 3

Hub Model staffing increases over the midterm.

- EMS Single certified: 8
- Dual Certified: 3

Hub Model staffing increases over the long term.

- EMS Single certified: 8
- Dual Certified: 0 (Nine if current staffing remains at Stations 9 and 18).

Hub Model Alternative

Should the Board of Supervisors adopt the Hub Model and desires to maintain staffing at Stations 9 and 18, this will take an additional nine dual certified ACFR department staff as described next.

- Station 27: Maintain current staffing at Station 18 (24/7/365 cross-staffed fire and EMS units-6 FTEs) and station 9 (M-F 6am-6pm with two dual certified firefighters to staff fire apparatus-3 FTEs).

Additional dual certified FTEs to staff Station 27-9

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Community and Board of Supervisors' Input

As part of the overall strategic planning process, CPSM solicited input from the community, through an on-line survey, and from the Board of Supervisors through scheduled one-on-one meetings. Each group provided CPSM with valuable information that served as input regarding the system's strengths, weaknesses, opportunities, and threats, and further provided CPSM with information that fed into the formulation of strategic initiatives.

Community Survey

In order to assess the perspectives of the external (community members) stakeholders to the ACFR system, CPSM conducted a community survey drafted specifically for this stakeholder group. This survey was available to the community between October 16 and November 14, 2023. In all there were 514 responses.

The community survey is not a customer satisfaction survey, but rather a survey designed to seek the community's understanding and sentiment of the ACFR system components, identify communication gaps, and to ensure alignment between the system and community when developing strategic initiatives for the fire-rescue system.

The community survey included eleven questions and focused on the perceptions of services provided to the public by the ACFR system, use of services provided, knowledge of services provided, community outreach, importance of roles and services provided, and responsiveness of the ACFR system-to calls and with information to the community. Three of the questions were used by CPSM in our analysis to provide us with a foundation of how long respondents have lived in the county (question 7), where the respondents lived in the county in relationship to a fire or rescue department station (question 10); and if the respondent was a community member, a volunteer member of an ACFR system agency; or a career member with the ACFR department. These questions are not included with the survey results below. Background on these three questions include:

- Almost all of the respondents live in Augusta County and have lived here for twenty or more years. Just over fifty respondents have lived in Augusta County between 45 and 53 years. Just under fifty have lived in Augusta County for less than five years. Some who responded do not live in Augusta County.
- Respondents served by Churchville Station 4, Stuarts Draft Rescue 6, and Weyers Cave Station 5/26 had the highest responses.
- 85.6 percent of respondents are community members and not affiliated with the ACFR system. 7.8 percent are volunteers with the ACFR system. The remaining 6.6 percent are ACFR system volunteers who are also ACFR career staff, and ACFR department career staff .

The following illustrations provide information on the community's responses to the eleven questions.

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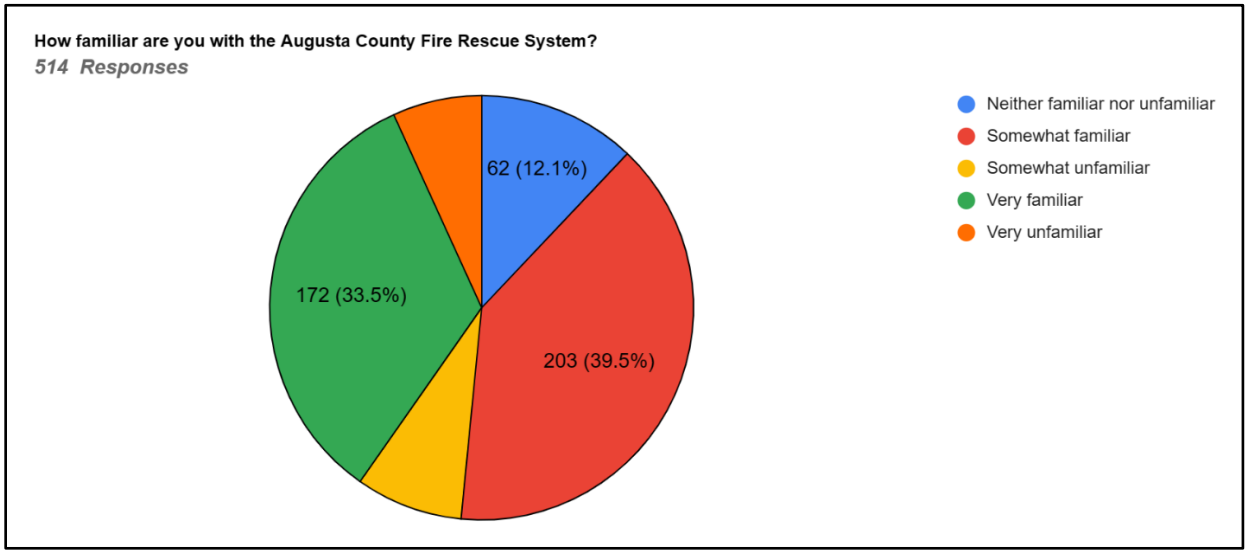
Community Survey Question 1: The respondents were asked about their familiarity with the Augusta County Fire Rescue System.

The pie-chart below tells us that 33.5 percent of respondents were very familiar with the ACFR system. 39.5 percent were somewhat familiar. Overall, 73 percent of the respondents have an established familiarity with the County's fire-rescue system.

When a community responds overwhelmingly such as this, it signals that the residents have knowledge of and awareness about the fire-rescue system, the services, its functions, and presence within their area. This familiarity can stem from interactions with system members (they may be neighbors or co-workers), participation is system sponsored fire/EMS safety programs, or they could have utilized the system (fire and/or EMS).

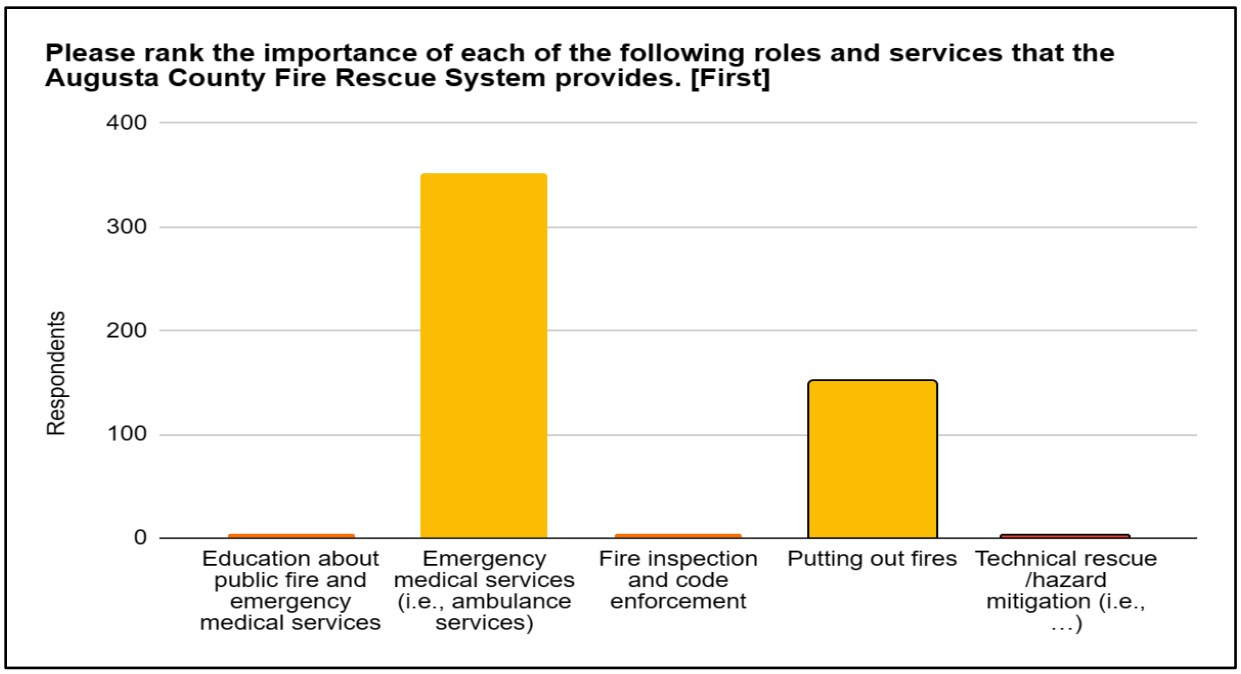
Lastly, 14.9 percent were somewhat or very unfamiliar with the fire-recue system, and 12.1 percent were neutral in their familiarity with the system.

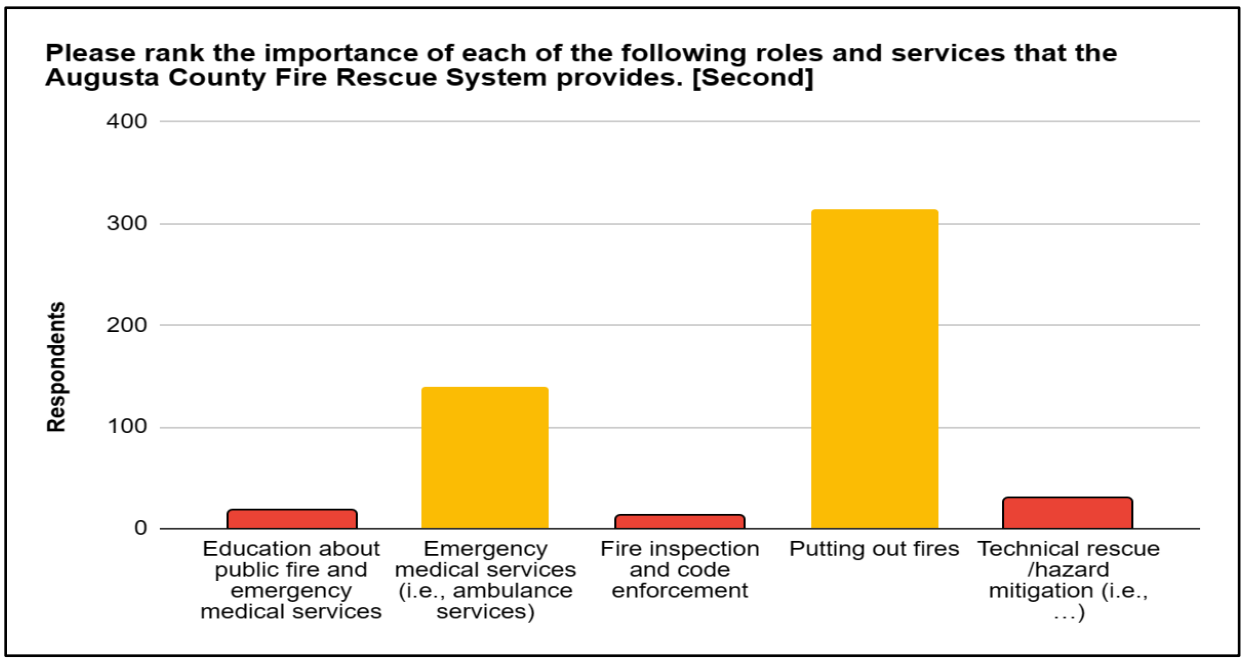


Community Survey Question 2: The respondents were asked to rank the importance of the roles and services provided by the Augusta County Fire Rescue Service. Each respondent was able to rank services in priority order.

The next five charts outline the rankings of services.

Respondents indicated their priority for roles and services were first and foremost for Emergency Medical Services followed by fire suppression (putting out fires). The top two are the foundational services of a fire-rescue system and naturally have the highest system workload. EMS and fire suppression are followed by technical rescue/hazard mitigation (Haz-Mat services), educational programs, and fire inspection services.


Please rank the importance of each of the following roles and services that the Augusta County Fire Rescue System provides. [First]
Respondents
400
300
200
100
0
Education about public fire and emergency medical services
Emergency medical services (i.e., ambulance services)
Fire inspection and code enforcement
Putting out fires
Technical rescue /hazard mitigation (i.e., …)


Please rank the importance of each of the following roles and services that the Augusta County Fire Rescue System provides. [Second]
Respondents
400
300
200
100
0
Education about public fire and emergency medical services
Emergency medical services (i.e., ambulance services)
Fire inspection and code enforcement
Putting out fires
Technical rescue /hazard mitigation (i.e., …)

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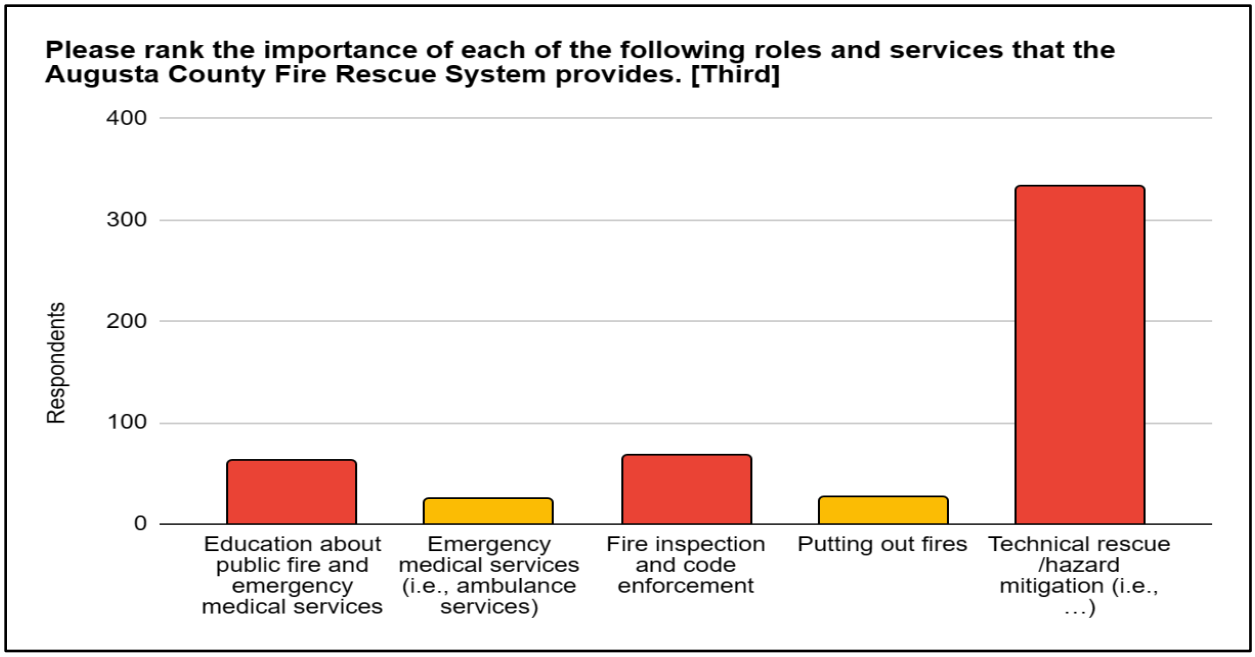
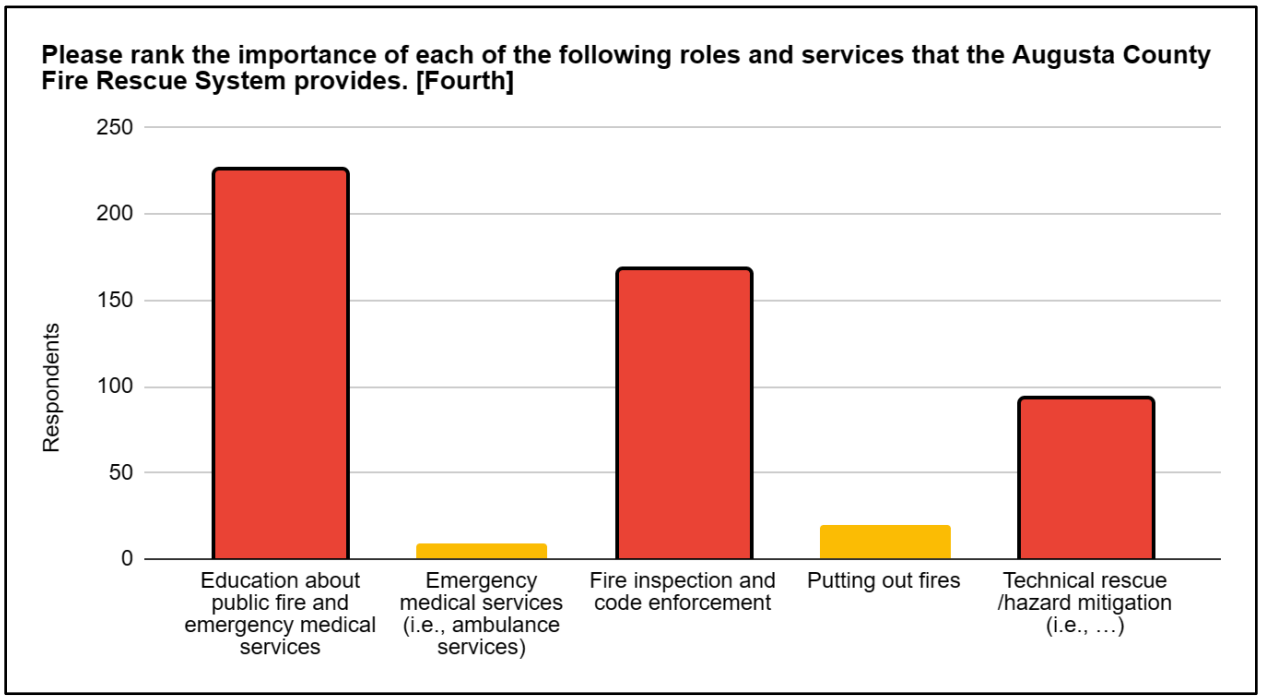

Please rank the importance of each of the following roles and services that the Augusta County Fire Rescue System provides. [Third]
Respondents
400
300
200
100
0
Education about public fire and emergency medical services
Emergency medical services (i.e., ambulance services)
Fire inspection and code enforcement
Putting out fires
Technical rescue /hazard mitigation (i.e., …)


Please rank the importance of each of the following roles and services that the Augusta County Fire Rescue System provides. [Fourth]
Respondents
250
200
150
100
50
0
Education about public fire and emergency medical services
Emergency medical services (i.e., ambulance services)
Fire inspection and code enforcement
Putting out fires
Technical rescue /hazard mitigation (i.e., …)

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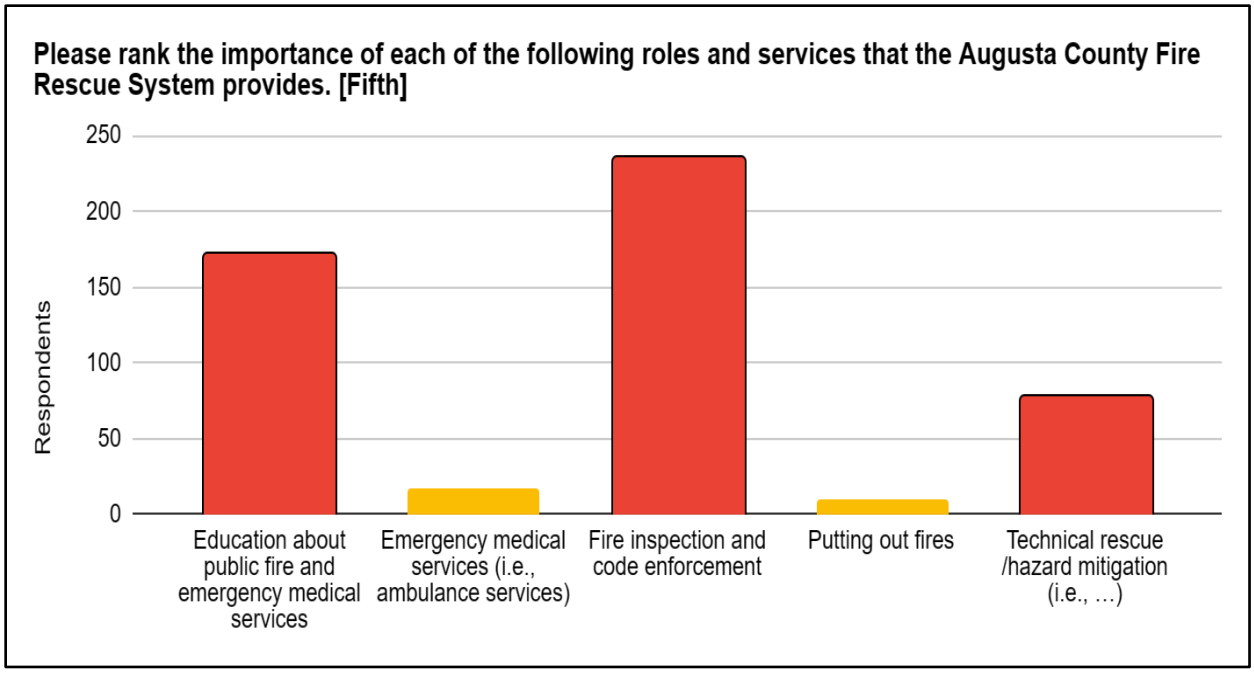
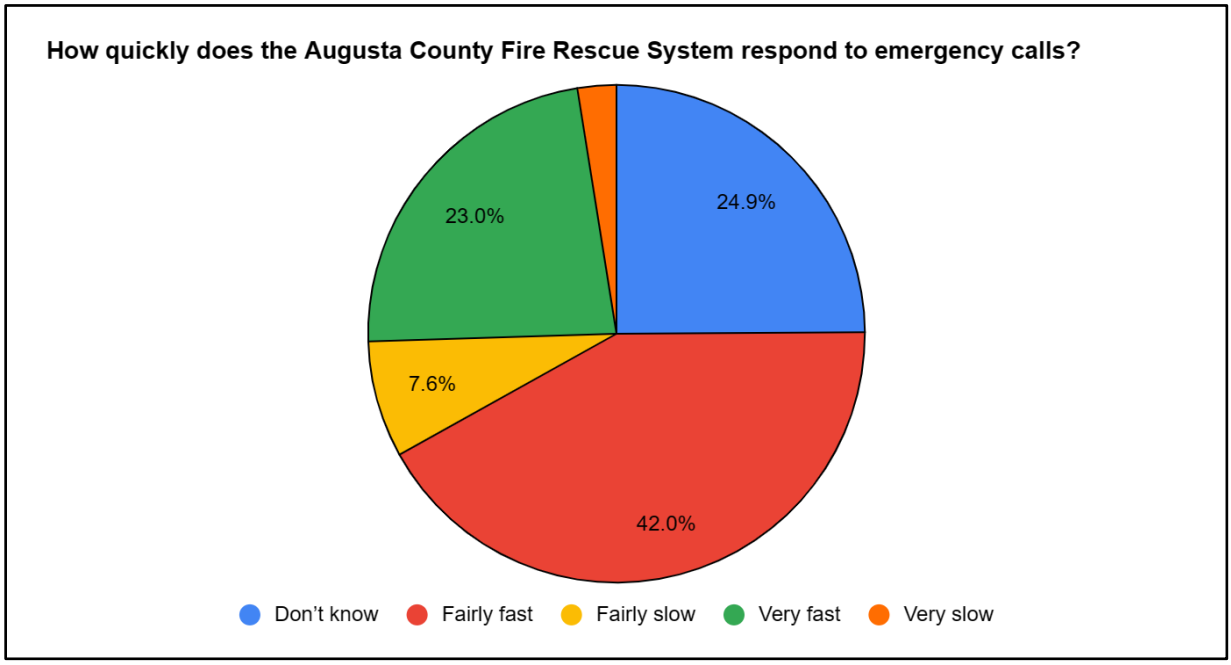


Community Survey Question 3: Respondents were asked about how quickly the ACFR system responds to emergency calls.

The pie-chart below tells us that 23 percent of respondents rated the ACFR system as responding very fast. 42 percent rated the system as fairly fast. Overall, 65 percent of the respondents rate the ACFR system as having a fast or fairly fast response time.

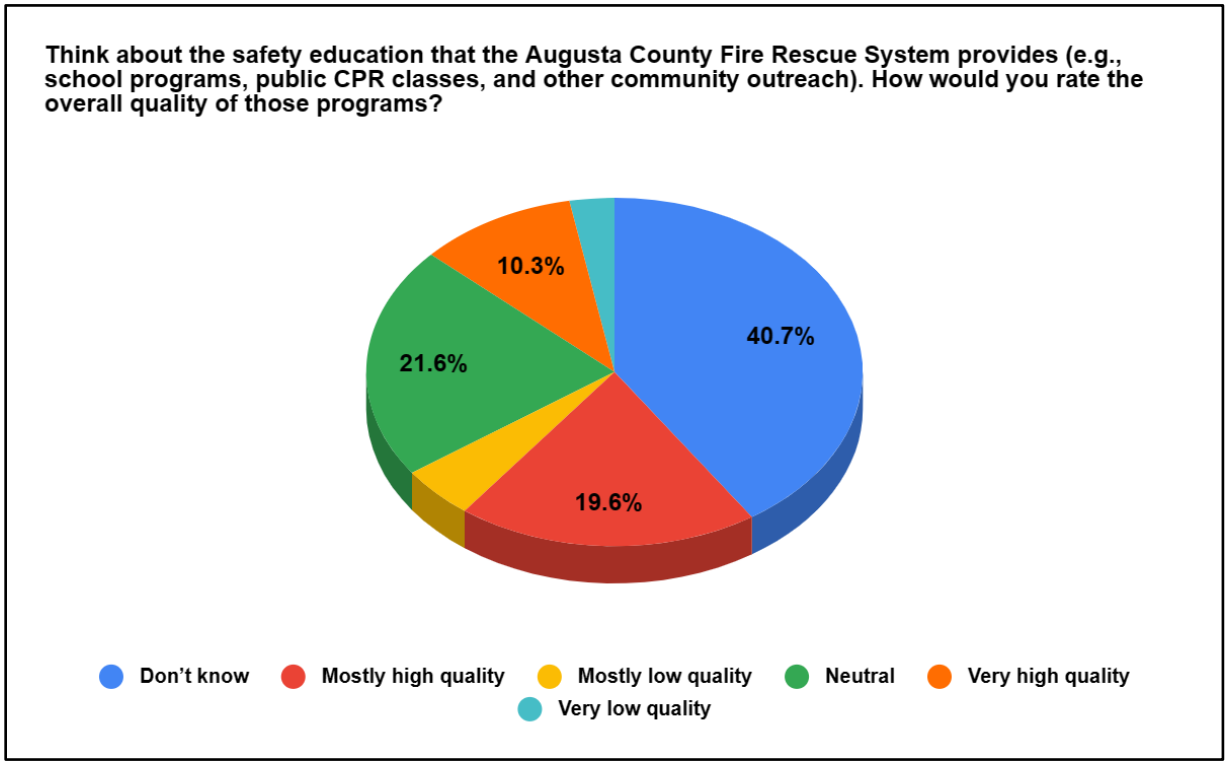
When a community rates a fire-rescue system as having fast response times, it typically indicates the residents perceive the fire-rescue system is promptly addressing emergencies.



Community Survey Question 4: Respondents were asked to rate the overall quality of public safety education programs provided by the ACFR system.

The pie-chart below tells us that 19.6 percent of respondents rated the ACFR system public education as mostly high quality with another 10.3 percent rating public education as very high quality. Overall, nearly 40 percent of the respondents rate the ACFR system public education to be of high quality. 40.7 percent, however, answered this question as "*don't know*."

A *do not know* answer signals community members are unaware of public-safety education classes or events and suggests the ACFR system's outreach efforts may not be effective. The system overall might need to improve communication channels, raise awareness, and actively engage with residents to inform them about available programs.



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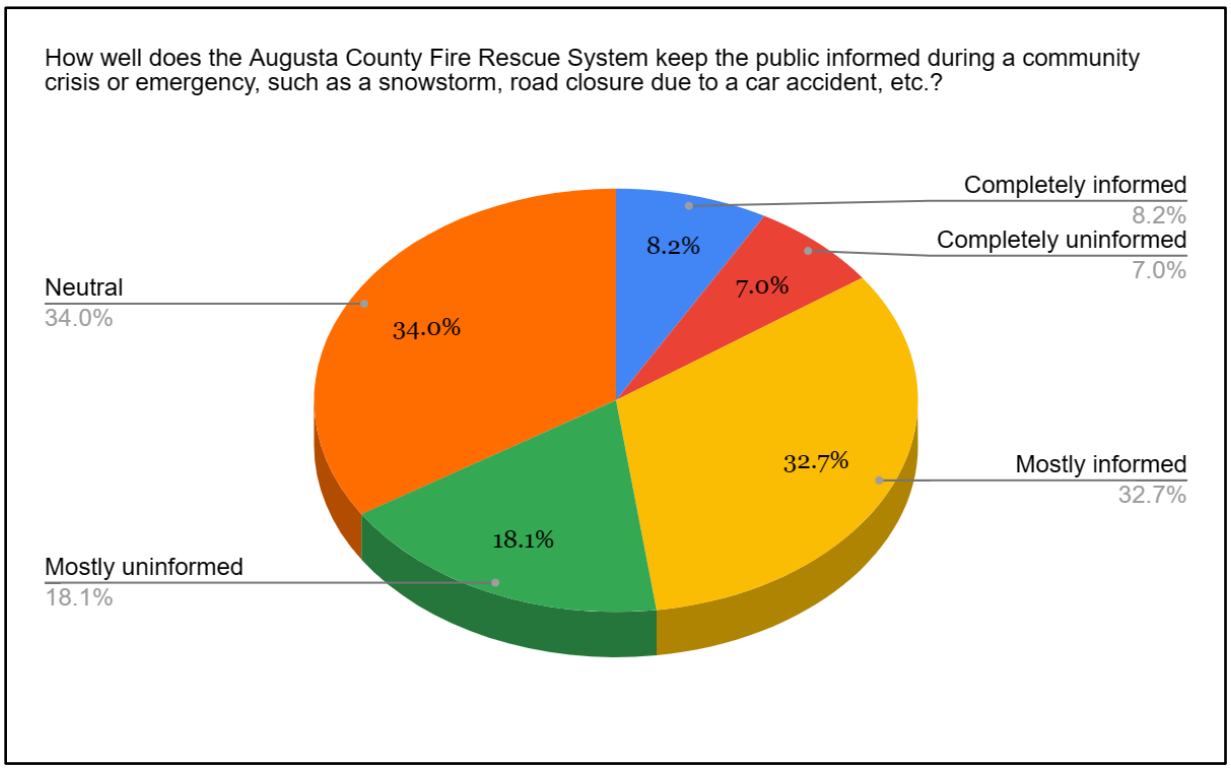
Community Survey Question 5: Respondents were asked how well the ACFR system keeps the public informed during a community crisis.

The pie-chart below tells us that 8.2 percent of respondents felt completely informed when an emergency or crisis was occurring, and 32.7 percent felt mostly informed. Overall 40.9 percent felt informed during a community crisis or emergency. 18.1 percent felt mostly uninformed, and 7 percent felt completely uninformed. 34 percent were neutral on the question signaling they may or not feel informed during a community crisis or emergency.

When a community does not feel informed when a community crisis or emergency is occurring it highlights the need for better communication, targeted outreach through available communication mediums, and more inclusive community preparedness efforts to address community information concerns that has a focus on building community resilience.



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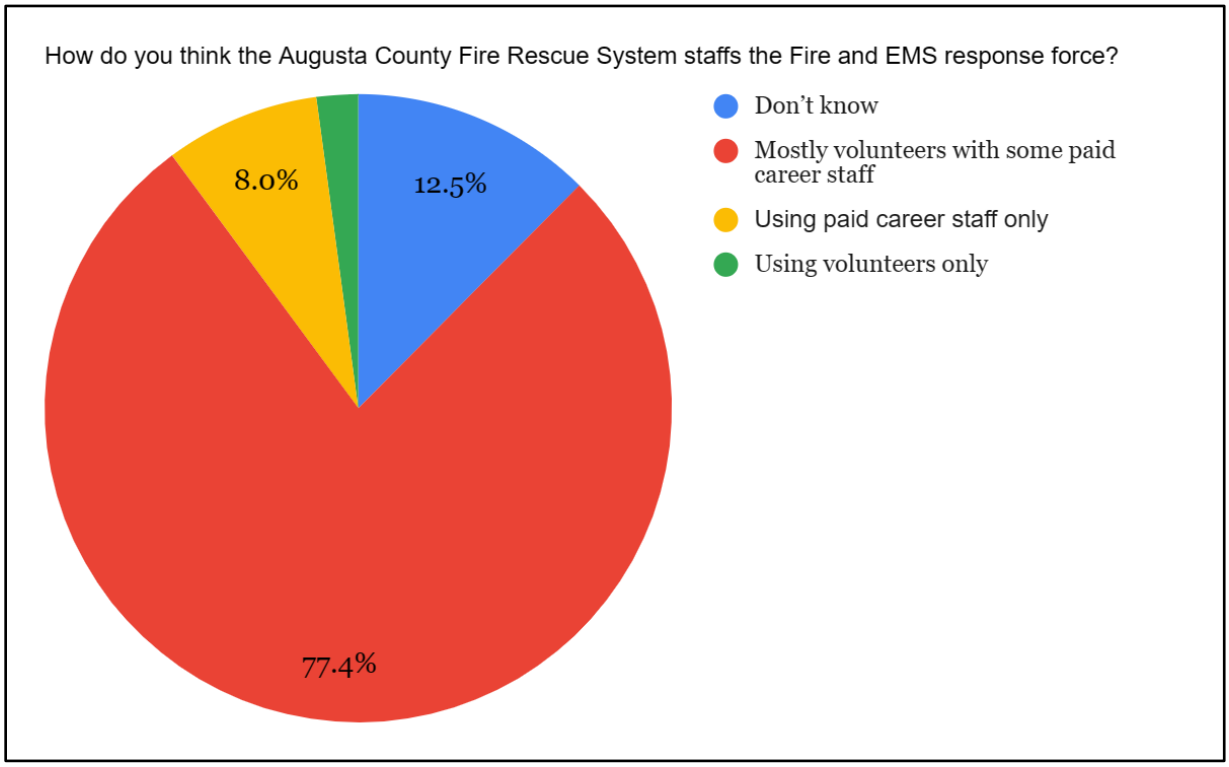
Community Survey Question 6: Respondents were asked about their knowledge of staffing of the ACFR system (such as all volunteers; all career; volunteer, and career).

77.4 percent of the respondents are knowledgeable that the staffing of the ACFR system consists of volunteer members and career staff (combination fire-rescue system). This tells us that the community overwhelmingly has a collective awareness and perception of the staffing and resources that are dedicated to the Augusta County fire-rescue system.



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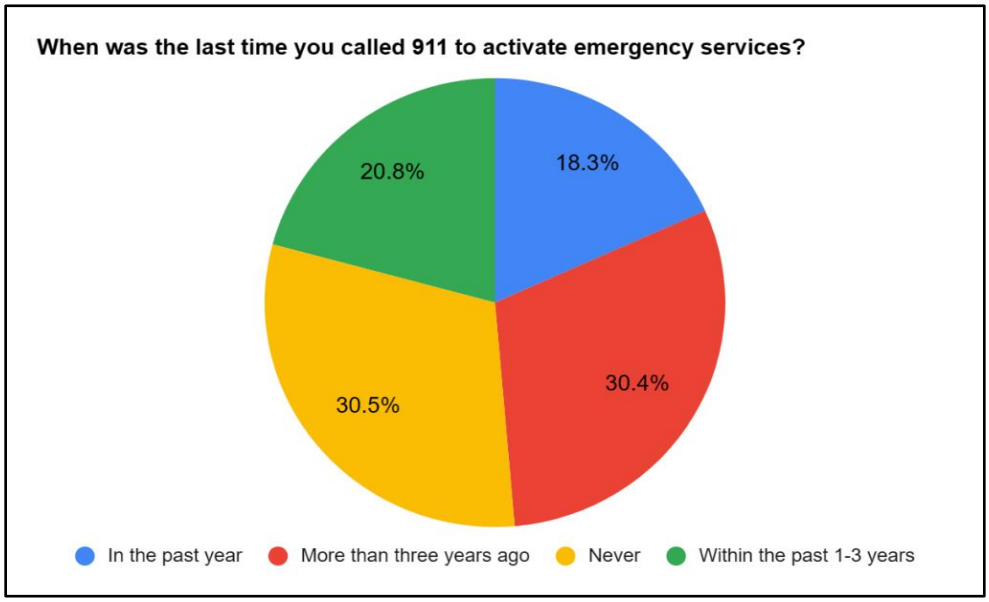
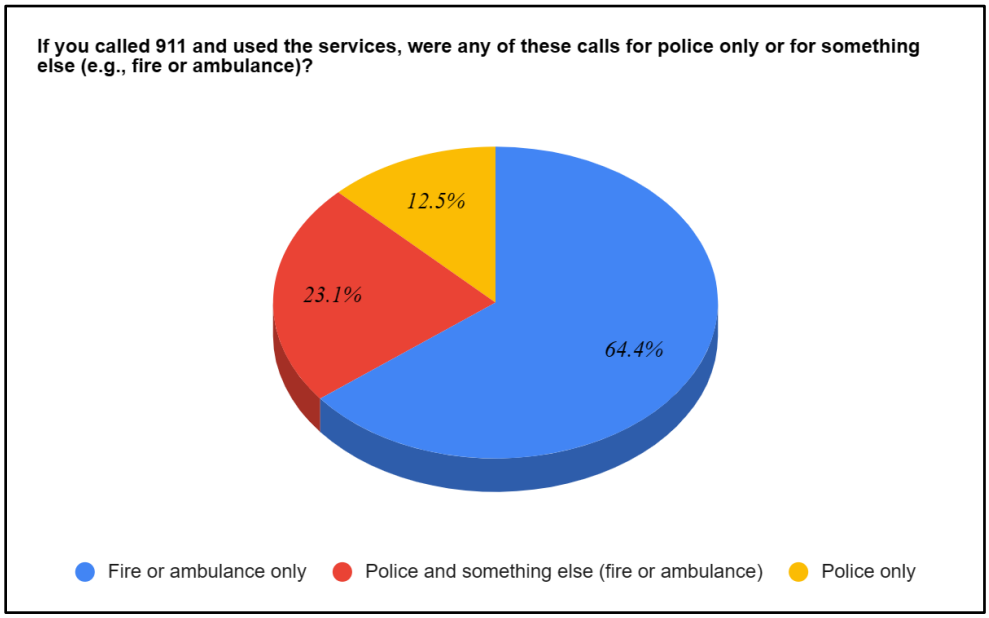
Community Survey Question 8: Respondents were asked how recently they may have called 911 and utilized the ACFR system.

30.5 percent of the respondents have never utilized ACFR system emergency services. Overall 69.5 percent of the respondents have utilized ACFR system services. The user of the system is further broken down as: 30.4 percent utilized the system more than three years ago; 20.8 within the past one-three years; and 18.3 percent in the past year.



Community Survey Question 9: Respondents were asked which service they used specifically.

64.4 percent of the respondents utilized 911emergency services for fire and/or EMS. Another 23.1 percent utilized 911 services for police and something else (fire and/or EMS).



Board of Supervisors' Stakeholder Input

Preparation of the Augusta County Fire Rescue system comprehensive plan has been an inclusive process with insights, suggestions, and recommendations provided through stakeholder meetings with Fire Rescue system practitioners, officers, and leadership that also includes mutual aid organizations. Additionally, CPSM has gathered input from the County Administrator and certain county departments, and we have conducted a community survey.

To ensure we are as inclusive as possible, CPSM invited the Augusta County Board of Supervisors to participate in one-on-one meetings with the CPSM Project Manager. Meetings were scheduled for mutually agreed upon times and were conducted either virtually or by telephone. The meetings were kept to a 1.5 hour time limit. No meetings were recorded.

Each discussion was framed around the following questions:

1. What are the strengths and weaknesses of the current combined Augusta County Fire and EMS system? Are there strengths and weaknesses that need to be addressed? Are these perceived or real?
2. What is the Board of Supervisors' vision for continued integration of career and volunteer firefighters within the combination fire department? How do they envision fostering collaboration and unity between these two essential components of the Fire/EMS system?
3. What strategies are in place with the Board of Supervisors to allocate resources and funding for the career and volunteer fire departments, ensuring both have the necessary support for training, equipment, and operations?
4. With respect to both career and volunteer staffing and stations, what is the Board of Supervisors vision over the near, mid, and longer terms? Does the Board see the same combination system over the mid and longer terms? Does the Board see a transition of strategically placed career staffing on a larger scale to support/handle operational Fire and EMS services.

The following Board members participated during the month of January 2024.

- Chairman Slaven
- Vice-Chair Carter
- Board Member Bragg
- Board Member Seaton
- Board Member Wells
- Board Member Shull

Board member key input statements are outlined next. Board member input is in no particular order of stakeholder meetings or date of Board member participation.

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- Impressed with current system and responses.
- The relationship between career and volunteer members is a high priority.
- Need a Fire Chief that makes decisions for all, and that can be held accountable-need consistency.
- Need to address recruitment & retention issues for both volunteer members and career staff.
- Need to shore-up combined system service to citizens. This is a priority.
- Should review and consider the Hub response model for career staff and continue to assist Deerfield Valley, Mount Solon, and other remote areas. Crimora station should be considered first.
- Rely too much on the cities of Staunton and Waynesboro for staff and equipment.
- Realize volunteerism is declining in all volunteer related activities. Volunteer members have their limits.
- Need to follow best practices, NFPA, and other standards.
- Need to sustain combination system to as long as possible.
- Need to retain volunteers-need to infuse young people into system-as an example high school recruitment.
- Need to address deficiencies in delivering certification and incumbent training for all fire-rescue system members. Need to ensure training for all system members.
- Need to strategically plan for and fund system training, appropriate staffing in stations, sustaining all stations as open, and infrastructure improvements (fleet and facilities).
- Fleet replacement should include refurbishing apparatus instead of procuring all new.
- May have to dedicate a certain amount of tax rate (2-3 cents) to Fire-Rescue to sustain system.
- Need accountability for all members of the system regarding training and certification levels.
- The perception of some volunteer companies is they do not need staffing when they may.

Internal Stakeholder Input: Strengths, Weaknesses, Opportunities, and Threats

In-person stakeholder meetings were conducted with ACFR system stakeholders to understand better fire-rescue system operations and to gain input on system strengths, weaknesses, and opportunities, what is working or not working, needs of the system, current state of the system, and the future. Stakeholder meetings included:

- Augusta County Fire Rescue Department.
- All volunteer fire and EMS departments/companies of the Augusta County Fire Rescue System.
- City of Staunton FD Fire Chief, City of Waynesboro Fire Chief, Waynesboro First Aid Crew, Wintergreen FD Fire Chief, and Shenandoah Valley Airport officials.
- Augusta County Emergency Services Officers Association.
- Mutual Aid partners include Grottoes VFD, Grottoes Rescue Squad, Bridgewater VFC, Bridgewater Rescue Squad, Raphine VFC, and Walkers Creek VFD.

Based on the feedback from various stakeholder groups, it is evident that there are several key challenges and themes that need to be addressed to improve the Augusta County Fire-Rescue system.

Key Findings and Challenges: Feedback from various stakeholder groups highlighted key positives, challenges, and gaps in Augusta County Fire-Rescue system:

- Good automatic/mutual aid system:
  - Positive: Several response partners have first due districts in Augusta County. Seamless response.
  - Gap: Lack of regular multijurisdictional training, minimum training/experience for incident command officers or members riding in officer seat of fire apparatus, better resource management of units responding, sometimes first in unit has driver only.
- The combined system works well:
  - Positive: sustainable budget; focus is on service to citizens.
  - Gap: Lack of minimum training standards for all system members, lack of initial training courses for volunteer members and system incumbents, lack of efficient and effective system member recruitment.
- Infrastructure and Funding and Resource Allocation:
  - Challenge: Aging infrastructure (fleet and facilities).
  - Gap: Reassess funding mechanisms and budget allocations.
- Recruitment and Retention:
  - Challenge: Lack of a formalized recruitment strategy, and high turnover rates.
  - Gap: Identify issues and challenges; establish robust recruitment and retention programs.
- Training and Education:
  - Challenge: Inadequate training opportunities, especially for volunteers and system incumbent members.
  - Gap: Current training staff dedicated largely to career recruit schools; funding for additional training staff; develop training programs for both volunteer and career staff.
- Organizational Culture:
  - Challenge: Culture of mistrust between career and volunteer members with added concerns about lack of transparency and credibility. Communication breakdowns between ACFR leadership and volunteers.
  - Gap: System-wide communication gaps and lack of system-wide transparency and unity; ignoring organizational signs and symptoms, and lack of discussion and training to address organizational culture issues.
- Accountability and Standards:
  - Challenge: Inconsistent adherence to standards.
  - Gap: No system-wide minimum fireground training, system members ignoring incident command directives, lack of a minimum staffing of fire apparatus policy (trained/certified firefighters), lack of fireground accountability on all fire or fire-EMS incidents, proper documenting of station inability to turnout for an incident.

- Experience Gap and Staffing Issues:
  - Challenge: Significant experience gap due to career personnel turnover and recruitment of new volunteer members.
  - Gap: Assess placement of career staff to ensure new/low experience staff are teamed with more experienced staff members. Ensure new volunteer fire and EMS members receive initial training and certification training through a consolidated training program administered by the ACFR department training staff in conjunction with experienced volunteer Chief officers.
- Consultant Fatigue:
  - Challenge: Frustration with past consultant studies being shelved.
  - Gap: Acceptance that there are issues and challenges in the ACFR system, and that level of service is a top priority, and that less favorable decisions (budgetary and system) may have to be made to sustain the combination system. Funding for the system to support infrastructure, recruitment and retention, and training have been outlined in previous consultant and staff briefings.

Strengths of the ACFR EMS System

The EMS system in Augusta County exhibits several notable strengths that contribute to its effectiveness in providing emergency medical services to the community:

- Tiered Response System: Augusta County's EMS system includes a tiered approach, offering both Basic Life Support (BLS) and Advanced Life Support (ALS) services. This ensures that patients receive appropriate care tailored to the severity of their medical conditions.
- Collaborative Partnerships: The EMS system benefits from collaborative partnerships with in-county agencies such as the Staunton-Augusta Rescue Squad and Waynesboro First Aid Crew. These partnerships enable efficient cross-boundary responses and expanded first-due coverage. The ACFR EMS system also collaborates with out-of-county EMS agencies in contiguous jurisdictions who have first-due-districts in Augusta County.
- Effective Fleet: The ACFR system maintains a well-equipped fleet of ambulances, with some operating 24/7 and others in reserve. This fleet ensures the availability of adequate resources to respond promptly to emergencies and manage surges in demand.
- Qualified Medical Direction: The EMS system is under the guidance of Dr. Asher Brand, a highly experienced EMS Medical Director. Having a dedicated and knowledgeable medical director ensures that clinical oversight, training, and protocols align with industry best practices, enhancing patient care.
- Emphasis on Training and Quality Assurance: ACFR department demonstrates a strong commitment to training and quality assurance. With a dedicated team, there is a focus on both BLS and ALS initial training and ongoing training and quality assurance, ensuring the maintenance of high-quality EMS personnel.
- Flexible Response Model: The EMS system employs a flexible response model that combines ACFR dual-certified, ACFR single EMS certified, volunteer agency funded career staff, and volunteer resources, allowing for cost-effective service delivery and efficient utilization of all groups.

Strengths of the ACFR Fire System

As with the ACFR EMS system, the ACFR Fire system in Augusta County exhibits several notable strengths that contribute to its effectiveness in providing fire and specialty services to the community:

- Joint Staffing System: Augusta County's fire system deploys with a collaborative staffing model that includes all volunteers, all career, and daytime career - evening volunteer station staffing. The joint staffing also includes cross-staffing of fire and EMS units in certain stations, meaning the career staff will respond on either fire or EMS apparatus, and volunteers will respond on the other when the incident requires such a response.
- Facility and Fleet Ownership: The volunteer departments maintain their current fleet and facilities, to the best of their financial abilities, maintaining a fire (and for some fire and EMS) station in their respective communities.
- Collaborative Partnerships: The fire system has collaborative partnerships with in-county agencies, such as the Staunton Fire Department and Waynesboro Fire Department. Also, and as detailed herein, several departments in contiguous counties have first-due response areas in Augusta County due to their proximity.
- Versatile Fleet: The ACFR fire system has a versatile fleet to meet the diverse county landscape and that includes engine, ladder, tanker, brush, rescue, Haz-Mat, and all terrain apparatus and vehicles.
- In-County Training Building: The ACFR fire system has an in-county training facility that includes a 4-story training tower with an attached 2 ½ -story residential building for live fire training. Additional emergency scene props are also located on the training grounds such as a propane gas fueled vehicle fire prop, and areas for ladder and hose training, fire extinguisher training, vehicle extrication training, and other props utilized for fire and rescue related hands-on training.
- Resourceful Training Approaches: As with EMS, and despite budgetary constraints, the ACFR fire system leverages available regional and state resources and seeks funding for training programs to ensure continued member development.

Mission, Vision, and Values

The career and volunteer staff were asked for thoughts regarding the vision and mission for their respective organizations (volunteer and career), as well as the system. Crafted through collaborative efforts and informed by the voices of stakeholders, the vision and mission of the ACFR system embodies a collective commitment to progress and innovation. Rooted in a shared vision for the future, the feedback gathered from volunteer and career staff stakeholder meetings highlights a unified aspiration to lead the way in modern fire rescue practices and redefine industry standards.

To ensure the identity of both the volunteer system and career department are maintained, and to also emphasize unity as a fire-rescue system with a collective focus on providing high-quality service to the public, CPSM developed separate mission and vision statements for the volunteer system and the career department, and also developed a system-wide mission and vision statements, and values that espouses the unity and collaborative service delivery system.

To make a meaningful difference and cultivate a united community, the volunteers outlined a set of fundamental mission and vison statements to shape behavior, choices, and relationships. These statements were presented as the guiding principles toward excellence, unity, and inclusiveness to fortify the bonds within the group.

Volunteer Mission and Vision Statements

Mission Statement

To actively contribute to the protection of life and property within our community by providing essential emergency response services and promoting a culture of volunteerism, service to the community, and community engagement.

Vision Statement

To be an integral part of the ACFR System, fostering a strong sense of community, excellence in service, through continuous learning.

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The career mission and vision statement sessions provided CPSM insight in the pride, dedication, and desire to be a regional leader in fire-rescue service the organization has. The group espoused a deep appreciation for the fire and EMS disciplines, which translated to their meaningful desire to provide timely, high quality service to the citizens and visitors in Augusta County.

ACFR Department Mission and Vision Statements

Mission Statement

To protect life, property, and serve the community by providing efficient and effective emergency response and risk reduction services, with a commitment to continuous improvement and innovation.

Vision Statement

To be at the forefront of contemporary fire – rescue services, achieving low critical error rates, deploying new services with technology, and setting industry standards for training.

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Combined, the mission and vision statements for the ACFR system seek to continue an inclusive and combined Fire and EMS service delivery system that is focused on the community, innovation, training, collaboration, and continuous improvement.

ACFR System Mission, Vision, and Values Statements

Mission Statement

To protect life, property, and serve the community by providing efficient and effective emergency response and risk reduction services, fostering collaboration between career and volunteer staff, and continuously improving through high quality training and innovation.

Vision Statement

To be a unified and contemporary fire rescue system, achieving low critical error rates, collectively offering new services, setting industry standards for training, and fostering a culture of community engagement.

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Values

Organizational value words or statements indicate how an organization goes about accomplishing its mission and champions the guiding principles for the organization and its members. During stakeholder meetings with members of the ACFR system, the following values overwhelmingly were espoused by the system members CPSM met with.

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***Strategic Initiative 1* – ACFR System Resiliency**	
Initiative Manager(s): As assigned.	
Goal 1.1: Recruitment and Retention	
Objectives	***Term (Near/Mid/Long)***
1. Engage system members and develop a system-wide recruitment plan that focuses on attracting individuals who will contribute to the system's success. The plan should include the creation of recruitment announcements, advertisement of all system positions, and the identification and determination of the most robust communication mediums to reach potential candidates in-county and across the region.	Near Term
2. Create a unified system-wide volunteer orientation and onboarding program that is scheduled on the same recurring evening on a monthly basis (such as the second Wednesday of the month) and that is focused on ensuring new members feel immediate value and are integrated into the system, receive, and complete all required paperwork, and are properly oriented and introduced to the ACFR system.	Near Term
3. Aggressively recruit eligible high school juniors and seniors through invitation into training programs, career days, and volunteer company functions, with a focus on attracting these potential candidates to become members (career and/or volunteer).	Near Term
4. Research, develop, and seek funding to establish and/or improve retention benefits for volunteer and career members to include: Length of Service Award Program (LOSAP) for volunteers; increasing the Virginia Retirement System multiplier for ACFR department hazardous duty employees from 1.7% to 1.85%; continuing the fuel reimbursement program for volunteers; continued funding for basic and advanced training opportunities (local, regional, state, and federal) for system members; and continuous regional market analysis of Fire and EMS salaries to maintain regional competitiveness for all ACFR department positions.	Near, Mid, Long Terms

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Strategic Initiative 1 – ACFR System Resiliency	
Initiative Manager(s): As assigned.	
Goal 1.2: ACFR System Marketing, Branding, and Community Outreach	
Objectives	***Term (Near/Mid/Long)***
1. Assemble a committee of system leadership and engage the assistance of the County's marketing firm and develop a marketing and branding platform that identifies and markets the ACFR combined Fire and EMS system, and that also preserves the identity of each volunteer department and the ACFR department.	Near term
2. Proactively engage in outreach and community related functions as a system to foster relationships and trust with all Augusta County communities.	Near Term
3. Market and brand the ACFR system on the County Fire-Rescue website.	Near Term
4. Create a logo of the ACFR system to properly brand the combined system and which should be used during system sponsored events.	Near Term
5. Seek funding (local and FEMA SAFER Grant) for the sustainment of recruitment, retention, marketing, and branding programs.	Near Term

Strategic Initiative 1 – ACFR System Resiliency	
Initiative Manager(s): As assigned.	
Goal 1.3: ACFR System Relationships.	
Objectives	***Term (Near/Mid/Long)***
1. Identify opportunities to enhance system-wide internal communication.	Near Term
2. Explore communication processes to provide timely feedback on system, individual volunteer department, and ACFR department initiatives.	Near Term
3. Establish training segments for new and incumbent training sessions that has a focus on what a combination Fire and EMS system is; respect for each system member; recognition for what each system member contributes; teamwork; inclusion of all system members; and the primary role of the ACFR system, which is the delivery of Fire and EMS services.	Near Term

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Strategic Initiative 1 – ACFR System Resiliency	
Initiative Manager(s): As assigned.	
Goal 1.4: Health, Safety, and Wellness: Alignment with NFPA 1500: Standard on Fire Department Occupational Safety and Wellness Programs.	
Objectives	***Term (Near/Mid/Long)***
1. Develop a health, safety, and wellness committee, to include the Augusta County Human Resources Department, with a goal of developing a comprehensive health, safety, and wellness initiative program that aligns with NFPA 1500, *Standard on Fire Department Occupational Safety and Wellness Programs, 2021 edition.*	Near Term
2. Appoint one career chief officer and one volunteer chief officer as system health, safety, and wellness Health and Safety Officers.	Near Term
3. Conduct a system-wide health, safety, and wellness needs assessment.	Near Term
4. Develop a plan and seek funding to ensure all combat fire members receive at a minimum, an entry and annual basic respiratory fit-test medical physical to ensure combat members are medically fit to don and wear self-contained breathing apparatus (SCBA), and that all combat members receive an SCBA mask fit test on an annual basis.	Near Term
5. Develop a plan and seek funding to ensure all EMS members are properly protected from exposure to communicable viruses, diseases, and associated exposures while delivering pre-hospital care.	Near Term

Strategic Initiative 1 – ACFR System Resiliency	
Initiative Manager(s): As assigned.	
Goal 1.5: Turnout of System Resources	
Objectives	***Term (Near/Mid/Long)***
1. Maintain current 6-minute turnout time for system emergency response resources. Identify deficiencies and system challenges and develop strategies to assist when necessary. Reclassify term from failure to delayed.	Near Term
2. Explore opportunities to minimize turnout time in excess of 6-minutes.	Near Term
3. Develop and implement guidelines that requires all volunteer members to utilize the *IamResponding* app on their cellular phones and available response hardware to identify member response and availability.	Near Term
4. Ensure a system-wide safe and effective fire unit response through the implementation of a fire apparatus minimum staffing plan that links to the *IamResponding* app in volunteer agencies, and that requires two trained personnel responding on heavy fire apparatus (engine, engine-tanker, ladder, heavy rescue).	Near Term

Strategic Initiative 2 – Organizational Growth and Excellence	
Initiative Manager(s): As assigned.	
Goal 2.1: Unified Fire Chief	
Objectives	***Term (Near/Mid/Long)***
1. Consideration of full alignment with Article 2 §2-13(B) of the Augusta County Code … *All fire and rescue agencies in Augusta County shall be formed into one large fire/rescue district, forming a partnership in public safety under the jurisdiction of the Chief of Augusta County, in accordance with §27-6.1 and § 27-23.1 of the Code of Virginia* and designate the Augusta County Fire-Rescue Department Fire Chief as the system-wide Chief with all responsibilities and accountability to manage the entire Fire-Rescue system.	Near Term
2. Define roles, responsibilities, accountability, and expectations of the system-wide chief.	Near Term
3. Define roles, responsibilities, accountability, and expectations of system officers and operational practitioners as it relates to a system-wide chief organizational structure.	Near Term

Strategic Initiative 2 – Organizational Growth and Excellence	
Initiative Manager(s): As assigned.	
Goal 2.2: Minimum Training Standards for Volunteer Fire Services Members	
Objectives	***Term (Near/Mid/Long)***
1. Augusta County Emergency Services Officers Association consideration of expanding the volunteer fire service Standard Operating Guideline *Training of a New Member* to include the following language: *Volunteer members must successfully complete the VA Firefighter I certification course to be eligible for interior structural firefighting or operating in an incident area where self-contained breathing apparatus is required.*	Near Term
2. Ensure the ACFR training division is funded and staffed to offer one Firefighter I course on an annual basis during the evening and weekend hours when volunteer members are more readily available to participate.	Near Term
3. Develop minimum training standards for volunteer fire officers who may by position lead and supervise operational crews, and who may assume command of a fire, fire related, or other emergency.	Near Term

Strategic Initiative 2 – Organizational Growth and Excellence	
Initiative Manager(s): As assigned.	
Goal 2.3: EMS Alignment with State and Regional Strategic Planning	
Objectives	***Term (Near/Mid/Long)***
Virginia State Office of EMS State Strategic and Operational Plan, 2020-2022.	
1. Align ACFR EMS system with Objective 1.1.2 when considering strategies for recruitment and retention of EMS personnel, both volunteer and career.	Near Term
2. Align ACFR EMS system with Objectives 1.1.4, 1.1.5, and 1.1.6 to ensure coordinated service delivery across boundaries.	All Terms
3. Align ACFR EMS system with Objective 2.1.3 to ensure continual evaluation of system personnel information related to the challenges that impact the ACFR system EMS workforce (volunteer and career) when analyzing retention and developing retention strategies.	All Terms
4. Align ACFR EMS system with Strategic Initiative 2.2 to ensure initial EMS provider and incumbent provider training has adequate and dedicated resources to deliver training, and that all staff remains up to date with the latest techniques and best practices in the EMS discipline.	Near Term
5. Align ACFR EMS system with Strategic Initiative 3.2 to ensure focused EMS member and staff recruitment and retention efforts.	Near Term
6. Align ACFR EMS system with Objective 3.3.1 when designing and implementing an Emergency Medical Dispatch (EMD) and consider accreditation in the 911 Public Safety Answering Point component.	Mid-Long Terms
7. Align ACFR EMS system with Strategic Initiative 4.3, which outlines initial and continuing education in safe response strategies and tactics, health, safety, and wellness of EMS providers, mobile integrated heath, and evidence-based practices to improve EMS care.	All Terms
Central Shenandoah EMS Regional Plan (2022-2025)	
1. Align ACFR EMS system with Objective 2.2.1, which promotes regional agency assistance with regional training and clinical scheduling.	All terms
2. Align ACFR EMS system with Strategic Initiative 3.2, which focuses on recruitment and retention efforts to include developing EMS education programs (First Responder and EMT) in high schools.	Mid Term
3. Align ACFR EMS system with Strategic Initiative 4.2, which promotes EMS continuing education in regional agencies and throughout the region.	All Terms
4. Align ACFR EMS system with Strategic Initiative 4.2, which promotes increased provider engagement in the future of the EMS profession.	All Terms

Strategic Initiative 3 – Advancing Training and Education	
Initiative Manager(s): As assigned.	
Goal 3.1: Advance Volunteer and Career Training	
Objectives	***Term (Near/Mid/Long)***
1. Fund two additional training specialists (one fire training specialist; one EMS training specialist) to develop, coordinate, manage, and deliver consistent training and education programs for ***volunteer*** fire and EMS members with an emphasis on coordinating and implementing: □ Volunteer new member company level basic training. □ One EMT course on an annual basis during the evening and weekend hours when volunteer members are more readily available to participate. □ One Firefighter I course on an annual basis (when needed a Firefighter II course) during the evening and weekend hours when volunteer members are more readily available to participate. When demand exists, substitute a Firefighter II course.	Near Term
2. Funding two training specialists (one fire training specialist; one EMS training specialist) to coordinate, manage, and deliver consistent training and education programs for ***incumbent*** ACFR fire and EMS members. These positions will have primary responsibility to ensure system personnel are proficiently trained to perform assigned tasks; that they maintain local, state, national, and ISO standards; and that required certifications and annual coursework are current and properly documented.	Near Term
2a. Implement a work group consisting of system chief officers to develop Fire and EMS continuing education topics and schedules that meet the needs of the ACFR system.	Near Term
3. Provide annual Advanced EMT certification course to boost and maintain the availability of advanced life support field personnel, and to ensure ACFR staffed ambulances have a minimum of one ALS provider.	All Terms
4. Recruit, support, and fund Paramedic certification course candidates to boost and maintain a core cadre of system members certified in this higher level of pre-hospital care, and to expand ACFR system programs such as Mobile Integrated Health/Community Paramedicine, which aligns with state and regional Strategic Plans.	All Terms

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Strategic Initiative 4 – Infrastructure	
Initiative Manager(s): As assigned.	
Goal 4.1: Implement a Long Term Funding Solution for ACFR System Fire and EMS Fleet	
Objectives	***Term (Near/Mid/Long)***
1. Develop a funding solution for volunteer company Fire and EMS apparatus replacement beyond the major revolving apparatus loan fund to sustain ACFR system response.	Near Term
2. Implement a work group of system fire and EMS leadership (volunteer and ACFR department) to develop fire apparatus fleet life-cycle objectives that consider: □ One Engine Apparatus per ACFR system station that serves as the frontline Engine and that is not older than 25-years. □ One Engine Apparatus reserve that is not older than 25-years. □ Two frontline Ladder Apparatus and one reserve Ladder Apparatus (that can be cross-staffed at Sta. 10 if needed) that are not older than 25-years. □ A strategically placed Tanker Apparatus fleet that is not 25-years or older. □ An ambulance fleet that has no ambulances older than 10-years. □ Fire apparatus replacement planning that considers a replacement cycle for front-line Engine Apparatus between 12-15 years, and Ladder, Tanker, and Heavy Rescue Apparatus between 15-20 years. Remainder of life cycle as reserve. □ Ambulance apparatus replacement planning that considers a replacement cycle of 8-10 years. Remainder of life cycle as reserve. □ Heavy fire apparatus replacement should be given strong consideration for refurbishing frontline apparatus in accordance with NFPA 1912.	Near Term

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Strategic Initiative 4 – Infrastructure	
Initiative Manager(s): As assigned.	
Goal 4.2: Implement a Long Term Funding Solution for ACFR System Facilities	
Objectives	***Term (Near/Mid/Long)***
1. Develop a funding solution for ACFR system facility maintenance and improvements to sustain ACFR system response.	Near Term
2. Implement a work group of system fire and EMS leadership (volunteer and ACFR department) to develop maintenance and improvement objectives that consider: □ Facility life-cycle general maintenance/repair, mechanical component replacement, and larger replacement items such as roofs and HVAC systems, windows, apparatus aprons, exterior finish upgrades, obsolete electrical components, and major living space renovation due to expansion of membership, staffing, and services. □ CO capture system in all ACFR system facilities. □ Decon room/area for ACFR system personnel and equipment. □ Adequate separation between apparatus bays and living space. □ Adequate apparatus bay space to store reserve fire and EMS apparatus.	Near Term

Strategic Initiative 5 – Resource Optimization and Effective Deployment	
Initiative Manager(s): As assigned.	
Goal 5.1: Optimize Deployment and Expand Current Fire and EMS Capacity	
Objectives	***Term (Near/Mid/Long)***
1. Staff Station 2 with four dual certified ACFR staff per shift 24/7/365 (2-Engine; 2-Ambulance). This station is remote and several miles/minutes away from other fire and rescue stations and therefore requires one ALS ambulance around the clock, and a staffed fire suppression unit and response force capable of commencing the initial mitigation tasks on any emergency responded to. ***Additional dual certified FTEs: 6***	Midterm
2. Staff Station 5 during daylight staffing hours Monday-Friday from 6:00 am-6:00 pm. based on the response district, that this station has an aerial apparatus that is included in the response matrix beyond the first due area, and that the first due area includes industrial and business building risks beyond that of other districts. ***Additional dual certified FTEs: 3***	Near Term

Goal 5.1: Optimize Deployment and Expand Current Fire and EMS Capacity (continued)	
3. Staff Station 6 with a 12-hour peak time ambulance utilizing EMS single certified ACFR staff. Objective based on current EMS demand, and to add resiliency to the overall EMS system. **Additional EMS single certified staff: 4**	Midterm
4. Transition dual certified ACFR staff at Rescue 6 (3 FTEs) to EMS single certified ACFR staff maintaining daylight staffing hours Monday-Friday from 6:00 am-6:00 pm. ***Additional EMS single certified staff: 3*** Dual certified FTEs shifted to Station 10 to upstaff apparatus at this station.	Near Term
5. Increase minimum daily staffing at Station 10 from four to six (3-Engine and 3-Heavy Rescue). Staffing should be adjusted to ensure the Heavy Rescue is staffed with a minimum of a company officer and two firefighters. Station minimum staffing increased to six/shift. **Additional dual certified FTEs needed: 3**	Near Term
6. Staff Station 9 with a 12-hour peak time ambulance utilizing EMS single certified ACFR staff. Objective based on current and potential increase in future EMS demand, and to add resiliency to the overall EMS system. **Additional EMS single certified staff: 4**	Long Term
7. Staff Station 10 with a 12-hour peak time ambulance utilizing EMS single certified ACFR staff. Objective based on current and potential increase in future EMS demand, and to add resiliency to the overall EMS system. **Additional EMS single certified staff: 4**	Long Term
8. Staff one of two ambulances at Station 11 with EMS single certified staff. Consideration should then be given to shifting the two dual certified staff to permanent staffing on the aerial ladder at Station 11. Staffing should be adjusted to ensure the aerial ladder is staffed with a minimum of a company officer and two firefighters. Station minimum staffing increased to ten/shift (3-Engine, 3-Aerial Ladder, 2 dual certified: Ambulance, 2-EMS certified: Ambulance). Objective is to keep both ambulances in service 24/7/365 (alleviates cross staffing the aerial ladder). **Additional EMS single certified FTEs: 8**	Midterm
9. Staff Station 21 with two dual certified personnel Monday-Friday from 6:00 am-6:00 pm (2-Engine; 2-Ambulance). This station is remote and several miles/minutes away from other fire and rescue stations and should have one ALS ambulance, and a staffed fire suppression unit and response force capable of commencing the initial mitigation tasks on any emergency responded to during Monday-Friday daylight hours when the volunteer force is least available. ***Additional dual certified FTEs: 3***	Midterm

Strategic Initiative 5 – Resource Optimization and Effective Deployment	
Initiative Manager(s): As assigned.	
Goal 5.2: Hub Deployment Model to Expand Current Fire and EMS Capacity	
Objectives	***Term (Near/Mid/Long)***
1. Staff Station 4 with five/shift (*to include a Lieutenant on each shift*). This will create a staffing model of two EMS single certified staff on the ambulance (one ALS and one BLS) and three dual certified staff on a fire suppression apparatus to respond in the district and regionally as a hub station. Staffing should remain 24/7/365. **Additional dual certified FTEs-3.** **Additional EMS single certified FTEs-8**	Near term
2. Staff Station 25 with five/shift (*to include a Lieutenant on each shift*). This will create a staffing model of two EMS single certified staff on the ambulance (one ALS and one BLS) and three dual certified staff on a fire suppression apparatus to respond in the district and regionally as a hub station. Staffing should remain 24/7/365. **Additional dual certified FTEs-3.** **Additional EMS single certified FTEs-8**	Midterm
3. Construct and staff a new Station 27 along the Route 340 corridor in the Crimora area. This station includes the acquisition of land, the construction of a facility, the procurement of one engine apparatus, one ambulance apparatus, an additional nine dual certified FTEs to staff the Engine with one Lieutenant and two firefighters (*to include a Lieutenant on each shift*), and 8 new EMS single certified FTEs to staff the ambulance with two (one ALS and one BLS). This staffing model is 24/7/365. As the Crimora station is in between the New Hope and Dooms stations, strategic planning consideration should also be given to relocating current staffing from Station 9 (3 dual certified staff) and Station18 (six dual certified staff) to Station 27, which will cover the nine FTEs needed to staff the Engine. **Additional FTEs: 8 EMS single certified to staff ambulance.**	Long term
4. Monitor all growth in the Urban Service and Community Development policy planning areas for NFPA 1720 suburban population trigger, which will increase the Effective Response Force from six to ten in these areas.	All terms

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Strategic Initiative 6 – Ensuring a Resilient Augusta County	
Initiative Manager(s): As assigned.	
Goal 6.1: Sustaining ISO-PPC Needed Fire Flow	
Objectives	***Term (Near/Mid/Long)***
1. ACFR department works with Augusta Water and reviews the deficiencies in the public water supply system as outlined in the ISO-PPC analysis, determine areas where the Needed Fire Flow cannot be sustained, and develop a plan to ensure flow requirements are met and improvements made where possible.	Near Term
2. Develop a fire suppression response plan that includes ACFR system water tankers on building fire responses in identified areas, where the Needed Fire Flow cannot be delivered through fire hydrants, to ensure the Needed Fire Flow is sustained through a combination of fire hydrants and water tankers.	Near Term

Strategic Initiative 6 – Ensuring a Resilient Augusta County	
Initiative Manager(s): As assigned.	
Goal 6.2: Implement a Community Risk Reduction Program	
Objectives	***Term (Near/Mid/Long)***
1. Develop and implement a level of fire prevention inspections on those buildings and occupancies covered under the Virginia Statewide Fire Prevention Code. This can include fire safety reviews over the midterm with a progression to fire code enforcement over the longer term.	Mid Term
2. Develop and implement a Fire Marshals Office in the ACFR department, pursuant to Title 27, Chapter 3 of the Virginia State Code, whose initial charge should be to develop and implement a Board approved community risk reduction plan for the County that includes fire prevention and fire investigation program work.	Mid Term
3. Hire a Fire Marshal who is certified in Virginia fire inspector and fire investigator courses to manage the Augusta County Community Risk Reduction program.	Midterm
4. Hire Virginia certified fire inspector and fire investigator (dual certified) personnel; the number to be determined based on inspectable properties and workload, and as approved by the Board of Supervisors.	Long Term

Strategic Initiative 6 – Ensuring a Resilient Augusta County	
Initiative Manager(s): As assigned.	
Goal 6.3: Develop a Mobile Integrated Health/Community Paramedicine (MIH/CP) Program	
Objectives	***Term (Near/Mid/Long)***
1. Align the ACFR EMS system with the State EMS and Central Shenandoah EMS Council Strategic Plans with the development and implementation of a Mobile Integrated Health/Community Paramedicine program.	Mid Term
2. Implement a work group of system EMS leadership (volunteer and ACFR department) to determine the local need; stakeholders; program requirements such as training, staffing, infrastructure needs, community healthcare partners, medical direction, and funding and sustainability.	Mid Term

End of Report