

# Montgomery County, Virginia Fire and Rescue Services Comprehensive Assessment

*June 2026*



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## INTRODUCTION

MissionCIT is pleased to present our findings of the Fire and Rescue Services Comprehensive Assessment for Montgomery County, Virginia. The study encompassed a review of the volunteer fire departments, town fire departments, the volunteer rescue squads, Virginia Tech Rescue Squad and the town EMS system. MissionCIT examined all components of the current system and services provided by the respective agencies per the Request for Proposal. Our recommendations for improvements are located throughout the report.

We would like to thank the following people/groups for their support and assistance throughout this project:

- Montgomery County Board of Supervisors
- Town of Blacksburg and Christiansburg Town Councils
- Ms. Angela Hill – County Administrator
- Montgomery County Fire and Rescue Chiefs
- The men and women of the fire departments and rescue squads within Montgomery County

In particular, MissionCIT would like to acknowledge Deputy County Administrator Chris Lawrence, Montgomery County Fire and EMS Chief Michael Geary, and New River Valley 911 Director Jason Milburn for their assistance in helping facilitate the study process and gather the necessary data for the study team.

The fire and rescue assessment provided the MissionCIT study team with a clear picture of the operations and service delivery provided by the fire departments and rescue squads. Our professional recommendations are based on the assessment of the system and industry standards, but with the safety of the public they serve in mind.

Fire and EMS services are regulated and guided by numerous regulations, codes, standards and best practices. These are promulgated by federal, state, and local governments as well as standards making bodies. The largest and most influential of these bodies for fire protection is the National Fire Protection Association (NFPA) which publishes more than 200 codes, standards, recommended practices and guides. NFPA codes and standards are written and maintained by a cadre of hundreds of subject matter experts who donate their time and efforts to ensure that public safety considerations are at the forefront of the management of fire service organizations and response to emergency incidents. When applicable, the recommendations put forth in this

study were guided by referencing the appropriate regulation, code and/or standard and are cited as appropriate.

## EXECUTIVE SUMMARY

MissionCIT conducted a thorough review of the fire department and rescue squad services within Montgomery County, Virginia, consisting of the five volunteer fire departments, Montgomery County Fire and EMS, and the four volunteer rescue squads including Christiansburg EMS and Montgomery County Fire and EMS, all serving residents, students and visitors within the county. All of the agencies provide a tremendous service to the citizens and visitors of Montgomery County. They serve selflessly, through all hours of the day and night, to provide a valuable service.

The MissionCIT team held numerous interviews and site meetings with fire and rescue squad department personnel, county fire/EMS staff, county and town administrators and department heads, and other emergency services officials in mid-November 2025. In addition to the site meetings, the MissionCIT team also conducted multiple virtual meetings and email exchanges with key staff over the course of the project. MissionCIT, with assistance from Montgomery County, also actively engaged the citizens of the county, through in person meetings and online surveys, to obtain their input into the fire rescue system assessment.

MissionCIT reviewed all provided information from the fire and rescue squad departments and provided recommendations in the areas of:

- Governance/Oversight
- Funding
- Volunteer Recruitment and Retention
- System Workload and Performance
- Staffing/Effective Firefighting Force
- Department Deployment/Operations
- Dispatch/Communications
- Apparatus
- Equipment
- Stations
- Health, Safety and Wellness
- Training
- Community Risk Reduction
- Policies and Procedures
- ISO Rating Information

As a result of our efforts, we are pleased to present a summary of the key strategic themes that emerged and our recommendations for improvement. Several of the themes that MissionCIT identified were also present in the September 2021 Virginia Department of Fire Programs study. Some of the items in the 2021 study have been addressed within the county and system, while many have not.

## Key Strategic Themes

The key strategic themes, in no order, from our assessment include the following:

- Governance and Oversight
- Funding
- Countywide System Approach
- Improved Resource Allocation and Staffing
- Health and Safety (Public and Emergency Services Personnel)
- Dispatch

### *Governance and Oversight*

There is currently no one group with the authority or responsibility to provide guidance and direction to the fire and rescue system within the county. Each fire and rescue squad operates independently of each other. They each plan and purchase equipment and apparatus independently. Also, they each deliver services utilizing different procedures. The Fire Rescue Commission has been chartered to provide systemwide direction, but currently only decides on the annual financial allocation of county funds to the various departments. The commission needs to be more aggressive in their oversight and determination of the strategic direction of the fire and rescue services, and/or Montgomery County will need to fill that role.

In addition to the greater strategic role by the Fire Rescue Commission, MissionCIT is also recommending that several sub-committees be formed to help the Fire Rescue Commission in providing strategic guidance and determining policy direction for the fire and rescue squad system. Some of the recommended sub-committees include training, recruitment and retention, operations and policies and procedures.

### *Funding*

Currently, Montgomery County provides funding allocations to each fire and rescue squad department within the system (with the exception of Virginia Tech Rescue Squad). The Towns of Blacksburg and Christiansburg also provide funding to their fire and EMS agencies through their annual budget process. There are concerns that the county is not appropriately funding the town fire and rescue services as they should. In addition, due to declining volunteer coverage, the county has assumed a tremendous increase in costs to provide full time fire and EMS staffing at several locations in the unincorporated areas. MissionCIT has recommended that the county provide actual cost reimbursements to the departments within the unincorporated areas for their operating expenses while providing several cost allocation models for the county to consider to fund the town fire and rescue services. Capital expenditures and priorities for the fire and rescue squads within the unincorporated areas and towns should be determined through the Fire Rescue Commission.

The four cost allocation models presented for consideration to Montgomery County to assist in funding the town services include:

- *Option 1* – Full Allocated Funding Basis (Using Town of Blacksburg/Virginia Tech Formula – Based on Prior Year)
  - Based on percentage of valuation of towns and calls as compared to entire county
- *Option 2* – Marginal Funding Basis
  - Calculations based on what additional calls, coverage population and property valuation is served outside of their normal town coverage areas and outside of town fiscal responsibilities.
- *Option 3* – Full Flat Formula (Based on a 3-year rolling average)
  - Percentage of area within county run x 30%
  - Percentage of calls within county run x 35%
  - Property valuation within first due district, in billions x 35%
- *Option 4* – Property Tax Formula
  - Funding based on gap from overall property tax valuations, minus Montgomery County general fund expenditures for the year.

MissionCIT is also offering for consideration that the county or towns implement a Fire Levy to assist in providing additional funding for fire and rescue services.

#### *Countywide System Approach*

Each fire department and rescue squad within Montgomery County operates independently of each other. They have their own boards of directors, policies and procedures and mostly train separately. However, they do operate collectively through the dispatch process. Because of the independence of the departments, there are variations in operations, amount of apparatus, safety practices and even the capabilities of their personnel and apparatus. Each organization plans for additional station locations and how they deliver services independently of each other.

MissionCIT recommends greater strategic planning across all organizations to create one, more effective and efficient system.

The development of countywide training, response and operating standards, policies and procedures are critical to moving towards a countywide approach and standard as to how business is conducted. In particular, the consistent use of the incident command system and frequent drills of unified command systems is needed, particularly with Virginia Tech and amongst all of the fire and EMS agencies.

In addition, response districts for all agencies need to be defined based on closest unit response, not by history. Centralized and coordinated volunteer recruitment and retention is also needed to continue to build and maintain a strong volunteer component systemwide.

### *Improved Resource Allocation and Staffing*

Montgomery County fire and rescue agencies are heavily resourced. The apparatus and equipment are in very good shape and each agency has a plentiful supply. However, a clear countywide risk assessment needs to be done to ensure that the amount and type of apparatus is appropriate for the risk levels. This includes the provision of technical rescue services.

As the county continues to grow, with increasing call volumes for the fire and rescue departments, the need for full time career staffing is also growing for some agencies. MissionCIT reviewed the current staffing levels against industry standards and has recommended adding career staffing for several fire departments and rescue squad/EMS agencies. This will allow a minimum response level to be met by departments and to take some of the burden off of the volunteer personnel. In addition, as the system builds new facilities to meet increasing call workloads, MissionCIT is recommending that dual role (fire and EMS) career personnel be placed in those stations.

### *Health and Safety*

The health and safety of current volunteer and career fire and EMS personnel is extremely important to maintaining member health, longevity and effective service delivery. MissionCIT visited all fire and rescue squad stations, looked at the apparatus and reviewed operational policies and procedures. Some gaps were identified and recommendations are made to improve carcinogen safety for personnel, identify individual health issues through annual health assessments and meet OSHA requirements through annual breathing apparatus fit testing.

In addition to the health and safety of emergency services personnel, MissionCIT has identified needed health and safety items for the public. Currently, the county does not have an adopted fire prevention code or a fire marshal. They are utilizing the Virginia State Fire Marshal's Office, but they only inspect limited properties within the unincorporated area. The county should adopt a fire prevention code and hire its own Fire Marshal and a Fire Inspector.

### *Dispatch*

Though not part of the original study scope for MissionCIT, some key issues were identified regarding the New River Valley 911 (NRV911) dispatch center and how emergency communications are handled with the county fire and rescue squad agencies. Key 911 call answering and dispatch processes need to be reviewed, documented and streamlined to ensure consistency and efficiency. The review of data for this report was made difficult due to the lack of data, inconsistent data and variations in how agencies are dispatched.

As part of a review of the communications system, the number and type of dispatch and operating channels need to be merged and streamlined to improve personnel safety and reduce the

workload on the dispatch center. Multiple agencies having their own dispatch and operating channels that other departments may or may not be operating on is an extreme safety issue.

### **Implementation Plan**

The recommendations in this report cover all aspects of the fire and rescue squad delivery system, across multiple agencies. As a result, it would not be practical to develop a specific implementation plan for all of the recommendations. Instead, MissionCIT is providing a general implementation plan for the key strategic themes/issues within the report. Depending on how these strategic items are implemented may determine the order and timing of the remaining recommendations.

The implementation of the key strategic themes can be done through phases. The timing of these phases and any specific recommendations associated with them, and any of the other recommendations, do not need to be implemented in a linear manner. Multiple improvements may take place at a time. The general implementation phases include the following recommendations:

#### *Phase 1- Short Term*

- Increased strategic system oversight by the Fire Rescue Commission and/or Montgomery County
- Creation of sub-committees within the Fire Rescue Commission to address strategic and system issues
- Enhance collaboration and reduce the organizational isolated processes within the fire and rescue system

#### *Phase 2 – Intermediate Term*

- Improved recruitment and retention of volunteer and career personnel
- Development of a county funding allocation model for the towns and a funding process for the volunteer fire departments
- Development of a countywide records management system, including how NRV911 tracks calls for service
- Development of countywide fire performance standards, similar to EMS
- Development of systemwide policies, procedures, operating guidelines, training requirements and training processes
- Review and development of fire and EMS response districts based on closest unit
- Development of a strategic approach to the provision of technical rescue services
- Identification of community risks and resource needs within the system, including determining the number and type of fire apparatus and EMS vehicles

*Phase 3 - Extended*

- Identification of future fire/EMS station locations to improve response
- Begin the process to identify, purchase land and build additional needed station facilities
- Improved staffing within the fire and EMS system
- Initiate health and safety improvements within the fire and rescue system and to improve fire code enforcement services to the public
- A thorough assessment of the NRV911 dispatch center, its data collection and call handling and dispatch processes
- Streamline fire and EMS dispatch and operational channels

**Implementation Costs**

The implementation costs are estimates for Montgomery County and the Towns for projection purposes only regarding the strategic items outlined above. They do not include every recommendation. They are based on 2026 known costs.

*Phase 1*

- No known costs

*Phase 2*

- Approximate costs for a countywide RMS - Unknown
- Volunteer and Career personnel Recruitment and Retention programs – Unknown
- Hire a Volunteer Human Resource Manager
  - Salary and Benefits - \$61,779
  - Uniforms - \$500
  - Vehicle - \$50,000

*Phase 3*

- Health and Safety Improvements
  - Fit testing for all fire department personnel and selected rescue squad personnel who wear respirators or self-contained breathing apparatus
    - Approximately \$40,000
  - Installation of diesel exhaust systems within the appropriate locations
    - Per station - \$70,000 to \$90,000
    - Per apparatus - \$10,000 per unit
  - NFPA 1582 Entry and annual health assessments for all fire department personnel and potentially the rescue squad members
    - Fire department personnel - \$216,000 annually
    - Rescue squad personnel - \$309,600 annually

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- New members - \$24,000 annually
- Initiate a countywide physical fitness program for fire and rescue squad personnel
  - Equipment costs – Unknown
- Fire/EMS Station Renovations or Additions – Costs unknown
- Staffing Improvements

*Personnel costs are based on current town or county salary scales and assumes a 40% salary to benefit ratio.*

  - Blacksburg
    - Hire personnel to staff a 4-person fire unit as a second fire unit to provide 24/7 response coverage from Blacksburg Station #2.
      - Salaries and Benefits - \$1,325,742 annually
      - Annual health assessments - \$13,600
      - Uniforms and PPE - \$93,500
    - Hire ALS personnel to provide ALS staffing for Blacksburg Rescue
      - Salaries and Benefits - \$317,134
      - Initial Precepting Costs - \$26,000
      - Annual health assessments - \$3,200
      - Uniforms - \$4,000
  - Christiansburg
    - Hire personnel to staff a 4-person fire unit, daytime, within Christiansburg
      - Salaries and Benefits - \$147,479
      - Annual health assessments - \$1,600
      - Uniforms and PPE - \$11,000
    - Hire personnel to staff a 4-person fire unit, 24/7, within Christiansburg
      - Salaries and Benefits - \$1,066,781
      - Annual health assessments - \$13,600
      - Uniforms and PPE - \$93,500
    - Hire personnel to staff a third ALS ambulance within Christiansburg EMS
      - Salaries and Benefits - \$650,017
      - Initial Precepting Costs - \$126,000
      - Annual health assessments - \$19,200
      - Uniforms - \$24,000
  - Montgomery County
    - Hire an additional staff member within MCFEMS for the training division
      - Salary and Benefits - \$86,930
      - Annual health assessment - \$800
      - Uniforms and PPE - \$5,500
    - Hire a Fire Marshal and Fire Inspector
      - Salary and Benefits - \$162,791

- Vehicles - \$110,000
- Annual Health Assessments - \$1,600
- Uniforms and PPE - \$11,000
- Future Fire/EMS Stations
  - As part of the RFP requirements, MissionCIT developed four scenarios for potential new fire and EMS station locations after a comprehensive GIS analysis.*
  - From the analysis, MissionCIT is recommending the following general locations for future fire and EMS stations in the intermediate timeframe. The locations include:
    - Peppers Ferry Road
    - Roanoke St./Lee Highway
    - Radford Road
  - Estimated construction (without site purchase or preparation) costs per station
    - \$7-15 million per location
    - Does not include apparatus or station equipment and furniture
  - Estimated staffing costs per station
    - \$1,454,999 annually
    - Annual health assessments - \$16,000
    - Uniforms and PPE - \$110,000

## SECTION 1: REPORT DATA

One important note needs to be made regarding the study process and information contained in the report and our recommendations. The data collection process consisted of a general informational survey sent to each agency and a more in-depth list of administrative, operational and training data requested from each agency. MissionCIT, through the County Administrator and Deputy County Administrator, made multiple requests for data from each of the fire departments and rescue squads regarding their budgets, call data, response staffing levels, training records, ISO information, accident and injury data, etc. with limited success. A small portion of the departments provided most of the data requested.

Most all of the response/call data used came from computer aided dispatch (CAD) record information. MissionCIT's analysis was based on the information provided to us by the NRV911 Director. This source provided the best, consistent view of the performance of the fire and EMS system. Even with what was provided, MissionCIT staff had to massage the data, eliminate outliers and make data configuration decisions based on general fire and EMS knowledge and best practices. The CAD data numbers also did not correspond in any way to the limited call data provided by the individual departments.

As a result, MissionCIT is presenting the best set of data and statistics available from the fire and rescue system in the report and our analysis. The data presented should be viewed somewhat cautiously due to the adjustments that MissionCIT had to make with the data and the variances in the data based on the source. However, the MissionCIT team feels that it represents the most accurate picture of the operations of the fire and rescue system. A summary of the data element qualifiers used by MissionCIT is included in Appendix F.

Data is a critical element to the effective management of a fire or EMS agency today and to justify to the community what the needs are for the agencies and/or system. Accurate, consistent and reliable data is necessary. That does not exist in Montgomery County, but should be made a priority.

### **Recommendation 1.1**

The fire and EMS system, including dispatch, should develop a template and definition of the key data elements necessary for collection and analysis, such as 911 call processing time, unit turnout time, unit travel time, etc. and identify what those elements mean to ensure that they are collected within a systemwide records management system inclusive of CAD data, incident reporting data, training information and administrative recordkeeping.

## SECTION 2: PROJECT GOALS AND OBJECTIVES

Prior to the initiation of the project, MissionCIT took the key components of the issued RFP from Montgomery County and consolidated them into the following project goal and objectives. These were then reviewed with the project contact and approved.

### **Goal**

To conduct a comprehensive assessment of the current and future needs for the efficient and effective delivery of fire and rescue services for Montgomery County.

### **Objectives**

- Conduct a thorough assessment of the current state of the fire rescue system in the County to include the following areas
  - Community Risk Issues and Growth
  - System Performance
  - Personnel Training
  - Volunteer Recruitment and Retention
  - Staffing (Career and Volunteer)
  - Apparatus Fleet
  - Station Conditions
  - Health, Safety and Wellness
  - Funding Mechanisms
  - Governance and Oversight
  - Dispatch and Communications
- Involve and solicit feedback and perspectives from internal stakeholders, citizens, other public safety stakeholders and appropriate elected officials
- Benchmark current practices against national consensus standards and industry best practices
- Conduct a station location analysis to determine the optimal location of current and future station facilities
- Provide recommendations and a plan for improvements/changes within the fire rescue system to meet national consensus standards and industry best practices for short, intermediate and long-term timeframes

**SECTION 3: THE COMMUNITY**

Montgomery County is located in southwest Virginia along the Blue Ridge mountains and along the Interstate 81 corridor. The county is approximately an hour southwest of the City of Roanoke. The county’s estimated 2024 population is 101,323 over 387 square miles. Within the county are two main towns, Blacksburg and Christiansburg. Blacksburg is home to Virginia Tech, a large state college.

Virginia Tech has approximately 37,000 students, full time and part time, who attend the college. Of that total, approximately 25,000 of them are included within the population total for the Town of Blacksburg.

The population distribution between the towns and the unincorporated area includes the following table.

**Table 1: Montgomery County Population Statistics**

<b>County Area</b>	<b>2024 Estimated Population*</b>	<b>Size in Square Miles</b>	<b>Population per Square Mile</b>	<b>Type of Demand Zone (NFPA 1720) **</b>
Blacksburg	45,452	19.74	2,302.5	Urban
Christiansburg	22,632	14.62	1,548	Urban
Unincorporated Area	33,239	352.64	94.26	Rural/Remote

*\*July 1, 2024 Weldon Cooper Institute estimates*

*\*\*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.*

As a result of the variations in population density, MissionCIT will use the NFPA 1720 document guidelines and make recommendations for the fire/EMS system along the following criteria:

- Town of Blacksburg and Christiansburg – Urban Zone
- Unincorporated Montgomery County – Rural Zone

Further description and detail of the NFPA 1720 guidelines will be outlined in the System Performance and Staffing sections of the report.

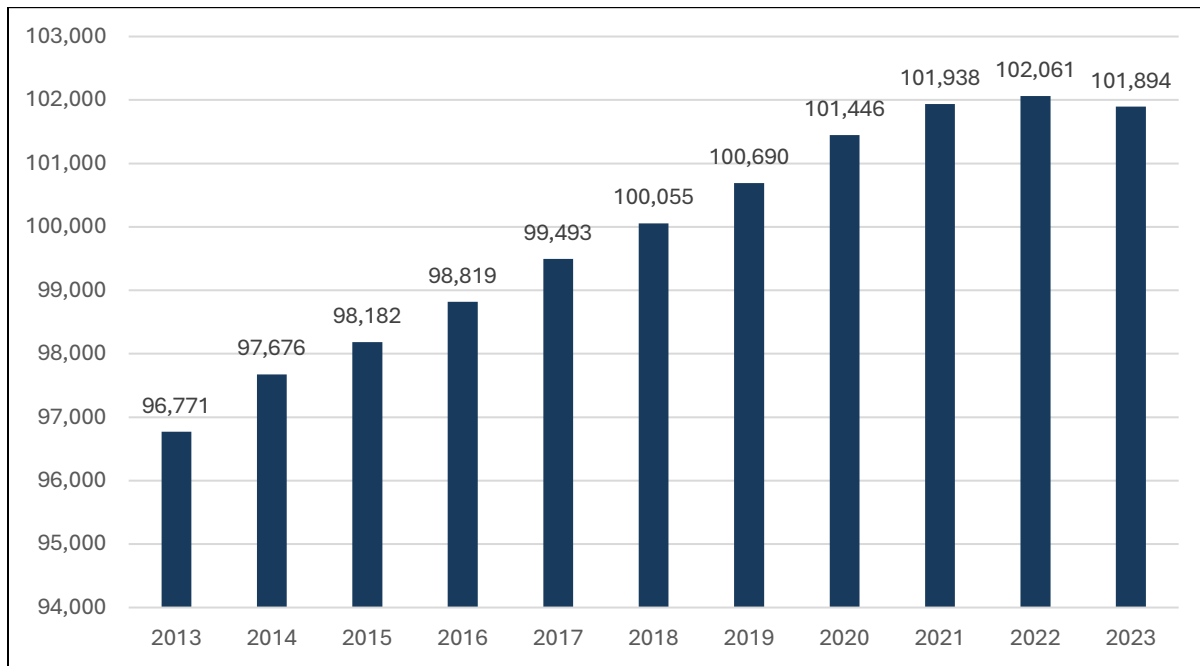
The racial makeup of the county population is broken down as the following:

85%	White
6.6%	Asian
4.2%	Black
4.2%	Other or two or more races

Source: State of the County, Data Analysis Report, November 2024, page 11

The population of the county has been consistently growing since 2013, with the exception of between 2022/2023.

**Figure 1: Population Trends within Montgomery County**



Source: Weldon Cooper Institute, Population Estimates, 2013 – 2023. State of the County, Data Analysis Report, November 2024, page 9.

Growth within specific areas within the county show the following:

**Table 2: Growth within Census Designated Places within Montgomery County**

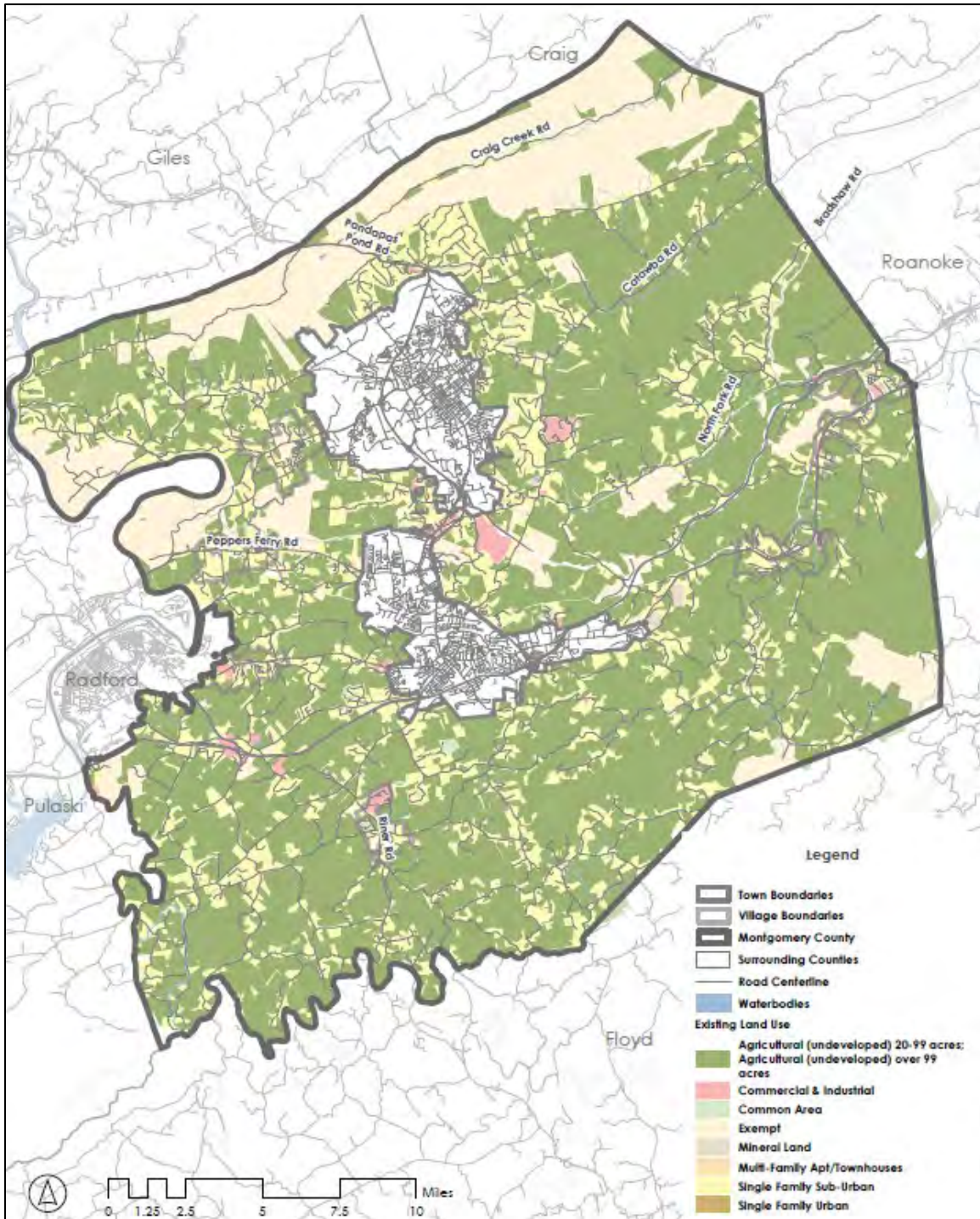
<b>Locality</b>	<b>2020 Population Census</b>	<b>Percent Change from 2010</b>	<b>Projected Population for 2040</b>
Montgomery County	99,721	5.65%	109,945
Belview CDP	1,128	26.60%	
Blacksburg	44,826	5.18%	
Christiansburg	23,348	10.96%	
Elliston CDP	855	-36.71%	
Merrimac CDP	2,858	33.99%	
Plum Creek CDP	1,350	-11.42%	
Prices Fork CDP	1,142	7.13%	
Riner CDP	949	10.48%	
Shawsville CDP	1,241	-5.27%	

*CDP= Census designated places*

*Source: New River Valley Hazard Mitigation Plan 2025, Section 6, page 13*

The current land use within the unincorporated areas of the county is shown below.

**Figure 2: Current Land Use in Montgomery County**



Source: State of the County, Data Analysis Report, November 2024, page 38

The current land use within the county is:

62%	Agricultural
23%	Single Family Dwelling – Suburban
15%	Exempt
0.95%	Commercial and Industrial
0.06%	Multi-family Apartment/Townhouses
0.01%	Single Family Dwelling – Urban

*Source: State of the County, Data Analysis Report, November 2024, page 38*

There are 40,674 housing units within the county, of which 48% are owner occupied, 39% are renter occupied and 13% are vacant. Housing units that are renter occupied or vacant typically pose a greater fire risk within the community. Approximately 11.3% of the housing stock in the county consists of mobile homes. Again, mobile homes typically pose a greater risk for residents due to their age and construction and they may not allow for quick egress from the structures during a fire.

The age of the housing stock in the county is also very diverse. As of 2014, the breakdown shows the following:

4.7%	Older than 1939
9.6%	1940 to 1959
26.7%	1960 to 1979
26.8%	1980 to 1999
26.1%	2000 and younger

*Source: American Community Survey, 5 Year Estimate New River Valley Hazard Mitigation Plan 2025, p. 16*

Housing that is older has a greater fire risk than housing which is newer. Approximately 41% of the housing stock within the county is older than 45 years.

The following shows specific demographic data from the county as compared to the state of Virginia.

**Table 3: Demographic Information - Montgomery County vs. State of Virginia**

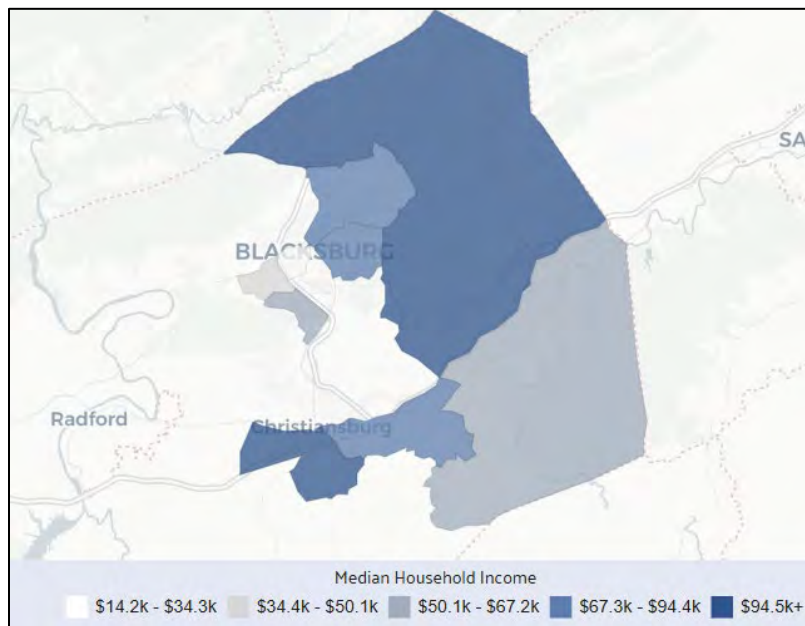
Demographic Information	Montgomery County	Virginia	Montgomery Co. compared to State
Median household income	\$70,770	\$92,090	Lower
Median age	29.5 years old	39.4 years old	Lower
Percent of population with a Bachelor's degree	48.5%	48.3%	Higher
Home ownership	57.6%	67.1%	Lower
Median property value	\$283,600	\$360,700	Lower
Percent of population with no health insurance	4.7%	6.9%	Lower
Percent of population in poverty	22.1%	9.7%	Higher
Percent of population disabled	8.6%	13.1%	Lower
Percent of population over age 65	14.7%	17.6%	Lower

Source: US Census Data

The higher level of poverty in the county can be a concern and risk for fire, and in particular, for the demand for emergency medical services. The younger population from the median age and education levels can be the result of having Virginia Tech within the county.

The distribution showing median household income in the county shows the following:

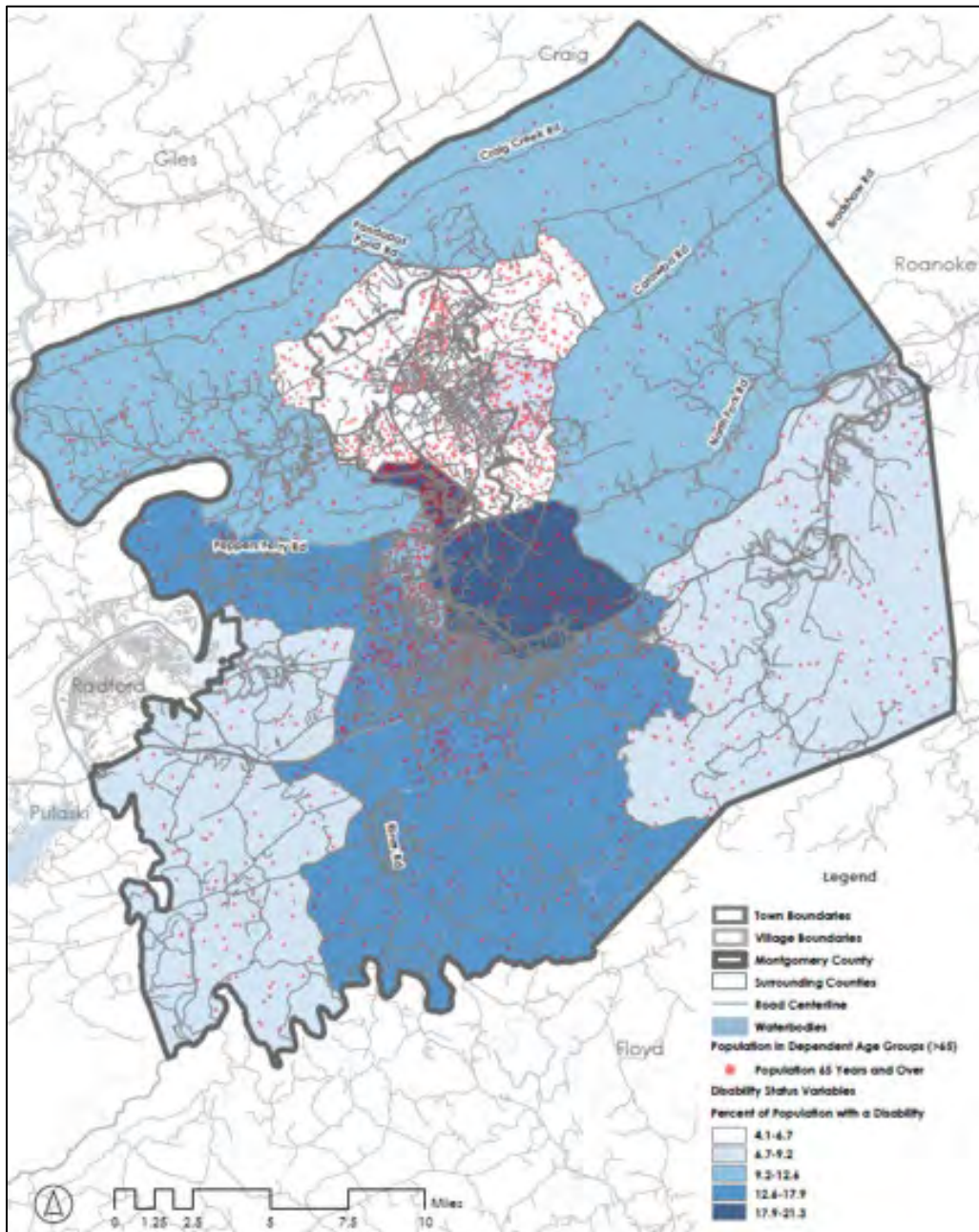
**Figure 3: Median Household Income Distribution in the County**



Source: Data USA

The percentage of a jurisdiction’s population with disabilities can also increase the usage of fire and emergency medical services, but particularly, provide increased fire risks. The population with disabilities may not be able to self-exit from a structure on fire, or may not have the appropriate cooking skills to safely use kitchen appliances. The percentage of the county’s population with disabilities is shown below.

**Figure 4: Percent of Population with Disabilities**



Source: State of the County, Data Analysis Report, November 2024, page 50

**SECTION 4: COMMUNITY GROWTH**

Montgomery County has had steady growth averaging 2% per year since 1960. During the period of 2013 – 2023, the county saw a steady increase in construction of both single family and multi-family dwellings. The number of units constructed during that time shows the following:

**Table 4: Montgomery County Single and Multi-Family Construction, 2013-2023**

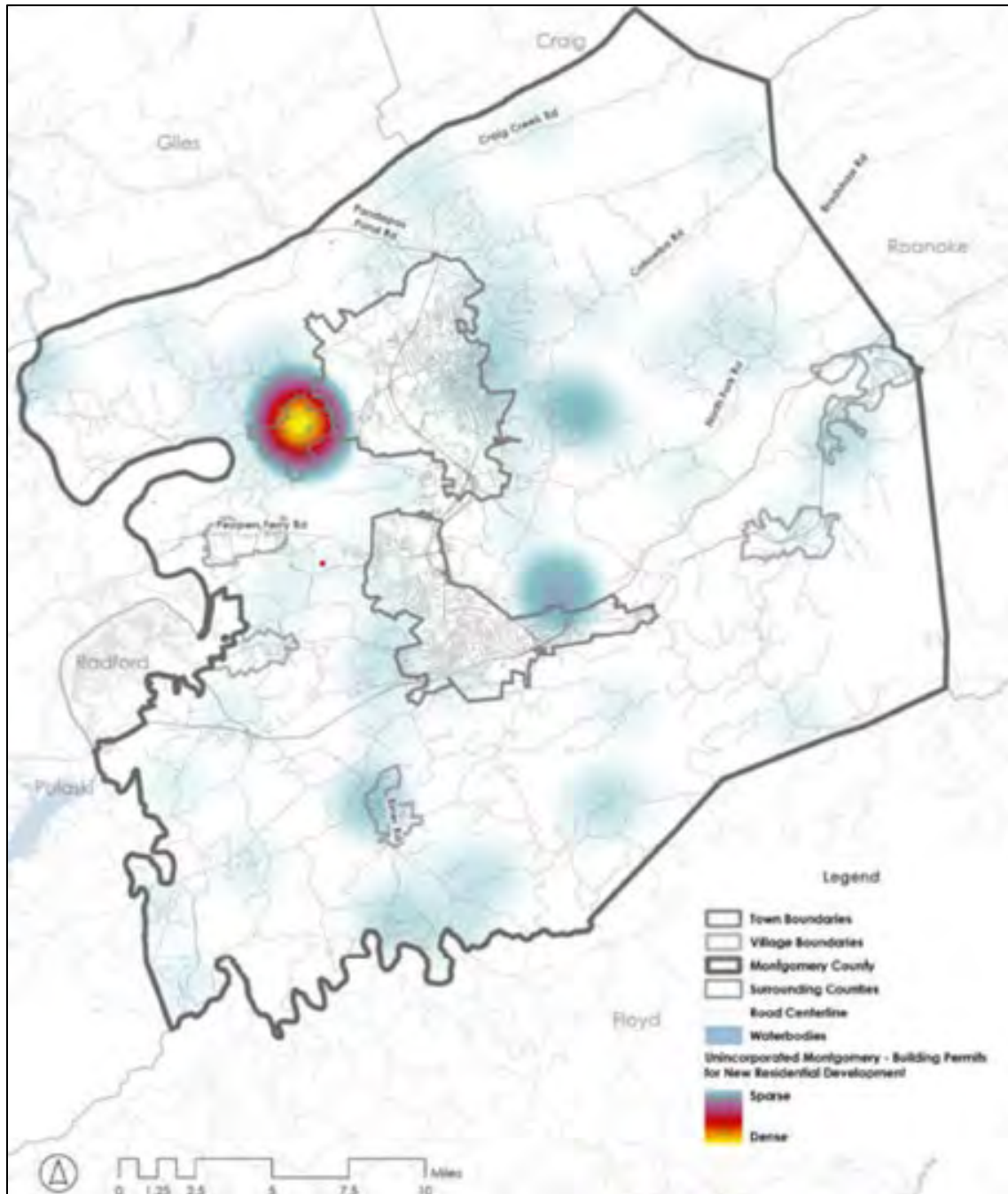
<b>Blacksburg</b>		<b>Christiansburg</b>		<b>Unincorporated County</b>	
Single Family	Multi-Family	Single Family	Multi-Family	Single Family	Multi-Family
960	1,796	1,120	248	990	564

*Source: State of the County, Data Analysis Report, November 2024, page 50*

This new construction alone potentially could account for a population increase of over 11,000 additional residents and an increase of potentially 1,000 additional fire and rescue calls per year.

The specific growth areas for residential development within the unincorporated areas of the county from 2020 to 2024 are shown on the map below. The highest area of growth is from a new development that has been approved by the Board of Supervisors just west of Blacksburg. The remaining areas are sprinkled around the east of Blacksburg and Christiansburg and some in the southern areas of the county.

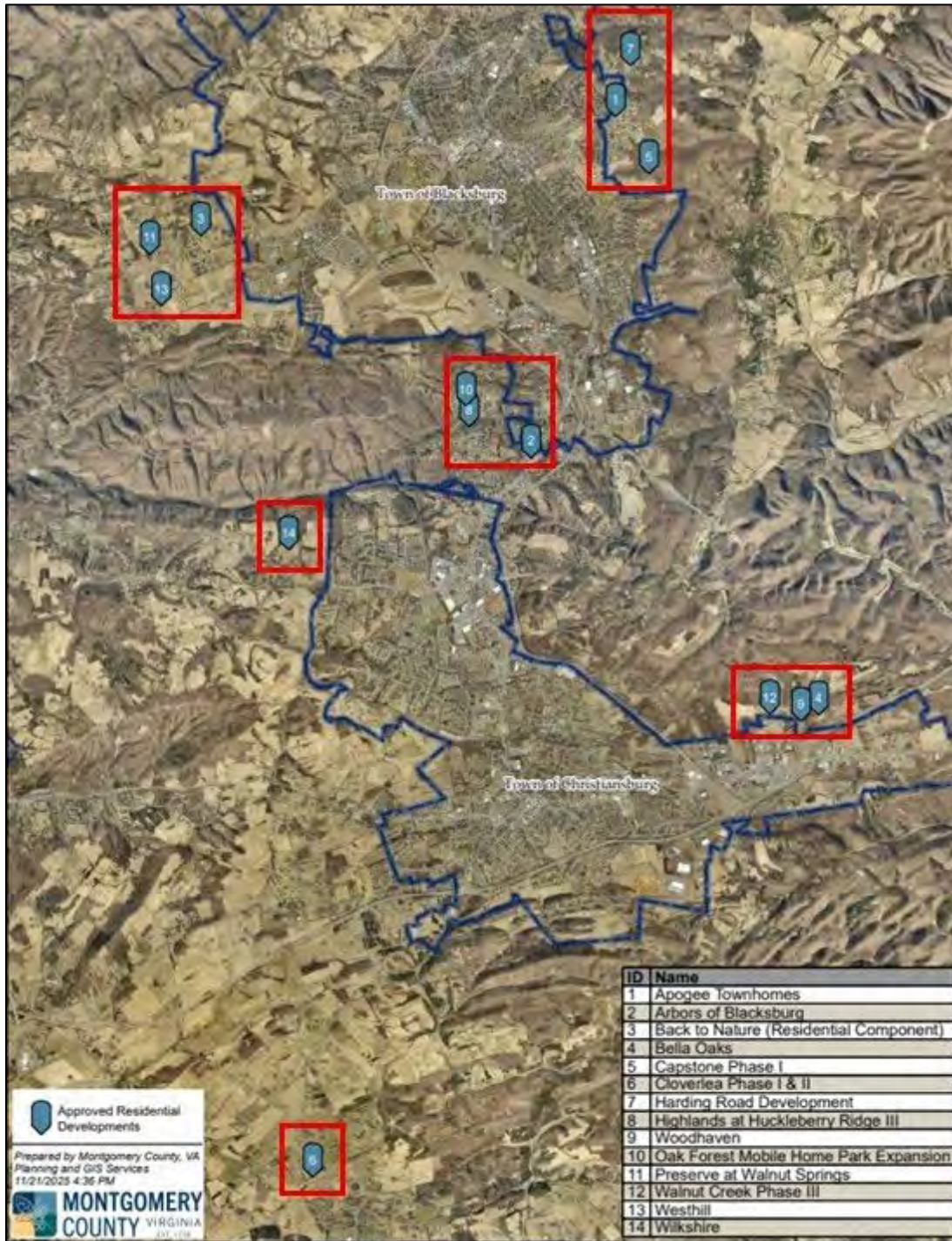
**Figure 5: Residential Growth in Unincorporated Montgomery County, 2020-2024**



Source: State of the County, Data Analysis Report, November 2024, page 37

A more detailed map below shows the locations of approved single and multi-family developments, mostly clustering outside of Blacksburg and Christiansburg in Montgomery County with one development in the Riner area.

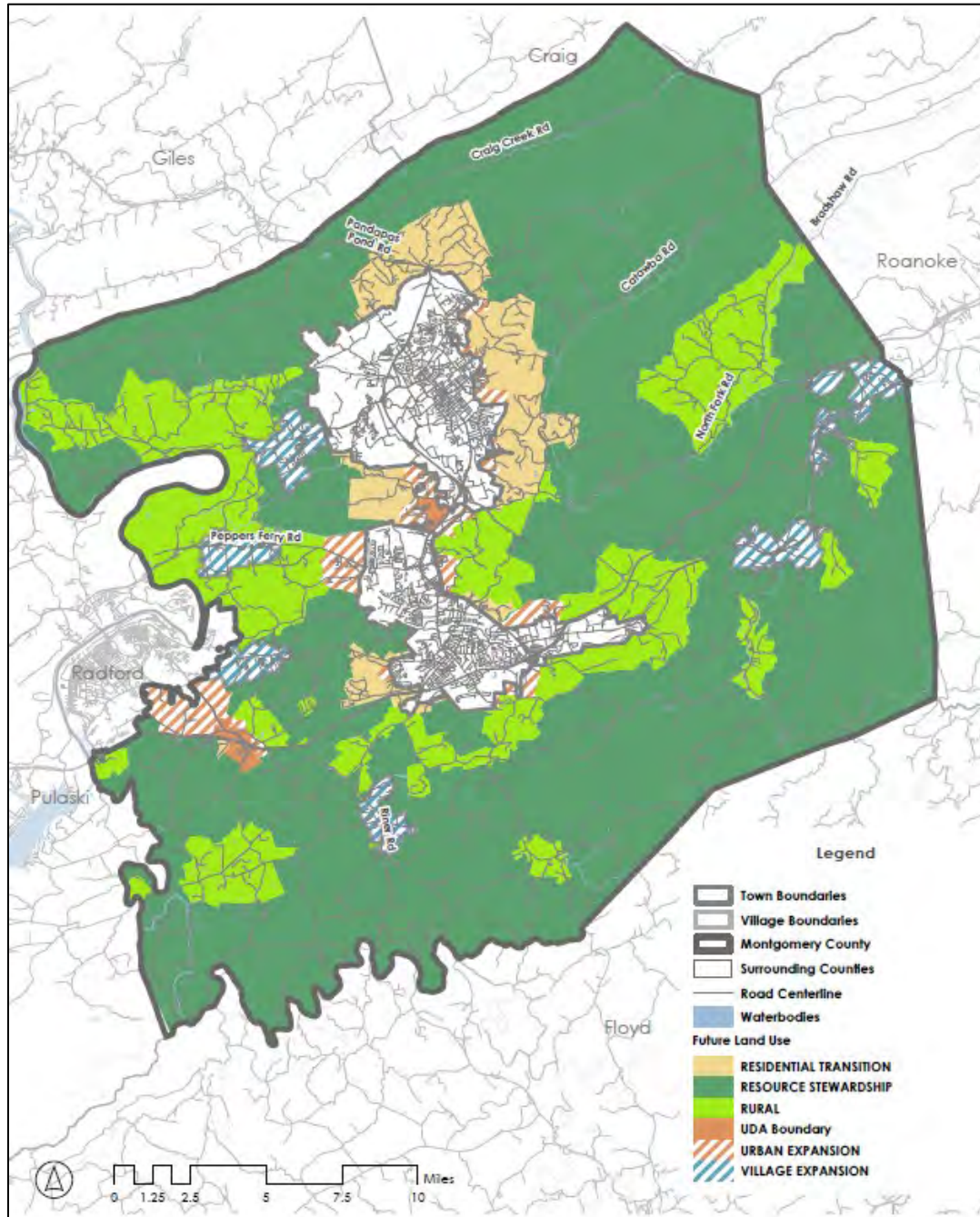
**Figure 6: Future Approved Development Locations within Montgomery County**



Source: Montgomery County Planning Department

The future land use map of the county below shows that the majority of the county will retain its resource stewardship designation, but that there will be continued residential and village growth on the eastern area of Blacksburg and in areas around Christiansburg towards Radford, including the identified village areas. The village expansion will also occur in the Lafayette/Elliston areas along Rt. 460.

**Figure 7: Future Land Use in Montgomery County**



Source: State of the County, Data Analysis Report, November 2024, page 39

**Recommendation 4.1**

Montgomery County fire and rescue squad departments should play an active part in the development process for future growth. This active participation should include sitting in on development review committees and participating in the plans review process to make fire code recommendations/improvements. At a minimum, the town and county planning offices should include the fire and rescue squads on any communications of potential or approved developments in their response areas.

## SECTION 5: COMMUNITY RISKS

The community risks in Montgomery County are not as great as in other jurisdictions, but there are still some potential risks that can significantly impact the county, its residents and emergency services.

### Hazards

From the latest Montgomery County Emergency Operations Plan, the county’s rating of risks includes the following:

**Table 5: Risk Hazards in Montgomery County**

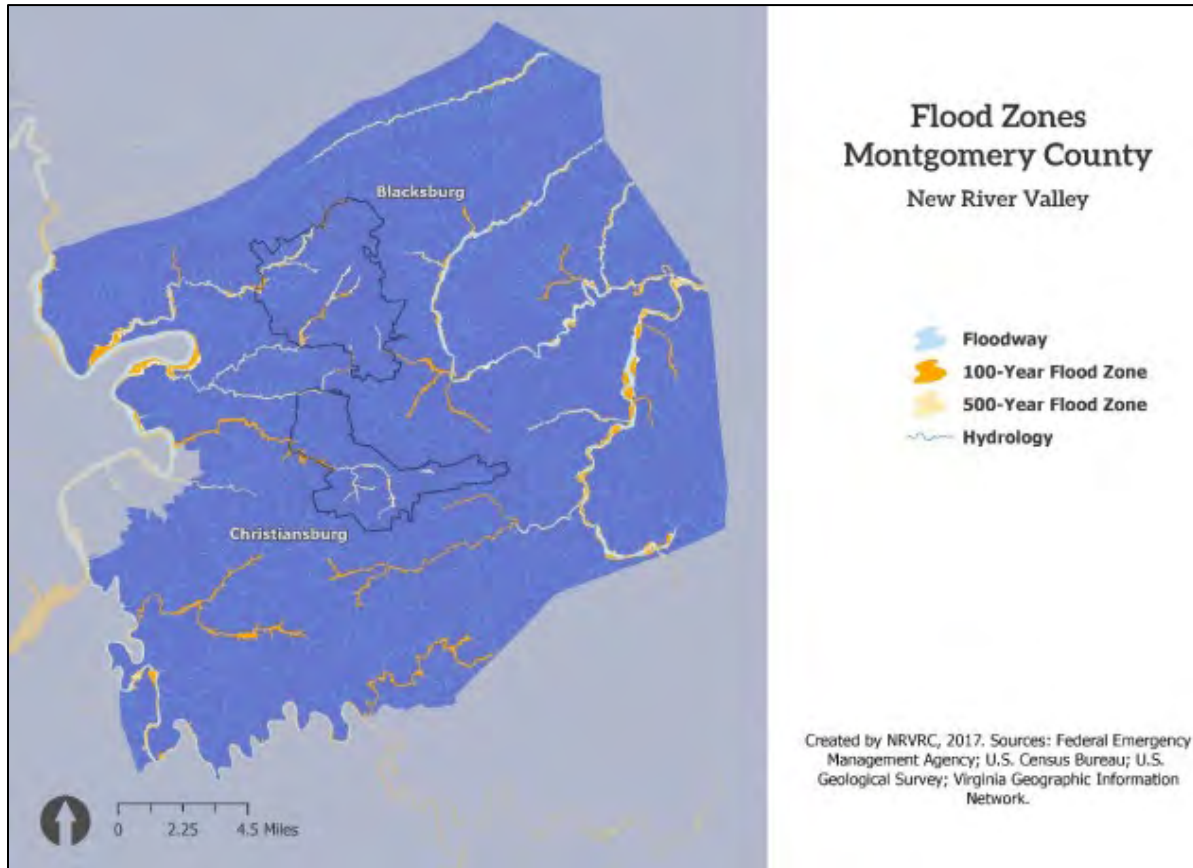
Hazard	Probability
Flooding	High
Winter Storms/Ice	High
Thunderstorms/Lightning	High
Drought	High
High Winds/Windstorms	High
Tornadoes/Hurricanes	High
Dam Failure	Moderate
Wildfire	Moderate
Biological	Moderate
Chemical	Moderate
Transportation Incident	Moderate
Earthquakes	Low
Aircraft Incident	Low
Radiological	Low

*Source: Montgomery County Emergency Operations Plan 12/25, Page 6*

Within the “high” category, the flooding risks can be the most prevalent and affect the most people. The hazard mitigation plan identifies sixteen potential flooding sources (rivers and streams) within the county. The current 100-year flood risk areas of the county cover approximately 3% of the entire county land area. *(Source: New River Valley Hazard Mitigation Plan, 2017, pages 4-70 to 4-71)*

The 100 flood zone areas of the county are shown below:

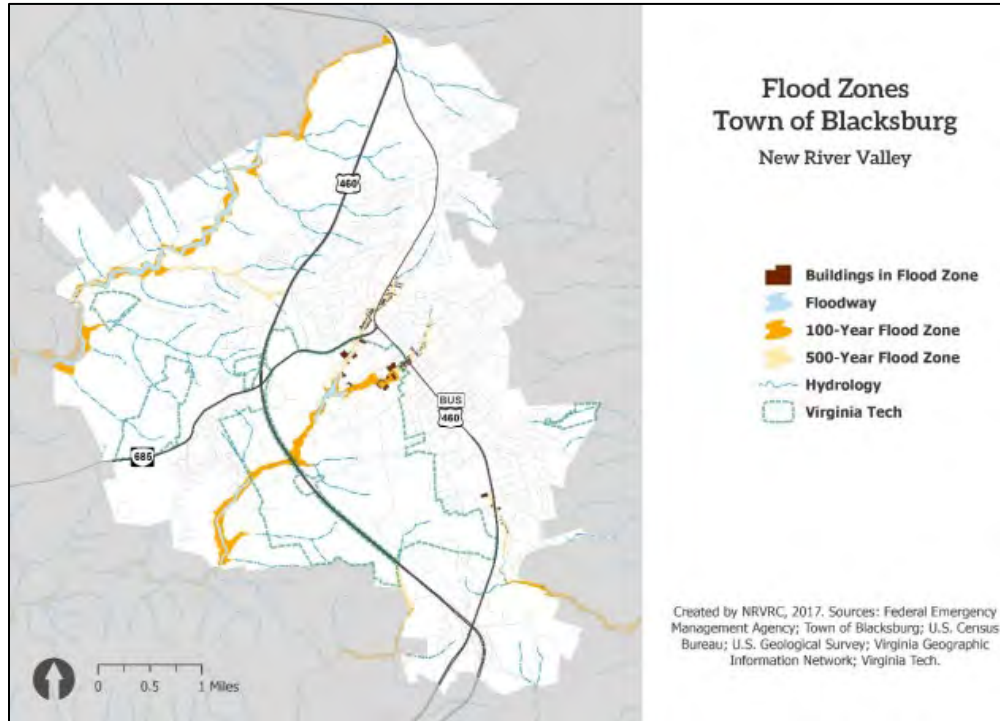
**Figure 8: 100-year Flood Zone Areas within Montgomery County**



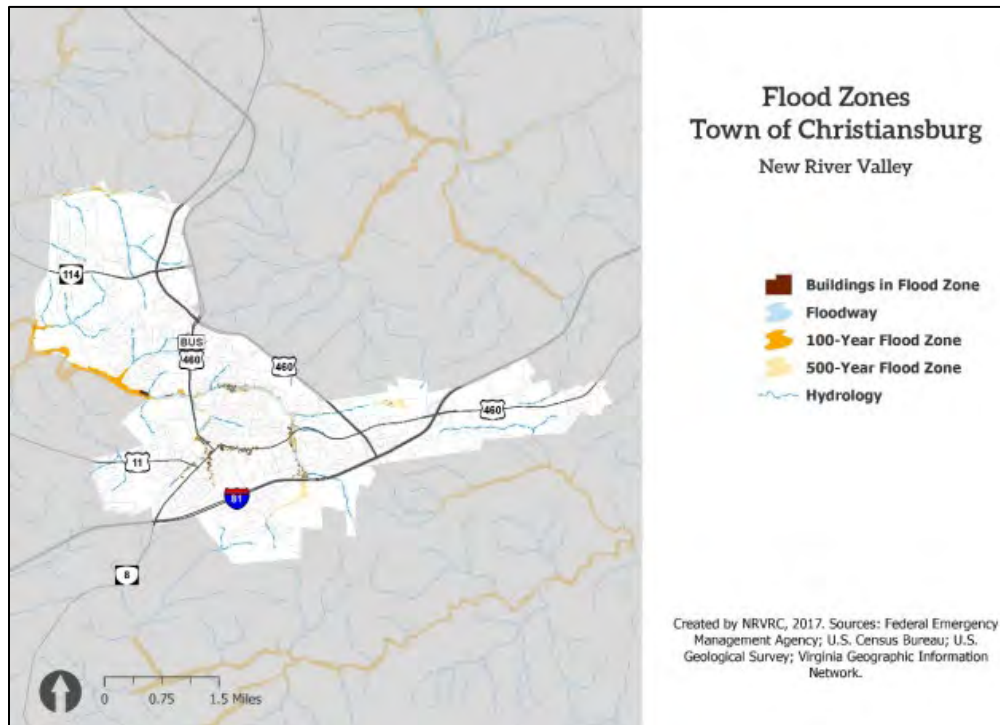
Source: *New River Valley Hazard Mitigation Plan, 2017, page 4-71*

More detailed areas for Blacksburg and Christiansburg show the following flood areas.

**Figure 9: Flood Zone Areas for Blacksburg**



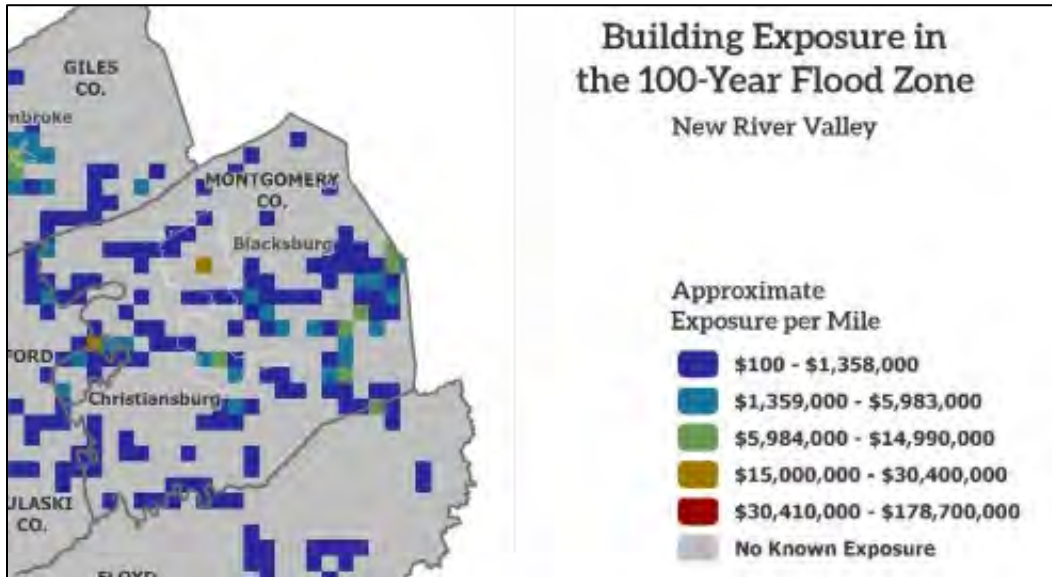
**Figure 10: Flood Zone Areas for Christiansburg**



Source: New River Valley Hazard Mitigation Plan, 2017, page 4-73 and 4-74

The structural damage risks from flooding are shown more clearly on the following map. Damage potential is somewhat widespread within the county.

**Figure 11: Building Exposure Flooding Potential in Montgomery County**

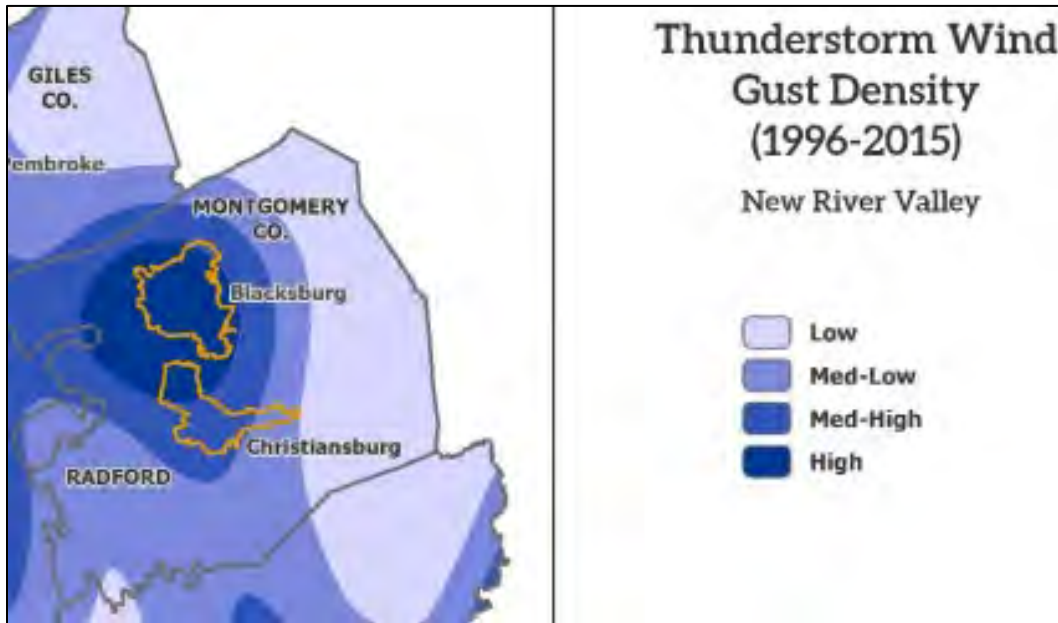


Source: New River Valley Hazard Mitigation Plan, 2017, page 4-58

The Elliston-Lafayette and Shawsville areas of the county have probably the most significant flood risks, with approximately 18% of all buildings within the 100-year flood zone. These areas saw significant flooding from Hurricane Helene in 2024. (Source: State of the County, Data Analysis Report, November 2024, page 22)

Not to minimize the wind risk from thunderstorms, which was determined to be a high hazard, the county can and has experienced damaging winds from thunderstorms through the years.

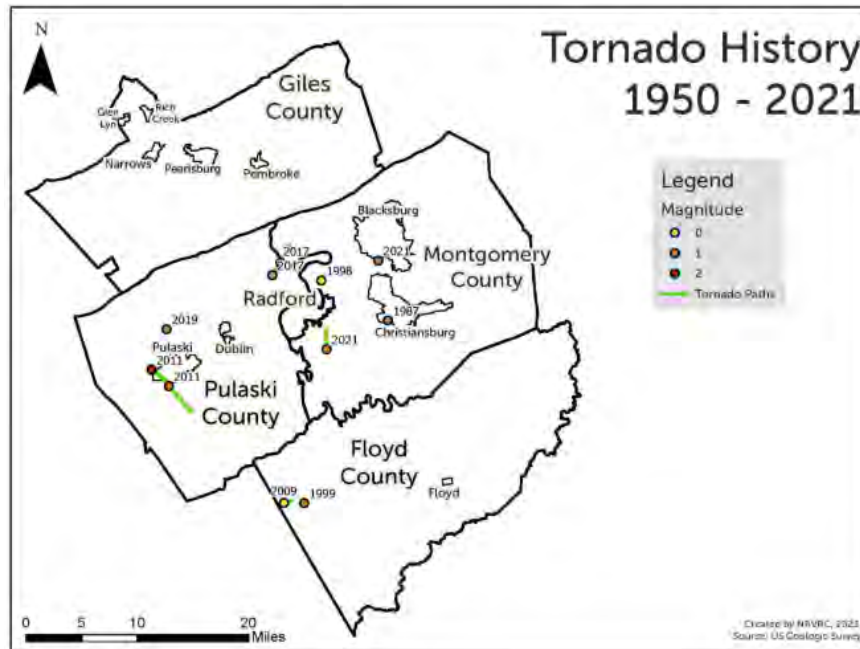
**Figure 12: Thunderstorm Wind Gust Density**



Source: *New River Valley Hazard Mitigation Plan, 2017, page 4-93*

Tornadoes are also a threat within the county. The history of tornadoes within the county shows the following:

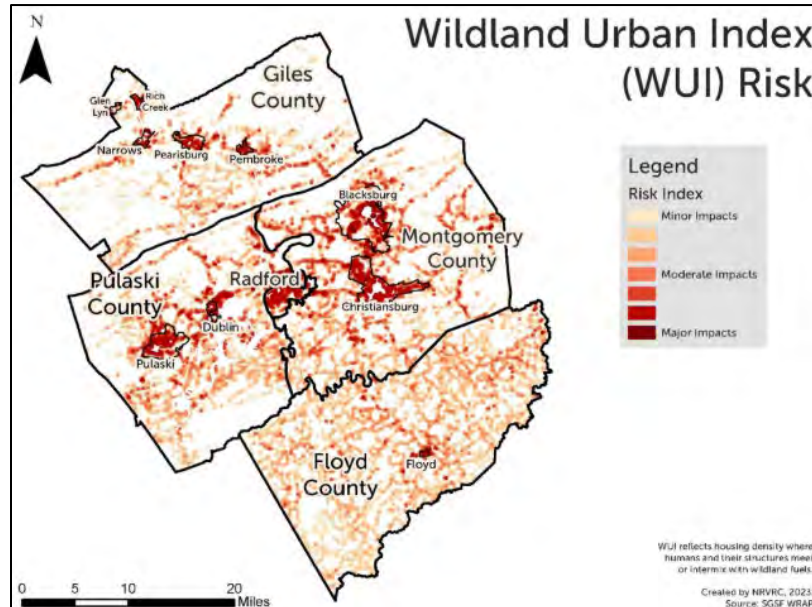
**Figure 13: Tornado History within Montgomery County**



Source: *New River Valley Hazard Mitigation Plan 2025, page 124*

Montgomery County is not immune to wildfire risks as well. The core areas of Blacksburg and Christiansburg are rated moderate to high, while most of the county is in the low to moderate wildfire risk category.

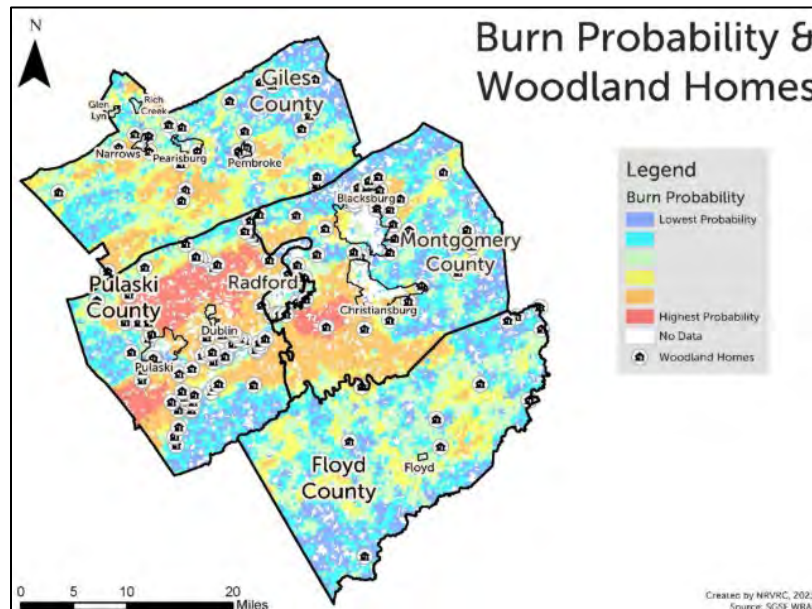
**Figure 14: Wildfire Risk in Montgomery County**



Source: New River Valley Hazard Mitigation Plan, 2025, page 135

The areas west and south of Christiansburg have the higher risk of burn probability.

**Figure 15: Burn Probability and Woodland Homes**



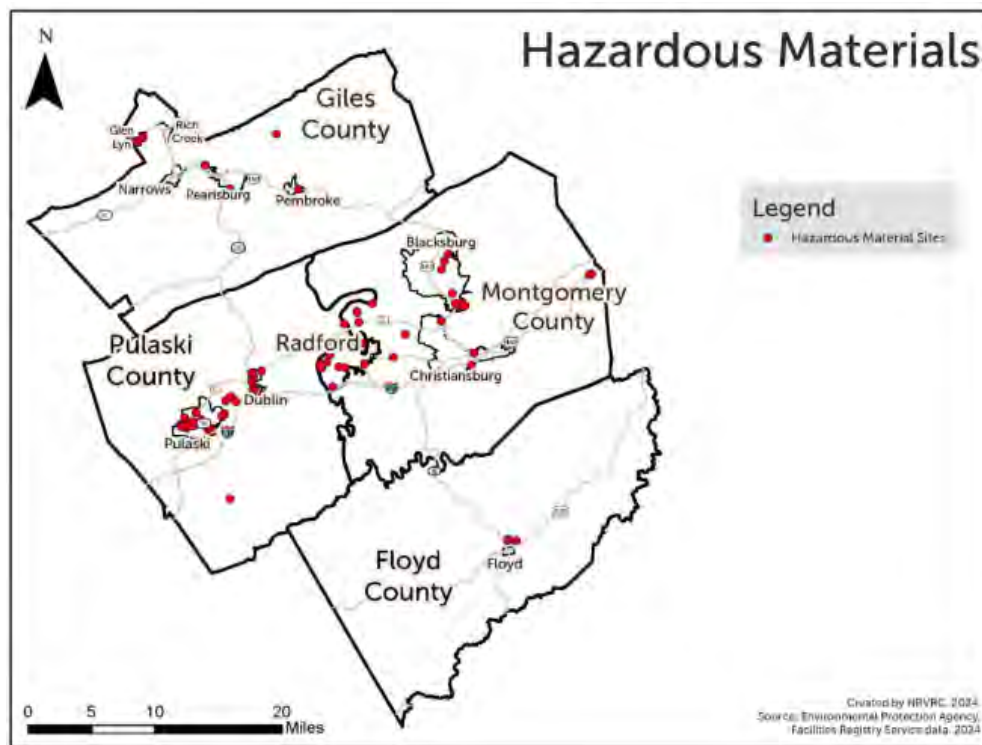
Source: New River Valley Hazard Mitigation Plan, 2025, page 136

There are also several dams within the county that have a high hazard ranking. These include the Little River Dam and the Teel Dam. If breached, they could pose a significant life and property damage risk. (Source: *New River Valley Hazard Mitigation Plan, 2017, page 4-43*)

**Chemical Hazards**

There are multiple hazardous materials sites located within the county. Most are located within Blacksburg, with a few located in the western area of the county closer to Radford.

**Figure 16: Hazardous Materials Sites in Montgomery County**



Source: *New River Valley Hazard Mitigation Plan, 2025, page 151*

An additional, potentially high hazard chemical risk in the county, comes from the chemicals being transported along Interstate 81 and Rt. 460 and railways. If an accident should occur, these chemicals can leak into waterways and cause potential injuries from exposure to humans. It is unknown the amount and extent of chemicals being transported daily along the stretch of interstate in the county, but the most recent traffic counts show approximately 46,000 – 54,000 vehicle trips daily along the interstate. This includes northbound and southbound travel. Approximately 22%-24% of these vehicles are trucks with trailers. (Source: *VDOT*)

Montgomery County indicated that they have never done a commodity inventory of the traffic traveling on Interstate 81. Consideration should be given to conducting such a study to gain an understanding of the types and number of chemical risks transiting through the county. Within the county, there are also several gas and electric power transmission lines that if damaged, could pose significant risks to the population or cause significant disruption of life.



### Man-made Risks

There are multiple man-made risks within the county. One of the more significant ones includes the built community and the size, age and density of structures, some being relatively old. Typically, older residential housing, in dense areas, experience a greater risk of fires. The campus of Virginia Tech also houses significant numbers of students in close proximity to each other and includes off campus housing that is typically in dense and uninspected occupancies. The knowledge of students to the overall layouts and exits in on campus and off campus buildings may be limited.

Examples of some of the residential and commercial areas include:



*Downtown Christiansburg area*



*Downtown Blacksburg area*



*Older single and multi-family dwellings in Blacksburg*



*New construction and multi-family structures in Blacksburg*



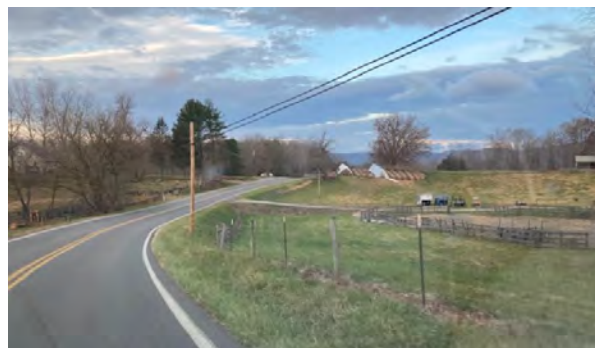
*Older multi-family dwellings in Blacksburg*



*Campus buildings at Virginia Tech*



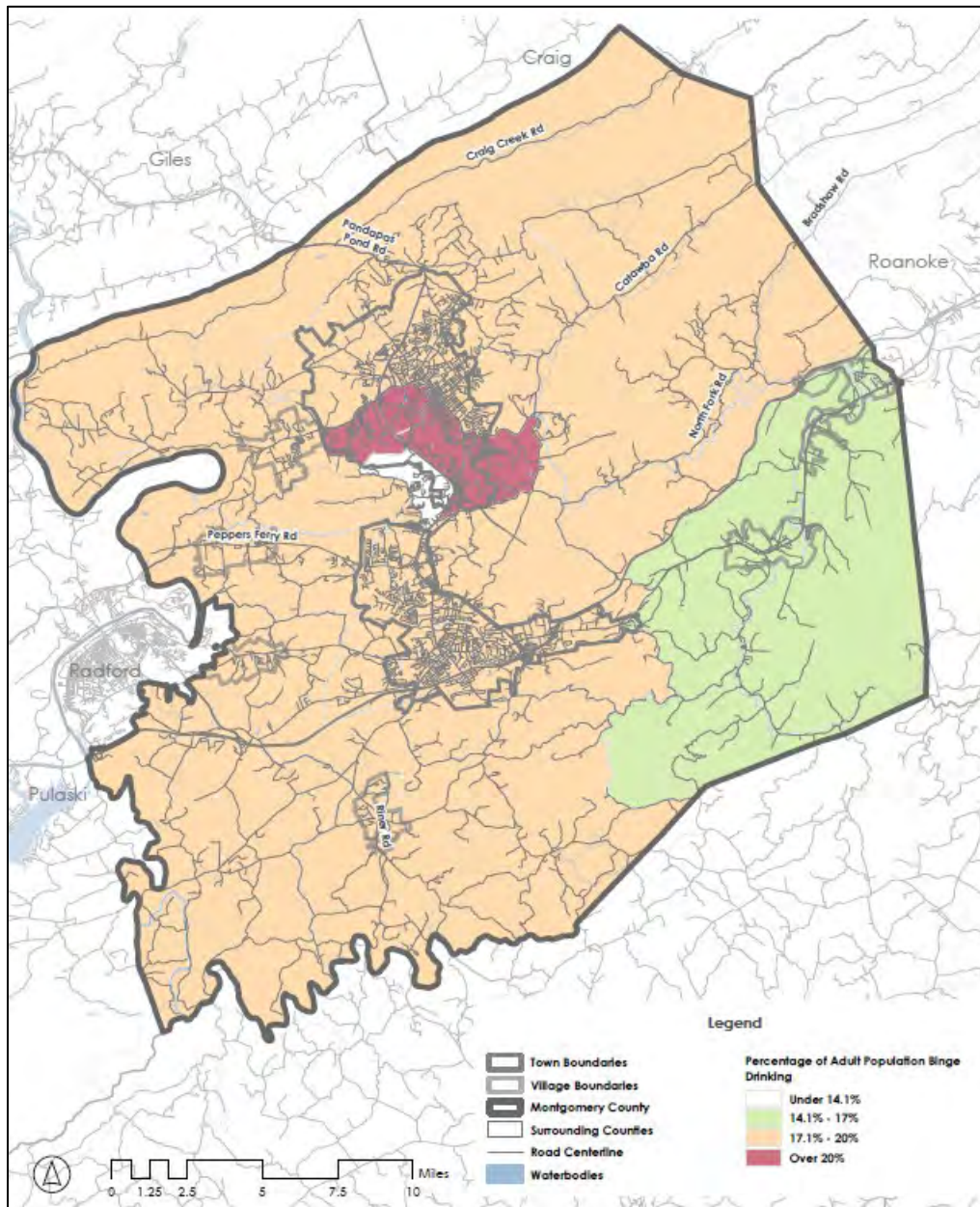
*New Residential construction in Montgomery County*



*Rural area within Montgomery County*

One of the more recent and significant risks in the county, that is also man-made, is that of substance abuse. Montgomery County is not immune to risks from drug usage, and in particular alcohol abuse. The county has a problem with binge drinking, particularly among college students. This abuse leads to increased usage of emergency medical services and increased fire risks from impaired persons. The map below shows the widespread binge drinking problem in the county.

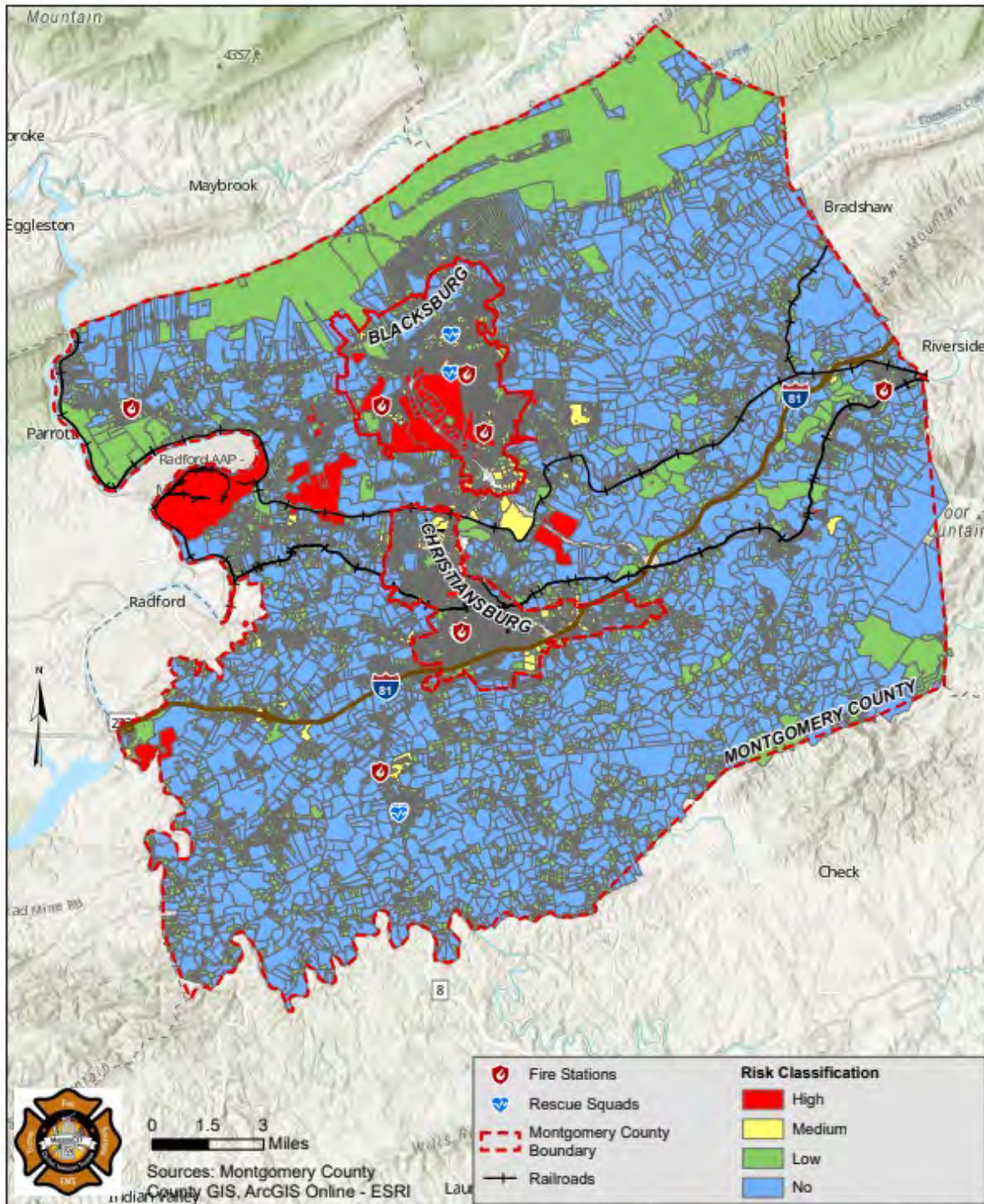
**Figure 17: Binge Drinking within Montgomery County**



Source: State of the County, Data Analysis Report, November 2024, page 60

Based on a parcel risk classification, per the NFPA Fire Protection Handbook, the general parcel risk levels in the county show the following:

**Figure 18: Montgomery County, VA Parcel Risk Classification**



The NFPA Fire Protection Handbook risk categories include the following breakdown:

- High Hazard Occupancies – Schools, hospitals, nursing homes, explosives plants, refineries, high rise buildings
- Medium Hazard Occupancies – Apartments, offices, mercantile and industrial occupancies
- Low Hazard Occupancies – One, two and three family dwellings, small businesses and industrial occupancies

*Source: NFPA 1720, 2020 Edition, page 12*

With the identified community disaster and land use risks within Montgomery County, there is the impact of these risks on the community members and how resilient they are to recover or deal with such an event. The Centers for Disease Control has created the Social Vulnerability Index (SVI) to identify communities most at risk from being able to recover from a disaster. It refers to a “community’s capacity to prepare for and respond to the stress of hazardous events ranging from natural disasters, such as tornadoes or disease outbreaks, to human caused threats, such as toxic chemical spills”.<sup>1</sup> Montgomery County has an SVI of 0.34. On a scale of zero to 1, this indicates that residents in the county have a low risk of vulnerability regarding disasters and the ability to recover from them.

**Recommendation 5.1**

Montgomery County should consider contracting for a commodities inventory of truck/trailer traffic on Interstate 81 and rail traffic in the county to gain a better understanding of the chemicals and amounts transiting through the county.

**Recommendation 5.2**

A full community risk assessment should be conducted within Montgomery County to gain a better understanding of all of the risks and service delivery needs for these risks, especially for technical rescue.

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<sup>1</sup> “Social Vulnerability Index.” *Place and Health - Geospatial Research, Analysis, and Services Program (GRASP)*, 22 July 2024, [www.atsdr.cdc.gov/place-health/php/svi/index.html](http://www.atsdr.cdc.gov/place-health/php/svi/index.html).

## SECTION 6: THE COMMUNITY FIRE AND RESCUE SYSTEM

Fire and EMS services in Montgomery County are provided by multiple independent fire departments and rescue squad/EMS agencies. With the exception of Montgomery County Fire and EMS, which is a relatively new organization, the fire and rescue squad organizations have a rich history, served by dedicated volunteers.



Within Montgomery County, fire and EMS services are provided by the following agencies:

<b>Emergency Service Organization</b>	<b>Organization Type</b>
Blacksburg Rescue Squad	Volunteer
Christiansburg EMS	Career – Town Department
Longshop McCoy Rescue Squad	Volunteer
Riner Rescue Squad	Volunteer
Virginia Tech Rescue Squad	Volunteer
Blacksburg Fire Department	Combination (Volunteer/Career)
Christiansburg Fire Department	Combination (Volunteer/Career)
Elliston Fire Department	Volunteer
Longshop McCoy Fire Department	Volunteer
Riner Fire Department	Volunteer
Montgomery County Fire and EMS	Career

Each of the volunteer agencies are independent, 501(c)(3) organizations. Christiansburg EMS is a town department within town government. Montgomery County Fire and EMS (MCFEMS) is a department within county government. Elliston Fire Department operates within their fire station alongside the career staffing of the Montgomery County Fire and EMS employees. Montgomery County Fire and EMS provides career staffing at two locations. These include:

- Riner EMS station – EMS ambulance staffing
- Elliston Fire Station – EMS ambulance staffing  
Fire and EMS staffing (Two fire response units)

Blacksburg Rescue Squad has a paid Chief and Administrative Coordinator that are also town employees. Blacksburg Fire and Christiansburg Fire have some daytime career staffing that are town employees. Each volunteer fire department or rescue squad, within the unincorporated areas of the county, has a signed Memorandum of Agreement (MOA) with Montgomery County. This MOA provides guidance on organizational rosters, equipment, facilities, purchasing and finance matters. An example of the current agreement is provided in Appendix A.

There are three different operational medical directors (OMD’s) that oversee the EMS agencies within the county. Christiansburg EMS has a separate OMD, as does Longshop McCoy Rescue, while all of the other EMS agencies in the county utilize the same OMD. This can potentially result in three different scopes of practice and service delivery models being delivered within the county to the citizens. One countywide medical director, with potentially several co-directors, would better serve the public and the EMS system.

The Radford Army Ammunition Plant is partially located within Montgomery County, but they have their own private fire department and do not respond off-site into the county, nor do they typically request assistance from Montgomery County fire or rescue departments, except for large incidents.

The city of Radford, Virginia Fire and EMS Department is in close proximity to Montgomery County and has one station with 39 career personnel and 8 volunteer personnel. They have one station and staff with 8 full time personnel daily to staff two ALS ambulances and one engine. There is little interaction between the city and county regarding fire or EMS services. Their fire department is on automatic aid for a small portion of the western area of the county and has averaged only two to three responses into the county annually over the last 5 years. Their EMS system is not on an automatic aid plan into the county, but would respond through mutual aid.

The services provided by each fire department and each rescue squad within Montgomery County are shown below:

**Table 6: Services Provided by Fire Departments within Montgomery County**

Fire Department	Fire Suppression	Medical First Responder	Vehicle Extrication	Technical Rescue/ Swiftwater	Fire Insp.	Pre-Fire Planning	Hydrant Testing	Public Educ. Outreach	Home Safety Checks
Blacksburg	X		X		X	X		X	
Christiansburg	X		X	X	X	X		X	X
Elliston/ MCFEMS	X		X	X				X	X
Long-Shop McCoy	X		X	X					
Riner	X		X	X				X	

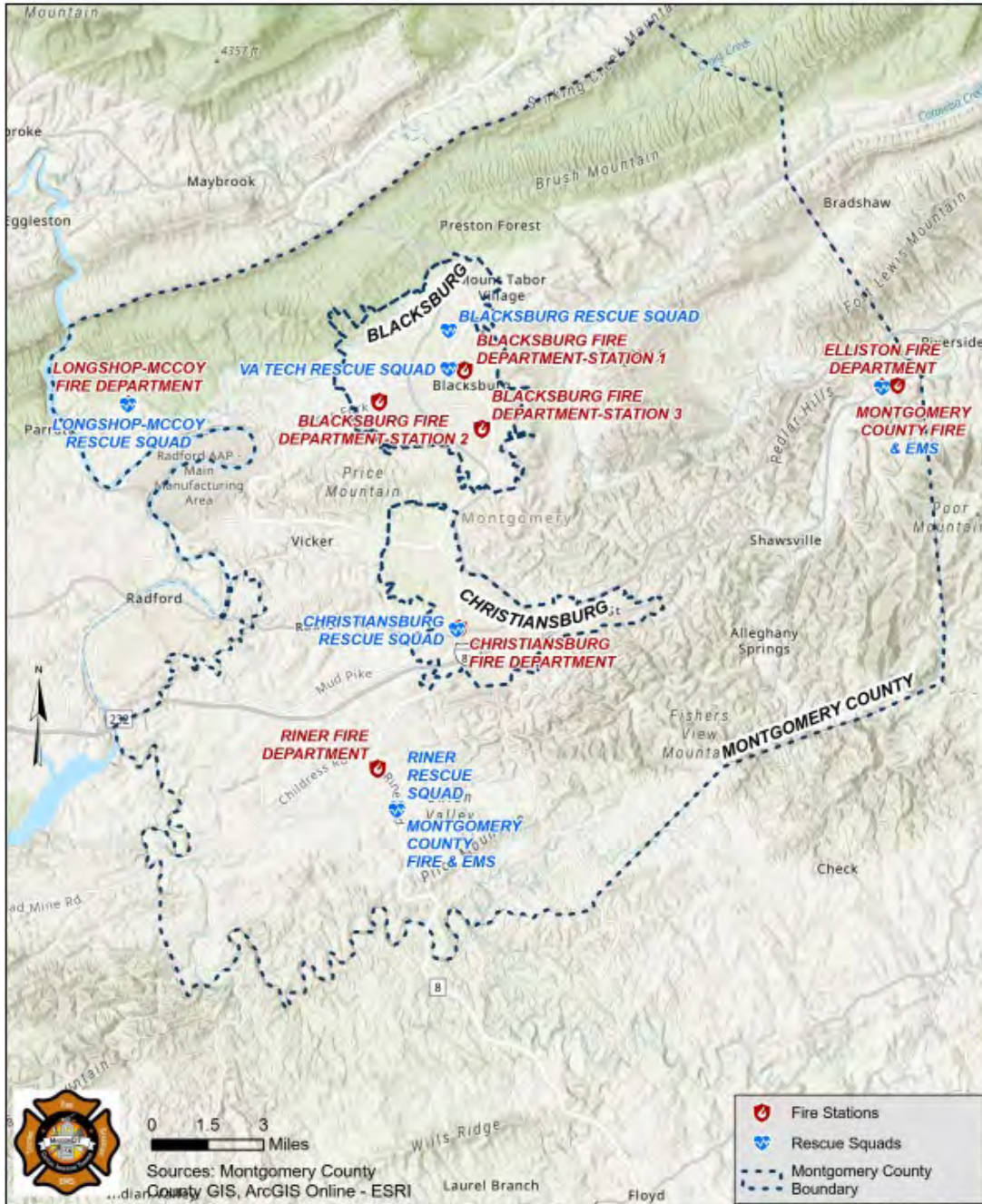
**Table 7: Services Provided by Rescue Squads within Montgomery County**

Rescue Squad	Medical First Responder	Basic Life Support Transport	Advanced Life Support Transport	Community Paramedicine	Non-Emerg. Transport	Vehicle Extrication	Technical Rescue/ Swiftwater	Missing Persons Searches	Public Education (Outreach)
Blacksburg		X	X			X	X	X	X
Christiansburg	X	X	X		X			X	X
Elliston/ MCFEMS		X	X						X
Long-Shop McCoy		X	X						
Riner		X	X				X		
Virginia Tech		X	X				X		X

Source: Fire and Rescue Chief Survey Responses

The department and station locations within Montgomery County for the fire departments and rescue squads is shown in the following map.

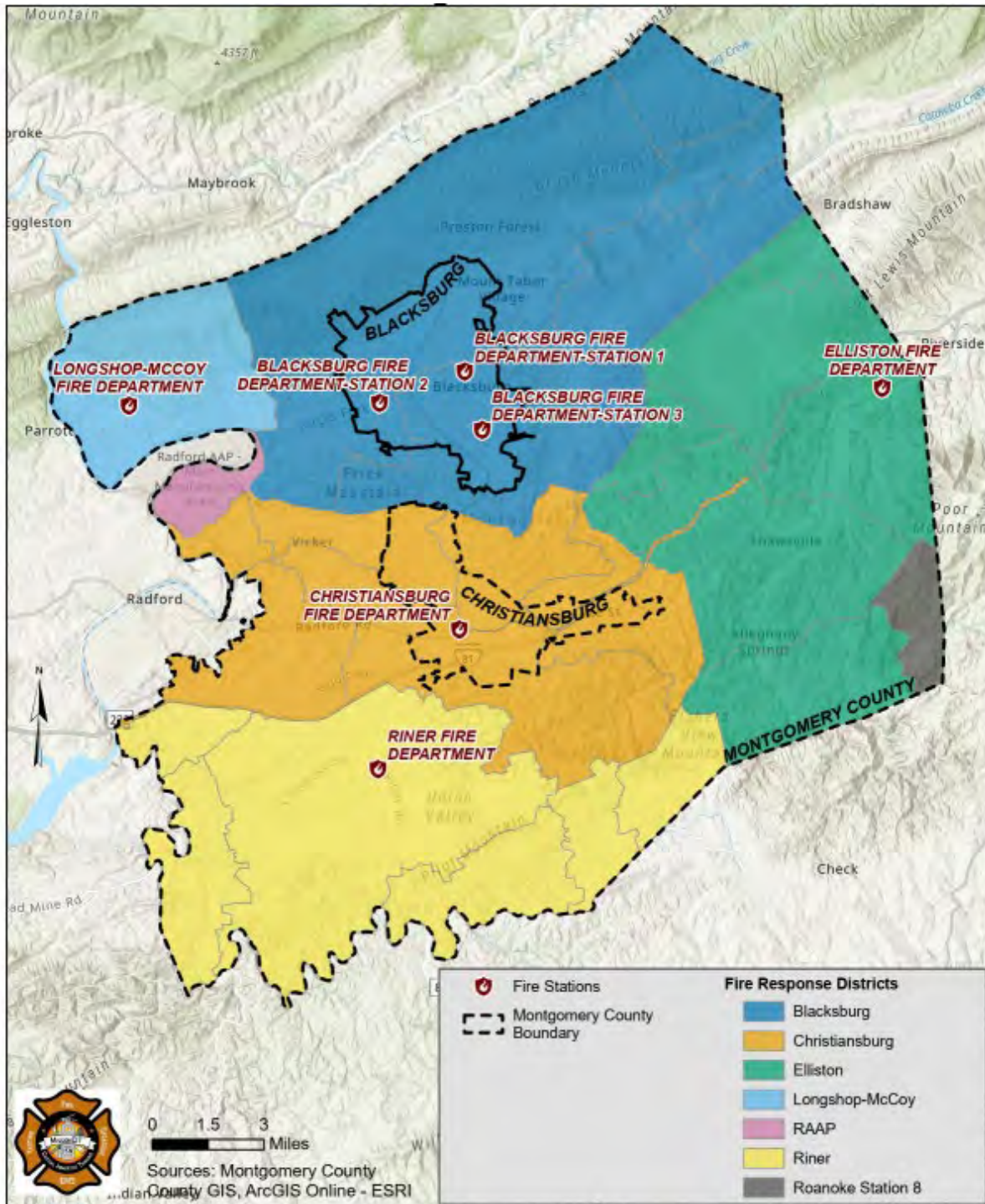
**Figure 19: Montgomery County, VA Fire & Rescue Squad Locations**



Both Christiansburg Fire and EMS and Blacksburg Fire and Rescue have response coverage responsibilities into a portion of Montgomery County. Christiansburg EMS provides coverage to approximately 73 square miles of Montgomery County.

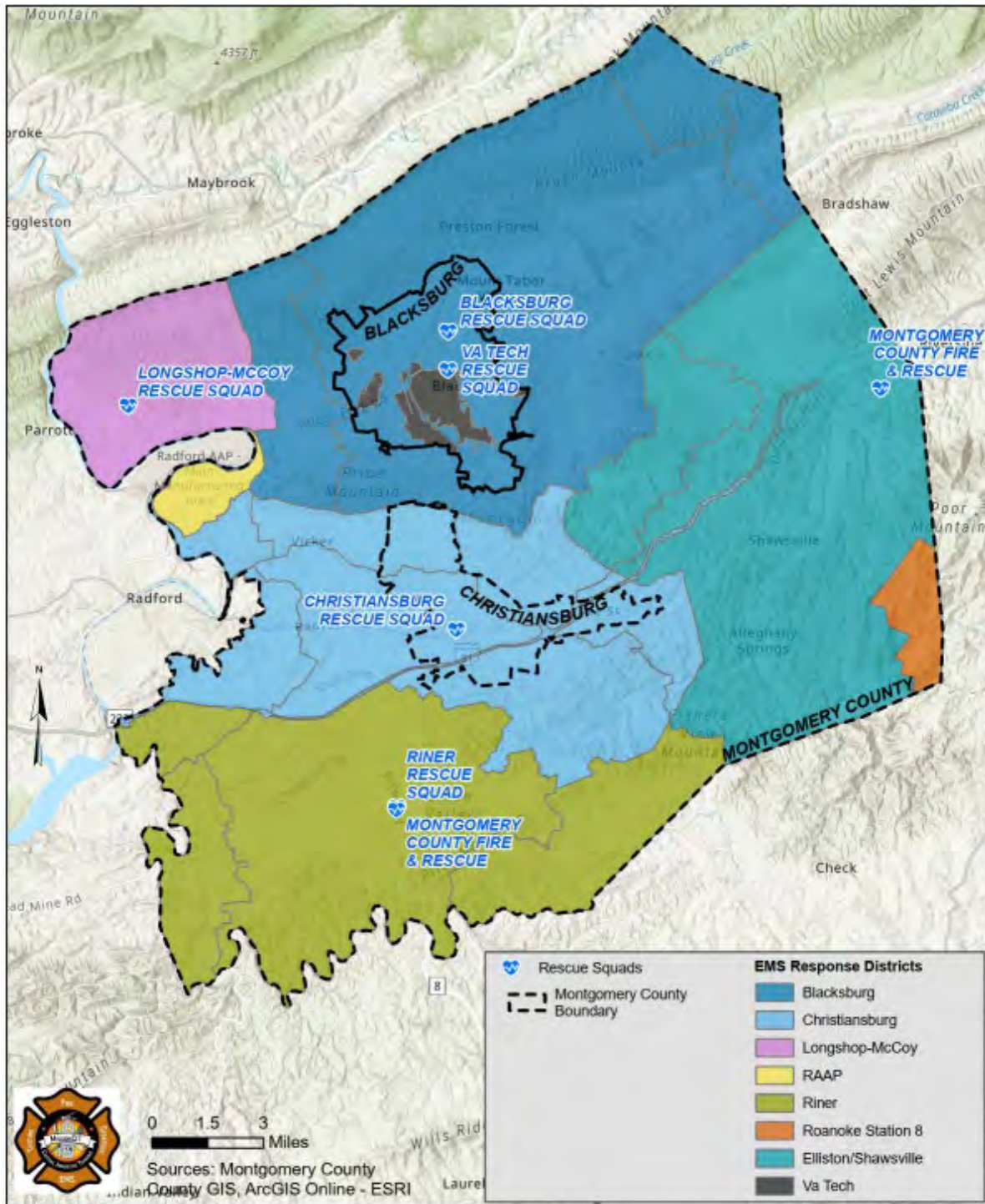
The current fire response first-due coverage area districts are shown below.

**Figure 20: Montgomery County, VA Fire Response Districts**



The current rescue squad first due coverage area districts are shown below.

**Figure 21: Montgomery County, VA Rescue Squad Response Districts**



The current response areas for the fire departments and rescue squads were developed many years ago. To the knowledge of county officials, the response areas were not based on any GIS analysis, but based on past practice. A complete GIS analysis regarding closest unit response for both fire and EMS should be conducted to determine the fastest response times for appropriate call types.

**Recommendation 6.1**

The fire and rescue squad system in the county should work towards defining what an “active” responding member is and what criteria should be met to meet that threshold.

**Recommendation 6.2**

All fire and rescue squad first due coverage districts should be evaluated using a GIS analysis to determine the closest unit response to areas vs. the historical based defined coverage areas.

**Recommendation 6.3**

Montgomery County and the City of Radford Fire Department should discuss potential resource and response sharing for fire and EMS services that might be available for both jurisdictions, particularly regarding hazardous materials or technical rescue services.

**Recommendation 6.4**

The EMS system should work towards having only one operational medical director for the entire county operation. This would result in consistency of care, and one direction for the delivery of EMS services to the entire public.

## SECTION 7: SYSTEM GOVERNANCE/OVERSIGHT

The eight volunteer fire departments and rescue squad agencies within the county are all independent organizations with no direct oversight by Montgomery County. Some volunteer fire departments and rescue squads have an elected board of directors that provides administrative and financial oversight to the organization, some only have elected line officers. Each organization, except Blacksburg Rescue Squad, has an elected chief to provide operational oversight.

The Christiansburg Fire Department is considered a town department, has a paid fire chief, and is partially funded by the town, but maintains separate 501(c)3 status. The Blacksburg Fire Department is an independent agency, but has 4.5 full time employees that are town employees. The Blacksburg Rescue Squad (BRS) has a paid administrator that is a town employee, but he also reports to the BRS Board of Directors. The staffing within each department will be further outlined within the Staffing Section of this report.

The Riner Fire Department and Rescue Squad, the Longshop McCoy Fire Department and Rescue Squad and the Elliston Fire Department are independent 501(c)3 agencies. The Virginia Tech Rescue Squad is an agency within the Virginia Tech college structure falling underneath the campus Police Chief.

Each of the fire departments and rescue squads operate independently or under their respective town or agency's leadership and to their own plans and agendas. Other than for funding allocations, there is little coordination of effort.

Montgomery County established a Fire and Rescue Commission in 2004 by resolution to serve in an advisory capacity to the Board of Supervisors. The purpose of the Fire and Rescue Commission includes:

1. Reviewing capital equipment needs for fire and rescue operations in Montgomery County.
2. Effectively communicating future fire and rescue capital needs for Montgomery County.
3. Working with the County Emergency Services Coordinator to make recommendations to the Board of Supervisors in developing a comprehensive strategic plan for fire and rescue services in Montgomery County.
4. Making funding recommendations based upon the plan, and upon compliance with other requirements established by the Board of Supervisors.
5. The Fire and Rescue Commission shall work with the Emergency Services Coordinator to establish countywide response goals for fire and rescue incidents.

6. Any other matters concerning fire and rescue services in Montgomery County as identified by the Board of Supervisors.

*Source: Fire and Rescue Commission By-Laws 2023*

The Fire and Rescue Commission consists of 15 voting members comprised of the following:

1. One member from each of the volunteer fire departments in the county.
2. One member from each of the volunteer rescue squads in the county.
3. A staff member each from the Towns of Blacksburg and Christiansburg and Montgomery County.
4. A member of the Montgomery County Board of Supervisors.
5. The Emergency Services Coordinator (Now County Fire Chief) serves as a non-voting member of the commission.

*Source: Fire and Rescue Commission By-Laws 2023*

During our site visit, MissionCIT was advised that the recent primary function of the Fire and Rescue Commission has been to mostly determine and allocate county funding to the town and volunteer fire departments and determine and approve apparatus purchase needs for the fire departments and rescue squads. They did assist in developing the EMS Performance Standards several years ago, but have not been involved in part of their duties in Article VI of their By-Laws to assist with developing a strategic plan for the system.

In addition to the functions of the Fire and Rescue Commission, there is no active body dedicated to the coordination and facilitation of improved emergency medical services within Montgomery County. Each rescue squad operates under Virginia guidelines; however, internally, they are operating without coordination and active communication with the other rescue squads, hospital facilities and medical direction within the system. A more coordinated effort of communications and operating direction should occur. This can be accomplished through the formation of a Montgomery County EMS Advisory Council that actively meets to discuss joint training, county operating and dispatch procedures, and maintains active communications with the hospital facilities and their processes.

**Recommendation 7.1**

The scope and function of the Fire and Rescue Commission should shift to provide much more emphasis to address Article II. Items 3 and 5 in their original by-laws. They should take a more comprehensive approach to fire and EMS system planning, training, policies and procedures and operations.

**Recommendation 7.2**

The Fire and Rescue Commission should establish multiple working groups, i.e. sub-committees to help address the expanded scope in Recommendation 1.1 above. These groups should address and include:

- a. Policies and Procedures
- b. Training and Minimum System Training Standards
- c. Recruitment and Retention
- d. Apparatus and Equipment Standardization and Purchasing
- e. Operational Issues, Performance Standards and Future station location planning
- f. Special Operations and Technical Rescue

**Recommendation 7.3**

Montgomery County should create an EMS Advisory Council consisting of all the EMS agencies, the appropriate hospitals and the medical directors to coordinate operational, administrative and training issues.

**Recommendation 7.4**

Long term consideration should be given to bring all of the volunteer fire departments and rescue squads within the unincorporated areas of the county underneath of the umbrella Montgomery County Fire and EMS department for organizational oversight, improved joint purchasing, consistent training and standard operations.

**SECTION 8: FUNDING**

Each of the fire departments and rescue squads receive funding from several sources. Their approved FY2026 operating budgets show the following:

**Table 8: Funding Sources for Montgomery County Fire Departments and Rescue Squads**

<b>Agency</b>	<b>Total FY2026 Budget</b>	<b>Funding Sources</b>
Blacksburg Fire	\$986,349	Town of Blacksburg Montgomery County Virginia Tech
Christiansburg Fire	\$1,273,967	Town of Christiansburg Montgomery County VDFP Aid to Localities
Elliston Fire	\$110,000	Montgomery County
Longshop McCoy Fire	\$95,040	Montgomery County
Riner Fire	\$104,173	Montgomery County
Montgomery County Fire and EMS	\$5,631,218	Montgomery County EMS Billing
Blacksburg Rescue Squad	\$1,181,723	Town of Blacksburg Montgomery Co. EMS Four for Life Services EMS Billing
Christiansburg EMS	\$3,350,000	Town of Christiansburg Montgomery County EMS – Four for Life EMS Billing
Longshop McCoy Rescue	\$54,301	Montgomery County EMS – Four for Life Funds
Riner Rescue	\$105,515	Montgomery County
Virginia Tech Rescue	\$180,000	\$15/student fee

The Montgomery County allocations to the fire departments and rescue squads is reviewed and determined by the current Fire and Rescue Commission during the annual budget process.

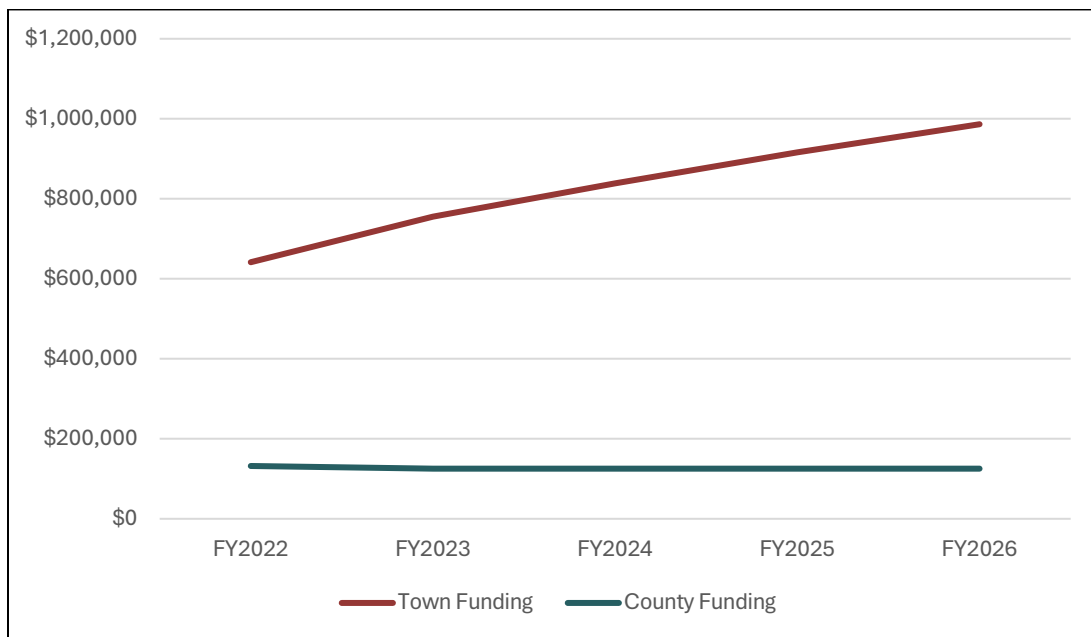
**Town of Blacksburg**

The Town of Blacksburg has a diverse revenue stream. Their largest FY2026 revenue sources include the following:

33.8%	Other local taxes
28.8%	Property taxes
13.3%	Intergovernmental revenue
9.4%	Licenses and rentals

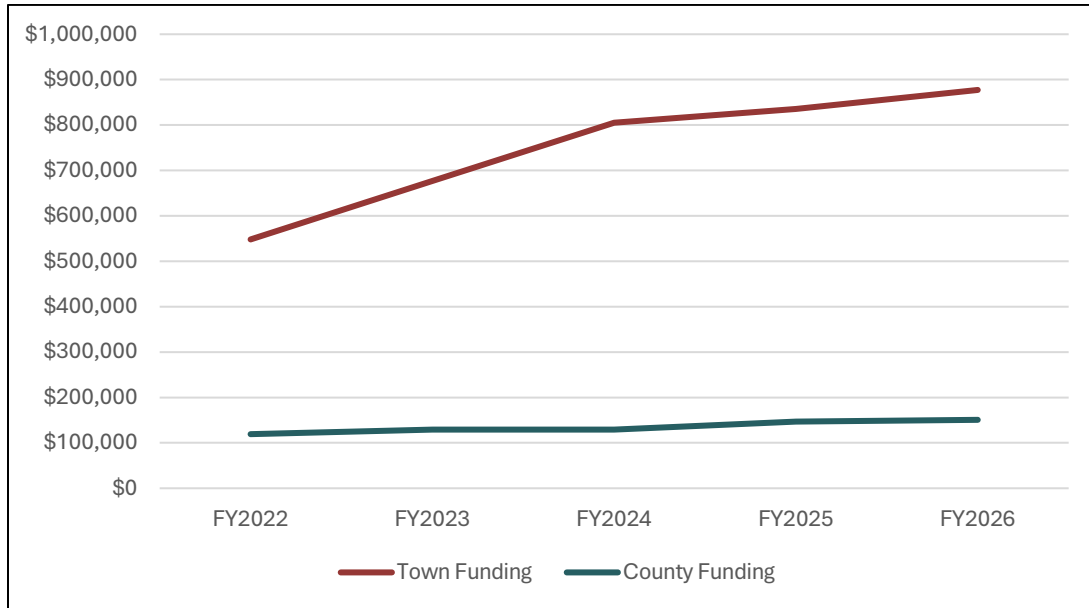
The funding for the fire department and rescue squad come through the town and their budget process. The Town of Blacksburg also receives a contribution from Virginia Tech for providing fire protection to the campus, in the amount of approximately \$419,015 for FY2025. The annual budget trends for the fire department and rescue squad are shown below:

**Figure 22: Blacksburg Fire Department Budget**



Approximately 30% of the Blacksburg Fire Department budget is for personnel/benefits costs. Thirty four percent (34%) is for supplies.

**Figure 23: Blacksburg Rescue Squad Budget**



For the Blacksburg Rescue Squad, approximately 38% of their budget is for personnel/benefits costs, while 22% is for supplies and 14% for fuel and apparatus maintenance. Blacksburg Rescue operates with two budgets. The first budget is based on the funding provided by the town. Their other budget is based on the funding provided by the county, and also includes the Virginia Four for Life funds and will now include their EMS Revenue Recovery funds beginning for FY2026.

The Montgomery County contributions to the fire department and rescue squad have been mostly flat over the last five fiscal years.

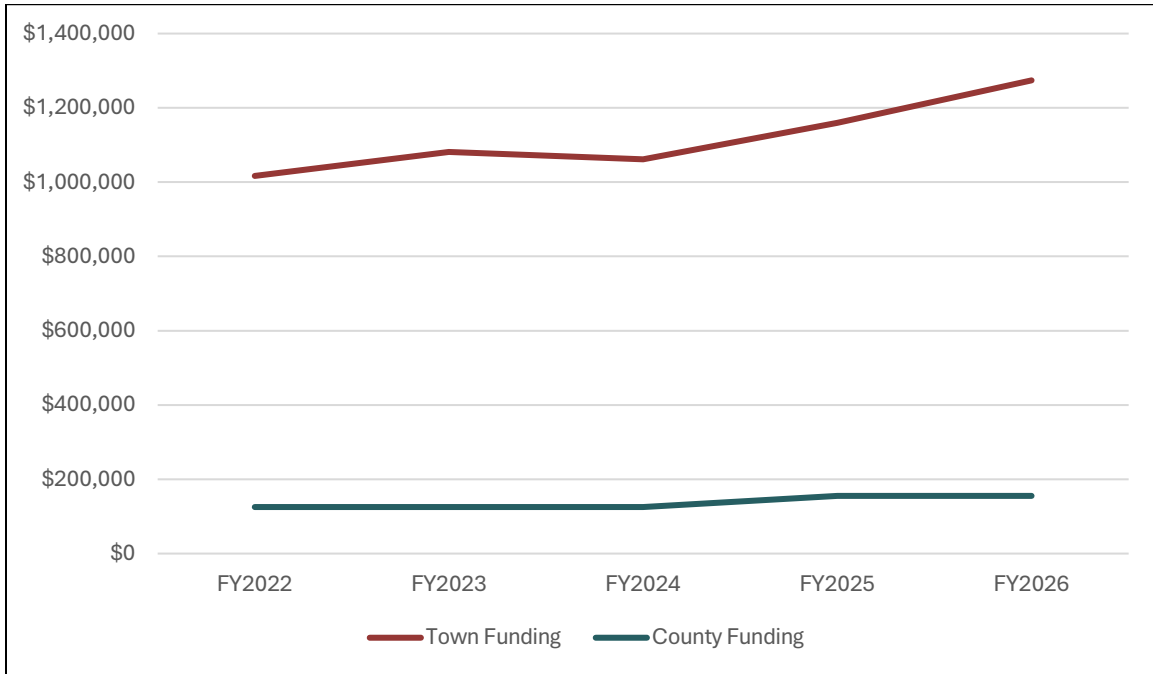
**Town of Christiansburg**

The Town of Christiansburg also has a diverse revenue stream. Their main revenue sources include the following:

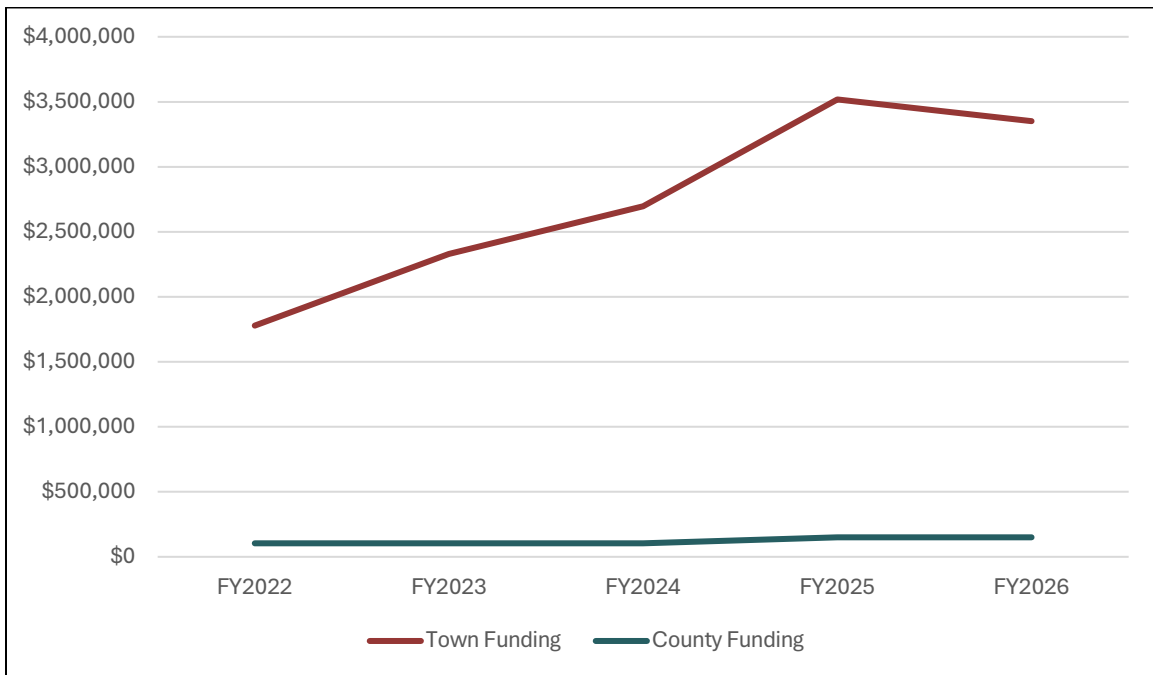
17.49%	Federal grants
16.59%	Water/Sewer charges
14.56%	Other income
11.02%	Meals tax
8.46%	State grants
6.86%	Property taxes

The funding for the fire department and EMS department also come through the town budget process. Their annual budget trends are shown below:

**Figure 24: Christiansburg Fire Department Budget**



**Figure 25: Christiansburg EMS Budget**



For the Christiansburg Fire Department, approximately 47% of their budget is for salaries and benefits. The other significant cost areas within their budget includes:

- 12% - Service contracts
- 10% - Liability insurance
- 5.6% - Building maintenance

The FY2026 budget for Christiansburg EMS includes approximately 23% for salaries/benefits, with the other significant cost areas being:

- 35% - Service contracts (Includes the town’s annual contribution to the New River Valley 911 Communications system - \$331,516)
- 13% - Liability insurance
- 7% - Medical supplies

**Montgomery County**

Montgomery County has a diverse revenue stream to fund its local government operations. The FY2026 budget shows the following main revenue sources:

42.7%	Designated Funds
34.7%	Real estate taxes
8.2%	Personal property taxes
5.3%	Sales tax

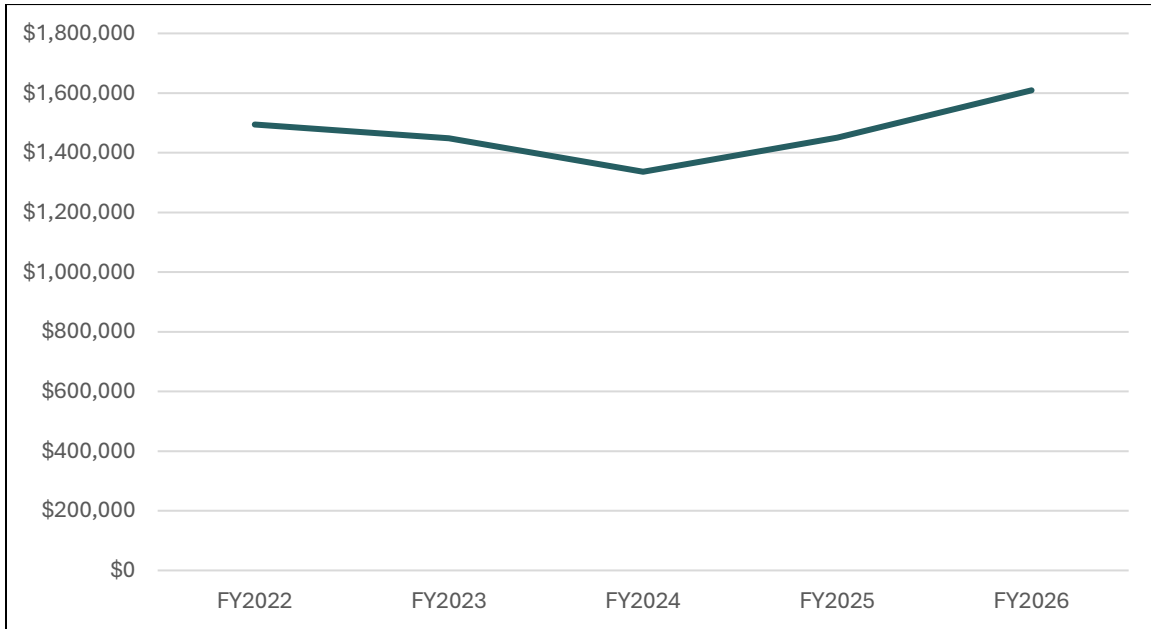
Designated funds are those that are required to be allocated to specific functions within the services provided, such as human services, schools, etc. The sources of those funds include the following:

- Support from the State Compensation Board for constitutional officers, court fees, fees for services and programs;
- Direct state aid for public assistance payments;
- State and federal funds for schools; and
- Support for human services programs.

Montgomery County has two specific cost centers allocated to fire and EMS services in the county. The first cost center is for annual contributions to the various county and town volunteer fire and rescue agencies. In addition to the contributions, this cost center also includes funding for the retirement program, insurance, incentives for the volunteer fire and rescue departments, funding for the Blacksburg Fire Department training facility, and the new Special Operations Group within the county.

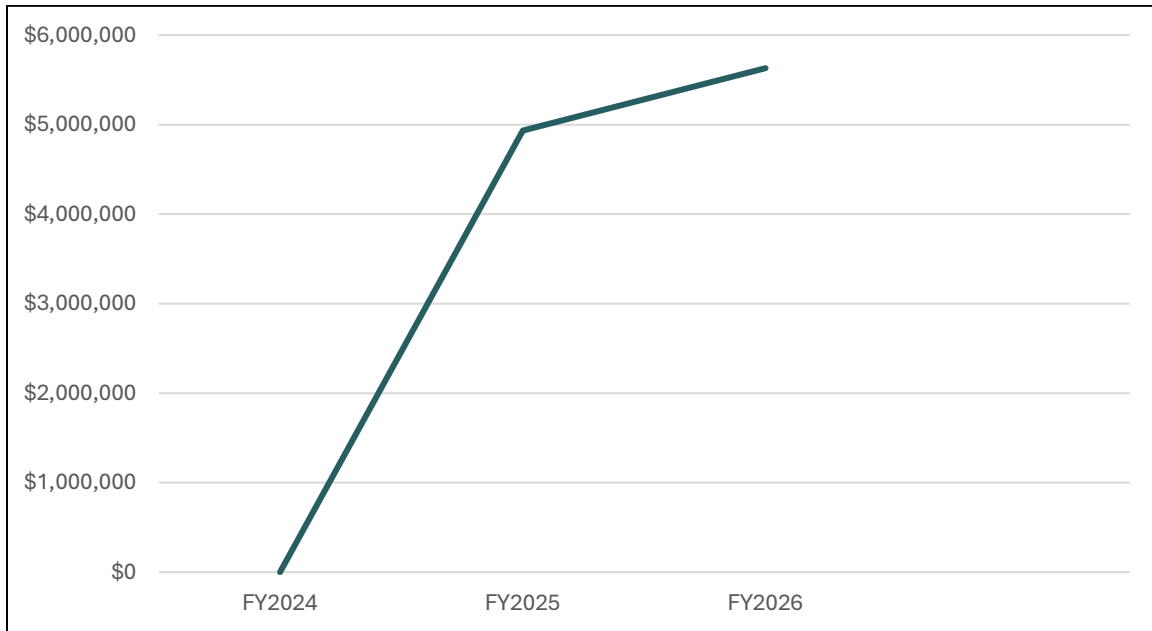
The five-year historical trend for the funding of these areas includes:

**Figure 26: Montgomery County Fire and Rescue Agency Funding**



Prior to FY2025, there was no defined Montgomery County Fire and EMS Department. However, with the addition of 24/7 career fire and EMS staffing to supplement the Elliston fire station and the closure of the Shawsville Rescue Squad, along with the provision of dedicated career EMS staffing to supplement Riner Rescue, significant county funds have been designated to the career staffed Fire and EMS Department over the last two fiscal years. Approximately 89% of the FY2026 Montgomery County Fire and EMS Department budget is allocated for salaries and benefits of staff. The remaining 11% is for operations and maintenance.

**Figure 27: Montgomery Fire and EMS Department Funding**



All total, within Montgomery County for FY2026, approximately \$11.4 million is allocated for fire and rescue squad services. This does not include capital budget items.

\$7,240,446	County
\$3,594,817	Towns
\$599,015	VT

Montgomery County is also providing \$10 million for the upgrade of the New River Valley Regional Communications system.

### EMS Billing

Three of the EMS agencies within the county bill for emergency medical services. Blacksburg Rescue Squad just started their billing process in late 2025. The agencies that bill for EMS services and their FY2025 revenues included the following amounts:

- Blacksburg Rescue Squad – Projected to be approximately \$1 million annually
- Christiansburg EMS - \$944,000
- Montgomery County Fire and EMS - \$368,595

### **Town Funding Allocation Models**

Montgomery County requested MissionCIT provide recommendations regarding a funding allocation formula that could be used moving forward for distribution of county funds to the town and volunteer fire and rescue squad departments. MissionCIT recommends the following options for consideration regarding the distribution of county funds. Specific details of the funding formulas are provided in Appendix E.

- *Option 1* – Full Allocated Funding Basis – Using Town of Blacksburg/Virginia Tech Formula (Based on Prior Year)
  - Based on percentage of valuation of towns and calls as compared to entire county
- *Option 2* – Marginal Funding Basis
  - Calculations based on what additional calls, coverage population and property valuation is served outside of their normal town coverage areas and outside of town fiscal responsibilities.
- *Option 3* – Full Flat Formula (Based on a 3-year rolling average)
  - Percentage of area within county run X 30%
  - Percentage of calls within county run X 35%
  - Property valuation within first due district, in billions X 35%
- *Option 4* – Property Tax Formula
  - Funding based on gap from overall property tax valuations, minus Montgomery County general fund expenditures for the year.

MissionCIT does not recommend a specific funding formula allocation from Montgomery County for Blacksburg Rescue or Christiansburg EMS as they bill for services in addition to receiving county allocations.

### **Unincorporated Fire and Rescue Funding**

Due to their already heavy reliance on Montgomery County for their funding, MissionCIT recommends that the volunteer fire and rescue squads within the unincorporated area be funded based on actual operating expenses for reimbursement. All capital equipment items should be funded based on prioritization through the Fire Rescue Commission.

### **Fire Levy**

Another consideration for the Towns or Montgomery County regarding the funding of fire services is to enact a Fire Levy as allowed under Virginia Code 27-23.1 (Establishment of Fire Zones or Districts; Tax Levies). A fire levy would be a dedicated, specific tax levy on either the entire county, or within just the towns to create additional revenue to fund fire services.

In research for this project, MissionCIT was able to find the following localities within Virginia who currently utilize a fire levy;

Jurisdiction	Tax Rate/ Per \$100 Property Valuation
Fauquier County Fire Rescue	\$0.185
Prince William County Fire Rescue	\$0.072
Manassas Fire Rescue	\$0.19
Nottoway County	\$0.05 EMS Levy \$0.02 Fire Levy
Orange County	\$0.15
Rappahannock County	\$0.06

**Recommendation 8.1**                      Montgomery County should consider adopting one of the proposed funding formulas for the allocation of fire protection to the town fire departments. At a minimum, there should be an established baseline amount that is determined to be provided by the county to the town fire and rescue squad departments to ensure appropriate funding.

**Recommendation 8.2**                      Montgomery County should continue to fund the volunteer fire departments in the unincorporated area based on a three-year average of actual expenditures for operating items only, not capital expenses. Capital expenditures should continue to be discussed and prioritized within the Fire and Rescue Commission budget process.

**Recommendation 8.3**                      As an alternative, either the Towns or the County could consider adopting a dedicated Fire Levy to fund improvements to fire services, particularly for the funding of additional career staffing.

## SECTION 9: VOLUNTEER RECRUITMENT AND RETENTION

During MissionCIT's visit, we spoke with agency representatives regarding personnel resources, recruitment, onboarding, and retention of volunteer personnel. In addition to MissionCIT's site visit, surveys were deployed to the fire and rescue chiefs asking similar personnel questions. Of the eleven agencies, all but one, Longshop McCoy Fire, completed the Chief survey. Some of the responses between the surveys and site visits are similar and others show disparity. The volunteer fire and rescue survey responses indicated a much stronger effort of recruitment and retention of volunteers than provided when speaking to representatives on site. The survey shows a net gain of 111 volunteers in 2025 (partial year) and a net gain of 146 volunteers in 2024.

Discussion with volunteer representatives during site visits indicated that most departments are maintaining current, existing levels, through recruitment and attrition, with no significant positive change in their numbers. Even Blacksburg Rescue remains status quo because of their full but limited volunteer capacity. Annually, they onboard a small select number of volunteers to fill the vacancies of those who transitioned out the year prior. Montgomery County doesn't have a countywide records management system, which makes it difficult to ascertain quantitative data on overall personnel onboarding, training, achievements, and termination.

In the fall of 2021, a thorough volunteer recruitment and retention survey was conducted through Montgomery County with support of the Fire and Rescue Commission. The survey touched on volunteer demographics, how volunteers were recruited, challenges and recommendations for recruitment, why volunteers stay, challenges to volunteering, retention opportunities, benefits, and open comment section. Recommendations were not provided and survey data was summarized for agency leadership use. The survey was a good attempt at finding out what was valuable and concerning for the volunteers. Incentives and feeling valued seemed to take the lead in the 2021 survey. Similarly, recruitment and retention incentives were also a top concern for internal members in MissionCIT's survey. Incentives that were provided in 2021, and continue to be provided, are gas card incentives, Accident/Death/Disability (ADD) insurance, and Volunteer Firefighters' & Rescue Squad Workers' Service Award Program (VOLSAP) benefits.

Recognition is not a one size that fits all approach, so consideration of financial and time resources needs to be made to decide on the most powerful benefits to impact the most people. Tangible benefits that often have a strong impact are health and wellness programs, financial incentives, tax breaks, quality gear and equipment, and tuition assistance programs. Though tangible benefits often have a heavy financial burden, they may not be as difficult to acquire as intangible benefits. Intangible benefits are more apt to retain personnel than tangible benefits, but may require a culture change to obtain. Intangible benefits often are psychological, emotional,

and experiential rewards that boost satisfaction, engagement, and long-term success for personnel and organizations, even though they can't be easily measured in dollars. Intangible benefits often sought in a fire and EMS department are a sense of value, pride, belonging, camaraderie and accomplishment, a positive and healthy work environment, opportunities for personnel growth and development, and effective leadership and communication. The internal member surveys indicated confidence in leadership, but a desire for stronger intangible benefits to include morale, improved organizational culture and atmosphere, and better intangible incentives.

Recruitment by each volunteer agency is done differently and potentially at different times. Some hold annual membership drives, recruit by word of mouth, recruit during fire prevention week, etc. A Recruitment and Retention (R&R) subcommittee should be formed under the Fire and Rescue Commission with at least one representative from each volunteer agency and a county representative. The R&R committee should look at countywide opportunities to recruit and retain volunteers. The R&R committee would utilize shared resources, diversify recruitment ideas, and enhance visibility in the county. Submission of a countywide R&R Staffing for Adequate Fire and Emergency Response (SAFER) grant to develop a recruitment website and video, enhance social media presence, and support recruitment and onboarding would benefit countywide recruitment.

Recruitment and retention ideas that the R&R Committee may want to consider include:

- Running social media ads and social media challenges to show camaraderie and awareness
- Off duty personnel attending local gyms and community events in full, clean PPE with a handler educating and recruiting the public
- Hosting a firefighter and EMT skills family day, giving family members the opportunity to observe their firefighter or EMT practice skills in a staged environment
- Soliciting local businesses for discounts with a fire rescue/public safety ID
- Highlighting personnel, services, and events for EMS week, fire prevention week, and national volunteer week
- Developing a countywide recognition event with music, food, and activities for all fire rescue agencies at a local park
- Developing a countywide benefits package with documents to assist volunteers in understanding and utilizing benefits
- Hosting monthly countywide new volunteer orientations to assist new volunteers in understanding countywide policies, procedures, training schedule, logistics, resources, and benefits

Training and standard policies are elements that were brought up in the surveys and focus groups as being weak. Both are strong intangible retention tools if implemented properly. Training promotes value, fosters engagement, improves skills for success, and shows investment in personnel's future. Clear expectations, which are often defined in policies, empower personnel to

succeed, feel valued, reduce ambiguity, boost engagement, and build trust by increasing transparency. For successful implementation of training standards and policies, the following must be incorporated: personnel involvement, clear communication, defined goals, and varied opportunities for achieving success (varied timeframes, tiered options, alternative paths).

Consistent onboarding training is crucial to retention success. A structured, standardized program ensures everyone gets the necessary skills and cultural understanding, setting them up for long-term success and loyalty. It boosts engagement, clarifies roles, builds confidence, fosters cultural fit, and reduces early turnover by making new personnel feel valued, supported, and productive from day one. Some volunteer agencies have clearly defined onboarding or probationary programs while others do not. The R&R committee should develop a standard onboarding or probationary program guide. In addition to technical skills, the program should include agency and county policies, procedures, and expectations. It should be the minimum expected actions and training at a station that a new volunteer should complete as a probationary volunteer. Stations may individualize and go beyond the minimum probationary program's best practices.

A thorough onboarding training program is just as important for career personnel as volunteer personnel, since career recruits are often hired with certifications and don't go through a county hosted recruit training program. The probationary program guide should include the basic technical skills, agency and county policies, procedures and expectations. Stations may individualize and go beyond the minimum probationary program guide's best practices.

To be a firefighter in Virginia, the minimum requirement is to be 18 years of age, pass a background check, and have your GED or high school diploma. It is the responsibility of localities to set a minimum training standard for firefighters. Montgomery County volunteers do not have a countywide policy requiring minimum training standards for firefighters. Many volunteer firefighters are trained in-station or with some joint station training. With little to limited training, volunteers are eligible to respond to calls and possibly enter an Immediately Dangerous to Life or Health (IDLH) environment. Untrained individuals lack the knowledge, skills, and practice necessary to recognize dangers and perform safe operations. This puts not only the firefighter at risk, but also their colleagues. Completing a formal Firefighter I-II course is crucial because it provides standardized, comprehensive, and certified foundational knowledge and skills, ensuring all firefighters operate with consistent competency for safety. Firefighter I-II certification builds the essential base for complex operations and ensures a higher standard of readiness. A countywide minimum training standard for firefighters should be developed detailing the actions necessary for what PPE is authorized prior to and after minimum certification is achieved. In Virginia, the state sets and accredits EMS training with oversight and quality assurance provided by the agency's operational medical director (OMD).

Volunteers have expressed a need for administrative support at the county level. The opportunity to provide this support can be beneficial to enhancing recruitment, retention, and developing a stronger combination system. Due to Montgomery County’s strong volunteer engagement, a higher-level administrative support position, Volunteer Human Resource Manager, is recommended. The position would report to the county fire chief, work closely with the Fire and Rescue Commission, specifically the Recruitment and Retention subcommittee. The position would assist in the administration of volunteer recruitment, onboarding, developing incentives, benefits, certification tracking, and termination. It would provide administrative support for meetings, track funding and disbursement, and assist in the application of grants.

Lastly, in the fire and rescue chief’s surveys, five volunteer/combination departments indicated they utilize stand-by volunteer duty crews at their station; four departments indicated that volunteers respond from home with no assigned duty crew. Standby duty crews for Montgomery County volunteers varies from 24/7/365 to “2 nights a week”. A stand-by duty crew is assigned to be ready to respond immediately to incidents and can either be assigned to respond from home or stay at the station and respond from the station. In-station duty crews may enhance retention through increased camaraderie, in-station training, and providing a sense of purpose. Response from home adds additional time to respond as volunteers must travel to the station to secure apparatus and gear. Having an assigned duty crew is helpful in knowing personnel will be available for a call. Having assigned duty crews, in-station or home response, ensures that adequate qualified personnel will be available for response, clarifies personnel assignments, and creates ownership of responsibility to the volunteers. Having assigned duty crews posted in a records management system will enhance dispatch processing, reduce response delays, and provide more efficient and timely incident response to the community.

**Recommendation 9.1**

The Fire and Rescue Commission should develop a Recruitment and Retention subcommittee with representatives from each volunteer agency.

**Recommendation 9.2**

Implement a countywide records management system (RMS) to assist in tracking volunteer onboarding, training, benefits, certifications, and terminations. The software may also be programmed to utilize identifying personnel responding to calls.

**Recommendation 9.3**

Implement volunteer duty crew response scheduling by agency, recorded and tracked in the RMS.

**Recommendation 9.4**

Hire a Volunteer Human Resource Manager to work with the Fire and Rescue Commission’s Recruitment and Retention Committee. An example position description is included as Appendix D.

**Recommendation 9.5**

Utilize the Montgomery County Public Information Officer (PIO) to develop and support ideas and opportunities to enhance personnel recruitment and retention.

**Recommendation 9.6**

Seek a R&R SAFER grant to enhance recruitment and retention countywide.

**Recommendation 9.7**

Perform a benefits assessment for career personnel through comparisons with local agencies and an internal career member only survey to enhance tangible and intangible benefits to improve career personnel morale and retention.

**Recommendation 9.8**

Develop separate volunteer and career personnel onboarding guides.

## SECTION 10: SYSTEM WORKLOAD AND PERFORMANCE

System workload and performance can be measured through many variables. Most often it is measured through the following:

- *Number of responses* – The number of responses indicates the volume of calls received and answered by a fire department/rescue squad annually. The more the volume increases, the more stress is placed on a volunteer fire department and its members. In addition, the increase in responses also impacts the availability of resources for additional incidents. The number of responses is different than calls. One call for service, within the county, may have upwards of three responses if there were two fire departments and one rescue squad responding.
- *Response time* – Response time measures how fast resources take to arrive at the scene of an incident. The longer the response time, for fire or medical calls, the greater chance for loss of life and property damage. Emergency Services response time typically consists of two components:
  - Turnout Time - The time from call tone out until a unit is enroute
  - Travel Time – The time from a unit goes enroute until it arrives on scene at the incident

Response times are typically reported as an average. However, a more accurate reporting is done as fractile times. Fractile times are a performance measure tracking the percentage of fire or EMS calls, usually at 80% or 90%, that meet a specific target response time

- *Fire/Property loss* – The amount of fire loss within an area each year affects the insurance premiums people pay and can negatively impact the economic conditions in an area.
- *Fire / Property Saved* – The estimated dollar value of a structure and its contents that were protected from destruction through the direct intervention of firefighters, or through pre-incident mitigation efforts such as sprinkler system protection and/or defensible space
- *Staffing levels/Effective Response Force* – The number of people who respond to an incident can impact its outcome and success of mitigating loss and damage. With too few personnel, greater human or property loss can occur.

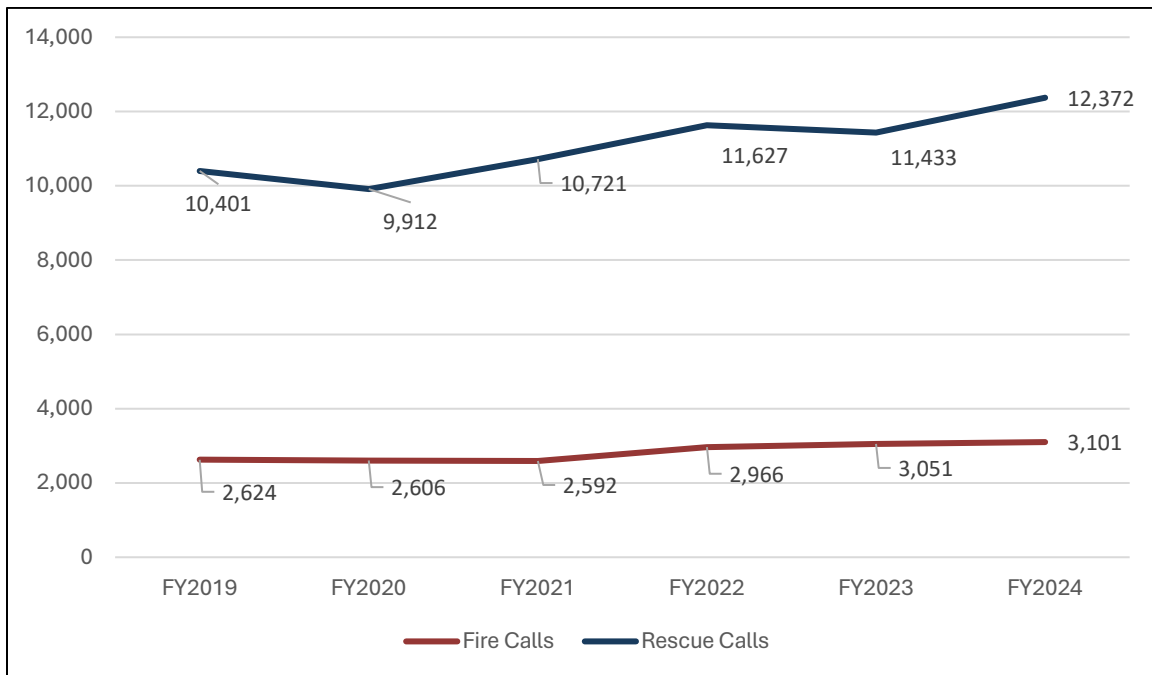
Each of these will be reviewed and outlined in the next few sections of the report.

Obtaining multi-year call and response data from the fire departments and rescue squads was difficult. Most did not provide MissionCIT with the requested detailed information for analysis. The general call data received was from an online fire/rescue chief survey sent to each department asking for their 2024 data. Departments are using different records management

system. One fire department provided MissionCIT with paper copies of their response information. With each agency operating their own records management system, there is no good way to obtain systemwide data for long term planning and analysis. Most of the response time and workload data that we received and are including in the report came from NRV911 through the computer aided dispatch (CAD) system.

The annual call volume by fiscal year for fire and rescue shows the following:

**Figure 28: Montgomery County Fire and Rescue Calls**

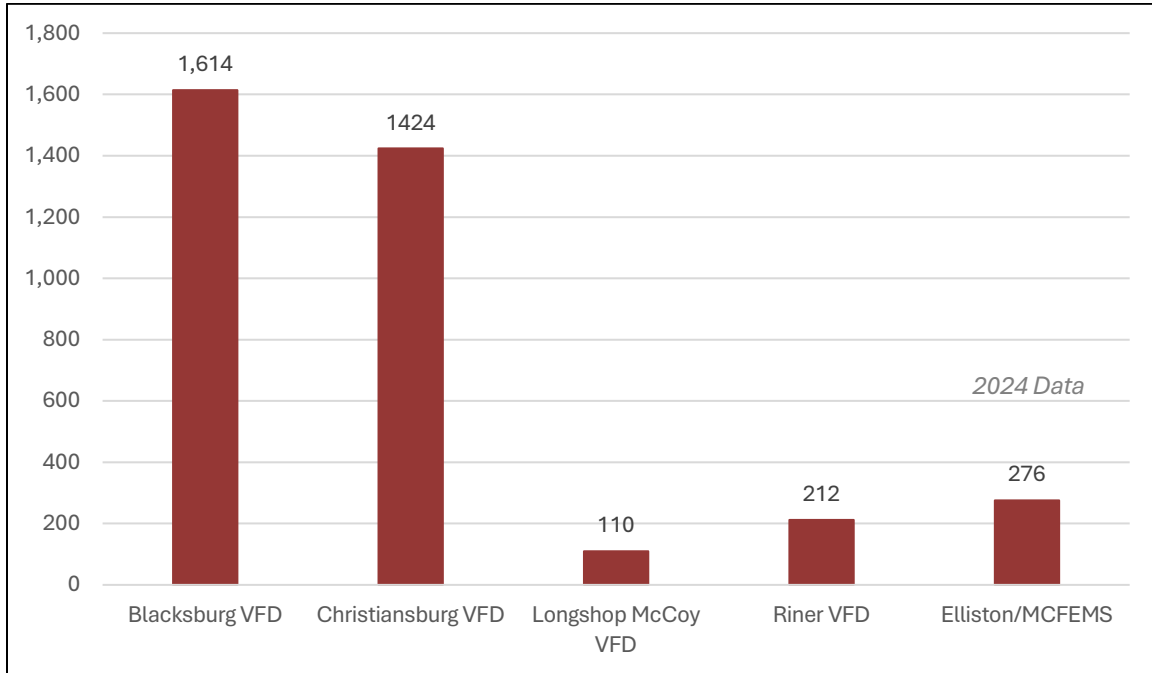


Source: Montgomery County Annual Budget Documents

Fire calls within the county appear to have remained relatively flat over the six-year period shown with rescue showing a slight increase. However, the increase amount for fire calls was almost identical to that of the EMS calls. Fire calls increased 18% over that time, while EMS calls increased 19%.

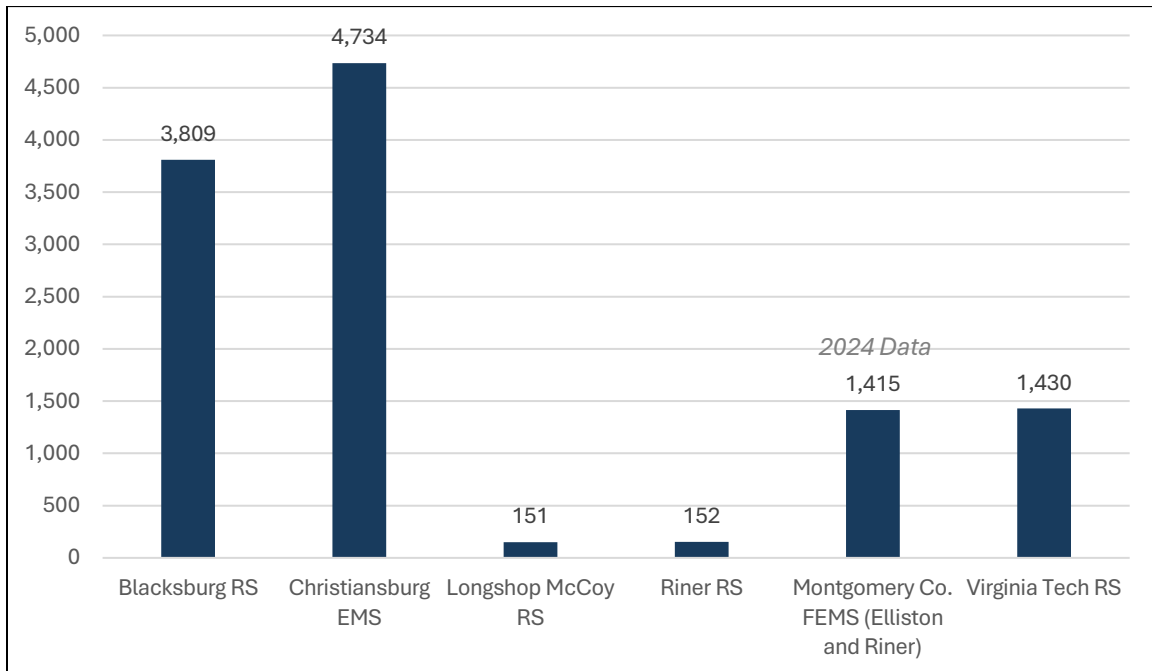
As reported by the NRV911 Regional Communications Center, they dispatched the following response volumes, by agency, for calendar year 2025.

**Figure 29: Fire Department Dispatch Responses, 2025**



Source: NRV 911 Manager

**Figure 30: Rescue Squad 2025 Dispatched Responses**



Source: NRV 911 Manager

There may be differences between the agency reported responses and the dispatch numbers from NRV911 due to how the data is captured within the CAD system and individual response reports completed by each agency.

Below are the reported 2024 responses for each fire and rescue squad department as reported by those departments.

**Table 9: Fire Department Call Volume, 2024**

Fire Department	Stations	Total Calls	Structure Fires	Vehicle Fires	Medical Calls	Motor Vehicle Accidents	Alarm Activations	Other Calls
Blacksburg	3	1488	34	9	0	207	682	556
Christiansburg	1	1072	25	23	21	291	166	546
Elliston	1	277	3	2	31	61	25	155
Longshop McCoy								
Riner	1	178	20	0	6	58	36	49
MCFEMS	1	440	12	18	187	93	38	92

Source: Department Chief Survey

**Table 10: Rescue Squad/EMS Call Volume, 2024**

Rescue Squad	Stations	Total Calls	Medical Calls	Motor Vehicle Accidents	Missing Persons	Technical Rescue	Non-Emergency Transports	Other Calls
Blacksburg	1	3,885	3,857	254	24	12	2	30
Christiansburg	1	4,617			2			7
Longshop McCoy	1							
Riner	1	95		8			15	90
Va. Tech	1	1,396	879	10		3		507
MCFEMS	2	1,347	1,196	151				

Source: Department Chief Survey

**Fire System Data Summary**

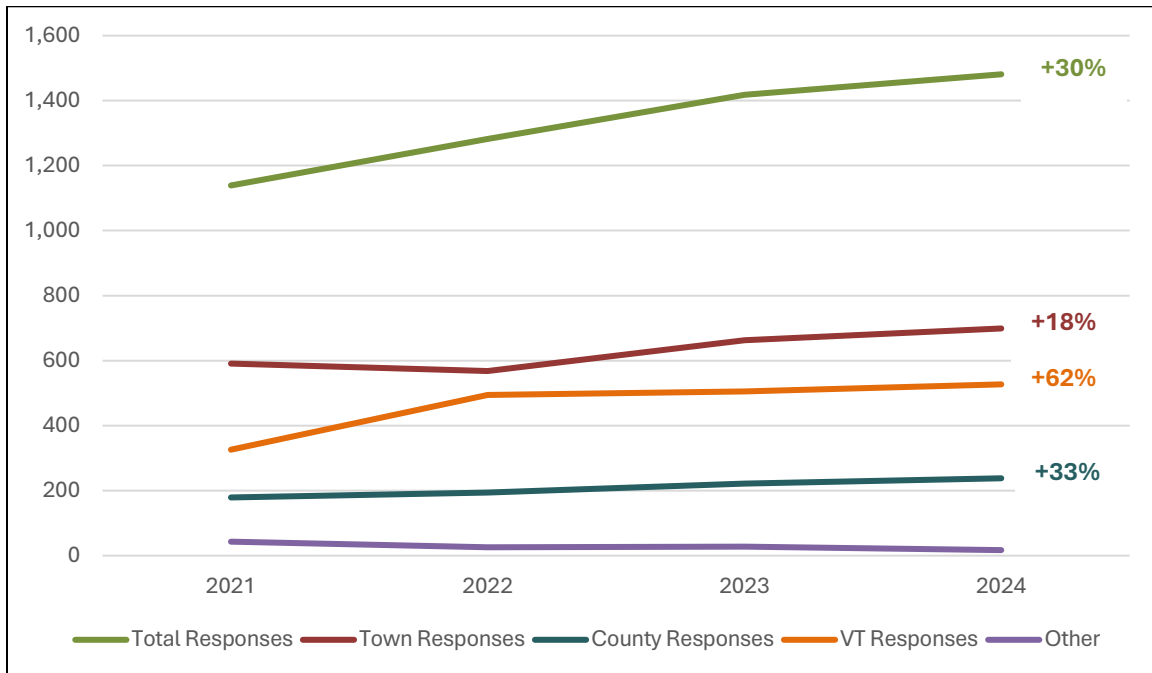
More detailed fire response data for each agency is included in Appendix G.

*Blacksburg Fire*

Blacksburg Fire Department does not provide any EMS response, except to vehicle accidents for extrication.

Their response data over the last four years is shown below. The department’s responses to the Virginia Tech campus have grown almost twice as fast as their overall county responses or their annual total responses.

**Figure 31: Blacksburg Fire Responses**

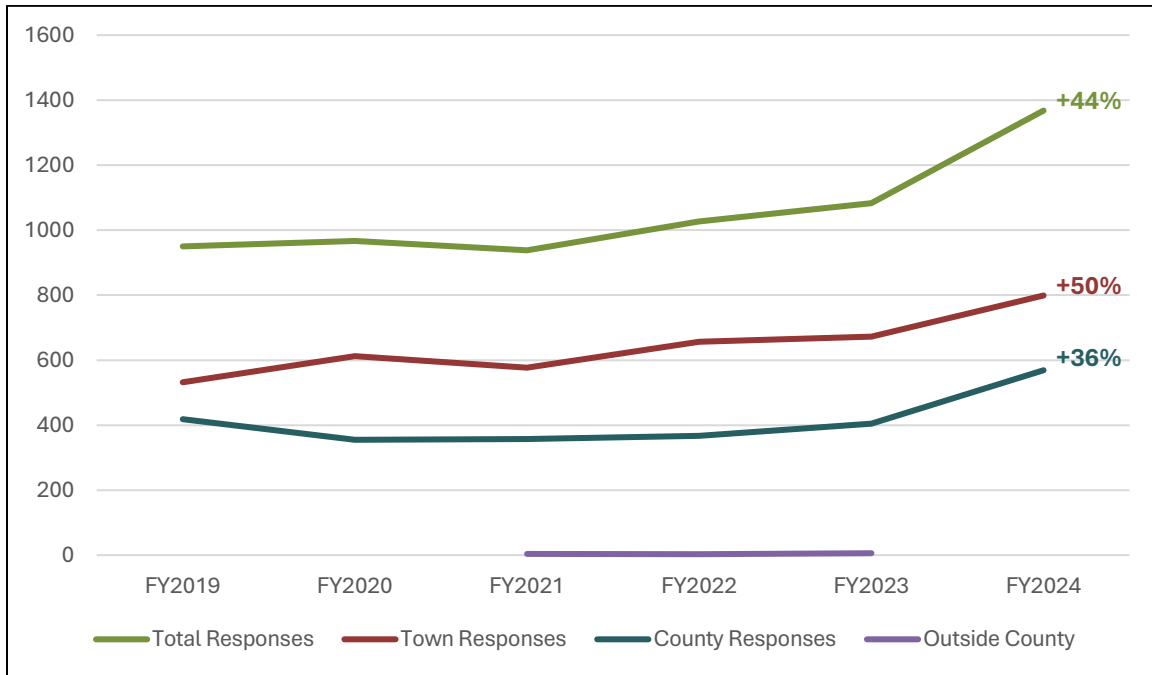


Source: Town of Blacksburg Budget Documents

**Christiansburg Fire**

Christiansburg Fire has seen a steady increase in calls, both inside the town and in the county over the last six years. The department does not respond for EMS first response incidents.

**Figure 32: Christiansburg Fire Responses**



Source: Town of Christiansburg Fire

Over the last almost four years, Christiansburg Fire has responded, on average, to the following call types each year:

10.5% (118)	Fires
29% (328)	EMS
9.7% (110)	Hazardous Condition calls
7.3% (82)	Service calls
26% (293)	Good Intent calls
17.5% (198)	False alarms

**Riner Fire**

Riner Fire Department does not respond on first dispatch to medical calls.

**Longshop McCoy Fire**

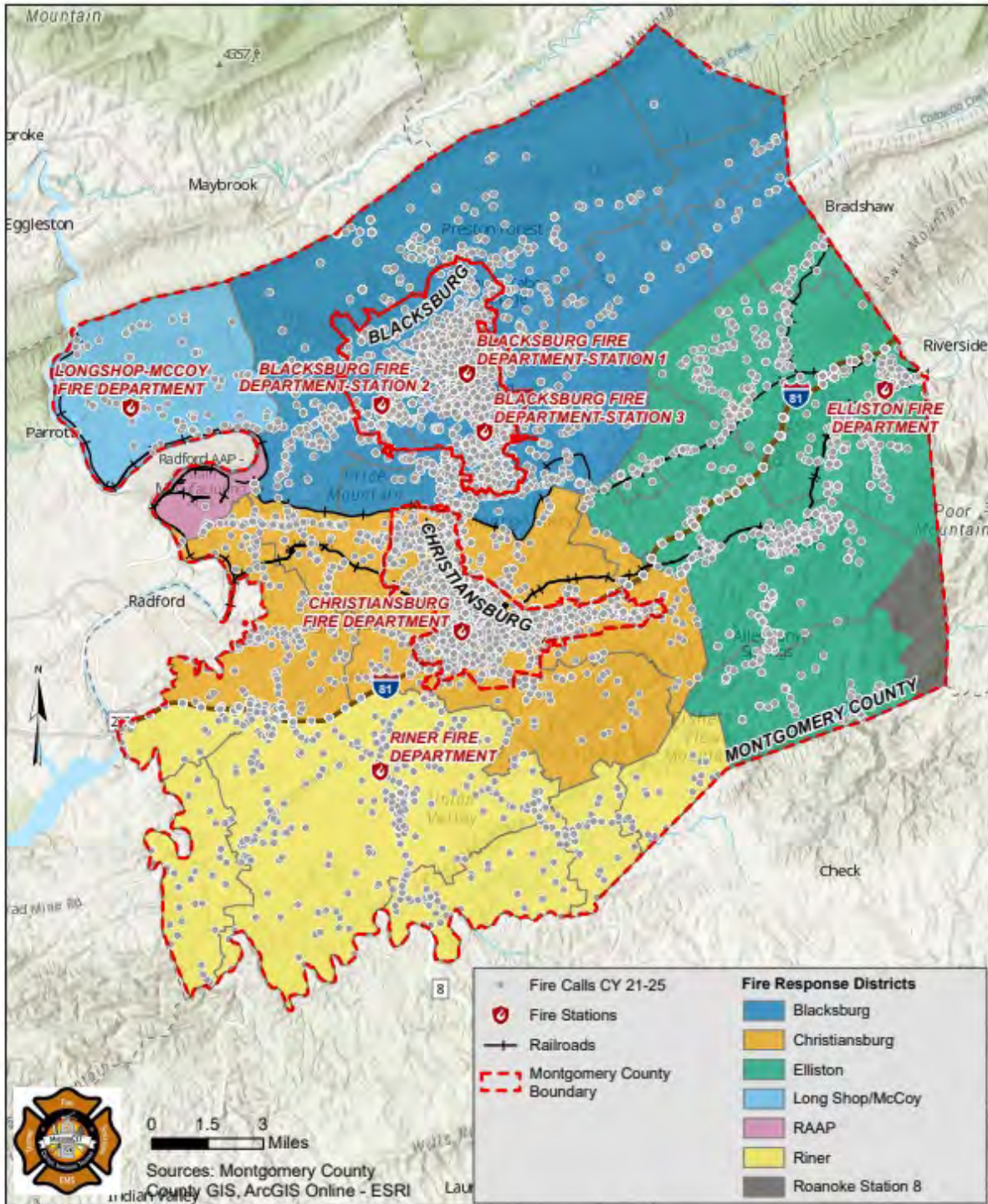
About half of their membership responds to both fire and medical calls.

**Elliston Fire**

The volunteer department at the station operates separately from the career staffing at the station and responds to fire calls.

The location of all fire calls over the past five years shows the following locations within the county. Multiple unit responses on the same call are not shown.

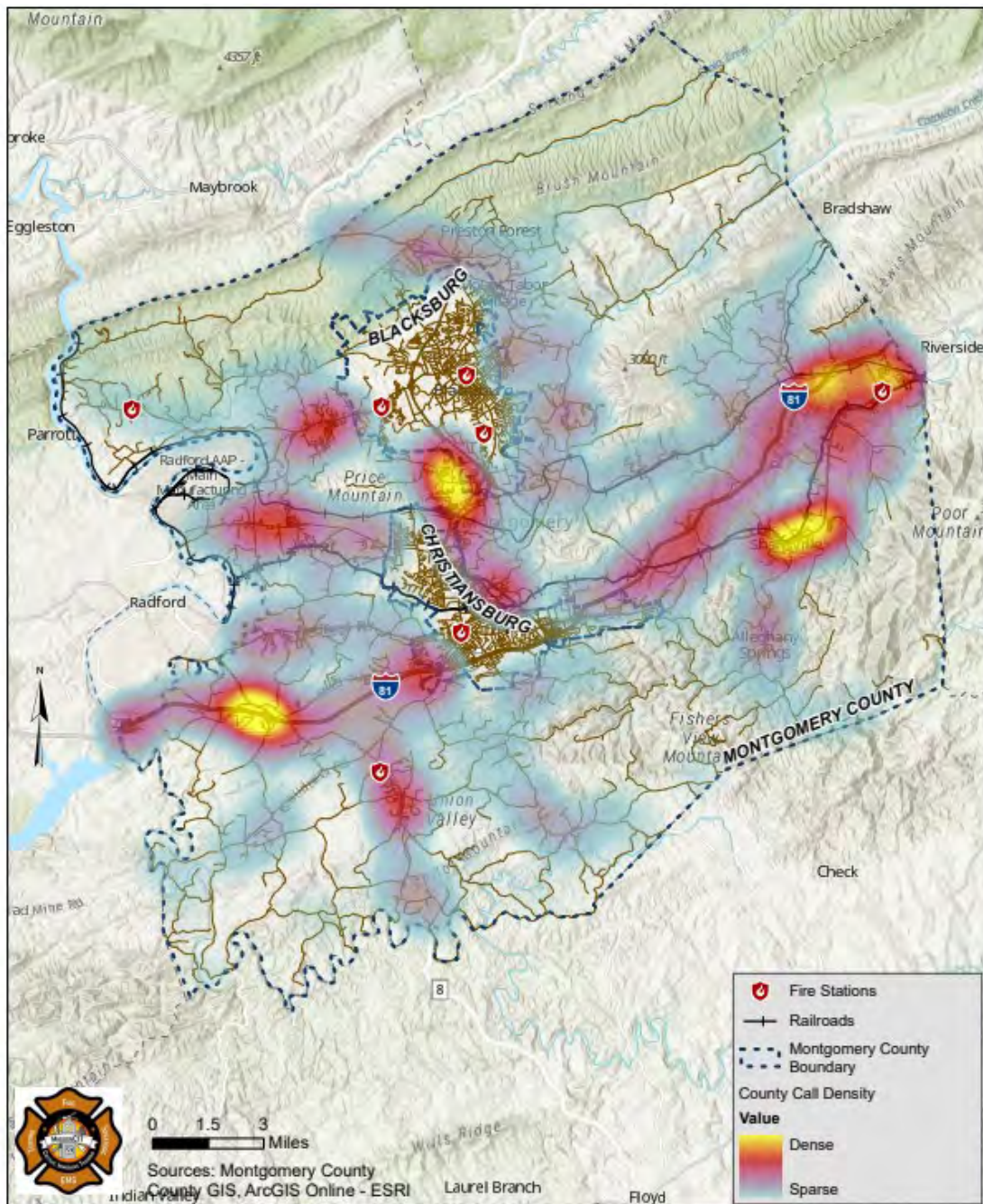
**Figure 33: Montgomery County, VA Fire Call Locations, 2021-2025**



Source: NRV 911 CAD Data

The concentration/density of fire calls in the unincorporated areas of the county show the following. Separating out the calls in the unincorporated area was done so that the call concentrations within the towns would not overshadow or diminish what is occurring within the county.

**Figure 34: Fire Call Concentrations in Unincorporated Montgomery County**

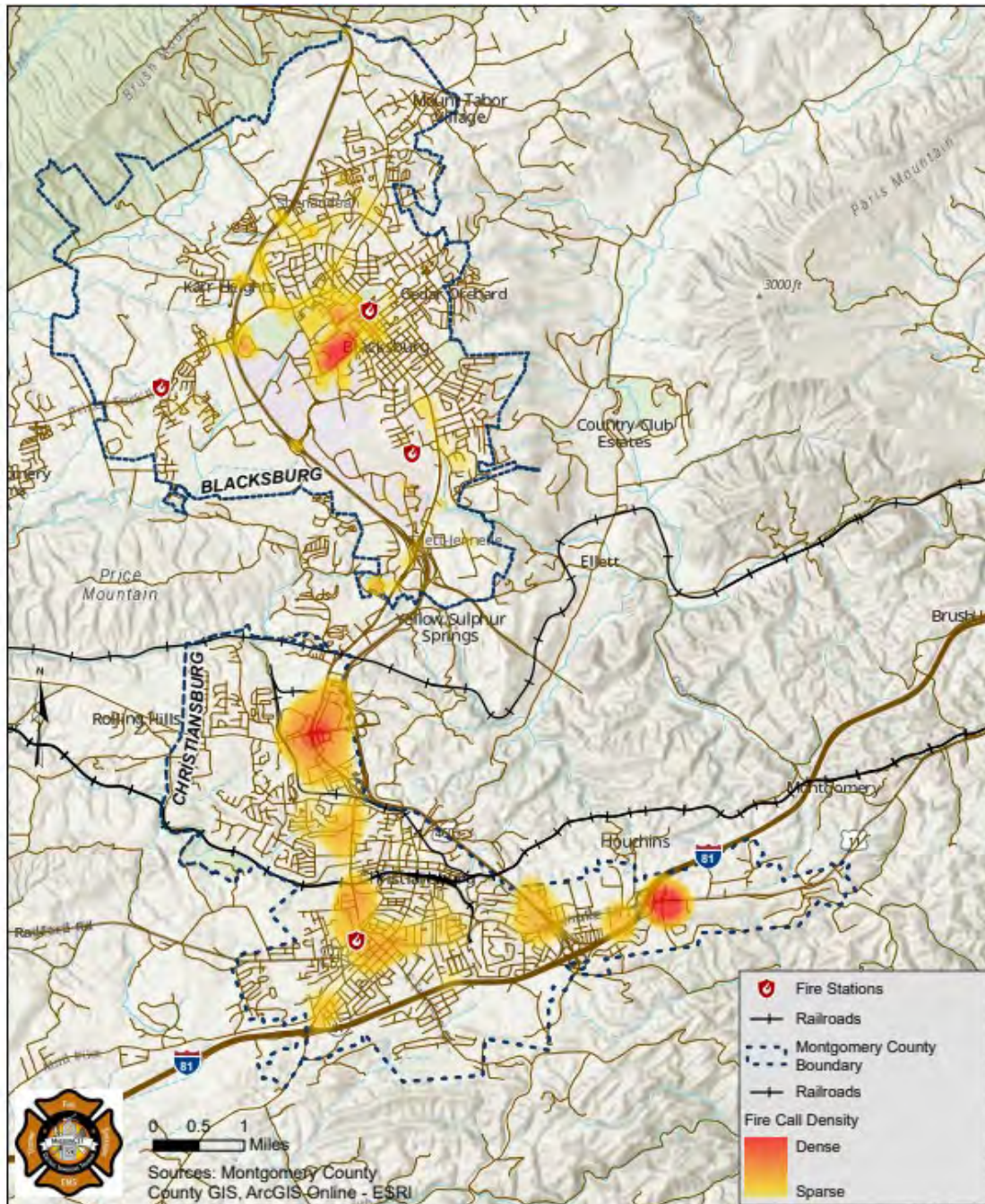


Source: NRV911 CAD Data

For the unincorporated area, the fire calls are concentrated in the Elliston, Shawsville, Merrimac, and the I-81/Tyler Road areas. The concentrated areas, not currently covered adequately by fire station locations, may point to a need for additional stations in those areas.

The concentration/density of fire calls in the towns shows the following:

**Figure 35: Fire Call Concentrations in Blacksburg and Christiansburg**



Source: NRV911 CAD Data

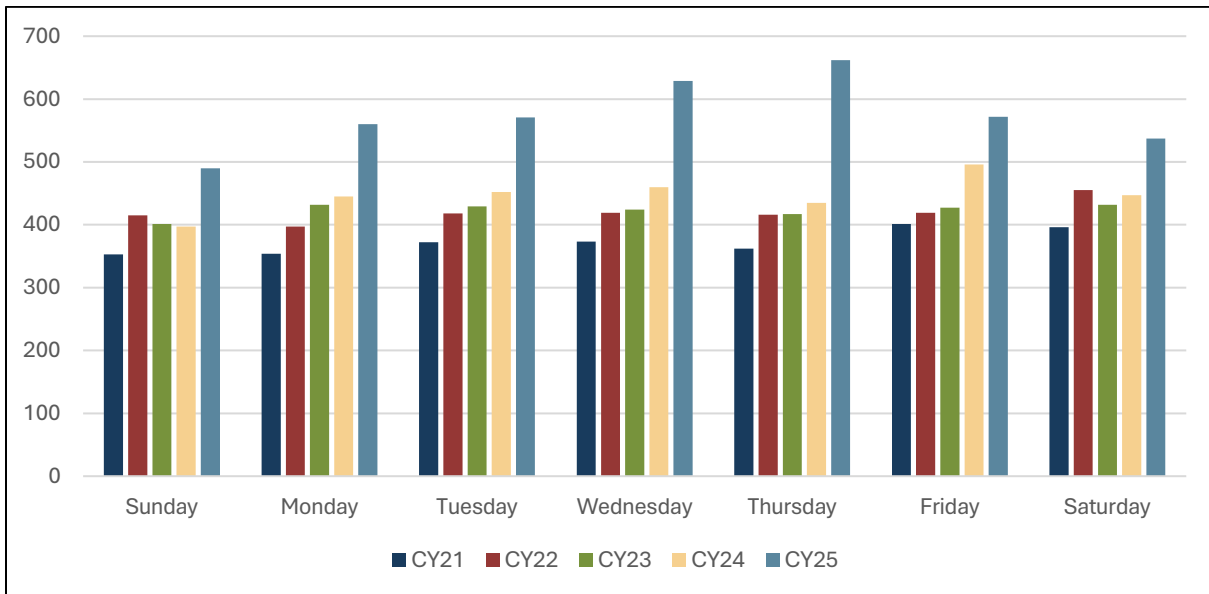
**Time of Day / Day of Week – Fire**

A review of the total system calls by day of the week and hour of the day show trends of increasing calls over the last few years, by time of day and day of week, but an also increasing frequency of busy times compared to earlier years. The increasing volume and frequency may begin to stress both the fire and rescue squad system and will certainly continue to stress the ability of volunteer personnel to respond.

**Table 11: Fire Calls Dispatched by Day of the Week**

Day of the Week	2021	2022	2023	2024	2025	Total
Sunday	353	415	401	397	490	2056
Monday	354	397	432	445	560	2188
Tuesday	372	418	429	452	571	2242
Wednesday	373	419	424	460	629	2305
Thursday	362	416	417	435	662	2292
Friday	401	419	427	496	572	2315
Saturday	396	455	432	447	537	2267
<b>Total</b>	<b>2611</b>	<b>2939</b>	<b>2962</b>	<b>3132</b>	<b>4021</b>	<b>15665</b>

**Figure 36: Fire Calls by Day of the Week**



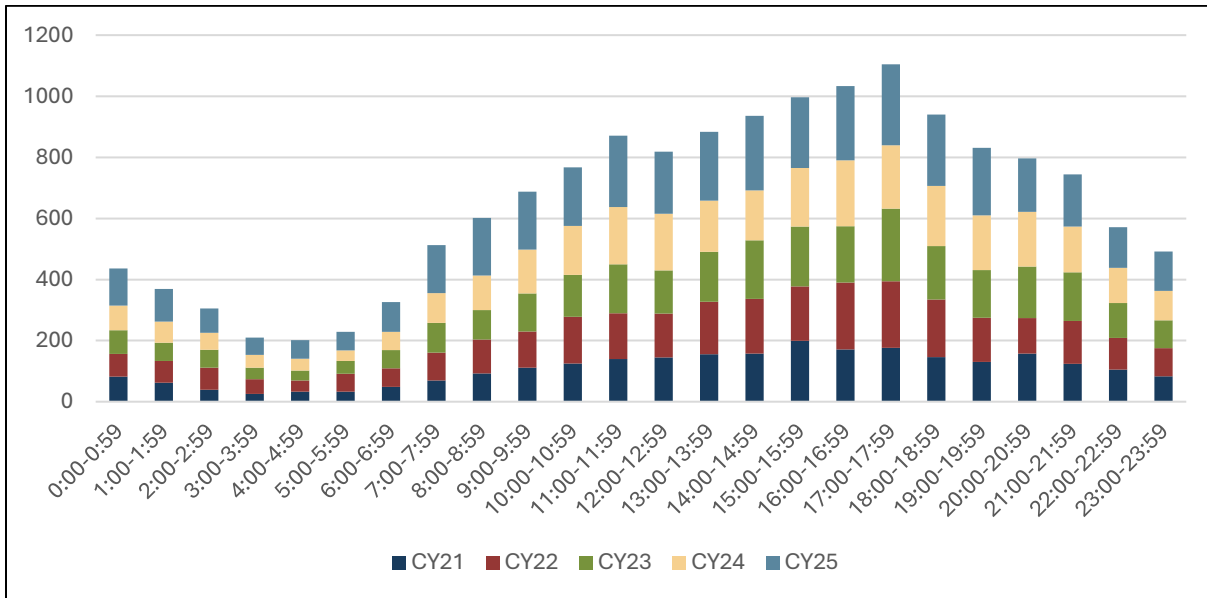
A significant increase in call volume appears to have occurred from 2024 to 2025 for all days of the week.

The number of fire dispatches has continued to increase to more time periods of each day, and in particular, has increased during the time period from 11 am to 8 pm.

**Table 12: Fire Calls Dispatched by Time of Day**

<b>Time of Day</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>Total</b>
0:00 – 0:59	82	74	78	81	121	<b>436</b>
1:00 – 1:59	62	71	60	69	107	<b>369</b>
2:00 – 2:59	39	72	59	56	79	<b>305</b>
3:00 – 3:59	25	49	37	42	57	<b>210</b>
4:00 – 4:59	33	36	33	39	60	<b>201</b>
5:00 – 5:59	33	58	42	35	61	<b>229</b>
6:00 – 6:59	49	60	60	60	97	<b>326</b>
7:00 – 7:59	70	91	97	98	157	<b>513</b>
8:00 – 8:59	93	111	96	113	189	<b>602</b>
9:00 – 9:59	111	119	124	144	190	<b>688</b>
10:00 – 10:59	125	153	137	160	192	<b>767</b>
11:00 – 11:59	140	149	161	187	234	<b>871</b>
12:00 – 12:59	145	143	142	185	204	<b>819</b>
13:00 – 13:59	155	172	164	167	225	<b>883</b>
14:00 – 14:59	157	180	191	164	244	<b>936</b>
15:00 – 15:59	199	178	196	192	232	<b>997</b>
16:00 – 16:59	171	219	184	216	243	<b>1033</b>
17:00 – 17:59	176	218	238	207	266	<b>1105</b>
18:00 – 18:59	146	189	174	197	234	<b>940</b>
19:00 – 19:59	130	145	156	179	221	<b>831</b>
20:00 – 20:59	158	116	168	180	175	<b>797</b>
21:00 – 21:59	124	140	160	149	171	<b>744</b>
22:00 – 22:59	105	104	114	115	133	<b>571</b>
23:00 – 23:49	83	92	91	97	129	<b>492</b>
<b>Total</b>	<b>2611</b>	<b>2939</b>	<b>2962</b>	<b>3132</b>	<b>4021</b>	<b>15,665</b>

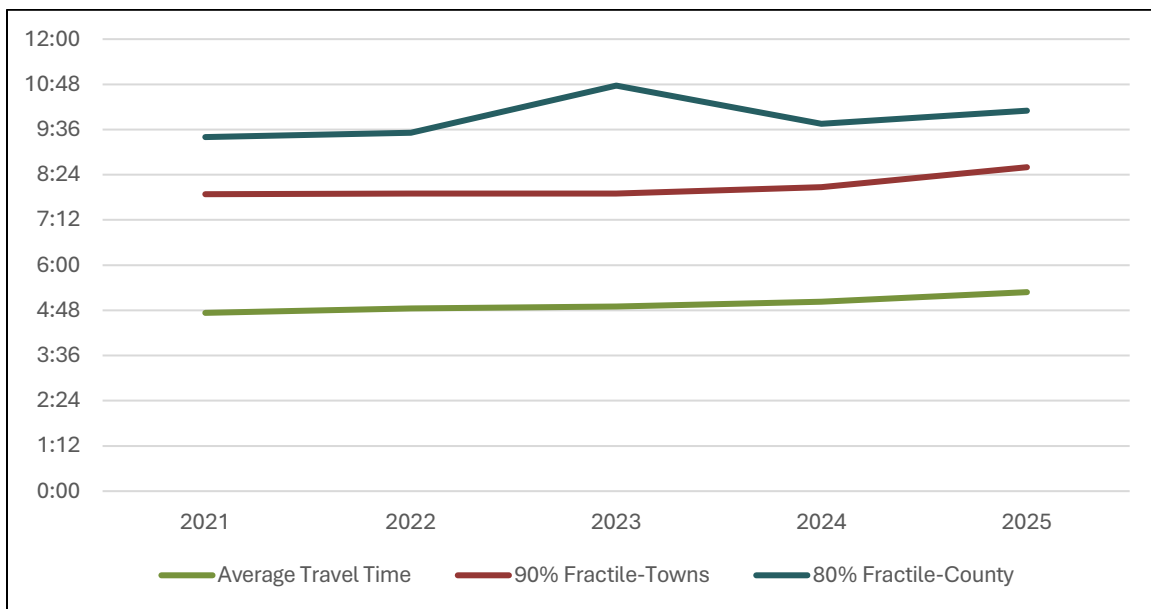
**Figure 37: Fire Dispatched Calls by Time of Day**



**Average and Fractile Fire Travel Times**

The average and fractile travel times for fire responses is shown on the following graph for 2021-2025. MissionCIT used a 90% compliance for the urban departments of Blacksburg and Christiansburg, and an 80% compliance for the departments within the unincorporated areas, per NFPA 1720 guidelines. Both the town and county fire departments have seen a very slight increase in their travel times from 2024-2025.

**Figure 38: Montgomery County Average and Fractile Fire Travel Times**

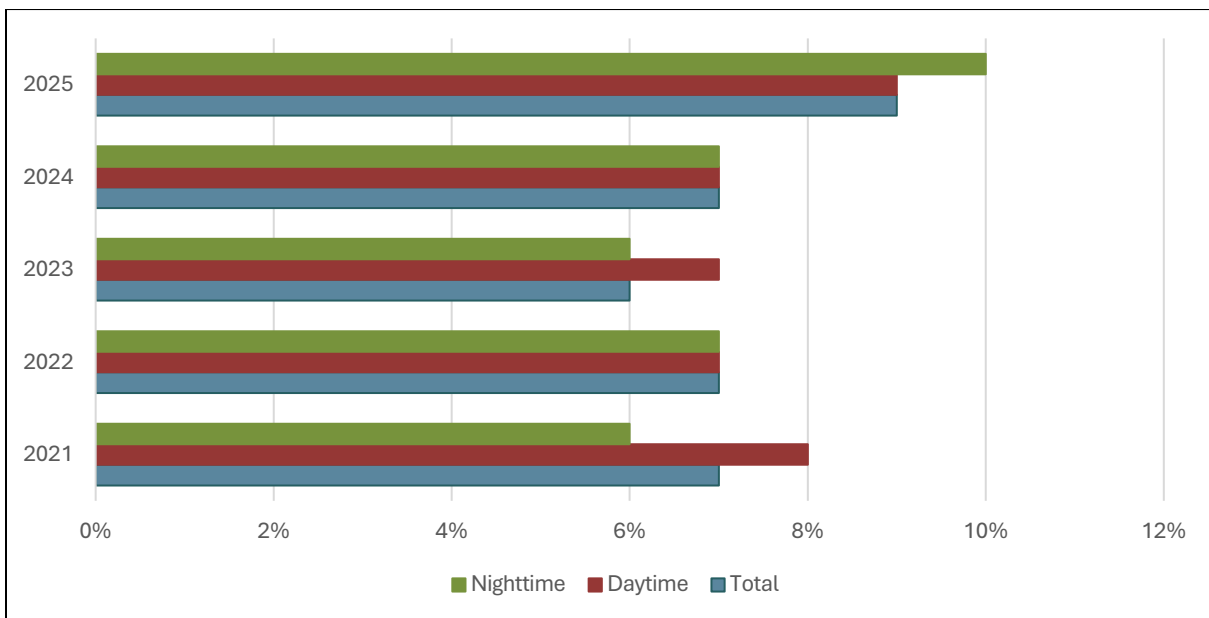


Like the rescue squads, the fire departments travel times are good, but they do not show the complete picture and include the time from dispatch to the first unit enroute. It is unknown if the fire departments would meet the proposed county fire performance standard that is included in Appendix C if the turnout time was available and tracked.

**Concurrent Incidents – Fire**

Both the daytime and nighttime concurrent call percentages have been increasing since about 2023.

**Figure 39: Fire System Concurrent Calls - Calls within 20 Minutes of Each Other**



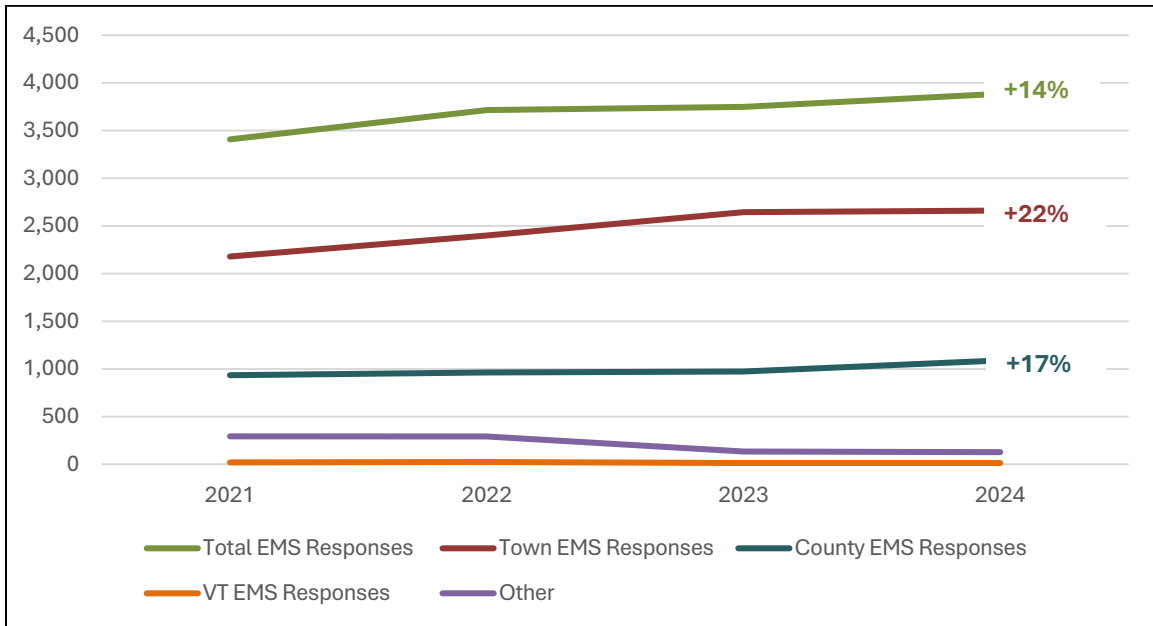
**EMS System Data Summary**

More detailed EMS response data, for each agency, is included in Appendix G.

*Blacksburg Rescue*

Blacksburg Rescue has seen modest increases over the last four years in its total EMS responses and their responses within the town and county. EMS responses within Blacksburg constitute approximately 68% of their total responses, while 28% are within Montgomery County.

**Figure 40: Blacksburg Rescue EMS Responses**

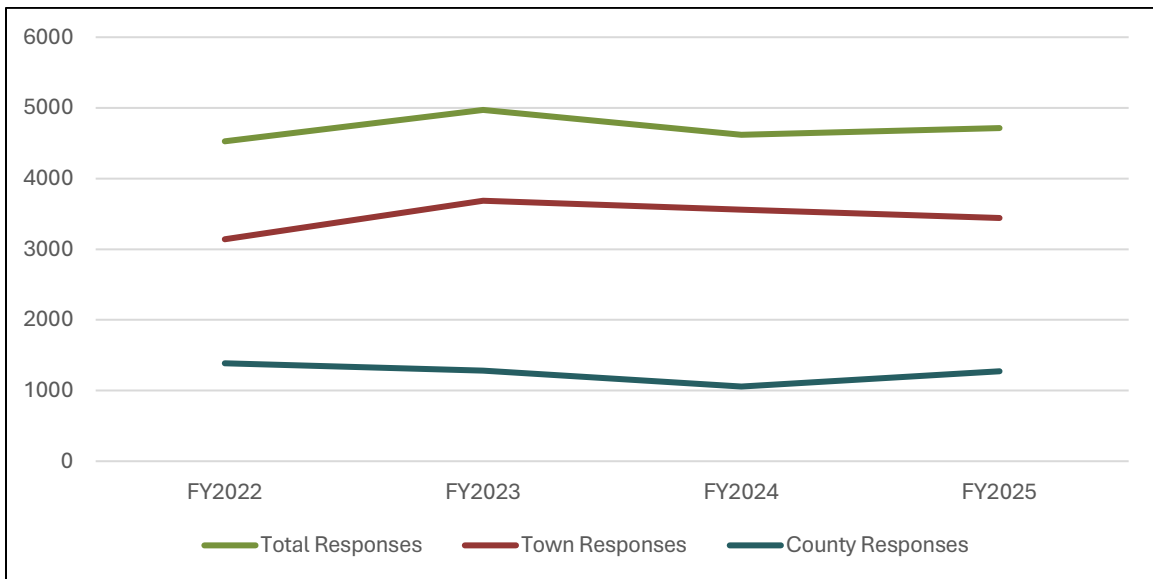


Source: Town of Blacksburg Budget Documents

**Christiansburg EMS**

Christiansburg EMS has seen relatively flat response for the past four years. The decline of county responses from FY23-FY24 may be related to the 24/7 EMS staffing at Elliston and Riner. However, the county call volume has started to increase again.

**Figure 41: Christiansburg EMS Responses**



Source: Town of Christiansburg EMS

Christiansburg EMS started providing a whole blood program as part of their operations in 2025. This is a cutting-edge standard of care that is gaining traction within emergency medical services across the United States to aid trauma patients and others with blood loss. They are the only EMS agency in Montgomery County providing this level of service.

#### *Virginia Tech Rescue*

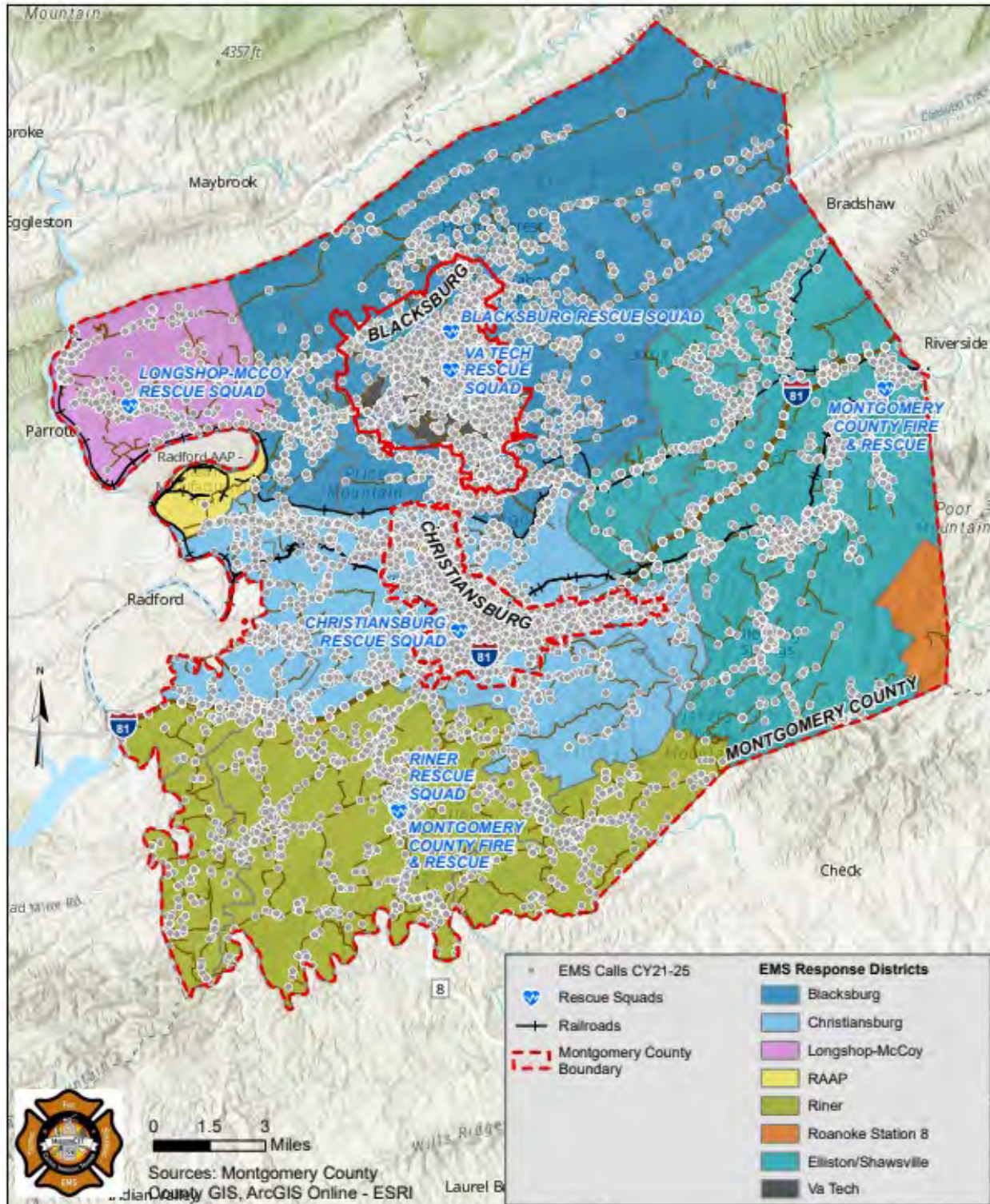
Virginia Tech Rescue provides services solely to the Virginia Tech campus and its associated buildings/locations. As needed, they will provide mutual aid off campus.

#### *Riner Rescue*

Riner Rescue typically only staffs and provides services during the evening hours of 1800-2400 hours each day.

The EMS call location data shows the following distribution of EMS incidents over the past five years. Like the fire call distribution, multiple EMS unit responses to the same address for the same incident are not shown here.

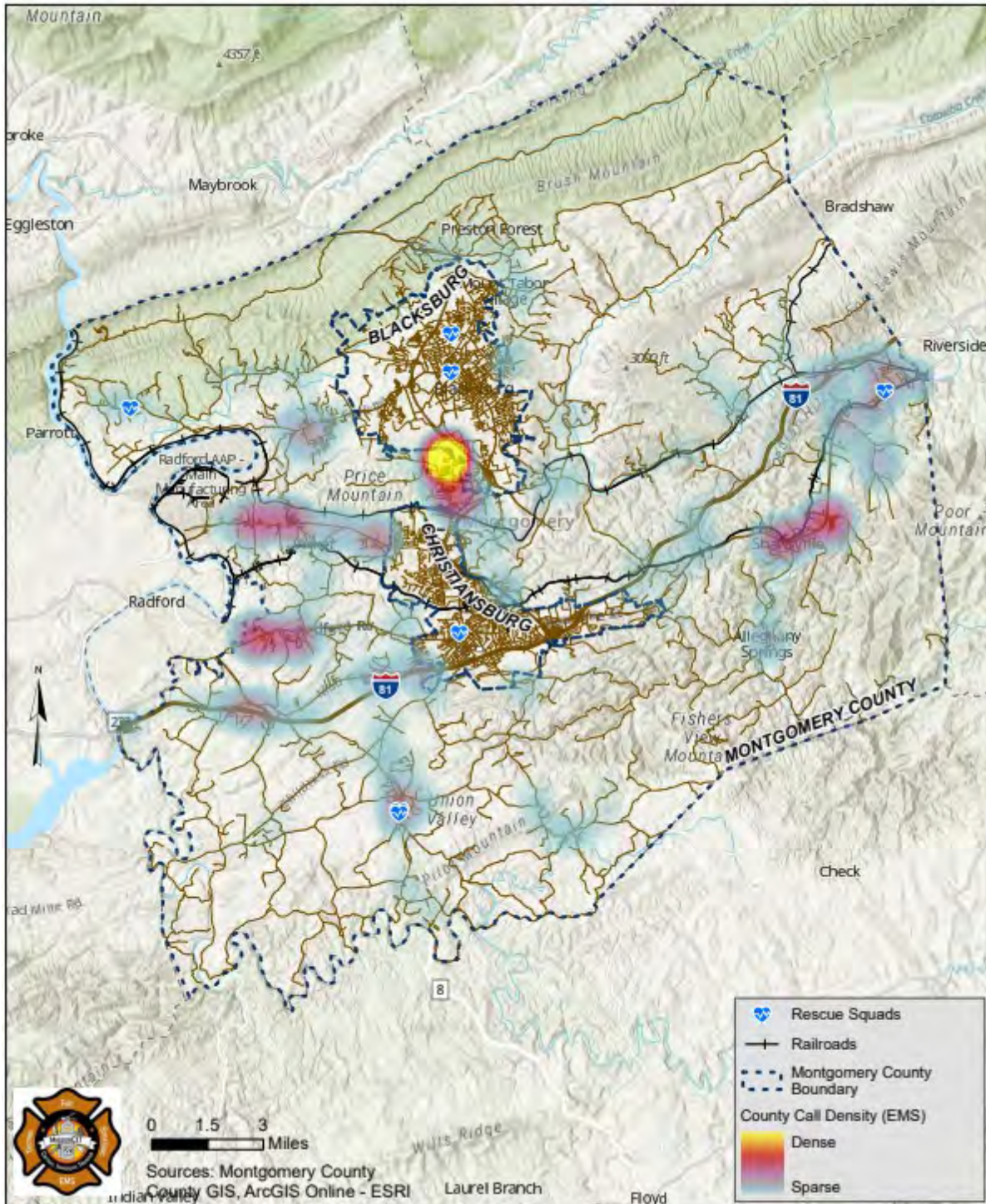
Figure 42: EMS Call Locations, 2021-2025



Source: NRV 911 CAD Data

The EMS call concentration/density for the unincorporated area of Montgomery County shows the following distribution:

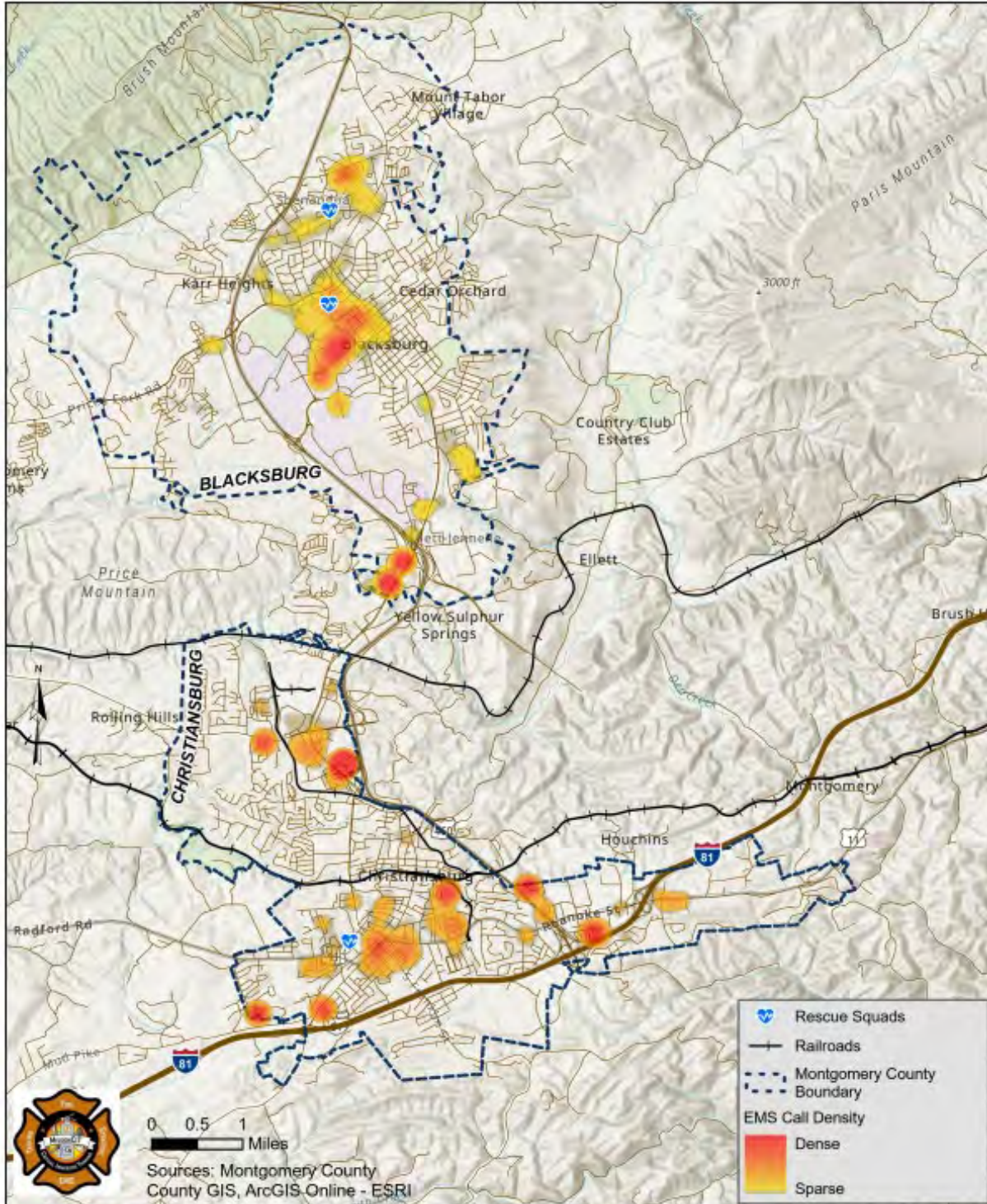
**Figure 43: EMS Call Concentration in Unincorporated Montgomery County, 2021 - 2025**



Source: NRV911 CAD Data

The concentration of EMS calls within the towns shows the following:

**Figure 44: EMS Call Concentrations within Blacksburg and Christiansburg, 2021 - 2025**



Source: NRV911 CAD Data

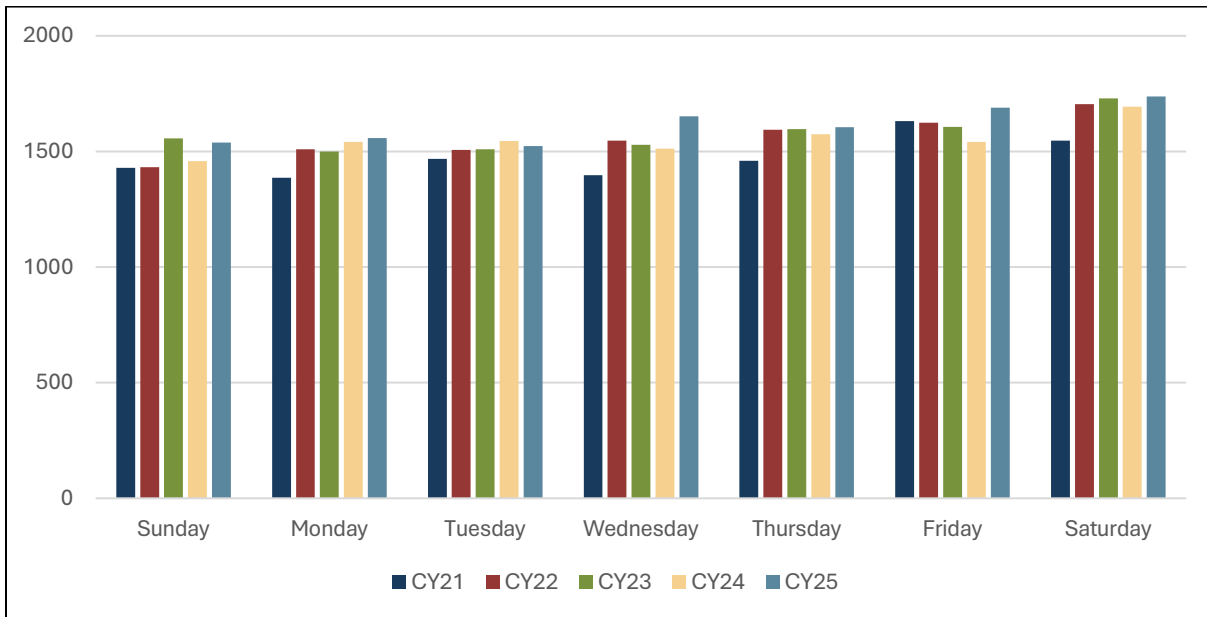
**Time of Day / Day of Week – EMS**

Like fire, a review of the total EMS system calls by day of the week and hour of the day show trends of increasing calls over the last few years, by time of day and day of week, but an also increasing frequency of busy times compared to earlier years.

**Table 13: EMS Calls Dispatched by Day of the Week**

Day of the Week	2021	2022	2023	2024	2025	Total
Sunday	1429	1432	1557	1459	1539	<b>7416</b>
Monday	1387	1509	1500	1542	1558	<b>7496</b>
Tuesday	1468	1507	1509	1545	1523	<b>7552</b>
Wednesday	1397	1547	1529	1512	1652	<b>7637</b>
Thursday	1460	1594	1597	1574	1605	<b>7830</b>
Friday	1632	1624	1607	1541	1690	<b>8094</b>
Saturday	1547	1705	1730	1693	1738	<b>8413</b>
<b>Total</b>	<b>10,321</b>	<b>10,918</b>	<b>11,030</b>	<b>10,866</b>	<b>11,309</b>	<b>54,444</b>

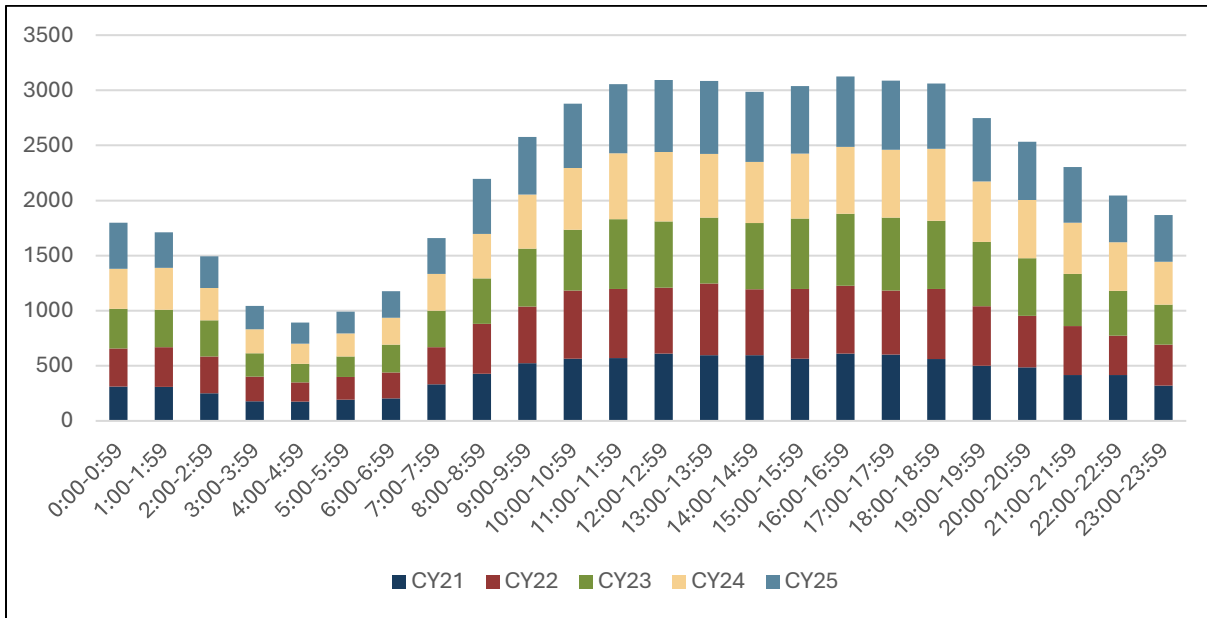
**Figure 45: EMS Dispatched Calls by Day of the Week**



**Figure 46: EMS Calls Dispatched by Time of Day**

<b>Time of Day</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>Total</b>
0:00 – 0:59	313	344	359	365	416	<b>1,797</b>
1:00 – 1:59	309	359	340	381	323	<b>1,712</b>
2:00 – 2:59	252	334	327	292	287	<b>1,492</b>
3:00 – 3:59	177	225	213	216	211	<b>1,042</b>
4:00 – 4:59	176	172	171	181	191	<b>891</b>
5:00 – 5:59	194	206	185	208	198	<b>991</b>
6:00 – 6:59	205	234	253	245	239	<b>1,176</b>
7:00 – 7:59	333	336	332	332	325	<b>1,658</b>
8:00 – 8:59	429	452	412	404	499	<b>2,196</b>
9:00 – 9:59	523	515	526	491	522	<b>2,577</b>
10:00 – 10:59	565	617	553	559	584	<b>2,878</b>
11:00 – 11:59	569	628	633	598	628	<b>3,056</b>
12:00 – 12:59	610	599	602	628	654	<b>3,093</b>
13:00 – 13:59	597	651	596	578	663	<b>3,085</b>
14:00 – 14:59	596	598	602	553	637	<b>2,986</b>
15:00 – 15:59	565	631	639	590	613	<b>3,038</b>
16:00 – 16:59	610	615	654	607	639	<b>3,125</b>
17:00 – 17:59	601	583	662	613	628	<b>3,087</b>
18:00 – 18:59	560	638	617	655	590	<b>3,060</b>
19:00 – 19:59	499	542	583	550	575	<b>2,749</b>
20:00 – 20:59	485	467	524	528	528	<b>2,532</b>
21:00 – 21:59	415	445	473	464	506	<b>2,303</b>
22:00 – 22:59	416	356	409	441	423	<b>2,045</b>
23:00 – 23:49	321	371	364	387	426	<b>1,869</b>
<b>Total</b>	<b>10,321</b>	<b>10,918</b>	<b>11,030</b>	<b>10,866</b>	<b>11,309</b>	<b>54,444</b>

**Figure 47: EMS Dispatched Calls by Time of Day**

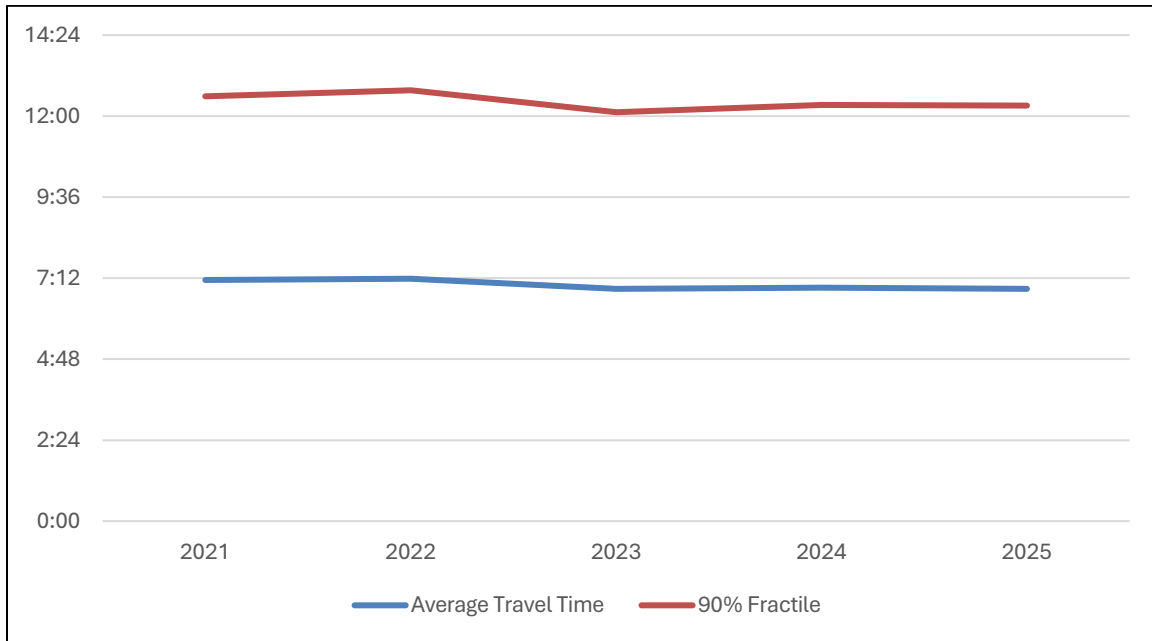


The heaviest period for EMS dispatches is from approximately 9 am to 10 pm for 2025, with the heaviest call volume being during the period from 11 am to 6 pm.

**Average and Fractile Travel Times – EMS**

The average and fractile travel times for EMS responses are shown in the following figure for 2021-2025. As an example, for 2025, the travel time for EMS within Montgomery County to all EMS incidents was at 90% compliance within 12 minutes and 19 seconds. The system has seen a very slight decrease in their travel and fractile times from 2021-2025.

**Figure 48: Montgomery County Average and Fractile EMS Travel Times**



The current EMS agency average and fractile travel times meet the County EMS performance standards, with the exception of Riner Rescue’s nighttime fractile times. However, these times do not include turnout time (dispatch to enroute), so it is possible that the overall time will be greater than the County EMS performance standards, especially for those EMS agencies that do not use duty crews.

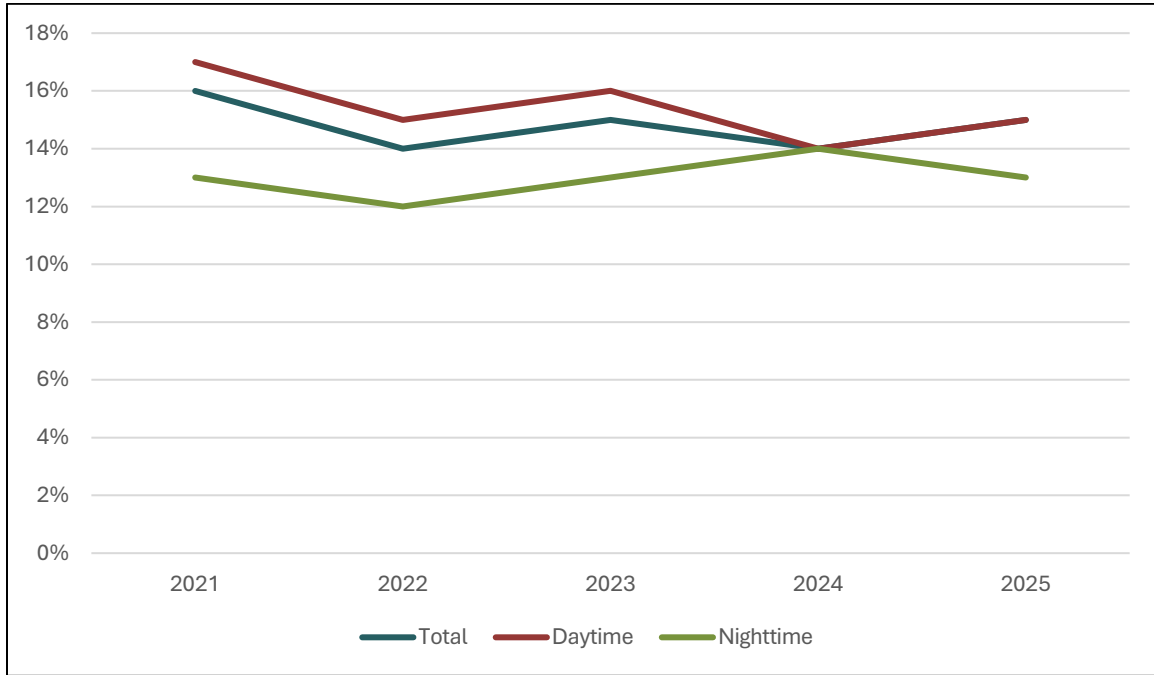
**Concurrent Incidents - EMS**

Another measure that impacts the workload of EMS responses is the number of incidents that are concurrent, that is calls to the same agency that are considered back-to-back. These calls can stress the availability of an agency, particularly volunteer agencies, to staff additional units to respond to the second or third simultaneous incident.

MissionCIT reviewed the CAD data to determine the level of concurrent calls within the EMS system and for each agency. MissionCIT used the time parameter of 20 minutes or less that a second call was dispatched to the same agency.

The trend across all EMS agencies of current calls within 20 minutes of each other shows the following percentage of concurrent calls within the yearly totals for 2021-2025. The overall total percentage of concurrent calls has decreased, with a slight increase for daytime calls from 2024-2025.

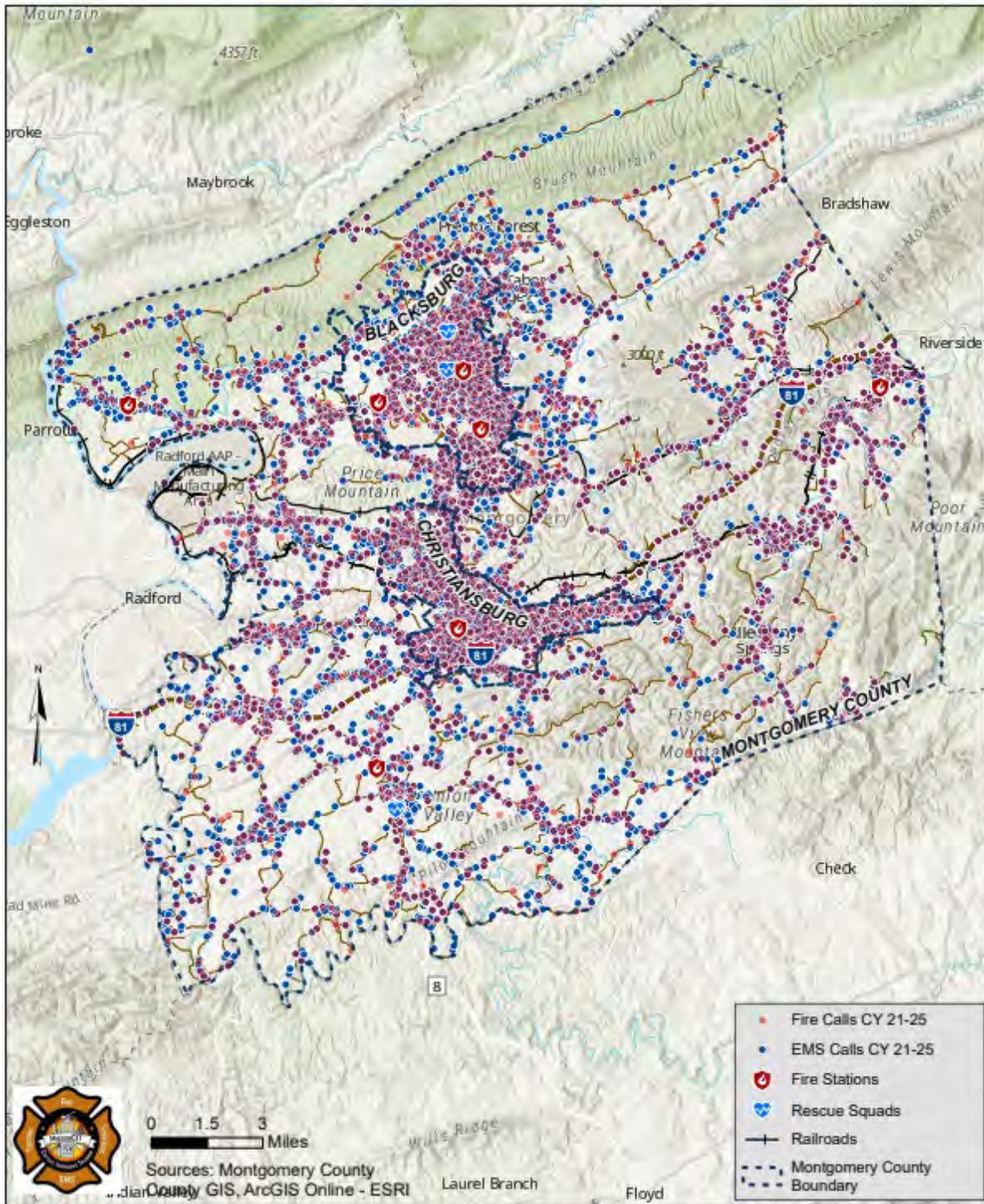
**Figure 49: EMS System Concurrent Calls - Calls within 20 Minutes of Each Other**



**Fire and EMS System - Combined**

The total distribution of all fire and EMS calls over the last five years shows the following:

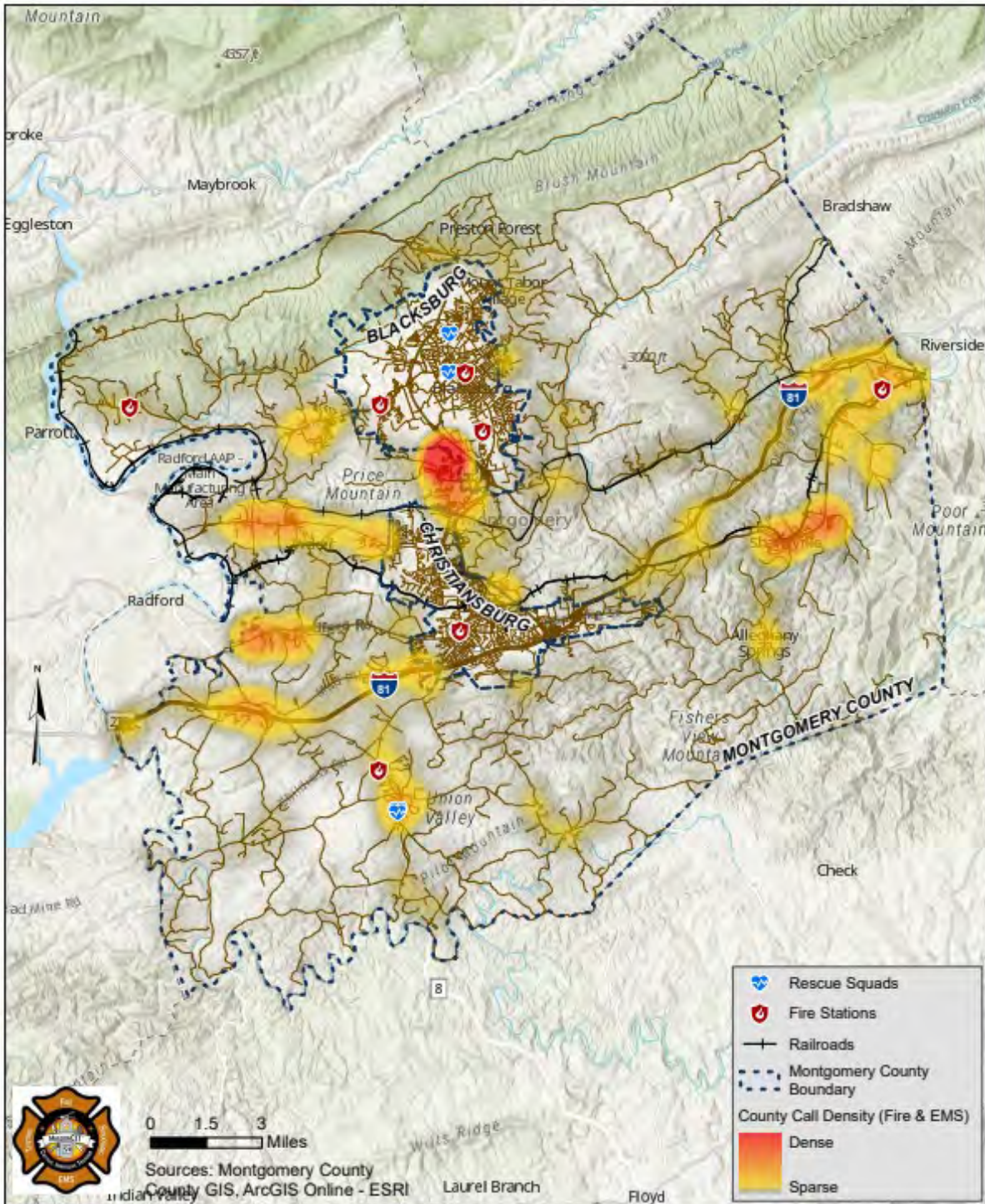
**Figure 50: Fire and EMS Call Distribution, 2021-2025**



Source: NRV911 CAD Data

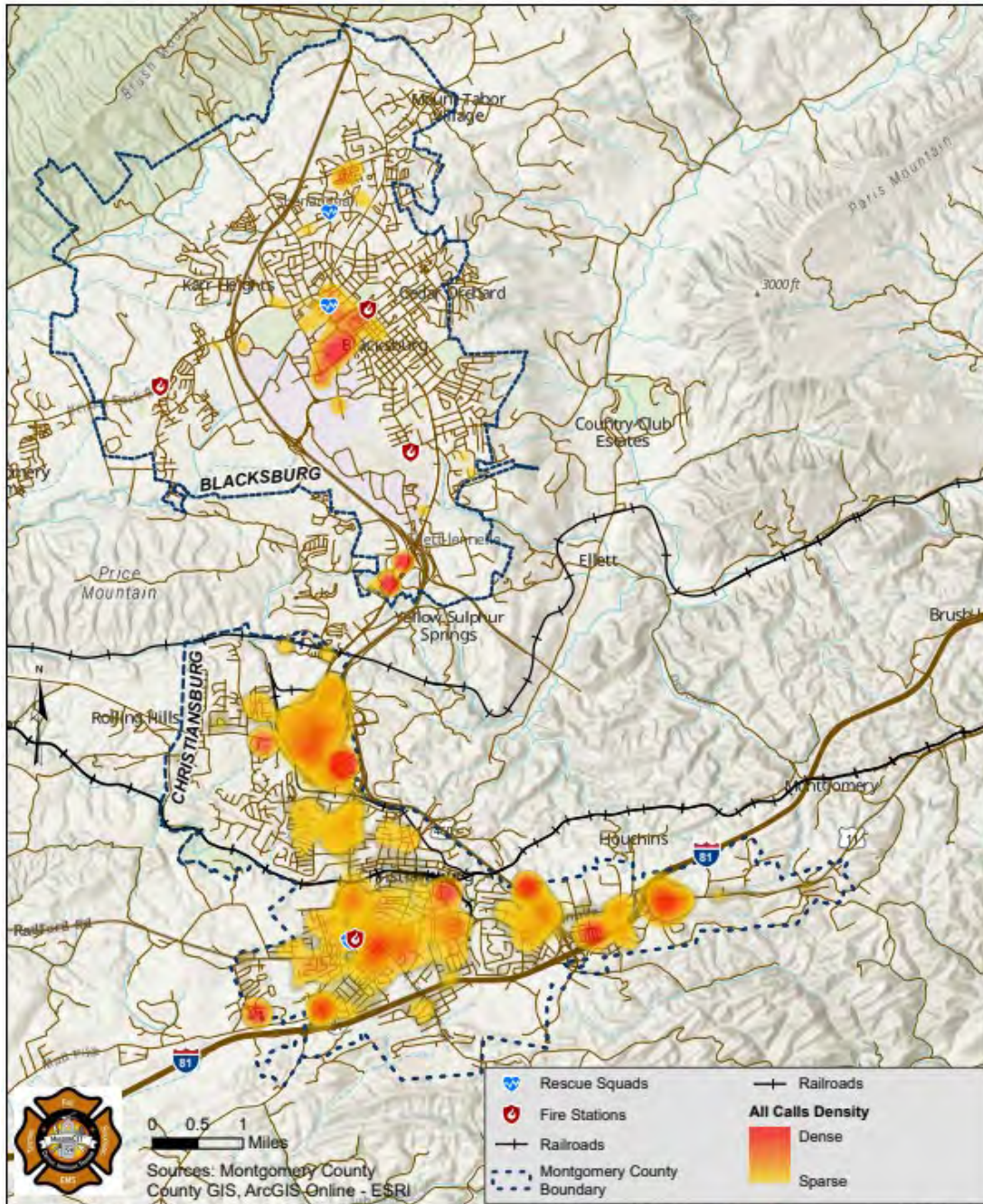
The total fire and EMS call distribution/concentration within the unincorporated areas of the county show the following:

**Figure 51: All Fire and EMS Call Distribution within Unincorporated Areas of County**



Source: NRV911 CAD Data

**Figure 52: All Fire and EMS Call Distribution within Blacksburg and Christiansburg**



Source: NRV911 CAD Data

### Special Operations

Within Montgomery County, numerous fire and rescue squad departments provide some form of special operations services. Longshop McCoy and Riner provide swiftwater rescue services. Blacksburg Rescue Squad provides swiftwater, trench rescue and cave rescue services. Others

carry and provide some degree of rope rescue services. Virginia Tech indicated that they also provide technical rescue services. All total, approximately 94 personnel were indicated to MissionCIT as being certified for rope rescue, 57 for swiftwater rescue and 25 for trench rescue across the county between the fire departments and rescue squads. It is unknown as to what level of certification the members hold, such as awareness, operations or technician. During our site visit, MissionCIT learned that each department manages their own training, equipment purchasing and response deployment for special operations. Special operations services are very low frequency/high risk events. The training, equipment and deployment of such assets requires high attention to detail to ensure appropriately trained personnel respond, the equipment has been regularly tested or maintained and that strategic and tactical resource deployment is well coordinated within the incident command system.

MissionCIT was informed that very recently, a county special operations group was formed to attempt to better coordinate special operations services. This is a step in the right direction. Blacksburg Rescue Squad is the only known department that is not a part of this group. A long-term plan for the training of personnel, purchase and maintenance of equipment and joint training amongst departments should occur.

The closest Virginia regional special operations team is deployed out of the Roanoke/Salem area.

The variability of Special Operations within the county was also addressed within the 2025 New River Valley Hazard Mitigation Plan. Two of the medium level mitigation strategies that the county should consider to address key hazards included the following:

Increase Capability for USAR and Technical Rescue (Regional)	All Natural and Human Caused	Medium
Improve Swift Water Rescue Capability with a singular team (Regional)	Flooding	Medium

*Source: New River Hazard Mitigation Plan 2025, Section 6, page 16*

**Hazardous Materials**

During our site visit, there was no indication of any level of hazardous material response beyond an awareness level within Montgomery County. Without doing a complete county risk assessment, hazardous materials response may be a more needed service component within Montgomery County than some of the special operations services described above.

The closest Virginia regional hazardous material assets are located within the Roanoke/Salem area of Virginia.

MissionCIT contacted the Virginia Department of Emergency Management regarding the hazardous materials and special operations teams available to Montgomery County. The state indicated that they do not intend to create any additional regional hazardous materials or special operations teams at this time. The state representative did indicate that Pulaski County has obtained approval to create a regional swiftwater rescue team, and they have discussed with Montgomery County to make it a Pulaski/New River Valley endeavor.

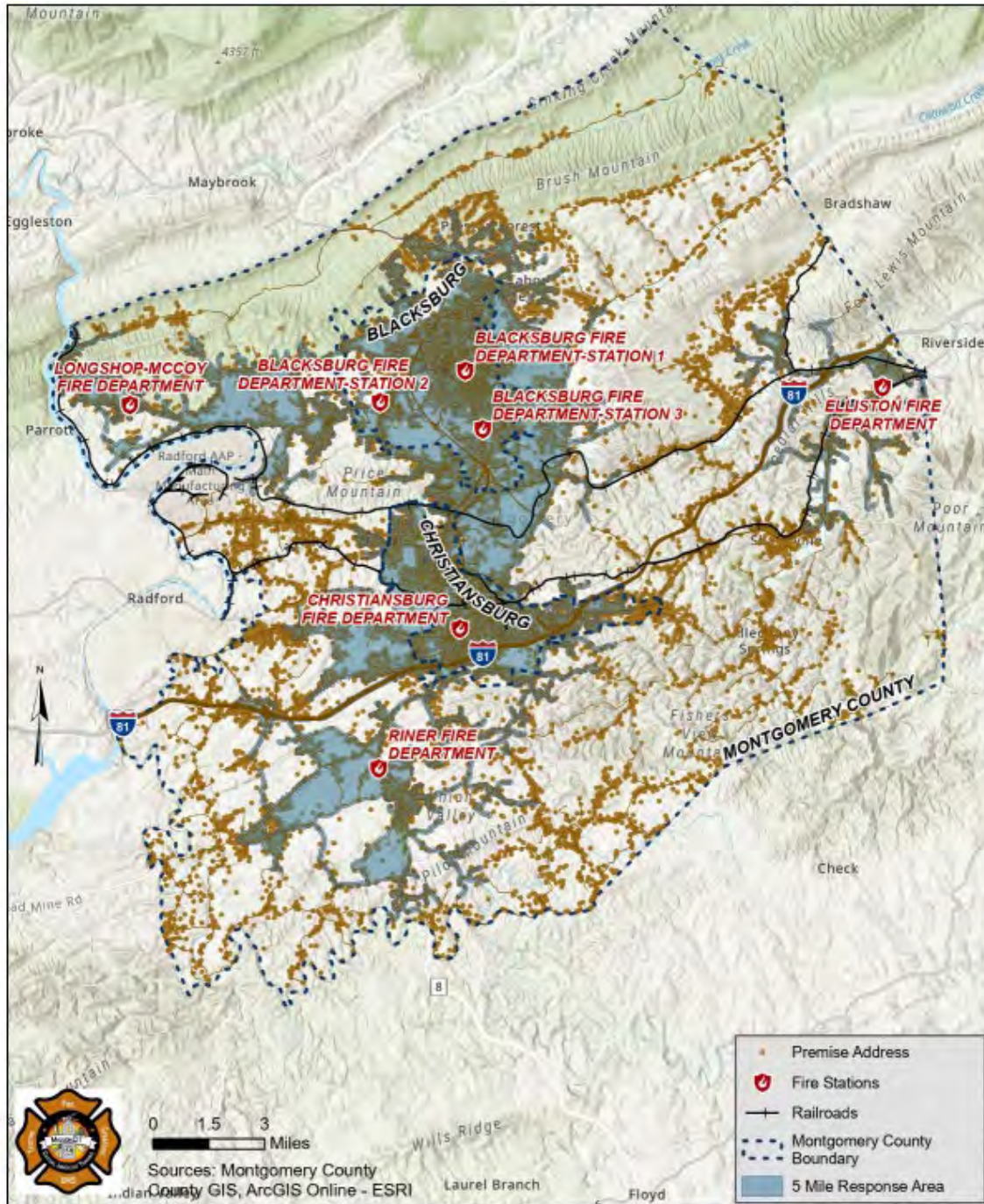
### **Response Time**

Response time for an incident is the time from dispatch of emergency services resources until the first fire suppression/EMS unit arrives on the scene. This total response time includes the time from dispatch, the unit turnout time and the unit travel time to the incident scene. In the case of volunteer-based systems that do not staff duty crews, the time from dispatch to turnout (first unit enroute) can be critical as that time period must rely on response of personnel from home. In many instances, this time can be upwards of 5-10 minutes, which allows fires to grow exponentially. This is outlined further within the Staffing section of the report. The time from dispatch to turnout is not tracked by NRV911 due to the system of station dispatch, so MissionCIT was not able to calculate that for this project.

### **Fire Response Time**

The Insurance Services Organization (ISO) rates fire departments on their ability to cover a response area of approximately 5 miles from the station. The rating within this coverage area also is based on the availability of a water supply. The fire department five-mile coverage area from the existing fire stations within the county is shown on the following figure. Included within the map are all of the locations with an address associated with them. These are indicated by the brown dots.

**Figure 53: 5 Mile ISO Fire Station Coverage Area**



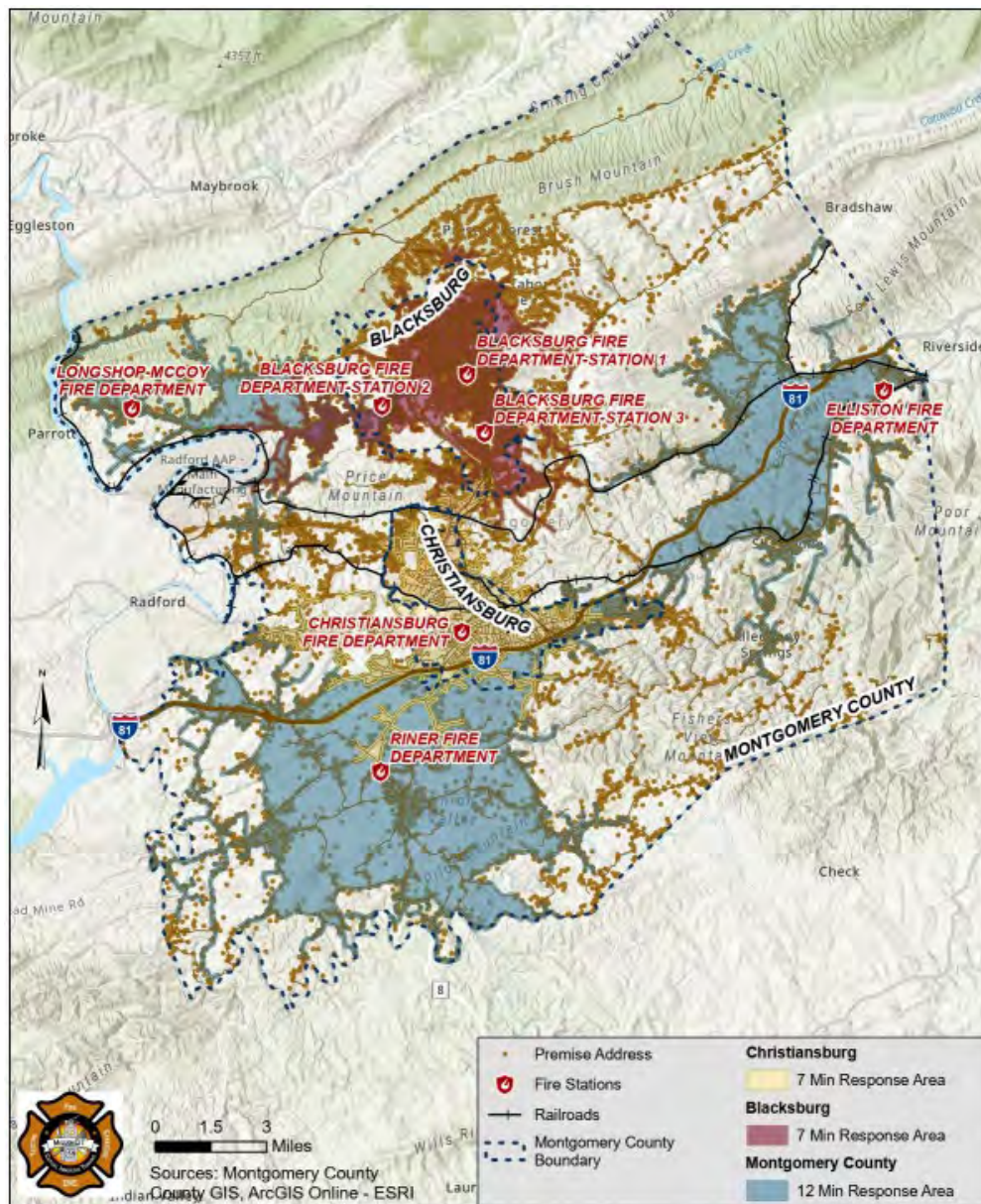
The recommended national standard for fire response times to structure fires from the National Fire Protection Association for volunteer/combination fire departments are included within NFPA 1720 and include travel times vs. response distance. These travel time requirements include the turnout time and travel time. MissionCIT is evaluating the towns based on the urban requirement and the rest of the county as a rural area.

Urban area	> 1000 people /sq. mi.	9:00 minutes	90% compliance
Rural area	< 500 people / sq. mi.	14:00 minutes	80% compliance

Source: NFPA 1720, 2020 Edition, page 8

The travel times from fire stations within the county, for NFPA compliance, is shown in the following figure. MissionCIT assumes a two-minute time for personnel to respond to the station, and/or board apparatus to begin the response, thus our map display is for 7 and 12 minutes accordingly as to the actual coverage area.

**Figure 54: NFPA 1720 Fire Station Travel Time Coverage**



There is a coverage difference based on what evaluation criteria is being used. Under the NFPA deployment criteria, the fire station coverage in the western areas of the county is better as well as the coverage areas between Elliston and Christiansburg.

In a GIS analysis of the current coverage of fire departments in their response districts, the following table shows coverage to developed parcels, using the ISO 5-mile travel distance and the NFPA 1720 travel time. The NFPA travel time is based on 7 minutes for the towns (urban area) and 12 minutes for the rural departments, assuming a two-minute turnout time from the station.

**Table 14: ISO 5-Miles Coverage under NFPA 7- and 12-Minute Travel Time**

<b>Fire Department District</b>	<b>ISO 5-Mile Coverage</b>	<b>NFPA 1720 Travel Time Coverage 7 minutes (Urban Area)</b>	<b>NFPA 1720 Travel Time Coverage 12 minutes (Rural Area)</b>
Blacksburg Fire	91.55%	98.03%	21.86%
Christiansburg Fire	85.02%	89.39%	53.94%
Longshop McCoy Fire	76.30%	N/A	79.05%
Riner Fire	41.37%	N/A	75.11%
Montgomery County FEMS/Elliston	31.76%	N/A	76.20%
<b>Countywide Total</b>	<b>79.73%</b>		

Montgomery County does not have any established performance standards for fire response.

**Response and Travel Time Summary - Fire**

Response totals and travel time charts, average and fractile, for each fire department along with their concurrent call percentages are included in Appendix G. A summary of their data is below:

*Blacksburg Fire*

- Fire responses have increased 25% from 2021-2025
- Nighttime fire responses have increased 34% from 2021-2025
- The average travel time has remained consistent from 2021-2025
- The fractile travel time has increased slightly from 2021-2025

*Christiansburg Fire*

- Fire responses have increased 43% from 2021-2025
- The daytime responses have increased 39%, while the nighttime responses have increased 51% from 2021-2025

- The daytime average and fractile travel times have experienced a slight increase over 2021-2025
- Concurrent calls have increased across daytime and nighttime calls. There has been a 56% increase in the number of concurrent responses.

#### *Elliston Fire*

- Fire responses increased 42% from 2021-2025

#### *Longshop McCoy Fire*

- Fire responses increased 31% from 2021-2025
- Daytime and nighttime responses are now mostly equal

#### *Riner Fire*

- Fire responses increased 31% from 2021-2025
- Nighttime responses increased 83% from 2021-2025
- The average travel time has increased slightly over the last 5 years

#### *Montgomery County Fire and EMS*

- Data includes functional and non-functional responses, which includes chief officers prior to fire unit staffing
- Fire responses increased 71% from 2024-2025
- Average and fractile travel times

### **Fire Loss and Injuries/Deaths**

The fire loss in an area can spike wildly from year to year. There may be multiple factors that influence this, from weather, fire prevention inspection frequency, to the type of loss, such as large farm equipment or buildings under construction, etc. Both towns and the county experienced an increase in fire loss for 2025. A more detailed assessment of the fire loss trends within each jurisdiction is needed in order to determine causes and risk reduction measures needed.

**Table 15: Fire Loss, Injuries, and Death**

Department	Civilian		Firefighter		Structural and Vehicle Fire Loss
	Injuries	Deaths	Injuries	Deaths	
Blacksburg Fire	0	0	0	0	2021 - \$651,815 2022 - \$741,345 (10% from VT) 2023 - \$337,600 2024 - \$470,911 2025 - \$2,791,400
Christiansburg Fire	9 <i>From 1/1/22 through 9/30/25</i>	0	0	0	2022 - \$987,000 2023 - \$420,000 2024 - \$940,000 2025 thru 9/30 - \$1,280,000
Montgomery County FEMS	0	2	0	0	2024 - \$120,000 2025 to date - \$690,000

**EMS Response Time**

Within emergency medical services, there is typically no national standard for response time that is utilized.

A generally accepted EMS industry standard for response time is the arrival of advanced life support care within 8 minutes, 59 seconds, 90% of the time. This mirrors the time parameters within NFPA 1710.

Within the NFPA 1710 Standard, “*Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Career Fire Departments*”, more specific response EMS time standards for critical life-threatening incidents are recommended for urban areas. These include:

- EMS unit turnout time – One minute or less, 90% of the time
- First arriving basic life support/fire suppression vehicle – 4 minutes or less, 90% of the time
- Arrival of advanced life support personnel – 8 minutes or less, 90% of the time

*Source: NFPA 1710, 2020 Edition, Page 9*

Only a very small portion of EMS calls are directly affected by the response time. Only critical, life-threatening EMS calls, such as heart attacks, trauma, etc. are directly impacted by the response time of the EMS transport unit. This should be taken into consideration in the establishment of response time standards. Another factor to impact the response time for fire

and EMS units is the call volume and whether units are available for a second or third subsequent call for service concurrently.

Montgomery County has established EMS dispatch and response time standards within the county as part of 12VACS-31-380 and 12VACS-31-610. See Appendix B for the full response standard document.

The dispatch time standard includes the time from call dispatch to an ambulance is enroute. This is also known as the turnout time. SUVs are not considered to meet the dispatch time standard, only ambulances. The dispatch standard includes:

- Dispatch until first unit marks enroute – 5 minutes
- After 5 minutes, the original rescue squad and the second due rescue squad are dispatched.
- After 10 minutes, the original rescue squad, the second due and the third due rescue squad are dispatched.

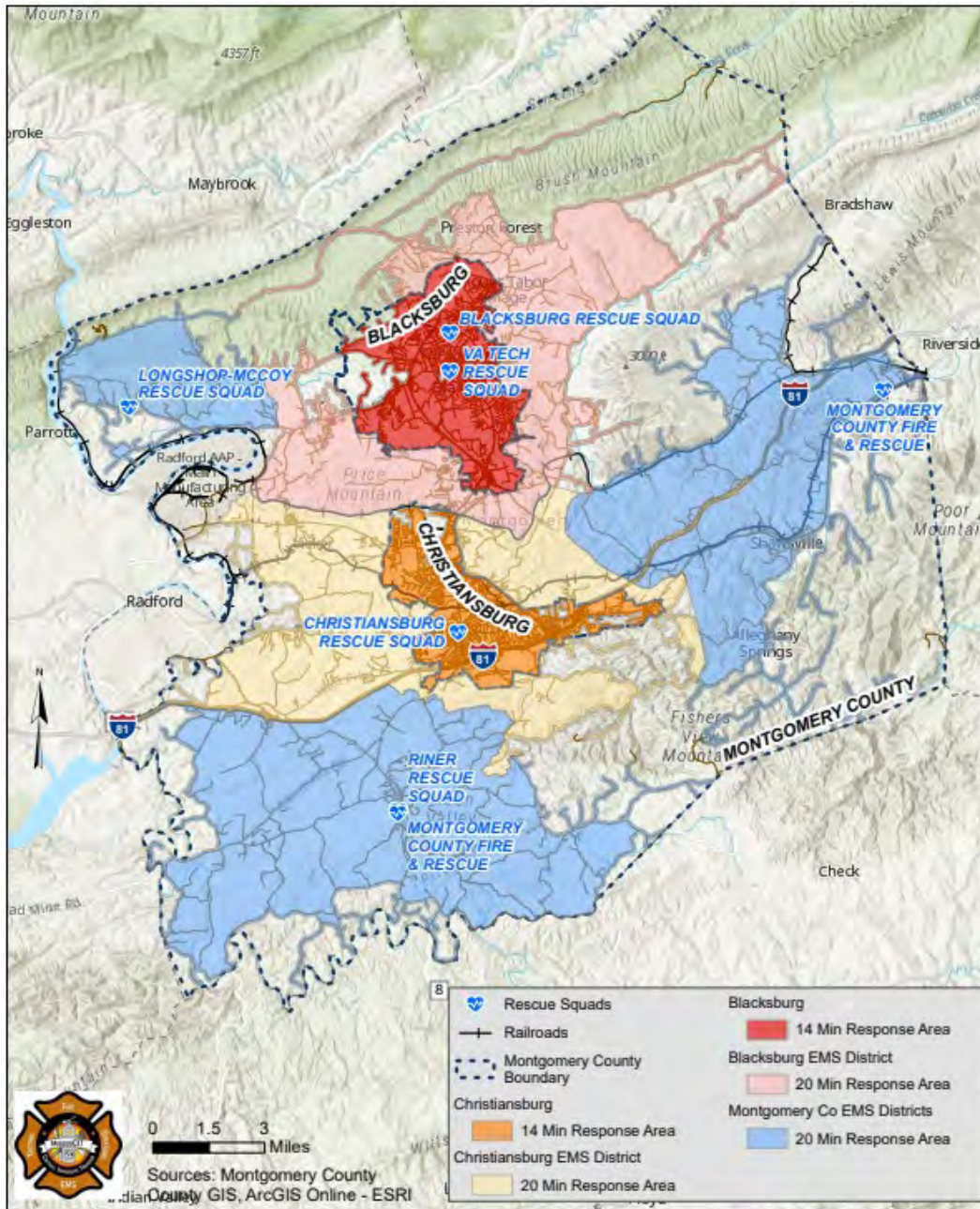
The developed response time performance standard for the rescue squads and EMS agencies within Montgomery County includes the following parameters:

**Table 16: Response Time Performance Standards**

<b>Response Time Criteria</b>	<b>Town Performance (Based on 90% fractile compliance rate)</b>	<b>Unincorporated County Performance</b>
Unit Mobilization Time	7 minutes or less – Ambulance Only	7 minutes or less – Ambulance Only
Responding Interval Standard	14 minutes or less – Emergent calls 16 minutes or less– non-emergent calls	20 minutes or less– Emergent calls 24 minutes or less – non-emergent calls

Based on these performance standards, the EMS coverage within the county shows the following:

**Figure 55: EMS Response Time Performance Standard Coverage**



**EMS Turnout Times**

CAD data provided indicated that approximately 70% of all EMS incidents included a turnout time of zero minutes/seconds. As a result, MissionCIT was not able to calculate turnout times for each agency, nor systemwide. In addition, due to the dispatch being by station, and not by unit, there is

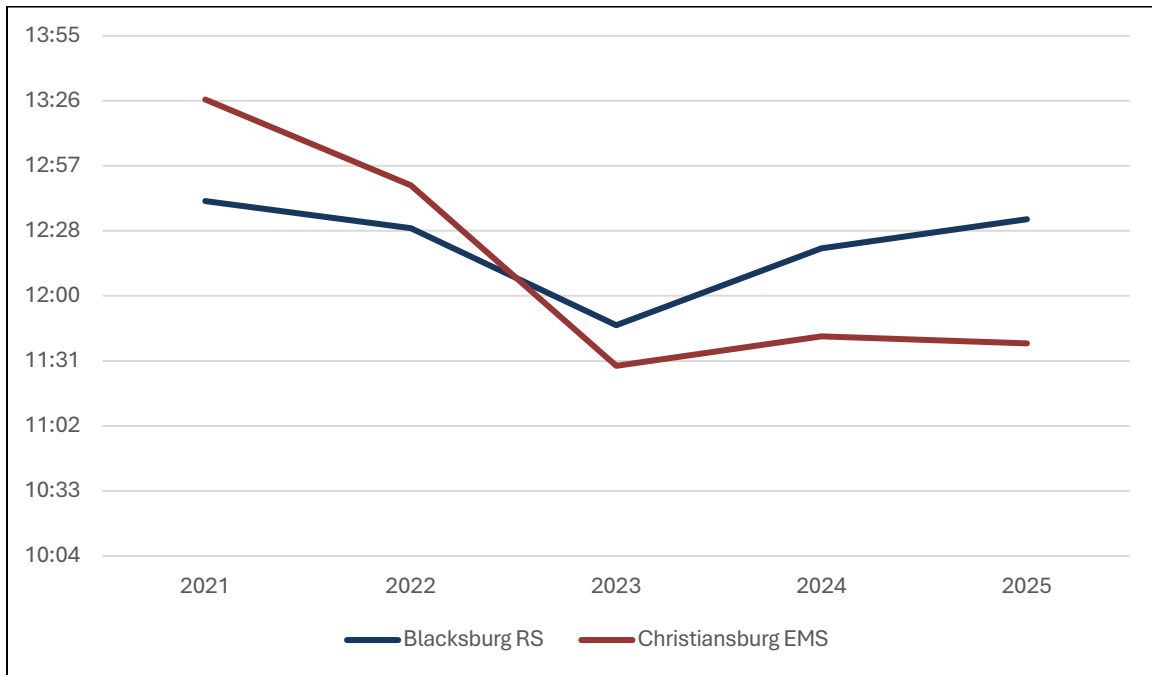
no time recorded between dispatch and the first response EMS unit marks enroute, except for MCFEMS who is dispatched by unit.

**EMS Response Times**

The response time for an EMS unit is the time the agency is dispatched by NRV911 until the first unit arrives at the scene. The first arriving unit stops the response time clock, so the first arriving EMS unit can be a rescue officer in an SUV, the EMS supervisor in an SUV and not necessarily a transport ambulance.

Using CAD data from 2021 – 2025, the average and 90% fractile times for each agency shows the following:

**Figure 56: 90% EMS Fractile Travel Times**



The overall trend for 90% fractile travel time for the town EMS agencies shows that Christiansburg EMS improved over the last few years and now appears stable with a slight continued improvement, while Blacksburg Rescue showed an initial improvement, but with an increase over the last few years.

Christiansburg EMS has established their own internal responding interval standard to be 13 minutes or less, 90% of the time within their first due area from the time of dispatch to the first EMS unit arrival. For the higher-level EMS call types, Christiansburg EMS will respond an ambulance and a supervisor for all of those call types.

For 2025, Christiansburg EMS compliance with their internal standard shows the following:

**Table 17: EMS Compliance with Internal Standards, 2025**

<b>Month</b>	<b>Percentage of EMS calls with arrival time of 13 minutes or less, 90% of the time*</b>
January	92%
February	99%
March	99%
April	91%
May	87%
June	85%
July	96%
August	96%
September	97%
October	92%
November	95%
December	89%

*\*Only includes travel time from enroute to on scene, not from dispatch to on scene.*

*Source: Christiansburg EMS*

This difference shows some of the difficulty with agencies getting accurate or full response data from the computer aided dispatch system.

Per the Montgomery County EMS Response Plan, a plan will be developed to improve compliance for agencies that do not meet compliance of the standards with at least 75% of the calls, over a period of two quarters. In discussions with county staff, analysis of compliance is not being done currently, nor are reports being provided to respective agencies.

**Response and Travel Time Summary Information - EMS**

Response totals and travel time charts, average and fractile, for each rescue squad along with their concurrent EMS call percentages are included in Appendix G. A summary of their data is below:

*Blacksburg Rescue*

- EMS responses increased 10% from 2021-2025
- Average response time had a slight decrease during that time
- Nighttime fractile times had a slight increase during that time
- Concurrent calls remained consistent

*Christiansburg EMS*

- EMS responses declined 5% from 2021-2025
- EMS responses increased 11% from 2024-2025
- Nighttime responses increased 8% from 2021-2025
- Both daytime average and fractile travel times decreased from 2021-2025
- Nighttime average and fractile travel times remained consistent
- Concurrent calls remained consistent

*Longshop McCoy Rescue*

- EMS responses increased 20% from 2021-2025
- EMS responses increased 62% from 2023-2025
- Average and fractile travel times have fluctuated from 2021-2025

*Riner Rescue*

- EMS responses decreased 27% from 2021-2025
- EMS responses decreased 29% at night from 2021-2025

*Virginia Tech Rescue*

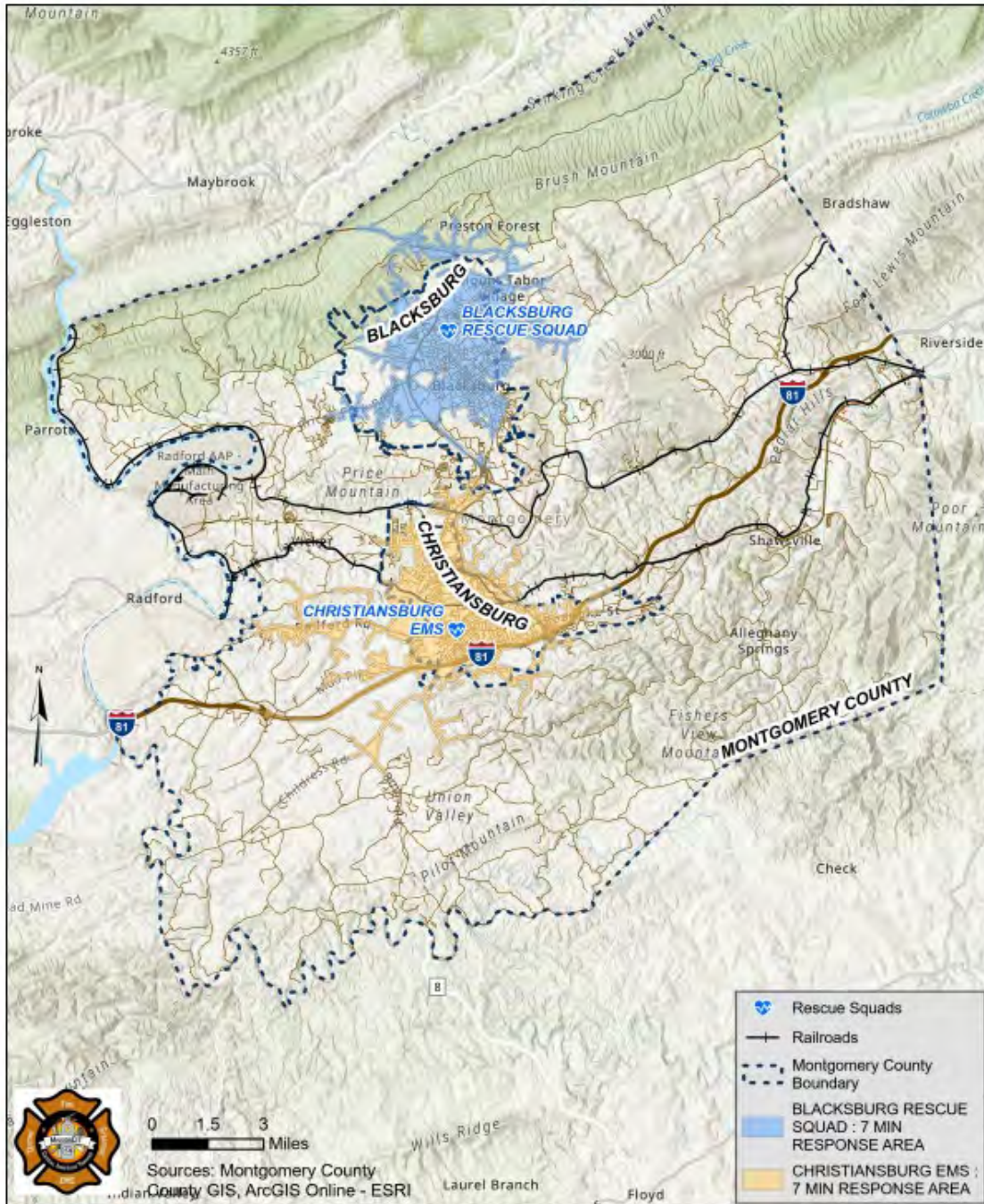
- EMS responses increased 10% from 2021-2025
- Daytime and nighttime responses remained the same
- The average and fractile travel times remained consistent from 2021-2025

*Montgomery County Fire and EMS*

- EMS responses increased 29% from 2022-2025
- The average travel time during that time has been increasing
- The fractile travel times are remaining consistent

If the towns established an EMS response time performance standard to the recognized national response time of 8 minutes (including a one-minute turnout time), the EMS coverage from the towns would show the following:

**Figure 57: Blacksburg & Christiansburg 7 Minute EMS Response Areas**



**EMS System Unit Hour Utilization Rate**

A performance measure that EMS also uses to assess the number of transport units needed within a jurisdiction is the Unit Hour Utilization (UHU). The UHU measures resource efficiency by dividing the number of calls or transports by the total hours a unit is staffed, showing the percentage of time an ambulance is actively busy versus available. The typical target rates vary

between 30-50% for urban 911 services and around 15% for rural systems due to longer response times. Calculating UHU is done typically where there are unit dispatch protocols in place and data can be tied back to specific EMS units. Within Montgomery County, the town rescue squads and the volunteer rescue squads in the county actively rotate their units to respond, so it can be more difficult to calculate a UHU. The calculations below are general in that MissionCIT did not distinguish between town and county calls or any difference in out of service time between town and county calls.

### **EMS Total Commitment Time**

Another method to calculate how busy an ambulance is, measures how long the EMS unit is on the incident, measured from dispatch to unit clear, as compared to the amount of time in a year. This is known as their commitment time <sup>2</sup>.

#### *Blacksburg Rescue UHU*

Assuming Blacksburg Rescue staffs two ambulances 24/7/365, their calculated UHU rate would be the following:

2 x 8,760 hours in a year = 17,520 total staffed hours  
3,885 department calls in a year (2024)

$$\text{UHU} = \frac{3,885}{17,520} = 22\%$$
 This is below the typical target rate for an urban area.

#### *Blacksburg Rescue Total Commitment Time*

Assuming again that Blacksburg Rescue staffs two ambulances in a year 24/7/365, their commitment time, per ambulance would be calculated generally using the average total commitment time per incident for 2025, as we did not have actual times for each of their unit dispatch to clear times:

Average ambulance turnaround time for BRS (time from dispatch to clear from hospital) =  
50 minutes and 42 seconds for 2025, which is 3,042 total average seconds per call

Each staffed ambulance = 3,042 x 1,943 total calls/ambulance = 5,910,606 total committed seconds in a year.

Total commitment time per ambulance =  $\frac{5,910,606}{31,536,000}$  committed second in year = 18.7%  
31,536,000 seconds in a year

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<sup>2</sup> Powers, J. (May 2016). *How busy is busy. Fire Engineering.*

This rate is within the accepted range of 16%-24% for what Powers considers the “Ideal Commitment Range”. (Source: Powers, page 35)

#### *Christiansburg EMS UHU*

Assuming Christiansburg Rescue consistently staffs two ambulances 24/7/365, their calculated UHU rate would be the following:

2 x 8,760 hours in a year = 17,520 total staffed hours  
4,715 department calls in a year (2024)

$$\text{UHU} = \frac{4,715}{17,520} = 27\%$$
 This is below the typical target rate for an urban area.

#### *Christiansburg EMS Total Commitment Time*

Assuming again that Christiansburg EMS staffs two ambulances in a year 24/7/365, their commitment time, per ambulance would be calculated as the following using the average total commitment time per incident for 2025, as we did not have actual times for each of their unit dispatch to clear times:

Average ambulance turnaround time for Christiansburg (time from dispatch to clear from hospital) = 1 hour and 43 seconds for 2025, which is 3,643 total average seconds per call

Each staffed ambulance = 3,643 x 2,358 total calls/ambulance = 8,590,194 total committed seconds in a year.

Total commitment time per ambulance = 8,590,194 committed seconds in year = 27.2%  
31,536,000 seconds in a year

This rate is within the “Evaluation” range of 26%-29%. Per Powers, “In this range, the community served will experience delayed incident responses... Agency leadership should immediately begin identifying funding sources to provide relief.” (Source: Powers, page 37)

Assuming Christiansburg can continue to staff approximately 2.5 ambulances daily, as described in the Staffing Section of the report, this total commitment time number may be within a more acceptable range. It should be monitored to gauge when the town might need to fully staff the third ambulance 24/7.

**EMS Unit Turnaround Time**

The EMS unit turnaround time is the time from unit dispatch until that unit clears from the incident scene or the hospital if it involved a patient transport. The agency turnaround time can be impacted by travel distance to the hospital and back, the wait time at the hospital, or the amount of work done on the incident scene, such as extrication, etc. before the EMS agency can even begin to fully assess and treat the patient. Typically, EMS transports from rural areas have longer turnaround times than do EMS transports in urban areas. The longer the turnaround time, the greater the opportunity to not be appropriately available for additional EMS calls for service.

Again, since Montgomery County does not dispatch by unit, MissionCIT calculated turnaround time based on agency. The 2021-2025 data analysis shows the following agency average turnaround times.

**Table 18: EMS Agency Average Turnaround Times (Back in Service)**

	<b>Blacksburg Rescue</b>	<b>Christiansburg EMS</b>	<b>Longshop McCoy Rescue</b>	<b>Riner Rescue</b>	<b>Shawsville Rescue**</b>	<b>Virginia Tech Rescue</b>	<b>Montgomery Co. FEMS</b>
2021	54:49	1:01:15	1:03:17	1:07:33	1:10:08	42:31	N/A
2022	53:29	59:27	1:07:17	1:07:02	1:19:36	43:05	1:22:41
2023	49:25	1:01:26	1:02:23	1:15:16	1:03:02	42:22	1:22:19
2024	48:49	1:01:11	1:03:41	1:13:33	N/A	43:30	1:21:23
2025	50:42	1:00:43	54:50	1:09:13	N/A	44:22	1:20:04

*\*\*Shawsville Rescue no longer in existence*

*Source: NRV911 CAD Data*

**Recommendation 10.1**

Montgomery County should work with the New River Valley 911 Center to provide monthly EMS response time statistics to each EMS agency for review and adjustment if trending away from compliance.

**Recommendation 10.2**

Montgomery County and the Town fire departments should consider developing fire department response and staffing performance standards, similar to EMS, for assessment of performance of the fire protection system. A recommended example is provided in Appendix C and includes a revision for EMS response times in the urban area.

**Recommendation 10.3**

Christiansburg EMS should consider planning to staff a third ALS ambulance 24/7/365 due to the workload and commitment time.

**Recommendation 10.4**

A comprehensive risk assessment for the need of special operations services should be undertaken by the new Special Operations Group to determine what components are needed, what services should be provided, what initial and ongoing training is needed and what equipment will be operated at which locations, with an appropriate maintenance and testing process in place. If hazardous materials or specific special operations response coverage is desired within the county, a countywide approach needs to occur to develop a cohesive and qualified team for response.

**Recommendation 10.5**

Montgomery County and the fire and rescue squad departments should consider conducting a full community risk assessment to determine the level and type of hazardous materials response services that are needed within the county.

**Recommendation 10.6**

All of the fire departments and rescue squads in the county should work to purchase and operate in one records management system (RMS) that is best suited for fire and EMS operations. The RMS should be fully integrated with the CAD system for time stamp downloads. This will allow for long term analysis and planning at the county level.

**Recommendation 10.7**

Each jurisdiction should conduct an assessment of their annual fire loss to determine what trends may be occurring or what risk reduction efforts should be initiated.

**Recommendation 10.8**

Each town rescue squad should actively monitor their UHU and total commitment time to see when there might be a need to either add dedicated career EMS staffing or additional staffed units.

**SECTION 11: STAFFING**

The concept of an effective firefighting force is based upon metrics which capture the critical benchmarks of emergency response. Fire departments that concentrate on these components are much more likely to possess a culture of risk identification and proper tactics, which, in turn, leads to preserving their greatest assets – the public and responders.

In general, the nationally accepted benchmarks of response performance include:

- 9-1-1 call transmission and processing time
- Dispatch of stations/apparatus
- Apparatus turn out time
- Travel time to the scene
- Scene set up time
- Fire control time

The manual fire suppression timeline chart below explains these benchmarks in greater detail. All fires undergo these nine steps until fire extinguishment, also known as “proxy measures.”<sup>3</sup>

**Figure 58: Manual Fire Suppression Time Line**



These measures affect fire department performance and fire outcome. For example, when a fire starts, it typically burns until it is detected (one and two). This recognition and detection time, up

<sup>3</sup> Wilson, R. (2017). "Nine Steps From Ignition to Extinguishment." CreateSpace Independent Publishing Platform.

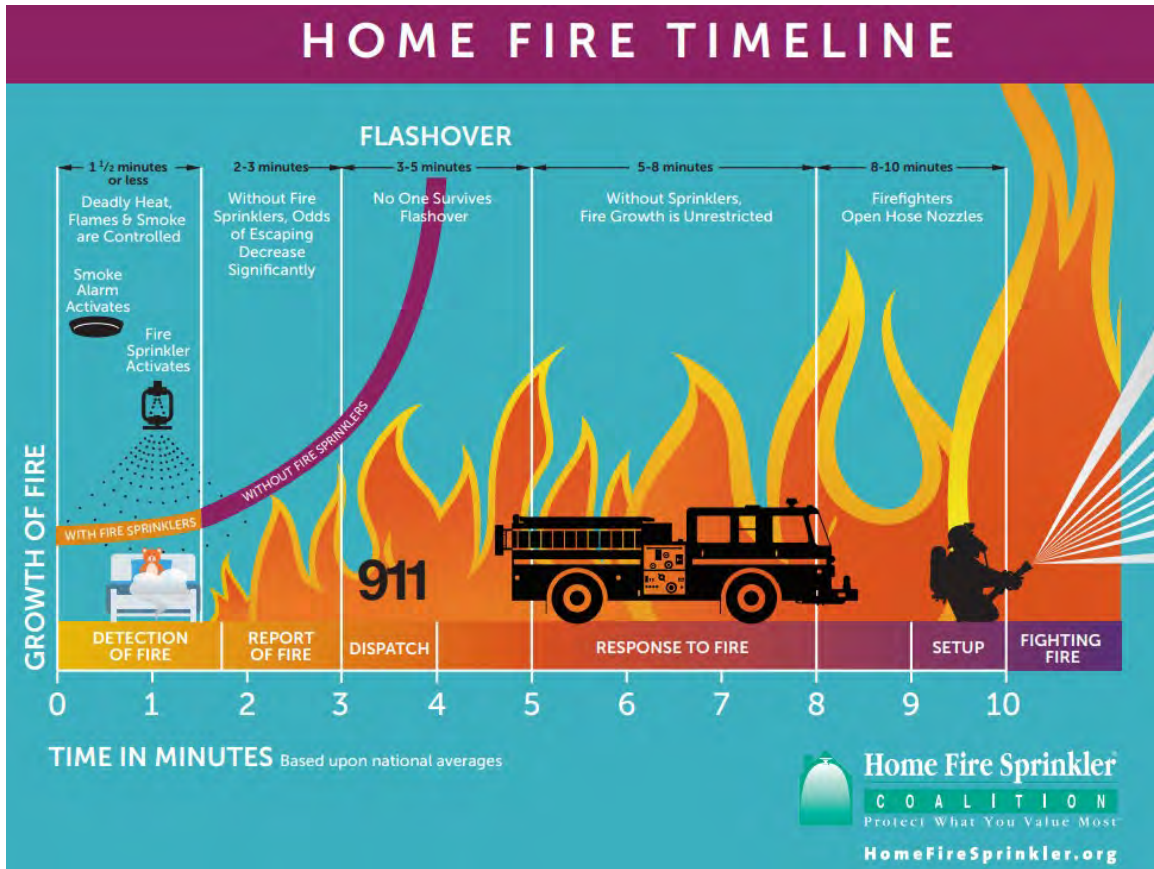
until the alert point, are out of the fire department's control. When the fire is reported, the amount of time required to process and dispatch the incident (four) is under the control of emergency communications. Items five through nine are then up to the fire department. Step ten represents completion of full extinguishment. In theory, the quicker the fire department can get out, arrive, set up, and attack the fire, the less risk there is for all. As mentioned earlier, the amount of turnout time for volunteer fire departments can add significant time to this process, causing the fire size to increase rapidly.

Fire behavior is another concept to understand when looking at effective fire department operations. Like humans, fire has a life cycle and understanding this can mean the difference between life or death during an incident. Research recognizes four stages of a fire, and it is important to understand these in order to safely combat a structure fire. The four stages are as follows:

- *Ignition* – The initial stage when fuel, oxygen, and heat combine in a chemical reaction. A fire extinguisher or the activation of one or two automatic fire sprinklers can usually control the fire at this stage.
- *Growth* – The fire's size increases as more fuel ignites. The fire's growth is affected by many factors, including the amount of fuel, weather conditions, and building design. Indicators of the growth stage include increased room temperature, brown to black smoke pushing from eaves and other openings, cracks in windows, and layering of smoke above the flame.
- *Fully Developed* – The fire has spread out of the point of origin, is growing exponentially and consuming most or all the available fuel. Temperatures are at a peak in this stage, posing great risk for occupants and firefighters. This is the most difficult stage to suppress because it requires more water than a confined fire.
- *Decay* – The fire has consumed its available fuel. Temperatures begin to decline and the intensity of the fire decreases. The fire eventually reduces to a smoldering state or goes out altogether.

The rapid transition between the growth stage and the fully developed stages is called “flashover,” which occurs when most of the combustible material in an enclosed area, also known as a fuel rich area, such as a home or commercial building with modern (synthetic) furnishing and finishes, ignites simultaneously. Flashover produces temperatures which can easily reach 1,800 degrees Fahrenheit or greater in a matter of seconds, producing a non-survivable environment for both firefighters and occupants, as noted above. The figure below depicts the research-based timeline average in a structure fire.

**Figure 59: Home Fire Timeline**

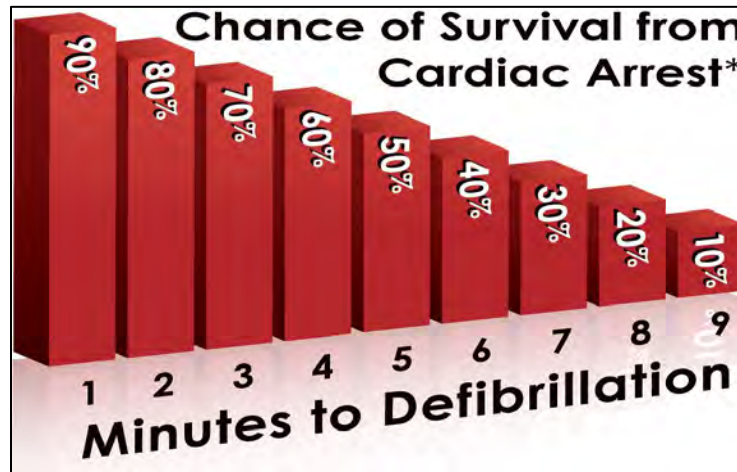


Source: Home Fire Sprinkler Coalition

Contrasting the two charts demonstrates that flashover can occur in less than eight minutes, and often within three to five minutes from ignition. This means that in an unsprinkled property, occupants may have little time to escape. Further, firefighters entering the building at this critical moment could face explosive fire development.

Response time and staffing levels are not solely confined to fire response incidents. Response time has a significant effect on the survivability of a patient in cardiac arrest. As the chart below shows, there is an approximate 10% decrease in survivability for every minute of response time.

**Figure 60: Cardiac Arrest Survival Based on Minutes to Defibrillation**



In addition to the performance benchmarks noted above, the quantity of properly trained firefighters on the incident scene is equally important to a successful fire outcome. Firefighting is a task-oriented, labor-intensive team operation requiring continual training, physical stamina, and an understanding of buildings and fire behavior. Most every analysis of labor ranks firefighting as one of the most dangerous of all occupations. Successful firefighting operations are dependent upon several factors, to include:

- Deployment of sufficient numbers of firefighters who are trained and equipped to perform tasks safely and efficiently
- Their timely and safe arrival, such that task execution may be done in an efficient fashion
- Coordinated task execution and incident management, with a constant focus on the safety of occupants and firefighters

Broken down, the major tasks needed to manage an incident successfully and safely include:

- Prompt emergency dispatch and relay of pertinent information to firefighters
- Turnout time (apparatus response) and safe arrival to the scene
- Tactical placement of apparatus
- Establishment of incident command with situation-based priorities (360-degree size-up, situation report, and development of initial priorities, notably victim rescue, protection of exposed properties, confinement, and extinguishment of fire)
- Establishment of an uninterrupted sustained water supply
- Utility control
- Tactical ventilation of the building
- Tactical deployment of firefighting hose lines
- Tactical deployment of ladders
- Victim rescue and EMS

- Medical evaluation for firefighters (rehab)
- Preservation of unburned private property
- Safe overhaul of the building to ensure fire is out
- Incident de-escalation and return to quarters
- Origin and cause investigation
- After action review

The inability to perform these tasks in a rapid, coordinated sequence can lead to unnecessary damage and, worse, civilian or firefighter death and injury. For example, if the arrival of firefighters is delayed by a long 9-1-1 call processing time, long turnout time, or excessive travel time, a structure fire will advance from the ignition phase to the growth phase in under ten minutes. This means a one-room fire could quickly involve several rooms, necessitating additional personnel and water supply from stations from farther distances. Likewise, if firefighters do not arrive in simultaneous sequence, rescue and suppression actions may be attempted without appropriate safeguards in place, such as proper use of personal protective equipment (PPE), to include self-contained breathing apparatus (SCBA), “back up” hose lines and sustained water supply, endangering both civilians and firefighters.

The concept of “safe staffing” for structural firefighting has evolved over the last 40 years. Much of this development has been the result of analysis of significant incidents from across the country where firefighters and civilians have been killed. Through the formal reviews of these incidents, common themes have emerged, and recommendations have been developed to create best practices for fire departments when dealing with these incidents. In addition, the science of firefighting has advanced through laboratory testing and analysis of fire behavior. Many theories which formed the tactics of firefighting over the last several decades have been disproved, resulting in vast changes to tactical and task level operations.

The National Fire Protection Association (NFPA) has developed consensus-based standards which provide guidance for the proper complement and arrival of response units and their staffing levels, as follows:

- NFPA 1550, “*Standard for Emergency Responder Health and Safety*”, Section 10.6 states the following:
  - Section 10.6.1 - *The fire department shall provide an adequate number of personnel to safely conduct emergency scene operations.*
  - Section 10.6.1.1 - *Career fire departments shall meet the requirements of 5.2.4 of NFPA 1710 (Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Career Fire Departments).*

This standard describes the tasks the initial response assignment should be able to complete, using a 2,000 square foot, wood frame dwelling, without a basement or exposures. While it does not define the composition of the initial alarm assignment, it does require:

- a. Four-person staffing on all engines, ladders/quints, rescue squads, or other specialty vehicles (excluding command-type vehicles and EMS units)
- b. Arrival of the first engine company, staffed with four personnel, within 240 seconds or less of driving time, 90 percent of the time
- c. Arrival of the second engine, ladder, rescue squad, quint, or other specialty vehicle (excludes command-type vehicles and EMS units), staffed with four personnel, within 360 seconds, 90 percent of the time
- d. Arrival of the complete first alarm assignment in 480 seconds, 90 percent of the time
- e. A minimum of seventeen members (16 if no ladder is dispatched), to include four members to perform as a rescue intervention team (RIT)

For garden apartment-type units and strip-mall type buildings, the total staffing required is 28 members. For high-rise buildings, the total staffing required is 43 members.

**Table 19: NFPA 1710 – Recommended Staffing for First Alarm Structural Assignment Capability**

<b>Task</b>	<b>Single Family Dwelling</b> <i>(2000 sq. ft.)</i>	<b>Apartment</b> <i>(1200 sq. ft. apartment in a 3-story building)</i>	<b>Open-Air Strip Shopping Center</b> <i>(13,000 - 196,000 sq. ft.)</i>
Incident command	1	2	2
Establishing a water supply	1	2	2
Fire flow application with hose lines	4	6	6
Support for hose lines	2	3	3
Search and rescue team	2	4	4
Ventilation and raising ladders	2	4	4
Aerial ladder operator (if needed)	1	1	1
Rapid intervention crew	4	4	4
Initial medical care	--	2	2
<b>Total Effective Response Force Needed</b>	<b>16-17 personnel</b>	<b>27-28 personnel</b>	<b>27-28 personnel</b>

*Source: NFPA 1710 “Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Career Fire Departments”*

Even for non-structural incidents, a need for adequate numbers of personnel to respond to mitigate the incident is necessary. Below is a representative chart showing the typical number of personnel that may be needed on non-structural emergency incidents.

**Table 20: General Considerations for Minimum Staffing for Typical Non-Structural Response Incidents**

<b>Task</b>	<b>Vehicle Accident with Person Entrapment</b>	<b>Brush Fire</b> <i>(Less than 1 acre and accessible)</i>
Incident Command	1	1
Fire Unit Driver/Operator	1	2
Hose Line Operator	2	4
Rescue Tool Operator	2	--
Hand Tool Operator	--	2
Patient Care	2	--
<b>Total</b>	<b>8</b>	<b>9</b>

- Section 10.6.1.2 - Volunteer fire departments shall meet the requirements of Section 4.3 of 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”.

This standard uses the same baseline of a 2,000 square foot, wood frame dwelling, without a basement or exposures. **However, it does not recommend minimum unit staffing levels.** Instead, it allows the local authority having legal control (AHJ) to establish specific unit staffing levels and response times to meet the needs of the department. NFPA 1720 does allow an authority to identify different “demand” zones and to establish requirements to meet those needs. NFPA 1720 requires firefighting operations to begin within two minutes of arrival, with all the equipment needed to fight the fire, 90 percent of the time.

In addition to NFPA, regulations are also in place to govern safe operations at a structure fire.

- The Occupational Safety and Health Administration (OSHA) has developed regulations for operating in a hazardous atmosphere (Immediately Dangerous to Life and Health, or IDLH). OSHA 1910.134 (g)(4) requires at least two members to enter IDLH atmosphere (such as a structure fire) and remain in contact with each other through visual, audible, or physical means, and that at least two members remain outside (Initial Rapid Intervention Crew, IRIC) to monitor the inside crew as well as conditions and be available for immediate rescue should the situation warrant. This is commonly known as the “two in two out” regulation.
- Similarly, NFPA 1550, Sections 10.6.4, 10.6.5, 10.6.6 and 10.6.7 cover crew management requirements during an emergency incident. These provisions require teams of at least two personnel, who must be in visual, audible, or physical means when operating in hazardous areas. Further, there must be two members on the outside to act as an initial rescue team, subject to immediate deployment.

- NFPA 1710 and 1720 require upgrade of the Initial Rapid Intervention Crew (IRIC) to a Rapid Intervention Team (RIT), consisting of four members, in full personal protective equipment (PPE) when the incident escalates to an interior fire fight, thus presenting significant risk to firefighters.

### **Recommended Staffing/Response Model**

Montgomery County fire and rescue squad services are a combination career and volunteer system. MissionCIT believes that using NFPA 1710 as the basis for performance would be inappropriate, undesirable, and fiscally unattainable at this time. The volunteer fire departments are generally capable of effective service delivery to the community, however there are needs, both fiscal and organizational, which must be addressed if volunteers are to remain sustainable. MissionCIT believes that the use of 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”* is the correct performance model for the county now and should be applicable, based upon population growth, for the next several years. This is due principally to the blend of urban and rural development throughout the county.

NFPA 1720 prescribes firefighting personnel levels and response times which are based upon multiple “demand zones,” which include urban, suburban, rural, and remote zones, as well as classification of properties as special risk. Response time is defined in this standard as the incident alerting time from the dispatch until the arrival point of the first unit on the scene. This time interval does not include the ignition, detection, and reporting points nor the alarm handling time, which can add several minutes to the overall arrival point, adding to the growth and complexity of the fire. According to the standard, the first arriving unit may be a tactical firefighting unit or a single first responder. MissionCIT respects this aspect of the standard but does not recommend a single first responder as “best practice” due to safety concerns.

The NFPA 1720 response and staffing requirements are shown below:

**Table 21: NFPA 1720 Staffing and Response Time Requirements**

<b>Demand Zone<sup>a</sup></b>	<b>Demographics</b>	<b>Minimum Staff to Respond<sup>b</sup></b>	<b>Response Time<sup>c</sup> (minutes)</b>	<b>Meets Objective</b>
Urban area	> 1000 people /sq. mi.	15	9:00	90%
Suburban area	500-1000 people / sq. mi.	10	10:00	80%
Rural area	< 500 people / sq. mi.	6	14:00	80%
Remote area	Travel distance greater than or equal to 8 miles	4	Directly dependent on travel distance	90%
Special risks	Determined by AHJ	Determined by AHJ based on risk	Determined by AHJ	90%

*a – A jurisdiction can have more than one demand zone*

*b – Minimum staffing includes members responding from the AHJ’s department and automatic aid*

*c – Response time begins upon completion of the dispatch notification and ends at the time interval shown in the table*

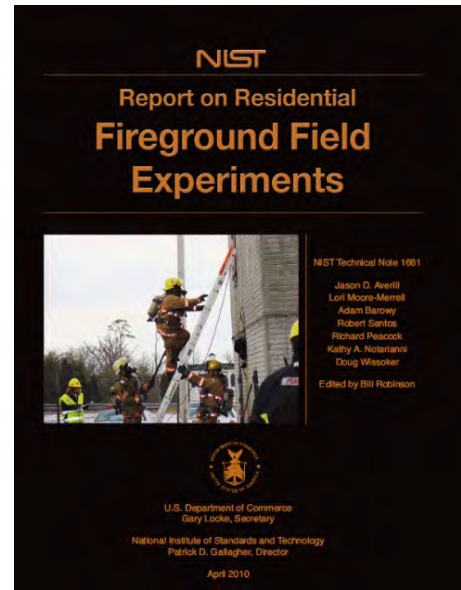
*Source: 2020 Edition of NFPA 1720 – “Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Volunteer Fire Departments”*

The primary structural fire risk for the county is one and two-family dwellings. There is a mix of commercial and light industrial occupancies as well as a significant number of multi-family buildings. There are multiple target hazard buildings on the Virginia Tech campus as well as within both towns. There is also light to moderate manufacturing, water treatment facilities, and several institutional facilities (hospital, nursing home, memory care). Although land use in the county is still somewhat rural, the county is projecting continued growth, particularly with residential housing, and particularly with multi-family housing. There is evidence of this presently, as MissionCIT noted several new such developments across the county.

Based upon this, **MissionCIT believes a staffing model based upon the NFPA 1720 urban demand zone within the towns and rural within the unincorporated area of the county, as mentioned earlier, is best for the community at this time.** This means that response times for structure fires in the towns (urban areas) should result in 15 personnel on the scene within 9 minutes, 90% of the time, and response times for the rural areas (all areas outside of the towns) should result in 6 personnel on the scene within 14 minutes, 80% of the time. Since Blacksburg and Christiansburg Fire provide first due coverage within town limits and in the county as well, their recommended response staffing and response times fall under both the urban and rural recommendations above.

It should be noted that the response time for structures in many rural and remote areas assumes that fires in unsprinklered buildings will have fully developed and may be at the decay phase when units arrive. This reality should not be generally perceived as ineffective fire department performance.

In addition to national consensus standards from the NFPA, there has also been extensive research conducted as to the effects of unit staffing on firefighting tasks. In 2010, the National Institute of Standards and Technology (NIST) conducted 22 simulated firefighting tasks with varying crew sizes from two-person staffed fire apparatus to four-person staffed fire apparatus. The simulated firefighting tasks involved a 2,000 square foot residential fire training building furnished to resemble a single-family dwelling. Multiple timed exercises were conducted to gather information. The response apparatus used were three engine companies, 1 ladder company and a battalion chief with an aide. For the two-person staffing, the total response was 10 people. For the four-person staffing, the total response was 18 people.



The study results are summarized below.

**Table 22: Task Efficiency by Crew Size**

Task	Person Crews (minutes)			Total Improvement Between Crew Sizes	
	2	3	4	4 over 2	4 over 3
Deliver Water on Fire	10:16	9:15	8:41	16% faster	6% faster
Search and Rescue	12:16	9:10	8:47	30% faster	5% faster
Overall Task Completion	22:16	20:30	15:44	30% faster	25% faster

*Source: National Institute of Standards and Technology Report 2010*

From this prior work, MissionCIT feels that it is critical that any career fire unit staffing be done at a minimum of three personnel in order to be effective. As part of the study, NIST also monitored firefighter heart rates for the various crew sizes. Cardiac issues among firefighters under work stress is a major contributor to firefighter fatalities. With the smaller crew size, the cardiac stress on the firefighters was greater than for the three or four person crews.

**Fire Department and Rescue Squad Membership/Staffing**

The volunteer fire chiefs were surveyed to provide membership and active response information. MissionCIT also requested the average personnel response to certain incident types, but received only minimal data. Our staffing analysis is thus based on the survey responses and department verbal responses, which may be subjective, and without supporting data.

The total indicated fire department and rescue squad membership and composition of each agency is shown below:

**Table 23: Volunteer Fire Department/Rescue Squad Membership**

Fire Department	Total Operational Members	Chief Officers	Lieutenants and Captains	Qualified Apparatus Drivers	Firefighters	Non-Riding Administrative Members	Active Responding Members
Blacksburg	106	2	10	49	72	22	72
Christiansburg	40	4	6	36	40	1	10-13
Elliston	30	2	4	21	28	1	16
Longshop McCoy	20						10
Riner	36	2	4	32	36	0	36
Montgomery County	38	4	8	36	24	2	36
<b>Total</b>	<b>270</b>	<b>14</b>	<b>32</b>	<b>174</b>	<b>200</b>	<b>26</b>	<b>183 (68%)</b>

Rescue Squad	Total Operational Members	Chief Officers	Lieutenants and Captains	Rescue Squad Members	Non-Riding Administrative Members	Active Responding Members
Blacksburg	165	5	0	165	6	160
Christiansburg	43	1	5	37	0	37
Longshop McCoy	15	2	2	12	1	15
Riner	60	2	2	60	0	45
Virginia Tech	55	1	8	55	0	40
Montgomery County	49	4	4	49	2	49
<b>Total</b>	<b>387</b>	<b>15</b>	<b>21</b>	<b>378</b>	<b>9</b>	<b>346 (89%)</b>

MissionCIT was only able to show the average number of personnel responding during the daytime and nighttime, as provided verbally and subjectively by each department, while on our site visits, with no corresponding or supporting data.

MissionCIT was not able to determine the average and 80% fractile response times for each fire department as displayed in Appendix C, due to the dispatch time stamp process for station dispatch vs. unit dispatch. Thus, an accurate, full baseline for current adherence to the standard cannot be determined for the volunteer fire departments.

*Montgomery County Fire and EMS*

The daily 24/7 career staffing by MCFEMS includes the following:

- 6 career fire/EMS personnel at the Elliston fire station (Minimum staffing is 5)
- 4 career EMS only personnel to staff two ambulances (Riner and Elliston)
- 1 EMS Supervisor

There is also daytime administrative staffing (40 hour) of one fire chief and three deputy chiefs. It was mentioned to the MissionCIT team that there is no real career development path for EMS only personnel, like there is for fire. Consideration should be given to creation of EMS Lieutenant positions on each shift to provide a career path for ambulance personnel and to provide a back-up/fill in for the shift EMS Supervisor.

*Blacksburg Fire*

Blacksburg Fire is also a predominantly volunteer department with daily career staffing. Their daytime career staffing (M-F, 7 am to 5 pm) consists of the following:

- 1 Lieutenant (as of February 2026)
- 1 Firefighter/Fire Code Official
- 1 Firefighter/Fire Inspector
- 1 Firefighter/Fire Inspector (as of February 2026)

During the day, these individuals provide staffing on a fire unit and also provide fire inspection services within the town. Blacksburg fire officials added two additional positions (Lieutenant and Firefighter) in February 2026 so that a minimum of three personnel are available during the daytime hours (7 am to 5 pm) to provide unit staffing. These additional personnel staff the apparatus that the fire inspectors perform fire inspection duties from.

The fire department has approximately 120 members on the roster, with 100 of them being active. The membership is comprised of 25-30% Virginia Tech students. Blacksburg Fire provides a stand-by duty crew of at least three personnel each night during the year. The crews are rotated amongst their three stations on a weekly rotation basis and provide staffing from 5 pm to 7 am. They provide a 24-hour duty crew on the weekends.

### *Christiansburg Fire*

Christiansburg Fire is a predominantly volunteer department with daily career staffing. The schedule for the career staffing is daytime only (8 am to 5 pm), Monday-Friday and includes the following:

- 1 Fire Chief
- 1 Deputy Fire Marshal
- 2 Firefighter/Engineers

The remainder of their fire response is from volunteer personnel. The fire chief indicated that their volunteer response to fire calls during the daytime is 3-4 members, with a nighttime response of 8-10. In addition, the fire chief indicated they have a department policy that the first out fire unit cannot leave without three personnel. During the daytime, if the fire chief and deputy fire marshal are both out of the office for meetings or inspections, the two-person career crew has to wait for one additional person before they can respond. This time delay can allow a structure fire to continue to grow unchecked into the free burning phase described above and provide greater risk to the public.

Christiansburg Fire did provide summary member response data from 1/1/22 to 9/30/25, to MissionCIT. There was a total of 50 members on the report. In a review of this information, for the almost four-year period of time, we were able to find the following:

- 84% of the members responded to less than 25% of the calls over the time period
- 70% of the members responded to less than 12% of the calls over the time period
- 18% of the members responded to over 25% of the calls over the time period

This indicates that a small, core group of volunteers is shouldering the workload of responses for the department.

### *Elliston Fire*

The Elliston Fire Department is an independent VFD within the county. Their response staffing levels are unknown.

### *Longshop McCoy Fire*

Officials with the department indicated that their daytime fire response is between 5-6 members and their nighttime fire response is approximately 10. Of their total membership, approximately half of them do both fire and EMS response.

*Riner Fire*

The Riner Fire Department’s staffing response levels to structure fires over the last three years shows the following:

**Table 24: Riner Fire Department Staffing Response Levels**

<b>Year</b>	<b>Number of Structure Fires Daytime (0600-1800 hours)</b>	<b>Average Personnel Response</b>	<b>Number of Structure Fires Nighttime (1800-0600 hours)</b>	<b>Average Personnel Response</b>
2023	12	9	13	11
2024	9	6	8	7
2025 YTD	11	8.5	6	7
<b>Average</b>		<b>7.8</b>		<b>8.3</b>

*Source: Riner Fire incident reports, 2023 - 2025*

*Blacksburg Rescue*

Blacksburg Rescue Squad is a solely volunteer agency, with a paid administrator. They typically staff 3 ambulances during the daytime and 1-2 at night. The units may or may not be ALS staffed. Occasionally, they provide the ALS services through quick response vehicles so that the ALS provider can maximize call coverage. Their ambulances are typically staffed with at least an EMT and a driver, who may be an EMT, but the crew typically also includes a probationary member or junior member, thus their ambulances may be responding with 3-4 personnel on it.

Blacksburg Rescue has a duty supervisor on duty in 12-hour shifts from 6 am to 6 pm and 6 pm to 6 am. The EMS supervisor may be at the station for response, or at their residence.

The level of care staffed from their ambulances for the years of 2022-2024 has been the following:

**Table 25: Blacksburg Rescue Staffing Level of Care**

<b>Year</b>	<b>Basic Life Support (EMT or EMT-Advanced)</b>	<b>Advanced Life Support</b>
2022	77%	22%
2023	79%	19%
2024	81%	17%

The data provided above by Blacksburg Rescue reflects the level of care provided or sent to an EMS call and not necessarily what level of care was available or staffed at the time of that call. The level of care sent is based on the Emergency Medical Dispatch level, staffing, and other

factors. Even if ALS staffing is not available at the station, Blacksburg Rescue typically has an on-call ALS provider who can respond from home. Blacksburg Rescue was not able to provide data on actual ALS staffing at the time of this assessment.

Blacksburg Rescue also provides swiftwater, trench rescue and cave rescue services. Response of their squad/rescue apparatus is done by response from home. However, they are not a part of the newly formed Montgomery County Special Operations Group.

*Christiansburg EMS*

Christiansburg EMS is a career agency consisting of 13 full time and 45 part time employees. Their minimum daily staffing is 1 paramedic, 3 EMT’s and one EMS Shift Supervisor. Their staffing plan is to staff a minimum of one ALS ambulance and one BLS ambulance daily, with the ultimate goal to staff two ALS ambulances. When staffing permits, they will staff a third “peak” ambulance from the hours of 10 am to 6 pm. It is estimated that this third unit is staffed approximately 50% of the time.

From response data provided by Christiansburg EMS, their unit staffing (ALS vs. BLS) and unit response totals for 2021 to 2024 show the following. Rescue responses are basic life support staffed ambulances, while medic responses are advanced life support staffed ambulances.

**Table 26: Christiansburg EMS Response Totals**

<b>Year</b>	<b>Medic (ALS) Unit Responses</b>	<b>Rescue (BLS) Unit Responses</b>
2021	2756	1962
2022	2780	1908
2023	2698	2096
2024	3212	1104

This shows that potentially in the years of 2021 – 2023 the department was experiencing staffing issues with having enough ALS providers to respond, while in 2024, their response levels for ALS staffed ambulances was much improved. This data may also be showing that the department is actively trying to respond more appropriate levels of care to lower acuity EMS calls.

*Riner Rescue*

Riner Rescue typically only staffs and provides services during the evening hours of 1800-2400 each day. They notify dispatch when they have a crew. When they have an ALS crew, then the Riner EMS station for Montgomery County is not dispatched on those calls. If they just have a BLS crew, then Riner Rescue and the Montgomery County crew in the Riner area will both respond.

*Virginia Tech Rescue*

Virginia Tech Rescue is staffed solely by Virginia Tech students. Typically, they staff one BLS ambulance during the daytime and two BLS units at night. Over campus holidays, they will only staff one unit due to the low call volume.

**Fire and Rescue System Staffing Summary**

With the staffing information as provided to MissionCIT by each department, mostly verbal and some of it very limited, we compared each department to the NFPA 1720 recommended guidelines to determine a net positive or negative regarding the current staffing response. These, again, are shown against the minimum number of recommended personnel for a 2,000 square foot residential structure. Any fire in a hazard location other than this would require more personnel than the minimum, such as an apartment complex, a building on Virginia Tech campus, a large retail or commercial occupancy, etc.

**Table 27: Urban Area Demand Zone (Minimum of 15 Personnel Responding)**

Department	Daytime Response	Daytime Variance from NFPA 1720	Nighttime Response	Nighttime Variance from NFPA 1720
Blacksburg Fire	Minimum – 3 Maximum – 20 to 35	(0 to -12)	Minimum - 3-4 Maximum – 20-35	(0 to -12)
Christiansburg Fire	Minimum – 2 Maximum – 7 to 10	(-5 to -13)	8-10	(-5 to -7)
<b>Average</b>	<b>2</b>		<b>6</b>	

**Table 28: Rural Area Demand Zone (Minimum of 6 Personnel Responding)**

Department	Daytime Response	Daytime Variance from NFPA 1720	Nighttime Response	Nighttime Variance from NFPA 1720
Elliston Fire	8-9	(+2 to +3)	7-11	(+1 to +5)
Longshop McCoy Fire	5-6	(-1)	10	(+4)
Riner Fire	8	+2	8	+2
Montgomery County FEMS	Minimum – 5	(-1)	Minimum – 5	(-1)
<b>Average</b>	<b>7</b>		<b>8</b>	

The fire response staffing variances above do not take into account automatic aid response staffing from assist departments.

**Table 29: Rescue Squads Staffing Standards\***

<b>Department</b>	<b>Daytime Response</b>	<b>Nighttime Response</b>
Blacksburg Rescue	6 EMS personnel	2-4 personnel
Christiansburg EMS	5 EMS personnel 2-3 ALS 2-3 BLS	5 EMS personnel
Longshop McCoy Rescue	Unknown	Unknown
Riner Rescue	None	2 EMS Personnel
Montgomery County FEMS	5 EMS personnel 3 ALS 2 BLS	5 EMS personnel 3 ALS 2 BLS
Virginia Tech Rescue	2 EMS personnel	4 EMS personnel

*\* No defined industry staffing standards, other than VOEMS Staffing Standards*

**Fire Staffing Plan - Future**

With the limited amount of data to assess against national consensus guidelines/standards for urban or rural fire response, MissionCIT conducted its best objective professional analysis and provides the following recommended staffing plan for the fire services within the county. Our staffing recommendations may not match the future plans, current thoughts or timelines within a jurisdiction, but are based on the climate as we knew it.

The recommended staffing plan is based on providing some level of a minimum amount of guaranteed response to structural fire incidents, both daytime and nighttime, assuming that there are at least two fire departments dispatched. In no way do these recommended additional staffing levels diminish the role and need for volunteer fire personnel within the fire system.

It is also recommended that the career fire personnel outlined below are trained as Emergency Medical Technicians and that those departments initiate a joint fire/EMS response to critical high priority EMS incidents within the towns.

**Urban Areas**

*Blacksburg Fire*

- Provide a 4-person daytime career fire crew at Station 1 (In progress) - Immediate
- Provide a 4-person career fire crew at Station 2 – 24/7 – Intermediate
- Initiate an active student live-in program at Station 3 - Immediate

The 24/7 career staffing, in the future, would guarantee at least 4 personnel responding to any incident during the daytime or nighttime hours. It is recommended that this crew be housed at Blacksburg Fire Station #2 due to the lack of appropriate dormitory space and facilities at Station #1. Combined with the daytime crew at Station #1, a minimum of 8 personnel would respond during the day within the town to meet NFPA 1720, which would be just over 50% of the needed response. Combined with the nighttime and weekend volunteer duty crews, there would be a minimum of two staffed units available to respond at all times. The daytime crew at Station #1 would allow for the continuation of active volunteer response at nights and weekends from that station.

Having a recommended student live-in program at Station #3 would provide for a good, consistent volunteer response daytime and nighttime from that location, potentially allowing for three full fire units to respond within the town or to automatic aid assist calls. This program had been tried before at Station #3, but for various reasons was stopped. This should be re-considered. Student live-in programs are popular at many locations in the United States, particularly, around colleges. Most notably, the College Park, Maryland Fire Department has had a successful program for over 50 years. There are at least half a dozen other fire departments in the suburban Maryland area with student live-in programs.

#### *Christiansburg Fire*

- Provide a 4-person daytime career fire crew at the existing station - Immediate
- Provide a 4-person career fire crew at the existing station – 24/7 – Short Term
- Provide a 4-person career fire crew (24/7) at a second future station (If constructed in the town) (Additional information provided in the Future Fire Station Section of the report)

Having a four-person crew able to respond 24/7 would provide a minimum level of response to meet NFPA 1720 for structural fire incidents. Combined with the four-person daytime crew, this would provide for over 50% of the necessary response to structural fires. Space for more than four personnel at the main station is limited due to the current configuration. Additional daytime and nighttime response would be provided by the assisting fire departments.

#### **Fire Staffing - Rural Areas**

MissionCIT does not currently recommend any staffing changes to the current rural fire response as their response levels can be improved, day and night, through the improvements made within the towns and their joint response. An aggressive countywide volunteer recruitment program should be initiated in order to increase the number of active volunteer fire and EMS personnel.

**EMS Staffing Plan***Blacksburg Rescue*

No immediate recommendations are made regarding staffing for Blacksburg Rescue. However, at some point in the future, full time ALS providers may be needed to provide consistent ALS coverage alongside the volunteer BLS crews, based on data driven performance outcomes. (Intermediate Term)

*Christiansburg EMS*

Due to the increasing call volume and the increasing unit hour utilization time/total commitment time (outlined in the System Performance section), MissionCIT recommends that appropriate ALS and BLS staffing be hired to staff a third ALS ambulance 24/7 instead of just during peak hours. (Short Term)

*Longshop McCoy Rescue*

For the Intermediate time frame, consideration should be given to providing some level of career staffing at the Longshop McCoy Fire and Rescue station. There is a small group of current, active volunteer EMS personnel at the station running the vast majority of the EMS calls. When that small group is not available, the department's EMS coverage is minimal, with a low chance of a response. In addition, during our site visit, MissionCIT was told that the vast majority of the department members are age 40 and higher. Based on this, at some point, the department membership will age out and there may not necessarily be adequate replacements for them, causing a significant decline in their availability to provide adequate fire or EMS coverage.

If a decision should be made on this issue, depending on data and response statistics, MissionCIT would suggest the following potential staffing configuration.

**Longshop McCoy Fire and Rescue**

- Two 24/7 career fire/EMS certified personnel
- Two daytime career fire/EMS certified fire personnel

Based on the low call volume, this configuration would allow for a staffed ambulance 24/7 response, but also allow for a fire response with four personnel when the ambulance was not on an incident. An active, continued volunteer response program for nights and weekends, would still be necessary and should be actively developed and managed.

### **Fire Staffing Plan – Future Fire Stations**

As part of any future fire station locations, identified in the Future Fire Station Location Section, the staffing at these locations should be dual role, fire and EMS certified personnel. The minimum recommended staffing configuration at these locations should be three full time fire/EMS personnel on a fire suppression unit and two full time fire/EMS personnel staffing an ambulance. This configuration provides the most flexibility to respond to fire and/or EMS incidents. The staffing can handle two EMS incidents at the same time, or if the ambulance is available, provide a minimum of five personnel at a structure fire for immediate fire attack and rescue.

Depending on the number of stations located within Montgomery County, there may be a future need to hire shift Battalion Chiefs to supervise station personnel and to provide command response to incidents. The costs, details and number of personnel for the fire and EMS staffing recommendations are outlined in the Implementation Plan and Implementation Cost sections of the report.

**Recommendation 11.1**

The staffing at any new fire stations should include dual role, fire and EMS certified personnel, and should include the location of an ambulance in the station.

**Recommendation 11.2**

Montgomery County should consider the creation of EMS Lieutenant positions on each shift so that there is some degree of a career path for EMS only personnel and to allow for a backfill person to fill in for the EMS Shift Supervisor.

**Recommendation 11.3**

Depending on the number of fire/EMS stations constructed in the future, Montgomery County may need to hire shift Battalion Chiefs to provide shift supervision and response to incidents.

## SECTION 12: DEPARTMENT DEPLOYMENT AND OPERATIONS

Within the county, the fire departments and rescue squads are mostly dispatched as singular response agencies to fire and EMS incidents. There is no unit dispatching within the fire rescue system. For structure fires, two fire departments and one rescue squad are dispatched. For EMS incidents, one rescue squad is dispatched, unless there is a need for patient extrication or there is a fire risk.

Dispatch of fire and rescue resources is mixed within Montgomery County. The career staffed units are unit dispatched, while the volunteer fire and rescue departments are station dispatched. This does not allow for easy data collection and analysis. At a minimum, for the volunteer rescue squads, they know what units are first response, second, etc. so that they have the ability to mark up those units as staffed within the CAD so that unit dispatch can occur. Improvements within the CAD system may help with this process.

### **On Scene Operations**

As part of our evaluation process, MissionCIT listened to the response audio for two representative fire incidents. Each had similar identified key issues. These include:

- Dispatch is on each department's channel separately, while responding apparatus must switch to the primary department's channel. Sometimes there is confusion about which is the operating channel, and apparatus may not always provide radio traffic of response on the operating channel.
- There are multiple command/officer vehicles that go enroute to the incident. It depends on who the senior officer is as to who the responding apparatus communicates with. Sometimes communications are between all responding command personnel. Once a senior officer arrives on scene, communications start to flow through them, with no announcement of a change in who is in command.
- There is no consistent use of Incident Command System (ICS) terminology such as Command, Division, Group, etc. Most of the time, communications are between individual apparatus and the first arriving officer, who utilizes their unit number.
- There was no announcement of an incident action plan by the commanding officer, nor an announcement of an initial mode of operations and any changes in the mode as the incident progressed (rescue, investigative, offensive, defensive, transitional, overhaul, etc.).
- EMS units that respond to the scene establish a separate EMS Command on a separate channel.

- There is no consistent announcement of responding apparatus as to their staffing levels. Some do it, most do not.
- Multiple officers providing direction to NRV911 regarding contacting utilities or other resources.
- Every arriving fire apparatus asks for an assignment. There does not appear to be standing first alarm assignments.
- During a multi-agency response, the fire incident commander will usually work to communicate with EMS or law enforcement by going to dispatch and having them relay messages to the appropriate units on scene.

All of the items above can increase risks to personnel operating on the incident scene through a lack of organization, clear communications and increased confusion. There is no usage of plain talk unit identifiers for command or auxiliary response personnel, beyond that used for engines, ladders, etc. For response units who may be responding from outside of Montgomery County, this creates confusion as to who they are talking to and what their function is.

The inherent risks with the dispatch and radio channel configuration within the county are outlined in the next section on Dispatch/Communications. These risks can greatly affect the operations of a large, complex incident and complicate operations.

Though Montgomery County Fire and EMS has an on-duty EMS supervisor who can respond and provide command support and assistance at EMS incidents, the fire side does not have a designated duty fire officer or on-shift command officer to be available to respond. Montgomery County should consider developing a duty officer program between the fire chief and the deputy chiefs so that there is an on-call command officer available 24/7. A full-time shift position is not necessary at this time due to the low volume of fire calls and that the response is only from one staffed station. This may need to be re-evaluated in the future if the number of county operated fire stations increases.

Fire calls to the Virginia Tech campus are fairly frequent, occurring almost 500 times in 2024. There is a difference of opinion regarding the availability of access and pre-plan building information for fire department response resources. While fire officers have swipe card access to all buildings, they do not necessarily have access to comprehensive building and hazard information. This policy should be reviewed for potential revision.

With multiple agencies within the county fire rescue system, one agency alone may not have sufficiently trained command personnel to handle a large, complex or lengthy fire or EMS incident, no matter where it might be within the county. Utilizing command resources from all agencies, that are appropriately trained and certified, would provide greater expertise and depth

to fill incident command positions for such incidents. This concept is known as an Incident Management Assistance Team (IMAT).

### **Law Enforcement**

Within Montgomery County, there have been approximately fourteen Sheriff's deputies trained as emergency medical technicians. In addition, the sheriff's office and Christiansburg Police officers carry automated external defibrillators (AED's) in their vehicles. In our onsite meetings, there was no indication that these assets are being actively utilized to assist in EMS responses, particularly in the rural areas. Through the recommended EMS Advisory Council, consideration should be given to utilizing these assets and developing an integration plan into the EMS system dispatch process.

### **Emergency Management**

A major function of any local government is emergency management. Emergency Management is the systematic process of planning, preparing for, responding to, and recovering from disasters and crises, aiming to reduce vulnerabilities and coordinate resources to save lives, protect property, and minimize disruption from natural or human-made hazards like floods, earthquakes, fires, or terrorist attacks. The key to emergency management is that processes are designed to effectively handle large scope situations, across large areas and with large amounts of resources and needs. Although, like the 911 dispatch center, a review of emergency management within Montgomery County was not requested within the RFP for the fire and rescue assessment, the scope, impact and operations of emergency management can impact the success of mitigating significant fire or EMS incidents.

Emergency management within the county operates under the Montgomery County Fire and EMS Department. A deputy fire chief is the emergency services coordinator responsible to manage the emergency operations plan and coordinate its use. The most recent emergency operations plan in Montgomery County is dated 2025. In addition, the Town of Christiansburg and Virginia Tech also have emergency managers, or deal in emergency management operations. They indicate that they work well together.

The current Montgomery County emergency operations center (EOC) is an area within the New River Valley 911 Regional Communications Center. It is not set up to be an instant EOC, with computers, phones, etc., but would be set up when needed. Officials indicate that it is not used much as emergency services uses more field-based command posts for incidents. This may work well for an incident on the interstate, or in a region of the county, but this process will not work well for incidents that impact large portions of the county such as major flooding or damage from a tornado. Montgomery County officials also indicate that there is not a current standard notification process for activation of the EOC and that EOC exercises are not regularly conducted.

It is critical in a time of need, that all representatives and county officials have a good working knowledge of how to operate within the emergency operations center, and that they are comfortable having worked together before in non-stressful situations.

Blacksburg Rescue Squad indicated that they also have an area that they can set-up and use as an EOC within their building. Depending on how it is used, and activated, this can cause duplication or confusion within the overall county emergency management process.

### **Virginia Tech**

Virginia Tech is also heavily engaged in emergency management activities and events on campus. They operate their own emergency operations center and conduct EOC exercises quarterly. During football games and graduation, where there are extremely large crowds on campus, they do not activate their EOC, but operate either through Unified Command or Multi-Area Command. Virginia Tech also has a Type IV Incident Management Team (IMT) designated to assist in staffing and operating in their EOC. During football games, there will be four ambulances positioned at the field during the game, with one ambulance remaining available off site for campus responses. In addition, Blacksburg Rescue Squad will position two ambulances in crowd gathering areas in town.

During a significant event on campus, it is not known the exact degree of interaction, command coordination and communication there is between Montgomery County, the Town of Blacksburg and Virginia Tech. It is possible that multiple EOC's are established and operating during an event, which may cause confusion and duplication of effort.

Currently, there is no established Local Emergency Planning Committee (LEPC) within Montgomery County as mandated by federal law. An LEPC's purpose is to prepare communities for chemical emergencies by developing response plans, coordinating with industry and government, and providing citizens with crucial information about hazardous substances stored or transported locally.

#### **Recommendation 12.1**

Incident Command System training and active on scene use should occur within all agencies within Montgomery County. Joint training exercises should be held between all emergency services disciplines so that unified incident command can be exercised and evaluated.

**Recommendation 12.2**

All responding apparatus to incidents should announce their response on the operating channel in addition to their own channel, and include their staffing levels.

**Recommendation 12.3**

All units within fire and rescue should be given unit functional identifiers utilizing plain talk and information to identify the type of unit as is done for response apparatus. Identifiers could include the following;

- a. Blacksburg Fire Staff Officers – Chief 1, 1A, 1B, etc., including duty officers
- b. Christiansburg Fire Staff Officers – Chief 8, 8A, 8B, etc., including duty officers
- c. Blacksburg Rescue Officers – Chief 5, 5A, etc., including duty officers

**Recommendation 12.4**

Montgomery County fire and rescue agencies should consider using recognized radio traffic processes of announcing the receipt of the radio traffic first, and then the unit transmitting the message. This allows to consistent flow and alertness regarding who the radio traffic is intended for. As an example;

- a. NRV, Engine 11 on scene.
- b. Engine 2 from NRV, the caller states ....
- c. Rescue 96, from NRV, the patient....

**Recommendation 12.5**

The fire and rescue agencies within the county should work towards creation of Incident Management Assistance Teams (IMAT's) to provide qualified personnel who can respond to significant incidents within the county and provide appropriate incident command staff and general staff positions and functions.

**Recommendation 12.6**

All future emergency services stations should be built to house both fire and EMS resources jointly and provide the minimum requirements as laid out in the Stations section of the report.

**Recommendation 12.7**

Montgomery County Emergency Management should actively provide training on the duties, roles and responsibilities of participants to the emergency operations center on a yearly basis.

**Recommendation 12.8**

Montgomery County Emergency Management should conduct at least one annual exercise of the activation of the emergency operations center, with all participants working through a simulated set of events. This activation can alternate each year between a tabletop scenario and a full functional exercise.

**Recommendation 12.9**

Montgomery County Emergency Management and appropriate staff should hold specific joint training with Virginia Tech Emergency Management to ensure that future operations will go as smooth as possible.

**Recommendation 12.10**

Montgomery County should establish a Local Emergency Planning Committee to supplement its County Emergency Operations Plan and to enhance its risk knowledge and response.

## SECTION 13: DISPATCH/COMMUNICATIONS

Emergency communications within Montgomery County is provided by the New River Valley (NRV) Emergency Communications Regional Authority. The authority was created by the Virginia General Assembly in 2010 and provides 9-1-1 dispatch and emergency communications services for Montgomery County, the Towns of Blacksburg and Christiansburg, and Virginia Tech. Their service area encompasses 387 square miles with a total population of approximately 101,323 people (Weldon Cooper Institute estimate 7/1/2024).

NRV911 is governed by a five-member Board of Directors comprised of one representative from each member entity and one at-large representative. The center is managed by an executive director. In 2011, a Joint Advisory Committee (JAC) was created to provide input and recommendations regarding the operations of the center. The JAC is comprised of public safety representatives from the member jurisdictions.

Funding for NRV911 is provided by each of the participating agencies. The total FY2026 budget for the center is \$4,917,773. Each participating agency contributes an equal amount, \$1,105,193, for the FY2026 budget. The remaining budget amount, approximately 10%, comes from the Virginia Department of Emergency Management through Next Generation 911 and Wireless 911 surcharges.

Though not a part of the fire and rescue squad assessment project, the emergency communications center and its processes can impact the delivery of fire and rescue squad services within the county.

Currently, NRV911 operates a UHF analog communications system, but is transitioning to a 700 MHz P25 trunked simulcast digital radio system scheduled to become operational in late 2027. They dispatch for fifteen total agencies, four law enforcement, five fire departments and six rescue squads within the county. Their shift minimum staffing levels are six personnel on duty, per shift. Of those six, one person is assigned as a call taker, one person is assigned as a fire/rescue console operator, and four personnel are assigned to law enforcement consoles. Currently, NRV911 has a 40% vacancy rate. Most dispatch centers across the United States continually experience high turnover and have high vacancy rates. NRV911 is no different. However, having a 40% vacancy rate does contribute to increased stress and workload on the remaining employees and increased rates of overtime. This can potentially cause delays in processing 911 calls or errors with staff that is overworked and tired.

In order to provide a pipeline for filling future positions, NRV911 should look to the example that Chesterfield County, VA initiated involving a telecommunicator training program in its technical/career high school program. Students in this program can graduate as certified telecommunications officers and earn three high school credits.

<https://www.oneccps.org/article/2104029>

The total calls for service dispatched by NRV911 for calendar year 2024 shows the follow distribution among agencies:

**Table 30: Law Enforcement Total Calls for Service, 2024**

Blacksburg Police	26,913
Christiansburg Police	33,487
Virginia Tech Police	24,373
Montgomery County Sheriff's Office	30,907
<b>Total</b>	<b>115,680 (89.48%)</b>

**Table 31: Fire Departments Total Calls for Service, 2024**

Blacksburg VFD	897
Blacksburg VFD (Va. Tech Campus)	490
Christiansburg VFD	991
Montgomery County/Elliston FD	276
Longshop McCoy VFD	69
Riner VFD	168
<b>Total</b>	<b>2,891 (2.24%)</b>

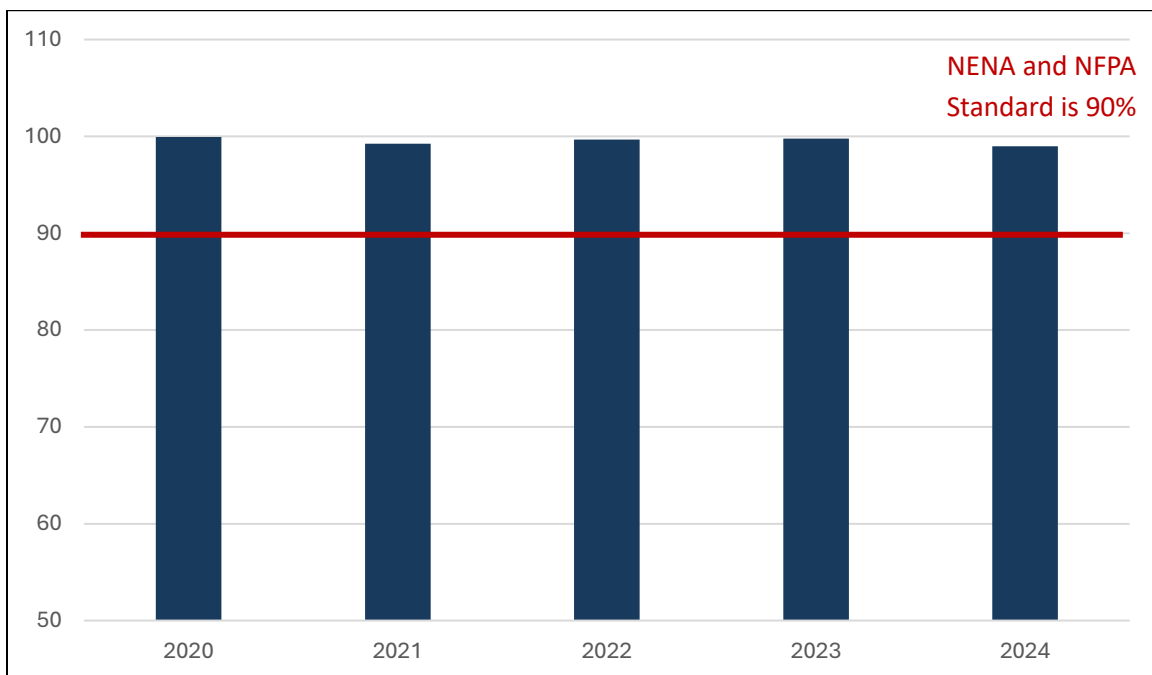
**Table 32: Rescue Squads Total Calls for Service, 2024**

Blacksburg RS	3,457
Christiansburg EMS	4,167
Montgomery County/ Elliston/Riner EMS	1,415
Longshop McCoy RS	137
Virginia Tech RS	1,393
Riner RS	146
<b>Total</b>	<b>10,715 (8.29%)</b>

Source: NRV911 website

NRV911 uses Pro-QA for its EMS call protocol dispatch system, Active911 to alert volunteer personnel and a Tyler Technology CAD system. The emergency medical dispatch protocols are updated twice a year. The dispatch center utilizes a contractor to conduct the quality assurance review process for the center. NRV911 utilizes the National Emergency Number Association (NENA) standard for its call answering performance measure. This standard states that all 911 calls are answered (time from call initiating into the dispatch center until answered by a 911 operator) within 15 seconds, 90% of the time and within 20 seconds, 95% of the time. These performance standards are the same as included within the NFPA 1225 consensus standard, “Standard for Emergency Services Communications”.

**Figure 61: NRV911 Call Answering within 15 Seconds**



For 911 call answering, NRV911 is exceeding the NENA and NFPA standards for 911 call answering.

Unlike NENA, the NFPA 1225 standard also has a call processing performance standard. In Section 15.4.4, it states, “Emergency event processing for the highest prioritization level emergency events listed in 15.4.4.1 through 15.4.4.2 shall be completed within 60 seconds, 90 percent of the time”. The call processing time is that time from call answer in the 911 center until appropriate response apparatus is toned-out for response to an incident.

The NRV911 Director indicated that NRV911 does not utilize a call processing standard to measure performance. However, using the NRV911 CAD data, MissionCIT determined the following.

**Figure 62: 911 Call Processing Times\***

Year	EMS Calls		Fire Calls	
	Average	At 90% Fractile	Average	At 90% Fractile
2021	2 minutes 45 seconds	4 minutes 17 seconds	4 minutes 41 seconds	4 minutes 57 seconds
2022	2 minutes 42 seconds	4 minutes 10 seconds	3 minutes 56 seconds	6 minutes 34 seconds
2023	2 minutes 46 seconds	4 minutes 36 seconds	3 minutes 23 seconds	5 minutes 42 seconds
2024	2 minutes 47 seconds	4 minutes 17 seconds	4 minutes 12 seconds	6 minutes 5 seconds
2025	2 minutes 38 seconds	4 minutes 6 seconds	4 minutes 7 seconds	5 minutes 36 seconds

*Source: NRV911 CAD Data*

*\*The call processing time was calculated as the time from 911 Call Create (automatic in system) to first unit dispatched. If there was no 911 Call Create time, then the Call Create time (manually created) was used. 1,635 EMS calls were removed because they had call processing times greater than 15 minutes. An additional 31 EMS calls were deleted due to having negative call processing times. 17 fire calls were deleted from the calculations due to having call processing times greater than 15 minutes or having negative call processing times.*

As shown, the call processing times for NRV911 for both fire and EMS calls are very high when compared to the NFPA 1225 standard. For both fire and EMS incidents, excessive call handling and processing times delays notification of response units, which, when added to the unit turnout and travel times, can cause large total response times. These can have a negative effect on patient outcomes and fire growth and spread.

Due to the large numbers of fire and EMS calls that MissionCIT removed from the assessment process for being incomplete, NRV should consider conducting a thorough evaluation of its call answering and call processing processes to ensure that appropriate time stamps are being made and that CAD data is as complete as it can be.

NRV911 does not currently have a stand-alone back-up center. There is a room available for use in the Montgomery County administration building, but there is no equipment set up in the room.

NRV911 utilizes ten radio channels for fire and rescue and dispatches fire and rescue squad calls across five different channels. These channels include:

- Blacksburg Fire
- Blacksburg Rescue Squad
- Christiansburg Fire
- Longshop McCoy Fire
- Fire Rescue 1 - Montgomery County Fire and EMS, Christiansburg EMS, Riner Rescue Squad, Riner Fire and Virginia Tech Rescue Squad

Each of these agencies maintains their own FCC license and frequency arrangement. Agencies that have their own channels are jointly dispatched through their specific channel as well as on the Fire Rescue 1 channel.

Depending on the call type, if it is just a single agency dispatch, that agency responds on and operates on their dispatch channel the entire time. NRV911 will monitor that channel. If it is a multi-unit dispatch, each agency is dispatched on their frequency and Fire Rescue 1, marks enroute on the appropriate dispatch channel and then they will switch to a shared operational channel to operate. The exception to this is that Blacksburg Fire and Blacksburg Rescue Squad do not switch to any other channel, but always remain on their own frequencies. As a result of this process, an incident commander of an incident does not know which agencies or apparatus are responding to their incident. **This process is immensely unsafe for both the dispatcher and the responding personnel.** It would be extremely easy for a responding unit to get lost on a channel or a life safety issue (firefighter Mayday, building collapse, etc.) to occur on an incident scene and not be heard by a dispatcher with all of the corresponding radio traffic that one person is having to monitor. Monitoring all of the active calls is occurring on top of continuing to dispatch other fire and rescue calls for service. NFPA 1225 recommends that a separate tactical dispatcher be assigned to monitor specific incidents, when requested by the incident commander.

During an incident, there are no built-in incident timers to remind the dispatcher to contact the incident scene officer to conduct a well check of the EMS crew or to remind the incident commander to conduct a personal accountability report (PAR) of all fire crews at a significant fire incident.

Currently, there is no system-wide method for agencies to “mark-up” with NRV911 which units are staffed and ready to respond to calls for service. Once an incident is dispatched, the responding agency has five minutes in which to answer up and respond. If they do not within that time frame, they are toned out again with additional resources dispatched. Within the CAD system, the time is actually six minutes, considering one minute for the call processing sequence and tone-out to occur. An officer of the dispatched agency can answer up on the radio that they received the call and that stops the timer for response. Rescue squad units at the hospital can also stop the timer by acknowledging the call and saying they will be responding shortly. Frequent

use of this practice, so as not to show a department “no response or late response” skews accurate response time data and can further delay the response of effective fire or EMS resources.

The first responding unit from an agency starts the clock for the response time of the incident. That may be a rescue squad ambulance, a fire unit, or a chief officer in an SUV. EMS quick response vehicles are not considered a response unit for the response time sequence; however, a fire quick response vehicle is. As a result of this process, a fire incident response time can be based solely on a non-suppression-based vehicle, such as a volunteer chief officer.

Currently, within the system, apparatus do not have mobile data terminals to see the CAD data for the call or to be able to initiate a response or clearing time from the incident. In addition, there is no use of automatic vehicle location (AVL) on any of the response apparatus. Having this technology would help improve the collection of accurate time stamp data and to be able to dispatch the closest unit for incidents, instead of a blanket department dispatch.

Within the NRV911 center, there are no policies in place, nor do the dispatch personnel receive training, nor regularly practice with how to handle a firefighter Mayday situation, officer down, or EMS crew in trouble scenario. This can present significant safety risks to the field personnel if a Mayday or at-risk situation by a crew is not handled appropriately.

During our site visit, the MissionCIT team heard many comments from fire and rescue squad leaders and personnel regarding issues with the dispatch center and its processes. Some of these issues included inconsistent call processing procedures, delays in dispatching fire and/or EMS, inconsistent levels of information provided to fire/EMS as compared to law enforcement, dispatch personnel not adequately trained on fire/EMS processes and incorrect incident times downloading into department records management systems. A more thorough evaluation of the dispatch center and its processes should be considered.

During Virginia Tech sporting and graduation events, a separate dispatch center is set up in the Virginia Tech command center. This command center is established to handle the dispatch of fire, rescue or law enforcement to just that event to reduce the workload on NRV911. It is staffed with Virginia Tech rescue squad personnel and law enforcement personnel. NRV911 provides two dispatchers and one NRV representative during such events.

**Recommendation 13.1**

NRV911 should consider identifying and equipping a small-scale back up 911 answering and dispatch center at some location that is quickly and easily accessible if the main dispatch center has to shut down.

**Recommendation 13.2**

NRV911 should consider looking into establishing a public safety telecommunicator training program within the Montgomery County Career and Technical Education Program to develop future dispatch personnel.

**Recommendation 13.3**

The NRV911 center should initiate and measure their call processing times as part of their overall quality assurance process.

**Recommendation 13.4**

Timely dispatch of appropriate resources is an obvious system need. All agencies should “Mark-up” apparatus that is staffed and ready to respond. This resource status should include EMS level (BLS or ALS). Consistent unit response criteria should be developed for both fire and EMS incidents so that the response time is based on functioning fire suppression or rescue squad units to trigger and end the response time sequence.

**Recommendation 13.5**

The number of dispatch and operational channels that the one fire/rescue dispatcher has to operate on and monitor should be consolidated and reduced. All fire agencies should be dispatched on one channel, all rescue squad agencies should be dispatched on one channel and joint tactical operations should then be assigned accordingly. An example of such is:

- Fire Dispatch – Fire Channel 1
- Rescue Dispatch – EMS Channel 1
- Tactical Channels – 1 through 8 to operate specific singular or joint incidents

**Recommendation 13.6**

NRV911 should develop emergency incident scene policies on how to handle firefighter Mayday or EMS crew emergency situations.

**Recommendation 13.7**

All appropriate fire and rescue dispatch personnel should receive and regularly practice with how to handle a firefighter Mayday or EMS crew emergency situation.

**Recommendation 13.8**

Response policies should be modified so that fire and/or rescue apparatus responding to a multi-unit event also verbalize their enroute status and staffing levels on the appropriately selected tactical channel so that the incident commander has knowledge of the response units that are enroute and how many personnel are responding.

**Recommendation 13.9**

Consideration should be given by Virginia Tech to staff their special event command centers with representatives from all response agencies onsite at the event, so that a true unified command structure can be established.

**Recommendation 13.10**

Consideration should be given by NRV911 to allow dispatch personnel to ride on fire and EMS apparatus as part of their initial and ongoing continuing education training.

**Recommendation 13.11**

All fire/EMS dispatch personnel should receive appropriate training on fire and EMS operations and processes to ensure adequate understanding in order to sit at that console.

**Recommendation 13.12**

A thorough, third-party review of the NRV911 call processing procedures and fire/EMS/law enforcement communications system should occur to determine where improvements can be made and procedures streamlined.

**Recommendation 13.13**

Future planning and budgeting should be given to the installation of mobile data terminals and AVL systems on all heavy fire apparatus and EMS vehicles. This will ensure appropriate call information is visible and available to responding personnel and that the closest units are dispatched to incidents.

**SECTION 14: APPARATUS**

Currently, the fire and rescue services within Montgomery County operate a very diverse and large fleet of heavy and light apparatus. The fire and rescue departments are very well resourced. Overall, the heavy fire apparatus fleet appears to be in very good and serviceable condition. The rescue squad fleet also appears to be in very good condition. There are multiple other special/support/command, quick response vehicles and rescue units and boats. The fire and rescue squad apparatus within Montgomery County are purchased and owned by the county. Fire and rescue squad apparatus within the towns is funded by multiple sources, which include Montgomery County and the respective Towns of Blacksburg and Christiansburg. All fire and rescue squad apparatus within the system is purchased and owned by the county or town depending on the funding. The apparatus purchases that are funded by Montgomery County occur through the Fire Rescue Commission annual budget allocation process. Currently, there are 64 pieces of fire and EMS apparatus owned by the county, and placed within the volunteer fire and rescue squad departments. All apparatus purchased, no matter who owns it, is custom to that department. They develop the specifications to what they want. There is no standardization, even within Montgomery County. Currently, there are two engines, one squad, one tanker and one brush truck that are on order for the various fire departments.

This independent purchasing process has led to a very different and diverse fleet of brands, types, sizes and functions for the fire apparatus in the county. There is no coordinated effort countywide to determine what types of apparatus are needed in certain areas of the county, based on a risk assessment. In addition, within the county, there is no current method to rotate apparatus around to the various stations to even out wear and tear and to allow the apparatus to have a longer lifespan.

Within Montgomery County, the following vehicle assets are owned by Montgomery County, but allocated to the respective fire and rescue squad departments:

**Table 33: Montgomery County Vehicle Assets**

Department	Apparatus	
Blacksburg Fire	Engines – 2 Tankers – 2	Brush Trucks - 1 Other/Command/Squad - 2
Christiansburg Fire	Engines – 2 Tankers – 1	Brush Trucks - 2 Other/Command/Squad - 5
Elliston Fire	Engines – 3 Tankers – 1	Brush Trucks - 2 Other/Command/Squad - 4

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Longshop McCoy Fire	Engines – 2 Tankers – 2	Brush Trucks - 2 Other/Command/Squad - 2
Riner Fire	Engines – 4 Tankers – 1	Brush Trucks - 1 Other/Command/Squad - 4
Blacksburg Rescue Squad	Ambulances - 2 Squads/Command/Other - 4	
Christiansburg EMS	Ambulances - 3 Squads/Command/Other – 1	
Longshop McCoy Rescue Squad	Ambulances - 2 Squads/Command/Other - 2	
Riner Rescue Squad	Ambulances - 3 Squads/Command/Other - 2	

Below is the total current distribution of the fleet within the fire departments and rescue squads. It includes frontline units only, no reserve units. A detailed inventory of the fire service and rescue squad fleet is located in Appendix H.

**Table 34: Fleet Distribution by Department**

Department	Engines and Rescue Engines	Tankers	Engine/Tankers	Brush Trucks	Ladders	Amb.	Heavy Rescue
Blacksburg Fire	6	1	1	3	2	0	0
Christiansburg Fire	4	0	1	2	2	0	1
Elliston/MCFEMS	4	1	0	1	0	0	1
Longshop McCoy Fire	1	1	2	2	0	0	0
Riner Fire	4	1	0	1	0	0	1
Blacksburg Rescue	N/A	N/A	N/A	N/A	N/A	6	3
Christiansburg EMS	N/A	N/A	N/A	N/A	N/A	6	0
Longshop McCoy Rescue	N/A	N/A	N/A	N/A	N/A	2	0
Montgomery Co. FEMS						5	0
Riner Rescue	N/A	N/A	N/A	N/A	N/A	3	0
Riner/MCFEMS	N/A	N/A	N/A	N/A	N/A		
Virginia Tech Rescue	N/A	N/A	N/A	N/A	N/A	4	0
<b>Totals</b>	<b>19</b>	<b>4</b>	<b>4</b>	<b>9</b>	<b>4</b>	<b>26</b>	<b>6</b>

Blacksburg Fire indicated that the town has a replacement policy of 20 years for engines and ladders, 7 years for brush trucks and 10 years for other response vehicles.

During our site visit, it was indicated that most fire departments use the same apparatus vendor (Atlantic Emergency Solutions), but some use different vendors and processes for apparatus maintenance. Most of them send their heavy apparatus directly to an emergency vehicle technician (EVT) certified vendor, while some departments indicated that they do minor work in-house and then send out the apparatus to vendors for more complex repairs or issues. Most departments indicated their vendors were certified as Emergency Vehicle Technicians, as recommended by the National Fire Protection Association (NFPA), to work on the heavy apparatus. However, some departments are not using mechanics that are EVT certified. It is important to ensure that appropriately trained and certified mechanics are used to work on any of the fire apparatus in Montgomery County, whether for routine or emergency repairs

Based on the submitted inventory, the average age of the current fire apparatus fleet in Montgomery County is broken down as follows. Several departments indicated that they had apparatus on order; however, apparatus information presented in this report is based on what was onsite during the visit by the MissionCIT team.

**Table 35: Average Age of the Current Reported Fleet**

Unit Type	Average Age
Engines	14
Engine/Tankers	14
Tankers	14
Brush Trucks	10
Ladder Trucks	10.5
Ambulances	6.6

Examples of the heavy apparatus and tanker fleet are below.











There are national consensus standards regarding the use, maintenance and replacement of fire apparatus. The National Fire Protection Association (NFPA) is the main national, consensus standards organization for fire and emergency services. Its standards are recommendations only but are relied on by the fire service to guide it in its decision making and service delivery deployment.

The main heavy apparatus standard regarding replacement is the new 2024 NFPA 1900. This is the *“Standard for Aircraft Rescue and Firefighting Vehicles, Automotive Fire Apparatus, Wildland Fire Apparatus, and Automotive Ambulances”*. This standard took the place of the former 2016 NFPA 1901 *“Standard for Automotive Fire Apparatus”*.

In Appendix F of the NFPA 1900 Standard, NFPA recommends the following.

***“It is recommended that apparatus more than 15 years old that have been properly maintained and are still in serviceable condition be placed in reserve status, be upgraded in accordance with this standard, and incorporate as many features as possible of the current fire apparatus standard”.***

Appendix F of the Standard lists approximately fourteen safety and system upgrades that should be considered for ensuring the longevity of apparatus and improving safety for firefighters for older units.

It also recommends that, **“Apparatus that were not manufactured to the applicable NFPA fire apparatus standards or that are over 25 years old should be replaced”**.

Based on NFPA 1900 standard recommendations for age only, the heavy fire apparatus fleet for Montgomery County fire services falls into the following areas.

**Table 36: Montgomery County Apparatus Comparison to NFPA 1900 Standard Recommendations**

Type of Apparatus	Meets NFPA Standard to Remain in Front Line Service	Meets NFPA Standard for Placement into Reserve Status	Meets NFPA Standard for total Replacement
Engines	47%	21%	32%
Engine/Tankers	75%	25%	0
Tankers	25%	75%	0
Heavy Rescue	33%	67%	0
Ladders	50%	50%	0

There is also the 2024 NFPA 1910, *“Standard for the Inspection, Maintenance, Refurbishment, Testing, and Retirement of In-Service Emergency Vehicles and Marine Firefighting Vessels”*. This standard is a compilation of the former NFPA 1911, 1912, 1925 and 1071 Standards and addresses the required preventative and routine maintenance for emergency vehicles. This standard recommends that certified Emergency Vehicle Technicians perform maintenance and repair work on heavy fire apparatus.

The American Public Works Association (APWA) also has published guidelines for the replacement of heavy work vehicles, including fire apparatus. Apparatus is scored based on age, mileage, the type of service, reliability, maintenance and repair costs and the overall condition.

**Table 37: APWA Fire Engine Replacement Guidelines**

Factor	Points
Age	One point for every year of chronological age, based on in-service date
Miles/Hours	One point for each 10,000 miles or 1,000 engine hours of use
Type of Service	1, 3 or 5 points are assigned based on the type of service unit receives. For instance, fire pumpers would be given a 5 because it is classified as severe duty service. In contrast, an administrative sedan would be given a 1.
Reliability	Points are assigned as 1, 3 or 5 depending on the frequency that a vehicle is in the shop for repair. A 5 would be assigned to a vehicle in the shop two or more times per month on average, while a one would be assigned to a vehicle in the shop an average of once every 3 months or less.

M & R Costs	1 to 5 points are assigned based on total life M&R costs (not including repair of accident damage). A 5 is assigned to a vehicle with life M&R costs equal to or greater than the vehicle’s original purchase price, while a 1 is given to a vehicle with life M&R costs equal to 20% or less of its original purchase cost.		
Condition	This category takes into consideration body condition, rust, interior condition, accident history, anticipated repairs, etc. A scale of 1 to 5 points is used with 5 being poor condition.		
Point Ranges	Under 18 Points	Condition I	Excellent
	18 to 22 Points	Condition II	Good
	23 to 27 Points	Condition III	Qualified for Replacement
	28 Points and Above	Condition IV	Needs Immediate Consideration

Source – “APWA Vehicle Replacement Guide”

Reviewing the engine and engine/tanker fleet against the APWA criteria, the results include:

- **56% are in Excellent or Good condition**
- **9% are Qualified for Replacement**
- **35% Need Immediate Consideration for replacement**

The tanker fleet, compared to the APWA criteria, results in:

- **25% are in Excellent or Good condition**
- **75% are Qualified for Replacement**
- **0% Need Immediate Consideration for replacement**

The ladder truck fleet, compared to the APWA criteria, results in:

- **50% are in Excellent or Good condition**
- **50% are Qualified for Replacement**

The heavy rescue fleet, compared to the APWA criteria, results in:

- **50% are in Excellent or Good condition**
- **17% are Qualified for Replacement**
- **33% Need Immediate Consideration for replacement**

There are no national consensus standards or guidelines regarding the replacement of ambulances. The replacement schedule is based on workload, terrain traveled, type of unit, etc. The general industry practice is typically every 5-7 years and/or 100,000 to 200,000 miles. Virginia Tech Rescue Squad indicated that they have a 10-year replacement cycle for their ambulances. Blacksburg Rescue Squad also indicated a 10-year replacement cycle for their ambulances and a 20-year replacement cycle for heavy rescue and squad truck apparatus.

The ambulance fleet, compared to the criteria above, results in:

- **35% are in Excellent or Good condition**
- **35% are Qualified for Replacement**
- **31% Need Immediate Consideration for replacement**

Even with the APWA and NFPA national recognized standards, apparatus replacement can be based on several other factors regarding the wear and tear of the apparatus and the availability of updated safety features on the apparatus. Some of these include:

- Local road conditions
- Travel distances, speeds of apparatus response and engine wear
- Department preventative maintenance programs
- Department workload
- Weather impacts, such as the use of road salt, etc.
- Crew compartment air bags, updated braking and safety systems and updated emissions systems

Based on these factors, there may be apparatus that exceed the NFPA 1900 15-year threshold for replacement, or the general ambulance replacement guidelines, but are still in relatively good shape. There may also be fire apparatus that are only 10 years old but are completely worn out and need immediate replacement. The Town of Blacksburg currently utilizes a 20-year replacement cycle for its fire apparatus. A more thorough review of the fire apparatus and rescue squad fleet in Montgomery County should be undertaken by an emergency vehicle technician to determine where each unit falls within a replacement process.

In addition to the need to replace apparatus, the current state of the fire apparatus manufacturing processes has been significantly impacted by COVID and the state of industry in general regarding supply chains, timelines and scheduling. The current time period from placing an apparatus order until delivery is averaging between 36 to 48 months. This does not take into account the development of specifications necessary for purchase. In addition, the cost of apparatus has increased dramatically. Today, a new custom fire pumper is approximately \$1 million dollars while a new ladder truck is approximately \$2 million. A commercial chassis fire unit is slightly cheaper but will still cost in the \$700k to \$900k range. Some vendors are now offering a more streamlined specification process to reduce this time or offering stock units that are available in much shorter time periods.

Based on the current costs for fire apparatus and conservatively utilizing the NFPA and/or APWA guidelines, Montgomery County is in need of replacing the following fire and rescue squad apparatus:

**Table 38: Montgomery County Fire and Rescue Squad Apparatus Estimated Replacements and Costs**

Unit	Total Estimated Cost
8 Pumpers or Pumper/Tankers	\$8 million
3 Tankers	\$2.4 million
2 Ladders	\$4 million

**Apparatus Usage**

The response volume of fire and EMS apparatus factors into its overall lifespan and maintenance costs, and possibly its real need. The response volume of apparatus can also be a factor of the availability of staffing. MissionCIT asked all fire and rescue squad departments to provide the annual number of calls that their apparatus responded to in 2024. The only data we received was from Christiansburg Fire and EMS.

*Christiansburg Fire*

**Table 39: Average Annual Unit Response\***

Engine 82 – 51 calls	Squad 81 – 143 calls
Engine 84 – 225 calls	Tower 81 – 34 calls
Engine 87 – 347 calls	Ladder 82 – 30 calls
Engine 89 – 131 calls	Truck 80 – 5 calls
Brush 83 – 84 calls	Truck 81 – 26 calls
Brush 86 – 59 calls	Truck 83 – 19 calls
	Tanker 88 – 300 calls

*\*For period of 1/1/22 to 9/30/25*

**Table 40: Christiansburg EMS – Annual Unit Responses**

Unit	2021	2022	2023	2024
Rescue/Medic 90	1156	968	1057	732
Rescue/Medic 91	809	415	88	627
Rescue/Medic 92	504	17	16	0
Rescue/Medic 93	1017	1015	1027	109
Rescue/Medic 94	517	1089	1417	860
Rescue/Medic 95	720	1190	1197	774
Rescue/Medic 96	2	0	0	1214

The response of apparatus within the system may require an analysis and reconfiguration of the apparatus fleet. The current fleets at all departments are excessively large and may not respond

frequently due to the number of available volunteer personnel and drivers who are trained to drive and operate the apparatus. The actual usage of the pumpers, tankers and pumper/tankers may dictate a need to move towards a configuration as shown below for the urban and rural fire departments. In addition, within the Montgomery County fire fleet, tankers can present the most safety hazards during a response. Older apparatus that is near its lifespan should be moved to develop a countywide reserve fleet for use at stations when primary apparatus is out of service. With an active automatic aid program, the fire departments do not necessarily have to be as heavily resourced with apparatus as if they were stand-alone departments operating independently. Having automatic aid programs in place also can reduce the amount of apparatus necessary to meet ISO requirements.

### **Apparatus Identification**

MissionCIT noted that each fire department/rescue squad numbers their apparatus slightly differently. As an example, Truck 81, Truck 83, Unit 200, Response 1, Response 3, etc. are all serving as auxiliary response vehicles but are numbered differently than each other. This may cause confusion if the unit is responding out of the county or an out of county unit is responding in. They might assume that Trucks 81 and 83 are aerial devices. Someone else will not know what Unit 200 is or Response 1. Consideration should be given to developing and using a county standard unit numbering system based on apparatus function.

With a systemwide review of the apparatus fleet, it may be possible to develop standards for station heavy apparatus configurations such as:

- Urban stations
  - One engine per station
  - One engine/tanker per station for county responses
  - Ladder truck coverage as needed per the risks
- Rural stations – One engine and one engine/tanker per station
- Having a countywide reserve fleet to backfill when primary apparatus is out of service

#### **Recommendation 14.1**

Montgomery County and the Towns of Blacksburg and Christiansburg should consider developing and utilizing a systemwide 20-year apparatus replacement process, similar to what Blacksburg already utilizes. Along with the plan development, the towns and county can then identify the funding amounts they can invest annually for the plan. This method allows each locality to budget the same amount each year for apparatus, thus avoiding exorbitant costs some years.

**Recommendation 14.2**

Montgomery County and the Towns of Blacksburg and Christiansburg should consider developing joint apparatus specifications and purchasing fire and rescue squad apparatus on a 5-year contract to reduce costs and work towards standardization of the fire apparatus and rescue squad fleets.

**Recommendation 14.3**

A countywide risk assessment and fleet review should be undertaken to reduce the size of the fleet. This should be done in consultation with the regional ISO representative to ensure no significant negative results.

**Recommendation 14.4**

A countywide reserve apparatus fleet should be formed to provide coverage apparatus when primary apparatus is out of service.

**Recommendation 14.5**

Montgomery County should consider rotating apparatus between its stations to allow for improved even wear and to allow for a greater lifespan of the apparatus.

**Recommendation 14.6**

All fire departments should work towards using EVT mechanics for their apparatus repairs.

**Recommendation 14.7**

All fire and rescue squad departments in the county should work to develop a countywide unit numbering system so to reduce confusion on apparatus unit numbers, based on apparatus function.

## SECTION 15: EQUIPMENT

The fire departments and rescue squads each develop specifications for and purchase their own equipment, personal protective equipment, and rescue tool equipment for their operations. They use their own, preferred vendors. This results in multiple brands, makes and models being used throughout the entire county and system. Purchasing and maintaining multiple brands and types of equipment can be more costly for the system.

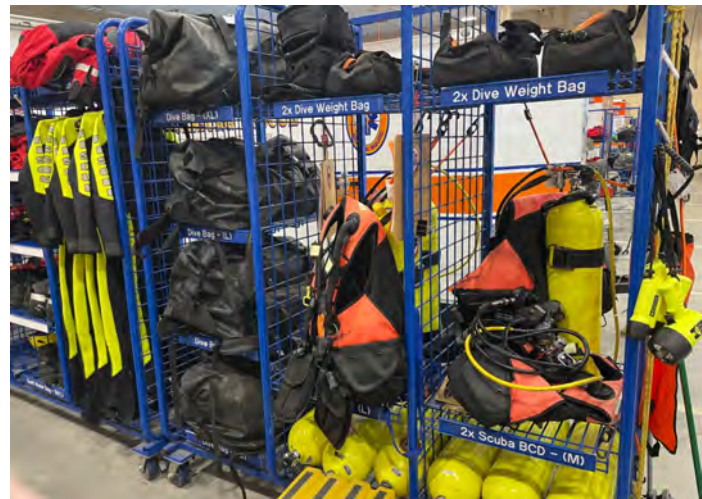
All of the departments indicated that they contract for self-contained breathing apparatus (SCBA) annual flow testing and repair through vendors. Most of the volunteer fire departments conduct SCBA facepiece fit testing for new and existing members, as required by the Occupational Safety and Health Administration (OSHA). One department is not known. Some only perform the fit testing annually, instead of testing new members as well when they join the department. Most all of the fire departments contract out the maintenance and air sample testing for their breathing apparatus air compressors. This ensures that the units are maintained and that the quality of the air being used in SCBA cylinders is safe. Blacksburg Rescue Squad indicated that they annually fit test their members for N95 masks.

Regarding personal protective equipment (PPE), each fire department specifies and purchases their own desired brand. In addition, only a few departments issue two sets of gear to members, Christiansburg Fire being one of them. Having two sets is becoming a fire service standard as it reduces the chances of exposure to carcinogens as a set that is used at a fire can be immediately cleaned while a new, clean set is utilized. All of the fire departments have PPE gear washers and/or dryers in their stations to at least ensure that contaminated gear can be easily cleaned without having to be transported in a member's personal vehicle.

Most of the fire departments within the county contract out the testing of the apparatus ladders and pumps. Some also contract out the testing of fire hose, while other departments perform that in-house. Contracting out these services ensures that they are being completed annually, by specially qualified individuals and that there is adequate recordkeeping for safety purposes. Longshop McCoy Fire indicated that they currently do not perform any annual ladder or hose testing.

About half of the fire departments and some of the rescue squads in the county have various types of technical rescue equipment. A portion of their members are trained to use the equipment that is carried. This equipment includes items for swiftwater operations, high and low angle rope/rigging rescue, and trench and collapse rescue, which is in addition to the vehicle extrication equipment that the fire departments carry. This equipment is specified, purchased

and maintained separately by each fire and rescue squad department. There does not appear to be any specific policies and procedures on the maintenance and testing of such technical rescue equipment, which typically is for low frequency, but high-risk events.





EMS agencies in Virginia, and across the United States, have had to make significant changes over the last year or so in the manner in which they stock, inventory and dispense their controlled substances. This was due to a change in the DEA regulations. Several of the rescue squad agencies have very innovative and technological based systems for their controlled substances. The two busiest EMS systems, Christiansburg and Blacksburg, had excellent examples of creative ways to store and dispense their controlled substances.



**Recommendation 15.1**

Montgomery County fire services should move long term to develop standard PPE and equipment specifications to reduce the variations of equipment within use and purchase those items on multi-year contracts. This will help to reduce purchasing and maintenance costs.

**Recommendation 15.2**

Montgomery County should consider funding and providing contract testing vendors to all volunteer fire departments in the unincorporated area to ensure that appropriate testing and certification of equipment is being done.

**Recommendation 15.3**

All of the fire departments should join together in group purchasing of equipment to reduce costs and to standardize equipment.

**Recommendation 15.4**

All of the fire departments should conduct entry level and annual SCBA fit testing as required by OSHA. Currently owned fit testing equipment, within the system, should be made available to those departments that do not conduct such testing. If needed, additional fit testing machines should be purchased to cover the system.

**Recommendation 15.5**

The county fire services should develop a non-apparatus capital equipment replacement plan that is funded, for SCBA units, vehicle rescue equipment, etc. based on equipment replacement guidelines.

**Recommendation 15.6**

County standard guidelines should be developed for the purchase, use and testing of technical rescue equipment carried by the fire departments and rescue squads through the newly established Special Operations Workgroup.

**Recommendation 15.7**

Rescue Squads and Montgomery County Fire and EMS should work together to develop and use consistent and standard EMS supply and controlled substance distribution technology. This can be accomplished through the proposed County EMS Advisory Council described earlier.

## SECTION 16: STATIONS

The fire and rescue squad stations within the county are for the most part in good to excellent shape, with the exception of the Elliston Fire Station and the Virginia Tech Rescue Squad station. However, both stations are in the process of either being renovated or replaced. Virginia Tech is in the design phases for a 12,500 square foot station with three drive through apparatus bays. The Elliston Fire Station is having an addition of 3,000 square feet with a renovation of 16,500 square feet of living area for a cost of \$12.3 million. Other than the Longshop McCoy and Elliston fire stations, each agency, fire and rescue has separate facilities. Detailed current fire and rescue squad station information is located in Appendix I.

The fire and rescue squad stations within the county, except for the Elliston/MCFEMS station, are single use, fire or rescue only facilities. This configuration is not efficient or necessarily provides the best response time to incidents. Currently, due to various reasons, in the Riner area, there are two EMS facilities and one fire station within a mile and a half from one another. This is an inefficient use of resource locations. In addition, with the exception of Elliston and Longshop McCoy, the fire and rescue squad facilities are all separate from one another. The trend within emergency services is to at least house fire and EMS resources together, whether the personnel are cross trained or not, to provide for a more seamless and efficient operation and to help disperse resources.

Some of the fire and rescue squad stations, the layout, and presence or lack of facilities is indicative of the typical volunteer fire and rescue system. The stations were built with no frills and built only to house fire apparatus, and to have meeting space for volunteer gatherings. There was typically no need for dormitory or full shower/decontamination facilities in the past, as the volunteers would just respond from home and if returning from a fire or EMS incident, they would return home to shower and clean up. Modifications over the years have incorporated dormitory space in some stations, but it remains underutilized. Several of the fire and rescue squad facilities are extremely large in size, and do not have conducive layouts for today's emergency services. Their living areas are on the second floor with very long stairwells, massive meeting rooms, no dormitory space and very large industrial sized kitchens. These design layouts are remaining from when there were large volunteer memberships, with large community gatherings/functions at the stations. Some stations do not have reasonably sized dayrooms or areas for personnel to congregate, particularly away from apparatus bay areas.

The lack of dormitory facilities today limits the ability of volunteers to adequately provide 24/7 coverage through duty crews, sleepover personnel, or during storms or weather-related events. The lack of facilities also significantly limits the ability to provide part-time or full-time coverage at

the stations, if so desired, at some point in the future. Significant renovations or remodeling would have to be done to accommodate such staffing.

Only three fire departments and one rescue squad have any type of diesel exhaust systems in their stations. These include Blacksburg Fire, Christiansburg Fire, Riner Fire and Christiansburg EMS. Blacksburg and Christiansburg Fire utilize the source capture apparatus attached systems, while Riner Fire and Christiansburg EMS have whole bay exhaust system that initiates upon a response. Christiansburg EMS indicated they do not utilize the current system that they have. Personnel who are in other stations are at risk of exposure to diesel exhaust particulates that are potentially carcinogenic. The diesel particulate matter can build up on all items left or stored in the apparatus bays including PPE, SCBA air compressor fill stations, SCBA harnesses, food, etc. Even the rescue squad agencies need some type of diesel exhaust systems, source capture or apparatus mounted filters, to reduce the exposure of personnel to diesel exhaust particulates.

Blacksburg Fire Station 1 and the Christiansburg EMS facility had dayroom areas within the apparatus bays, amongst the apparatus. Even with a diesel particulate system at the Blacksburg Fire Station 1, having lounging and eating areas within the apparatus bays allows for the potential for fire and EMS apparatus diesel exhaust particulates to land on the sitting, lounging and eating areas of the members. This can create long-term cancer risks for members.

Blacksburg Station 3 had an excellent layout of dormitory style bunkrooms and an upstairs kitchen/lounge area for the potential of live-in students. However, it was reported, to MissionCIT, that the fire department decided not utilize this space for live-in students. Having live-in students can be an excellent way to have almost 24-hour coverage for response and assists the students with rent free housing. There are many positive examples of college based live-in student programs in Maryland and Pennsylvania and on the west coast.

**Table 41: Current Fire Station Features**

<b>Station Feature</b>	<b>Number of Stations without Feature</b>	<b>Percentage of Stations without Feature</b>
Dormitory Facilities	3	43%
Bathroom Facilities	0	0
Shower Facilities	0	0
Kitchen Facilities	0	0

None of the rescue squad stations were lacking shower, dormitory, kitchen or sleeping facilities.

A summary of the average station information provided to MissionCIT includes the following:

<b>Facility</b>	<b>Average Age</b>	<b>Average Size</b>	<b>Average Number and Type of Apparatus Bays</b>	<b>Overall General Condition</b> <i>(As reported by Dept.)</i>
Fire Stations	31 years old	26,000 sq. ft.*	6 Drive Through 7 Back In	71% – Good 29% – Fair/Poor
Rescue Squad Stations	36 years old**	13,600 sq. ft.	4 Drive Through 2 Back In	60% – Excellent/Good 40% – Fair/Poor

\*No station size information provided by Blacksburg Fire Department

\*\*Virginia Tech RS Station constructed in 1936

The predominant construction types are block and metal and multiple stations have been renovated or added on to since their original construction. Some of the stations had emergency generators for power supply during outages, but most did not.

Per industry standards, fire stations should be designed and built to have a minimum 50-year lifespan. Of the station information provided to MissionCIT, the average age of almost 31 and 36 years old respectfully for the fire and rescue squad stations puts most of them in the proximity of needing to be replaced sooner rather than later.

Designs of new stations should include zones to reduce the risk of transmission of carcinogen or other toxic agents to firefighter and rescue squad personnel or the sleeping/working areas of the station. See below as an example of the layout.

Per the new 2025 NFPA 1585 Standard, “*Standard for Exposure and Contamination Control*”, fire stations should be constructed considering the following:

“5.3.2 Areas inside a facility shall be designated as follows:

- Red – Spaces likely to be exposed to contaminants
- Yellow – Transition spaces between a contaminated (red) area and a clean (green) area, where contamination control takes place
- Green – Clean spaces, such as living, administrative, or public areas”



Source: EVstudio. "Designing Fire Stations That Keep Fire Fighters Safe." EVstudio, 4 Aug. 2020, [evstudio.com/designing-fire-stations-that-keep-fire-fighters-safe](https://evstudio.com/designing-fire-stations-that-keep-fire-fighters-safe).

In the future, fire station replacements and future station location determinations should be evaluated on a systemwide basis to measure the impact on the entire system performance and based on need. Potential future station locations are outlined in the Future Station/Locations section on page 233. In addition, new fire stations constructed should have minimum construction and operational features to ensure longevity and firefighter safety.

Some of the considerations for features and the design of new fire stations should include the following:

- Construction and materials used to last a minimum of 50 years.
- Sited on property of a minimum of 2-3 acres to allow for expansion if needed.
- Quick access to major routes of travel.
- Designed for both fire and EMS service delivery from the station.
- Minimum of three drive through apparatus bays – Depending on the number of apparatus assigned to the station.
- Minimum of 10,000-12,000 square footage of space, to include a minimum of 4,000 square feet of living area.
- Establishment of hot, warm and cold zones within the station (See example above).
- Living area should include the following:
  - Full kitchen
  - Day room/Meeting/Training room
  - Office/report writing space
  - Full gender-neutral bathroom and shower facilities – Minimum of two sets

- Individual member dormitory space for a minimum of 4-6 bunks/beds
- If desired, stations designed for live-in members should have dormitory pods consisting of a central bathroom. facility with adjoining dormitory facilities on each side with two beds each.
- Diesel exhaust systems for fire/EMS apparatus.
- EMS equipment decontamination cleaning and storage areas.
- Generator to run essential components of station during power outages.
- Separate, contained and well-ventilated storage area for personal protective equipment off of the apparatus bays.

Several examples of model dual use stations are included in Appendix M.

**Recommendation 16.1**

An annual safety inspection of every facility should be conducted by an impartial Risk Manager/Safety Officer to identify mold or other safety concerns. (Also see the Health, Safety and Wellness Section)

**Recommendation 16.2**

All future additional fire and or rescue squad stations should involve systemwide planning to ensure that appropriate locations and impacts to fire and EMS service improvement are being made. The most likely process would be through the Fire Rescue Commission.

**Recommendation 16.3**

For replacement fire/EMS stations, a countywide prototype should be developed so that the facilities are standardized and costs can be reasonable. The design for such stations should include the parameters outlined above.

**Recommendation 16.4**

All current and future fire and rescue squad stations should be equipped with diesel exhaust removal systems, source capture, or apparatus mounted filters, to reduce the carcinogen risks to personnel.

**Recommendation 16.5**

All current and future fire and rescue squad stations should be equipped with emergency generators capable of powering all needed functions and life safety equipment within the stations during power outages.

**Recommendation 16.6**

A systemwide engineering assessment of all current fire stations should be considered to determine their current repair needs and/or their remaining lifespan. Station repairs and replacement should be considered in a long-term capital replacement plan within the county.

**Recommendation 16.7**

All future fire and rescue squad stations constructed should include full kitchen, dormitory, and shower/decontamination facilities.

**Recommendation 16.8**

Blacksburg Fire Department should re-consider its decision and allow live-in students at Station 3 to help provide a level of dedicated response staffing.

**Recommendation 16.9**

All future stations constructed should be designed for both fire and EMS response from the facility, either with career or volunteer personnel. If the rescue squads still desire their own separate facilities, then consideration should be given to the construction of smaller, satellite locations for improved EMS service delivery.

**Renovation/Expansion of Current Stations**

After conducting a site visit to each fire and rescue squad station, MissionCIT makes the following additional recommendations regarding renovation/expansion of the existing facilities. Depending on the site and configuration of any new facilities, construction costs for new fire stations are in the range of \$600-1,100 per square foot.

**Recommendation 16.10**

Blacksburg Fire: Station #1 should be considered for a new station due to its age, configuration and lack of appropriate safety features for personnel. Attention should be given to including full dormitory space with bath and shower facilities to facilitate 24-hour staffing for the future. GIS analysis should be conducted to determine if Station #1 should be relocated further north in the town for better coverage or stay within the same general area. See the Future Fire Station Location section for further details.

**Recommendation 16.11**

Blacksburg Fire: Station #2 should have its dormitory space renovated for additional space and allow for the potential of 24-hour staffing.

**Recommendation 16.12**

Christiansburg Fire: Consideration should be given to construction of a new station due to the age of the current structure. However, the overall condition of the building is good, and a full renovation may be more appropriate. With a renovation, the interior should be made more accommodating for 24-hour staffing, to include enough dormitory space for at least 8 people, with a corresponding number of bathroom and shower facilities.

**Recommendation 16.13**

Christiansburg Fire: Potential additional stations within the town are outlined in the Future Fire Station Location section of the report.

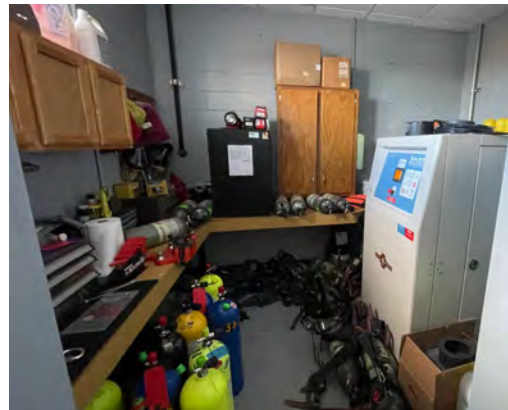
**Recommendation 16.14**

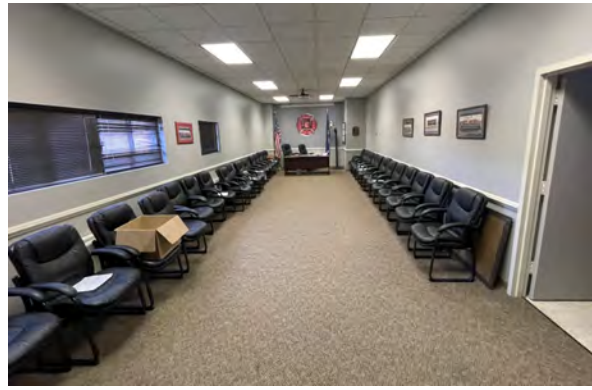
Riner Area: Due to the inefficiency of the number of station locations, consideration should be given to consolidate Riner Fire, Riner Rescue and the Montgomery County Fire and EMS medic unit in Riner into one station. If this is considered, the recommendation would be to locate all resources at the Riner Fire Station due to its size and age. If considered, there would have to be modifications made to the station to add dormitory, bathroom and shower facilities to accommodate 24-hour staffing.

**Recommendation 16.15**

Riner Area: If Recommendation 16.14 above is not a consideration, there needs to be some renovation to the existing Montgomery County Fire and EMS Riner location to update the facility and its accommodations for 24-hour staffing.

Examples of the existing fire stations and conditions are below.

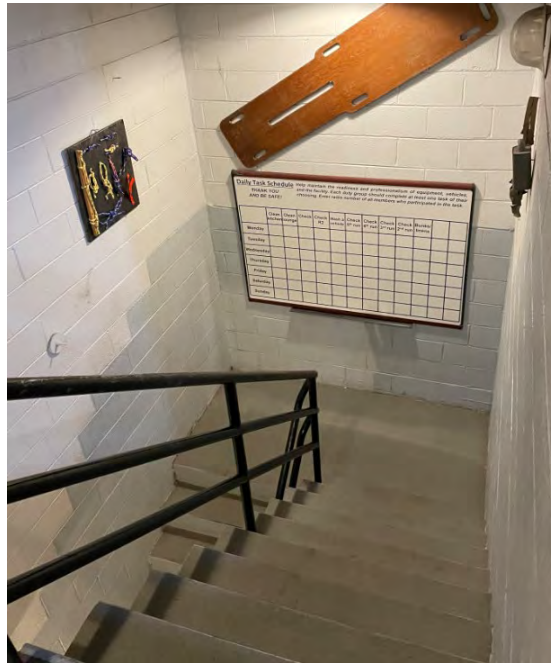








# Montgomery County, Virginia Fire and Rescue Services Comprehensive Assessment

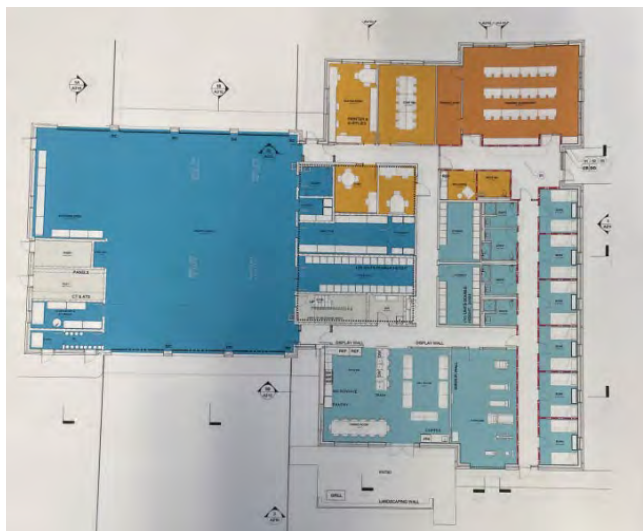
















## SECTION 17: HEALTH, SAFETY AND WELLNESS

The most valuable asset of any organization is its people. Fire departments and EMS agencies are no different. Volunteer, career, and combination agencies nationwide are challenged to maintain rosters of available and qualified personnel. Maintaining an effective response capability requires many resources to properly house, outfit, equip, and train personnel. Often overlooked, however, is the physical and mental health needs of responders.

While firefighters continue to die fighting fires, occupational diseases, notably cardiac issues and cancer, claim more lives now than traumatic incidents (USFA 2024 Annual Report on Firefighter Fatalities in the United States). Additionally, more firefighters and paramedics are now dying from suicide than Line of Duty Deaths (LODDs). A 2016 study in the Journal of Occupational Health Psychology detailed that approximately 20 percent of firefighters and paramedics meet the criteria for post-traumatic stress during their career. This compares to 6.8 percent for the general population. According to the “Ruderman White Paper on Mental Health and Suicide of First Responders”, the suicide rate for firefighters is 18 per 100,000 compared to 13 per 100,000 for the general population. (USFA Firefighter Mental Health and Well-being Factsheet)

In contrast to this, the NFPA’s “U.S. Firefighter Injuries in 2024” report indicates that injuries to firefighters are more likely to occur during fireground operations than any other activity. The report estimates that 53,575 injuries occurred. However, the report is the result of a national survey that is conducted voluntarily, so this is very likely a low estimate.

Fortunately, over the last thirty-five years, through advanced research by many organizations, great insight has been gained into the root causes of Line of Duty Deaths (LODDs) and injuries. This has led to improvements in understanding factors which contribute to LODDs and injuries. The National Institute of Occupational Safety and Health (NIOSH), in combination with the United States Fire Administration (USFA), the International Association of Firefighters (IAFF), the International Association of Fire Chiefs (IAFC), the National Fallen Firefighters Foundation (NFFF), the National Fire Protection Association (NFPA), and the Fire Safety Research Institute (FSRI) in partnership with industry stakeholders, have developed strategies to reduce LODDs and firefighter injuries and to create a culture of health and wellness in the fire service.

As a result of this enhanced understanding and proactive practices, over the last thirty-years, there has been a downward trend in the number of firefighter LODDs and injuries. Except for the 9/11 tragedy (traumatic losses and subsequent losses to cancer) and losses related to COVID-19, firefighter deaths and injuries have trended down over the past 30 years.

The U.S. Fire Administration provides an annual summary of firefighter injuries and LODDs. While the annual report for 2025 is not completed yet, preliminary data indicates that 78 Firefighters suffered a LODD.

The 2024 USFA annual report revealed a total of 62 Firefighters died while on duty. Of these deaths:

- 20 firefighters died from activities related to operating at a fire scene
- 11 firefighters died while engaged in training
- 6 firefighters died from while responding or returning from emergencies
- Regardless of the activity, 30 of the 62 deaths were from Cardiac-related events

The report details work activities which resulted in LODDs:

- 20 firefighters died from performing fireground activities
- 6 firefighters died from while responding or returning from emergencies
- 11 firefighters died while engaged in training
- 11 firefighters died while in the performance of non-firefighting incidents
- 10 firefighters died in course of normal station duties or maintenance
- 2 firefighters died from performance in EMS
- 1 firefighter died while performing fire prevention activities

Of the 62 LODDs in 2024, 51 (82.2%) occurred while on-duty. The table below outlines the causes and nature of these on-duty deaths:

**Table 42: Cause and Nature of Line of Duty Deaths, 2024**  
*(On Duty Deaths)*

<b>Cause of Injury</b>	<b>Fatalities</b>	<b>Percentage</b>
Overexertion/stress/medical	29	57%
Crashes	7	14%
Caught, trapped	7	14%
Struck by vehicle or falling object	5	10%
Fall from height	1	2%
Electrical contact/Other exposure	1	2%
Assault	1	2%
<b>Total</b>	<b>51</b>	
<b>Nature of Injury</b>	<b>Fatalities</b>	<b>Percentage</b>
Sudden Cardiac Death	20	39%
Traumatic/Crushing Injury	18	35%
Electrocution	1	2%

Burns	1	2%
Gunshot	1	2%
Drowning	1	2%
Embolism/Aneurysm	2	4%
Heat Stroke	2	4%
Unspecified Medical	5	10%
<b>Total</b>	<b>51</b>	

In addition to the on-duty LODDs in 2024, 11 firefighters died within 24 hours of being on-duty. Eight of these members were volunteer firefighters (73%) and three (27%) were career firefighters. All eleven of these LODDs were cardiac in nature.

According to NFPA, “There is a noticeable disparity between the volunteer firefighters and career firefighters who died within 24 hours of duty. The volunteer firefighters who died averaged 69 years of age while the career firefighters averaged 48 years of age.”

Years of data has shown that most LODDs result from occupational health and other nonfirefighting causes. The following overview highlights nationally recognized current trends, issues and challenges to firefighter health, safety, and wellness.

**Cardiovascular Disease**

Firefighters are among the highest risk groups for serious medical conditions, notably cardiovascular disease (resulting in sudden cardiac arrest) and cancer. The prevalence of cardiovascular disease is associated with many job-related factors. These include:

- Sleep deprivation
- Poor diet
- Tobacco use
- Dehydration
- Lack of proper exercise
- Physical demands of the job
- Adrenaline “rush” cycle
- Exposure to the environment
- Lack of “down time” in between work shifts

Consistently, cardiovascular disease is the most common cause of LODDs among firefighters. As noted, in 2024, the National Fire Protection Association (NFPA) reported that 39% of all firefighter duty related fatalities were caused by cardiac events. Volunteer firefighters led this LODD statistic as compared to career employees (65% to 35%).

## Cancer

Occupational cancer has rapidly emerged as the greatest threat to firefighter health. The National Institute for Occupational Safety and Health (NIOSH) has been a leader in cancer research and has determined that, when compared to the number of cancers expected using U.S. population rates, the firefighters in this study had a modest increase in cancer diagnoses (9% percent increase) and cancer-related deaths (14% increase). Other partner entities have developed additional research and support programs to assist firefighters in prevention and mitigation of this disease. These include the American Cancer Society, the International Association of Firefighters (IAFF), and the International Association of Fire Chiefs (IAFC). In 2018, Congress passed the Firefighter Cancer Registry Act which mandated the Centers for Disease Control (CDC) to create a voluntary registry to collect health and occupational information to determine cancer incidence in the nation's fire service. Over 10,000 firefighters have registered with this system. In 2022, the International Agency for Research on Cancer found sufficient evidence to link firefighting with several types of cancer. The following is a link to Firefighter Cancer Registry: <https://www.cdc.gov/niosh/firefighters/registry/index.html>

In addition, an app is available from the International Public Safety Data Institute (IPSDI) called "Exposure Tracker." By downloading this app, members can track exposures in real time on their phone. If the member is registered in the FCR, the data is able to be linked to create a permanent record of exposures.

The NFPA LODD data does not currently include the deaths caused by cancer. This could change with the increasing scientific link between working as a firefighter and developing cancer.

However, it is known that fires today expose personnel to various hazardous substances, many of which are known carcinogens. Firefighters can be exposed to hundreds of different chemicals in the form of gases, vapors, and particulates. Some of these hazardous substances are byproducts of combustion or burning, such as benzene and formaldehyde. Others come from the materials burning or in the fire debris, such as asbestos from older structures. Research now points to the presence of Polyfluoroalkyl Substances (PFAS), a compound found in firefighting foams and turnout gear as contributing to occupational cancer in the fire service.

Firefighters can encounter chemicals by breathing them in, getting them on their skin or in their eyes, or by ingesting them. If protective clothing, known as turnout gear, is not cleaned, or stored after a fire response or training event, chemicals on the gear or equipment can contaminate vehicles and the fire station. Reusing dirty turnout gear or respiratory protection can also result in repeated exposure to hazardous substances. These exposures can occur by skin contact with contaminated personal protective equipment (PPE) or by breathing in or ingesting particles from contaminated PPE.

### **Suicide**

The Firefighter Behavioral Health Alliance (FBHA) reported 112 firefighter/EMS provider suicides in 2024. Again, because of the lack of a conclusive link to the job of a firefighter, it is difficult to reliably include this number in the annual NFPA LODD report. Study of suicide is a relatively new issue which is considered by many as the greatest cause of firefighter fatalities. The National Fallen Firefighters Foundation (NFFF) estimates that the number is actually higher than reported by FBHA by an estimated 40%. The Centers for Disease Control (CDC) has done research in this area which reveals that firefighters are at an elevated risk for suicide because of the environments in which they work, compounded by the general “macho” culture which is very prevalent in the profession. Stress plays a role here as it may be acute or chronic, caused by exposure to violent incidents (Post Traumatic Stress Disorder, or PTSD), pandemic illness, substance abuse, and the overall work schedule which can result in sleep deprivation and strained personal relationships. Without adequate intervention, feelings of hopelessness, depression, and anxiety often lead to suicide. These trends and risks also exist within the EMS field and suffered by EMS providers. Suicide prevention programs and Employee Assistance Programs (EAPs) for stress management vary among localities and the vast majority of volunteers have no such program.

### **Roadway Incidents**

The danger to firefighters, as well as other first responders, such as EMS personnel, tow truck drivers, highway workers, and pedestrians shows a significant number of “struck by” roadway fatalities every year. As noted, in 2024 NFPA cited two firefighter fatalities from being struck on the roadway. Impaired driving due to being drowsy, drugged, drunk or distracted (the four D’s) has led the Emergency Responder Safety Institute (ERSI), in collaboration with the National Volunteer Fire Council (NVFC), NFFF, NFPA, and law enforcement to focus on public awareness, apparatus visibility standards and training for first responders regarding this problem. Training is available through several organizations which highlight preventive measures to reduce these incidents and their effects.

### **Active Shooter**

Communities across the country are having to deal increasingly with domestic violence. Active shooter incidents have permeated communities both large and small and have forced a more coordinated response by fire/EMS services and law enforcement (known as Rescue Task Force, or RTF). The two primary missions-neutralizing the shooter and rapid patient stop the bleed/extrication- now run concurrent versus in recent past where EMS waited outside until the building or area was cleared. Many lives have been lost due to large volume blood loss because of the extended time to initiate patient care. Now, thanks to federal Assistance to Firefighters (AFG) grant funds, the purchase of ballistic vests for the fire service and more aggressive bleeding control protocols, more lives may be saved. During our site visit, the Virginia Tech Rescue Squad

chief indicated that they have been directed not to enter buildings until given an “all clear” by police officials during an active shooter situation. As a result, they have not been trained in the RTF concept. This runs counter to the current trend in active shooter responses.

### **16 Firefighter Life Safety Initiatives- “Blueprint for Safety”**

In 2004, at a fire safety summit in Tampa, Florida sponsored by the NFFF, the “Everyone Goes Home” program was developed. The hallmark “16 Firefighter Life Safety Initiatives” was produced as a “blueprint” for reducing firefighter fatalities by 25% within five years and 50% within 10 years. In 2014, a second gathering, called “Tampa 2” was convened to assess the data at the 10-year mark. While substantial progress had been made in reducing firefighter fatalities, it was determined that much more work was and is needed. Most recently, in 2024, the NFFF hosted a summit to again evaluate the initiatives and there are revisions pending. The 16 Firefighter Life Safety Initiatives are still very relevant, and should be considered for any fire department health, safety, and wellness program. The elements are as follows:

1. Define and advocate the need for a cultural change within the fire service relating to safety; incorporating leadership, management, supervision, accountability, and personal responsibility.
2. Enhance personal and organizational accountability for health and safety throughout the fire service.
3. Focus greater attention on the integration of risk management with incident management at all levels, including strategic, tactical, and planning responsibilities.
4. All firefighters must be empowered to stop unsafe practices.
5. Develop and implement national standards for training, qualifications, and certification (including regular recertification) that are equally applicable to all firefighters based on the duties they are expected to perform.
6. Develop and implement national medical and physical fitness standards that are equally applicable to all firefighters, based on the duties they are expected to perform.
7. Create a national research agenda and data collection system that relates to the initiatives.
8. Utilize available technology wherever it can produce higher levels of health and safety.
9. Thoroughly investigate all firefighter fatalities, injuries, and near misses.
10. Grant programs should support the implementation of safe practices and/or mandate safe practices as an eligibility requirement.
11. National standards for emergency response policies and procedures should be developed and championed.
12. National protocols for response to violent incidents should be developed and championed.
13. Firefighters and their families must have access to counseling and psychological support.

14. Public education must receive more resources and be championed as a critical fire and life safety program.
15. Advocacy must be strengthened for the enforcement of codes and the installation of home fire sprinklers.
16. Safety must be a primary consideration in the design of apparatus and equipment.

### **Overview of the Health and Welfare of U.S. EMS Agency Members:**

The National Association of EMTs (NAEMT) partnered with the American Council on Exercise (ACE) to produce a report titled “*Task Performance and Health Improvement Recommendations for Emergency Medical Service Practitioners*”. The report highlights data from both the Bureau of Labor Statistics Census and from NIOSH concluding that most injuries of EMS providers are sprains and strains. However, some of the most impactful injuries to the provider and the agency are back injuries.

As noted in the report, as EMS providers are now caring for (including lifting and moving) our U.S. population that are increasingly becoming obese, increasing numbers of injuries are occurring among EMS practitioners. In addition, the increased incidence of obesity and lack of physical fitness within EMS agencies also contributes to injuries and increases in chronic diseases.

Specifically, NAEMT/ACE (2012) reports that:

- EMS practitioners are seven times more likely than the average worker to miss work as a result of injury
- Half of all EMS workers suffer back pain annually
- One out of four EMS practitioners will suffer a career-ending injury within the first four years of service
- Back injury is the most frequently cited reason for leaving EMS
- Back injuries are often the result of cumulative wear and tear

The report suggests instituting a wellness and fitness program for agencies to enhance job performance and individual wellness. This program should include:

- Pre-entry medical assessments and annual assessments that are designed to notify the provider of medical/physical risks to address proactively
- Nutrition and diet guidelines and resources
- Physical wellness center availability
- Mental health resources

*Source: NAEMT/ACE Report 2012*

**Current Status of Montgomery County Fire and EMS Agencies Health and Safety Programs***Standard Operating Procedures (SOPs)*

MissionCIT reviewed a variety of SOPs for several response agencies.

Christiansburg EMS has an extensive Standards of Care document, several administrative policies and a thorough process to check out members as drivers and AICs.

Christiansburg Fire has a set of SOGs that addresses both administrative and operational aspects of their service. This set of SOGs was last updated in 2023.

Montgomery County Fire has an extensive set of policies in draft form. These cover all aspects of fire service and career administration.

Standardizing specific SOPs on topics affecting multi-agency responses would help to improve public safety responder health and safety. Standardizing these would also enhance multi-agency training efforts and operational effectiveness. More detail on the policy reviews is included in the Policies and Procedures Section of the report.

*Medical Examinations*

Several of the agencies do not have a medical examination process for members. As noted previously, firefighters' and EMS provider's health is a critical issue nationwide. The research is clear that success in the early detection of occupational diseases, principally cardiovascular disease, and cancer, is greatly enhanced by the administration of both entry level and on-going comprehensive medical examinations. NFPA 1500, "*Standard on Fire Department Occupational Safety, Health, and Wellness Program*", requires that members meet the medical requirements of NFPA 1582, "*Standard on Comprehensive Occupational Medical Program for Fire Departments*". This applies to members and also membership candidates. NFPA 1582 is considered the "best practice" for addressing firefighter health issues. On October 10, 2023, the United States Fire Administration (USFA) affirmed that "every firefighter in the United States should receive a comprehensive annual medical examination".

*Station / Apparatus Practices*

Fire and EMS stations often are designed for apparatus storage, with space for periodic company meetings or training space. Currently, there is a mix of 24-hour staffing, duty crew coverage and response from home for the fire and rescue squad stations in the county. The Elliston Fire, Montgomery County Fire and EMS Riner station, Christiansburg EMS, Blacksburg Rescue, and Virginia Tech Rescue and all three of the Blacksburg stations have sleeping quarters. Any station

with sleeping quarters should have a building wide fire suppression sprinkler system. Most of the current 24-hour staffed stations do not include such a system.

About half of the fire/EMS stations do not have a vehicle exhaust removal system in the apparatus bay. These include; Longshop McCoy Fire, Christiansburg EMS, Blacksburg Rescue, Virginia Tech Rescue, Elliston Fire, and Riner EMS.

Overall, the stations were in good physical shape and were clean and orderly. However, several storage areas and a few living quarters needed clutter reduction. Some stations had storage in the electrical rooms that needs to be removed. These concerns can be best addressed with a standardized cleaning and maintenance schedule with oversight provided by company officer level leadership.

Mold on ceiling tiles was noted in Blacksburg Fire Station #1. While this was the only station where mold was observed, an annual safety inspection of every facility should occur to identify mold or other safety concerns.

Regarding apparatus safety, most stations have a regular program for maintenance and testing of equipment and have contracted with a firm providing an Emergency Vehicle Technician (EVT) to perform apparatus repairs. Additionally, members interviewed stated that the use of seat belts is mandated. One note of concern was discussion with some members indicating that back-up spotters are not utilized universally when apparatus is moving in reverse. Apparatus that is backing up without a spotter can pose a hazard to emergency services personnel who may be nearby as well as to the possibility of damaging the apparatus by striking something not seen. Three of the vehicle accidents by one EMS agency in the system within the last three years involved striking objects while backing. It is unknown if they utilized vehicle spotters in those incidents.

One fire department noted that they have had two vehicle accidents over the last three years, both of which involved apparatus striking stopped vehicles. Conducting after action reviews of accidents should be done to determine preventable factors and to address any skill deficiencies.

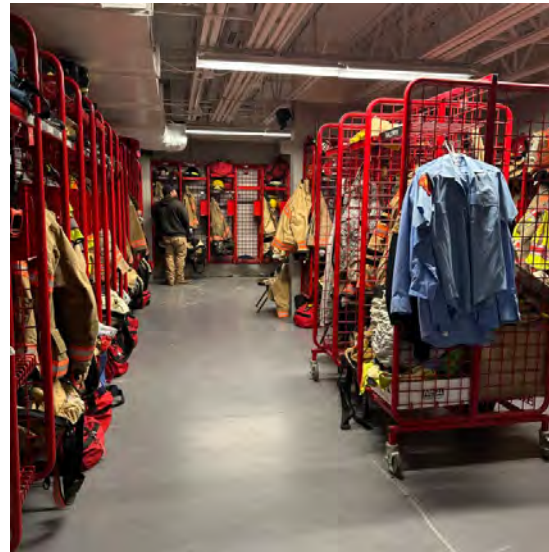
#### *“Clean” Practices*

Christiansburg Fire and Montgomery County Fire and EMS have SOGs/Policies that address cancer prevention practices. Every agency should follow standard practices to ensure facilities, equipment, and policies are designed and maintained to reduce exposure to known carcinogens. Several stations are equipped to clean gear to remove the embedded products of combustion which are known to be carcinogens. Several members who were interviewed had a good understanding of the need for proper gear cleaning after a fire. However, many stations were not

equipped with vehicle exhaust removal/filtration systems (noted above) to reduce exposure from apparatus exhaust. Additionally, most of the fire stations store personnel turnout gear in the bay with no protection from vehicle exhaust. Those that discussed transporting turnout gear in personal vehicles indicated they do not have gear bags. These bags are designed to limit off-gassing of contaminants and protect items from ultra-violet exposure.



PPE stored in apparatus bay



Clean PPE Storage area at Riner Fire



Diesel exhaust system in Blacksburg Fire Station

MissionCIT did observe acceptable practices for breathing air management. From interviews it was clear that all fire departments utilize the same SCBA brand, and the air compressors and SCBA units are tested annually. Discussion indicates that some of the fire companies do not fit

test every Immediately Dangerous to Life and Health (IDLH) entry certified member annually, as required by OSHA 1910.134(f)(2).

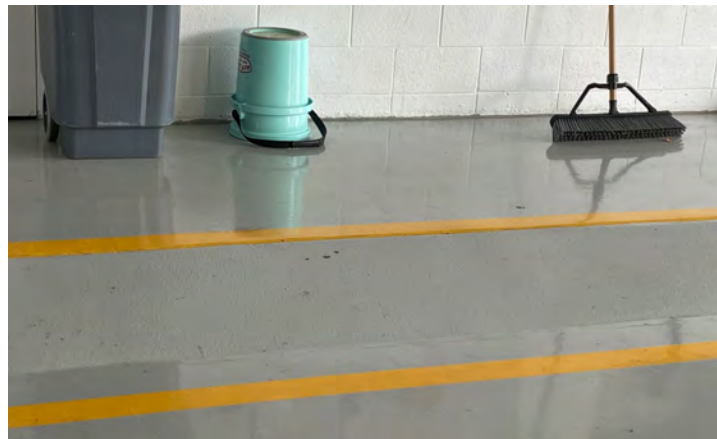
### *Tobacco Use and Facial Hair*

With the exception of the career firefighters, we could not locate any tobacco use policies or procedures in the system. For the health of the members and adherence to the state cancer presumption procedure, members should not use tobacco. Likewise, there were no written policy on facial hair. Any member that may enter an IDLH atmosphere, in order to meet OSHA 1910.134 is to be clean shaven in the area of the facepiece seal. Riner Fire allows members to have beards, but do not allow them to wear SCBA and perform interior operations.

### *Risk Management Plan*

The Montgomery County fire and EMS agencies lack a system of uniform, countywide written policies, and procedures to govern operations. NFPA 1500 prescribes the development of a “Risk Management Plan” to identify, prioritize, and develop programmatic solutions, in the interest of firefighter safety. This is also reinforced through elements of the “16 Life Safety Initiatives” from the NFFF. Currently, there is a lack of countywide coordination and oversight of work-related activities that can be inherently dangerous. While it is clear there are many practices which appear to be relatively uniform and understood by responders, these practices need to be policy driven, understood by all, and practiced uniformly. Absent are countywide policies governing training, emergency response, emergency communications, on-scene operations and discipline, and fireground safety.

One item noted by MissionCIT in several stations involved a distinct slope or step in the apparatus bays from the living areas into the bays. The slopes were marked, as shown below. It is unclear what the purpose of this might be, except to keep water out of the living areas, but this design issue can create a tripping/fall hazard to personnel and especially to those not familiar with the design.



**Recommendation 17.1**

The County and Towns should evaluate the cost of a health and wellness program for all fire service and rescue squad personnel. Initial focus should be to fund entry level medical evaluations for new fire and rescue squad career and volunteer personnel, as well as on-going medical examinations. The fire department exams should meet NFPA 1582 standards, while the rescue squad exams should be focused on EMS job functions and best practices (<https://www.naemt.org/resources/wellness/health>). This is a critical component for the survivability of members, and pre-employment medicals are required for firefighters to establish legal presumption for state cancer benefits.

**Recommendation 17.2**

The County and Towns should initiate a physical fitness program for all fire and rescue squad personnel to improve being fit for duty.

**Recommendation 17.3**

The Fire Rescue Commission should develop and enforce several systemwide policies to ensure the health and safety of all members. A few of these policies could include: driving apparatus, cancer prevention, infectious disease control, etc. These policies should include a vehicle accident review process and any firefighter injury review process to reduce future occurrences.

**Recommendation 17.4**

The Fire Rescue Commission should develop and offer a tobacco cessation program for all members. New members should be required to sign a “no tobacco” agreement.

**Recommendation 17.5**

The Fire Rescue Commission should develop a facial hair policy which is based upon OSHA and NFPA standards. This should also be coupled with a mandatory entry and annual fit testing procedure.

**Recommendation 17.6**

The Fire Rescue Commission should develop a written policy for the use of seat belts on fire and EMS apparatus. Additionally, each department should adopt the NFFF “Seat Belt Pledge” to reinforce their usage. [NFFF Seat Belt Pledge](#)

**Recommendation 17.7**

The Fire Rescue Commission should require Traffic Incident Management System (TIMS) training as a basic training requirement for responders.

**Recommendation 17.8**

The Fire Rescue Commission should consider providing a countywide apparatus and equipment contract to ensure all maintenance is done on a regular basis, and all repairs are made by, qualified personnel. The same recommendation applies to all breathing air components.

**SECTION 18: TRAINING**

A comprehensive training program is the basis for safe and effective fireground and EMS operations. Effective training begins at the entry level and progresses through each rank and specialty level. Training must be on-going to hone and retain skills as well as keep abreast of new information and improvements in technology. Training must also include “soft skill” programs to build and foster effective relationships among personnel who live and work together for extended periods of time, and who are subject to the unique stresses of the job.

**Table 43: Certification Levels for Fire and Rescue Squad Departments**

Fire Department	Total Members	FF I	FF II	Fire Officer I	BLS	ALS	Vehicle Extrication	Rope Rescue	Swiftwater	Trench Structural Collapse
Blacksburg	106	86	81	8	0	0	28	6	0	2
Christiansburg	40	38	33	6	12	2	25	32	10	12
Elliston	30	28	28	2	6	0	24	2	11	0
Longshop McCoy	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown
MCFEMS	38	36	36	12	22	11	16	11	15	2
Riner	36	22	19	0	8	0	25	2	6	0
<b>Total</b>	<b>250</b>	<b>210</b>	<b>197</b>	<b>28</b>	<b>48</b>	<b>13</b>	<b>118</b>	<b>53</b>	<b>42</b>	<b>16</b>

Rescue Squad	Total Members	EVOC	First Responder	BLS	ALS	Vehicle Extrication	Rope Rescue	Swiftwater Rescue	Trench Collapse Rescue
Blacksburg	160	111	0	78	42	43	29	9	9
Christiansburg	43			21	22				
Longshop McCoy	15	12		3	5	4	2	4	0
Riner	54	29	0	47	6	0	0	2	0
Va. Tech	55	55	0	20	17	0	10	0	0
MCFEMS	49	49	0	19	30	0	0	0	0
<b>Total</b>	<b>376</b>	<b>256</b>	<b>0</b>	<b>188</b>	<b>122</b>	<b>47</b>	<b>41</b>	<b>15</b>	<b>9</b>

The Code of Virginia Title 32.1. “Health” includes several chapters that describe how Emergency Medical Services are to operate in Virginia. Chapter 4 of Title 32.1 is titled “Health Care Planning”. Article 2.1 of Chapter 4 “Statewide Emergency Medical Services System and Services” provides specific direction for how the EMS system is to operate statewide. Section 32.1-111.6 provides statewide direction that any EMS agency in Virginia must obtain and maintain a valid license to operate that is issued by the Commissioner of Health. Each local EMS agency must also maintain a franchise license or permit issued by the county or municipality it operates within. The State Emergency Medical Services Advisory Board establishes rules and procedures for EMS agencies, and the state Office of EMS (OEMS) enforces these statewide. Additionally, every vehicle used for EMS service must maintain a valid state permit issued by the OEMS. The section that describes required training for EMS providers is detailed in section 32.1-111.5. “Certification and recertification of emergency medical services providers; appeals process”. The OEMS enforces these training requirements as well.

The Code of Virginia Title 9.1 “Commonwealth Public Safety” provides specifics on numerous law enforcement, fire service and other safety topics. Chapter 2 of Title 9.1 establishes the Virginia Department of Fire Programs (VDFFP). Among other topics, this section issues VDFFP the responsibility to guide firefighter training statewide. Section 9.1-203 titled the “Powers and duties of Virginia Fire Services Board” subpart A.11, requires this board to “Develop a modular training program for volunteer firefighters for adoption by local volunteer fire departments that shall include (i) Fire Fighter I and Fire Fighter II certification pursuant to standards developed by the National Fire Protection Association and (ii) an online training program.”

Along with state mandated training certification, each agency in Montgomery County has its own process to prepare members for the response to and the management of emergency incidents. Each agency also has their own training officer/coordinator to manage their department level training.

MissionCIT requested training and certification information from each agency. Information obtained from the rescue squads and fire departments is listed below. Each department has their own requirements for new and existing members and utilizes different platforms for continuing education.

### **EMS / Rescue Squad Training Review**

Initial and continuous training was reported in a variety of formats. Below is a summary of the training information that each EMS agency provided.

*Blacksburg Rescue Squad*

- Current certification breakdown of members includes:
  - 28 Paramedics
  - 16 EMT-Advanced
  - 102 EMT
- Many new members are EMT when they join (Jr. program in High School)
- Monthly Continuing Education (CE) training (4 members have Education Coordinator (EC) Designation)
- Squad pays for members to attend an ALS program
- Annual timeclock recorded training hours provided to members included:

<b>Year</b>	<b>EMS Training Hours</b>	<b>Technical Rescue Training Hours</b>
2021	6,396	7,164
2022	8,032	6,950
2023	7,938	10,274
2024	7,100	6,700
2025 <i>YTD Thru 9/1</i>	5,918	5,650

*Christiansburg EMS*

- Must be an EMT to be hired / then a 6-month probation period
- EVOC and International/Pre-Hospital Trauma Life Support (ITLS or PHTLS) within 1 yr.
- Airway recertification occurs quarterly for EMT & monthly for Advanced Life Support (ALS)
- Department pays all costs for members to attend Paramedic program at local colleges
- The Training Lieutenant and Deputy Chief have EC Designation and provide all CE needed for each member to maintain certification. The department also uses Ninth Brain for their on-line continuing education program.

*Longshop McCoy Rescue Squad*

- EMT to be obtained within 6 months of joining
- CE conducted monthly on a Tuesday evening

*Montgomery Co. Fire and EMS (staff at Riner and Elliston Stations)*

- Must be EMT to be hired / plus 168 hr. in-house subjects
- In 2025, 568 hr. of EMS CE hours were taught. They also use the FOAMfrat program for CE
- Montgomery County supports members attending ALS program

*Riner Vol. Rescue Squad*

- Squad will pay for BLS and ALS courses

*Virginia Tech Rescue*

- New member completes a semester long probationary period
- After probation, the member completes EMT class
- EMS CE occurs during every duty shift
- ALS hybrid programs with either VA community college or North American Rescue, LLC
- Indicated that more EMT-A level training classes are needed
- Indicated they have not received any rescue task force (RTF) training for active threat incidents

**Fire Department Training Review**

Initial and continuous education training was reported in a variety of formats. Below is a summary of the training information that each fire department provided.

*Blacksburg Fire*

- New volunteer has 1 year to obtain FFI and Haz Mat Operations and they must obtain FFII within their second year (classes offered twice per year)
- Monthly training with training officer and company officers
- In-house driver training including EVOC and basic pump operations
- Support driver pump operator and aerial pump operator course attendance
- Coordinates countywide use of the Blacksburg Fire Training Center

*Christiansburg Fire*

- New volunteer receives a 40-hour in-house program and has 1 year to complete FFI & CPR
- In-house driver training including EVOC / must enroll in FF2 in second year of membership
- Encourage members to attend annual training at the Blacksburg Training Center including:
  - FFI & FFII
  - Driver Pump Operator
  - Aerial Operator APO
  - Hazardous Materials Operations
  - Extrication
- Support Water Rescue classes through “Rescue 3 International”

*Elliston Fire*

- New volunteer has 1 year to obtain FFI and HazMat Operations certifications
- Conducts one training session per month
- Volunteers can participate in daily training with career staff

*Longshop McCoy Fire*

- New volunteer has 2 years to obtain FFI
- Monthly evening fire training
- In-house driver training including EVOC
- Supports water rescue training for five members on the countywide team

*Montgomery County Fire and EMS*

- Must be FFII with EMT to be hired
- Career fire personnel complete a “Fit for Duty” evaluation annually
- Career fire personnel mandated to complete driver pump operator course within a year of employment
- The Training Division provides the VDFP programs for Firefighter I&II, Officer programs, Pump Operator and Aerial Operator, Instructor and HazMat
- The Training Division provides the Train-the-Trainer classes for the programs listed above
- Career personnel conduct on shift training daily

*Riner Fire*

- Does not require any firefighter certification to become or remain a member, only annual continuing education training requirements
- Training information for 36 members was provided. Certifications completed by these members includes:
  - 28 have completed EVOC (78%)
  - 19 have completed FFI (53%) and 14 of these have completed FFII (39%)
  - 22 members have completed Vehicle Technician or Farm Machinery extrication (61%)
- Conduct 2 training sessions per month

Even though each department/agency has their own entry and annual training requirements for members, it was indicated to MissionCIT that there is little to no joint training between agencies. Blacksburg Rescue did indicate they do a fair amount of joint EMS training with Virginia Tech Rescue. Joint training is critical for operating at large, complex incidents and for becoming familiar with each department’s personnel, officers and equipment.

Joint training is also important not just between fire departments or rescue squads, but between fire departments and rescue squads. Operating at a mass casualty incident or a large hazardous materials incident will involve both disciplines and will require coordination through a Unified Command structure. When MissionCIT listened to several fire incidents from the system, it was clear that the incident command system is not as well understood or utilized as it should be when both disciplines are operating on an incident.

Within emergency management, it is important that Virginia Tech and County emergency management officials also train together, for those instances where the county EOC is opened or there is an event on campus that requires county assistance. It is also important that all county and town department participants regularly participate in EOC drills, at least on an annual basis.

### **Advanced Firefighter, Driver, and Fire Officer Training**

The Virginia Department of Fire Programs (VD FP) training program is accredited through the International Fire Service Accreditation Congress (IFSAC) for the Firefighter II (and other) certifications. These courses have been judged to meet or exceed the corresponding NFPA standards. Members throughout the county have an option to pursue basic firefighter training up to the NFPA 1010 Firefighter II level (and beyond).

Completion of EVOC certification and in-house training is generally the minimum training necessary to be authorized as an apparatus driver for all agencies. The VD FP courses of Driver/Operator – Pumper and Driver/Operator -Aerial cover standards listed in the NFPA 1002 Standard on Fire Apparatus Driver/Operator Professional Qualifications. Every driver in the county should pursue these courses to ensure a consistent platform for learning, and consistent, safe competency.

Finally, the Fire Service and EMS service across the country relies heavily on the leadership of company officers, staff officers and chief officers. These men and women set and maintain the standards followed every day in-house and while providing citizen service. NFPA 1020, “*Standard for Fire and Emergency Services Instructors, Fire Officer and Emergency Medical Services Professional Qualifications*”, is the standard for the professional qualifications of fire officers. It identifies the minimum job performance requirements for various officer levels (I, II, III, and IV).

Our research did not provide insight to the number of members countywide that have completed officer levels of training. It was noted however, that the Montgomery County Fire and EMS Deputy Chief of Operations is having to serve a full-time position in the role of company officer (Captain rank) at the Elliston station. Additionally, during his days off from this position, he pulls many hours each week in his Deputy Chief role. While this is not unusual for young departments, every

effort should be made to train other members to fulfill the station Captain role, thereby freeing up the Deputy Chief to better help lead the department.

### **EMS Officer Training**

Two accredited programs for the development of EMS officers are recognized in Virginia. The Virginia Office of EMS utilizes the EMS Officer I Program. This is a 24-hour course. Additionally, the National EMS Management Association (NEMSMA) appointed a commission that provides oversight for the American College of Paramedic Executives (ACPE). The ACPE oversees a process to certify EMS providers to three officer levels. These are titled Supervisory Officer (SPO), Managing Officer (MPO), and Fellow in the American College of Paramedic Executives (FACPE).

MissionCIT was not able to identify the number of fire officers who met the NFPA 1020 standard, nor the EMS officers that held any of the EMS officer certifications. These are potential training standards/goals that could be implemented within the fire and EMS system.

A proper span of control is important for effective management of daily operations and emergency incidents within emergency services organizations. The National Incident Management System (NIMS) recommends a ratio of three to seven personnel for each supervising officer, with an optimal ratio of 1:5. This ensures a safe and manageable level of supervision. Within Montgomery County fire departments, the ratios ranged from 1:5 to 1:10. Within the rescue squads, the ratios ranged from 1:6 to 1:8. From an organizational perspective, where there are too few fire/EMS officers, there may not be enough supervision which can lead to unsafe operations, or non-officers placed into decision making situations for which they are unprepared. When there are too many officers, there may not be enough frontline personnel to carry out fireground operations.

### **Technical Rescue Team Training**

A countywide Technical Rescue team has been developed and has been reported to be evolving well. Technical Rescue includes a variety of specialty skills. A variety of classes are necessary to prepare members to be competent at these skills. VDFP provides many of these classes including rope rescue classes, confined space rescue, trench rescue, vehicle rescue, machinery rescue, swift water rescue, and watercraft operations. Additional specialty courses are provided by other entities. VDEM provides Ground Search and Rescue programs along with Hazardous Materials and other Emergency Management topics. Team members input indicates that these courses are available and the countywide team members have adequate opportunities to attend them.

Blacksburg Rescue Squad indicated that it has a fully developed Technical Rescue Team of its own. Discussions with first responders in the county and at the rescue squad indicated a

functioning relationship between the rescue squad team and the countywide team did not exist at this time. The Blacksburg Rescue Squad Wilderness Search team has an MOU with VDEM to serve as a regional response team for this type of response.

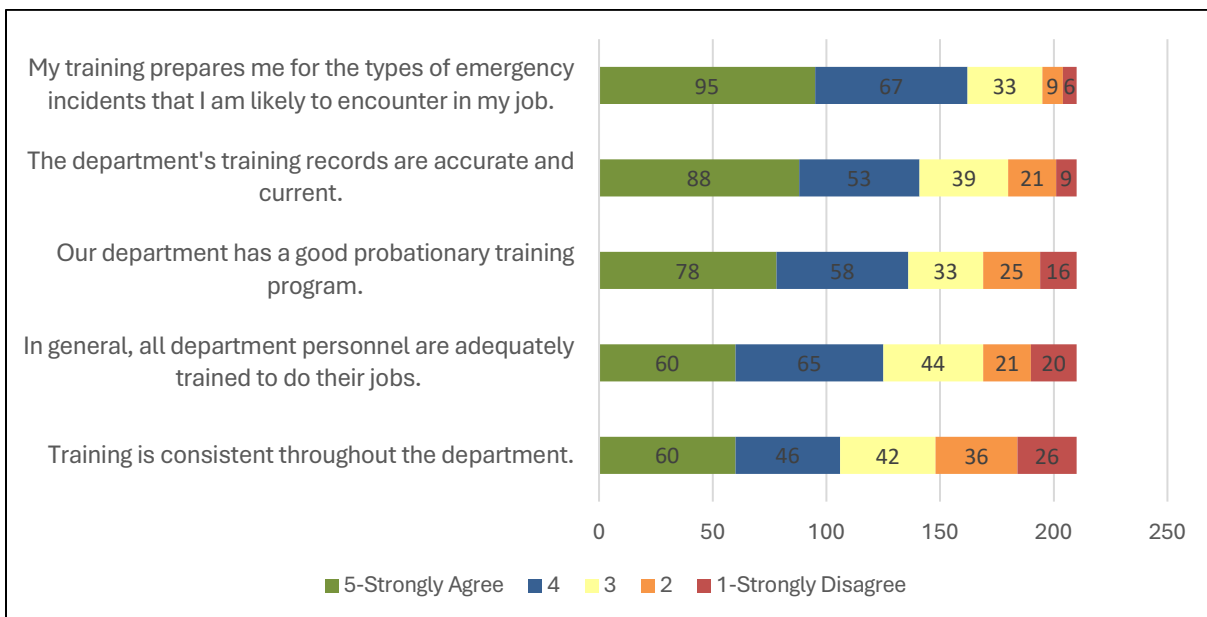
**NRV911 Dispatch Personnel**

There does not appear to be a consistent process where fire/EMS personnel and dispatch personnel are placed into each other’s work environment to better learn about the duties and functions of each other’s discipline. Establishment of a regular ride-along/ sit-along program into the other discipline will provide a greater understanding of the work each does and can enhance the skills and abilities of each to effectively communicate and improve communications during incidents.

**Current Concerns**

Members and the public were surveyed as to their thoughts on the current status of emergency services in the County. The following is a summary of the feedback received related to training:

1. Community respondents identified “Well trained personnel” as the top strength for the system.
2. As this chart shows, a majority of system members agree that training is going well in their department.



However, another question on the internal member survey asked “Select the 3 top issues that you feel need to be addressed or improved within your department or the county fire/rescue squad system”. The top 3 responses are below, showing Training receiving 73 of out 210 responses.

- Member recruitment and retention initiatives – 94 responses
- How we work with other emergency service departments – 83 responses
- Training – 73 responses

Mission CIT’s observations are consistent with these sentiments but more targeted in that:

- There appears to be no countywide goals and objectives, nor a countywide training plan for members.
- There appears to be a lack of uniformity of basic and advanced training programs across the county.
- There is no central coordination entity to plan and schedule countywide training.
- There is no common coordination of training facilities, equipment, and instructors.
- There is no training calendar for all system members to view and sign up for classes.
- It is not clear if NFPA standards are used for Driver/Operator training.
- It is not clear if NFPA standards are used for fire officer training, nor what standards are being used for EMS agency officer training.
- The Training Center in Blacksburg has been built out well and is very beneficial for all fire departments in the county; however, it was indicated by Blacksburg Fire that it is not utilized by many of the other agencies, at least consistently. As the county is growing, it will need to be utilized more often by more agencies.
- More multi-company training is needed.
- There is a need for an overall training plan/program that is structured.

**Recommendation 18.1**

The county Fire Rescue Commission, through its Training Committee, should develop goals and objectives for a countywide training program. These should be developed based on community need, standardized certifications across all fire and rescue squad departments, and government mandates.

**Recommendation 18.2**

Once developed, the goals and objectives and other guidance should be delivered to a countywide Training Team. This team will consist of training officers from fire and rescue squad agencies.

**Recommendation 18.3**

The Training Team should create an annual Training Plan to effectively utilize resources, fill any training topic gaps and meet the needs of each agency training together for the good of the system. As an example, additional EMT-A or rescue task force training could be provided for Virginia Tech Rescue personnel and others desiring such training.

**Recommendation 18.4**

A systemwide training calendar should be developed to ensure core topics are delivered on a regular basis, and the needs of each department is planned for in advance. The calendar should be accessible to all department members.

**Recommendation 18.5**

One systemwide personnel training database should be established to create efficiencies and allow for future data-based decision-making regarding training needs.

**Recommendation 18.6**

Regular multi-department training should be incorporated into the plan to improve system response at complex incidents. These could be held at the Blacksburg Training Facility.

**Recommendation 18.7**

The county training plan should also integrate with a multi-year Emergency Operations Center exercise program, which includes Virginia Tech emergency management personnel.

**Recommendation 18.8**

The County should establish regional training delivery locations to support certification training. This should improve efficiency and volunteer access to programs.

**Recommendation 18.9**

All fire and rescue squad departments should be encouraged to utilize the Blacksburg Fire training facility.

**Recommendation 18.10**

Departments that do not necessarily have a full-time training officer should consider partnering with Montgomery County Fire and EMS to utilize their training officer. If this is done, additional staff may be necessary within the MCFEMS training section.

**Recommendation 18.11**

A cross training/orientation program should be developed between fire/EMS personnel and NRV911 dispatch personnel so that each can see and experience what the other does during the course of their shift or duty crew.

**Blacksburg Fire Training Facility**

Blacksburg Fire Department has an excellent fire training facility that they have built and maintained with funding assistance from the Virginia Department of Fire Programs. It contains multiple structures for skills development, live fire burns, various training props and two classroom areas. The department should be applauded for their foresight and ability to possess such a facility.

Photos of Blacksburg Fire Training Facility are below.







## SECTION 19: COMMUNITY RISK REDUCTION

Community Risk Reduction (CRR) is a data-driven, proactive process used by fire departments, EMS agencies, and other stakeholders to identify and prioritize local risks (such as fires, collisions, and health issues) and then invest resources to reduce their occurrence and impact. The purpose of a CRR program is to prevent incidents before they occur, and to proactively limit damage and death from incidents that do occur. This work ultimately reduces injuries, fatalities, and property damage while enhancing safety. A good CRR program includes identifying community-specific risks using data, implementing targeted interventions (often called the "5 Es": Education, Engineering, Enforcement, Economic Incentives, and Emergency Response), and evaluating outcomes.

The key aspects of CRR are that it is data-driven (community demographics, incident data), considers all-hazards, and includes collaboration between fire and EMS agencies, community leaders, and residents.

Currently, some interventions are ongoing throughout the county and towns including each of the "5Es". This section outlines some of what is underway and provides recommendations to lead future risk reduction efforts.

### **Education**

The fire and EMS agencies throughout the county provide a varied degree of public education programs. Many of the agencies conduct some programs during fire prevention week, some participate in parades and other community events, and some conduct programs at pre-schools and elementary schools. The EMS agencies are engaged in a variety of citizen programs including CPR training, blood drives, event participation, and one agency is in preliminary discussions entertaining a Community Paramedicine program.

### **Engineering and Economic Incentives**

#### *Water Supply*

Consideration of a community's water supply related to fire protection and fire flow often falls under the umbrella of CRR engineering. The New River Valley Water Authority is responsible for overseeing the day-to-day operation of supplying clean water to Blacksburg, Christiansburg, Virginia Tech and Montgomery County. The distribution system for the water system, including fire flow requirements, is the responsibility of the respective Public Utilities Departments for each jurisdiction. These entities work together to ensure that the systems meet or exceed NFPA 1142 and AWWA C502 standards.

Both towns and much of the county are covered with hydrants on this system. Research indicates the fire flow from this system is adequate to protect the community served. All fire hydrants in Montgomery County are maintained, and flow tested once every two years. Montgomery County Public Utilities uses a contract vendor for the maintenance and testing. Blacksburg and Christiansburg Public Utilities perform maintenance and flow testing on their systems as well. With few exceptions, the hydrants have operated appropriately when needed for fire flow, and adequate volume has been achieved for firefighting activities.

However, much of the county is rural with no water supply for fire flow. The New River Valley Hazard Mitigation Plan 2025 update indicates that the county does have four dry hydrants. Three are installed near the border with Radford and Pulaski County, with the fourth one in the northwest section of the county. A holistic rural water supply plan, including the location of all reliable water supply spots, has not been developed for the county. Additional water spots may be advisable if a complete network is not already in place.

### *Fire Sprinklers*

The County is on pace for significant future development. Observation suggests that, in addition to single family dwelling developments, much of the growth will be retail, office, and multifamily development.

Given that revenue from commercial business operations is critical to the tax base, it is important to protect the investments using fire suppression sprinkler systems. Fire sprinklers have an excellent record of protecting lives and property. From a commercial building perspective, sprinklers play an important role in protecting the economy of the future.

In many instances, fire sprinklers are required by code for new construction and, in certain instances, when a building undergoes an expansion or a change of use. Despite this, there is often political pressure to eliminate fire sprinklers in commercial buildings, opting instead for passive protection, such as increased unit-to-unit separation, creation of fire areas, or other alternatives. It should be noted that a properly designed, installed and maintained fire sprinkler system is the only built-in feature which extinguishes fire, and it does so at the incipient phase, well before flashover and fire involvement to other areas of a building.

Often opponents of fire sprinklers cite the cost of fire sprinklers; however, the installation of fire sprinklers will often result in lowered property insurance costs which recoup their installation costs over time. Further, there are hidden costs of not protecting commercial properties with fire sprinklers. When a commercial business operation is interrupted by fire, the ability to produce goods and services is interrupted as well. The “ripple” effect may be felt throughout the local

economy in the form of loss of tax revenue and loss of employee salaries. The latter affects the public's ability to purchase goods and services, pay mortgages, etc.

Excessive water damage is another reason cited for not installing fire sprinklers. This indicates a complete misunderstanding of how fire sprinklers operate. Many people (thanks to television and developer myths) believe that during a fire, all fire sprinklers in an area are activated. The truth is that fire sprinklers are heat activated and only the fire sprinklers which are located proximate to the fire are activated. In most instances, only one or two fire sprinkler heads activate.

Compounding all of this is the increased risk to firefighters, especially when operating with limited staffing, in non-sprinklered occupancies. Instead of responding to a sprinkler-controlled fire, firefighters are often faced with complicated rescue operations, overwhelming fire conditions, and the increased chance of a dangerous building collapse.

While not mandated for single family dwellings in Virginia, residential sprinkler systems have been proven to save lives and property. Many insurance companies reduce the fire protection component on home insurance fees, paying for the system over time. According to the Home Fire Sprinkler Coalition, for every 15 structure fires that occurred in 2024, two occurred in buildings with fire suppression sprinkler systems. The average result of those incidents was damage costs of \$500, no deaths and no injuries. The average damage for the other thirteen incidents without sprinkler systems cost \$350,000 to each structure. On average of the thirteen incidents without sprinkler systems, one death and five injuries occurred.

Economic incentives also exist for including fire suppression sprinkler systems in new commercial construction. IRS tax code section 179 allows for small businesses to fully deduct the cost of installing a commercial fire protection sprinkler system up to \$1.04 million. Also, the NFPA estimates that roughly 20%-25% of commercial buildings will experience some fire incident over a 20-year period; and decades of data prove that sprinklers are effective at controlling 96% of fires in which they operate.

### **Enforcement (Fire Code and Code Enforcement)**

Christiansburg and Blacksburg each have an appointed a Fire Marshal that conducts fire inspections of town commercial properties and fire investigations. Their duties and responsibilities are outlined in each town's respective codes/statutes. Each uses the 2021 International Building Code.

#### *Blacksburg*

Blacksburg is working towards employing one full-time Lieutenant and three full-time Firefighters. One of the Firefighters will perform as the town Fire Code Official; another Firefighter will perform

as a Fire Code inspector. The town has adopted the Virginia State Fire Prevention Code. These two Firefighters will perform fire inspections and public education while on duty as a firefighter. They also conduct fire investigations as needed.

### *Montgomery County*

Nothing in the Montgomery County code addresses a Fire Code, Fire Code Official, nor Fire Marshal. The Virginia Fire Marshal's Office currently performs fire inspections upon request/complaint and only at specific mandated facilities. These include adult and childcare facilities, health care facilities, jails, night clubs, schools and universities, and state-owned buildings. This office also provides public education for specific client groups. This can leave a large gap in fire protection code enforcement.

### **Emergency Response**

Most of Emergency Response concerns are covered in other sections of this report; therefore, this CRR section is limited to Wildland Urban Interface (WUI) Firefighting preparedness and response.

The easiest understanding of the Montgomery County wildfire threat is to compare it to the Gatlinburg, TN fire that occurred in late 2016. The New River Valley area, including Montgomery County, has a similar weather pattern, topography and fuel load as does Gatlinburg. Under normal conditions, neither Montgomery nor Gatlinburg has a tremendous risk of WUI fires and Montgomery County has not had such a devastating fire. However, given an extended drought with extreme winds and low humidity, conditions would exist similar to what Gatlinburg faced. From 2008-2021 Montgomery County did experience 46 WUI fires resulting in 2,591 acres burned.

Wildfires in Montgomery County have been judged to be a moderate risk both in the county Emergency Operations Plan and by the Southern Wildfire Risk Assessment project. The probability of a large WUI fire is the highest in the southwest section of the county, and lowest in the northeastern sections of the county.

Large WUI fires are often contained by bulldozer operations along with air and ground suppression operations. Due to slope and vegetation type, some areas are difficult to safely operate dozers on. Fortunately, the area at most risk of fire (southwest section of the county) should not be difficult for dozer operations. If, however, a large wildland fire does occur in the northeastern sections of the county, dozer operations could be greatly hampered.

Montgomery County participates in the Appalachian Resource Conservation & Development (RC & D) Fire Adapted Communities Coalition. The goal of the Coalition is to transform Appalachian Mountain counties into fire-adapted communities by using the Fire Adapted Communities Fire

Learning Network and Firewise USA® methods where people educate their neighbors, family, and friends to live with fire. Blacksburg Fire also participates in the Firewise USA program©.

**Recommendation 19.1**

Montgomery County should formally adopt the Virginia Statewide Fire Code. Language such as that found in the Christiansburg town code is a good model to reference. (Included in Appendix N) This language allows the locality to stay current with adoption of the statewide code without having to update the local statute every time the state adopts a new version.

**Recommendation 19.2**

Montgomery County should employ a full-time Fire Marshal and Fire Inspector. These positions should have the responsibility to enforce the fire prevention code. The Fire Marshal should also be authorized to conduct new construction plans reviews to ensure safety of the public and firefighters and conduct fire investigations, when needed. An example position job description for Fire Marshal is included in Appendix O.

**Recommendation 19.3**

The three area Fire Marshals in the county (Montgomery, Blacksburg, Christiansburg) should coordinate CRR efforts throughout the county and coordinate data collection, management and analysis of such. CRR national best practices should be explored by this team (and sub-teams) and integrated into system improvements as deemed appropriate. These can be found in the work of the Vision 20/20 initiative, the United States Fire Administration programs, the Rural Health Information Hub, etc.

**Recommendation 19.4**

The three Fire Marshals should establish a Public Education/Public Outreach team (including members from each agency) with the mission to ensure consistent delivery of education to all county students, civic groups, and other vulnerable populations. The Fire Marshals and this team should participate in the Virginia Fire and Life Safety Coalition.

**Recommendation 19.5**

Create a countywide Rural Water Supply improvement program designed to meet NFPA 1142, “Water Supplies for Suburban and Rural Firefighting” standards. This should include applying for the Department of Forestry (DOF) Dry Hydrant Grant program every year. This will help to fill any gaps in the county water supply coverage and prepare for departments to establish a water shuttle operation that maintains adequate fire flow, for structure fires, in non-hydrant areas. This program will also help with water supply at wildland fires and with fire protection and ISO ratings for homeowners in these sections of the county. This will necessitate development of partnerships with DOF and landowners.

**Recommendation 19.6**

While CRR is everyone’s job, community “Life Safety - Proactive” initiatives need to be led by a specific person in each community. Otherwise, it often gets pushed to the back burner as reactive work fills the void for public agencies. The Fire Marshal for each locality, mentioned above, should formally have the lead for CRR, creating a strong team for citizens countywide.

**Recommendation 19.7**

Create a countywide Wildland Urban Interface protection program team to mitigate and prepare for managing these large incidents. To be most productive, this initiative can be combined with the rural water supply initiative. This initiative will also necessitate partnership of all county agencies and the Department of Forestry. The goal of this team is to minimize wildfire losses in the WUI areas of the county. The team should adopt the two objectives outlined in the NRV Hazard Mitigation Plan 2025:

- Educate residents and landowners on possible wildfire mitigation techniques (including the Firewise program).
- Engage in mitigation and planning activities to minimize wildfire impacts.

## SECTION 20: POLICIES AND PROCEDURES

MissionCIT conducted a general review of the operational and safety policies submitted by the fire departments and rescue squads. Each fire department has their own policies and procedures and are governed by them. There are no countywide operating policies or guidelines regarding key safety considerations such as Firefighter Mayday, Personnel Accountability Systems, Incident Command and tactical operations. With an active automatic aid process amongst all agencies, a certain degree of firefighter safety and operational policies should be consistent through countywide documents.

The operational/safety policies and procedures that were provided to MissionCIT were varied in their depth of description and age. Some of the policies had no dates on them at all, or were from as early as 2006. Some of the policies were well laid out, while others were extremely brief and used language that is not consistent with current fire service trends. Some appeared to be copied from other agencies. All should be regularly updated to include current fire attack and firefighting methods from the Underwriters Laboratory (UL) Fire Safety Research Institute (FSRI) to include fire attack, ventilation and response and handling of electric vehicle fires.

Some specific comments regarding the department policies and procedures provided to MissionCIT include:

### **Fire Departments**

#### *Blacksburg Fire*

Blacksburg Fire Provided several operational policies for review by MissionCIT. They were developed by a commercial fire department policy vendor. They were all from November 2024. In general, the policies were accurate, but very basic. Further details are needed within them to provide better operational guidance and expectations for personnel.

- Policy 300 – Incident Management
  - This was a very basic policy with no real layout of use on incident scenes or detailed incident command system terminology
- Policy 302 – Fireground Accountability
  - No details provided as to how to utilize the Passport accountability system, when it should be used and who is responsible for each portion or phase of an operation.
- Policy 303 – Rapid Intervention/Two-In-Two Out
  - Examples of when to call a “Mayday” are needed
  - No information on what equipment the Rapid Intervention Team is supposed to gather or use.

- No guidelines on the expected actions of a Rapid Intervention Team upon deployment, but prior to an activation.

### *Christiansburg Fire*

All Standard Operating Procedures and Standard Operating Guidelines were dated 2023. For all SOGs, the first item on the “Priorities” should be to “Ensure the Safety of all responders and the public.”

- SOP 1 – Emergency Operations and Chain of Command
  - Eliminate the term “sectors” as that is outdated within ICS. Replace with division or group.
  - Define what PPE should be worn on incidents.
- SOP 2 – Firefighter Accountability
  - Eliminate the term “sector”. Replace with division or group.
  - Identify the potential conditions/situations for a firefighter to declare a Mayday.
  - Remove the term “crew leader”, and replace with unit, crew boss, strike-team leader, task force leader, division or group supervisor to align with ICS.
  - Some sections of this repeat from SOP 1.
- SOP 3 – Prevention of Cancer
  - Add that contaminated PPE should be bagged before leaving the incident scene.
- SOP 5 – Backing Vehicles
  - Define consistent hand signals to be used by spotters.
- SOP 6 – Emergency Vehicle Operations
  - Define what is a safe speed for response with chains.
  - Provide examples of apparatus road blocking on highway and incident scenes.
- SOG 1 – Declaring a Mayday
  - Provide a definition of what constitutes a Mayday.
- SOG 2 – Residential Structure Fires (Repeat ICS comments below in other SOG’s as needed)
  - Eliminate the term “sectors” as this is outdated within ICS. Replace with division or group.
  - Replace the “Sectors” section with verbiage such as:
    - Positions
      - The Incident Command organization will always be led by an Incident Commander (Unified Command on large/complex incidents). Command will create an incident organization to address the specifics of the incident. Examples of positions that may be created as needed include:
        - Water Supply Group Supervisor
        - Interior Division Supervisor

- Exterior Division Supervisor
  - Ventilation Group Supervisor
  - Rapid Intervention Team Group Supervisor or Rapid Intervention Task Force Leader
  - EMS Group Supervisor
- SOG 3 – Commercial and Multi-Family Structure Fires
  - Change formation of a RIT from “can” to “shall”.
  - Consider adding language regarding strategies and tactics from new research from the Fire and Life Safety Institute.
  - ICS comments same as above from SOG-2.
- SOG-4 – Flue/Chimney Fires
  - Eliminate Sectors section. Rename Interior and Roof to Divisions
  - Add to Termination: All areas around the fireplace, woodstove, and chimney; ground through the roof, have been inspected for extension.
- SOG 5 – Brush Fires
  - Add to establish safety zones and escape routes for apparatus and crews.
  - Post lookouts at any significant brush or wildland incident.
  - Provide criteria to determine if a structure can be effectively defended or not.
- SOG 6 – Dumpster Fires
  - Add information about checking the interior structure for fire extension on building attached dumpster configurations.
- SOG 7 – Vehicle Fires
  - Provide apparatus blocking examples.
  - Add language on how to handle electric vehicle incidents.
- SOG 13 – Hazardous Materials Incidents
  - Add information about establishing Hot-Warm-Cold zones for the incident scene.
- SOG 16 – Severe Weather Conditions
  - Consider adding wind speed parameters regarding apparatus/ambulance response in high wind situations.
- SOG 24 – Aerial Apparatus Use
  - In the section for Ladder 82, it mentions “basket”, which Ladder 82 does not have. The SOG also mentions that the front passenger is the pump operator. This position should be the ladder company officer and committed to managing the ladder company crew and tasks, not glued to the unit pump controls.

### *Riner Fire*

The operational policies and procedures for Riner Fire used different formats and most did not contain any dates of implementation.

- Two-In-Two-Out
  - Contained no date
  - No details on what a Rapid Intervention Team's (RIT) responsibilities/expectations were or what tools and equipment they needed.
- Chain of Command
  - Listed as a Wintergreen FD policy
  - Too basic
  - Says the fire chief has to assume command – May not be warranted in all situations
- Personnel Accountability System
  - Dated 2010
  - Policy is disjointed – No good flow for understanding
- Transfer of Command
  - Transfer of command based only on experience or training level, not rank or seniority.
- Structure Fire
  - Very basic. Need additional detail.

### *Montgomery County Fire and EMS*

All of the Montgomery County Fire and EMS policies were from a commercial fire department policy vendor that also allows for customization for the department. They were all dated as August 2025 and labeled as DRAFT. If there has been a sufficient review and revision of the policies, they should be finalized, posted and training initiated on any operational changes.

#### SOP 302 – Personnel Accountability

Too vague regarding personnel accountability. There is limited information and process regarding Personnel Accountability Reports (PARs)

#### SOP 303 – Rapid Intervention Teams

There is no information about how the RIT is to prepare at the incident scene or what equipment they should carry or have ready.

#### SOP 305 – Response Standards

This performance standard only included turnout times, with no travel time standards.

SOP 311 – Trench Rescue

Policy does not address any sheeting/shoring needs at trench rescue incidents.

SOP 321 – Traffic Accidents

This policy was not complete. It appeared as if there are still sections to finish.

SOP 326 – Active Shooter

Should provide for information and processes regarding training on rescue task forces for joint police/fire entry.

SOP 600 – Drivers Training

There are no details regarding the hours or courses needed for a driver to be cleared to operate emergency vehicles.

SOP 712 – PPE Cleaning

Does not address cleaning PPE after fires.

SOP 715 – Roadway Safety

There are no apparatus placement/blocking examples provided.

**Rescue Squads**

The rescue squads were requested to provide their operational policies and procedures as well. The only agencies that provided information were Blacksburg Rescue and Christiansburg EMS.

*Blacksburg Rescue*

Most of their policies and procedures were older in date. The earliest policies were from 2006 with some in the 2015. Their format was good and most of the policies were very thorough. Some comments on specific policies include:

B-002 Scene Safety

Mentions members using SCBA units, but does not mention fit testing or physicals in order to be cleared to use these units, per OSHA requirements.

B-003 Scene Response

No mention of response speed/limits of units or the need to stop at controlled intersections or stop signs.

B-004 Scene Management

Incident Command language should be more detailed and specific to EMS incidents.

**B-009 Duties of Field Supervisors**

Good, thorough and indicates a training program and task book for candidates.

**C-008 Confined Space Operations**

Needs more detail regarding safety considerations, strategic and tactical objectives and operations at incidents.

**C-009 Trench Operations**

Needs more detail regarding safety considerations, strategic and tactical objectives and operations at incidents.

**D-003 Duty Groups**

Use of 10-codes within the document. Move to plain text.

**F-007 ATV Operations**

Consideration should be given to add load considerations, speed and general safety considerations with operating units.

Multiple policies did not have any information or detail in them to explain what they were covering or how members should operate. If they are old policies no longer in effect, they should be removed. These policies included:

- C-007 Law Enforcement Tactical Support Team
- C-010 Structural Collapse Operations
- F-006 POV Response
- F-009 Vehicle Maintenance
- K-002 Electronic Patient Care Reports

***Christiansburg EMS***

The policies Christiansburg EMS provided were EMS care protocols and administrative procedures such as new employee orientation, training, etc. All appeared to be thorough.

**Recommendation 20.1**

Through the Fire Rescue Commission, countywide operating policies and safety procedures should be developed that incorporate best practices in the areas of Incident Command, Firefighter Mayday procedures, Firefighter Accountability Procedures, and Radio Communications. These should be regularly trained on and across multiple fire departments to ensure compatibility and joint understanding and consistency of application.

**Recommendation 20.2**

All fire departments and rescue squads should regularly review and update their department policies and procedures, at least every other year.

**Recommendation 20.3**

A standard policy and guideline format should be considered to be used by all departments.

**SECTION 21: ISO RATING INFORMATION**

The Insurance Services Office (ISO) is a for-profit company that rates the ability of fire departments across the country to respond to and be able to handle the fire risks within their community. The Insurance Services Office rating of a fire department is based on four main areas. These include:

- Emergency Communications
- Needed Fire Flows/Water Supply (outlined earlier in the report)
- The Fire Department
- Community Risk Reduction

Each component is graded on a point system after an evaluation from an ISO representative. After the points are totaled, a divergence methodology, proprietary to ISO, is used to end up with the final score to determine the class that the fire department is awarded. Classes range between Class 1, which represents the best scoring classification, and Class 10, which indicates that no fire department service is available. The ISO scoring system measures “quantity” of fire protection, such as the number of pumpers, personnel, required fire flow, etc. It is not a “performance based” assessment.

**Table 44: Insurance Services Office Fire Department Rating Areas**

Emergency Communications	10% of rating
Needed Fire Flows/Water Supply (Outlined earlier in the report)	40% of rating
The Fire Department	50% of rating
Community Risk Reduction	5.5 Bonus Pts.

ISO allows the fire department to choose which water flow test to do, either the relay pumping scenario or the haul water scenario. In a haul water scenario, automatic aid tankers are counted towards the total responding water supply, not just the water supply from the first due apparatus. In addition, pumper/tanker combination units can only be designated as one or the other regarding scoring.

The intent of a lower ISO rating for a fire department is that there is a corresponding decrease in homeowner and commercial fire insurance rates. However, today more insurance companies are not necessarily following the ISO grading scores in how they price residential and commercial fire insurance. They may use other factors or criteria, or multiple sources in their rate structures. There may not be much difference between what a residential customer pays for protection from

a Class 5 fire department vs. a Class 3 fire department, for example. Commercial fire insurance is different and depends on several other factors that determine their fire insurance premium rates. An evaluation by the fire departments and the county should to be made regarding the additional resources that need to be committed to reducing ISO scores for the fire departments as there may be a significant diminishing return on investment for apparatus, stations and equipment. The only significant gaps are those areas outside of the five-mile response area for a fire department.

Currently, each fire department in Montgomery County is evaluated and rated separately. Their individual ratings are below. The first part of the rating applies to any property located within 5 road miles of a recognized fire station and 1,000 feet of a credible water supply. The second rating applies to properties located within 5 road miles from a fire station, but greater than 1,000 feet from a credible water supply. In 2014, the rating system was changed so an X is used for a Class 9 area. *(Source: ISO Public Protection Classification Document)*

MissionCIT was told that Blacksburg Fire Department was working with an ISO consultant to improve its future ratings. MissionCIT requested a copy of the consultant’s report and recommendations, but it and their ISO rating information were never provided to us.

**Table 45: Current ISO Rating by Department** *(as provided to MissionCIT)*

<b>Fire Department</b>	<b>Current ISO Rating</b>	<b>Effective Date of Rating</b>
Blacksburg Fire	Class 5/5Y	July 2016
Christiansburg Fire	Class 4/4Y	May 2016
Montgomery Co. Fire and EMS (Elliston/Shawsville Area)	6/6Y	2022

From a general review of the ISO rating information, there were several areas where the departments were not awarded as many points as possible. With focus and resources in certain areas, some of the departments could gain enough points to improve their ISO ratings into the next class. Improved class ratings should result in fire insurance premium savings for those homeowners and businesses within 5 miles of the fire station. The rating for Montgomery County was done before the actual creation of the Montgomery County Fire and EMS Department and the placement of career personnel at the Elliston Fire Station. Any future ratings for that area should be significantly better with the addition of dedicated 24/7 staffing.

**Table 46: Key ISO Rating Areas for Each Department**

<b>Fire Department</b>	<b>Total Awarded Points</b> <i>(105.5 Possible Points)</i>	<b>Deployment</b> <i>(10 Possible Points)</i>	<b>Company Personnel</b> <i>(15 Possible Points)</i>	<b>Training</b> <i>(9 Possible Points)</i>
Blacksburg Fire	57.18	6.07	3.63	1.71
Christiansburg Fire	61.90	4.28	4.11	1.27
Montgomery Co. Fire and EMS	43.93	3.03	2.67	0.64

Within all of the fire departments, the areas of most deficiency were deployment, company personnel, and training. Company personnel and training are all mostly controllable by the fire departments and can be improved with additional personnel resources and commitment. The company personnel section “reviews the average number of existing firefighters and company officers available to respond to reported first alarm structure fires in the city” (ISO Public Protection Rating). Departments struggling with volunteer response or not utilizing any type of volunteer duty crew concept may continue to have difficulty in having an adequate response to incidents. Having an active volunteer recruitment and retention program can work to maintain and increase the number of responding members. If volunteer response continues to be a concern, the need to transition to some level of career staffing may be warranted.

The training section relates to the amount, type and frequency of training conducted by the volunteer fire companies. This includes probationary, regular firefighting training and officer training. All have some type of training program, but these should be reviewed to look for improvements and develop more consistent and dynamic training programs for members of all levels.

Blacksburg received 1.71 points out of 9 for training. Their company and officer training points were low. In addition, they received zero points for training facilities and use. Since then, they have constructed an excellent training facility. Blacksburg also had zero points for fire pre-planning. With the risks within the town and on the Virginia Tech campus, having updated building information, available to personnel, is critical to safe and effective firefighting.

Christiansburg only had 1.27 points out of 9 for the training section. All of the appropriate training categories of probationary, firefighter, officer and driver training were low in points. In addition, they received zero points for training facilities and use. The town should look to develop a long-term training plan and calendar and improve on its future training in each of the categories and use of the training facility. If the department does not partner with and take advantage of using the Montgomery County Fire and EMS training officer, they should consider doing so.

The Elliston/Shawsville area ISO report, also was extremely low in points for training. Again, this was before the formation of Montgomery County Fire and EMS (MCFEMS). MCFEMS should be working to ensure that its training program meets the requirements under ISO.

Deployment relates to the “number and adequacy of existing engines and ladders to cover built-upon areas of the city” (ISO Public Protection Rating). This includes the number and location of fire stations within their coverage area. This report has provided some analysis and recommendations regarding the location/need for future fire stations and should be considered by each jurisdiction in order to improve its scoring in this area and to provide improved fire protection coverage. The current 5-mile distance threshold is the primary delineation between a Class 10 and Class 9 department. Gaining points to move lower in rating could mean the construction of additional stations to shorten the distances lower than the 5-mile minimum.

Although Riner Fire did not provide MissionCIT with a copy of their most recent report, they did indicate they had modified their training sign-up process to better document training by their members and that the water supply in their area had been upgraded. Both of these should improve their next ISO rating.

**Recommendation 21.1**

All of the fire departments should review their current training programs and improve on their current delivery of training in the key areas of probationary, firefighter, driver/operator and officer training.

**Recommendation 21.2**

All of the fire departments should make a concerted effort to coordinate with Blacksburg Fire Department and utilize the existing training facility located within the county.

**Recommendation 21.3**

Montgomery County and all of the fire departments need to examine the return on investment regarding the amount and type of fire apparatus in the system.

## SECTION 22: GRANTS

There are several federal grant programs available to Montgomery County and the Volunteer Fire Departments to assist with either the hiring of career personnel, the recruitment and retention of volunteer personnel or the purchase of firefighting equipment. These programs are administered through the Department of Homeland Security (DHS) and the Federal Emergency Management Agency (FEMA). The two programs include the Assistance to Firefighter Grant (AFG) Program and the Staffing for Adequate Fire and Emergency Response (SAFER) Program. These grant programs open for a set period each year to accept applications and then close while applications are reviewed, and awards made. The information on the grant programs comes from the most recent FY24 Notice of Funding Opportunities (NOFO) for these programs. Any new information or changes to these programs would be announced with the release of the NOFO.

Within the current AFG program, fire departments can apply to purchase firefighting equipment such as personal protective equipment, breathing apparatus, fire apparatus, safety equipment such as vehicle exhaust systems at stations, etc. During each yearly cycle, program requirements and priority funded items are published. In the AFG program, departments the size of those in Montgomery County would only be required to provide 5% of the necessary funds for the purchase of approved items. Departments who are experiencing significant fiscal stress can apply for a waiver to DHS to have the 5% match waived.

The SAFER grant program is available to departments for the hiring of career personnel or for the recruitment and retention of volunteer firefighters. Typically, priority is given to those departments who do not currently meet national NFPA standards regarding staffing. In this program, recipient departments are awarded funds to hire and pay full-time personnel for a three-year period at an increasing cost share by the department over the three-year period. Funds can also be provided to pay for the initial personal protective equipment and training of these personnel.

Departments desiring to increase their volunteer membership can apply for SAFER grants to fund volunteer recruitment campaigns, entry level physicals, training, uniform, and personal protective equipment costs and even fund salaries and benefits for volunteer recruitment and retention specialists. Departments are limited to submitting only one application per year for either the hiring of career personnel or volunteer recruitment and retention.

Typically, regional or countywide grant applications receive more weight and potential acceptance due to reaching larger population groups and making improvements over a larger area.

There are several other state or private grant programs available to fire departments that Montgomery County agencies should consider. These include:

- Department of Forestry – Volunteer Fire Assistance Grant Program
- National Volunteer Fire Council
- Firehouse Subs
- Leary Firefighters Foundation Grants
- State Farm

**Recommendation 22.1**

The town and county fire departments should work with their respective town and county grants coordinators to develop and submit AFG and/or SAFER grant applications for either volunteer recruitment and retention initiatives or for career staffing to work towards meeting NFPA 1720.

**Recommendation 22.2**

The town and county fire departments should consider collaborating to submit a countywide/regional grant under the AFG or SAFER grant programs to improve their approval chances as grants that cover multiple departments gain greater scoring.

**SECTION 22: FUTURE PICTURE OF VOLUNTEER FIRE AND RESCUE SQUAD SYSTEM**

As part of the study process, MissionCIT surveyed all fire department and rescue squad chief officers to get a sense of their current and future organizational health and service delivery abilities. Their direct responses are indicated below:

Fire Department	Daytime Volunteer Apparatus Response <i>(Min. of 3 certified personnel)</i>	Evening Volunteer Apparatus Response <i>(Min. of 3 certified personnel)</i>	Department Level Training	Preparation of Future Leaders	Projected Volunteer Department Apparatus Response 3-5 Years	Overall Department Health 3-5 Years
Blacksburg	Good	Excellent	Excellent	Good	Good	Excellent
Christiansburg	Poor	Fair	Fair	Good	Fair	Good
Elliston	Poor	Fair	Fair	Poor	Fair	Fair
Longshop McCoy	No Response	No Response	No Response	No Response	No Response	No Response
Riner	Good	Excellent	Good	Good	Excellent	Excellent
Montgomery Co.	N/A	N/A	Good	Fair	Excellent	Good

Rescue Squad	Daytime Volunteer Apparatus Response <i>(Appropriately certified personnel)</i>	Evening Volunteer Apparatus Response <i>(Appropriately certified personnel)</i>	Department Level Training	Preparation of Future Leaders	Projected Volunteer Department Apparatus Response 3-5 Years	Overall Department Health 3-5 Years
Blacksburg	Excellent	Good	Good	Good	Good	Good
Christiansburg	N/A	N/A	Excellent	Good	N/A	Fair
Longshop McCoy	Good	Good	Good	Good	Poor	Fair
Montgomery Co.	N/A	N/A	Fair	Fair	N/A	Good
Riner	Poor	Good	Good	Fair	Good	Fair
Va. Tech	Excellent	Excellent	Good	Good	Good	Excellent

Within the International Association of Fire Chiefs Volunteer and Combination Officers Section Red Ribbon Report titled, “*Leading the Transition in Volunteer and Combination Fire Departments*”, pages 3-5, there are several primary indicators for change, and/or transition to a more combination (career/volunteer) fire service system. These include:

- Community Growth
- Community Aging
- Missed Calls
- Extended Response Times
- Reduced Staffing

The report also lists other contributing factors to the transition process. Some of these include:

- Kingdoms come first
- Inability to raise funds
- Waning political support
- Controversy
- Officers filling lower operational positions
- Mission creep
- Internal conflict

Montgomery County is currently showing signs of two of the primary factors, community growth and reduced staffing, and in some of the volunteer fire departments, the extended response times. These factors are also present within the volunteer rescue squads. These indicators should be continually monitored to ensure appropriate fire protection and EMS services continue and that efforts are taken to strengthen the volunteer agencies through the recommendations in this report. If performance indicators start to show decline, then consideration for further career staffing may be indicated. In addition, the relationship between the fire departments and the county must continue to evolve positively for the system to continue.

The transition of volunteer fire departments to career-based fire departments is typically along a continuum, as shown below in Figure 63. The impacting factors above and the efforts taken to strengthen and improve the volunteer fire services will usually determine the speed of the continuum.

**Figure 63: Transition from Volunteer to Career Fire Departments**



Source: Volunteer and Combination Officers Section – Intl. Fire Chiefs Association. *The Red Ribbon Report. Leading the Transition in Volunteer and Combination Fire Departments*

Montgomery County, the Towns and the volunteer fire and rescue squad organizations must continue to monitor their performance against these indicators for change to determine when actual changes and staffing improvements need to occur. Each department and jurisdiction may move at different speeds and have to make improvements at different times. MissionCIT has provided staffing recommendations based on the data it was presented with and based on our professional judgement.

In order to effectively monitor this performance and tracking, a much-improved data collection process and performance measure system needs to be established through the dispatch process and at the department level, as has been indicated in this report. An effective collection and review process is the key, along with locally determined performance measure standards. Data collected can then be compared to the established performance data to determine compliance, identify gaps, or show that additional action steps need to be taken, either through increased staffing, additional units in service, or additional station locations. Each agency/system has its own defined trigger points.

Key data elements and performance measures that should be tracked include the following. Some can be based on NFPA 1720 standards or be locally defined.

- *Department turnout time* – Time from dispatch until first, functional unit responding
- *Department non-response rate* – Measures of when a department does not get a response unit enroute to a call in its district

- *Travel time* – Time from first, functional unit responding to arrival on scene. This is typically not an indicator of the department performance, but of the growth in an area, and increased traffic that impacts units arriving promptly. This may indicate a need for additional station locations.
- *Effective Response Force* – The number of appropriately certified personnel who respond to the scene to operate
- *Fire Calls* – “Water on the Fire” – This is a time stamp of when the first application of water occurs on a fire. This gives an indication of unit staffing and training capabilities to deliver the first amount of water.
- *EMS Calls* – “At patient side” – This is a time stamp of when the first arriving EMS unit is actually in front of the patient to begin diagnosis and treatment of their need.
- *EMS Call Triage* – An aggressive post-quality assurance review process should be initiated within the NRV911 center to determine if appropriate EMS resources, BLS or ALS, were dispatched on incidents. As an example, if it is determined that certain ALS calls did not receive ALS resources initially, then changes would need to be made in the emergency medical dispatch parameters.

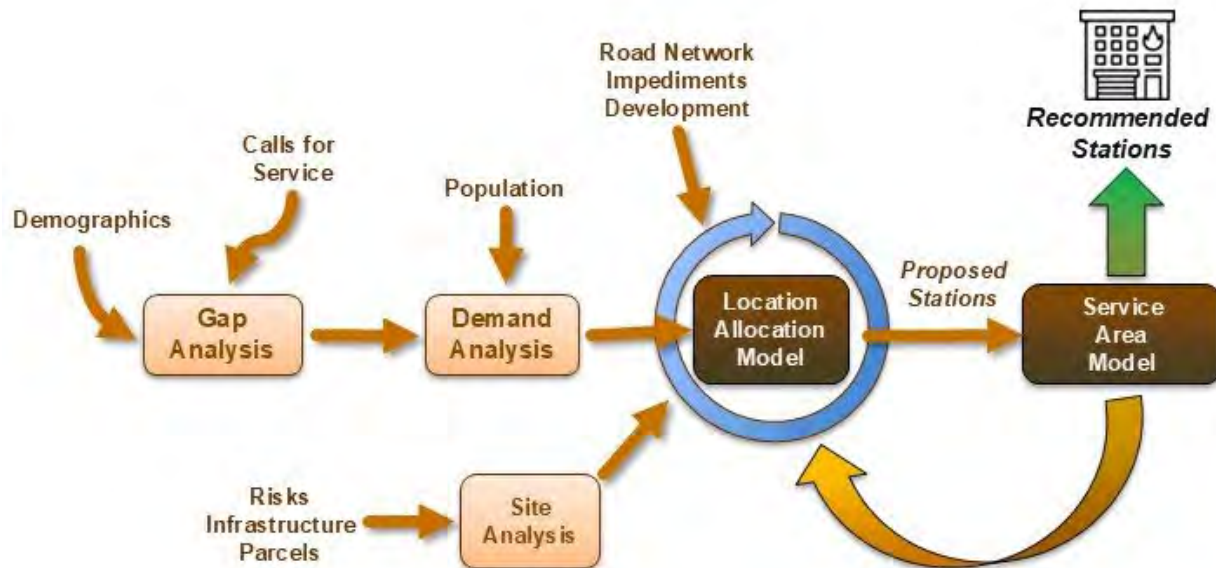
Several fire and rescue squad departments indicated that they need to do a better job in preparing their future leaders. From the experience of MissionCIT, volunteer organizations that do not develop future leaders or have a succession plan can be highly impacted when current or long-term chiefs leave. With the lack of strong leadership, members may leave, and the fire department can fold very quickly.

**Recommendation 22.1**

Current volunteer leadership should begin to actively work to develop future department company level officers and chief officers to assume positions of department leadership in the future.

**SECTION 23: FUTURE FIRE STATION LOCATIONS/NEEDS**

As part of the Request for Proposal, Montgomery County requested an analysis of future fire station needs and locations. MissionCIT conducted a thorough analysis of the existing response locations and their compliance with ISO and NFPA standards and looked at current void areas that had concentrations of fire and EMS incidents. MissionCIT also considered the current growth areas within the county and their proximity to current and future station locations.



Through our GIS analysis, we examined four scenarios using the existing fire and rescue squad station locations and then having the GIS software identify the next five additional station locations based on the current hot spots for incidents and future growth locations. The four scenarios included:

1. **Scenario #1 - Maximizing a 5-minute response time throughout the county.** This was based on the current research regarding fire flashover occurring within 5 minutes in most occupancies today.
2. **Scenario #2 - Maximizing 5-mile coverage throughout the county.** This was based on providing improved coverage to meet ISO fire protection requirements.
3. **Scenario #3 - Maximizing an 8-minute travel time throughout the county.** This was based on meeting the NFPA 1720 standard for travel times in suburban areas, assuming a two-minute unit turnout time. MissionCIT felt that urban coverage was too strict for the areas where the additional locations would be indicated, so with the future development,

we based this assessment on the suburban demand zone. The 8-minute travel time also corresponds to the EMS industry standard for the arrival of advanced life support.

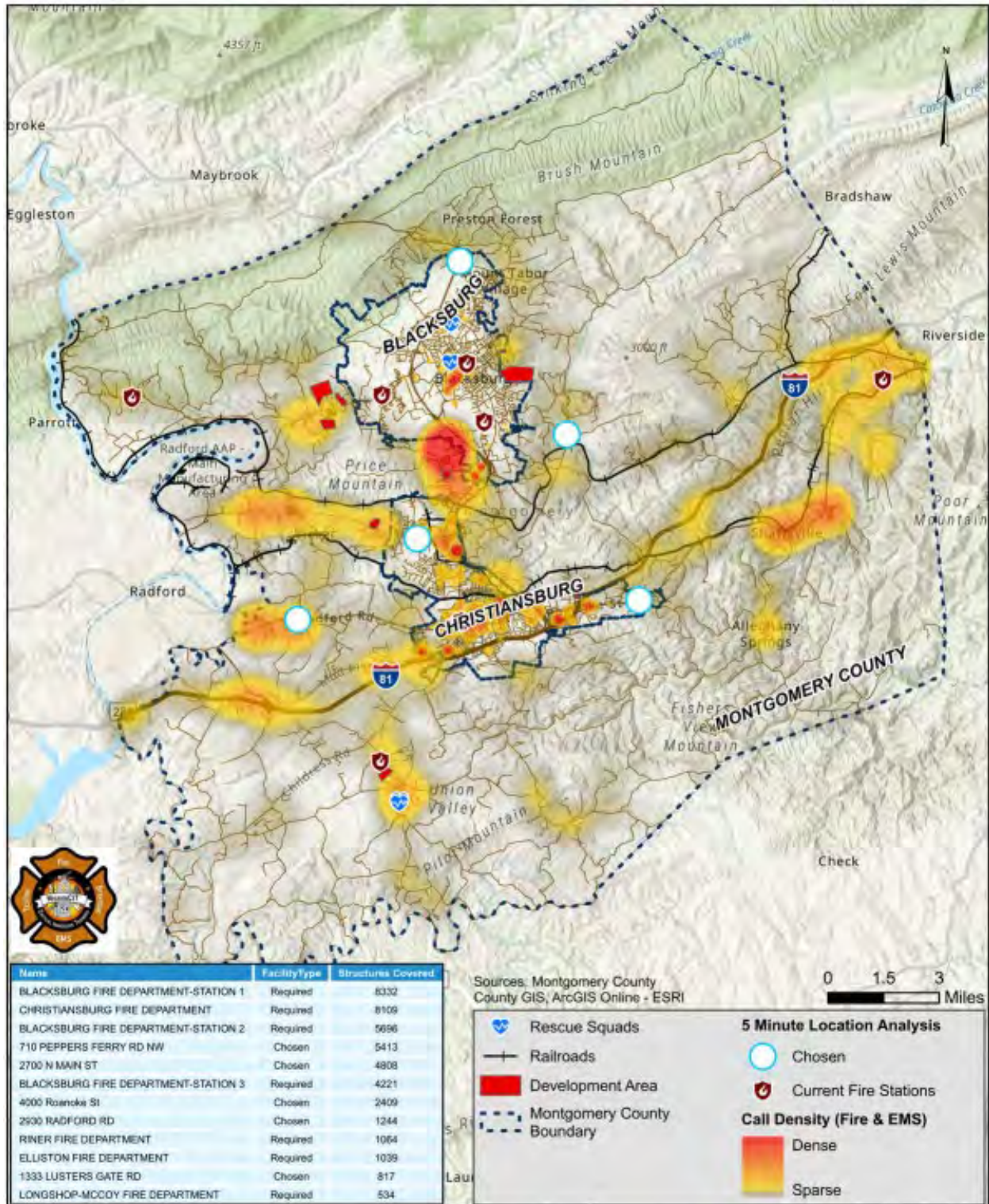
4. **Scenario #4 - Maximizing a 12-minute travel time throughout the county.** This was based on using the NFPA 1720 standard for travel times in rural areas, assuming a two-minute unit turnout time.

MissionCIT also developed a fifth scenario where none of the existing station locations were considered (clean slate) and the GIS analysis was completed to identify the ideal locations for 12 stations overall within the county for 5-mile, ISO coverage.

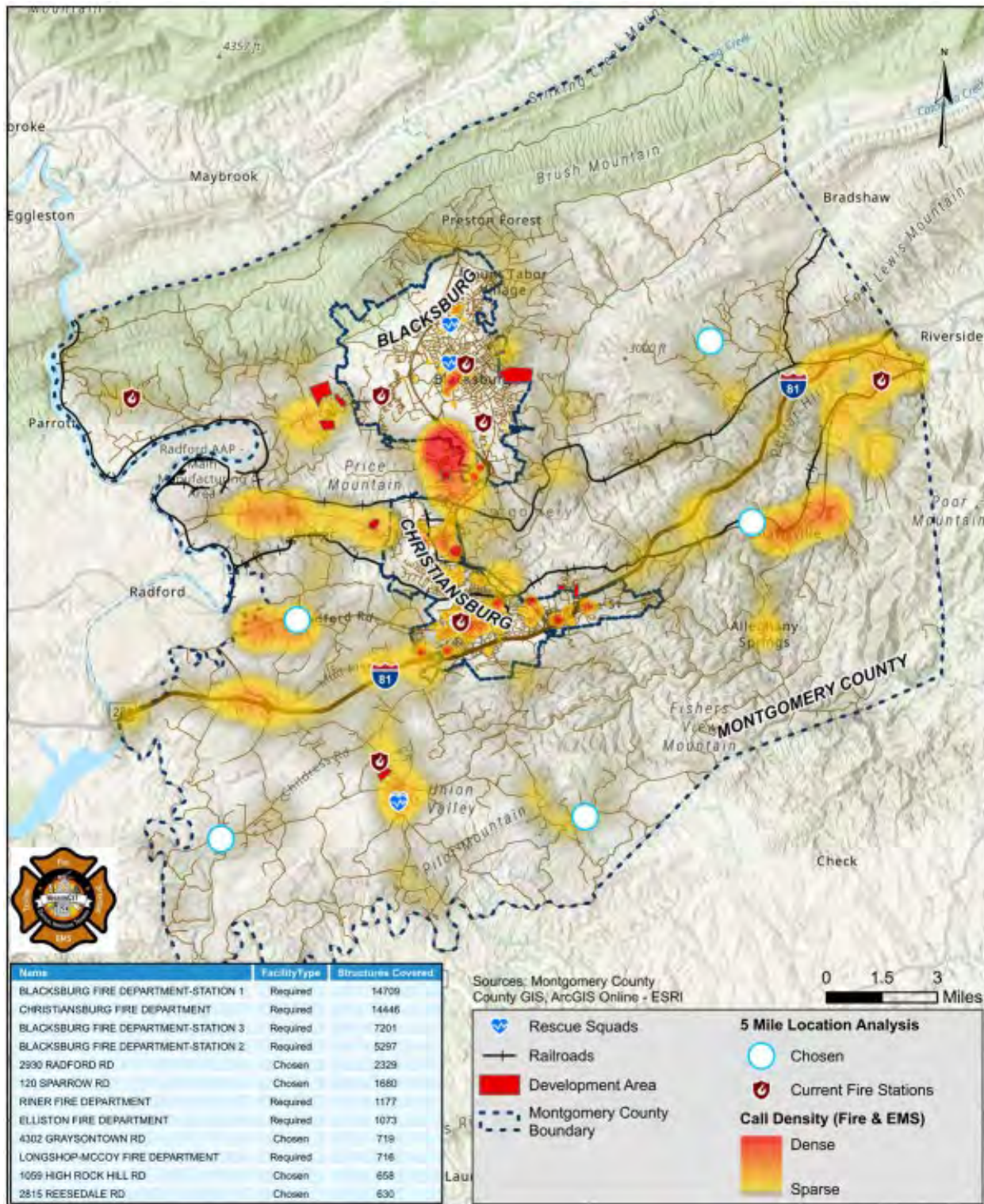
The resulting maps for each scenario show the following recommended additional station locations within the county (indicated by the green star). The existing and future station locations are overlaid against the fire and EMS call density locations (heat map) and the future development locations provided by the Planning Department (red designated areas).

As a caution, these GIS identified scenarios, outlined below, are based solely on an analysis of the response area based on the identified criteria. Locations that are selected in each scenario may not actually be available for the construction of a facility for various reasons. They may not represent good, buildable site locations due to existing properties, site dynamics, traffic patterns, zoning regulations, or balance within the fire/EMS response configuration.

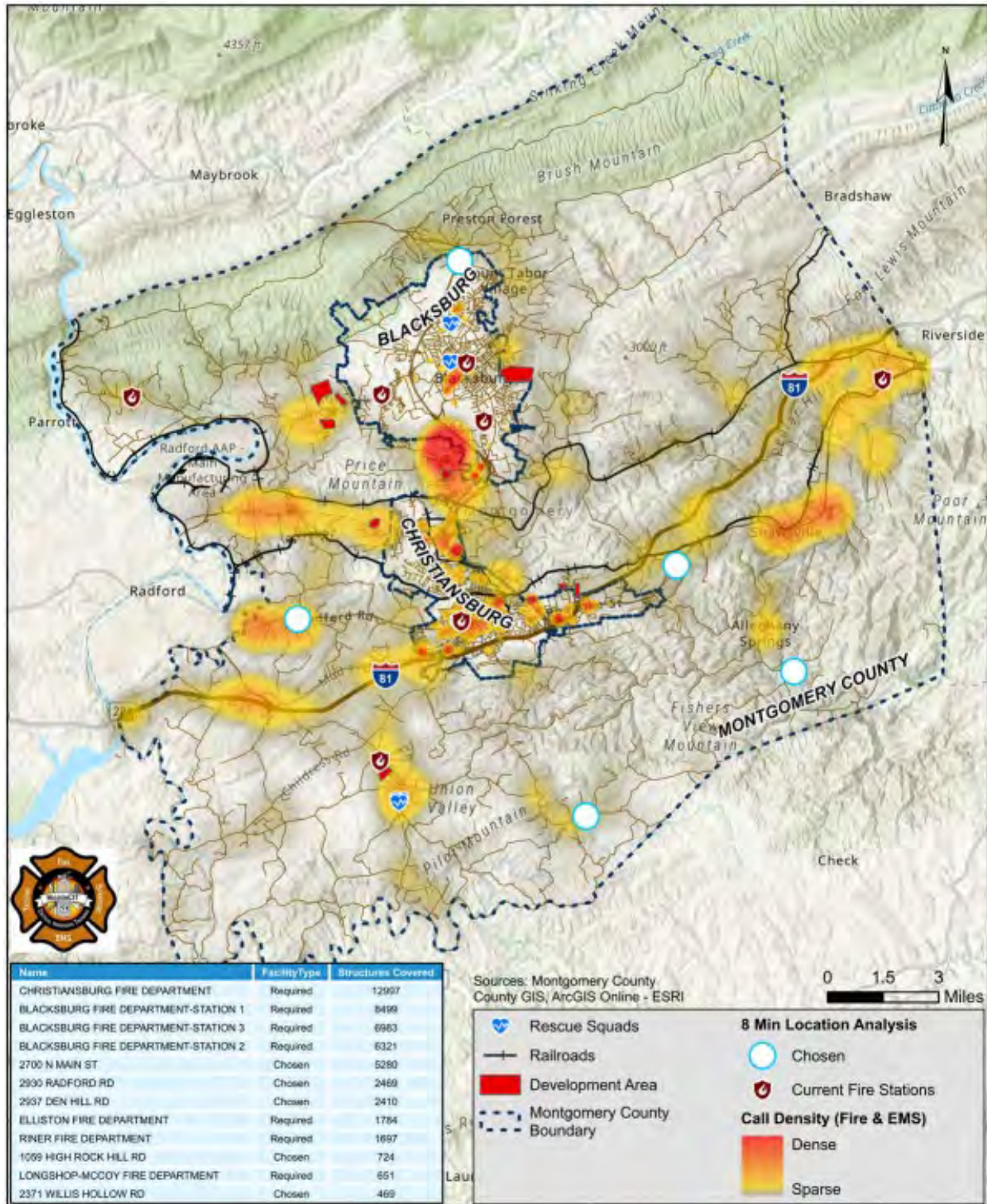
**Figure 64: Scenario #1 – 5-Minute Travel Time Coverage Locations**



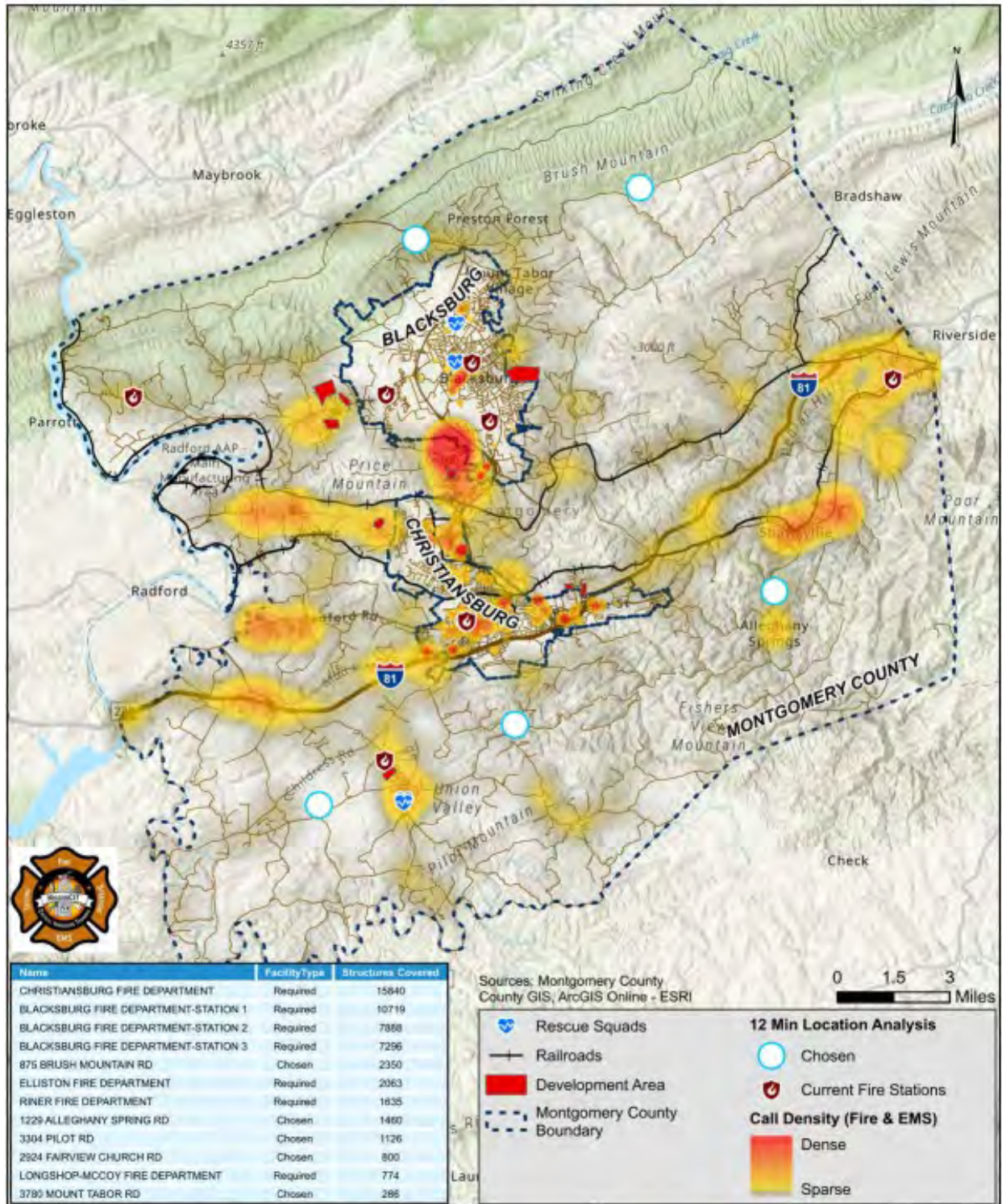
**Figure 65: Scenario #2 – 5-Mile Coverage Locations**



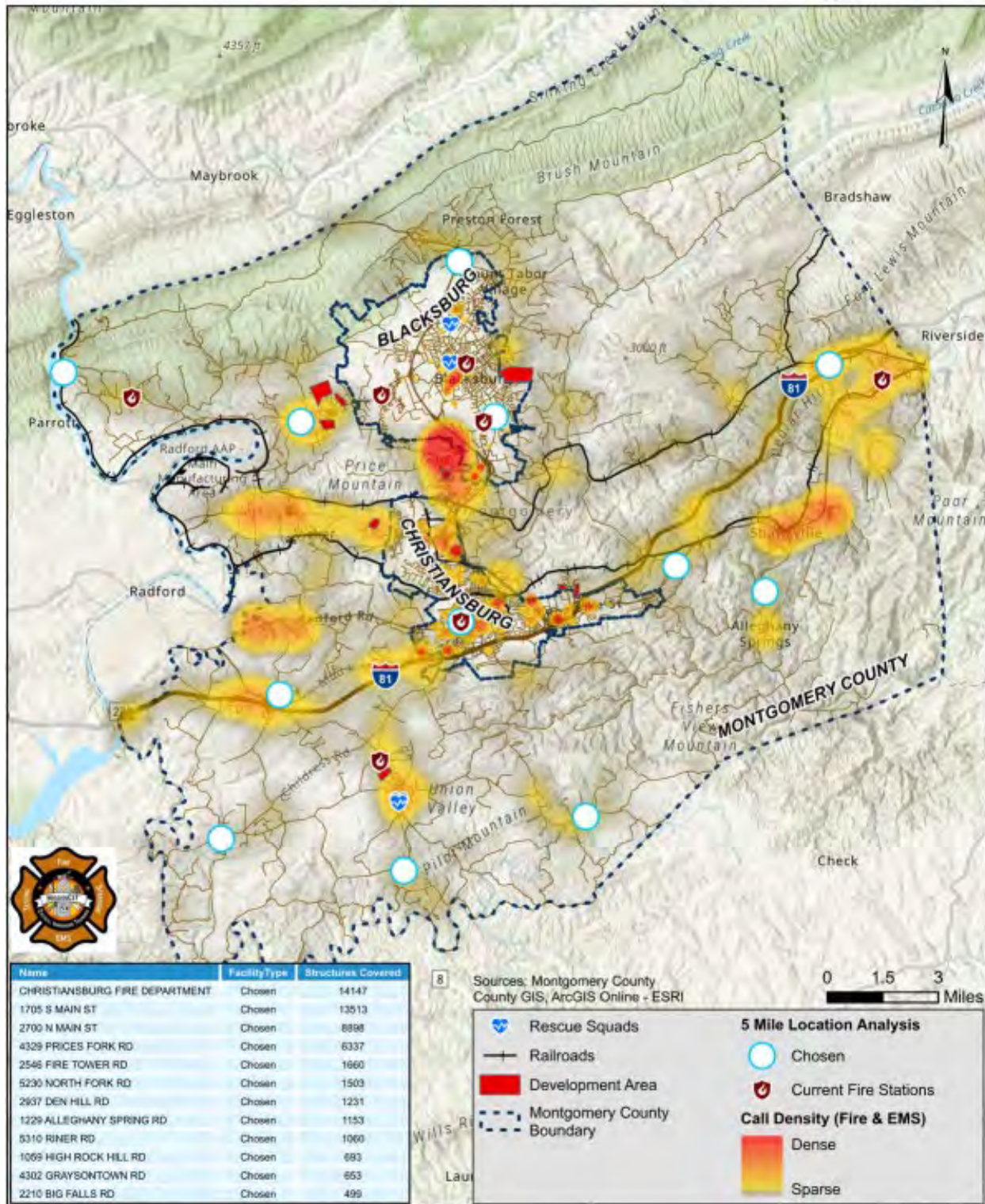
**Figure 66: Scenario #3 – 8-Minute Travel Time Coverage Locations**



**Figure 67: Scenario #4 – 12-Minute Travel Time Coverage Locations**



**Figure 68: Scenario #5 – Overall Best 12 Locations in County for a 5-Mile Response (Clean Slate)**



Each of the scenario maps show a somewhat wide difference in suggested additional station locations. Certainly, each of the scenarios is showing the locations to meet the criteria that was established for the map creation. Each scenario has advantages and disadvantages regarding the identified locations and should be considered before any decisions are made regarding locations to actually construct new facilities.

### **Pros and Cons of Each Station Location Scenario**

#### *Scenario #1 – 5-Minute travel time locations*

##### Advantages

- Overall fire and EMS coverage improves around the two towns
- The Peppers Ferry and Roanoke Street locations are locations that have been identified by Christiansburg Fire and Montgomery County as needing additional locations

##### Disadvantages

- Using a 5-minute response timeline is very tight for the current population demographics
- The coverage areas of the new locations may not properly cover long term future growth locations
- Locations primarily based on fire responses and time period to fire flashover in a structure
- This scenario does not address making improvements within the rural areas of the county

#### *Scenario #2 – 5-Mile locations*

##### Advantages

- Improves 5-mile coverage for greater ISO rating coverage within the county, potentially improving insurance coverage rates for those outside of the current 5-mile distance
- Coverage is improved in the Plum Creek and Shawsville areas of the county
- Would provide good back-up and support to the Elliston fire station from the Roanoke St. location
- The Roanoke St. location would potentially allow the shifting of some of the career staffing at Elliston to this station for no net additional personnel costs

##### Disadvantages

- Locations primarily based on meeting ISO 5-mile coverage, which is more difficult in rural areas
- Three of the proposed locations are in even more rural areas of the county

*Scenario #3 – 8-Minute travel time locations*

Advantages

- Coverage is improved for the Town of Christiansburg and the Plum Creek area of the county

Disadvantages

- Two of the proposed locations are in the more rural areas of the county
- Coverage is not improved within the current development and hot spot areas around the Merrimac areas

*Scenario #4 – 12-Minute travel time locations*

Advantages

- Improves coverage in the rural areas
- Provides coverage for the rural area to meet NFPA 1720

Disadvantages

- Does not improve coverage within the towns or the current growth areas

Regarding Scenario #5, it is interesting to note that six of the current station locations (50% of current locations) were also chosen, or were immediately close to locations chosen in this analysis. These locations include Christiansburg Fire and EMS, Blacksburg Fire Station #3, Riner Fire and Rescue and the Elliston Fire and EMS. This configuration also provides improved coverage in the Prices Fork and Plum Creek areas. The remaining six locations were selected based primarily to improve overall 5-mile coverage within the entire county.

The GIS analysis scenarios do not provide one clear answer as to where the next five fire and EMS station locations should be placed. They do provide options for consideration by the jurisdictions based on the level of protection desired.

It is MissionCIT's recommendation that Montgomery County and the towns take a balanced assessment of all the scenarios before decisions are made regarding future station locations.

Taking into account the five scenarios, MissionCIT's knowledge of the county and our professional experiences, we would recommend that the initial station locations for consideration be the following:

*Immediate*

- Peppers Ferry – Approximately the 2200 block. This would provide balanced response to the dense Business Rt. 460/Merrimac areas as well as the Peppers Ferry and Prices Fork location (Belview area).

*Intermediate*

- The Radford Road location – Approximately 2930 block. This would provide improved coverage to the developing Plum Creek and Bethel areas of the county as well as coverage of the hospital.
- The area of Roanoke Road/Lee Highway. This would provide coverage to the west end of Christiansburg, I81 and improve coverage to Shawsville and provide back-up to the Elliston Fire Station. Staffing from Elliston could potentially be relocated to provide the staffing for no additional personnel costs.

Consideration for station locations outside of the next five years should be an ongoing process, but should be based on growth that is unknown at this time or other needs that arise due to future development.

**Coverage Comparison**

MissionCIT also conducted a GIS analysis to determine the level of fire department coverage (parcels with improvements) within the county with each scenario and those parameters. The percentages are the total % of parcels covered within each scenario. The results show:

Fire Department District	Existing Stations	Proposed 12 Stations	Proposed 12 Stations	Proposed 12 Stations	Proposed 12 Stations
	<i>Five Mile Coverage</i>			<i>Eight Minute Coverage</i>	<i>Twelve Minute Coverage</i>
Countywide	79.73%	76.13%	89.07%	87.90%	95.30%

**Response Time Reference Information**

In addition to the GIS analysis of future fire station locations, MissionCIT also reviewed current response time mileage and travel times from the potential new station sites to key locations to show the impacts of the locations.

A review of the mileage and travel time for several of the other identified station locations shows the following:

2200 Peppers Ferry Road vs. 710 Peppers Ferry Road Fire Station Locations

<b>Start Location</b>	<b>Finish Location</b>	<b>Miles (Approx.)</b>	<b>Travel Time (Approx.)</b>
2200 Peppers Ferry	Peppers Ferry and Business Rt. 460	2.8	5 minutes
2200 Peppers Ferry	Peppers Ferry and Prices Fork	2.4	3 minutes
2200 Peppers Ferry	Prices Fork and McCoy Road	5.6	7 minutes
Peppers Ferry and Prices Fork	Peppers Ferry and Business Rt. 460	5.2	10 minutes
710 Peppers Ferry	Peppers Ferry and Business Rt. 460	0.7	3 minutes
710 Peppers Ferry	Peppers Ferry and Prices Fork	4.7	7 minutes
710 Peppers Ferry	Prices Fork and McCoy Road	7.9	11 minutes
710 Peppers Ferry	2200 Pepper Ferry	2.2	3 minutes
BFD Station #2	Prices Fork and McCoy Road	2.6	5 minutes
BFD Station #3	Peppers Ferry and Business Rt. 460	3.9	8 minutes

4000 Roanoke St.

<b>Start Location</b>	<b>Finish Location</b>	<b>Miles (Approx.)</b>	<b>Travel Time (Approx.)</b>
4000 Roanoke St.	Franklin and Main St.	4.7	9 minutes
4000 Roanoke St.	Shawsville area	4.6	6 minutes
4000 Roanoke St.	Elliston area	9	12 minutes

2700 N. Main Street

<b>Start Location</b>	<b>Finish Location</b>	<b>Miles (Approx.)</b>	<b>Travel Time (Approx.)</b>
2700 N. Main Street	VT Campus – Burchard Hall	4.3	8 minutes
2700 N. Main Street	BFD #1	3.2	7 minutes

Blacksburg Fire Department/Virginia Tech Response

<b>Start Location</b>	<b>Finish Location</b>	<b>Miles (Approx.)</b>	<b>Travel Time (Approx.)</b>
BFD Station #1	VT Campus – Burchard Hall	1.5	7 minutes
BFD Station #2	VT Campus – Burchard Hall	2.3	7 minutes
BFD Station #3	VT Campus – Burchard Hall	3.1	11 minutes

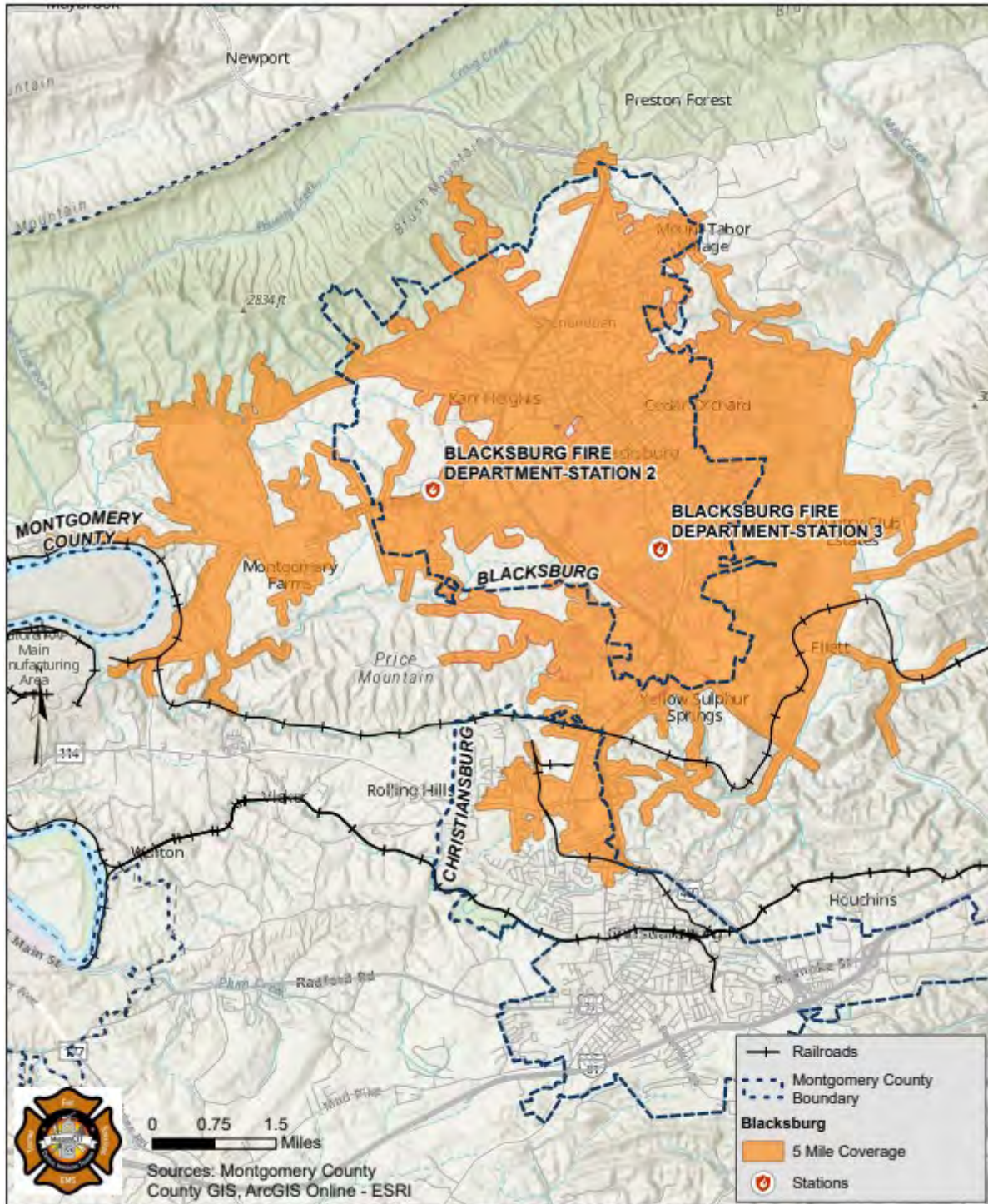
MissionCIT would recommend that any new station locations serve as joint EMS response locations in order to provide improved response time for EMS coverage. The staffing at these locations would be recommended to include dual role fire/EMS personnel to provide better fire and EMS coverage. If one of the volunteer rescue squads' desires to provide staffing at one of the locations, they should be encouraged to do so. The recommended staffing level has already been outlined within the staffing section of the report.

A consideration should also be given to Montgomery County and the Town of Christiansburg cost sharing the personnel costs for the 2200 Peppers Ferry fire station location. The rationale for this is that the bulk of the station's responses in the foreseeable future will be in the Town of Christiansburg.

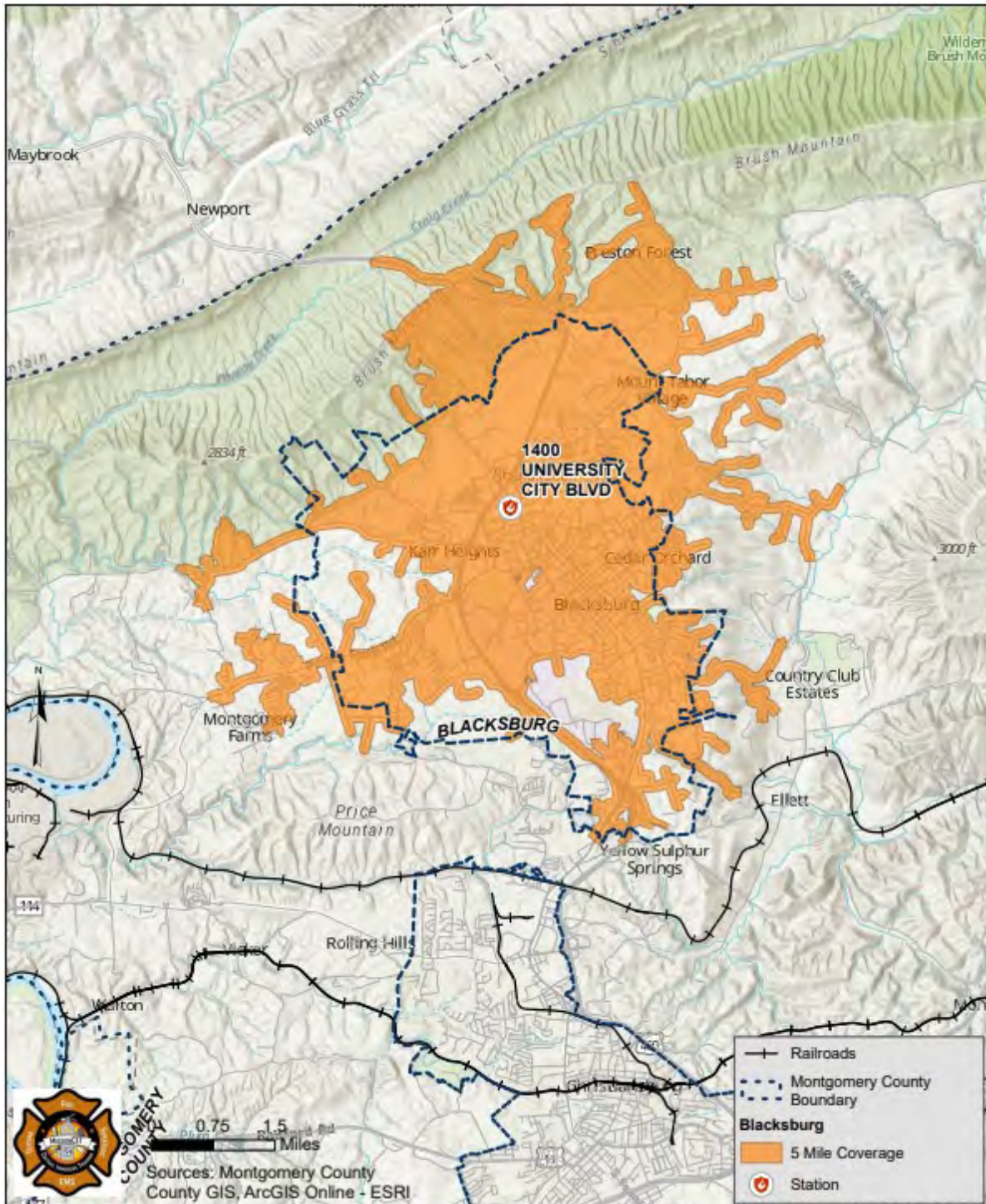
#### *Blacksburg Fire Department*

MissionCIT performed some basic GIS analysis regarding the number of stations needed within the Town of Blacksburg and found that if Station #1, which we have recommended replacing, was not replaced, there is still good ISO 5-mile coverage from their remaining two stations. (See below) We also performed a GIS analysis of the coverage within the town if there was just one fire station location, which was selected by the GIS software. Again, there is good coverage for ISO 5-mile coverage with one station centrally located within the town. (See below)

Figure 69: Blacksburg Fire Department – Two Station Coverage (No Station #1)



**Figure 70: Blacksburg Fire Department – Coverage from One Central Fire Station**



## CONCLUSIONS

Montgomery County, the Towns of Blacksburg and Christiansburg, and the volunteer fire and rescue squads are moving through an important and critical phase in their history. The county and the towns are developing at a strong pace. The growth is impacting the workloads and response times of each department. In addition, the expectations from those new residents of their emergency services are also increasing as they come from areas that may provide vastly different levels of service. Yet, each of the volunteer fire and rescue squads are impacted by the nationwide issue of a decline in the number of volunteers and increasing training and certification requirements. This decline translates into a decline of qualified numbers of fire and EMS personnel able and willing to respond to the increasing calls for service.

Montgomery County has done a good job of working to fill the gaps in fire and EMS service delivery with the hiring of career personnel in order to continue to have appropriate services delivered. However, there is still a need for more consistent planning and true, systemwide, thinking regarding the improvement and delivery of fire and EMS services. Each organization can retain its identity, but true collaboration on what the needs of the system are and how the system best needs to provide services is still needed. Maintaining volunteer systems is needed, within Montgomery County, and is possible with some of the identified recommendations within the report. However, creative improvements are necessary to maintain the volunteer component, but to also cover the gaps with full time personnel. It requires a balance.

MissionCIT completed a thorough assessment of all aspects of the fire and rescue squad services. Our recommendations are objective and based on available data, fire and EMS industry standards and industry best practices.

## IMPLEMENTATION PLAN

As the MissionCIT recommendations cover all aspects of the fire and rescue delivery system, across multiple agencies, it would not be practical to develop a specific implementation plan for all of the recommendations. Instead, MissionCIT is providing a general implementation plan for the key strategic themes/issues within the report. Depending on how these strategic items are implemented may determine the order and timing of the remaining recommendations.

The strategic themes, in no order, from our assessment include the following:

- Governance and Oversight
- Funding
- Countywide System Approach
- Improved Resource Allocation and Staffing
- Health and Safety
- Dispatch

The implementation of the key strategic themes can be done through phases. The timing of these phases and any specific recommendations associated with them, and any of the other recommendations, do not have to be implemented in a linear manner. Multiple improvements may take place at a time. The general implementation phases include the following recommendations:

### **Phase 1 – Short Term**

- Increase strategic system oversight by the Fire Rescue Commission and/or Montgomery County
- Create sub-committees within the Fire Rescue Commission to address strategic and system issues
- Work to eliminate or reduce the organizational silos within the fire and rescue system

### **Phase 2 – Intermediate Term**

- Improve recruitment and retention of volunteer and career personnel
- Develop a county funding allocation model for the towns and a funding process for the volunteer fire departments
- Develop a countywide records management system, including how NRV911 tracks calls for service
- Develop countywide fire performance standards, similar to EMS

- Develop systemwide policies, procedures, operating guidelines, training requirements and training processes
- Review and develop fire and EMS response districts based on closest unit
- Develop a strategic approach to the provision of technical rescue services
- Identify community risks and resource needs within the system. This includes determining the number and type of fire apparatus and EMS vehicles.

### **Phase 3 - Extended**

- Identify future fire/EMS station locations to improve response
- Begin the process to identify, purchase land and build additional needed station facilities
- Improve staffing within fire and EMS
- Initiate health and safety improvements within the fire and rescue system and improve fire code enforcement services to the public
- Complete a thorough assessment of the NRV911 dispatch center, its data collection and call handling and dispatch processes
- Streamline fire and EMS dispatch and operational channels

## IMPLEMENTATION COSTS

The implementation costs are only baseline estimates for Montgomery County and the Towns for projection/fiscal purposes regarding the strategic items outlined above. They do not include every recommendation. They are based on 2026 known costs and may increase depending on when the plan items are implemented or personnel are hired.

### Phase 1 – Short Term

No known costs

### Phase 2 – Intermediate Term

*Countywide RMS*

Approximate costs unknown based on number of users and RMS modules purchases.

*Volunteer and Career Personnel Recruitment Programs and Retention Initiatives*

Unknown

*Hire a Volunteer Human Resource Manager to Assist with Recruitment and Retention*

Salary and Benefits (Grade 16)	\$61,779
Uniforms	\$500
Vehicle	\$50,000

### Phase 3 - Extended

*Health and Safety Improvements*

- Fit testing for all fire department personnel and selected rescue squad personnel who wear respirators or self-contained breathing apparatus
  - Total of 270 fire personnel
  - Estimate of 40 rescue squad personnel
  - On duty or existing personnel can go throughout the county conducting the testing

Approximately 4 SCBA fit testing machines to be used across the county (If needed)	\$40,000
Personnel time costs	Unknown

- Installation of diesel exhaust systems within the appropriate locations

Per station for diesel capture systems	\$70,000 - \$90,000 one time
Per unit for In-Unit filtration systems	\$10,000 per unit one time, but requires replacement

- NFPA 1582 Entry and annual health assessments for all fire department personnel and potentially the rescue squad members

Approximately 270 fire personnel at \$800 per person	\$216,000 annually
Approximately 387 rescue squad personnel at \$800 per person	\$309,600 annually
New members annually (Estimated 30)	\$24,000 annually

- Initiate a countywide physical fitness program for fire and rescue squad personnel

Equipment for each station	Unknown
Fitness trainer	Unknown

*Staffing Improvements*

Personnel costs are based on current town or county salary levels and assumes a 40% salary to benefit ratio. The fire staffing cost estimates are based on a four-shift staffing approach for a 42 hours/week staffing model, as is currently being done with Montgomery County Fire and EMS and Christiansburg EMS. Based on the call workload, and considering fiscal responsibility, the jurisdictions could consider fire staffing with three shifts, at a 56 hour/week model, which would reduce personnel costs approximately 25% per year. This decision would have to be measured against work/life balance issues that personnel now favor which may affect job satisfaction.

- Hire personnel to staff a 4-person fire unit, 24/7, within Blacksburg

1 Captain	\$91,093
4 Lieutenants	\$331,246
12 Firefighter/EMT's	\$903,403
Uniforms and PPE for all positions (one time)	\$93,500
Health Assessments (entry and annual)	\$13,600

- Hire 2 personnel to staff a 4-person fire unit, daytime, within Christiansburg

1 Lieutenant	\$82,790
1 Firefighter/EMT	\$64,689
Uniforms and PPE for all positions (one time)	\$11,000
Health Assessments (entry and annual)	\$1,600

- Hire personnel to staff a 4-person fire unit, 24/7, within Christiansburg

1 Captain	\$86,930
4 Lieutenants	\$331,161
10 Firefighter/EMT's (Using existing 2 FF's)	\$648,690
Uniforms and PPE for all positions (one time)	\$93,500
Health Assessments (entry and annual)	\$13,600

- Hire an additional staff member within MCFEMS for the training division

Training Captain	\$86,930
Uniforms and PPE (one time)	\$5,500
Health Assessment (entry and annual)	\$800

- Hire a full time Fire Marshal and Fire Inspector for MCFEMS

Fire Marshal (Grade 24)	\$91,273
Fire Inspector (Grade 19)	\$71,518
Vehicles	\$110,000
Uniforms and PPE	\$11,000
Health Assessments (entry and annual)	\$1,600

- Hire personnel to staff a third ALS ambulance within Christiansburg EMS

4 Paramedics	\$317,134
4 EMT's	\$274,083
16 Part Time (8 ALS, 8 BLS)	\$58,800
ALS Precepting Costs (one time)	\$78,000
BLS Precepting Costs (one time)	\$48,000
Uniforms (one time)	\$24,000
Health Assessments (entry and annual)	\$19,200

- Hire ALS personnel to provide ALS staffing for Blacksburg Rescue (based on Christiansburg Pay Scale)

4 Paramedics	\$317,134
ALS Precepting Costs (one time)	\$26,000
Uniforms (one time)	\$4,000
Health Assessments (entry and annual)	\$3,200

*Additional Fire/EMS Stations*

- Construction of at least one, if not three additional facilities during the next eight years
  - Peppers Ferry Road
  - Roanoke St./Lee Highway
  - Radford Road
- Additional station locations may require the relocation of current apparatus, such as ladder trucks, to the new stations. MissionCIT would recommend that a ladder truck be placed in the Peppers Ferry Road fire/EMS station.
- Renovations/additions to existing stations – Costs unknown
- Personnel costs to staff each station at five fire/EMS personnel per station shown below based on current salary scales and costs (Allows staffing an engine and ambulance at each location)

Construction (cost/station)	
Each additional fire/EMS station	Approximately \$7-15 million based on station size. Does not include site purchase, site prep., apparatus or equipment within the station
Renovations	
Renovations to existing stations	Costs unknown
Staffing Costs (cost/station - 2026 costs)	
1 Captain	\$86,930
3 Lieutenants	\$248,371
8 Firefighter/EMT's	\$518,952
8 Firefighter/Paramedics	\$600,746
Uniforms and PPE (one time)	\$110,000
Health Assessment (entry and annual)	\$16,000

**Real Estate Values of One Cent Increase**

The current value of one cent of real estate tax, within each jurisdiction, in order to fund future improvements to fire and rescue services is worth the following:

Town of Blacksburg	\$500,000
Town of Christiansburg	\$325,000
Montgomery County	\$1.2 million

Based on the cost projections provided, each jurisdiction would have to increase their real estate taxes by the following to fund the personnel improvements over an eight-year period of time. It would be recommended that the ALS staffing for Blacksburg Rescue Squad be funded through their EMS billing program. These estimates do not include the one-time equipment and health assessment costs. The improvements could also be funded through a cost sharing approach between the county and the towns.

Town of Blacksburg	Approximately 2.65 cents
Town of Christiansburg	Approximately 5.74 cents
Montgomery County	Approximately 0.21 cents

Future new fire/EMS station staffing costs (no station or equipment costs) would require an additional investment of approximately the following from Christiansburg and/or Montgomery County, depending on where future facilities are sited.

Town of Christiansburg	Approximately 4.48 cents
Montgomery County	Approximately 1.2 cents

## SUMMARY INFORMATION

### STRENGTHS, WEAKNESSES, OPPORTUNITIES AND CHALLENGES

MissionCIT utilized SWOC analysis sessions to identify Strengths, Weaknesses, Opportunities and Challenges as perceived from various groups. In the SWOC sessions, attendees were asked “Please identify what you perceive as the Strengths, Weaknesses, Opportunities, and Challenges of your department and the fire/rescue system in Montgomery County.” It was clarified that Strengths and Weaknesses pertain to the current situation, while Opportunities and Challenges refer to future state. At the end of each session, groups were asked “What would be your top recommendation to enhance the fire-rescue service in your department or the system?”

SWOC sessions were hosted between November 13<sup>th</sup> and November 17<sup>th</sup> 2025 with seven stakeholder groups: Fire Rescue Commission, Citizens (2 sessions), Career personnel (2 sessions), Fire volunteers in county stations, Fire volunteers in town stations, Rescue volunteers in county stations, and Rescue volunteers in town stations. The order of the events and attendance included:

- 11/13 Fire rescue commission – This session occurred at their monthly meeting.
- 11/13 Fire Volunteer (County) – 5 Riner Fire volunteers in attendance
- 11/14 Career (County and towns) – Christiansburg EMS (6 in attendance), Christiansburg Fire (2 in attendance), Montgomery County (11 in attendance)
- 11/14 Citizens – 4 citizens in attendance and 2 of the citizens had fire department affiliations
- 11/15 Fire Volunteers (Towns) – 6 from Christiansburg Fire and 1 from Blacksburg Fire in attendance
- 11/16 Citizens – 2 citizens in attendance and both citizens had fire department affiliations
- 11/16 Volunteer Rescue Squad (County) – 0 attendees
- 11/16 Volunteer Rescue Squad (Towns) – 2 from Blacksburg Rescue in attendance
- 11/16 Career – 2 in attendance (Due to time constraints, we didn’t ask for their top recommendation to enhance the fire-rescue service.)

MissionCIT also met with three external stakeholder groups - Emergency Services Partners, Town Managers, and County and Town Finance staff - for informal discussion of the Fire and Rescue system. The external stakeholders were also asked “What would be your top recommendation to enhance the fire-rescue service in your department or the system?”.

- 11/13 – Town Manager discussion
- 11/14 – Emergency Services Partner discussion
- 11/14 – County and Towns Finance staff discussion

From the nine SWOC sessions, we gathered 311 total comments: 77 strengths, 95 weaknesses, 72 opportunities, and 67 challenges. The comments were summarized into 20 categories. Detailed SWOC comments are listed in Appendix J.

**Table 47: Categories of Comments from SWOC Sessions**

Category	Strength	Weakness	Opportunities	Challenges	Total
Personnel	18	10	6	11	45
Training	9	9	11	4	33
Dispatch	0	19	11	0	30
SOP	1	15	5	2	23
Culture	6	7	3	6	22
Funding	4	2	3	13	22
Service	10	2	4	3	19
Apparatus & Equipment	8	4	2	2	16
Strategic Planning	2	6	3	3	14
Facilities	1	3	6	2	12
Benefits	2	4	6	0	12
Recruitment	0	4	1	6	11
Community engagement	8	0	2	1	11
Retention	1	3	3	2	9
Community outreach	1	2	5	0	8
Community growth	0	1	0	7	8
Support	3	1	0	3	7
Leadership	3	2	0	0	5
Infrastructure	0	0	0	2	2
Communication	0	1	1	0	2
<b>Total</b>	<b>77</b>	<b>95</b>	<b>72</b>	<b>67</b>	<b>311</b>

**SWOC Summary**

The majority of attendees view the dedication and commitment of the personnel, the service provided, and the equipment and apparatus as a strength of the Fire/Rescue System.

Dispatch was strongly criticized as a weakness of the system. Concern was raised regarding inconsistent call processing, delayed alerts or alerts to law enforcement prior to fire and EMS on

fire and EMS calls, and unwillingness to accept critique for change. The groups provided multiple opportunities to enhance the working relationship and service between dispatch and Fire and EMS.

The system personnel (career and volunteer) also saw a lack of standard operating procedures as a significant weakness. Inconsistent standards, requirements, operation procedures, and radio communications impacts operations and service delivery. Standard operating procedures clearly spell out what is expected and required of personnel during emergency response and non-emergency activities. Expectations, though often difficult to initiate and adapt, are critical for the safety and well-being of the fire and rescue squad personnel and the citizens they serve. Again, the group provided opportunities to address the concern.

Possibly due to the lack of standard operating procedures, joint training was mentioned as an opportunity over many of the sessions. Joint training can improve communication, recognize service & skills gaps, and enhance service delivery proficiency. Joint trainings can lead to improved safety and more effective operations during an actual emergency response. Additionally, opportunities to enhance dispatch personnel's knowledge of fire and EMS included providing them opportunities for ride-a longs for cross-familiarization, giving dispatchers more training in fire and EMS, and provide career firefighters who are on injury duty to sit in dispatch to assess opportunities for improvement for both agencies.

Funding is the most significant challenge. This challenge includes increase costs for apparatus and equipment, where funds will come from, and the challenge in developing an equal funding model. Personnel is the next highest challenge with concerns being aging volunteers, lack of recruitment and retention of personnel, a limited career staffing pool and lack of part-time availability, and inability for current personnel to be cross trained in fire and EMS.

## INTERNAL MEMBER SURVEY SUMMARY

An internal member survey was conducted from October 17 to November 16, 2025 and distributed through the county to the career and volunteer fire and rescue squad personnel. A strong response with 210 members from 10 of the 11 departments were represented. Virginia Tech Rescue Squad was the only agency without responses.

Survey respondents were asked to identify their affiliation type with the fire rescue departments. We asked respondents to identify themselves as: Volunteer, Career, or Both Volunteer and Career (BVC). To provide a more accurate perspective, members who were both career and volunteer were asked to complete a survey with comments from each perspective. Twenty-four responses indicated both career and volunteer, which would indicate twelve members completed the survey twice in their respective roles. Of the remaining 186 responses, 74% of the responses came from volunteer members, 26% were from career personnel.

Members who had 0-5 years with the fire department/rescue squad represented 48.5% of the responses, 14% of the responses had 6-10 years of service, 8.5% of the responses had 11-15 years of service with their department, 11% had 16-20 years of service with the department, 6% had 21-25 years of service with the department, and 12% had 26+ years with the department. The role of the respondents showed line personnel at 66%, company officers at 15%, chief officers at 14%, and support/auxiliary personnel at 4% and administrative personnel at <1%. Full survey results are provided in Appendix K.

The survey was broken into 8 categories using a rating system of 1 (Strongly disagree) and 5 (Strongly agree). The categories included, Training and Professional Development Program, Recruitment and Retention Efforts, Communication, Work Atmosphere, Safety, Leadership/Direction, Service Delivery, and Equipment/Facilities. Two questions asked for appraisals of Services and Features of their department using a rating of 1 being Requires Significant Improvement and 5 being Excellent. Additionally, questions were asked about reasons for joining, consideration for leaving, the top 3 issues within their department, the 3 top issues to improve retention, and the top 3 challenges in the next 5 years.

The summary below includes all responses of the internal members and is not broken down into their affiliation, rank, and years of experience. As with many surveys, a small subgroup of individuals may show an extreme response bias, choosing the extremely negative response over varied and possibly genuine responses. These respondents indicate potential disengagement, cultural tendencies, or a strong, though perhaps exaggerated, negative feeling. Though this survey

had a few of those types of responses, they had little impact on the overall response. In general, the majority of the survey questions showed a majority of agreement to strong agreement.

### **Training and Professional Development**

- Our department has a good probationary training program.
- My training prepares me for the types of emergency incidents that I am likely to encounter in my job.
- Training is consistent throughout the department.
- In general, all department personnel are adequately trained to do their jobs.
- The department's training records are accurate and current.

The survey shows strong agreement that respondents feel their training prepares them for the types of emergency incidents they are likely to encounter in the job. The two statements that received an equal amount of disagreement to agreement is that training is consistent throughout the department and all department personnel are adequately trained to do their jobs. Concerns of inconsistent training standards breaks down morale and can impact service and safety.

### **Recruitment and Retention Efforts**

- We actively recruit in our community.
- I was welcomed as a new volunteer/career member.
- I'm provided appropriate resources to serve as volunteer/career member.
- Leadership supports growth in the department.
- I am recognized for my contributions.
- Leadership engages with members on a consistent basis.
- We have a strong sense of camaraderie in our department.
- We have a strong sense of pride in our department.

Though all questions showed majority agreement and strong agreement, respondents showed significant strong agreement that they have a strong sense of pride in their department, were welcomed as a new volunteer/career member, and are provided appropriate resources to serve as a volunteer/career member. Respondents indicated higher levels (28%) of disagreement in the statement that they actively recruit in their community. These concerns are repeated through the survey, the SWOC sessions, and site visit.

### **Communication**

- I am well informed about the activities at my department.
- An open flow of communication is maintained to and from the senior leadership (i.e., chief, deputy chief, squad leader, etc.) and the line personnel.

- My department's leadership values member input in general.
- I feel listened to as a member of the organization

Respondents showed satisfaction with the communication within their department, including being well informed about the activities at their department, feeling listened to as a member of their organization, and leadership valuing their input. Though a majority of respondents showed satisfaction, approximately 20% of respondents disagreed that there is an open flow of communication being maintained to and from senior leadership.

### **Work Atmosphere**

- Morale in the department is good overall.
- My immediate supervisor is knowledgeable.
- I have a clear understanding of my job and responsibilities.
- The department provides me with the resources necessary to perform my job effectively.
- Decisions at the department are made in a timely, impartial, and consistent manner.

Respondents showed strong agreement that their immediate supervisor is knowledgeable, they have a clear understanding of their job and responsibilities, and that the department provides them with the resources necessary to perform their job effectively. Though the remaining two statements showed a majority agreement, 22% of respondents showed a neutral response that morale in the department is good overall and 20% disagreed that decisions at the department are made in a timely, impartial, and consistent manner.

### **Safety**

- We have a good safety culture in the organization.
- I feel safe while working in my position.
- Members are provided with good safety equipment.
- We have good SOPs/SOGs to provide safety guidelines and boundaries.
- Our personnel response to incidents is too small.

Safety showed the highest agreement of the survey, with 43% - 70% of respondents strongly agreeing to five of the six safety statements. Respondents positively responded that they have a good safety culture in the organization, they feel safe while working in their position, members are provided with good safety equipment, and they have good SOPs/SOGs to provide safety guidelines and boundaries. One of the statements, "Our personnel response to incidents is too small" showed mixed disagreement (40%) with agreement (35%) with an average neutral response. The statement is a reverse statement which may have confused some respondents.

### **Leadership/Direction**

- I feel confident in our direction as an organization.
- I trust our department's leadership.

Both statements had majority agreement to strongly agree, but 22% of respondents disagreed in feeling confident in the direction as an organization.

### **Service Delivery**

- We provide high quality services to the public.
- We provide the correct level of services to the public.
- We need to expand the level of services to the public.

Eighty seven percent (87%) of the respondents strongly support that they provide high quality services to the public and 80% support that they provide the correct level of services to the public. The majority of the respondents did not support the final statement regarding the need to expand the level of services to the public, with 26% neutral responses and 25% disagreeing to the statement.

### **Equipment/Facilities**

- We operate with good equipment.
- We have good stations and facilities.
- Our department regularly plans for equipment replacement.

All three statements are strongly supported with 80-85% of respondents agreeing & strongly agreeing to each statement.

### **Services**

Respondents were asked to appraise how well the services are delivered by their agency. Only services provided by a department were rated by respondents.

- Medical Fire Responder
- Basic Life Support Emergency Medical Services
- Advanced Life Support Emergency Medical Services
- Public safety education
- Fire suppression
- Wildland firefighting
- Vehicle Extrication
- Technical rescue (as currently provided)

- Hazardous Materials
- Code Enforcement/Inspections
- Plan Reviews

Plans review, code enforcement, and public safety education are the three services that did not receive a majority positive ratings and received the highest amount of “requires significant improvement” ratings.

Basic life support received the highest amount of excellent rating with advanced life support receiving the second highest excellent rating.

**Features**

Respondents were asked to appraise the following features of their department.

- Member recruitment programs
- Member benefits
- Member recognition efforts
- Organizational planning
- Community relations
- Wellness/Fitness program

Community relations is the only feature that showed a strong positive appraisal. Member benefits, organization planning and member recognition efforts showed a majority of positive appraisal but not by a significant number. Member recruitment programs and Wellness/Fitness program were appraised much lower and showed neutral and needing improvement responses.

**Reasons for Joining Department**

Respondents were asked “What are the reasons you joined with your department?” and asked to choose all that apply. Twelve options were provided with a field for other comments. These reasons and the fifteen “Other” comments, listed in the appendix, provides insight into the motivations for joining and should be utilized for future recruitment efforts.

<b>Reasons you joined your department</b>	<b>Response count</b>
Help the community	177
Opportunity to give back	138
Camaraderie/to be a part of something	122
Experience/skills building/Certifications	116
Excitement	91

**Montgomery County, Virginia**  
**Fire and Rescue Services Comprehensive Assessment**

Community engagement	72
I transferred from another emergency services agency	55
Leadership support	42
Mentoring/Coaching benefit/opportunity	42
Family tradition	34
Benefits offered	31
Other	15
Obligation to the department	13

Respondents were asked “In the last 6 months have you felt like quitting? Sixty five percent (65%) of respondents did not feel like quitting, 30% of respondents felt like quitting and 5% of respondents were unsure.

Of those who felt like quitting, they were asked to choose all the reasons they felt like quitting. Respondents were provided with 10 options with a field for other comments. The “Other” comments listed in the appendix and the responses below provide insight into retention concerns and should be reviewed for action to reduce attrition.

<b>Reasons you felt like quitting</b>	<b>Response count</b>
Leadership issues	39
Lack of communication	30
Cliques & exclusions	26
Don’t feel valued or needed	26
Lack of camaraderie	20
Other	16
Lack of recognition	15
Time	11
Lack of training	10
Personal conflict – family, work, school...	10
Age/Health requirements	7

Respondents were asked to select the top three issues that they felt need to be addressed or improved within their department or the county fire/rescue squad system. Respondents were given ten options with a field for other comments. These issues, along with the comments from the Other option, which are provided in the appendix, are consistently repeated through the survey, SWOC, and site visit. Recommendations to address these issues are included within the report.

**Montgomery County, Virginia**  
**Fire and Rescue Services Comprehensive Assessment**

<b>Three issues felt need to be addressed</b>	<b>Response count</b>
Member recruitment and retention initiatives	94
How we work with other emergency service departments	83
Training	73
Policies and procedures	71
Organizational Communications	55
Leadership	46
Funding	44
More community outreach	37
Facilities and Equipment	33
The level of County involvement	32
Other	24

Respondents were asked what they felt were the top three items that would improve the retention of fire or rescue squad members. Six options were provided with a field for other comments. The “Other” comments, listed in the appendix, and the responses below provide insight into the desires of the internal members to enhance their retention.

<b>Three top items to improve retention</b>	<b>Response count</b>
Better financial incentives (Tax breaks, gift cards, etc.)	118
Improved organizational culture and atmosphere	98
Better intangible incentives (Recognition events, special PPE items, etc.)	86
Improved salaries and benefits	85
Better training	83
More community outreach	49
Other	30

The final survey question for the internal members was what they considered the top three challenges in their department or the county fire/rescue squad system in the next 5 years. Seven options were provided with a field for other comments. The concerns, along with the 22 comments from Other, listed in the appendix, will be discussed within this report.

**Montgomery County, Virginia**  
**Fire and Rescue Services Comprehensive Assessment**

Three top challenges over the next five years	Response count
Having enough members	121
Increased performance expectations	82
Funding	77
Increased training standards	72
The level of County control	71
Leadership	62
Replacement of apparatus and facilities	61
Other	22

## COMMUNITY SURVEY SUMMARY

A community stakeholder survey was developed to gain a better understanding of the community's perspective of the local fire departments and rescue squads and the overall county fire rescue system. The survey was open from November 5 to December 8, 2025 and 111 responses were received. Detailed responses are outlined in Appendix L. Fifty four percent (54%) of the respondents are 20+ year residents of Montgomery County, 13% are 6–10-year residents, 12% are 0–5-year residents, 10% are 16–20-year residents, 8% are 11–15-year residents, and 3% are not county residents.

Of those within the county, 42% live in the Town of Christiansburg, 32% live in the unincorporated area of Montgomery County, and 26% live in the Town of Blacksburg.

In the past three years, 40.5% of respondents have had to use the fire or rescue squad services. Respondents were asked to select types of incidents and some respondents had multiple incidents. Fifty nine percent (59%) of the respondents were involved in a medical incident, 15% were involved in a vehicle accident, 13% had multiple incidents, 11% were involved a fire incident, and 2% were involved in a cave rescue.

Of the 46 respondents who were involved in an incident, 70% rated their level of service as excellent, 26% good and 4% fair. There were no poor ratings. Each of the 46 respondents provided comments as to why they gave their rating, which are listed in the appendix.

In order to understand community priorities, community respondents were asked to rank the five most important services offered by fire and rescue squad departments within Montgomery County. Respondents were given basic definitions for Technical Rescue Response, Basic EMS, and Advanced EMS. The highest priority was Advanced EMS, with Fire Suppression, Vehicle Accident Response, Basic EMS, and Hazardous Material Response in descending order from most to least important. Technical Rescue Response, Fire Code Enforcement, Fire & Life Safety Education, Non-Emergency Community Service did not make the priority list. The Other option was selected by one respondent. Their comment is provided in the appendix.

In order to understand community expectations, MissionCIT asked community respondents to rank their top five expectations of the fire department and rescue squad system. Fast response time was listed as the first expectation with Well-trained personnel, Appropriate number of personnel responding, Condition of equipment, and Adequate number of fire and rescue squad stations as the expectations listed highest to lowest. Reasonable cost for service delivery, Personnel being physically fit, Public education services, Community-centered programs, and

Clear external communications were not in the top 5 expectations list. The Other option was chosen by four respondents. Their comments are provided in the appendix.

Community respondents were asked to select the top three strengths of their fire department/rescue squad or the fire and rescue squad system from a list of eight strengths. The top three strengths given are Well trained personnel, Fast response, and Can handle most all my emergency needs.

The community respondents were also asked to select the top three current challenges with their fire department/rescue squad or within the fire rescue system, from a list of seven choices. Maintaining an adequate number of personnel and Funding were listed as the highest two challenges. Maintaining equipment and facilities and Coordination of fire/rescue services between all jurisdictions and organizations within the county tied for the third top challenge.

Community respondents were asked to select the top three challenges they see with their fire department/rescue squad or the fire and rescue squad system within the next five years. An Adequate number of personnel, Keeping up with growth, and Funding levels were the top three challenges in the next five years.

Community respondents were given an open-ended question to add anything that wasn't addressed in the survey. Forty-one respondents provided a comment with a 32% rate being complimentary of the personnel and services. The remaining comments vary from funding, personnel, stations, and strategic concerns. All comments are noted in the appendix.

**Appendix A**  
**Current Volunteer/County Memorandum of Agreement**

**MEMORANDUM OF AGREEMENT**

THIS MEMORANDUM OF AGREEMENT which is made and entered into by and between the **COUNTY OF MONTGOMERY, VIRGINIA** (“the County”) and **Elliston Fire Department** (“Agency”), is dated this 12 day of February, 2024.

**WITNESSETH:**

WHEREAS, the Agency is a recognized emergency response agency in Montgomery County, Virginia; and

WHEREAS, in return for providing emergency response services in Montgomery County, Virginia, the County provides the Agency with annual funding subject to budget approval and appropriation by the Montgomery County Board of Supervisors; and

WHEREAS, the County desires to make future funding contingent upon the Agency agreeing to enter into this MOA and comply with its requirements; and

WHEREAS, the Agency agrees to comply with the requirements contained in this MOA as a condition of receiving continued annual funding from the County.

NOW THEREFORE, in consideration of the foregoing the parties agree as follows:

**I. AGENCY AGREES AS FOLLOWS:**

**A. Rosters.**

1. The Agency agrees at signing and on an annual basis no later than January 1, to provide the County an updated Agency Roster to include whether the individual is an active voluntary member answering calls, and each volunteer’s current level of training certifications. The Agency agrees to provide the County with a current updated Roster within thirty (30) days of any changes to the Agency Roster. The County agrees to forward the annual roster and any updated rosters to the County Treasurer’s office and to the Clerk of the Circuit Court Clerk’s Office. The County shall create a spreadsheet to be used to collect the roster information from all Fire and EMS agencies.

2. The Agency agrees to provide the County with an updated list of current elected officers, including their names and titles, emails and phone numbers they can be

contacted at signing and on an annual basis no later than January 1 or within thirty (30) days of new changes.

3. The Agency agrees that criminal background checks shall be done on all new active volunteer members or for any non-active or active volunteer members who will be regularly handling money for the Agency. The County Human Resources Department shall provide the Agency with the necessary forms requesting the background check and shall be responsible for having the background checks done. The County shall cover the cost of all background checks. The Agency agrees to require their active volunteers to report any arrests and/or convictions to the Agency's current elected officers. The Agency leadership shall share that information as soon as practicable with the County Administrator's office.

**B. County Provided Vehicles and Facilities.**

1. The Agency agrees that all Agency personnel who operate County provided vehicles, whether occasionally or on a daily basis, shall comply with all required safety procedures including but not limited to using a seat belt when required by law, having a drug free/alcohol free workplace, and abiding by all traffic laws. Any operator of a County provided vehicle shall possess a valid State driver's license. The Agency shall annually verify that operators have valid driver's licenses.

2. The Agency agrees to maintain a minimum level of Emergency Vehicle Operator Course (EVOC) training as approved by the Virginia Department of Fire Programs and the Office of EMS for all Agency drivers of County provided emergency vehicles as defined in Va. Code Section 46.2-920, and equipped in accordance with Va. Code Section 46.2-1023 while being utilized in an emergency response capacity.

3. The Agency agrees to report to the County within three (3) business days of becoming aware of any Agency personnel who operate County provided vehicles who have been charged with driving under the influence or driving while intoxicated, or who has had his or her driver's license suspended or revoked for any cause.

4. The Agency agrees to report to the County within twenty-four hours of any instance where a County provided vehicle has been involved in a traffic accident or at any time an Agency personnel driving the County provided vehicle has been charged with a traffic infraction. In the event a County provided vehicle is in an accident, which causes either death, property damage resulting in the towing of a vehicles involved, the employee receiving a moving traffic citation, personal injury resulting in one or more of the parties being transported from the scene to receive medical treatment, or the employee supervisor or law enforcement has reasonable suspicion to believe that the involved personnel is under the influence, the Agency Personnel driving the vehicle shall be subject to drug and alcohol screening as soon as is practicable after the accident. The County Human Resources Department shall assist the Agency should a drug and alcohol screening post-accident be required.

5. The Agency agrees to take proper care of the County provided vehicle including ensuring all required maintenance is performed in accordance with manufacturer's recommendations and service intervals and that any operational or mechanical problems are properly addressed. Record of all maintenance work done shall be maintained for each provided vehicle and copies shall be provided to the County upon request. The Agency agrees that no alcohol shall be present in any County provided vehicle.

6. The Agency agrees to take proper care of the County provided building and fixtures including ensuring all routine required maintenance is done and that all required work is timely completed. The Agency agrees to keep a record of all maintenance work done on the building and provide copies of all records to the County upon request. The Agency agrees to notify the County immediately of any damage to the building and how and when the Agency plans to fix the damage.

7. The Agency agrees that the County provided building shall at all times be alcohol free. The building shall not be used by private parties for income generating activities or by the Agency for commercial and/or for profit use without prior County approval. The Agency may use the building to host fundraising events for the Agency.

**C. Financial and Purchasing Requirements.**

1. All inventory and equipment purchased with County funding or grant funding, whether purchased by the County or the Agency, shall be owned by the County and only used by the Agency in providing emergency response services.

2. The Agency agrees to notify the County whenever any inventory or equipment is no longer of use to the Agency. The County shall have oversight over the final disposition of such inventory or equipment.

3. The Agency agrees to have an annual audit conducted of County provided funding and Grant funding by an auditor selected by the County. The Agency shall cooperate and provide on a timely basis access to any required documents or information requested by the auditor. The County shall be responsible for paying for the cost of the audit. Funds audited as part of an audit conducted by or on behalf of the Town of Blacksburg or Town of Christiansburg are not subject to the above County audit requirement.

4. The Agency agrees to cooperate and provide as requested on a timely basis all information required by the County's Property/Casualty insurer.

**D. Tax Status Requests.**

1. The Agency agrees to provide the County with the current tax status of the Agency at the time of signature and on an annual basis no later than January 1 or within thirty (30) days anytime the Agency's tax status changes.



**IV. MISCELLANEOUS:**

- A. It is the intent of the parties that the provisions of this Agreement shall be enforceable to the fullest extent permissible under the Law. If any clause or provision of this Agreement is held to be illegal, invalid or unenforceable under the present or future laws, then the remainder of this Agreement shall not be affected thereby.
- B. This Agreement represents the complete understanding between the parties hereto and supersedes all prior negotiations, representations or agreements, whether written or oral as to the matters described herein and no prior or contemporaneous oral or written statement may be used to alter, waive or contradict its provisions.
- C. At any time during the term of this Agreement, the parties may evaluate the terms of this Agreement and develop amendments as necessary. Any such amendment shall be in writing and approved by the County and the Agency.

IN WITNESS WHEREOF, the parties hereto have accepted, made and executed the Agreement upon the terms, conditions and provisions above stated, the day and year first above written.

**COUNTY OF MONTGOMERY, VIRGINIA**

BY: Mary W. Biggs  
Mary W. Biggs  
Chair, Board of Supervisors

[AGENCY]

BY: Mark E. Ebel  
Elliott Volunteer Fire Dept.

## Appendix B

### Emergency Medical Response Performance Standards

#### Emergency Medical Services Response Plan

#### Montgomery County, VA

#### Definitions

1. **Emergency Medical Dispatch (EMD)** - A systematic program of handling medical calls pursuant to which trained dispatchers determine the nature and priority of the call, dispatch the appropriate response, and give the caller instructions to help treat the caller until the arrival of the appropriate responder (*Code of Virginia § 56-484.16:1.*)
2. **EMD Determinant Level** - The priority designation assigned to a call for medical assistance based on the EMD process
3. **Emergency Medical Services (EMS)** - health care, public health, and public safety services used in the medical response to the real or perceived need for immediate medical assessment, care, or transportation and preventive care or transportation in order to prevent loss of life or aggravation of physiological or psychological illness or injury. (*12VAC5-31-10.*)
4. **Unit Mobilization Interval** - The time that elapses between when an agency is dispatched to a call and an ambulance marks en route to that call.
5. **Responding Interval** - The time that elapses between when an agency is dispatched to a call and arrives to the scene of that call

#### Plan

This plan is implemented in order to provide a basis for the coordination of responses to calls for emergency medical services (EMS) by Designated Emergency Response Agencies located within Montgomery County.

##### 1. Adoption by Jurisdictions

- a. This plan is to be utilized by all Designated Emergency Response Agencies operating within the jurisdictions of the Town of Blacksburg, the Town of Christiansburg, and Montgomery County.
- b. The plan was adopted by the governing bodies of each locality as follows:
  - i. Blacksburg Town Council
    1. Adopted on ??? via ???
  - ii. Christiansburg Town Council
    1. Adopted on ??? via ???
  - iii. Montgomery County Board of Supervisors
    1. Adopted on ??? via ???

##### 2. Designation of Emergency Response Agencies

- a. The following EMS agencies are formally recognized as Designated Emergency Response Agencies.

**Montgomery County, Virginia**  
**Fire and Rescue Services Comprehensive Assessment**

- i. Blacksburg Volunteer Rescue Squad (BVRS)
  - ii. Christiansburg Rescue (CRS)
  - iii. Longshop McCoy Volunteer Fire Department/Rescue Squad (LSMRS)
  - iv. Montgomery County Fire EMS Department (MCFEMS)
  - v. Shawsville Volunteer Rescue Squad (SVRS)
  - vi. Riner Volunteer Rescue Squad (RVRS)
  - vii. Virginia Tech Rescue Squad (VTRS)
- b. All agencies are capable of providing basic life support, advanced life support, and various technical/specialized rescue services 24-hours per day.
- c. With the exception of CRS and MCFEMS, the EMS agencies in the County are all volunteer agencies.
- i. CRS utilizes a mixture of career and volunteer staff.
  - ii. MCFEMS is a career agency.

**3. Primary Service Areas**

- a. The primary service areas or "first due areas" for each agency will be established by the New River Valley Emergency Communications Regional Authority (NRV911) in conjunction with the Montgomery County Fire & Rescue Commission.
- b. Dispatching is coordinated by NRV911 and agencies will be responsible for responding to calls for service outside of their first due areas as requested per existing mutual aid agreements. NRV911 and the Montgomery County Fire and Rescue Commission will work cohesively to identify the three agencies that can most quickly answer calls for service in all portions of the County.
- c. In general, agencies are primarily responsible for providing emergency medical services in the following areas 24 hours/day:
- i. BVRS
    1. Town of Blacksburg (excluding portions owned by Virginia Polytechnic Institute and State University)
    2. Merrimac
    3. Prices Fork
    4. Unincorporated areas of Montgomery County including Lusters Gate, McDonalds Mill, New Ellet, Prices Fork, and Toms Creek
  - ii. CRS
    1. Belview
    2. Town of Christiansburg
    3. Plum Creek

**Montgomery County, Virginia**  
**Fire and Rescue Services Comprehensive Assessment**

4. Unincorporated areas of Montgomery County including Belmont, Ellet, Sugar Grove, Vicker, Walton, and Yellow Sulphur Springs
  - iii. LSMRS
    1. Unincorporated areas of Montgomery County including Longshop and McCoy
  - iv. SVRS
    1. Elliston
    2. Lafayette
    3. Shawsville
    4. Unincorporated areas of Montgomery County including Alleghany Springs, Bradshaw, and Ironto
  - v. RVRS
    1. Riner
    2. Unincorporated areas of Montgomery County including Childress, Grayson town, Pilot, Rogers, and Sowers
  - vi. VTRS
    1. Virginia Tech campus
    2. Portions of the Town of Blacksburg owned by the university
  - d. MCFEMS provides supplemental coverage to various areas of the County during identified time periods where volunteer staffing does not meet the response intervals outlined in this plan. This will be determined on an as-needed basis.
- 4. Dispatching**
- a. NRV911 will assign calls requiring EMS a determinant code at their discretion in accordance with the National Academy of Emergency Medical Dispatch (NAEMD). From least to most urgent, these codes are: Omega, Alpha, Bravo, Charlie, Delta, and Echo.
  - b. Each agency will be responsible for developing an internal policy regarding the use of lights and sirens when responding to each determinant level.
  - c. Dispatching shall be conducted over the air on frequencies designated by NRV911 in conjunction with the Montgomery County Fire & Rescue Commission.
  - d. Agencies will be dispatched according to the following table per NRV911 policy:

Time	Agency/Agencies
Initial	1st Due
5 minutes	1st Due* 2nd Due
10 minutes	1st Due* 2nd Due* 3rd Due

\*Indicates that 'All Call' tones be set if the agency being dispatched has chosen to utilize such tones.

- e. There may be an additional tone utilized as applicable for agencies with a designated supervisor.
- f. If at any time after initial dispatch an agency has not acknowledged an incident involving life-threatening symptoms or where response time is determined to be critical, NRV911 shall inquire over the air if the agency has any units en route. If there is no reply, the on-duty NRV911 supervisor may authorize early dispatch of the next-due agency, along with 2nd toning of the first-due agency.

**5. Unit Mobilization Interval Standard**

- a. The Unit Mobilization Interval is the amount of time elapsed from when an agency is dispatched to a call for service and when the first ambulance marks en route.
- b. All designated emergency response agencies in this policy establish the following unit mobilization standards and practices. Agencies will comply with these standards on at least a 90% basis for calls in their primary service area in accordance with 12VAC5-31-610.
- c. The unit mobilization standard for all agencies shall be seven (7) minutes.
  - i. For the purpose of this policy, an agency is considered "responding" when an ambulance marks en route to the call. Response from any other resource does not qualify as meeting this standard.
- d. If any agency finds it is unable to respond within the established unit mobilization interval standard, the call shall be referred to the closest available mutual aid EMS agency per NRV911 policy.
- e. If any agency finds it is able to respond to the patient location sooner than the mutual aid EMS agency, the EMS agency shall notify NRV911 of its availability to respond.
- f. If any agency is unable to respond (e.g., lack of operational response vehicle or available personnel), the EMS agency shall notify NRV911.
- g. If any agency determines in advance that it will be unable to respond for emergency service for a specified period of time, it shall notify NRV911.

**6. Responding Interval Standard**

- a. The Responding Interval is the amount of time elapsed from when an agency is dispatched to a call for service and when an ambulance arrives on scene.
- b. All designated emergency response agencies in this policy establish the following responding interval standards and practices. Agencies will comply with these standards on at least a 90% basis for calls in their primary service area in accordance with 12VAC5-31-610.
- c. The responding interval standard for all agencies shall be twenty (20) minutes for calls meeting the respective agency's criteria for emergent response. For calls where agencies determine a non-emergent response is appropriate, the responding interval shall be twenty four (24) minutes

- i. The responding interval for calls in the Towns of Blacksburg and Christiansburg by BVRS and CRS respectively, shall be fourteen (14) minutes for calls requiring emergent response and sixteen (16) minutes for calls where a non-emergent response is deemed appropriate.
- d. It is understood that many factors influence the responding interval including but not limited to: distance from the station to the scene, weather, traffic, and road closures.

**7. Agencies Unable to Meet Standards**

- a. Review of compliance with the above unit mobilization and responding interval standards shall be conducted quarterly.
- b. All designated emergency response agencies are legally obligated to comply with established unit mobilization and responding interval standards in accordance with 12VAC5-31-610.
- c. If an agency is unable to comply with both standards for seventy-five percent (75%) of calls in their primary service area for any quarter, they will be placed on an "automatic mutual aid" plan under which NRV911 will dispatch the second due EMS agency to all calls in that area during the hours where the standards are not being met.
  - i. The primary agency may cancel response by the second-due agency over the radio if they find they can have an appropriately staffed ambulance on scene faster than the second-due agency can arrive.
- d. If an agency is unable to comply with both standards for seventy-five percent (75%) of calls in their primary service area for two (2) quarters in a row OR fifty percent (50%) for any quarter - or if an agency becomes unable to adequately cover their calls - a plan will be developed to ensure adequate coverage for that agency's area during times where standards aren't being met in conjunction with that agency's leadership, the Montgomery County Fire/Rescue Commission, and leadership from the County/Towns as applicable.

**8. Provision of Mutual Aid**

- a. All designated emergency response agencies within Montgomery County shall have written mutual aid agreements with each other such agency. These agreements shall be kept on file by the respective agencies and with the County.
- b. Additionally, all designated emergency response agencies are required by law (*Code of Virginia 12VAD5-21-630*) to "maintain written mutual aid agreements with adjacent designated emergency response agencies in another locality with which it shares a common border. Mutual aid agreements shall specify the types of assistance to be provided and any conditions or limitations for providing this assistance."
- c. The unit mobilization and responding intervals outlined above do not apply to calls outside of an agency's primary service area.

**9. Compliance and Review**

**Montgomery County, Virginia**  
**Fire and Rescue Services Comprehensive Assessment**

- a. All designated emergency response agencies shall have a copy of this plan available for review.
- b. Each agency is responsible for reviewing all exceptions to the established response capabilities, unit mobilization intervals, and responding intervals in this policy quarterly at a minimum.
- c. All designated emergency response agencies shall provide a written report of compliance with this plan to their operational medical director and the Montgomery County Board of Supervisors annually. BVRS and CRS shall also provide a copy of the report to their respective town councils. The report shall be due by the last day of January each year.
- d. This plan shall be reviewed annually and updated as needed to ensure the citizens of Montgomery County receive prompt and exemplary pre-hospital emergency medical care.



F. Craig Meadows, County Administrator  
Montgomery County



Tyler Hall, Interim Chief  
Montgomery County Fire-EMS Department

\_\_\_\_\_  
Dave English, Chief  
Blacksburg Volunteer Rescue Squad

\_\_\_\_\_  
Logan Underwood, Chief  
Riner Volunteer Rescue Squad

\_\_\_\_\_  
William Hanks, Chief  
Christiansburg Rescue

\_\_\_\_\_  
John Akers, Chief  
Shawsville Volunteer Rescue Squad

\_\_\_\_\_  
Steve Shelor, Chief  
Longshop McCoy Volunteer Rescue Squad

\_\_\_\_\_  
Sarah Guida, Chief  
Virginia Tech Rescue Squad

## **Appendix C**

### **Recommended New Fire and EMS Response Time Performance Standards**

#### **Urban Areas (Town of Blacksburg, Town of Christiansburg)**

##### *Fire*

Fire Departments will have a turnout time (Dispatch to first unit enroute) within two minutes for fire and/or EMS incidents 90% of the time.

Fire Departments will respond (Apparatus enroute to arrival of the first arriving unit) within the identified urban areas (town limits) within 7 minutes 90% of the time.

The Fire Departments will assemble an effective response force in the urban areas of at least 15 fire suppression personnel for structure fire incidents within 15 minutes from the time of dispatch.

##### *EMS – Revised*

Rescue Squad, EMS and Montgomery Fire and EMS ambulances will have a turnout time (Dispatch to first unit enroute) within 60 seconds for EMS incidents 90% of the time.

Blacksburg Rescue Squad and Christiansburg EMS will respond (Dispatch to arrival of the first arriving unit) within the identified urban areas (town limits) within 8 minutes 90% of the time.

#### **Rural Areas (Areas outside of either Town)**

Fire Departments will respond (Apparatus dispatch to arrival of the first arriving unit) within the identified rural areas (areas outside of the Town limits) within 14 minutes 80% of the time.

The Fire Departments will assemble an effective response force in the rural areas of at least 6 fire suppression personnel for structure fire incidents within 20 minutes from the time of dispatch.

**Appendix D**  
**Volunteer Human Resource Position Description**

The full-time position is expected to work primarily Monday-Friday, 8 am to 5 pm, with occasional weekends and evenings. The position reports to the fire chief and is primarily responsible for the administrative support and proactive facilitation of recruitment, onboarding, and retention of volunteer fire and rescue squad personnel.

Typical duties include:

- Prioritize communication flow throughout the individual department’s leadership and personnel. (Events, training, grant opportunities, community alerts, meetings)
- Attend Fire Rescue Commission meetings once a month and host monthly Recruitment and Retention (R&R) Committee meetings.
- With support from the R&R committee, develop a countywide recruitment campaign inclusive of a website, social media, county wide messaging, and PR material.
- Respond efficiently as the point of contact for prospective volunteer requests or inquiries through the countywide volunteer recruitment website or through the County’s Emergency Services website.
- With support from the R&R committee, host “a stay” survey to determine reasons why volunteers stay and options to retain volunteers. Prioritize options and advocate benefits implementation.
- Host onboarding training for new volunteers quarterly to include CPR, blood borne pathogens, data reporting software review, radio communication, and benefits overview.
- Record volunteer personnel actions to ensure retention and recognition through the volunteer life cycle: background checks, IDs, training certifications, length of service, and terminations of volunteers. Utilize current records management system (RMS) or implement a new HR RMS.
- Verify volunteer rosters annually to ensure volunteer recognition and benefits.
- Utilize the countywide volunteer social media pages to regularly recognize volunteer accomplishments and recruit volunteers.
- Develop and promote countywide emergency responder personnel (volunteer and career) incentives – business discounts, county building use waivers, promote VFIS benefits & trainings, Wills for Heroes, and develop a benefits resource guide.
- Assist agencies in grant applications and initiate countywide grants (SAFER) for volunteer recruitment and retention.
- Manage a recruitment and retention annual budget.

**Appendix E**  
**Town Fire Service Funding Allocation Options**

**Option 1 – Full Allocated Funding Basis – Using Town of Blacksburg/Virginia Tech Formula**  
(Based on Prior Year)

Based on percentage of valuation of towns and calls as compared to entire county

*Blacksburg Fire*

Current budget	\$986,349
VT Contribution	(\$419,015)
Total Budget	\$567,334

% of total fire calls (outside of VT) in system covered by BFD = 31%

% of county property valuation within Blacksburg = 39.97%

$$\frac{31\% + 39.97\%}{2} = 35.48\% \text{ of BFD budget (outside of VT contribution) to be provided by Montgomery County}$$

$$35.48\% \times \$567,334 = \$201,290 \text{ (County contribution to Blacksburg for Fire Protection)}$$

*Christiansburg Fire*

Current budget	\$1,273,967
----------------	-------------

% of total fire calls in system covered by CFD = 34.3%

% of county property valuation within Christiansburg = 26.1%

$$\frac{34.3\% + 26.1\%}{2} = 30.2\%$$

$$30.2\% \times \$1,273,967 = \$384,738 \text{ (County contribution to Christiansburg for Fire Protection)}$$

**Option 2 - Marginal Funding Basis**

Calculations based on what additional calls, coverage population and property valuation served outside of their normal town coverage areas and outside of town fiscal responsibilities.

Percentages assigned for Unincorporated Coverage vs. Entire First Due Coverage Calls = 35%

Population = 35%

Property Valuation = 30%

*Blacksburg Fire*

Calls in unincorporated area as a percentage of their total calls for service = 16.3%

Population in unincorporated area as a percentage of total coverage population = 14.38%

Property valuation in unincorporated area as a percentage of total coverage valuation = 24%

$$0.163 \times 0.35 = 0.057$$

$$0.1438 \times 0.35 = 0.05$$

$$0.24 \times 0.30 = \underline{0.072}$$

0.179 or 17.9% = Total Allocation % of Blacksburg Fire for County Workload

*FY2026 budget - \$567,334 (Outside VT Cont.) x 0.179 = \$101,552 (County allocation for Blacksburg Fire)*

*Christiansburg Fire*

2024 Calls in unincorporated area as a percentage of their total calls for service = 41.59%

Population in unincorporated area as a percentage of total coverage population = 21.7%

Property valuation in unincorporated area as a percentage of total coverage valuation = 16.3%

$$0.4159 \times 0.35 = 0.145$$

$$0.217 \times 0.35 = 0.076$$

$$0.163 \times 0.30 = \underline{0.049}$$

27% = Total Allocation % of Christiansburg Fire for County Workload

*FY2026 budget - \$1,273,967 X .27 = \$343,971 (County allocation for Christiansburg Fire)*

**Option 3 - Full Flat Formula (Based on a 3-year rolling average)**

Percentage of area within county run x 30%

Percentage of calls within county run x 35%

Property valuation within first due district, in billions x 35%

Example;

Fire Department runs 25% of county area, 30% of calls and has a property valuation of \$2 billion would get:

$$25 \times 0.30 = 7.5\%$$

$$30 \times 0.35 = 10.5\%$$

$$5.5 \times 0.35 = \underline{0.7\%}$$

18.7% of department budget to be funded by Montgomery County

**Option 4 - Property Tax Formula**

Funding based on gap from overall property tax valuations, minus Montgomery County general fund expenditures for the year.

Total taxes received from property valuations in County/Towns = \$94,889,067

Montgomery County General Fund expenditures from Property Taxes = \$77,894,000

Montgomery County General Fund expenditures are 82.09% of total property valuations.

Value of town services to be funded is 17.9%

*Blacksburg Fire*

Current budget = \$986,349  
VT Contribution = (\$419,015)  
Total Budget \$567,334  
x 17.9%

*County Contribution* \$101,552

*Christiansburg Fire*

Current budget \$1,273,967  
x 17.9%

*County Contribution* \$228,040

**No additional funding formula recommended for Blacksburg Rescue Squad or Christiansburg EMS as they bill for services in addition to receiving county allocations.**

## Appendix F

### Data Element Qualifier Parameters

#### Overall Data

In the two spreadsheets received from NRV911 cover 2021-2025, we used the unique call ID which identified the start of a call, actions taken, and units dispatched. Each unique call ID could have multiple units assigned to the Call ID. EMS has 54,445 unique call IDs. Fire has 15, 667 unique call IDs. Total of 70,112 calls summarized for fire and EMS.

#### 911 Call Answering Time

- 10,913 calls did not have both a 911 Call Create time and a Call Create time – As a result, MissionCIT just calculated based on Call Create time.

#### Call Processing Time

- Time calculated by 911 Create time to first unit dispatched, even if the unit is not a functional (Primary) unit.
- If record has no 911 Call Create time (which is automatically generated) then we used the Call create time (which is manually created).
- EMS calls only. There were 1,635 calls that were removed because they had a difference between 911 Call Create and EMS unit dispatch of 15 minutes or more. These were removed to prevent these outliers from skewing data. 54,384 EMS calls remain.
- Additionally, 31 calls had a negative difference between 911 Create and first Unit dispatched. These were also removed.

#### Calls by Agency

- Functional and non-functional units dispatched are included. Functional units are those that can perform on the scene such as an engine, ladder, brush truck, squad, ambulance, crash truck, etc. vs. chief's vehicles, SUV's. Can have multiple departments on each call. Each department receives credit for the call.

#### Fire and EMS Unit Turnout Time

- Did not use or calculate due to variability in station dispatch vs. unit dispatch. Approximately 70% of EMS call data and 80% of fire call data had difference in dispatch and enroute times as zero.

#### Fire and EMS “Scratched” Calls

- Did not use or calculate due to variability in station dispatch vs. unit dispatch

**EMS Travel Time**

- First functional unit (ambulance, crash truck) (that stops the clock) enroute to arrive or stage by EMS call.
- 1,390 calls had zero travel time (exact same time clocked for enroute & stage or arrive) and 32 calls had negative travel times. One call removed for lack of demographic data. The 32 calls where arrive or staging have times earlier then enroute times have been eliminated from the calculations. Total records calculated in the summary for EMS Travel time is 48,193.
- Does not take into account the response of volunteer personnel from home.

**Fire Travel Time**

- Removed calls with no units arriving or staging.
- Chose first unit CAD has recorded as stage or arrive per call, functional or non-functional. (calculated down to the millisecond)
- Staged Time - Removed Stage time from 9 calls as the stage time was later than arrive. Used Arrive Time for formulas. Removed stage time from 4 calls as the stage time was earlier than dispatch time. Used Arrive Time for formulas.
- 13 calls removed because CAD doesn't have a dispatch or enroute time listed.
- 1,225 calls removed because Travel time was Negative or Zero.
- 15 calls removed for insufficient information (Unit type, ORI, Times)
- 12,509 calls remain out of 15,666 calls total.
- Does not take into account the response of volunteer personnel from home.

**Concurrent Calls**

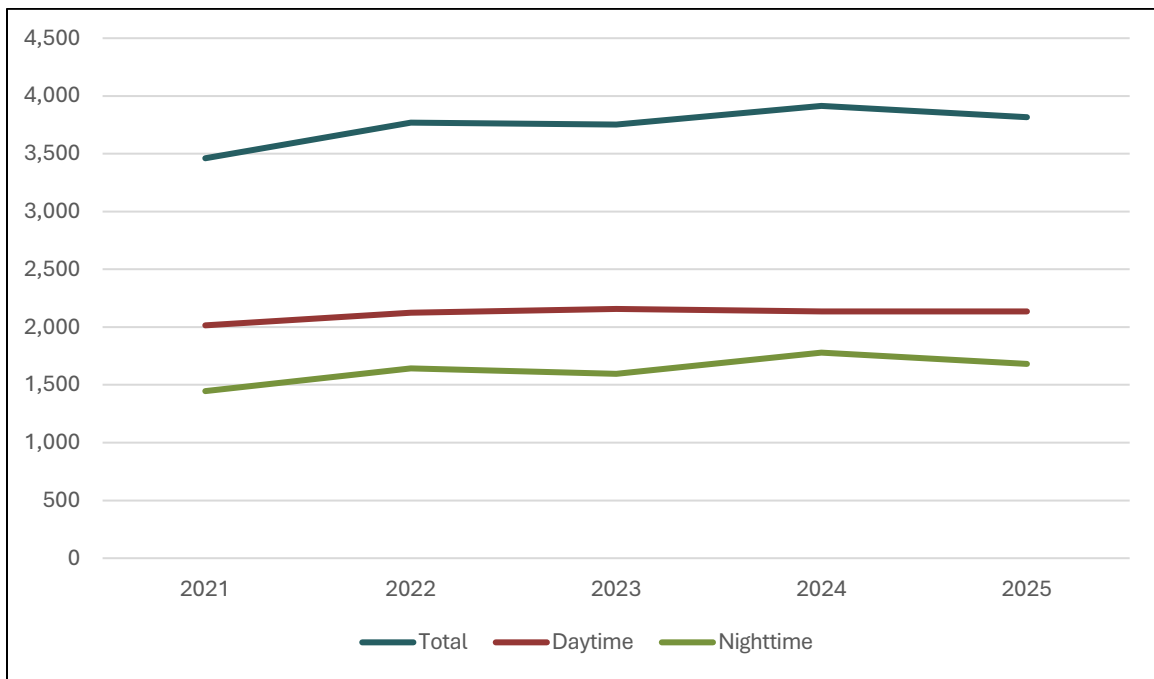
- The call and the ORI must overlap with another Unique call but same ORI.
- More than one ORI can be credited with overlap for the same 2 calls.
- No specification for units, or response – Just incidents dispatched.
- Calculated 20 minutes or less between dispatch date & time to be considered overlapping.

**Appendix G**  
**Individual Fire and Rescue Department Data**

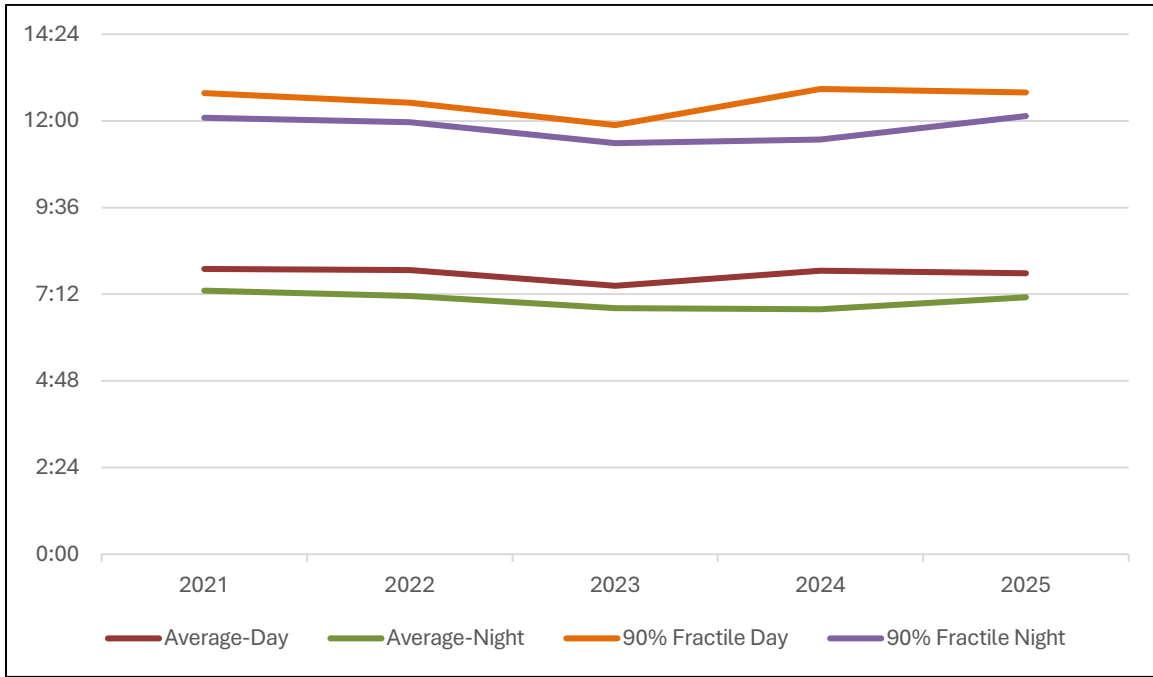
Responses include both functional and non-functional units. Source: NRV911 CAD Data

**Blacksburg Rescue Response Statistics**

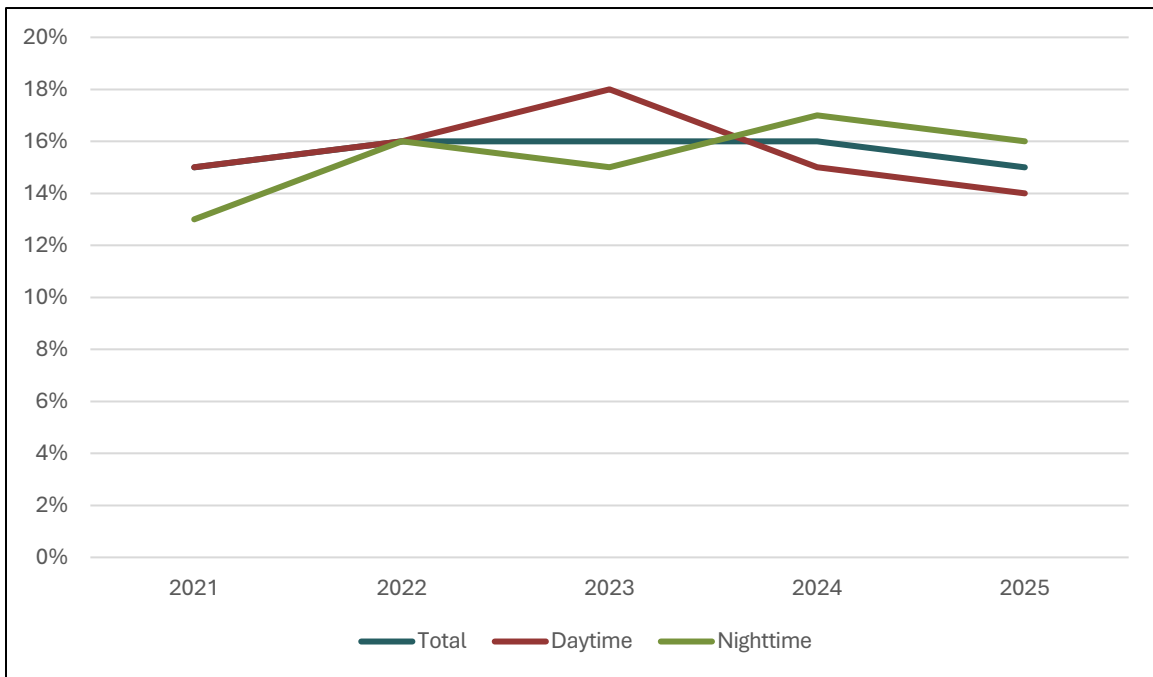
**Figure 71: Blacksburg Rescue Responses**



**Figure 72: Blacksburg Rescue Travel Times**

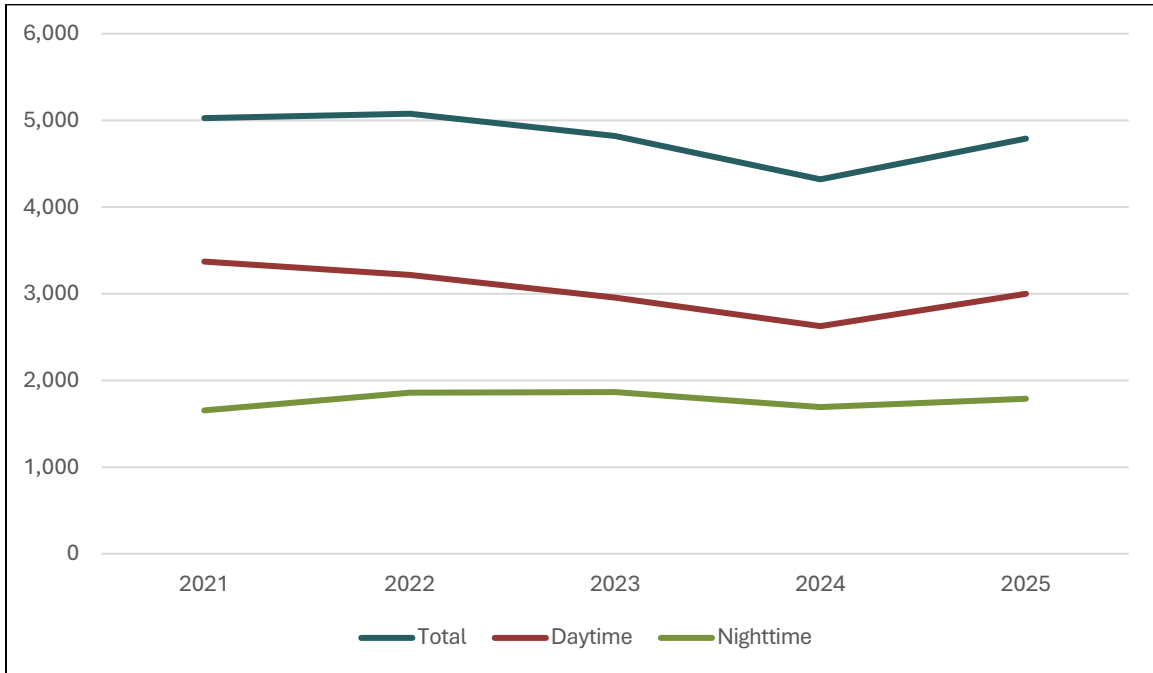


**Figure 73: Blacksburg Rescue Concurrent Calls - Calls within 20 Minutes of Each Other**

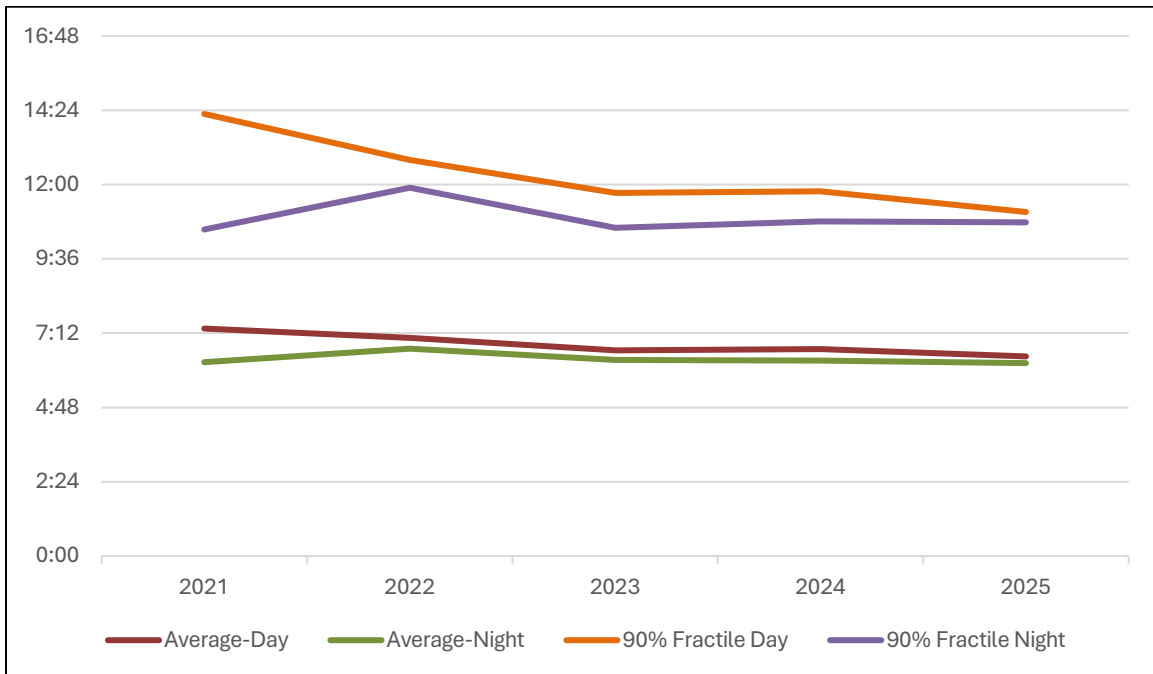


**Christiansburg EMS Response Statistics**

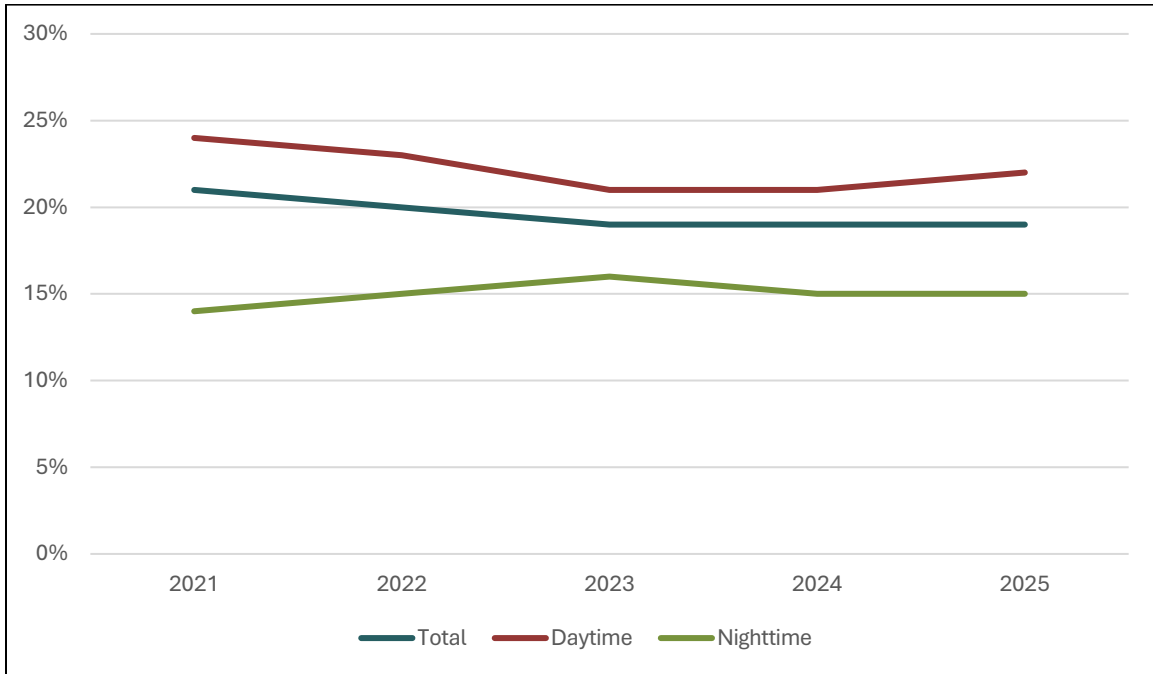
**Figure 74: Christiansburg EMS Responses**



**Figure 75: Christiansburg EMS Travel Times**

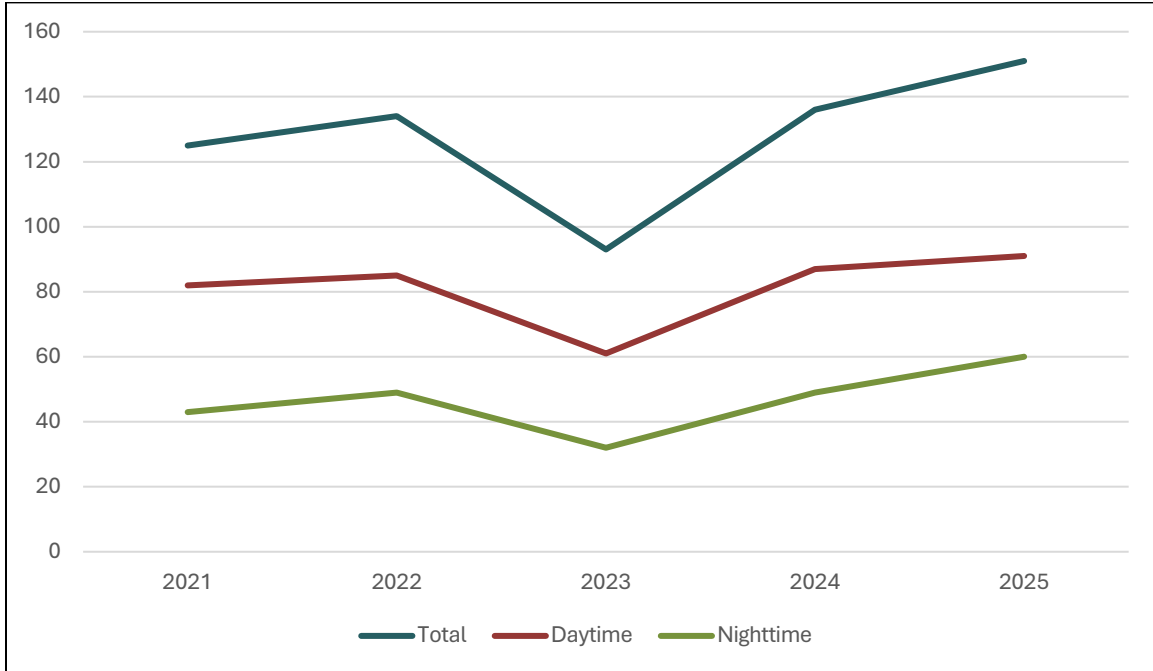


**Figure 76: Christiansburg EMS Concurrent Calls - Calls within 20 Minutes of Each Other**

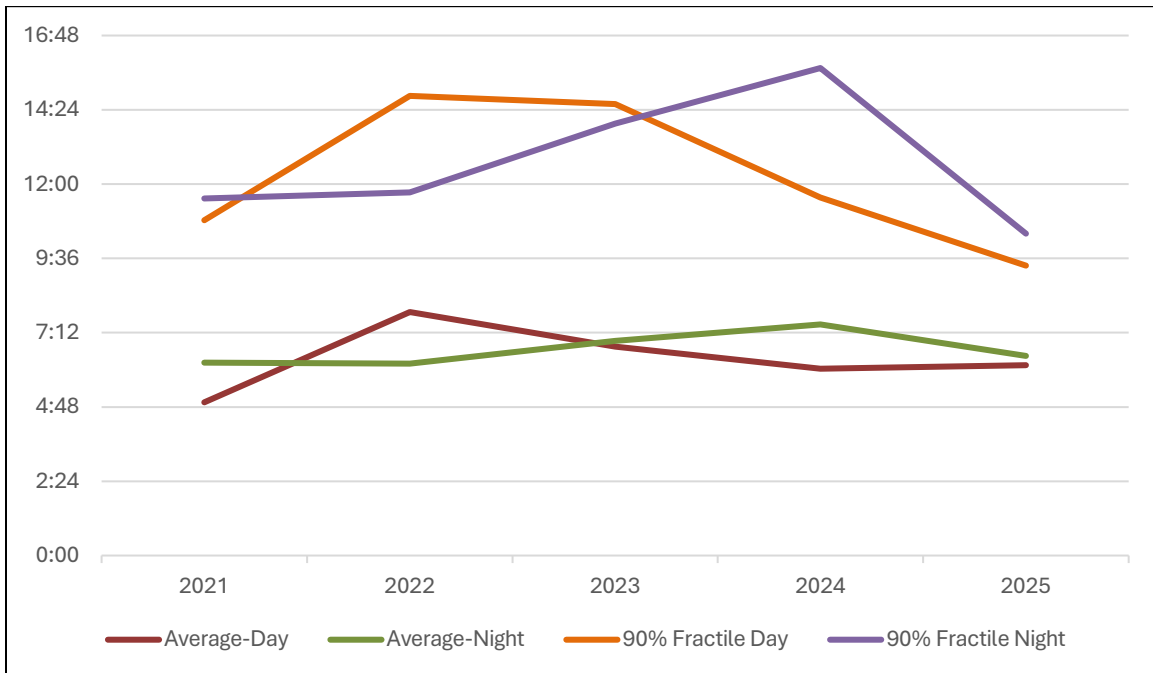


**Longshop McCoy Rescue Response Statistics**

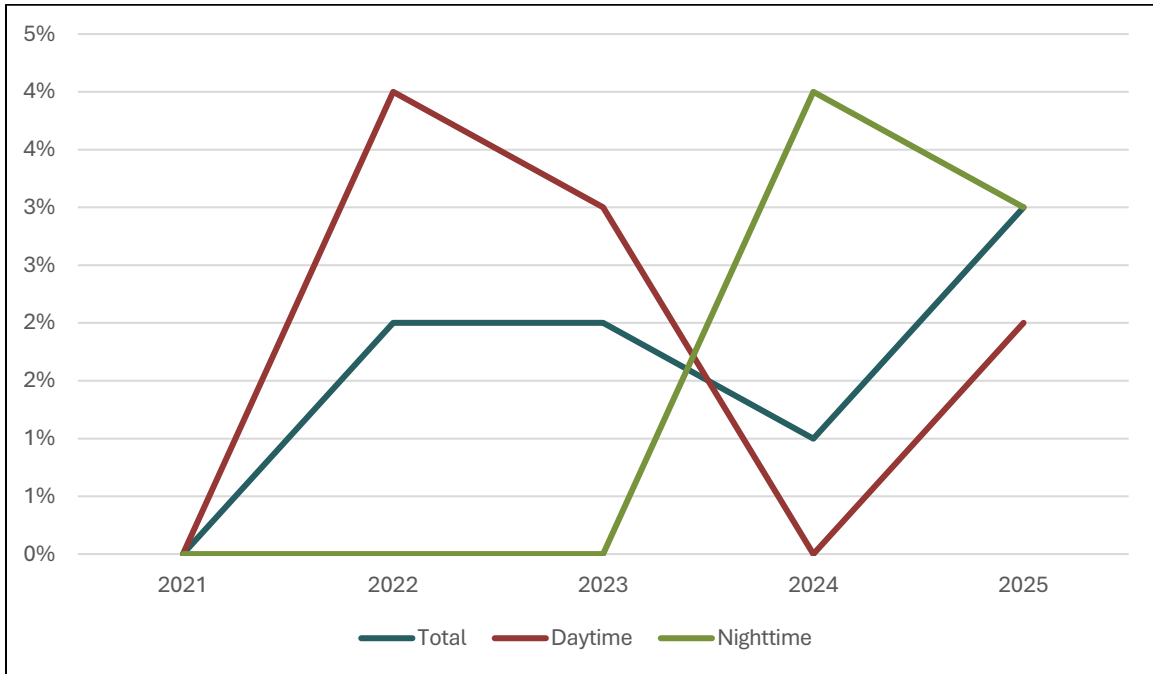
**Figure 77: Longshop McCoy Rescue Responses**



**Figure 78: Longshop McCoy Rescue Travel Times**

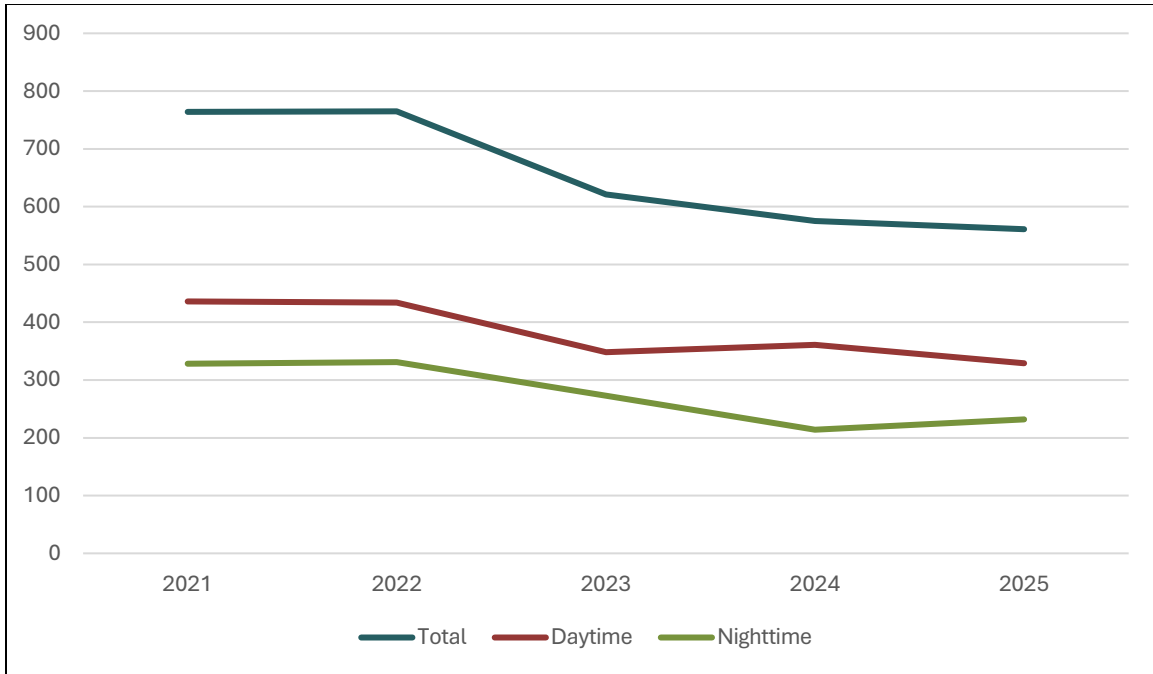


**Figure 79: Longshop McCoy Rescue Concurrent Calls - Calls within 20 Minutes of Each Other**

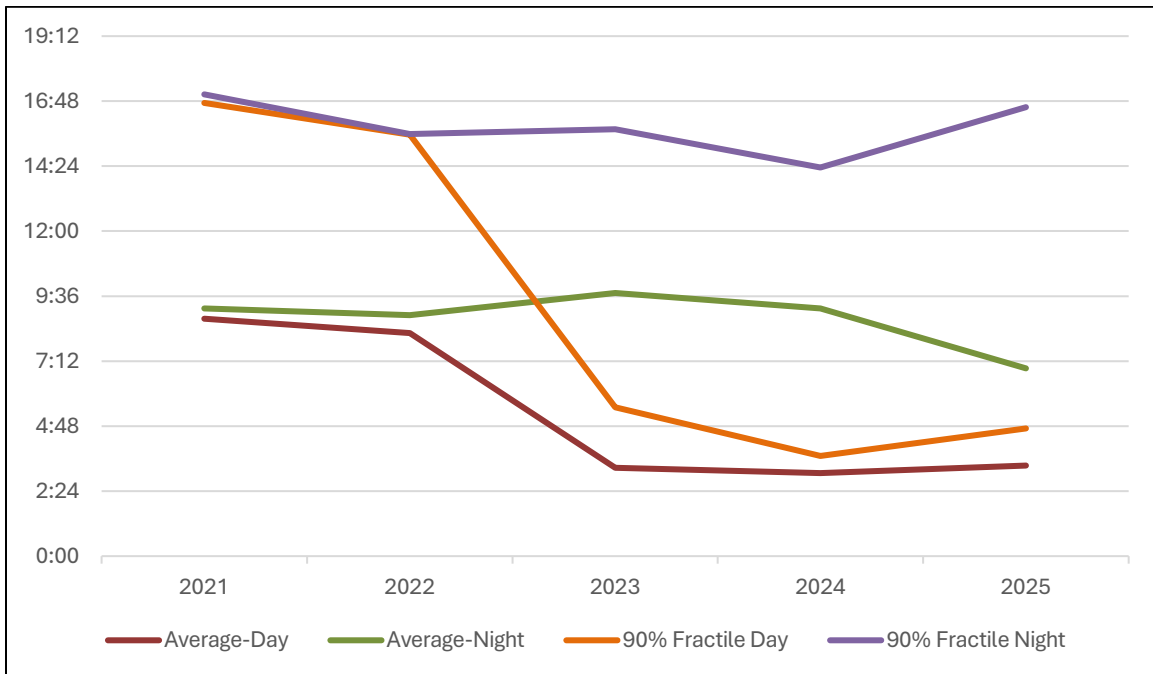


**Riner Rescue Response Statistics**

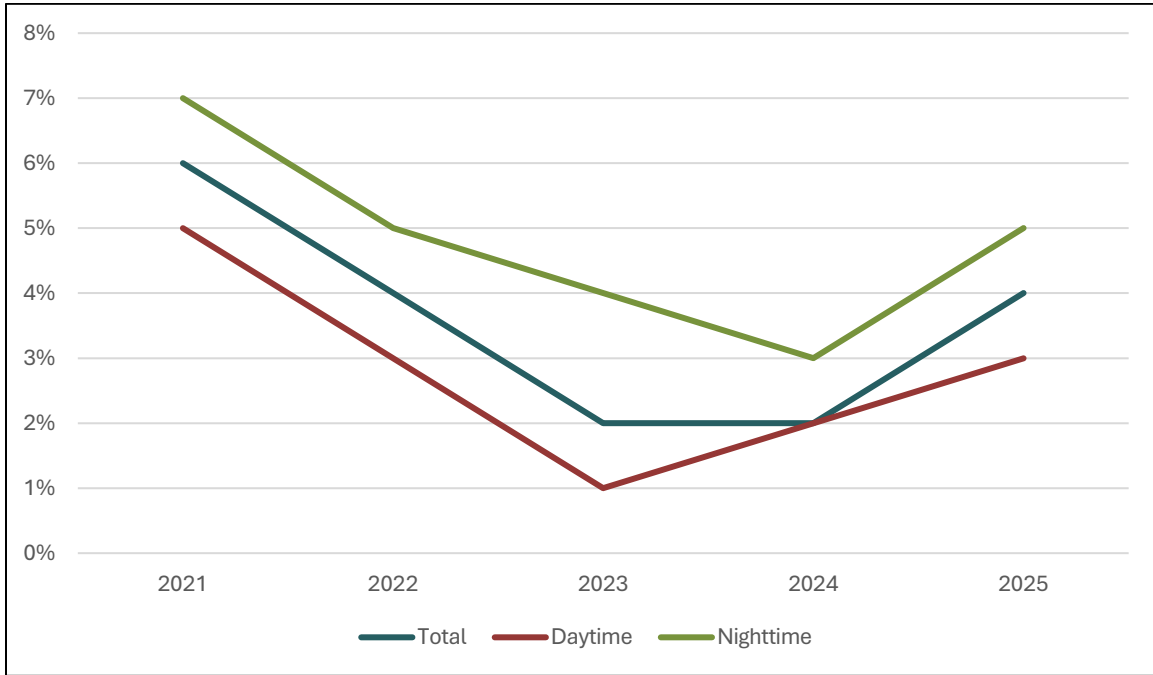
**Figure 80: Riner Rescue Responses**



**Figure 81: Riner Rescue Travel Times**

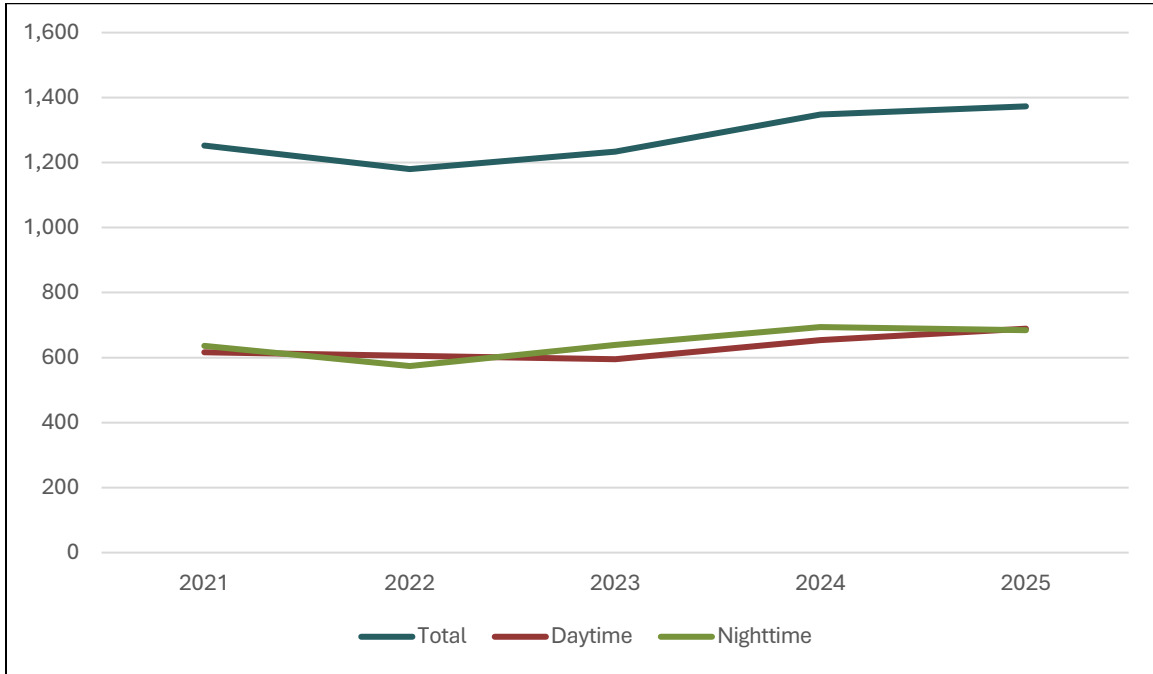


**Figure 82: Riner Rescue Concurrent Calls - Calls within 20 Minutes of Each Other**

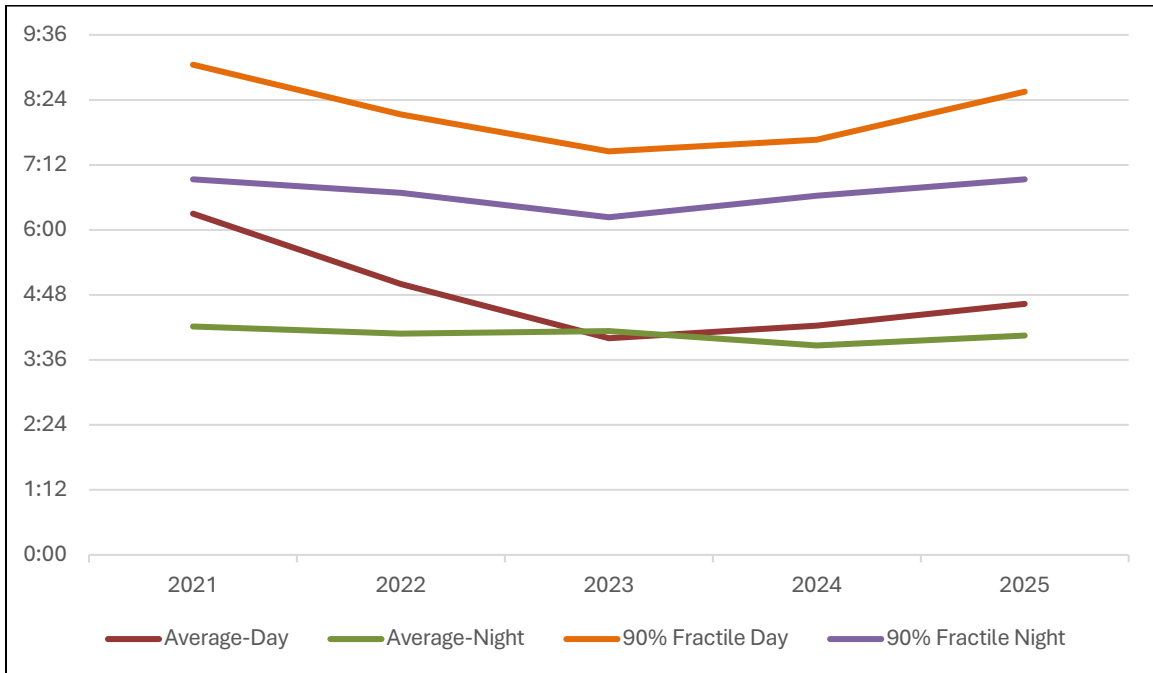


**Virginia Tech Rescue Response Statistics**

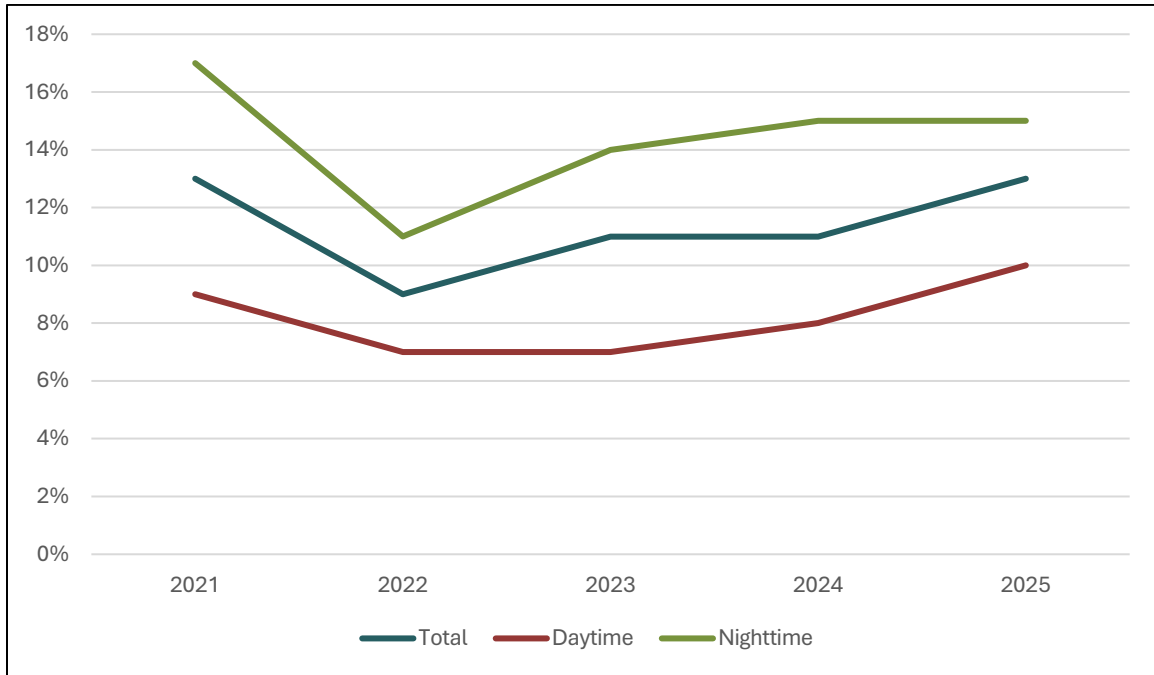
**Figure 83: Virginia Tech Rescue Responses**



**Figure 84: Virginia Tech Rescue Travel Times**

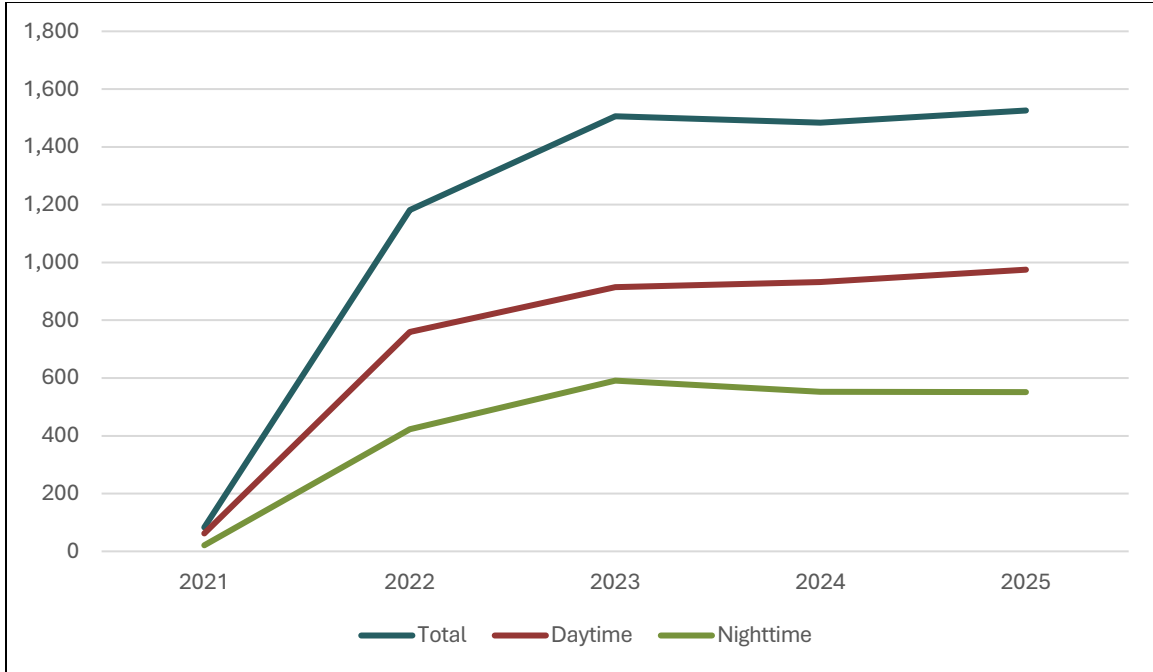


**Figure 85: Virginia Tech Rescue Concurrent Calls - Calls within 20 Minutes of Each Other**

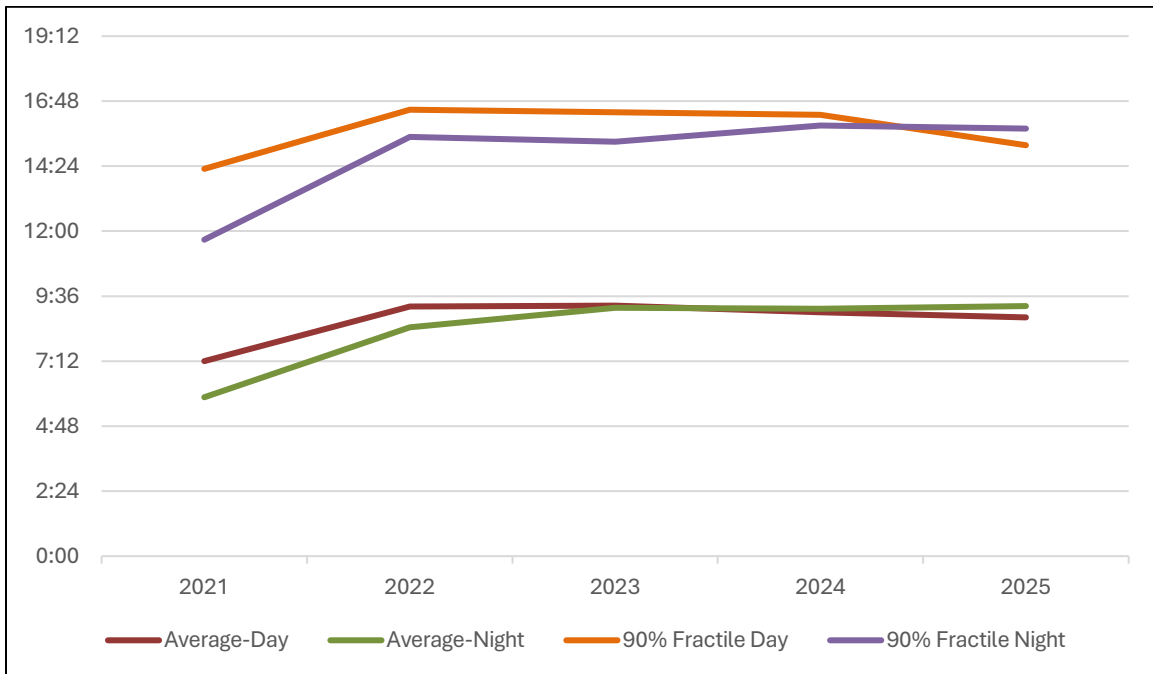


**Montgomery County Fire and EMS Response Statistics**

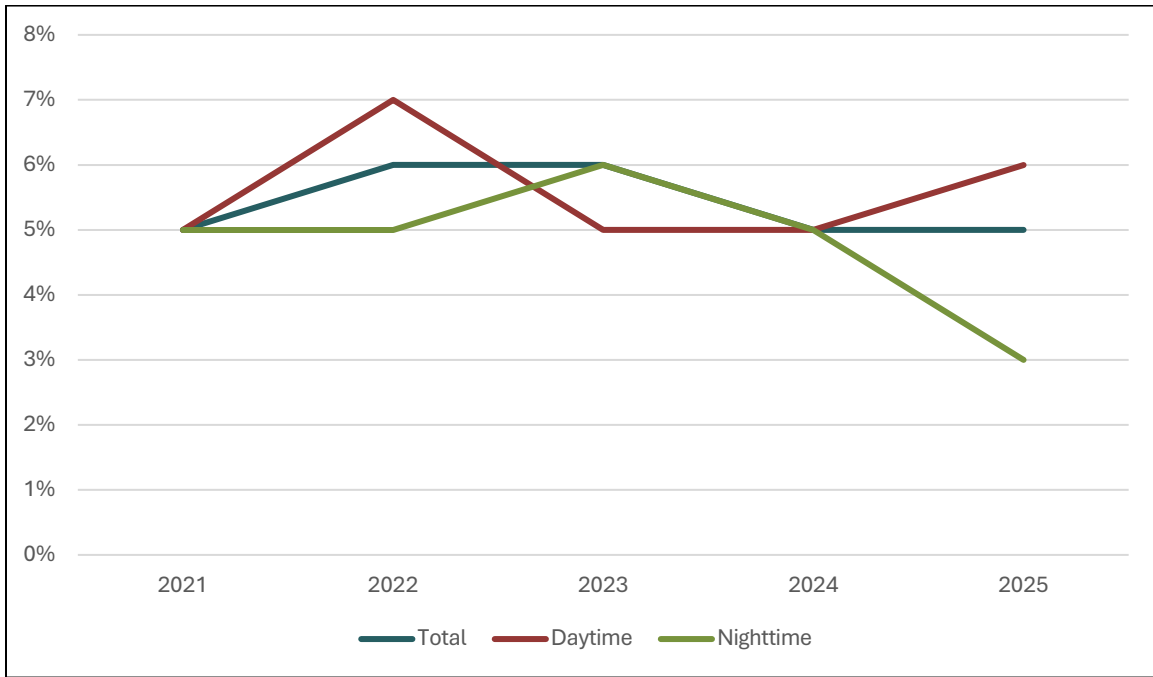
**Figure 86: Montgomery County Fire and EMS - EMS Responses**



**Figure 87: Montgomery Fire and EMS Travel Times**

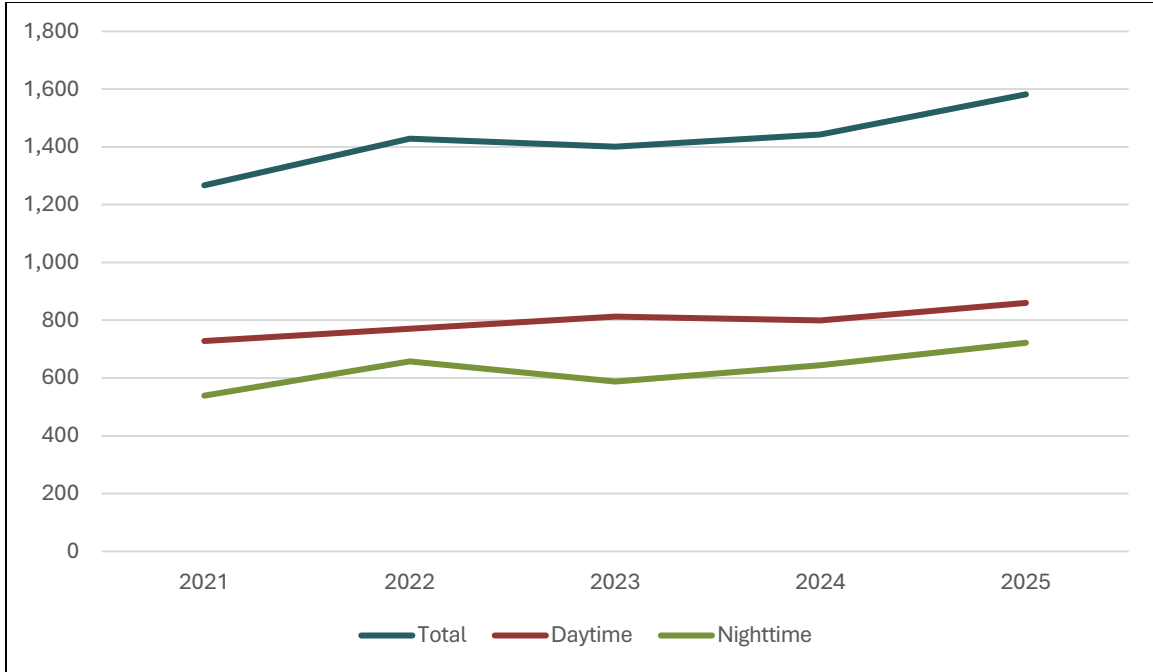


**Figure 88: Montgomery County Fire and EMS Concurrent Calls - Calls within 20 Minutes of Each Other**

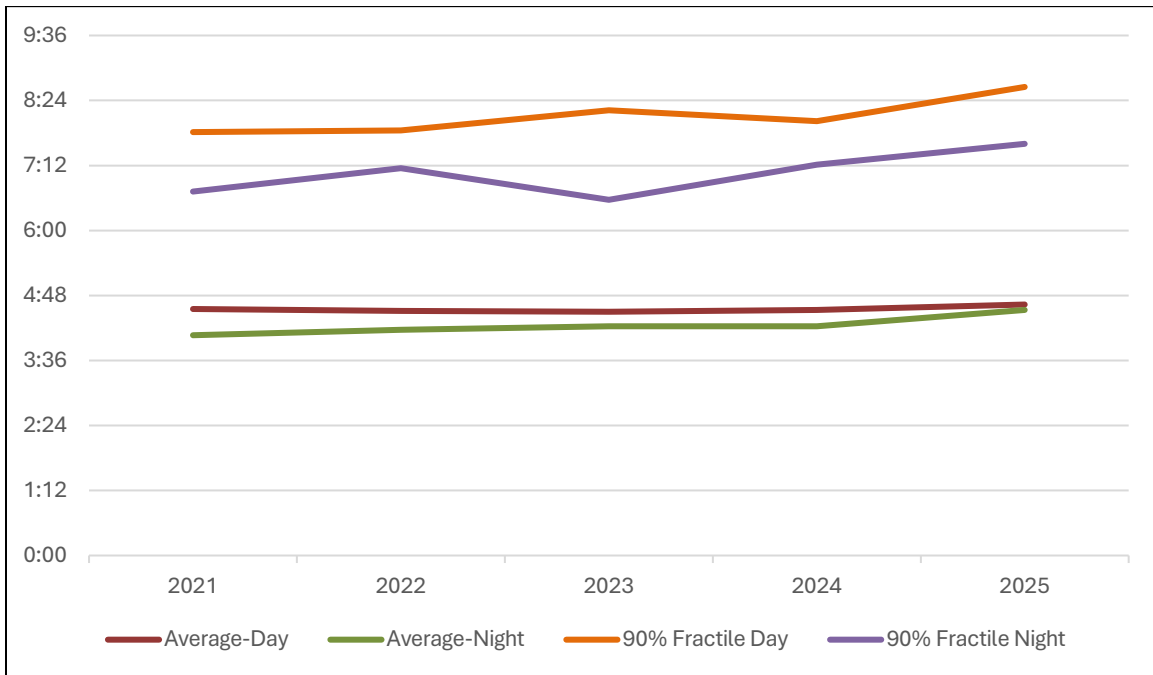


**Blacksburg Fire Response Statistics**

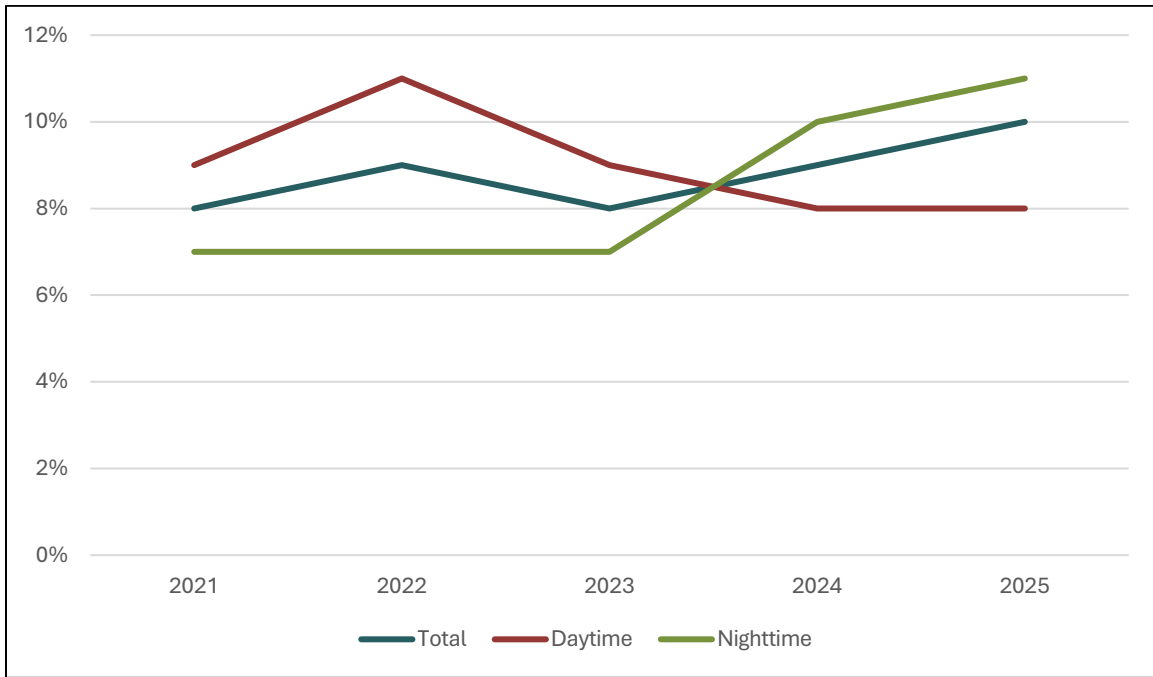
**Figure 89: Blacksburg Fire Responses**



**Figure 90: Blacksburg Fire Travel Times**

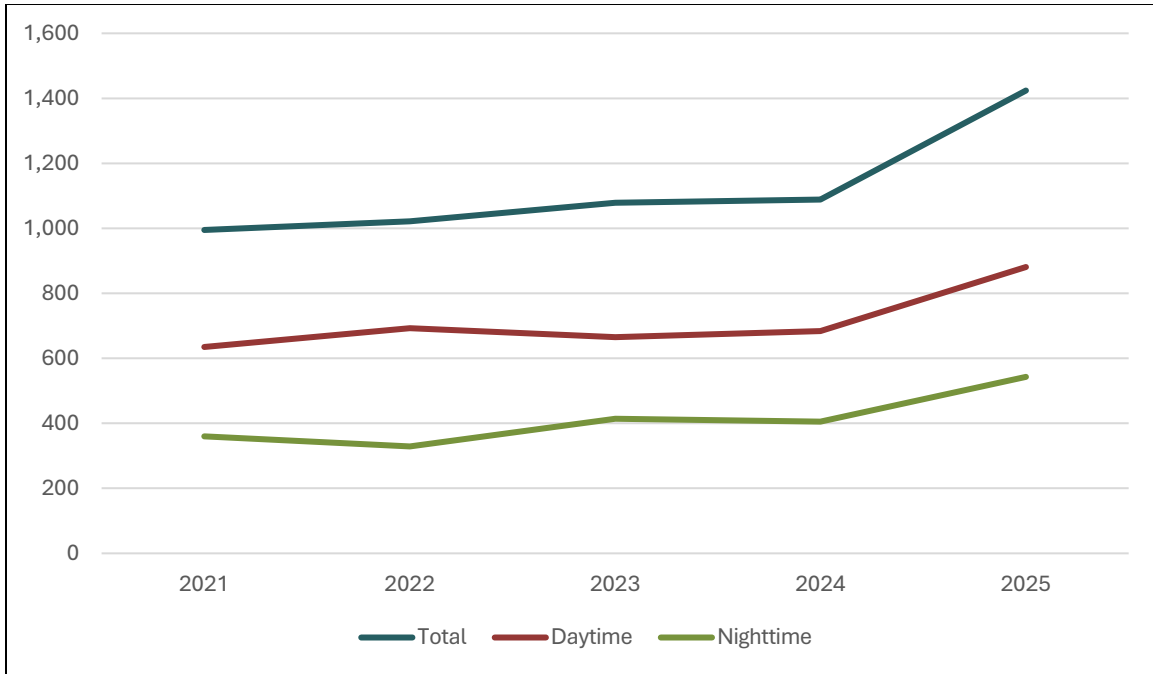


**Figure 91: Blacksburg Fire Concurrent Calls - Calls within 20 Minutes of Each Other**

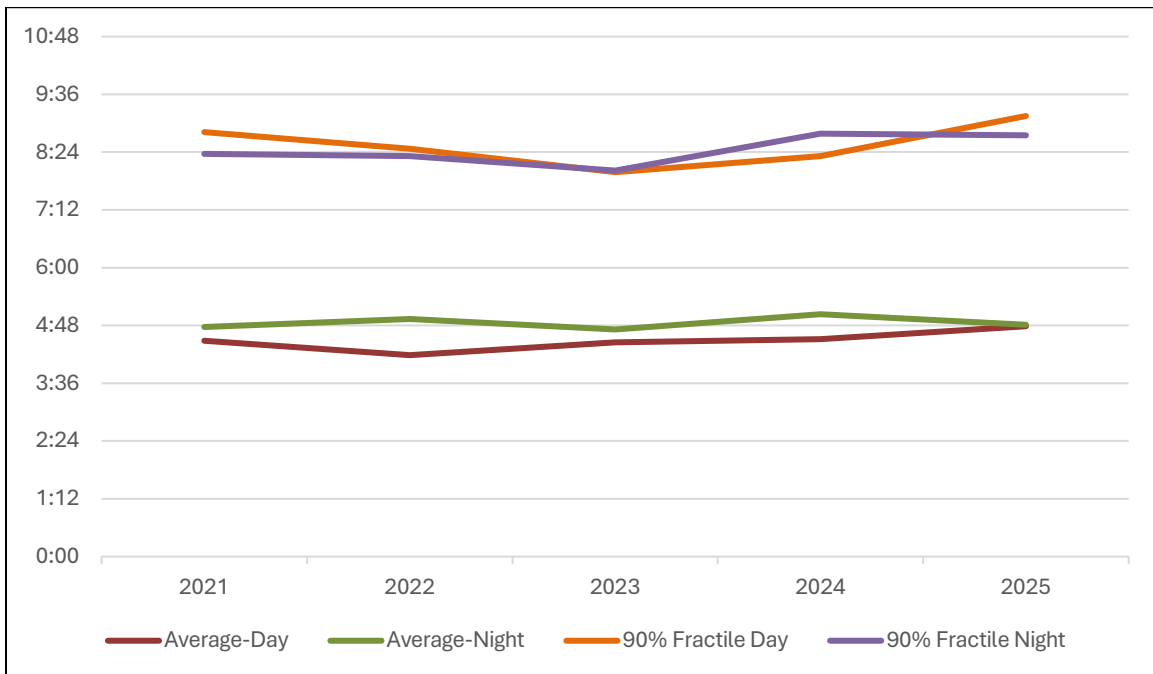


**Christiansburg Fire Response Statistics**

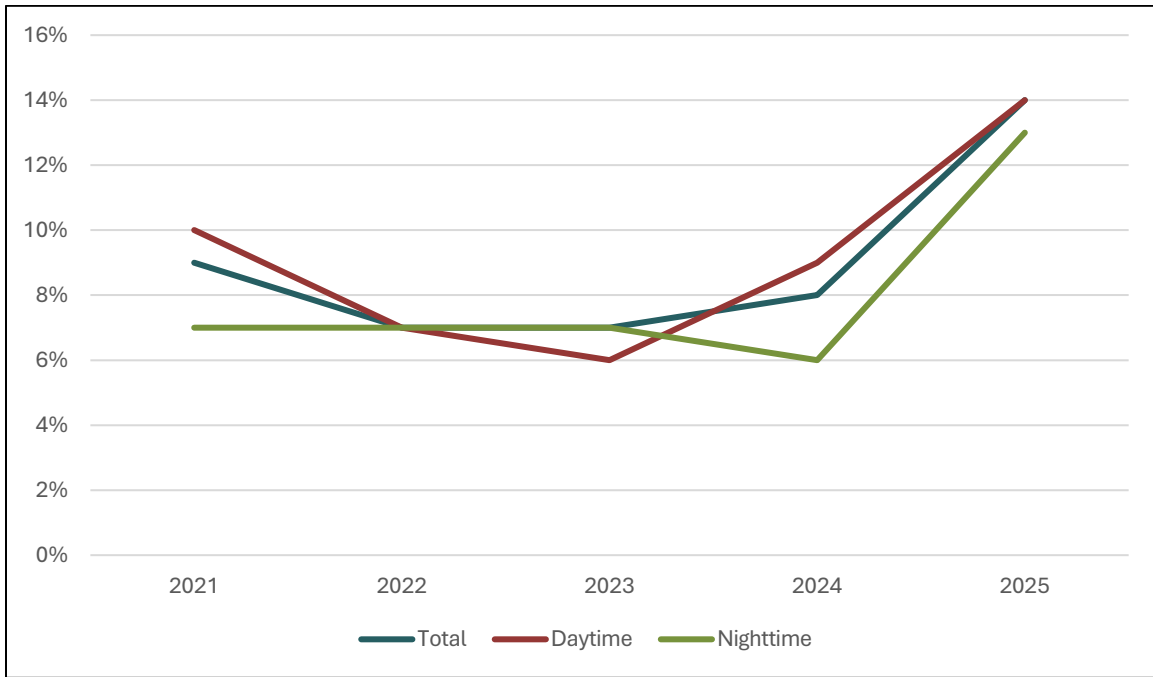
**Figure 92: Christiansburg Fire Responses**



**Figure 93: Christiansburg Fire Travel Times**

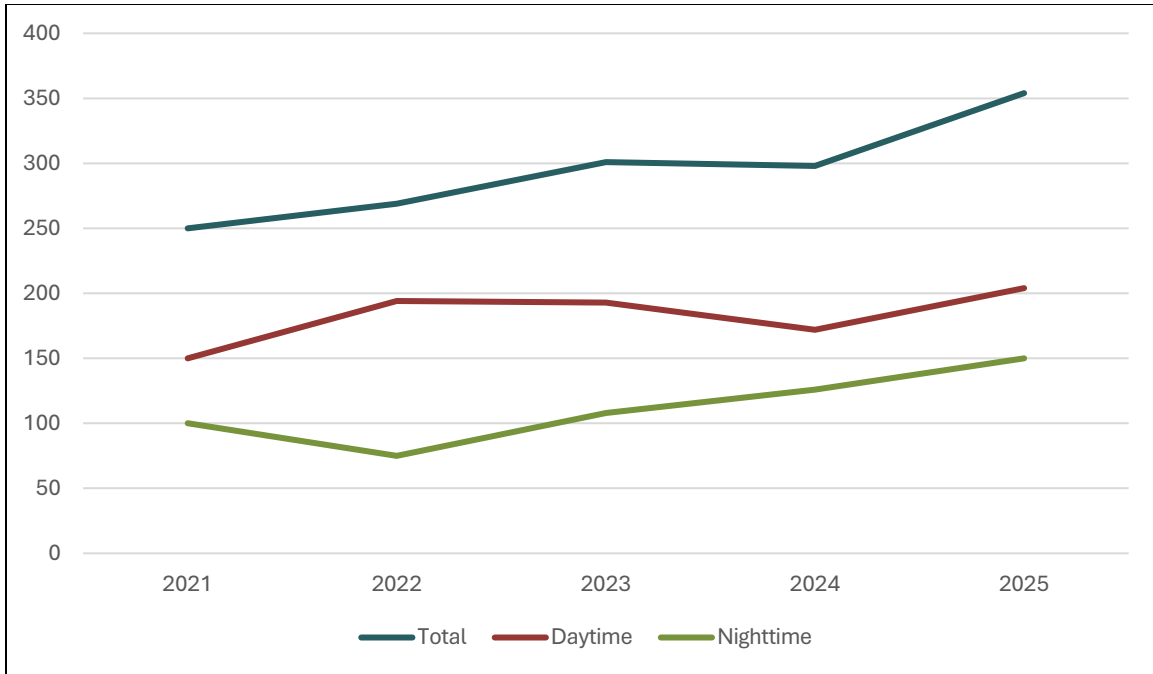


**Figure 94: Christiansburg Fire Concurrent Calls - Calls within 20 Minutes of Each Other**

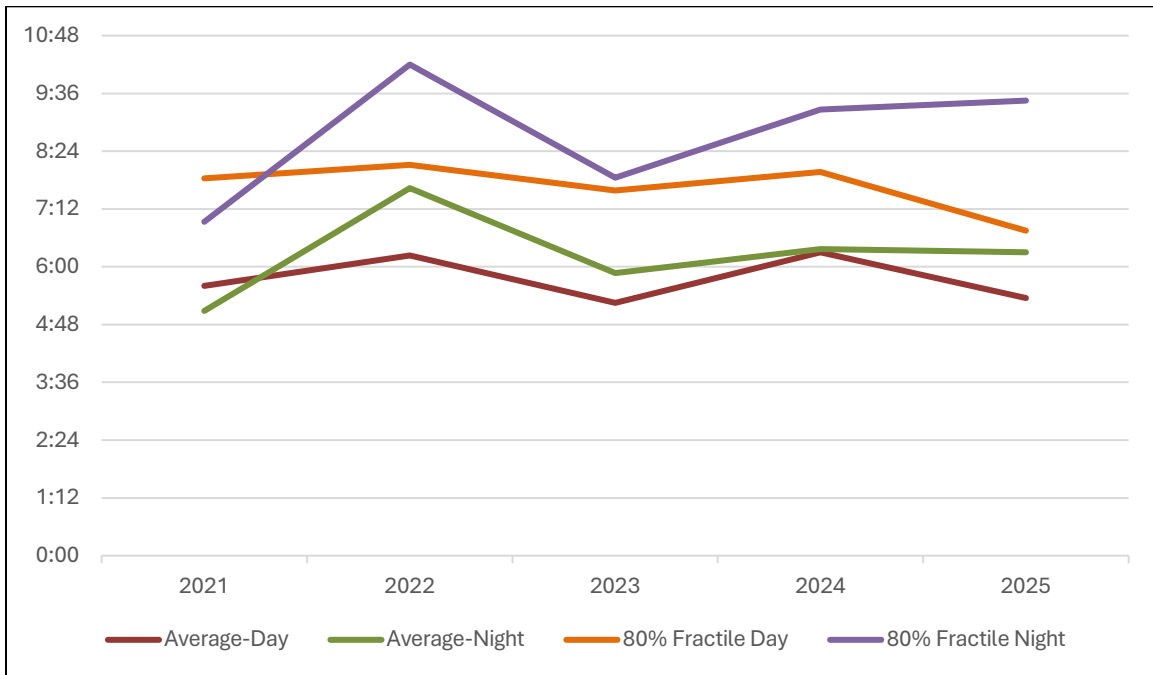


**Elliston Fire Response Statistics**

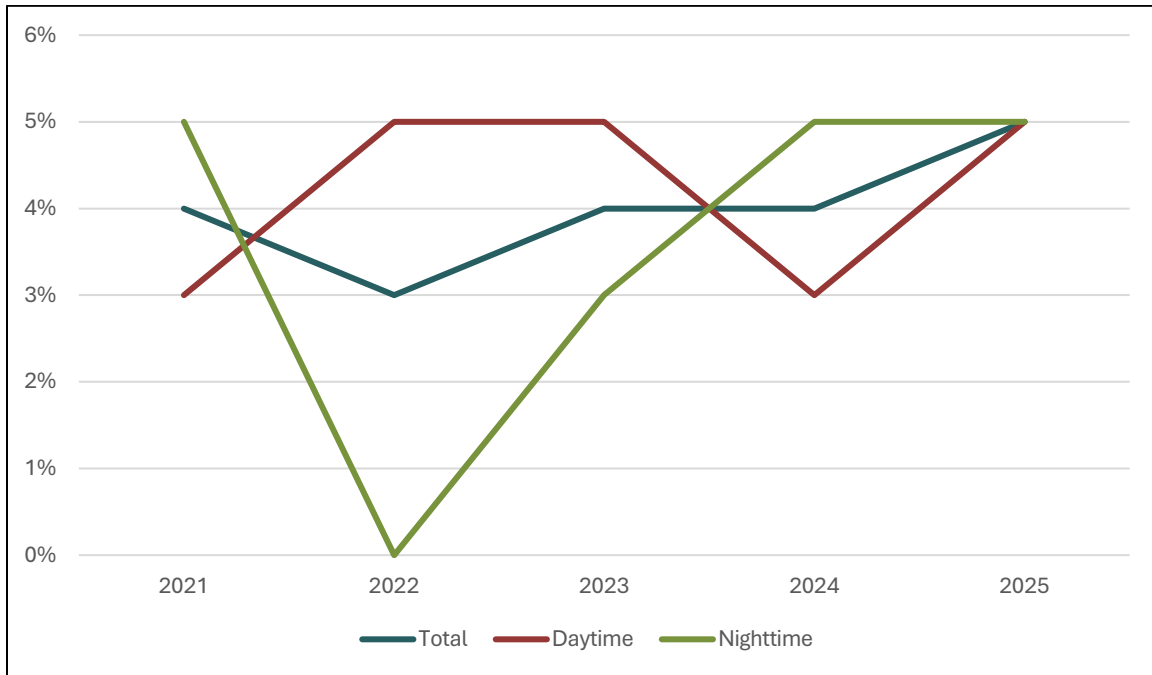
**Figure 95: Elliston Fire Responses**



**Figure 96: Elliston Fire Travel Times**

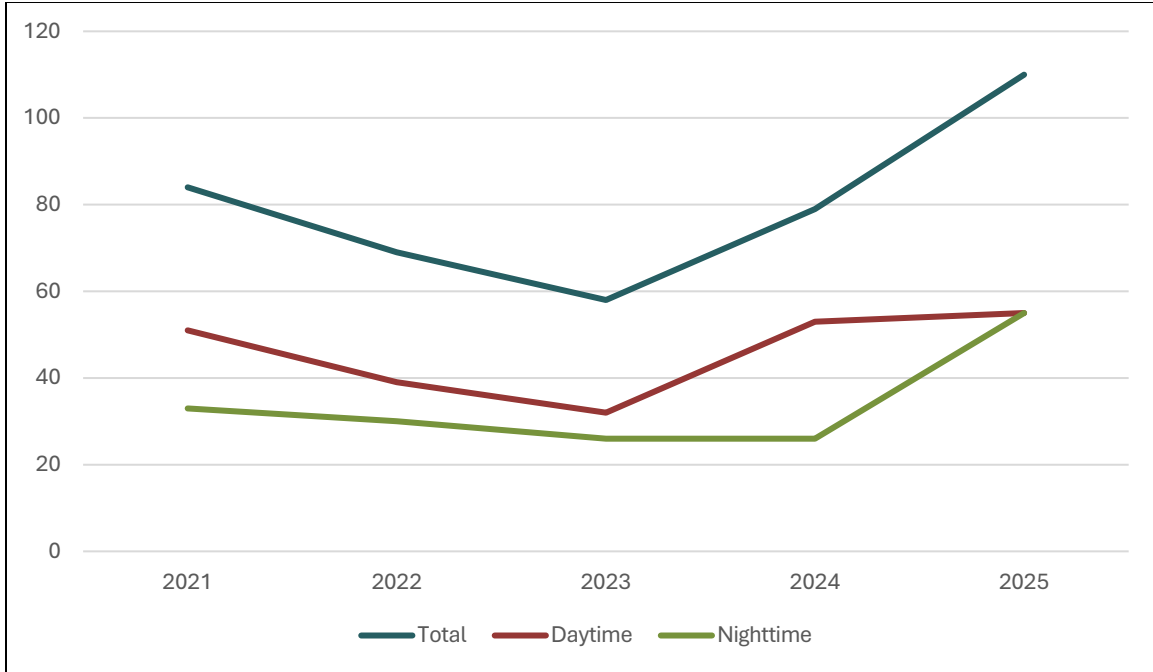


**Figure 97: Elliston Fire Concurrent Calls - Calls within 20 Minutes of Each Other**

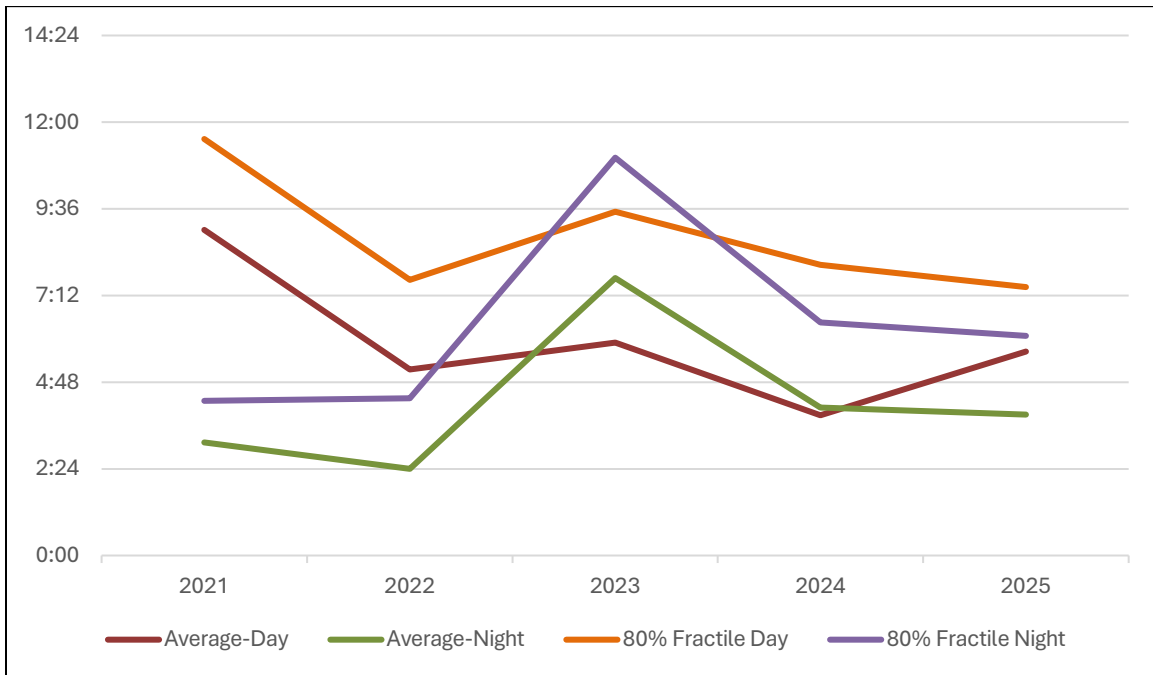


**Longshop McCoy Fire Response Statistics**

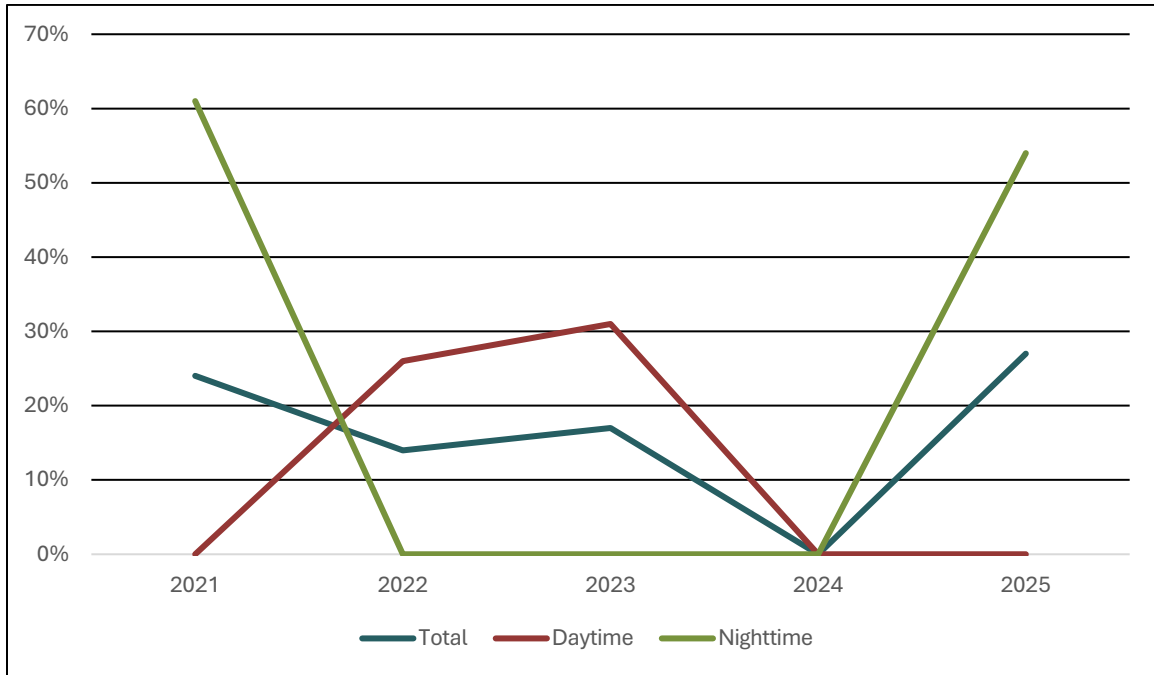
**Figure 98: Longshop McCoy Fire Responses**



**Figure 99: Longshop McCoy Fire Travel Times**



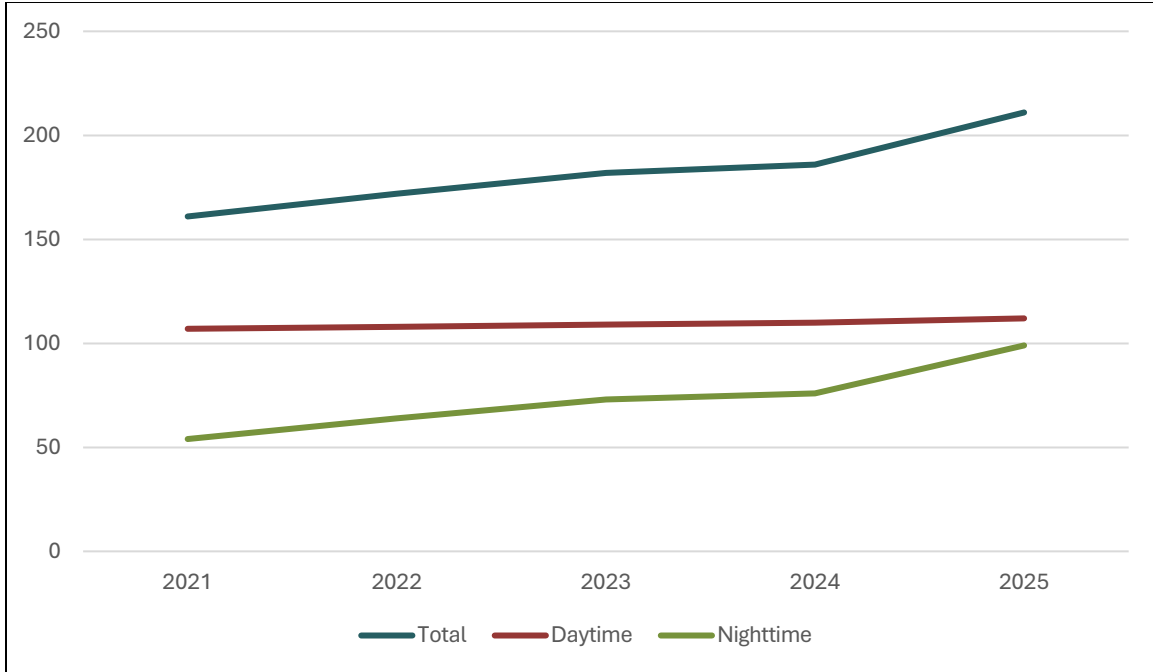
**Figure 100: Longshop McCoy Fire Concurrent Calls - Calls within 20 Minutes of Each Other\***



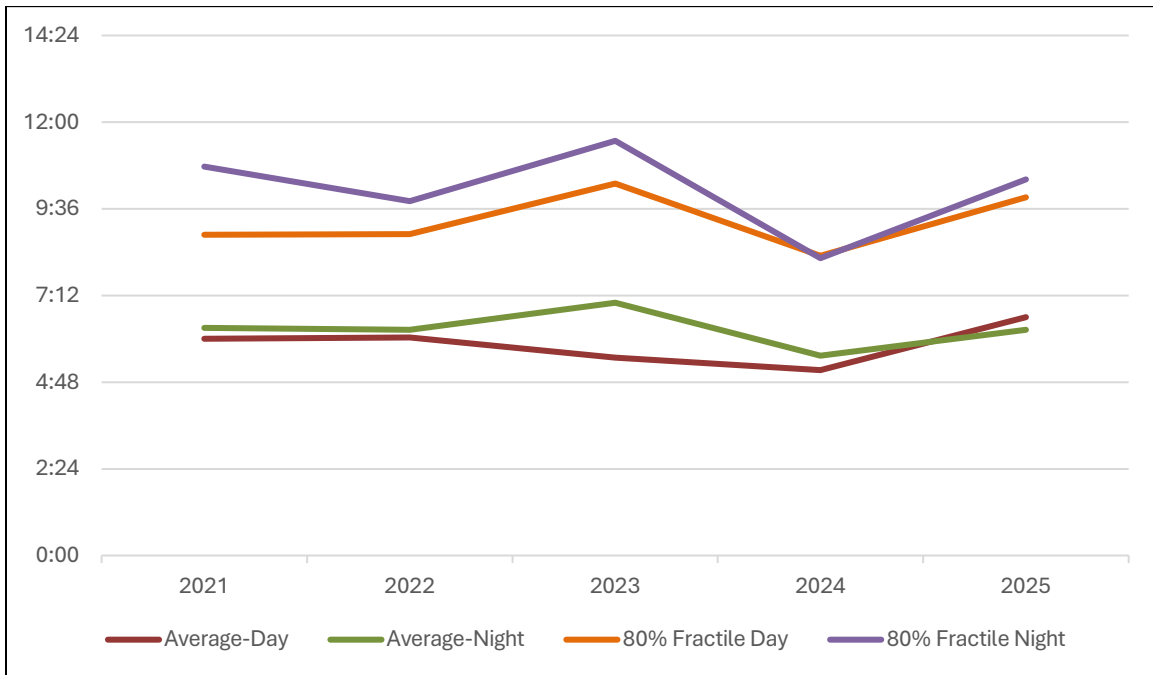
*\*Wide variations within the percentage count due to the low volume of annual calls run*

**Riner Fire Response Statistics**

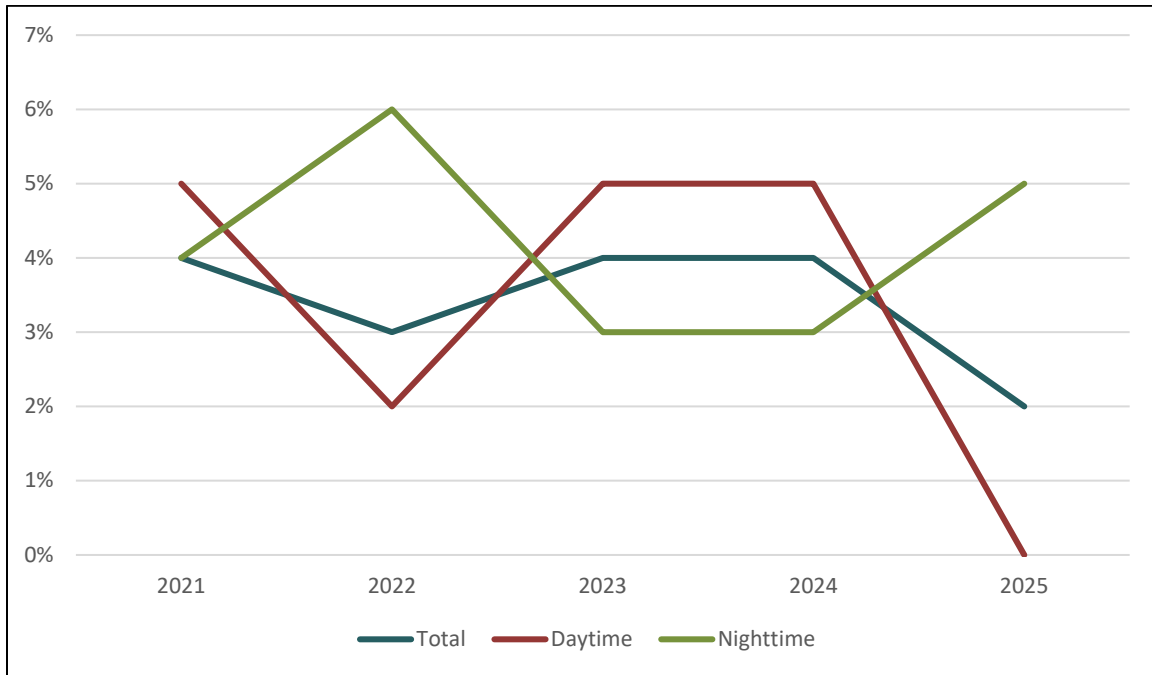
**Figure 101: Riner Fire Responses**



**Figure 102: Riner Fire Travel Times**



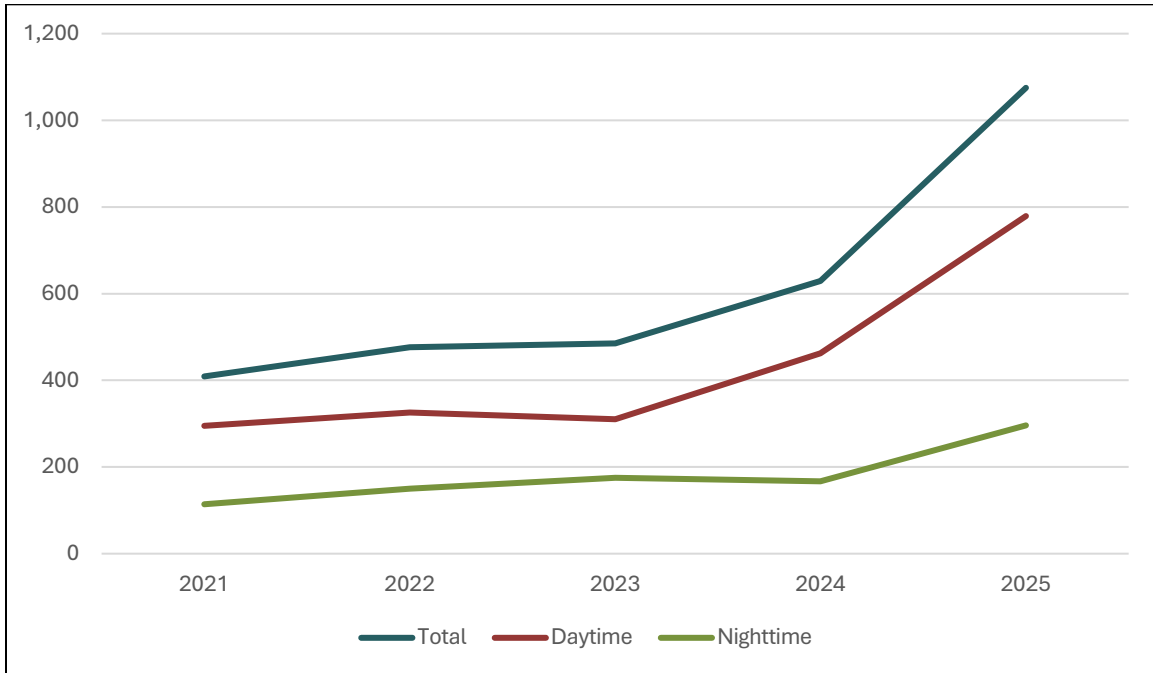
**Figure 103: Riner Fire Concurrent Calls - Calls within 20 Minutes of Each Other**



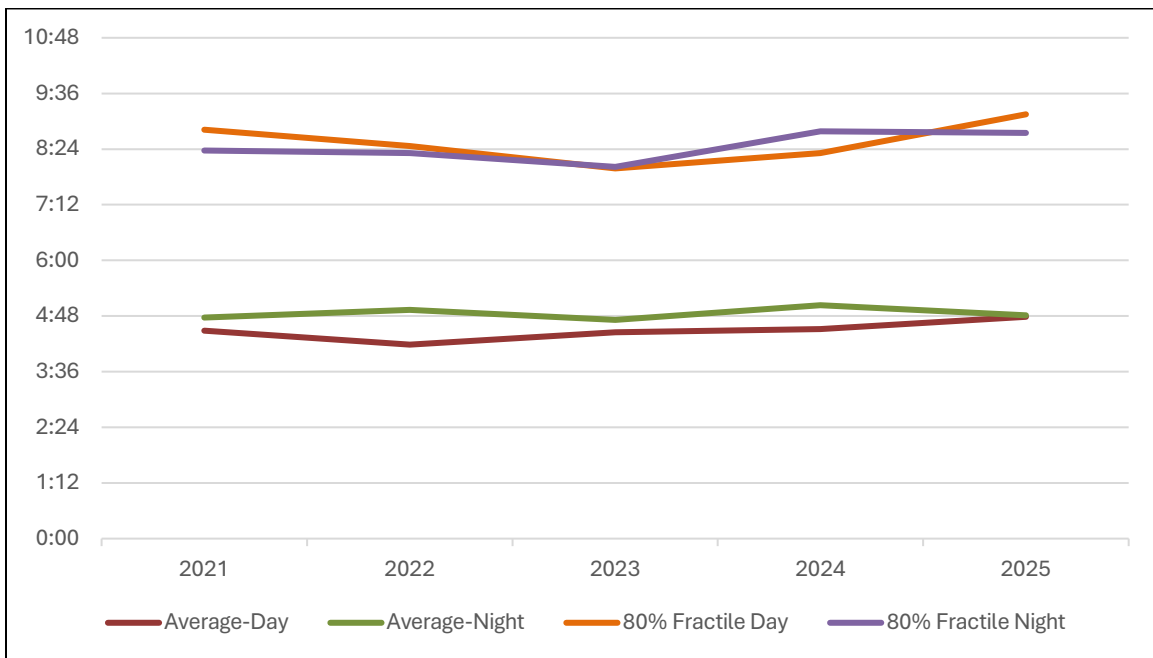
**Montgomery Fire and EMS Response Statistics\***

*\*Data based on both functional and non-functional unit response, which includes chief officers, thus the number of responses before actual fire services initiated in 2024*

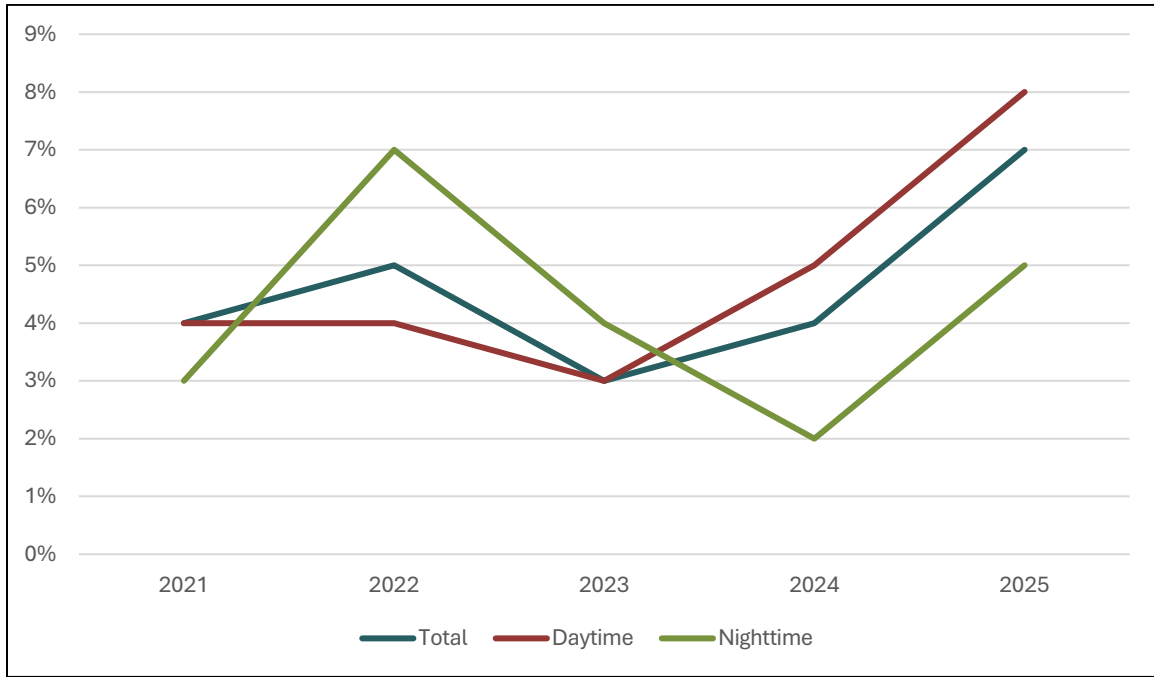
**Figure 104: Montgomery County Fire and EMS Fire Responses**



**Figure 105: Montgomery County Fire and EMS Travel Times**



**Figure 106: Montgomery County Fire and EMS Concurrent Calls - Calls within 20 Minutes of Each Other**



**Appendix H**  
**Apparatus Inventory**

Per American Public Works Association Guidelines for Fire Apparatus  
 Ambulances based on approximately 5 years and/or 100,000 miles

- **In Excellent or Good condition**
- **Are Qualified for Replacement**
- **Need Immediate Consideration for replacement**

Fire Department or Rescue Squad	Vehicle Identifier	Year	Make	Type	Tank Size	Pump Size	Mileage	General Visible Condition	Safety Features**
Blacksburg Fire	Engine 10	2018	Pierce Enforcer	Engine	750 gallons	1500 GPM	18,921	Good	None
	Engine 11	2018	Pierce Enforcer	Engine	750 gallons	1500 GPM	13,611	Good	None
	Engine 12	2009	Pierce Arrow XT	Engine	750 gallons	1500 GPM	31,064	Good	None
	Engine 13	2017	Pierce Dash CF	Engine	750 gallons	1500 GPM	37,005	Good	None
	Engine 17	1997	Pierce Saber	Engine	750 gallons	1250 GPM	33,398	Fair	None
	Engine 19	2002	Pierce Enforcer	Engine	750 gallons	1500 GPM	72,355	Good	None
	Tanker 11	1992	Pierce Lance	Reserve Engine Tanker	1500 gallons	1500 GPM	37,192	Fair	None
	Tanker 12	2017	Pierce Arrow XT	Engine Tanker	2500 gallons	1500 GPM	31,064	Good	None
	Tanker 13	2022	Freightliner Pierce	Tanker	1000 gallons	1250 GPM	3,343	Good	None

**Montgomery County, Virginia**  
**Fire and Rescue Services Comprehensive Assessment**

					250 foam				
	<b>Ladder 11</b>	2007	Pierce Dash	75' Ladder	500 gallons	1500 GPM	15,462	Good	None
	<b>Ladder 12</b>	2019	Pierce Velocity	100' Platform	300 gallons	2000 GPM	4,362	Good	None
	Attack 11	2002	F-550	Mini Pumper	300 gallons	500 GPM	11,036	Good	None
	Brush 11	2021	F-350	Brush Truck	200 gallons	250 GPM	3,245	Good	None
	Brush 12	2020	F-550	Brush Truck	250 gallons	250 GPM	3,612	Good	None
	Brush 13	2015	Ford	Brush Truck	200 gallons	250 GPM	7,071	Good	None
	Utility 11								
	Air 12	2012	International Pierce	Mobile Air and Light	N/A	N/A	8,341	Good	None
Christiansburg Fire	<b>Engine 82</b>	1993	Pierce Dash	Engine	750 gallons	1500 GPM	32,470	Good	None
	<b>Engine 84</b>	2000	Pierce Quantum	Engine	750 gallons	2000 GPM	41,493	Good Electrical Issues	None
	<b>Engine 87</b> Co. Owned	2005	Pierce Dash	Rescue Engine	750 gallons	1500 GPM	77,728	Fair	None
	<b>Engine 89</b> Co. Owned	2014	Freightliner Rosenbauer	Type 3 Engine	750 gallons	1250 GPM	19,744	Good	None
	<b>Tanker 88</b>	2009	Pierce Quantum	Engine/Tanker	2500 gallons	2000 GPM	30,109	Good Tank Leaks	None
	<b>Ladder 82</b> Town Owned	2011	Pierce Impel	Quint	500 gallons	2000 GPM	20,447	Good	Rollover
	<b>Tower 81</b> Town Owned	2021	Pierce Velocity	Mid-Mount	300 gallons	2000 GPM	7,000	Good Front Susp. Issues	Rollover
	<b>Squad 81</b>	2017	KME	Heavy Rescue	N/A	N/A	14,480	Good	Rollover

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**Fire and Rescue Services Comprehensive Assessment**

	Brush 83	2020	F-550/Skeeter	Type 5 Wildland Engine	400 gallons	300 GPM	5,897	Good	Rollover
	Brush 86	2017	F-550/Skeeter	Type 5 Wildland Engine	400 gallons	300 GPM	7,844	Good	Rollover
Elliston VFD	<b>Engine 22/ Engine 2</b>	2021	KME Predator	Engine	1000 gallons	1500 GPM	12,352	Fair Major body repair and pump repl.	Rollover
	<b>Res. Engine 2</b>	1999	KME Predator	Rescue Engine	1500 gallons	1500 GPM	13,100	Poor Numerous Repairs	None
	<b>Tanker 25/ Tanker 2</b>	2009	Intl./Wynn	Tanker	2500 gallons	500 GPM	10,564	Fair	None
	<b>Squad 27/Squad 2</b>	2005	KME Predator	Heavy Rescue	300 gallons	500 GPM	28,205	Poor Electrical Issues	None
	Dive 23/ Dive 2	2006	F-450	Dive Rescue	N/A	N/A	19,241	Good	None
	<b>Attack 24/ Attack 2</b>	2023	Intl./Pierce	Type 3 Engine	500 gallons	1000 GPM	5,525	Good	None
	<b>Engine 28</b>	1988	Pierce Arrow	Engine	750 gallons	1250 GPM	61,477	Poor	None
	Brush 29	2006	F-350	Brush Truck	250 gallons	N/A	20,324	Poor Pump Replaced	None
Long Shop McCoy VFD	<b>Engine 67</b>	2015	KME	Rescue Engine	1500 gallons	1500 GPM	6,160	Good	Unknown
	<b>Engine 69</b>	2024	Pierce Saber	Engine Tanker	1800 gallons	1500 GPM	2,449	Excellent	Unknown
	<b>Tanker 66</b>	2018	Seagrave Marauder	Engine Tanker	2500 gallons	1500 GPM	5,971	Good	Unknown
	<b>Tanker 68</b>	2007	International Pierce	Tanker	2500 gallons	1500 GPM	15,435	Good	Unknown

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**Fire and Rescue Services Comprehensive Assessment**

	Brush 61	2011	Ford 350	Brush Truck	250 gallons	250 GPM	5,899	Good	
	Brush 62	2011	Ford 350	Brush Truck	250 gallons	250 GPM	4,467	Good	
Riner VFD	<b>Engine 41</b>	2021	F-550	Mini-Pumper	275 gallons	1000 GPM	3,311	Good	Unknown
	<b>Engine 42</b>	2015	Pierce Arrow XT	Engine	1500 gallons	1500 GPM	10,442	Good	Unknown
	<b>Engine 43</b>	1998	Pierce Dash	Engine	750 gallons	1500 GPM	19,150	Good	Unknown
	Brush Truck 46	2012	F-350	Brush Truck	250 gallons	240 GPM	8,170	Good	Unknown
	<b>Squad 47</b>	2002	F-750	Squad	N/A	N/A	16,644	Fair	Unknown
	<b>Tanker 48</b>	2007	Intl. 4400	Tanker	2000 gallons	1000 GPM	13,504	Fair Electrical Issues	Unknown
	<b>Engine 49</b>	2022	Freightliner M-2	Engine	750 gallons	1000 GPM	4,016	Good Electrical Issues	Unknown
Blacksburg Rescue	<b>R/M 51</b>	2023	F-450 Wheel Coach	Amb.	N/A	N/A	9,286	Excellent	Rollover
	<b>R/M 52</b>	2023	F-450 Wheel Coach	Amb.	N/A	N/A	11,094	Excellent	Rollover
	<b>R/M 53</b>	2021	F-450 Wheel Coach	Amb.	N/A	N/A	45,376	Good	Rollover
	<b>R/M 54</b>	2017	F-450 Wheel Coach	Amb.	N/A	N/A	66,901	Good	Rollover
	<b>R/M 55</b>	2021	F-450 Wheel Coach	Amb.	N/A	N/A	36,665	Good Engine Replaced	Rollover
	<b>R/M 56</b>	2023	F-450 Wheel Coach	Amb.	N/A	N/A	13,317	Excellent	Rollover
	<b>Squad 51</b>	2016	Pierce	Heavy Rescue	N/A	N/A	16,460	Good	Rollover
	<b>Squad 52</b>	2009	GMC Pierce	Med. Rescue	N/A	N/A	13,618	Good	Rollover

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	<b>Squad 54</b>	2010	Intl./Durastar	Tech. Rescue	N/A	N/A	5,758	Good	Rollover
Christiansburg EMS	<b>Medic 90</b>	2017	F-550	Amb.	N/A	N/A	100,755	Good	None
	<b>Medic 91</b>	2020	F-550	Amb.	N/A	N/A	37,569	Poor	None
	<b>Medic 92</b>	2024	F-450	Amb.	N/A	N/A	5,451	Excellent	None
	<b>Medic 93</b>	2016	F-450	Amb.	N/A	N/A	123,543	Good	None
	<b>Medic 94</b>	2020	F-550	Amb.	N/A	N/A	61,933 (7/7/25)	Good	None
	<b>Medic 96</b>	2022	F-550	Amb.	N/A	N/A	23,477	Excellent	None
Longshop McCoy VRS	<b>Ambulance 34</b>	2023	F-450 Wheel Coach	Amb.	N/A	N/A	466	Excellent	None
	<b>Ambulance 35</b>	2019	F-450 Braun	Amb.	N/A	N/A	15,923	Good	None
Montgomery Co. Fire/EMS	Supervisor 13	2022	F-150	EMS Super.	N/A	N/A	68,083	Good	None
	<b>Medic 131</b>	2020	F-550/Wheel Coach	Amb.	N/A	N/A	101,085	Fair Spring Gel System Leaking	None
	<b>Medic 132</b>	2017	F-450/Wheel Coach	Amb.	N/A	N/A	98,000	Fair	None
	<b>Medic 133</b>	2013	F-450/Wheel Coach	Amb.	N/A	N/A	106,873	Fair	None
	<b>Medic 134</b>	2012	F-450/Wheel Coach	Amb.	N/A	N/A	87,738	Fair	None
	<b>Medic 135</b>	2012	F-450/Wheel Coach	Amb.	N/A	N/A	94,000	Fair	None
Riner VRS	<b>11-1</b>	2020	Dodge Ram 5500	Amb.	N/A	N/A	11,824	Good	None
	<b>11-2</b>	2007	Ford Van	Amb.	N/A	N/A	23,000	Good	None
	<b>11-3</b>	2020	F-550 Road Rescue	Amb.	N/A	N/A	25,000	Good	None
	<b>Rescue Medic 153</b>	2017	F-350 City Medic	Amb.	N/A	N/A	35,484	Good Box HVAC System	None

**Montgomery County, Virginia**  
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Virginia Tech Rescue Squad	<b>Rescue Medic 154</b>	2019	F-350 City Medic	Amb.	N/A	N/A	31,547	Good	None
	<b>Rescue Medic 155</b>	2009	Chev. 4500	Amb.	N/A	N/A	43,540	Poor Power Steer. Pump	In-Line Diesel Exhaust System
	<b>Rescue Medic 157</b>	2023	F-350 City Medic	Amb.	N/A	N/A	13,392	Good Frame Repair Engine Repl.	None

**\*\*Safety Features**

- Clean Cab Concept
- Rollover Protection
- In-Apparatus Diesel Exhaust System (DPF – Diesel Particulate Filter)

**Montgomery County, Virginia**  
**Fire and Rescue Services Comprehensive Assessment**

**Appendix I**  
**Fire Station Inventory**

Department	Station Number	General Description	Year Constructed	Type of Construction	Square Footage	Facilities	Number of Apparatus Bays	General Condition	Safety Features*
Blacksburg Fire	1	2 Story Brick	1950's Orig Late 1970's Addition	Brick	N/A	Bathrooms – Yes Sleeping – Yes Shower – Yes Kitchen - yes	8 Bays	Fair Needs Roof	Smoke Det. Fire Alarm Diesel Exh.
	2	Metal	1986	Metal	N/A	Bathrooms – Yes Sleeping – Yes Shower – Yes Kitchen - yes	6 Bays	Good	Smoke Det. Fire Alarm Diesel Exh.
	3	2 Story Brick/Metal	2009	Brick/Metal	N/A	Bathrooms – Yes Sleeping – Yes Shower – Yes Kitchen - yes	6 Bays	Good	Smoke Det. Fire Alarm Diesel Exh. Air Comp. Isolation
Christiansburg Fire		Steel frame Block and brick	1976	Steel frame Block and brick	56,250	Bathrooms – Yes Sleeping – No Shower – Yes Kitchen - Yes	6 Drive through	Good Roof leaks	Smoke Det. Fire Alarm Diesel Exh. System Air Comp. Isolation
Elliston VFD Mont. Co. F&EMS Station 2	2	Block Metal	2007	Block/Metal	16,000	Bathrooms – Yes Sleeping – Yes Shower – Yes Kitchen - Yes	6 Drive Through	Poor Getting Renovated	Smoke Det. Fire Alarm
Longshop McCoy Fire		Block/ Metal	2006	Block/Metal	13,000	Bathrooms – Yes Sleeping – No Shower – Yes Kitchen - Yes	6 Drive Through	Good	Fire Alarm
Riner VFD		Block	2018	Block	19,148	Bathrooms – Yes	12 Bays	Good	Smoke Det.

## Montgomery County, Virginia

### Fire and Rescue Services Comprehensive Assessment

						Sleeping – No Shower – Yes Kitchen - Yes	6 Drive Thru	Needs Roof	Fire Alarm Diesel Exh. System Air Comp. Isolation Fire Sprklr.
Blacksburg RS	5	Masonry Wood Frame	2016	Masonry Wood Frame	27,000	Bathrooms – Yes Sleeping – Yes Shower – Yes Kitchen - Yes	5 Drive through – Used as back in	Excellent	Smoke Det. Fire Alarm Fire Sprklr.
Christiansburg RS	9	Block	1996	Block	25,000	Bathrooms – Yes Sleeping – Yes Shower – Yes Kitchen - Yes	5 Drive through 2 Back In	Excellent	Smoke Det. Fire Alarm Fire Sprklr.
Riner EMS		Block	2010	Block	3,100	Bathrooms – Yes Sleeping – Yes Shower – Yes Kitchen - Yes	2 Back In	Fair Recent Renovation	Smoke Det. Fire Alarm
Riner VRS		Metal	1985	Metal	10,000	Bathrooms – Yes Sleeping – Yes Shower – Yes Kitchen - Yes	3 Drive Through	Good Renovation in 2020	Smoke Det. Fire Alarm Fire Sprklr.
Va. Tech RS		Brick Basement of Military Bldg.	1936	Brick	2,903	Bathrooms – Yes Sleeping – Yes Shower – Yes Kitchen - Yes	2 Back In	Poor Ceiling Leaks	Smoke Det. Fire Alarm

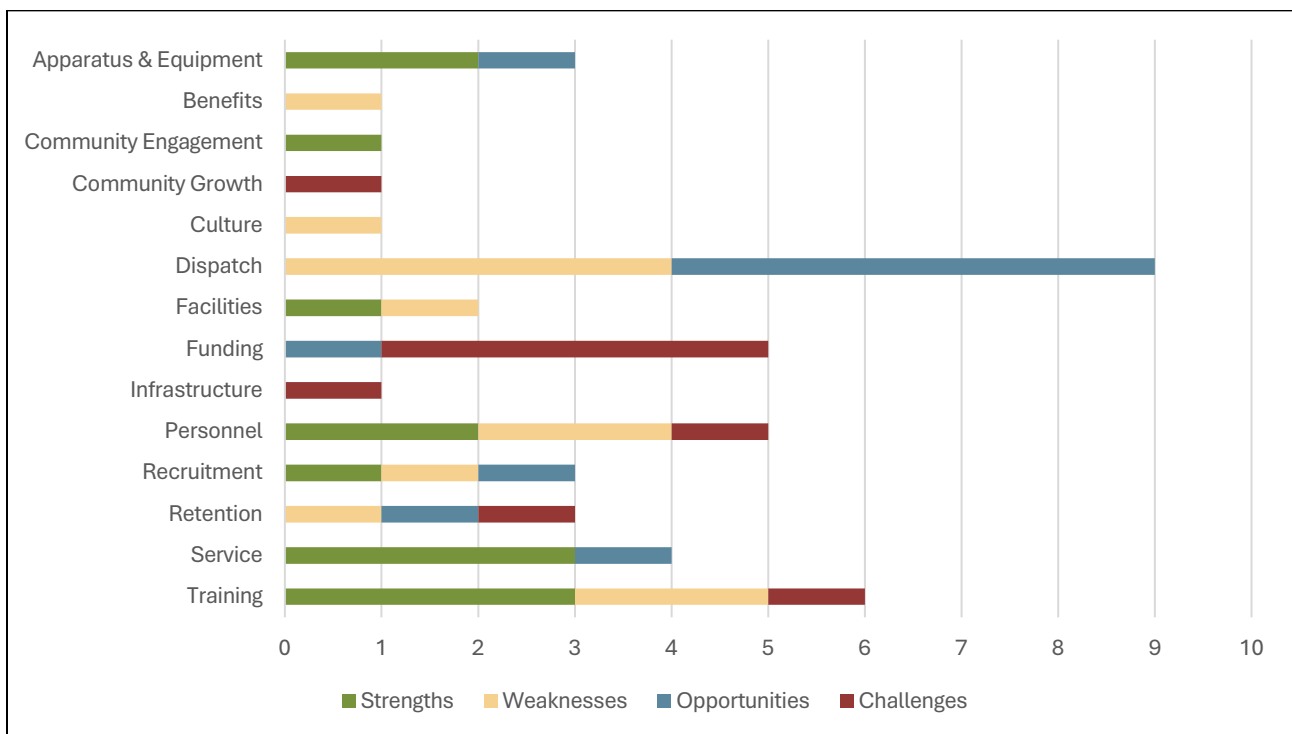
**\*Safety Features**

- Smoke Detector/Fire Alarm Systems
- Diesel Exhaust Management Systems
- SCBA Air Compressor Isolation Area
- Fire Sprinkler Systems
- PPE Isolation Areas

**Appendix J**  
**Strengths, Weaknesses, Opportunities and Challenges Information**

The SWOC results were separated by the six groups interviewed; no one attended the Rescue volunteers in County session. Below are the top SWOC responses the groups provided when asked “What would be your top recommendation to enhance the fire-rescue service in your department or the system?”. Additionally, a SWOC chart for each group which includes all of the responses provided during the SWOC sessions is provided.

**Fire Rescue Commission SWOC Session**



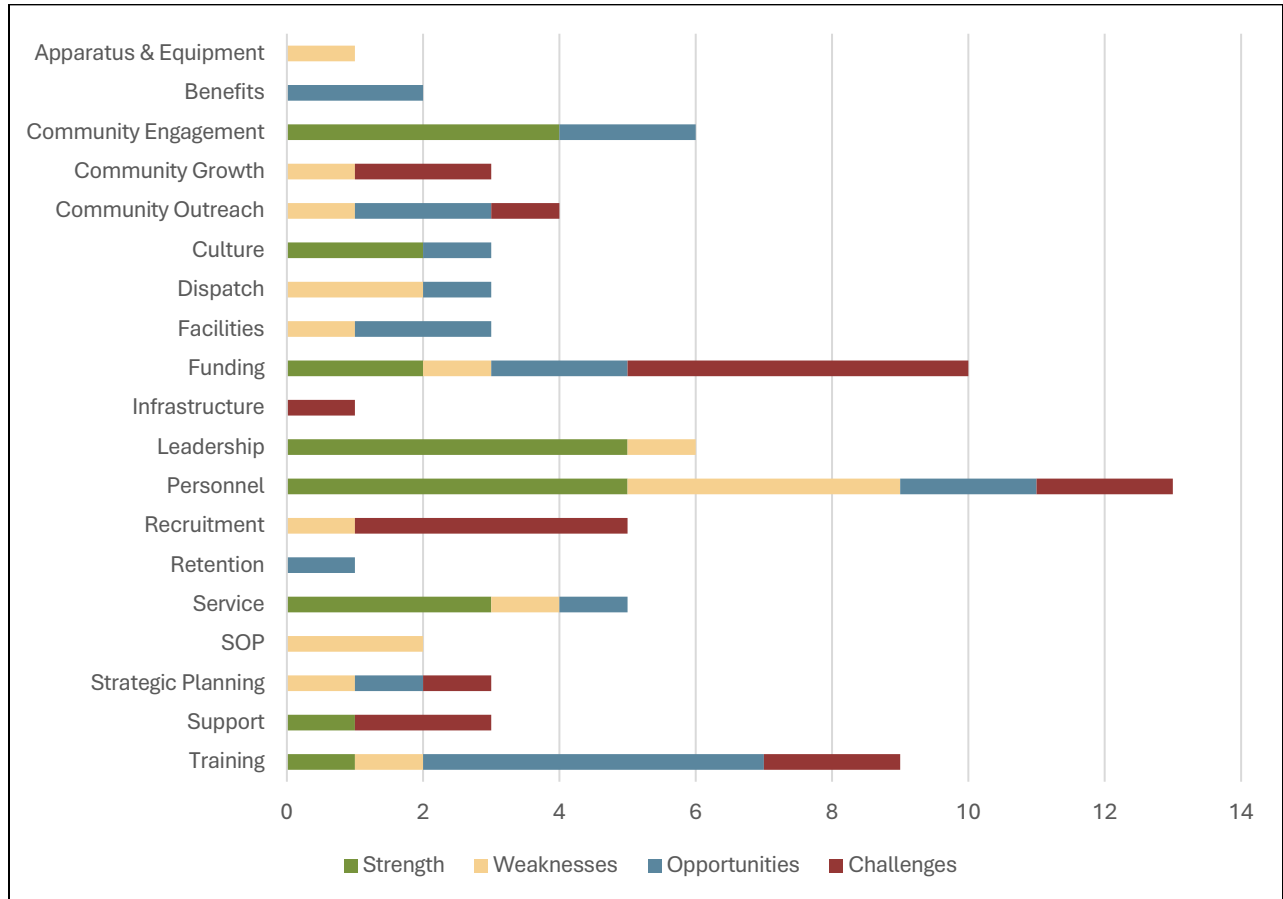
**Top comments:**

- Strengths- Service and Training (tied)
- Weaknesses – Dispatch
- Opportunities – Dispatch
- Challenges – Funding

<b>Strengths</b>	<b>Weaknesses</b>
<ul style="list-style-type: none"> <li>• Community support</li> <li>• Condition of apparatus and equipment</li> <li>• Dedicated volunteers</li> <li>• EMS is continuously improving</li> <li>• Equipment and apparatus sharing</li> <li>• Good facilities (Blacksburg Rescue)</li> <li>• Good number of able and quality volunteers</li> <li>• Organizations work well together</li> <li>• Quality of care</li> <li>• Quality of training</li> <li>• Quantity of fire instructors</li> <li>• Quantity of Fire training available</li> </ul>	<ul style="list-style-type: none"> <li>• Availability of manpower</li> <li>• Dispatch - Inconsistent processes</li> <li>• Dispatch-Delay in dispatching calls</li> <li>• Dispatch-Law Enforcement dispatched before Fire/EMS</li> <li>• Facilities maintenance (Blacksburg Fire &amp; Longshop McCoy)</li> <li>• Lack of incentives for volunteers</li> <li>• Lack of trust with Town &amp; Elected officials (Christiansburg EMS)</li> <li>• Large scale training</li> <li>• Recruitment for volunteer and career</li> <li>• Retention (college turnover)</li> <li>• Shared personnel resources of volunteer/career</li> <li>• Training requirements for volunteer fire and EMS</li> <li>• Unwillingness for dispatch to accept feedback</li> </ul>
<b>Opportunities</b>	<b>Challenges</b>
<ul style="list-style-type: none"> <li>• Community paramedic program</li> <li>• Dispatch-Consistent SOPs</li> <li>• Dispatch-high turnover rate</li> <li>• Dispatch-improve processes</li> <li>• Dispatch-No call updates</li> <li>• Fee for service producing an admin. position (Blacksburg Rescue)</li> <li>• New radio service increase coverage area</li> <li>• Recruitment resources are available</li> <li>• Response lines</li> <li>• Retention resources are available</li> </ul>	<ul style="list-style-type: none"> <li>• Apparatus and Equipment repair costs increasing</li> <li>• Equipment costs increasing</li> <li>• Funding</li> <li>• Limited staffing pool</li> <li>• Limited truck repair agency (Atlantic)</li> <li>• Low pass rate for NREMT</li> <li>• Retention of career and volunteers</li> <li>• Supply chain issues</li> <li>• Town growth-Infrastructure</li> <li>• Town growth-Service demands</li> </ul>

**Citizens SWOC Sessions**

Citizen session on November 14<sup>th</sup> and November 16<sup>th</sup>. Six citizens total attendance. Four of the six citizens had fire department affiliations.



**Top comments:**

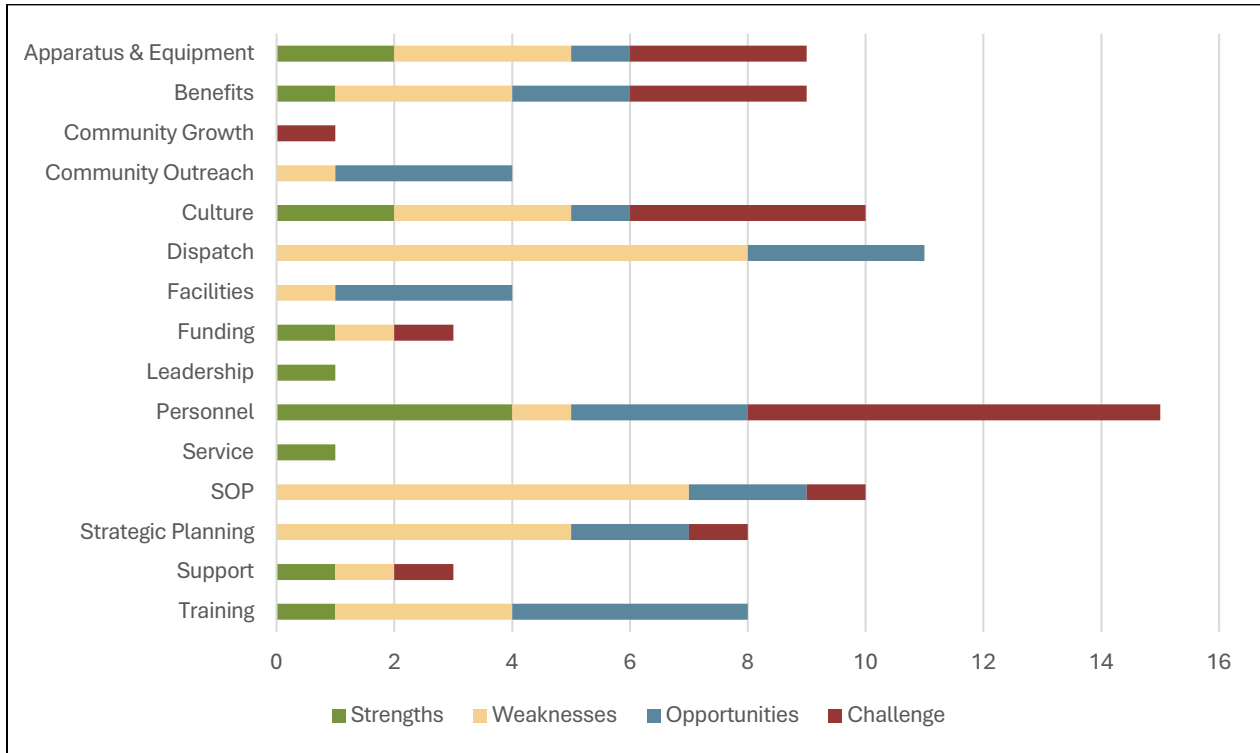
- Strengths- Community Engagement
- Weaknesses – Personnel
- Opportunities – Training
- Challenges – Funding

<b>Strengths</b>	<b>Weaknesses</b>
<ul style="list-style-type: none"> <li>• All agencies have good customer service</li> <li>• Apparatus</li> <li>• Cooperation</li> <li>• County is progressive with emergency services</li> <li>• First responders are engaged in their communities</li> <li>• Funding</li> <li>• Good leadership</li> <li>• Local community supports first responders</li> <li>• Personnel are our neighbors</li> <li>• Quantity of volunteers in towns</li> <li>• Response times are good</li> <li>• Response times for fire and EMS</li> <li>• Revenue Recovery</li> <li>• Skilled individuals</li> <li>• Students are involved in fire and EMS</li> <li>• Teams work well together</li> <li>• They are involved in many community events</li> <li>• Train all the time</li> <li>• Various generations in one agency</li> <li>• Very active in the communities</li> <li>• Volunteers are dedicated</li> </ul>	<ul style="list-style-type: none"> <li>• Age of volunteers</li> <li>• Availability during the day-Volunteers</li> <li>• Blacksburg Rescue has only one station for significant response area</li> <li>• Burn out of volunteer and family members</li> <li>• Career staffing levels are low</li> <li>• Cross train fire and EMS</li> <li>• Dispatch not trained well on fire and EMS calls</li> <li>• Expansive geography to respond</li> <li>• Funding for paid staff</li> <li>• Incident command system</li> <li>• Lag time for apparatus resources</li> <li>• Large geography to cover</li> <li>• Not educating public of services &amp; challenges</li> <li>• Radio Communication-Interoperability</li> <li>• Recruitment - Career and Volunteer</li> <li>• Town &amp; county officials disagree regarding fire &amp; EMS</li> <li>• Towns are not progressive with emergency services</li> <li>• Training-Volunteers have variable requirements</li> </ul>
<b>Opportunities</b>	<b>Challenges</b>
<ul style="list-style-type: none"> <li>• ACCE program utilization</li> <li>• Another station in northwest Montgomery County, near Giles County</li> <li>• Better relationships between all (volunteer-career, fire and rescue)</li> <li>• Better training and pay for dispatchers</li> <li>• Career development - Career and Volunteers</li> <li>• Communication Expectations</li> </ul>	<ul style="list-style-type: none"> <li>• Aging volunteers</li> <li>• Changing technology</li> <li>• Community growth-service isn't keeping up</li> <li>• Competition from other agencies for personnel</li> <li>• County leadership buy in</li> <li>• Diversity within Fire and EMS</li> <li>• Funding</li> <li>• Grant funding</li> </ul>

<ul style="list-style-type: none"> <li>• Community outreach through local government efforts</li> <li>• Cross cultural communication efforts to community</li> <li>• Educate public about public safety to prevent problems (Community Risk Reduction)</li> <li>• Grant funding</li> <li>• Incident Management System</li> <li>• Joint consistent training</li> <li>• Junior Fire academy</li> <li>• Minimum Staffing</li> <li>• More paid staffing 24/7</li> <li>• New stations near planned development</li> <li>• Personnel should be Fire and EMS trained</li> <li>• Regional exercises</li> <li>• Regional training academy</li> <li>• Retention</li> <li>• Salaries increase</li> <li>• Succession planning-career and volunteers</li> <li>• Tax increase specifically for public safety</li> <li>• Volunteer incentives</li> </ul>	<ul style="list-style-type: none"> <li>• How to fund fire and EMS-County and towns</li> <li>• Increased service demand due to growth &amp; weather</li> <li>• Infrastructure needs</li> <li>• Lack of personnel going into fire service</li> <li>• Lose sense of community if we go to all paid</li> <li>• Personnel bandwidth</li> <li>• Prioritizing what to address first</li> <li>• Rapid community growth - services not keeping up</li> <li>• Recruiting personnel for volunteers and career</li> <li>• Reducing ISO rating</li> <li>• Rising costs</li> <li>• Staff availability for joint training</li> <li>• Town leadership buy-in</li> <li>• Training not keeping up with progressive issues like tech vehicles</li> </ul>
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**Career Personnel SWOC Sessions**

Two Career sessions were held 11/14<sup>th</sup> & 11/16<sup>th</sup> for town and county employees. A total of twenty-one were in attendance. Christiansburg EMS (6), Christiansburg Fire (2), County (13).



**Top comments:**

- Strengths- Personnel
- Weaknesses – Dispatch, Standard operating procedures a close 2<sup>nd</sup> highest
- Opportunities – Training
- Challenges - Personnel

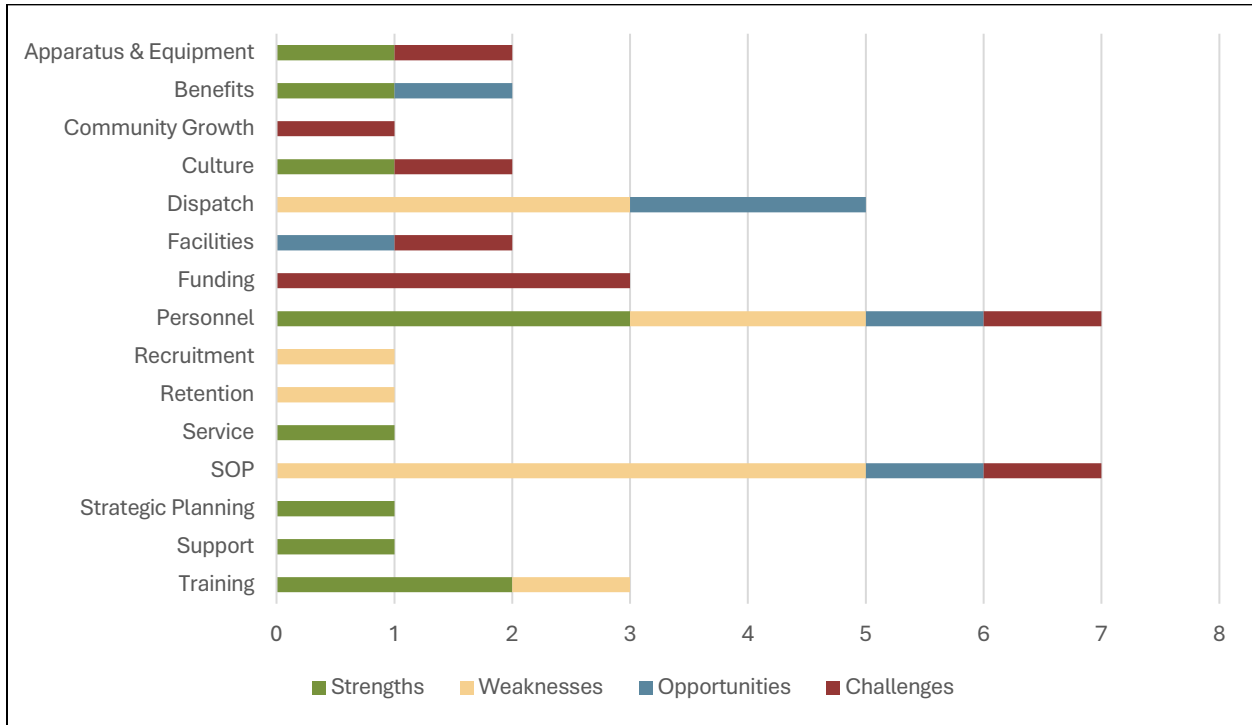
Strengths	Weaknesses
<ul style="list-style-type: none"> <li>• Competent personnel</li> <li>• Cooperation between agencies and department</li> <li>• Emphasis on training</li> <li>• Employees are valued</li> <li>• Equipment</li> <li>• Equipment-nice and modern</li> <li>• Financially supported</li> <li>• Good leadership</li> <li>• Quantity of personnel</li> <li>• Radio communication is improving</li> <li>• Receptive administration</li> <li>• Schedules</li> <li>• Strong sense of civic duty</li> <li>• Young, engaged department</li> </ul>	<ul style="list-style-type: none"> <li>• Admin caters to dwindling volunteer force</li> <li>• Career agency divide between fire and EMS is hurting dept. (Pay, equipment, schedule, OT)</li> <li>• Career leaders disregard of EMS policy and processes</li> <li>• Cultural and metaphorical divide between Fire and EMS</li> <li>• Dispatch - EMD process</li> <li>• Dispatch – Structure</li> <li>• Dispatch -Fire training and competency</li> <li>• Dispatch-Delay agency transfer</li> <li>• Dispatch-Delay of calls</li> <li>• Dispatch-EMD system not working for the good of system</li> <li>• Dispatch-Information is one directional</li> <li>• Dispatch-Law Enforcement dispatched before Fire/EMS</li> <li>• Duplication of apparatus resources</li> <li>• EMS training is geared towards ALS not maintaining EMT skills</li> <li>• Fire and EMS are reactive, not proactive</li> <li>• Geographical challenge-facilities &amp; personnel</li> <li>• Inconsistent training/performance between volunteer and career</li> <li>• Interoperability-not all on the same channel</li> <li>• Interoperability-Standard operating procedures</li> <li>• Lack of public knowing service deficiencies</li> <li>• Limited budget for part-timers</li> <li>• Mass Casualty Incident preparedness</li> <li>• More training all types for Career and Volunteer</li> </ul>

	<ul style="list-style-type: none"> <li>• No continuity of operations among departments</li> <li>• No continuity of process within Fire and EMS in dept</li> <li>• No EMS LT position impacts chain of command</li> <li>• No incentive pay for certifications and roles</li> <li>• No plan when apparatus is out of service</li> <li>• No reserve fleet</li> <li>• Not all agencies participate in Unit dispatching</li> <li>• “Over apparatused”-Too many not in right places</li> <li>• Pay not competitive with surrounding agencies</li> <li>• Pay- standardized pay hurts</li> <li>• Policies are developed one sided (toward fire)</li> <li>• Reluctant to change</li> <li>• Town and County support for staffing and apparatus (Christiansburg)</li> <li>• Training standards are inconsistent</li> <li>• Volunteers are going interior based on time and service not training qualifications</li> </ul>
<b>Opportunities</b>	<b>Challenges</b>
<ul style="list-style-type: none"> <li>• Additional staffing</li> <li>• Additional stations</li> <li>• Admin (County and Fire and EMS) can drive a new Fire EMS system into the future.</li> <li>• Centralized county training facility</li> <li>• Citizen’s academy</li> <li>• Communication interoperability</li> <li>• County wide OMD for all of Montgomery County for consistency</li> </ul>	<ul style="list-style-type: none"> <li>• Aging volunteers &amp; replacing personnel</li> <li>• Budget</li> <li>• Burn out</li> <li>• County specifications purchases</li> <li>• Create a new culture for career and volunteers</li> <li>• Future paramedic shortage</li> <li>• Lack of infrastructure</li> <li>• Lack of staffing</li> <li>• Lack of Town support from elected officials and Town admin</li> </ul>

<ul style="list-style-type: none"> <li>• Dispatch do Ride-a-longs to understand Fire better</li> <li>• Educate county decision makers on details of fire and EMS</li> <li>• Educate public about changes coming to avoid backlash</li> <li>• Interagency trainings</li> <li>• Jurisdictional remapping</li> <li>• Lack of standardization for dispatching calls</li> <li>• Light duty go to dispatch to assist Fire-EMS dispatcher</li> <li>• Mass Casualty Incident training</li> <li>• Mobile Data Terminals</li> <li>• Opportunity to be change agents</li> <li>• Pay based on certs (ALS &amp; Fire)</li> <li>• Positions to enhance EMS chain of command</li> <li>• Process for an EMS CE camp which is affordable</li> <li>• Regional training site for Fire and EMS</li> <li>• Standardized pay scale</li> <li>• Train dispatch on fire and EMS</li> <li>• Vocational Fire-EMS program in the high schools</li> </ul>	<ul style="list-style-type: none"> <li>• Paid and volunteer EMS personnel don't work well together</li> <li>• Part-timers - Committed availability versus actual work time</li> <li>• Rapid growth of community &amp; keeping up service demand</li> <li>• Resistance to change</li> <li>• Some part-timers are low activity</li> <li>• Some personnel are incapable of being a qualified FF/EMT personnel</li> <li>• Volunteers may have difficult with change &amp; apparatus movement</li> </ul>
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**Fire Volunteers (Towns) SWOC Session**

The session was held on 11/15<sup>th</sup> with 7 in attendance. Six from Christiansburg Fire and one from Blacksburg Fire.



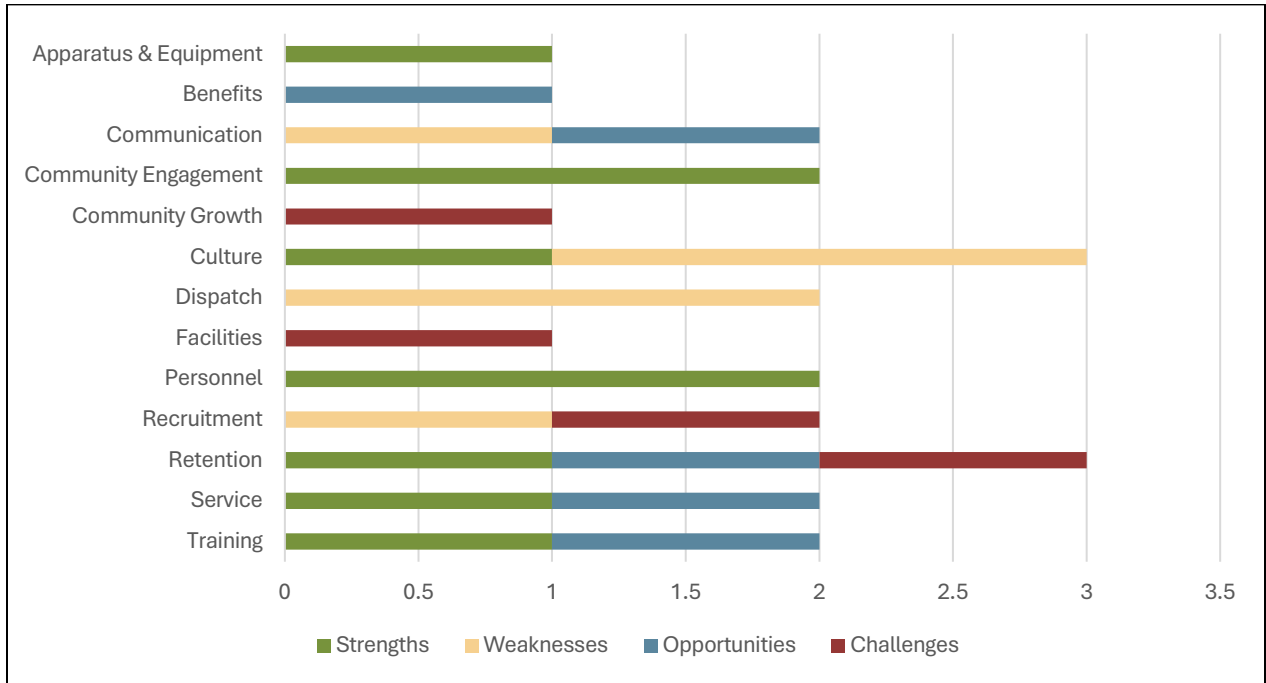
**Top comments:**

- Strengths- Personnel
- Weaknesses – Standard operating procedures
- Opportunities – Dispatch
- Challenges - Funding

<b>Strengths</b>	<b>Weaknesses</b>
<ul style="list-style-type: none"> <li>• A lot of experience throughout the county</li> <li>• A lot of instructors to teach classes</li> <li>• Apparatus</li> <li>• Automatic Aid</li> <li>• Communication is improving between career fire and volunteer fire.</li> <li>• County and Town willing to hire career when needed</li> <li>• Dedicated volunteers Educated individuals</li> <li>• Gas Card Incentives</li> <li>• Healthy CIP</li> <li>• Local training opportunities</li> </ul>	<ul style="list-style-type: none"> <li>• Accountability - Volunteer Performance Expectations</li> <li>• Aging members</li> <li>• Dispatch - Time differences in reporting</li> <li>• Dispatch-Time delay to dispatch</li> <li>• Lack of consistency between departments -service and training</li> <li>• Lack of countywide policies</li> <li>• Lack of countywide position expectations</li> <li>• Lack of joint training between Fire-EMS-Law Enforcement</li> <li>• Recruitment - Career and Volunteer</li> <li>• Retention-Career</li> <li>• Staffing gap with student absences</li> <li>• Timely pathway to express concerns about dispatch through the joint committee.</li> <li>• Wrong People-Wrong Positions-Lack of certification standards</li> </ul>
<b>Opportunities</b>	<b>Challenges</b>
<ul style="list-style-type: none"> <li>• Additional stations for coverage area</li> <li>• County wide EVT (Emergency Vehicle Tech)</li> <li>• Defining Active member</li> <li>• Incentives - Personal property tax</li> <li>• New radio system to enhance interagency communication</li> <li>• New radio system to reduce channels</li> </ul>	<ul style="list-style-type: none"> <li>• Apparatus-pricing, repairs, turnaround time</li> <li>• Change</li> <li>• Community Growth</li> <li>• County versus Town funding issues</li> <li>• County Wide agreement to policies and procedures</li> <li>• Equipment replacement due to funding issues</li> <li>• Funding</li> <li>• Response time from only 1 station (Christiansburg)</li> <li>• Staffing for Career and Volunteers</li> <li>• Technology-Electric Vehicle Responses</li> </ul>

**Fire Volunteers (County) SWOC Session**

Session was held 11/13th with 5 volunteers in attendance (All from Riner fire). Lack of a diverse department attendance resulted in limited responses and multiple top choices.



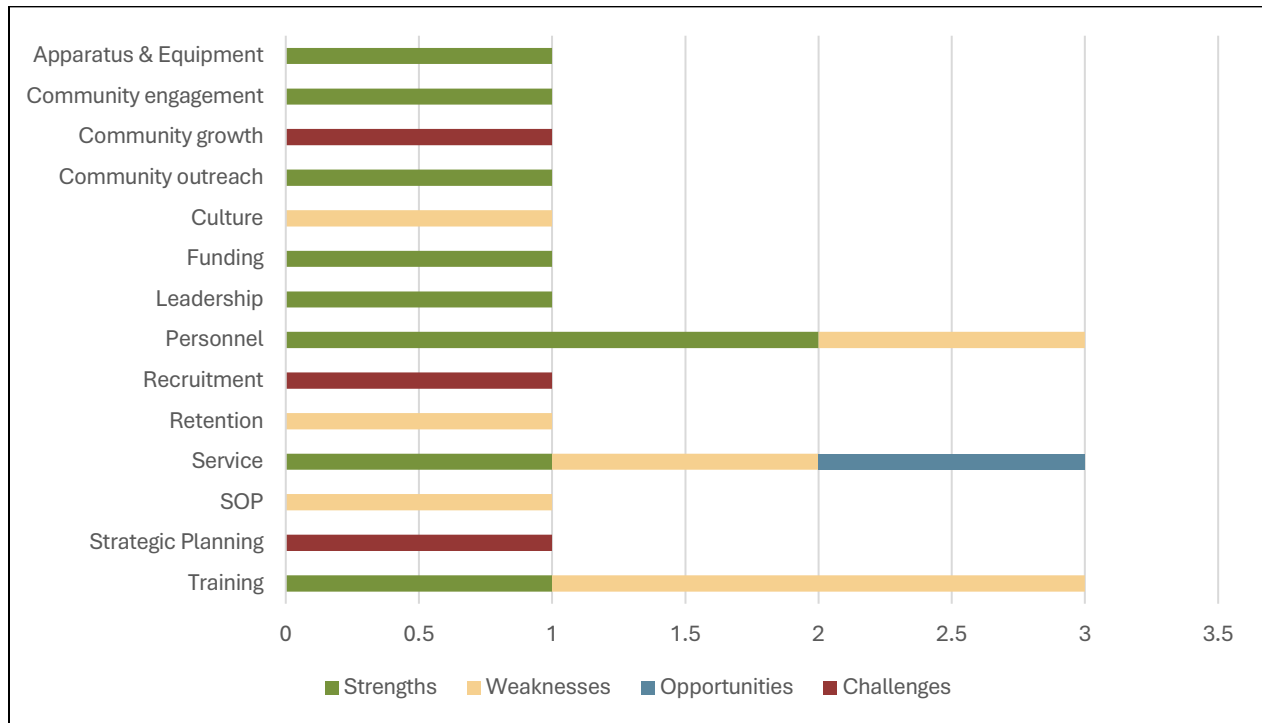
**Top comments:**

- Strengths- Community engagement & personnel (tied)
- Weaknesses – Culture & Dispatch (tied)
- Opportunities – Benefits, communication, culture, retention, service, and training
- Challenges – Community growth, facilities, recruitment, and retention

<b>Strengths</b>	<b>Weaknesses</b>
<ul style="list-style-type: none"> <li>• Community based &amp; engagement</li> <li>• Equipment and apparatus</li> <li>• Great response time</li> <li>• In house training</li> <li>• Know each other's strengths</li> <li>• Knowledge of local response area</li> <li>• Low volunteer turnover</li> <li>• Open house-good community support</li> <li>• Rely on senior members and their knowledge &amp; experience</li> </ul>	<ul style="list-style-type: none"> <li>• Communication between volunteers and paid is sometimes hearsay</li> <li>• Dispatch-Call processing</li> <li>• Dispatch-Times recorded</li> <li>• Poor communication with special operations</li> <li>• Recruiting</li> <li>• Transparency and trust between paid staff and volunteers</li> </ul>
<b>Opportunities</b>	<b>Challenges</b>
<ul style="list-style-type: none"> <li>• Better funnel of information</li> <li>• Better retention programs</li> <li>• Expand variety of services for citizens</li> <li>• Incentives</li> <li>• More joint, special ops training with all agencies</li> <li>• Transparency in all aspects</li> </ul>	<ul style="list-style-type: none"> <li>• Community growth-residential</li> <li>• Countywide lack of stations</li> <li>• Recruitment</li> <li>• Retention</li> </ul>

**Rescue Squad Volunteers (Towns) SWOC Session**

A session was held on 11/16<sup>th</sup> for the Volunteer Rescue Squads (Towns). Two from Blacksburg Rescue attended. Low attendance resulted in limited responses and multiple top choices.



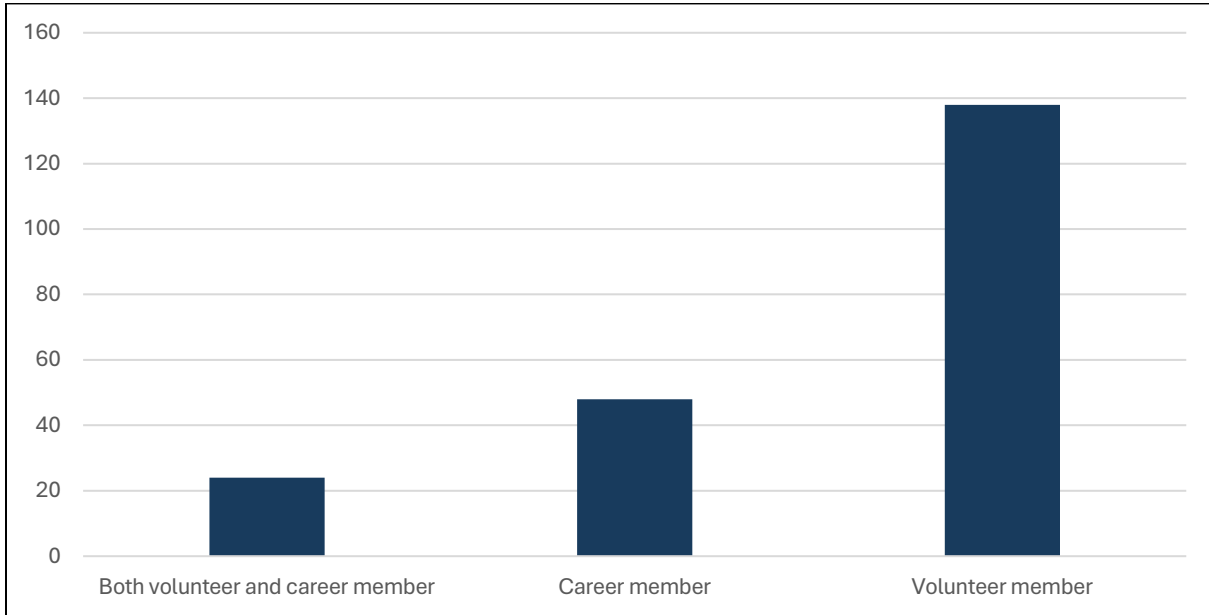
**Top comments:**

- Strengths-Personnel
- Weaknesses – Training
- Opportunities – Service and training
- Challenges – Community growth, culture, recruitment, strategic planning

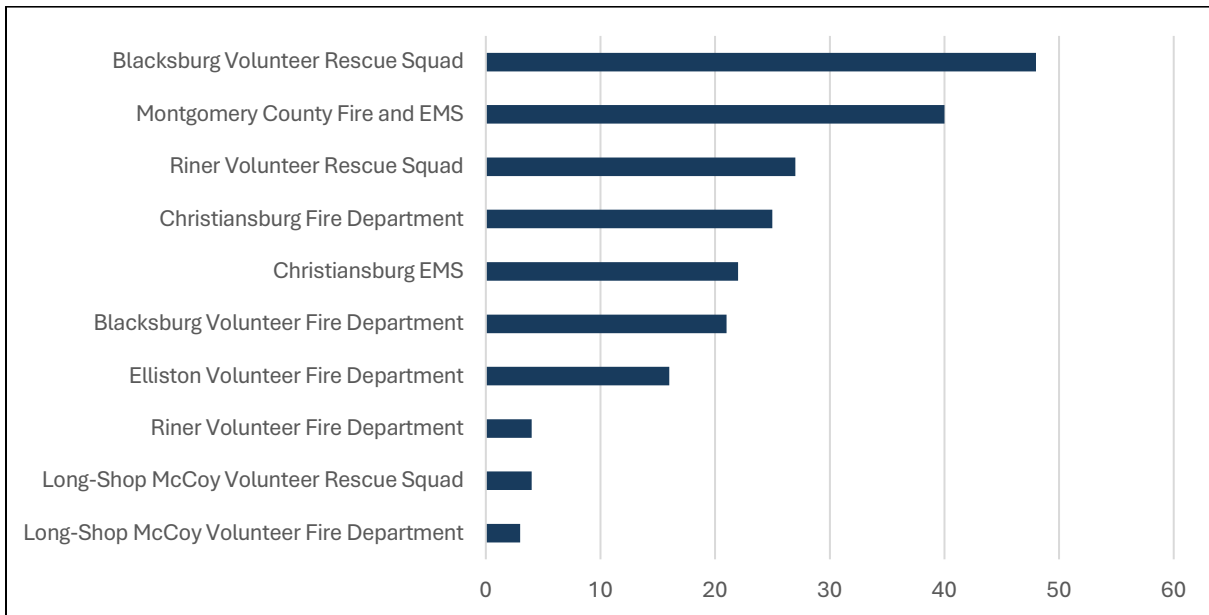
<b>Strengths</b>	<b>Weaknesses</b>
<ul style="list-style-type: none"> <li>• Blacksburg Rescue (BR) has solid robust volunteer personnel</li> <li>• BR builds their EMS providers</li> <li>• BR Call response-No scratches in 1st due</li> <li>• BR Engaged with community</li> <li>• BR Equipment and facility</li> <li>• BR Generous funding-town, donations, County</li> <li>• BR Good community outreach</li> <li>• BR good experienced leadership</li> <li>• BR Quick upstaffing when needed</li> <li>• BR Training standards, training, process</li> </ul>	<ul style="list-style-type: none"> <li>• BR Student turnover</li> <li>• CHANGE-resistance to change</li> <li>• Inconsistency in operations</li> <li>• Inconsistency in training</li> <li>• Lack of county wide 24/7 EMS supervisor</li> <li>• Maintaining EMS competency in older personnel</li> <li>• No joint training. Need to speak the same language on scene</li> </ul>
<b>Opportunities</b>	<b>Challenges</b>
<ul style="list-style-type: none"> <li>• Assessments for providers</li> <li>• Countywide joint trainings</li> </ul>	<ul style="list-style-type: none"> <li>• Growing call volume due to community growth</li> <li>• Keeping up with new medical processes &amp; training</li> <li>• Recruit needed levels career and volunteer personnel.</li> <li>• Volunteers overcoming feelings about career personnel/combination system</li> </ul>

**Appendix K  
Internal Member Survey Results**

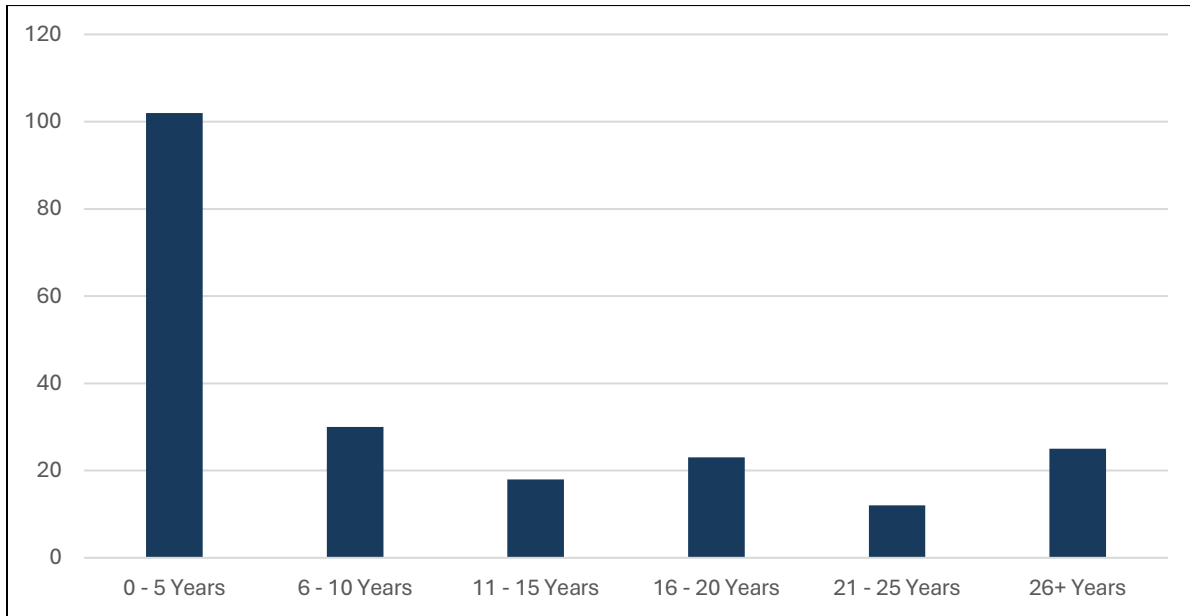
**Question 1: Please select in which capacity you serve the department.**



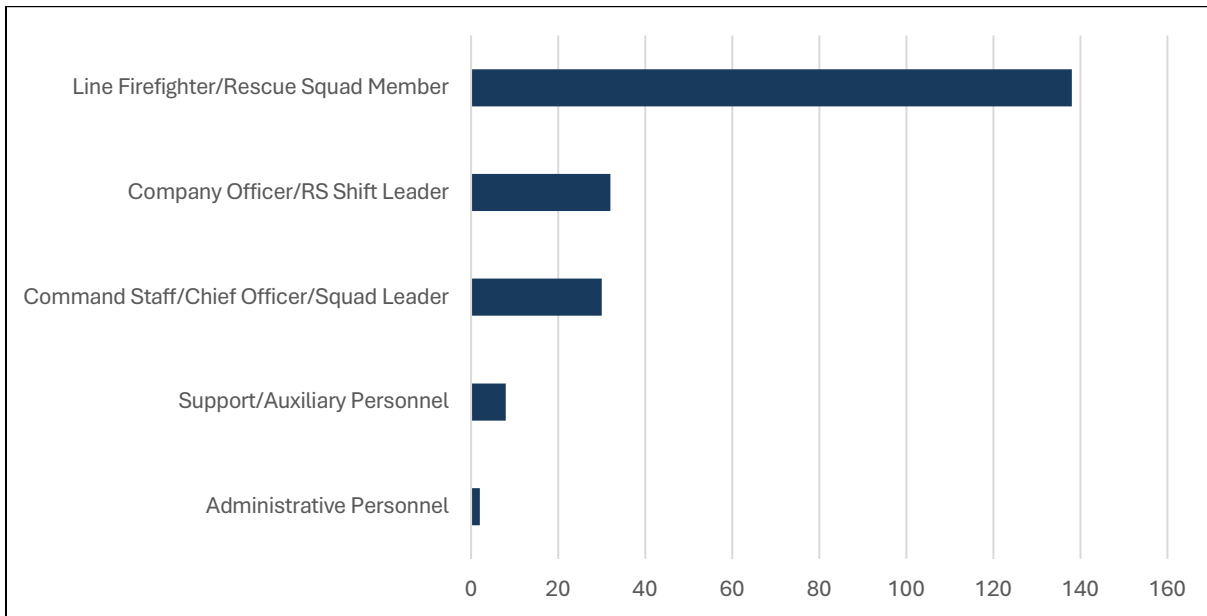
**Question 2: Please select the department that you are a member of.**



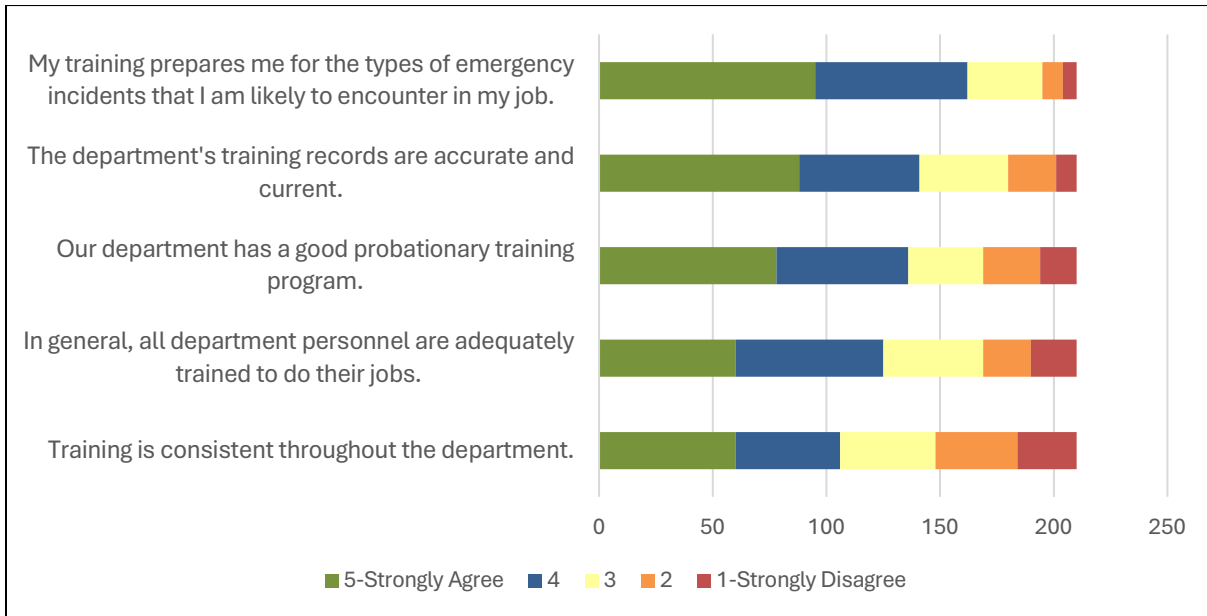
**Question 3: Please select the range that describes your total number of years of experience with the fire department or rescue squad.**



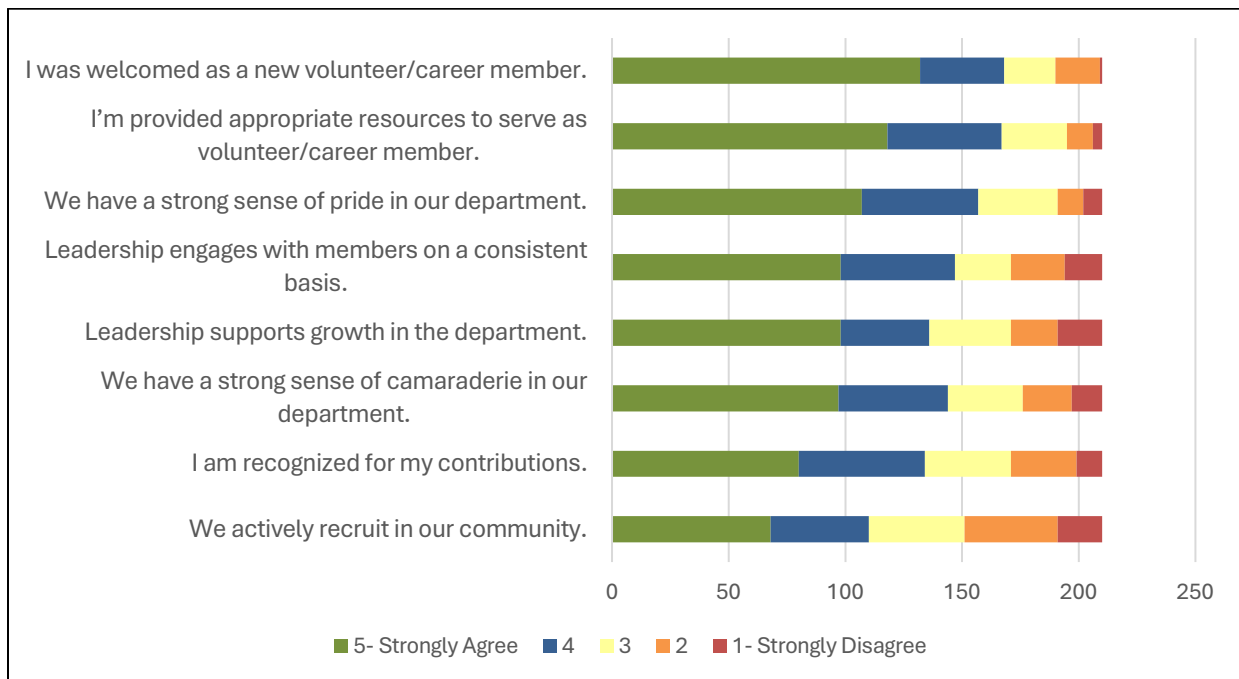
**Question 4: Which one of the following best describes your current position?**



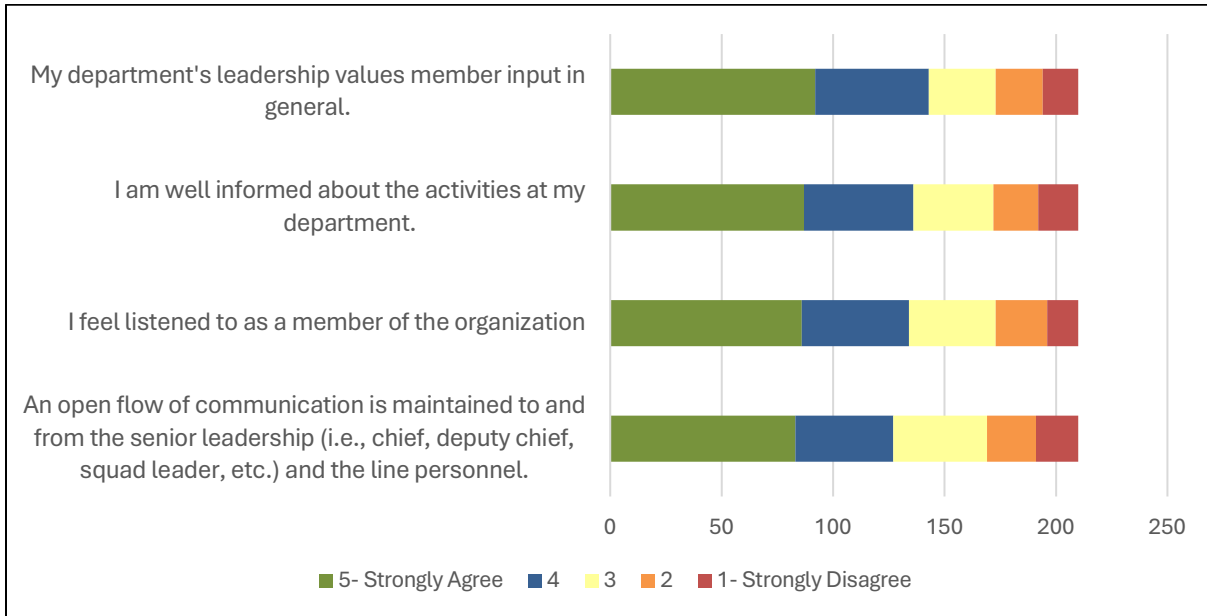
**Question 5: Please describe your level of agreement with the following statements related to your department's Training and Professional Development Program:**



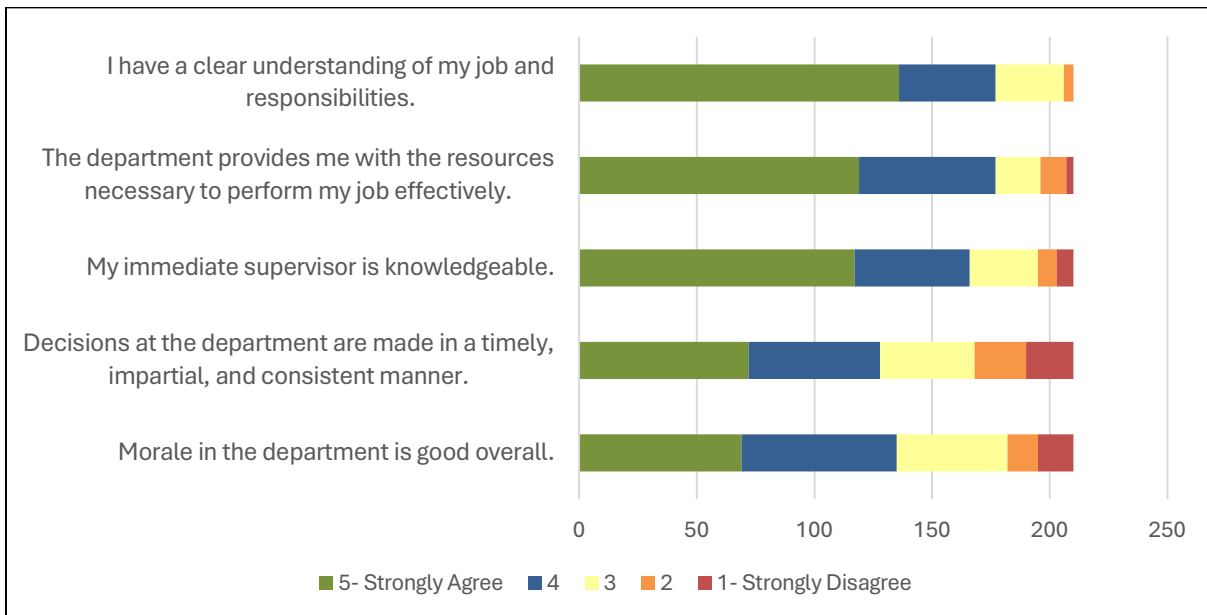
**Question 6: Please describe your level of agreement with the following statements related to your department's Recruitment and Retention efforts:**



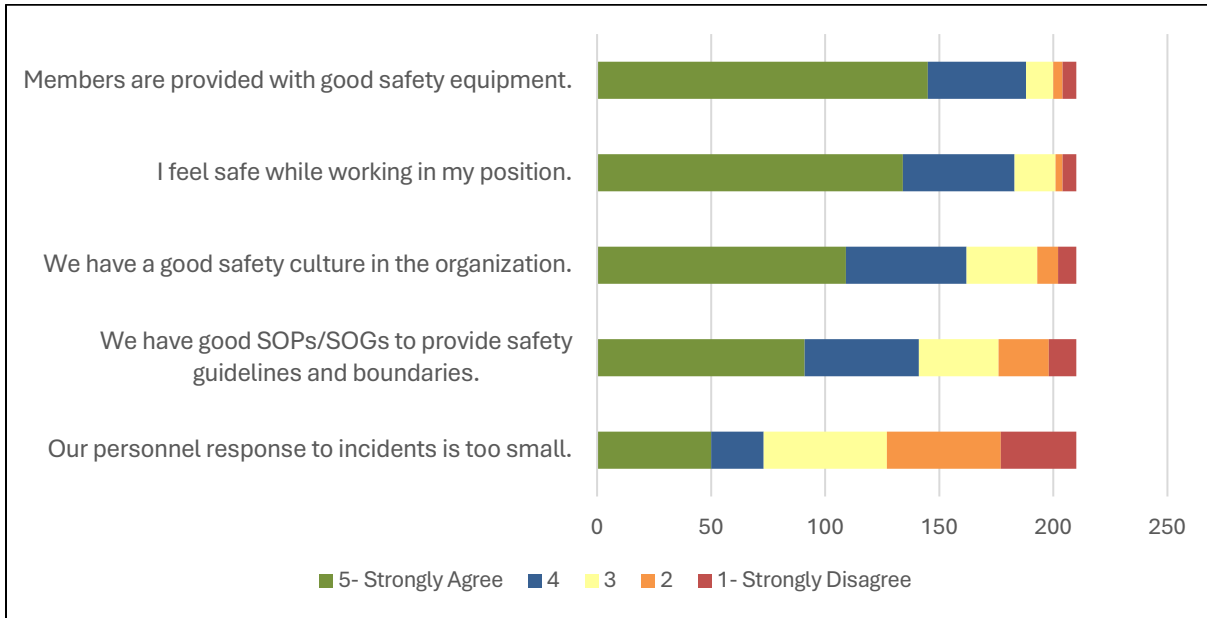
**Question 7: Please describe your level of agreement with the following statements related to your department's level of Communications:**



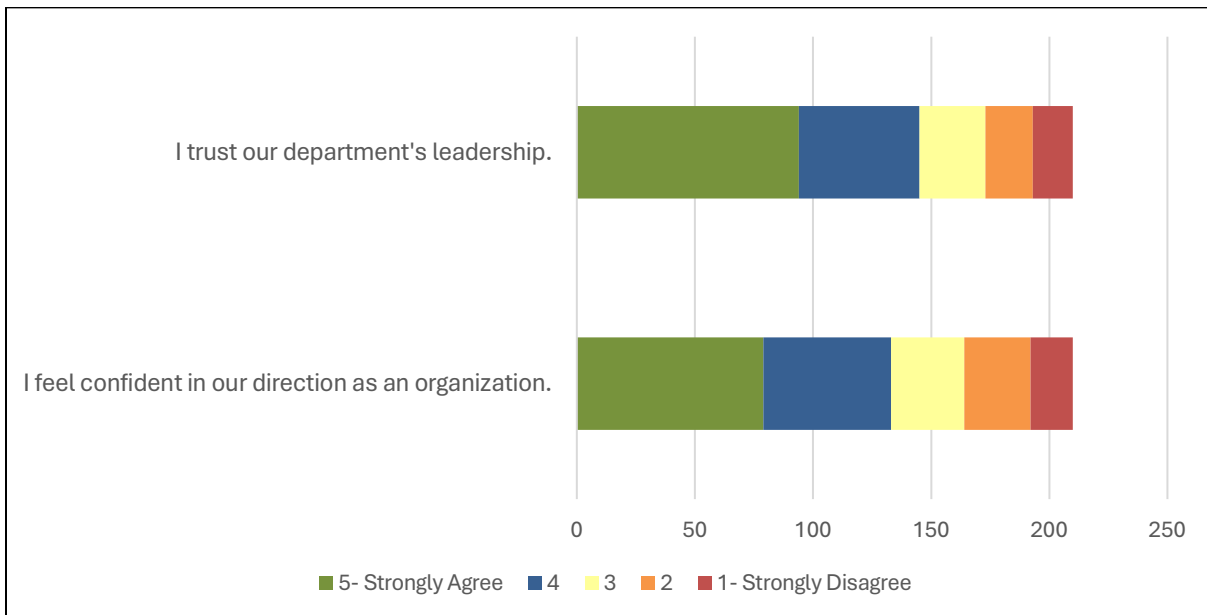
**Question 8: Please describe your level of agreement with the following statements related to your department's Work Atmosphere:**



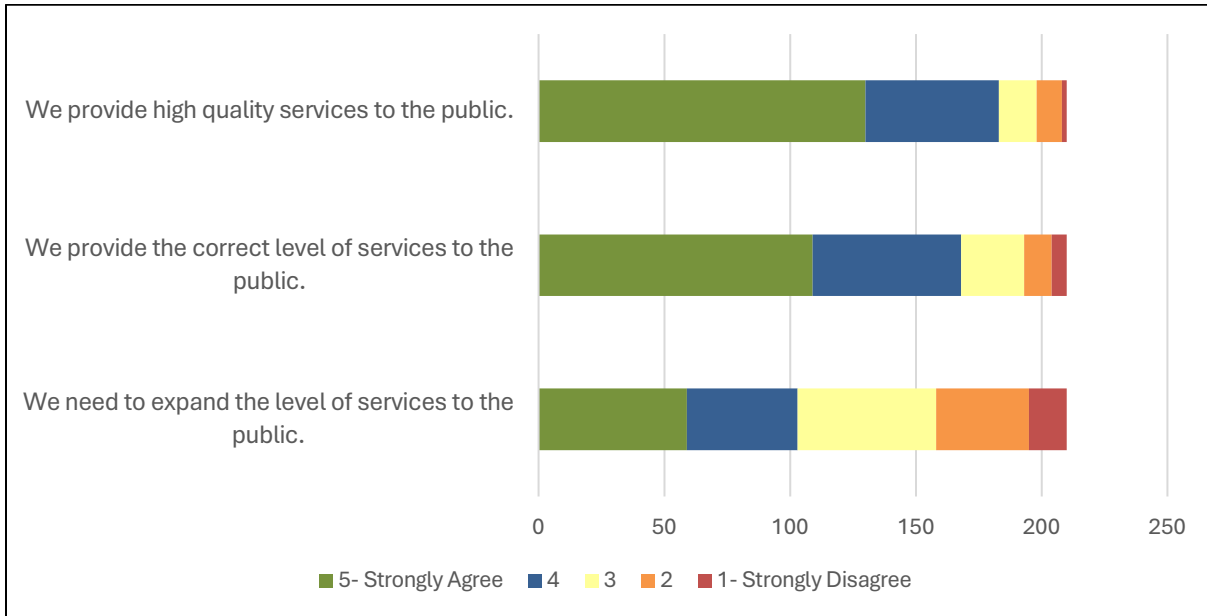
**Question 9: Please describe your level of agreement with the following statements related to your department's approach to Safety:**



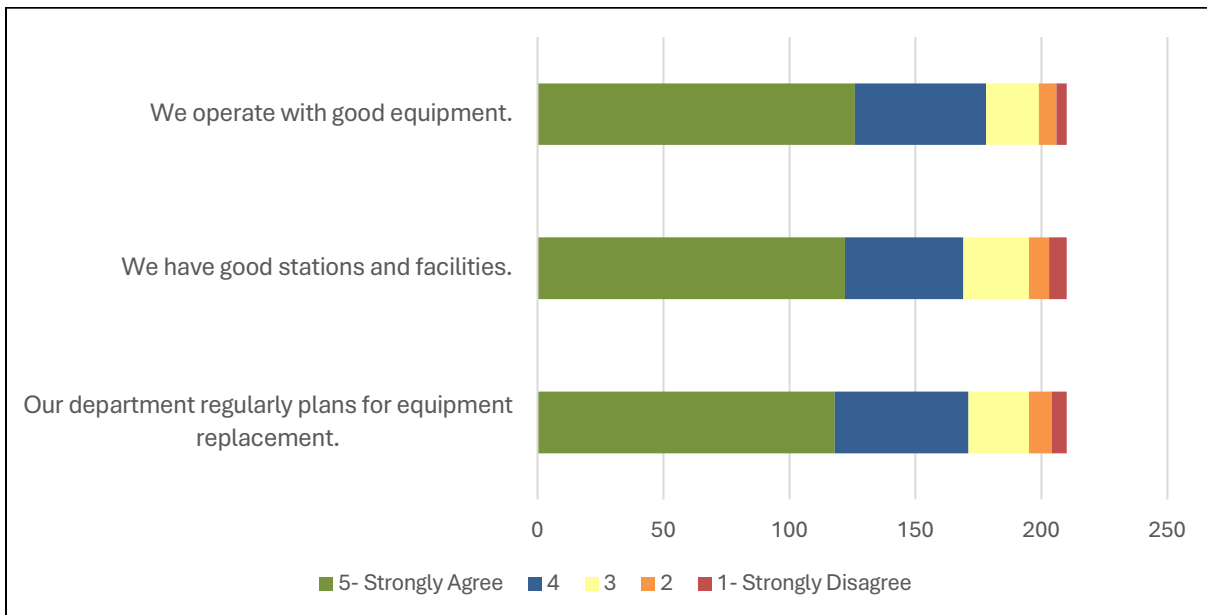
**Question 10: Please describe your level of agreement with the following statements related to your department's Leadership/Direction:**



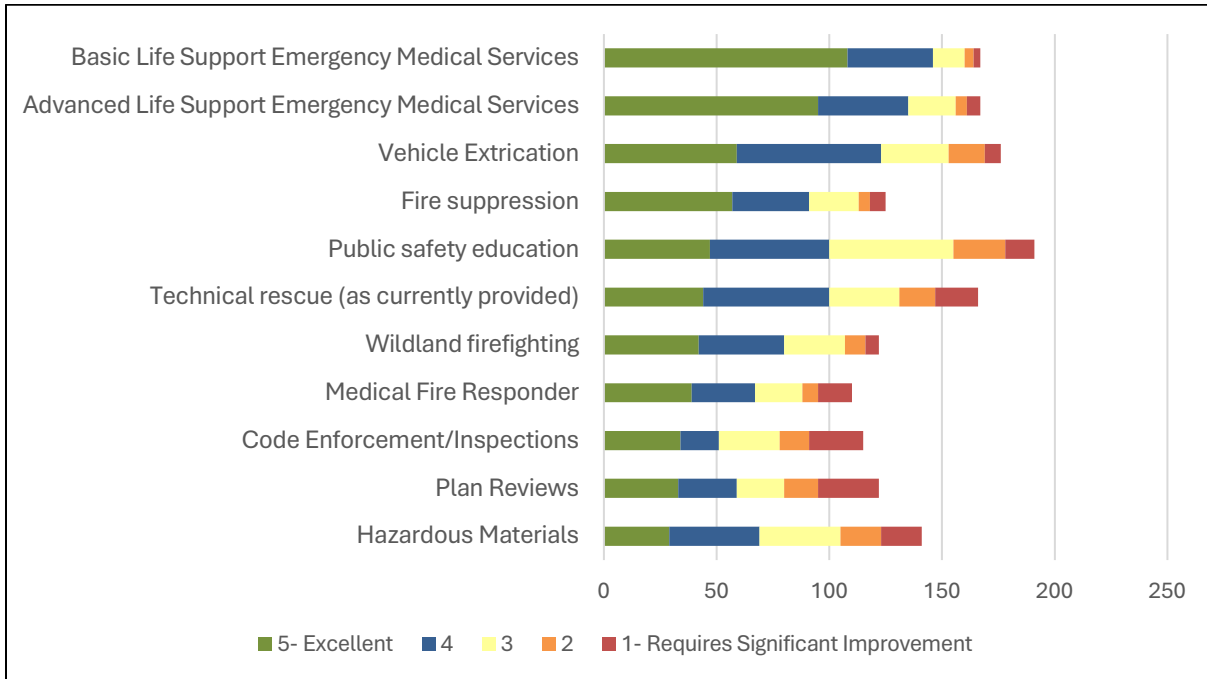
**Question 11: Please describe your level of agreement with the following statements related to your department's Service Delivery:**



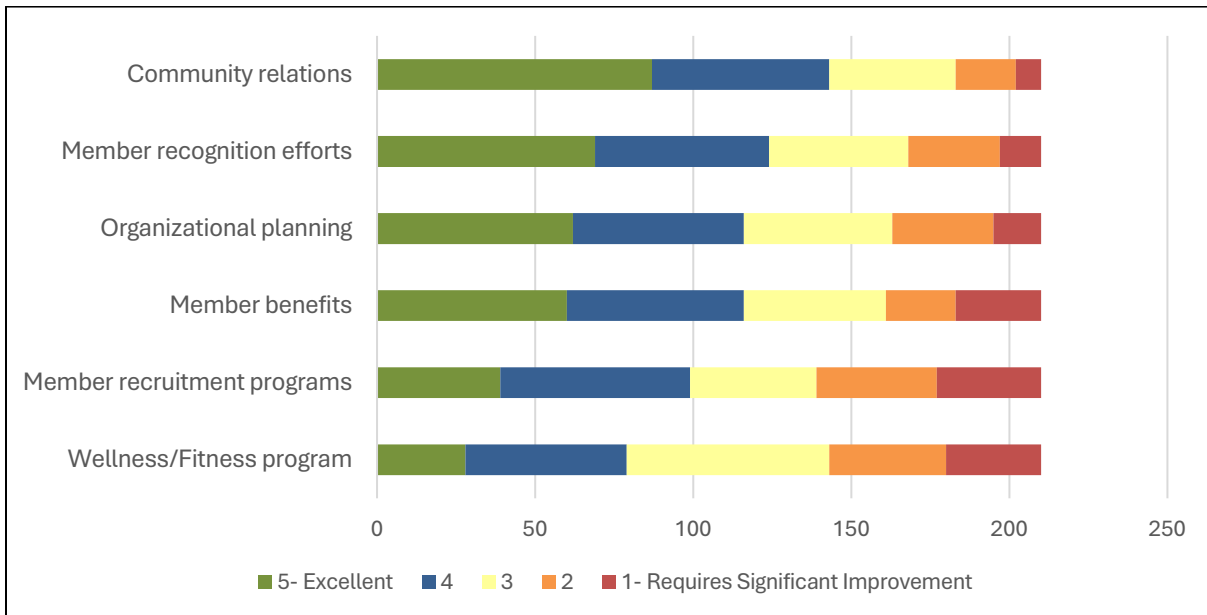
**Question 12: Please describe your level of agreement with the following statements related to your department's Equipment/Facilities:**



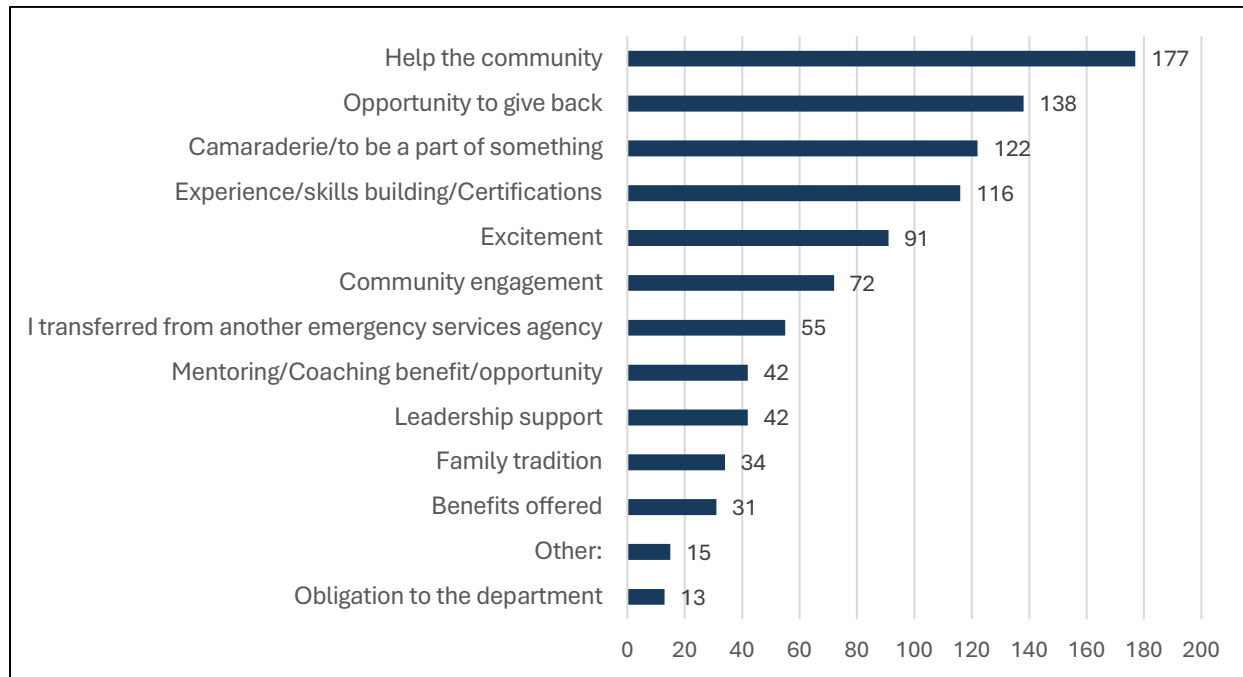
**Question 13: Please rate your appraisal of how well the following services are delivered by your department:**



**Question 14: Please rate your appraisal of the following features of your department:**



**Question 15: What are the reasons you joined with your department? (choose all that apply)**

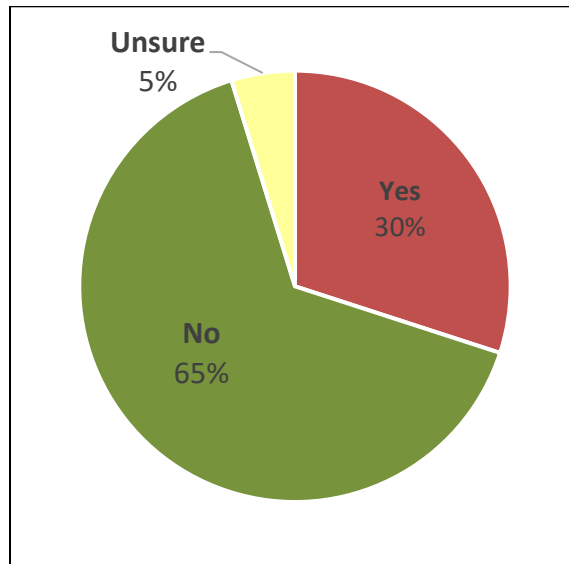


**Other Comments:**

- Childhood dream
- Community service hours
- Compensation
- EVFD needed people. And I was there until someone ran it in the ground. And the reason that paid staff is in there now is because of him and his click continue to cause conflict in making EVFD a better place.
- Great work schedule.
- I desired the challenge of performing potentially dangerous work in hazardous environments. I wanted to test myself to see how I would function in hazardous and stressful situations. I was an airborne field artilleryman in the US Army and I desired the same types of challenges in my civilian life
- I wanted to be a part of the EMS Department in my community
- It felt as God was preparing me for this career my whole life.
- Location
- Medical experience
- Resume builder
- Schedule
- Seen a new, well supported Fire & EMS department in its early stages which enticed me into wanting to be a part of its growth and support.

- Unique and excellent schedule provides for a better work/ life balance
- Utilize fire certifications I already held

**Question 16: In the last 6 months have you felt like quitting?**



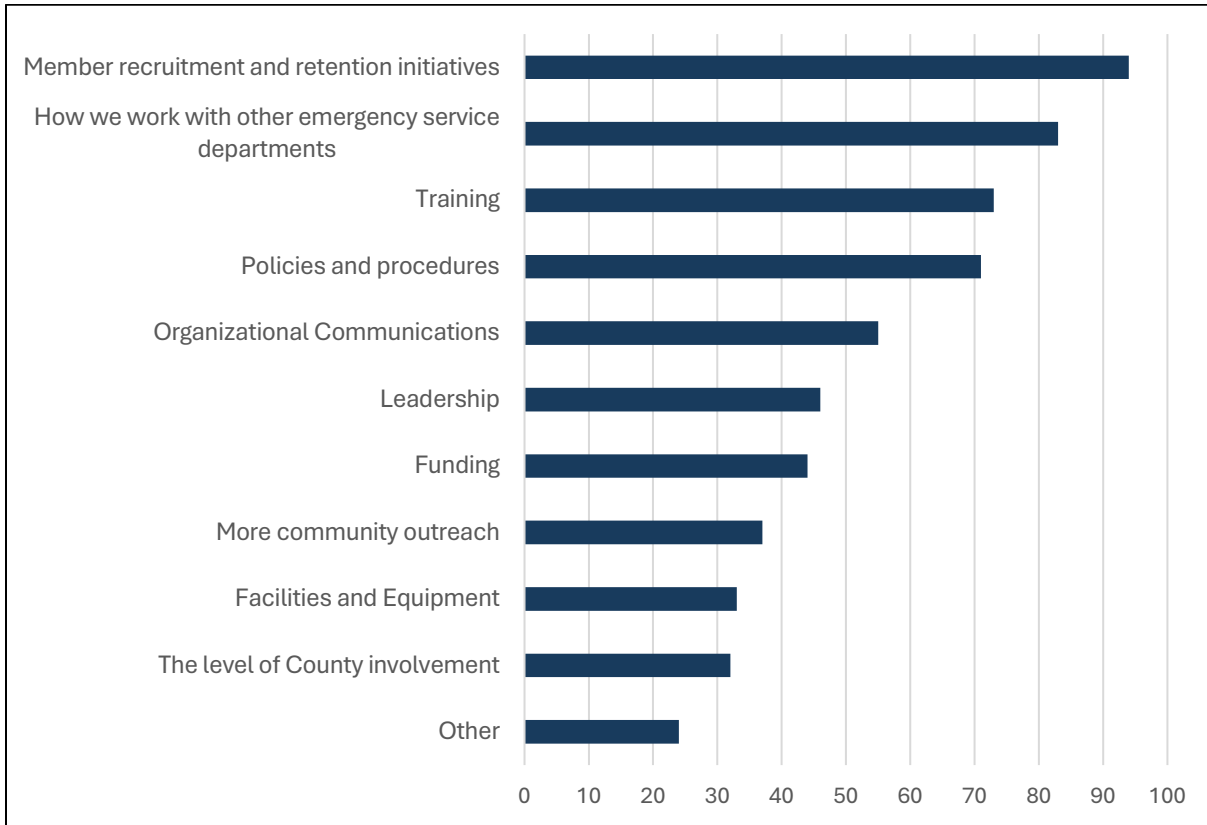
**Question 17: If you answered yes to Question 16, what are the reasons you have felt like quitting? (choose all that apply)**



Other Comments:

- The county stripped the volunteers of their station and equipment by hiring paid crews and continue to push volunteers out
- Can no longer provide work for free, need supplement income
- Did/do not feel like my level of physical fitness is adequate
- Feel like other supervisors are offered more opportunities than others just because they get upset when they don't get their way.
- Felling like paid staff believe they're in charge of everything, no consideration for volunteers
- I thought I'd fail out of my probationary period and didn't want to take resources from the squad because of it.
- Lack of direction and leadership at the very top. The department is being run by persons who have never been part a career department and or county administration.
- Low call volume
- Needed to focus on day job, which had some layoffs in our team
- Not a lot of experience
- Out of town for school
- The lack of knowledge that the town leadership directly and negatively impacts our funding. They do not see us as an essential service and treat us as such.
- The whole department is just politics. You have to be on the good side of leadership always. Also, the protocols for ALS members of the department are terrible.
- They wanted to require in-station hours for technical rescue disciplines, ones that often people don't respond from the station to attend.
- What we see everyday
- Work load and pay

**Question 18: Select the 3 top issues that you feel need to be addressed or improved within your department or the county fire/rescue squad system.**



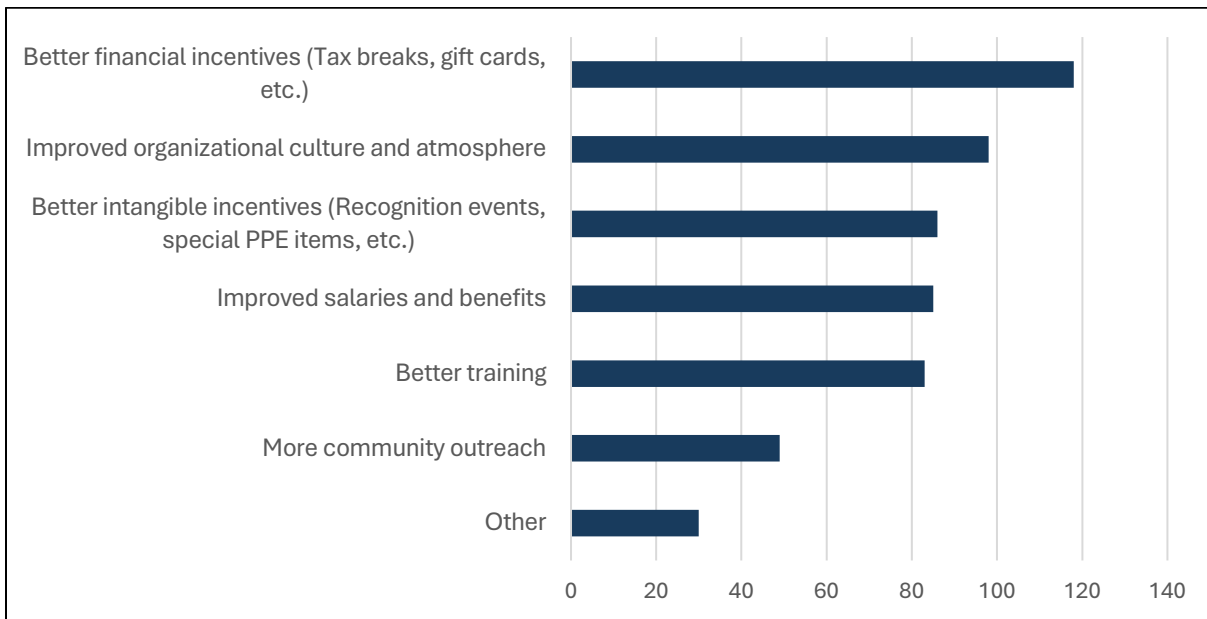
**Other Comments:**

- All have room for improvement
- Balance in requirements for EMS vs. technical rescue members
- Better ICS!!!!
- Communication of how short-term policies relate to long term goals
- County FEMS. needs to get their act together. The county has dumped loads of money to fix the problem of Christiansburg covering Shawsville/Elliston calls, then Blacksburg covering Christiansburg. Now we have firefighters who are getting dispatched with EMS to low acuity calls (why is that even needed?) and not being able to cover a second EMS call when there is an ambulance sitting at the station. Additionally, if there is a second call and the engine/squad goes to that call, they will wait a significant amount of time waiting for a neighboring jurisdiction's ambulance because they will not take their second ambulance. From a FR and a taxpayer perspective, this is a complete waste of resources, and is not solving the problem. It would be good to look at how many non-EMS calls county fire gets dispatched to compared to getting attached to every single EMS call to boost call volume

numbers. You should really talk to the county firefighters about their thoughts in an environment where they won't have fear of retaliation from...

- Distancing from members on a personal level.
- First due TR
- Hiring unqualified personnel over a multiyear vet with a great reputation, all because of trends in the department, is a great way to ruin a great department
- I worry about our daytime availability, since most of our volunteers are either at work or in class during typical business hours.
- Medical director is not involved at all in our department at all (at least it seems that way to this employee)
- Modernize dispatch (mobile CAD apps + more effective use of CAD, faster real time info sharing during incidents, higher pay/. for dispatchers)
- N/A
- None
- Nothing
- Only one opinion currently matters
- Part time pay
- Recruiting, screening, and supporting probates to achieve higher level of completion
- The county is trash; their involvement is making things worse.
- The technical rescue program at BVRS is stymied by an excess of mid-level management and an entrenched opinion that we should use a "respond from home" model for vehicle extrication. This is getting better but far too slowly.
- Together would be great and we have been promised this for many years
- Volunteers are being pushed out and shown over and over that they are not wanted
- We lack the funding for personnel to meet the expectations that our set by the town.
- When joining as a college student, I felt that it was hard to be accepted or welcomed into the department. It takes a long time to gain respect and have a voice. I feel as though something could be learned for new member joining that aren't previously known in the area. (i.e. I wasn't a known name in the area)
- While we provide high quality services in certain areas of the County, there are other areas deserving of the same level of coverage. Operations across the County are hampered by pride and the unwillingness to request help when it is needed. The County should not continue to operate in such a territorial way and should put the needs of the citizens/community before self-interests. The County's fire and rescue commission does not produce any meaningful work and needs to either be dissolved or reconfigured to address actual issues affecting our system.

**Question 19: What are the 3 top items that you feel would improve the retention of fire or rescue squad members?**

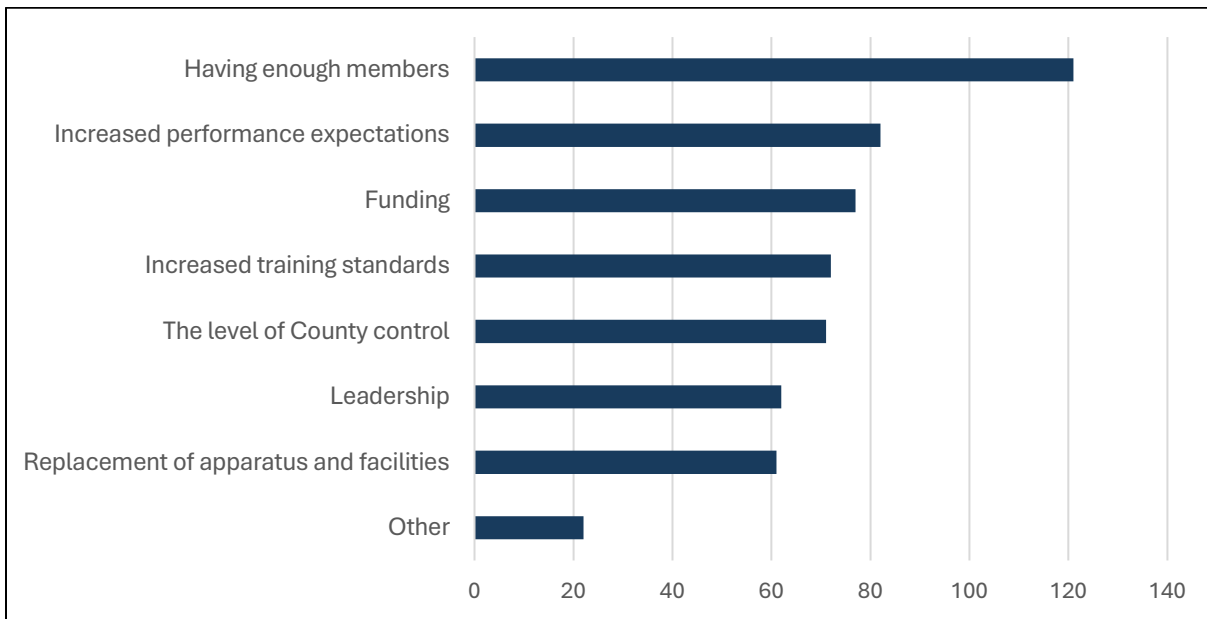


**Other Comments:**

- Ability to run day shifts (technically can already do this, but it's not formalized, and you are still expected to run night shifts, so the day shifts don't really "count")
- All have room for improvement
- Being more competitive in salary's and open about what the actual pay would be, giving fair pay to everyone based on actual experience and not just who you know.
- Benefits
- Easing up on time requirements at times, making it easier to find duty group coverage
- Get rid of paid crews
- I don't feel any is needed currently
- I would like to be able to vote for things that affect my department. Currently over 90% of those voting on my department's technical rescue, do not participate in technical rescue.
- I'm honestly not sure. Blacksburg Rescue offers extensive training opportunities and incentives
- Incentives for continued training during off time.
- Less transit community
- Looking out for each other
- More efficient precepting/probation period - recruits can get burned out before they even get cleared
- More experienced leadership

- More opportunities for growth within the department and the ability to extend boundaries to cover more calls for service.
- More professional leadership
- More training opportunities and the ability to gain CE's for recertification in house.
- Mutual aid agreements/ coverage area
- None
- Nothing will help; volunteerism is dying.
- Recruiting established long-term residents
- Respect for the volunteers & it would be nice not to worry that we are always going to be shut down so the paid staff can take over everything
- Reversing the societal decline in civic engagement
- Should have put paid people in Riner and Shawsville, like Christiansburg did, as the county grows it is a full-time job as an officer.
- Split focus: find and recruit those seeking a career; find service-oriented locals to sustain volunteer numbers
- Stop letting the Elliston member and his clique control the department and sabotaging the volunteer and paid relationship
- Stop trying to cater to friends. Why are we sending departments from further away to incidents closer to a staffed station? Why are we running equipment constantly breaking down? Why did we hire people without proper certs and turn away people already enrolled in required classes? Why does everything take so long and become so complicated to make the work place safer and better? Apparatus with brake and acceleration issues are kept in service. The internet causes members to not receive pages and phone calls yet employees are told "it's fixed". Why are we concerned about special shirts and pants for SOC members when training more personnel should be a priority? This isn't about looking cool; it's about helping the public.
- Structure staffing schedules to allow more flexible options and greater efficiency. Members can contribute more frequency in shorter durations. Also, restricting the number of members on shift at a time can be reduced to three or four and increase the overall coverage by expanding the number of shifts. The department is well funded and has good equipment. It's a people business and volunteers are hard to come by these days. Invest in the members (non-monetarily).
- There's not much to improve. Training has gotten a lot better.
- To the answer above, I personally feel as though we have good salaries and benefits in my department. I checked the box to emphasize the need to continue with being competitive in both.

**Question 20: What are the 3 top challenges you see for your department or the county fire/rescue squad system in the next 5 years?**



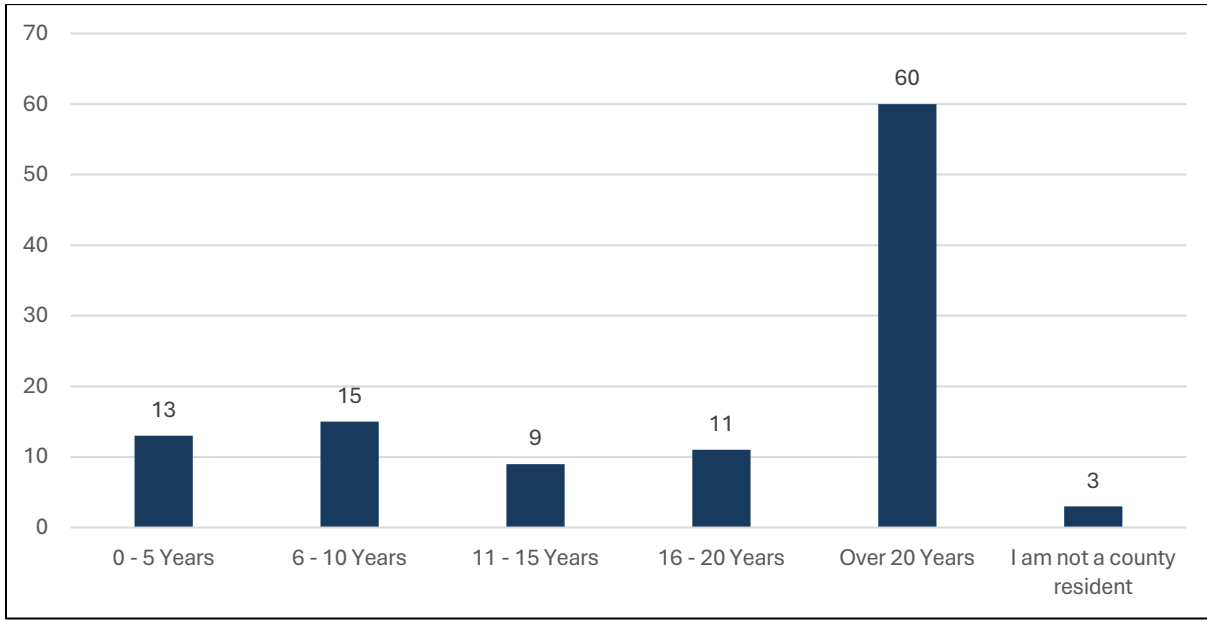
**Other Comments:**

- Adding restrictive membership requirements that don't increase safety or quality of care/skills
- All of the above, every single one of these are massive issues and have been for the entirety of my time here.
- Board of supervisors
- The Elliston member is poisoning the volunteers against the paid staff
- Constant fear that the paid agencies are going to take over the things we have worked years and years for.
- Cost of living, wealthy people tend not to volunteer, professional organizational culture and structure, time commitments, turnover (VT students are solid contributors but constantly turnover). The turnover issue exacerbates challenges in achieving and sustaining positive culture.
- Dispatch issues
- Emphasis to the two checks above. I personally feel as though both are warranted & reasonable expectations, but I do believe that fostering these areas will present unique challenges.
- I think all the boxes should be checked, this is a great place to work but there are major issues mainly due to the lack of experience at the Chief level and County Administration.
- Lack of experienced/seasoned from Montgomery County Fire/EMS

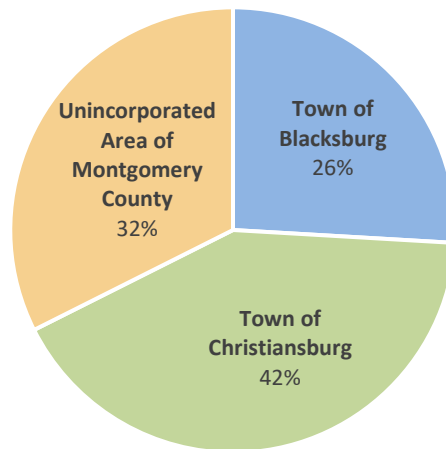
- Maintaining our high skill level providers and not losing them to other agencies due to more advanced protocols and salaries
- None
- None
- Paid Staff
- Pay goes a long way for people staying away from their families. You may be competitive 1 year and then completely behind the next if you don't stay focus on improving your department to the fullest. "Keep advancing or become obsolete"
- Physical fitness
- Pressure from outside to go to paid service; note on - this is picked because we are dependent on a group of amazing leaders, and if they left it would be a vulnerability
- Salary competition
- Should we be worried about?
- Taking proactive steps to prepare for county growth, increased call volume, and a decrease of volunteers.
- Trying to run a career department with a volunteer mentality
- Unless the heavy rescue program at BVRS starts responding as a BLS first response unit, the call volume will be too low to justify the fleet and training costs. Plus retaining regular crews will be difficult.

**Appendix L  
Community Survey Results**

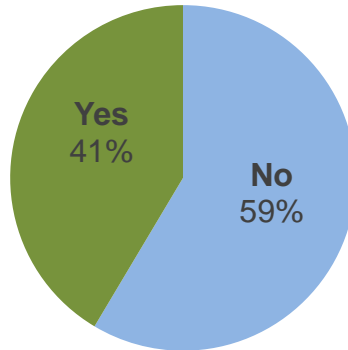
**Question 1: How long have you been a resident of Montgomery County?**



**Question 2: In which area of the county do you reside?**



**Question 3: In the last 3 years, have you had to use the fire or rescue squad services?**



**If you indicated "Yes" on Question 3, what did you need their assistance for?**

Medical Incident	27
Vehicle Accident	7
Fire Incident	5
Medical Incident, Vehicle Accident	2
Fire Incident, Medical Incident	2
Fire Incident, Vehicle Accident	2
Cave Rescue Training	1

**If you indicated "Yes" on Question 3, how would you rate the level of services you received?  
Please explain the reason for the rating provided in the previous question.**

*Excellent*

- At our house within 5 minutes following 911 call, after lightning strike caused electrical fire. Wonderful team of firefighters here putting out smoking fire behind drywall, checking all rooms, other electronics and outlets damaged by the lightning strike.
- Brother had suspected stroke. Compassionate care and encouragement from provider.
- Christiansburg EMS personnel were very kind and remained calmed in a stressful situation. They arrived fast but efficiently.
- Christiansburg Fire was very quick to respond when my dryer caught on fire. They did a great job.
- When my wife was in a car accident. Christiansburg Rescue did an amazing job taking care of her!
- Fast response time and got the job done
- Fast response, professional service.

- I joined the BVRS cave rescue team for several trainings and was inspired by their professionalism and knowledge.
- I was hit by a car crossing the street and the EMS and Fire were right there. They listened to my requests and abided by them.
- Medical response to chest pain incident was very fast, probably 5 minutes and staff were professional and supportive. Fire response was non emergent, but handled professionally by friendly staff.
- Prompt response, provided needed service
- Provided good care to a family member in need.
- Quick response, knowledge staff, efficient service
- Response from BVRS and MCSO were prompt and professional
- The EMS was amazing and knowledgeable. The rescue squad arrived within 20 minutes when it normally takes a vehicle that long or longer to get to Dry Run Rd. I was very impressed in everything they did even though my mother-in-law didn't make it. They were more professional than the ER.
- The rescue squad came promptly and did an excellent job.
- The response time and care towards myself and my kid were very much appreciated
- The response time was outstanding for a volunteer organization.
- They got to our house w/in 5 minutes of my call to 911. They were an important part of saving my husband's life, literally. We are both forever grateful.
- They responded quickly and addressed the problem upon arrival.
- This was actually what I witnessed with a friend whose husband experienced a cardiac event. Fire rescue arrived just a few minutes after being called, they worked for an hour to revive him, but unfortunately, they couldn't. I saw that they worked efficiently with focus on the matter at hand. When he was pronounced, they respected the family's privacy and waited outside until the representatives from the funeral home arrived.
- Timely response, attentive and professional care.
- Very professional and quick response.
- Very professional, courteous, patient and compassionate.
- Was in a car crash and fire and EMS were very professional and caring.

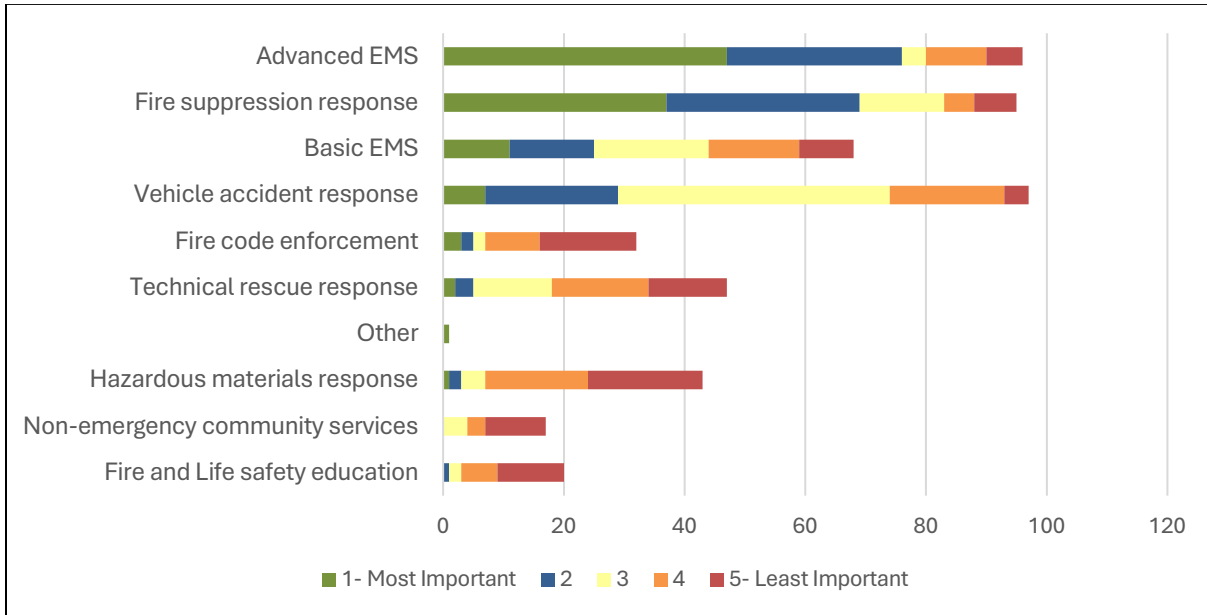
*Fair*

- The incident requiring EMS was a mental health episode of a friend. EMS responded with police and a counselor to the scene. While EMS was great, and the counselor was helping, I felt that there were too many officers present and it made the situation escalate. Better coordination between EMS and police would have made the situation better
- Time delay of response.

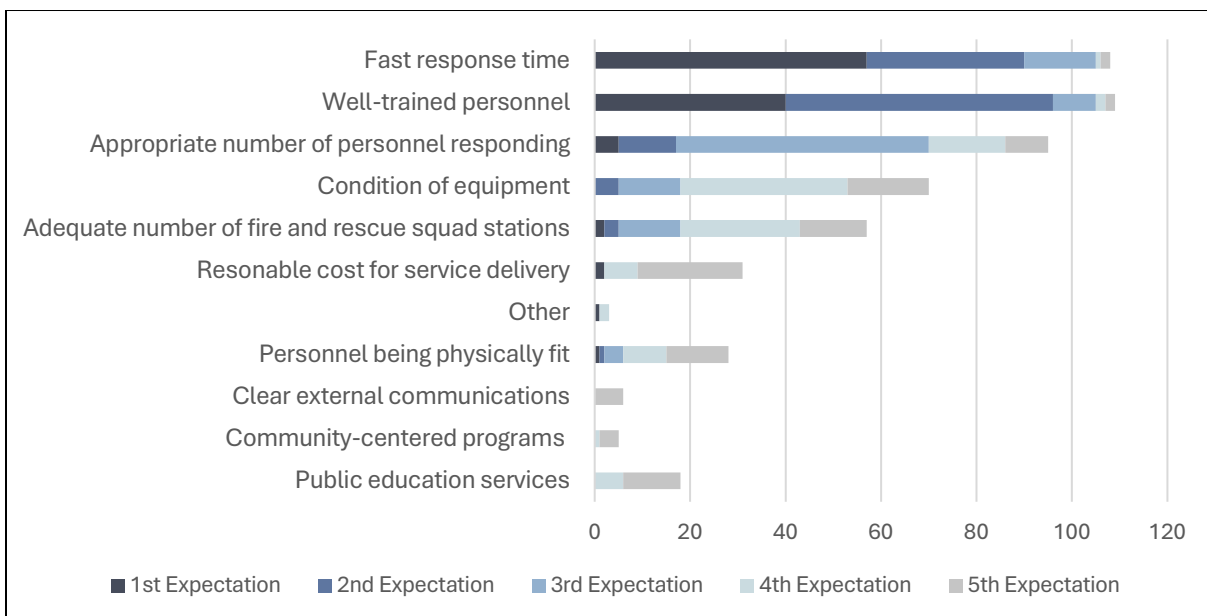
*Good*

- It took a considerably long time for the EMS to arrive for a medical incident.
- Need 24 hr. staffing
- Need paid services across the board. Especially the fire service. So, there isn't volunteers driving through town trying to get to the station slowing response. Have professionals at the station that can cut response time and go out the building safely. Response time matters when there are people trapped in a building.
- Quick and efficient. Excellent providers.
- Response time was good. Members of the squad were patient and thorough with assessment of patient's needs. They had some problem using the chair that goes up stairways.
- Response was slow because one station didn't have an ambulance available, so they had to send another one from farther away.
- They do the best they can, but other than doing triage, they were basically a quick ride to the hospital.
- They took excellent care of my sick husband but they sure did leave my bedroom a mess!!!!
- They were told my blood pressure was very low, but it was high. All I wanted was for someone to stop by and check it. Thought my monitor was reading it right, the dispatcher gave out the wrong info. and sirens and all came flying.  
Anyways, one team member rolled his eyes up when he heard that I have anxiety. I confronted him that I saw what he did and he apologized. Anyways it wasn't my anxiety. I'm now on high blood pressure medicine. Other than that, one incident, they all are Awesome and caring people! Thank you All for your hard dedication in serving the community

**Question 4: In order to understand community priorities, in your opinion, out of the services listed below, please rank the most important 5 services offered by fire and rescue squad departments within Montgomery County.**



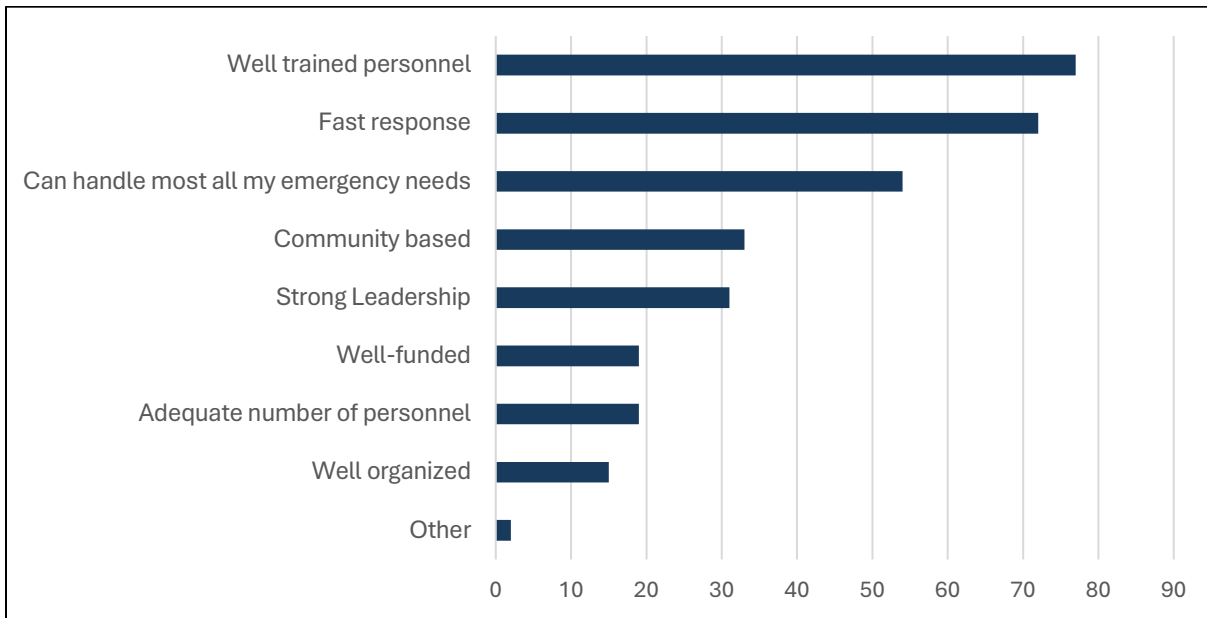
**Question 5: In order to understand community expectations, in your opinion, out of the service delivery items listed, please rank your top 5 expectations of the fire department and rescue squad system.**



If you checked "Other" in Question 5, please elaborate.

- Apparatus that just sits in empty stations and doesn't get used!!!
- Career personnel
- I'd like for emergency vehicles to not run me off the road on my bicycle
- Same comment as previous question. all get a number 1
- That the squad reduce friction and minimize barriers to participation for people with specialized technical skills, such that they will still be part of the organization and respond when needed, instead of being pushed out of the organization through misaligned incentives and mismanagement of expectations upon volunteer personnel. This has been a problem with how BVRS has treated its technical rescue members for as long as I can remember, and ultimately why I have not bothered trying to join BVRS, despite continuing to train in technical rescue disciplines on my own time with groups all around the country, and having responded to real incidents in multiple states as an emergent volunteer and actually helped saved lives in highly specialized technical-rescue situations.

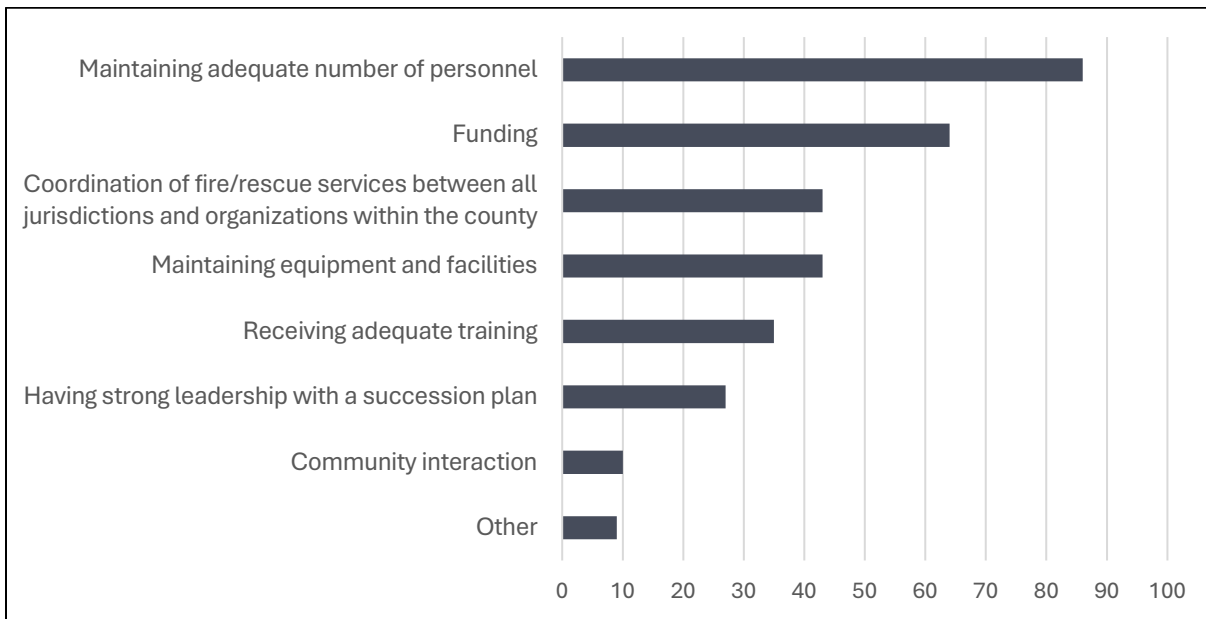
**Question 6: Please select the top 3 strengths of your fire department/rescue squad or the fire and rescue squad system.**



Other Responses

- We really liked the trunk or treats that they put on with the scary ambulance and seeing them at the "touch a truck" with the old ambulance.
- The volunteer system is a sinking ship!! Christiansburg fire needs more paid staff. Example, working fire on 11/5 had to set Christiansburg FD tones off twice, Blacksburg FD was 1st engine on scene. which equates to Slow response times.

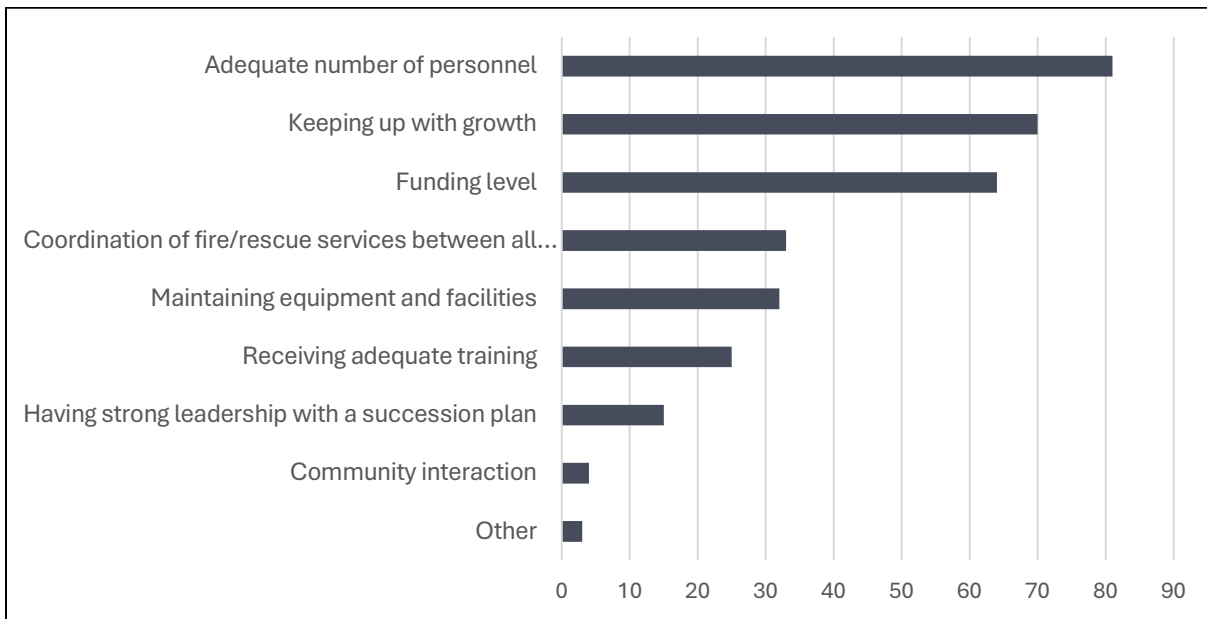
**Question 7: Please select the top 3 challenges you see with your fire department/rescue squad or the fire and rescue squad system currently.**



**Other Responses:**

- Attracting and retaining personnel with highly specialized technical-rescue skill sets. This is a culture and leadership and policies problem.
- Career personal
- Christiansburg should train EMS staff for dual roles could place five to six personnel at fire scenes initially. Separate fire and EMS departments are inefficient—most paid departments in the area are combination departments. Need to have a minimum of 3 paid personal on an engine dual role trained
- Having responders wear masks- such an easy thing that they aren't doing
- I have not seen much that needs improvement
- Internal political drama
- Less personnel, lower response times
- Location of stations near growing population
- Response times

**Question 8: Please select the top 3 challenges you see with your fire department/rescue squad or the fire and rescue squad system in the next 5 years.**



Other Responses:

- Having competent responders
- Lack of stations with career staff
- Unsure

**Question 9: Is there anything you would like to add that is not addressed in the survey questions?**

- 15 years ago, my 4-year-old nephew couldn't breathe and we called 911. Someone got there even faster than the ambulance (within 1 minute!) in case it saved his life. I am very grateful for our dedicated rescue squad volunteers.
- Although my primary residence has been here since 1990, I have lived several other places in that time, and nowhere does a better job with police, fire, and rescue; volunteers and paid; all working together, than Blacksburg/Tech area - I'm sure it probably isn't perfect but it seems like it is when you need them. Our local services have proven themselves literally and figuratively under fire, don't mess it up, you have a unique and wonderful thing here.
- As a tax payer of the town, it is concerning that Montgomery County taxes are increasing (which I am paying), but these increases go to the new fire department and our own town sees no benefit.

- As a town resident, I have started following the town government in the last 2 years. I was shocked to learn that our rescue squad doesn't have enough paid people. I have heard that there are only 2 ambulances for the town. That is the same as what Montgomery County has and I know Christiansburg is easily twice as busy.
- As a town resident, the county continues to invest in public safety while the town remains stagnant and provides lesser services. The town has finally funded paid EMS positions; however, the fire department needs to be staffed 24/7/365 as well. I pay higher taxes for better service, and the town continues to invest in projects other than public safety. If my house catches fire, I expect the fire department to be there in minutes, just like the service the county provides in other areas.
- Blacksburg Rescue Squad is superb!
- Blacksburg Rescue's chief has run off most community members such that it is now compromised of student members who won't question his authority. This has happened over a period of many years and is now biting the agency in the @\$\$ because they can't handle basic car crashes. Look into that.
- Career staff are necessary in Montgomery County
- I do hope that Christiansburg EMS continue to be Christiansburg EMS and not taken over by Montgomery Co. Christiansburg EMS is a strong organization with well trained and very knowledgeable personnel and that's what the Town of Christiansburg deserves.
- I feel that if they could be paid. In this day and the community growing so fast, we need more responders and pay would get more people.
- I have had to use the EMS for 2 serious accidents. They were rapid to respond and took excellent care they were friendly and professional.
- I personally believe all fire stations in both towns and all county stations should have at the very minimum three personnel staffing the stations 24/7/365. Christiansburg Fire Department being one with only two career staff during normal business hours during the week is not adequate staffing for 90% of the responses made during the week with a limited number of volunteers available during the week.
- I think we are getting to the point where we need more stations in the county. Not necessarily more departments, just more stations. Like Roanoke County, where there are multiple stations to respond from in order to have a faster response time. Also, I think y'all are headed in the right direction and I'm glad to see the county is growing. You have been doing a wonderful job, especially for the Shawsville area!!
- I think we are lucky in Blacksburg!
- I wish that my county taxes funded more county services, such as fire/EMS instead of my taxes funding county services and very little town emergency services.
- I would like to see more oversight of the departments to make sure they are not wasting money. I would also like to see more shared services among the departments for

efficiency. It seems like we do not have enough staffed ambulances in the county and citizens have to wait much longer for help to arrive.

- I'd bet that 99% of citizens aren't aware of the multimillion-dollar radio system that's being built but isn't necessary.... When other Counties are doing it for a small fraction of that.... Thus, contributing to higher taxes.
- I've been part of a first responder family my whole life, spanning multiple departments. I'm so thankful that Montgomery County is so supportive of their responders, their families, and the community overall. I know that the addition of paid responders was not an easy decision, given the volunteer-only structure, but was made quickly for the protection of citizens. Other localities have not been able to pivot so quickly and I'm grateful that the county was able to do so. That being said, volunteers are anxious with the changes, and I feel confident that county leadership will do their best to protect their interests. However, I just want it to be said that the melding of paid and volunteer members should not be taken lightly or be done quickly, without careful thought and vetting, not only for those volunteers who've devoted decades of their lives, but also for the citizens they will all serve.
- I'm concerned that I live in an area that does not have 24hr career staff and feel the localities should provide the same coverage of staffing no matter what area of the county I reside in.
- It's great that BVRS provides very skilled cave rescue specialists to the surrounding communities at no cost. As one of the few cave rescue organizations in the region (one of only 2 in Virginia!) their commitment to the community and to education is extremely valuable!
- Just like to say that the Chief of Blacksburg Volunteer Fire & his men & women are some of the best. They train often and show up prepared. Not only for Blacksburg but for surrounding communities as well! Kudos to that team! They are sorely undervalued in this Town.
- Leadership from the town hall is horrible and show no respect for the volunteers
- Leadership of some departments do not welcome new members but complain of low membership and assistance
- Montgomery County has enjoyed a long-term commitment of faithful well-trained volunteers. Now, demands on time and work out of the area has taken its toll on volunteers. The county residents still deserve the best response from fire and rescue and the only means of ensuring that is to now hire paid personnel to fill the volunteer void.
- Need more funding and support from Town leadership to look towards the future to come up with a comprehensive plan to support Emergency Services.
- Need to categorize properties that need alternate vehicles for access so time isn't wasted calling for 4x4s, brush trucks, or the 4wd ambulance.
- Recruiting needs to be a priority. We also DO NOT need all the departments to be paid.

- Rescue recently came to our house by mistake. They insisted that we had called them. Finally asked what our address was and then learned that they were supposed to be at neighbor's home.
- Stop trying to put the volunteers out with over paid staff who mostly sit and make a paycheck. Volunteers are what made these departments what they are and have been more than sufficient. Instead, we spend our tax dollars on paid people when that money could go to more important things our county needs.
- Thank you for all you do. We appreciate you.
- Thank you for the service of our paid and volunteer first responders. We need to educate and train youth in our community to help fill these roles.
- Thank you to all of our volunteers and first responders
- Thankful for all the wonder first responders. I know trying to keep a volunteer crew may become impossible. We need personnel with a sense of community to keep us safe. Funding to hire and keep equipment ready. I have a brother who is a firefighter in another county. It is tough as our county grows.
- The county has taken a lead role in providing paid staff to argument the declining volunteer system. Christiansburg has done a good job providing paid staff for EMS services, but they need more paid staff in the fire department to staff an engine with the minimum of 3 personnel 24 hrs. a day. Glad to hear Blacksburg Fire will be hiring more paid staff as well. The paid personnel in the County, Christiansburg and Blacksburg need to be dual role providing both fire and EMS services. This places more trained personnel on the scene of an incident while waiting for additional resources to arrive. The current systems of separate services is a waste of taxpayer money, as the call volume does not justify the services being separate. I understand paid staff for fire is a hard pill to swallow for municipalities but, fire personnel could provide EMS services, fire inspection/code enforcement, public education and hydrant maintenance. This would also keep fire personnel from gaining weight from the lack of activity. On an operational note, all departments in the county need to train more on the Incident Command System. Have one system, same language. This allows for an improved incident management system which is safer for personnel. I do not think that command staff in the county understands the implications if a responder were to get injured or killed
- The County should oversee training for all fire/rescue departments to include volunteers. All personnel responding to emergencies should have the same basic training provide by a central training program. Montgomery County should only replace apparatus when needed and rotate aging equipment through the less active agencies until they are out of date.
- The fire and EMS volunteers we have are absolutely amazing and I am so appreciative of their dedication to our community!

- The MCFEMS fire operation in Elliston is wildly expensive and was not given great thought. How many structure fires have they responded to since its inception compared to the daily cost?
- There needs to be Fire/Rescue services added to the Longshop/Mcoy area. Yes, there are volunteers that are in the area during the day, but they are not always available. Montgomery county needs to provide career services to this area. Yes Longshop/McCoy does not run a lot of calls but they still need to have the protection of Fire/EMS to this end of the county.
- We are in desperate need of another station to meet citizen's needs. Town officials seem to not care about that and think one station is adequate enough.
- We need a fire commissioner for Montgomery County
- We need a paid fire department in Riner

**Appendix M**  
**Example Fire and EMS Stations**

New Kent County, VA  
Fire Station #4  
10,660 Square Feet  
Cost - \$6.6 million



Source: New Kent County Fire Rescue Website



Source: Daily Press Newspaper

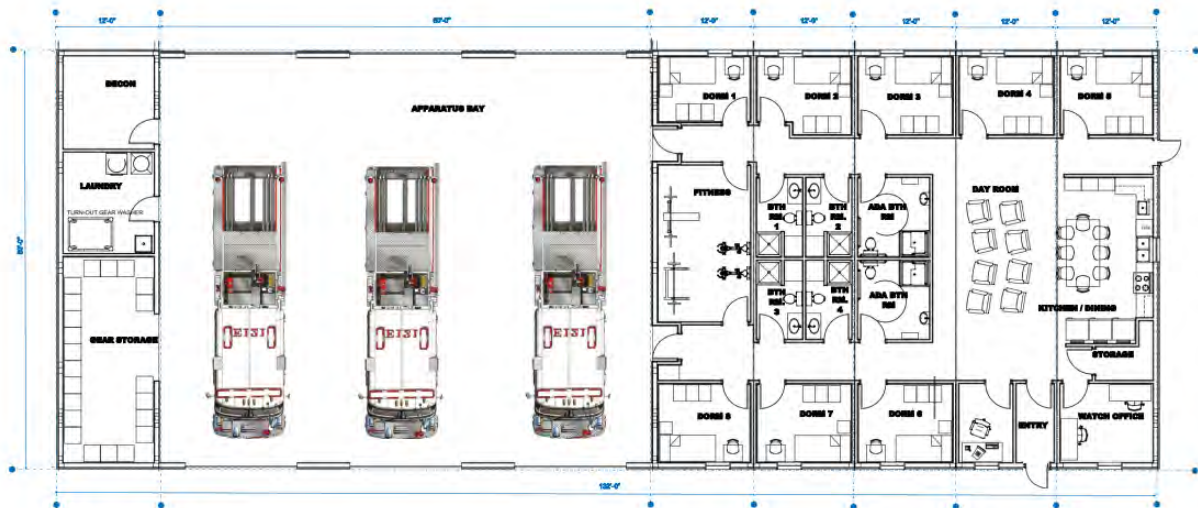
Extreme Modular Buildings

6,600 Square Feet

Three Bay – 8 Dormitory Rooms

Construction Time – Approximately 12 months

Cost – Approximately \$5 million on a developed site



Source: Extreme Modular Design

**Appendix N**  
**Example Fire Marshal Responsibility Code Sections**

Christiansburg Town Code:

ARTICLE III. - FIRE PREVENTION AND PROTECTION

DIVISION 3. - FIRE PREVENTION CODE

- Sec. 26-128. - Fire Prevention Code and its appendices.

The town shall enforce the Virginia Statewide Fire Prevention Code and its appendices promulgated by the board of housing and community development of the commonwealth, pursuant to Code of Virginia, § 27-98. The provisions of the Virginia Statewide Fire Prevention Code and its appendices and this article shall be enforced by the fire marshal, or his duly authorized representative, hereafter referred to as the fire official, at the direction of the chief of the town fire department.

- Sec. 26-129. - Appointment of fire marshal.

There shall be a fire marshal recommended for appointment by the fire chief to the town council. The fire chief may serve as the fire marshal. The fire marshal shall be the town fire official and shall have all the powers and duties set out in [title 27](#), chapter 3 of the Code of Virginia pertaining to local fire marshals, including those powers and duties set out in the Statewide Fire Prevention Code and its appendices. Deputies and assistants of the fire marshal shall also have those powers and duties, in the absence of the fire marshal and as otherwise directed by the fire marshal, and the term "fire marshal," when used in this article, shall include deputies and assistants of the fire marshal.

- Sec. 26-130. - Appointment of deputy and assistant fire marshals.

The fire marshal shall, on behalf of the town council and in consultation with the fire chief, appoint, supervise and may terminate deputy or assistant fire marshals, which shall assist in the functions of the department with duties assigned by the fire marshal.

- Sec. 26-131. - Authority.

The fire marshal shall have the authority and duties set out in [title 27](#), chapter 3 of the Code of Virginia and in the Statewide Fire Prevention Code and its appendices, including the power to arrest, to procure and serve warrants of arrest and to issue summons in the manner authorized by general law, for violation of fire prevention and fire safety laws and related ordinances. The fire marshal shall have the same police powers as a sheriff, police officer or law enforcement officer and the fire marshal, deputies and assistants shall be responsible for investigation and prosecution of all offenses occurring within the

town involving hazardous materials, fires, fire bombings, bombings, attempts or threats to commit such offenses, false alarms relating to such offenses, possession and manufacture of explosive devices, substances and fire bombs.

- Sec. 26-132. - Investigation of fires.

The fire marshal shall investigate, or cause to be investigated, and determine the origin and cause of every fire and explosion occurring within the town.

- Sec. 26-133. - Enforcement.

The fire marshal shall enforce the Statewide Fire Prevention Code and its appendices and fire safety laws and related ordinances and shall conduct inspections and plan reviews as necessary to ensure compliance with the Statewide Fire Prevention Code and its appendices. The fire marshal shall also have the authority to enforce provisions of this Code pertaining to fires and other related laws and regulations including those laws prohibiting parking in fire lanes, to issue permits with restrictions and conditions and to suspend or revoke permits pursuant to applicable laws.

- Sec. 26-134. - Right to enter property.

The fire marshal shall have the right, pursuant to [title 27](#), chapter 3 of the Code of Virginia to enter upon any property from which a release of any hazardous material, hazardous waste or regulated substance, as defined in the Code of Virginia, has occurred or is reasonably suspected to have occurred and which has entered into the groundwater, surface water or soils of the county, city or town in order to investigate the extent and cause of any such release. If, in undertaking such an investigation, the fire marshal makes an affidavit under oath that the origin or cause of any such release is undetermined and that he has been refused admittance to the property, or is unable to gain permission to enter the property, any magistrate may issue an investigation warrant to the fire marshal authorizing entry upon such property for the purpose of determining the origin and source of the release. If the fire marshal, after gaining access to any property pursuant to such investigation warrant, has probable cause to believe that the release was caused by any act constituting a criminal offense, the investigation shall be discontinued until a search warrant has been obtained or consent to conduct the search has otherwise been given.

- Sec. 26-135. - Local board of fire code appeals.

The local board of fire code appeals is hereby established. The local board of building code appeals shall also serve as the local board of fire code appeals and is hereby established and shall hear appeals made by any person who has been cited for a violation and is aggrieved by any decision or interpretation of the fire marshal made

under the provisions of the Statewide Fire Prevention Code and its appendices. Such appeals shall be submitted and heard in accordance with the provisions of the Statewide Fire Prevention Code and its appendices

Blacksburg Town Code:

- Section 6-500. - Adopted; where filed.

For the purpose of establishing rules and regulations to safeguard life and property and public welfare from the hazards of substances, materials, or devices and from conditions hazardous to life, property or public welfare in the use of or occupancy of buildings, structures, sheds, tents, lots or premises, that certain fire prevention code known as the Virginia Statewide Fire Prevention Code/2000 Edition, and the whole thereof, is hereby adopted and incorporated, as fully as if set out at length herein, including all appendices. Copies of the Virginia Statewide Fire Prevention Code may be reviewed during regular office hours in the office of the town clerk. Pursuant to the provisions of Section 1-13.39:2 of the Code of Virginia, future amendments to the sections of the Virginia Uniform Statewide Building Code, the International Building Code, the International Property Maintenance Code, the International Residential Code, and the codes and standards referenced therein are also incorporated by reference herein.

(Ord. No. 1225, § 4, 8-10-99; Ord. No. 1353, § 3, 2-10-04)

- Section 6-501. - Enforcement.

It shall be the policy of the town to enforce in its entirety the Virginia Statewide Fire Prevention Code, as adopted and as it may be amended by the Commonwealth in future editions.

- Section 6-504. - Office of fire code official established.

The office of fire code official for the town is hereby established. The fire code official shall be appointed by the town manager and shall have the powers and perform such duties as may be provided in Section F-106 of the BOCA National Fire Prevention Code/1996, as amended from time to time. The fire code official shall administer and enforce the provisions of this chapter and other chapters of this Code and other ordinances, which, by their terms, are subject to the fire code official's administrative and enforcement responsibility or authority.

(Ord. No. 1225, § 4, 8-10-99)

- Section 24-500. - Installation and maintenance of public hydrants.

All public fire hydrants and their connections shall be installed under the direction of, and maintained by, the town and remain a part of the town water system under its ownership.

- Section 24-503. - Use by fire department; other use must be approved.

Public and private fire hydrants are installed for the sole purpose of fire protection and may be used by members of the fire department for control of fires and training. No other use of such hydrants shall be made unless specifically approved by the town manager.

**Appendix O**  
**Example Position Description for Fire Marshal**

**County Fire Marshal**

**JOB TITLE:** COUNTY FIRE MARSHAL

**DEPARTMENT:** FIRE AND EMS

**REPORTS TO:** FIRE CHIEF

**GENERAL DESCRIPTION OF JOB**

The purpose of the job is to effectively plan, organize and implement a fire code enforcement process within the unincorporated areas of Montgomery County. The position will regularly review new commercial construction plans, make recommendations for meeting the adopted fire code and make inspections in the field to enforce the fire prevention code. This position will also investigate fires of suspicious origins.

**ESSENTIAL TASKS**

The tasks listed below are those that represent the majority of the time spent working in this class. The fire chief may assign additional tasks related to the type of work of the class as necessary.

- Plan, implement, and coordinate fire prevention and protection activities.
- Conduct fire inspections and investigations to identify potential hazards and recommend corrective action.
- Develop and deliver fire safety education and training programs for the public and local businesses.
- Review and evaluate plans and specifications for new construction and renovations to ensure fire safety compliance.
- Conducts review and technical inspections of fire detection and suppression systems for conformance with County Fire Codes and State Building Codes.
- Maintain records, prepare reports, and maintain accurate and up-to-date fire protection records and databases.
- Prepares and administers their division budget; ensures effective and efficient use of budgeted funds, personnel, materials, facilities and time.
- Coordinates activities with the Planning and Building Departments within the County.
- Participates on the County Technical Review Committee

### *Other Additional Duties*

- Oversees department personnel matters, including developing position descriptions, hiring, evaluations, promotions, discipline, assignments, of division employees with assistance from Montgomery County Human Resources.
- Works with the County Attorney on fire service legal matters and to ensure appropriate regulations are being followed.
- Researches grant-funded programs and initiates preparation of grant applications and processes for fire prevention activities. Maintains all appropriate grant documentation.
- Coordinates activities with other County departments, divisions, public safety, EMS, law enforcement, town fire departments, state agencies or other agencies and organizations as appropriate.
- Attends and participates in public functions to promote the fire services, fire prevention and establish and maintain favorable public relations.
- Receives and responds to public and news media inquiries, concerns, complaints and requests for assistance regarding areas of his/her responsibility.
- Performs general administrative / clerical work as required, including but not limited to preparing reports and correspondence, copying and filing documents, entering and retrieving computer data, attending and conducting meetings, etc.
- Attends required training courses and seminars. Attends conferences and other meetings to remain knowledgeable of modern fire service methods and administration.

### **ADDITIONAL JOB FUNCTIONS**

Performs other related duties as required.

### **SKILLS AND ABILITIES**

- Ability to interpret and enforce applicable fire codes within the county
- Effective grant writing
- Excellent written and verbal communications skills
- Ability to navigate difficult conversations
- Strong active listening and persuasive skills
- Ability to influence and collaborate with multiple agencies.
- Communicate with responsible transparency.
- Establish relationships through efficient communication.
- Ability to be assertive while being respectful.
- Able to work with co-workers, volunteers, outside agencies and vendors in a professional manner
- Interacts with the public in a courteous, helpful and professional manner
- Proven ability in administration and supervision desired

- Ability to conduct continuing education and training sessions
- Maintains the confidentiality of information acquired during service as a county employee

**INVOLVEMENT WITH DATA, PEOPLE AND THINGS****DATA INVOLVEMENT:**

Requires synthesizing or integrating analysis of data or information to discover facts or develop knowledge or interpretations; changes policies, procedures or methodologies based on new facts, knowledge or interpretations.

**PEOPLE INVOLVEMENT:**

Requires negotiating, exchanging ideas, information and opinions with others to formulate policy and programs or arrive jointly at decisions, conclusions or solutions.

**INVOLVEMENT WITH THINGS:**

Requires interpreting policy and establishing methods and procedures for acquiring, installing, testing, operating, or repairing complex machinery or equipment that requires extended training and experience, such as fire alarm and suppression equipment, or the application of custom or commercial administrative or other complex software or systems; responsible for public acquisitions and construction projects, including preparing specifications for contracts for goods and services.

**REASONING REQUIREMENTS:**

Requires performing work involving the application of principles of logical thinking or scientific, medical or legal practice to diagnose or define problems, collect data and solve abstract problems with widespread unit or organizational impact.

**MATHEMATICAL REQUIREMENTS:**

Requires using mathematics involving the practical application of fractions, percentages, ratios and proportions; or measurements, logarithmic or geometric construction. Knowledge of modern budget techniques and practices. May use algebraic solutions of equations and inequalities; descriptive statistics; deductive geometry, plan and solid, and rectangular coordinate; mathematical classifications or schemes.

**LANGUAGE REQUIREMENTS:**

Requires reading technical instructions, procedures, manuals and charts to solve practical problems; composing routine reports and specialized reports, forms and business letters with proper format; speaking compound sentences using normal grammar and word form.

**COGNITIVE REQUIREMENTS:**

Requires doing professional-level work requiring the application of principles and practices in a wide range of administrative, technical or managerial methods in the solution of administrative or technical problems; or the coordination of entry-level managerial work; requires general understanding of operating policies and procedures and the ability to apply these to complex administrative problems; requires continuous, close attention for accurate results or frequent exposure to unusual pressures.

**VOCATIONAL/EDUCATIONAL AND EXPERIENCE PREPARATION**

**VOCATIONAL/EDUCATIONAL PREPARATION:**

Bachelor's Degree in Fire Science, Public Administration or a related field

**SPECIAL CERTIFICATIONS AND LICENSES:**

Certification as a VA Fire Marshal and Fire Investigator or the ability to obtain within the first year of employment

**EXPERIENCE REQUIREMENTS:**

Minimum of 5 years' experience in fire prevention and protection, including experience as a Fire Marshal and work in Fire Plans Review

Strong knowledge of fire prevention and protection principles, codes and regulations

Requires a minimum of 5 years of experience in the fire service with at least 5 years of experience as a supervisor/manager.

**AMERICANS WITH DISABILITIES ACT REQUIREMENTS**

**PHYSICAL AND DEXTERITY REQUIREMENTS:**

Requires medium-to-heavy work that involves walking, standing, climbing, balancing, stooping, lifting, pushing, pulling or raising objects and also involves exerting between 20 and 50 pounds of force on a recurring basis and 50 to 100 pounds of force on an occasional basis.

**ENVIRONMENTAL HAZARDS:**

The job risks exposure to fire hazards, extreme heat and/or cold, wet or humid conditions, extreme noise levels, vibration, fumes and/or noxious odors, airborne particles, traffic, moving machinery, electrical shock, heights, disease/pathogens, toxic/caustic chemicals, explosives.

**SENSORY REQUIREMENTS:**

The job requires normal visual acuity, depth perception and field of vision; hearing and speaking abilities; texture, color and odor perception.

**JUDGMENTS AND DECISIONS:**

Decision-making is almost the entire focus of the job, affecting most segments of the organization and the general public; works in a highly dynamic environment; responsible for establishing goals, objectives and policies.

**ADA COMPLIANCE**

Montgomery County is an Equal Opportunity Employer. ADA requires the County to provide reasonable accommodations to qualified individuals with disabilities. Prospective and current employees are invited to discuss accommodations.

**DISCLAIMER: This job description is not an employment agreement or contract. The County has the exclusive right to alter this job description at any time without notice.**