



Fire Department Master Plan

Goochland County Department of Fire-Rescue and Emergency Services
Goochland County, Virginia

January 2024



DYNAMIX
CONSULTING GROUP



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Acknowledgments

Goochland County Department of Fire-Rescue and Emergency Services

Dynamix Consulting Group would like to thank the elected and appointed officials of Goochland County, the Goochland County Department of Fire-Rescue and Emergency Services members, and, specifically, Fire-Rescue Chief Dillard E. Ferguson, Jr. for their assistance with this project. The Goochland County Department of Fire-Rescue and Emergency Services Master Plan would not have been possible without their cooperation and support.

Dynamix Consulting Group

The Dynamix Consulting Group Project Team for the Goochland County Department of Fire-Rescue and Emergency Services Master Plan was:

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Executive Summary

Background

On September 21, 2022, the Goochland County Department of Fire-Rescue and Emergency Services in Virginia contracted Dynamix Consulting Group to conduct a *Fire Department Master Plan*. The purpose of the study was threefold:

1. Evaluate current operational service delivery.
2. Identify future service delivery needs.
3. Provide recommendations for operational service delivery.

Summary Findings

This Master Plan includes a thorough review of the current performance of the Goochland County Department of Fire-Rescue and Emergency Services. The men and women of the department have consistently provided the highest possible level of emergency service to the community. Dynamix Consulting Group's in-person meetings and review of the internal and external customer surveys all indicate that the Goochland County Department of Fire-Rescue and Emergency Services is comprised of members who not only serve but genuinely care for their community. The Goochland County community very much recognizes those efforts.

In recent years, population growth and development have begun to change the character of Goochland County. These changes have resulted in an increasing demand for fire, rescue, and emergency medical services (EMS) at a time when volunteer and combination fire departments across the country, Goochland County Department of Fire-Rescue and Emergency Services included, are seeing decreased activity from volunteer fire and EMS personnel. The combination of these factors makes this the perfect time for Goochland County to commence a community conversation to identify the level of service its residents and business owners desire.

Dynamix Consulting Group notes that the Master Planning Process has spanned more than a year. The conditions established in this report were current at the time of the completion of data collection. The Goochland County Department of Fire-Rescue and Emergency Services is a very progressive organization that has hired additional personnel and implemented new programs during this past year.

Options for Consideration

Dynamix Consulting Group recommends that Goochland County adopt fire department performance standards and associated trigger points for when to add additional resources to achieve the desired fire department performance standards. Through the adoption of performance standards, the county can provide a consistent level of performance, justify future additions as required by demand for services, and plan to fund the necessary resources to achieve the desired performance.

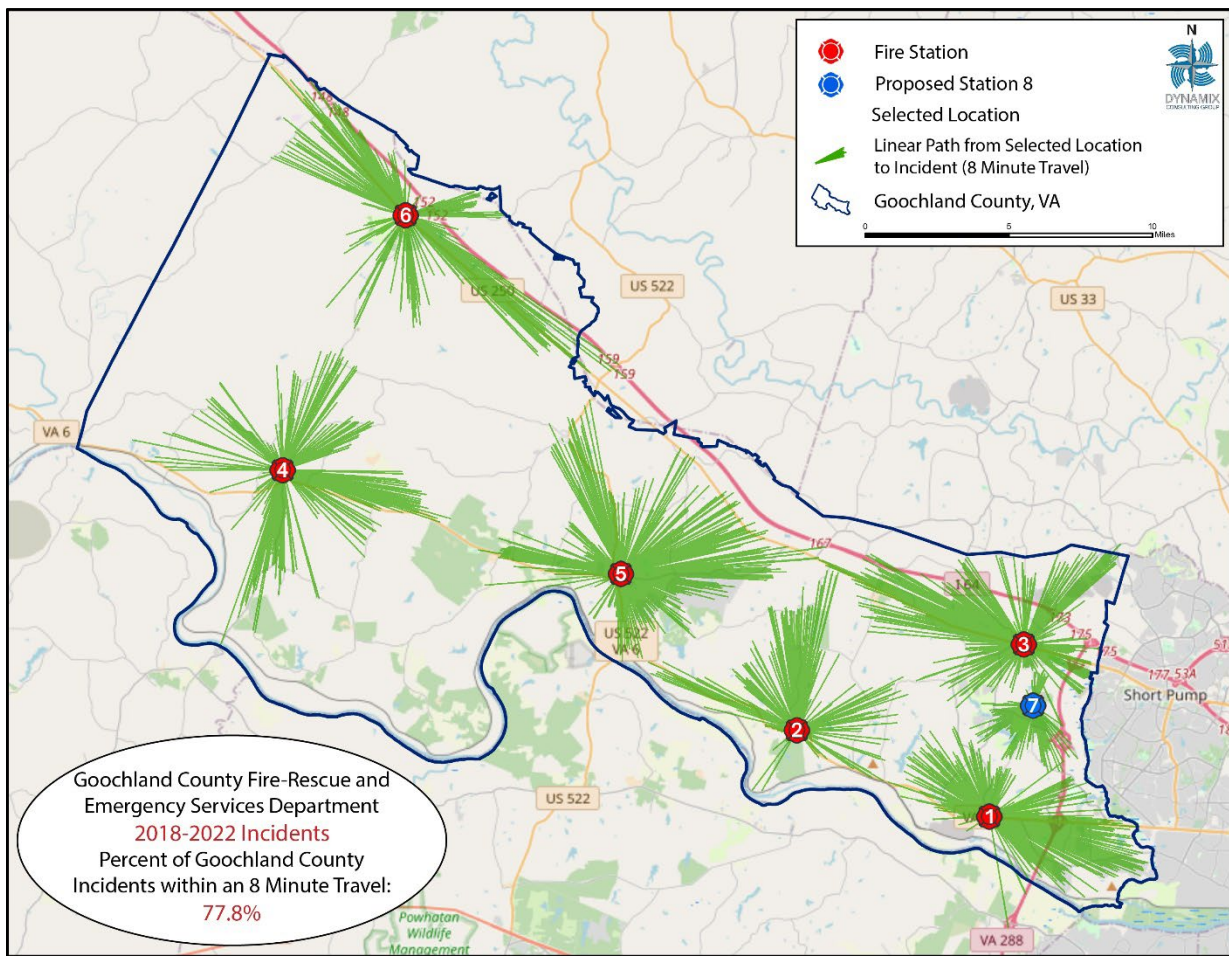
The Service Delivery Recommendations section of this report includes a full explanation of the development of performance objectives. Dynamix Consulting Group offers the following three options for the foundation of the initial Goochland County Department of Fire-Rescue and Emergency Services Performance Objectives.

A fire station can only be effective if adequately staffed and equipped; the county must be prepared to fund staffing and equipment for every station it places into service. Once established, the performance objectives should be regularly monitored and evaluated at least every three years to ensure that they continue to meet the changing needs of the county.

Seven Stations

Projections indicate that the Goochland County Department of Fire-Rescue and Emergency Services can reach 77.8% of incidents occurring between 2018 and 2022 within 8 minutes or less if it chooses to adequately staff and equip the current six stations and the planned Station 7.

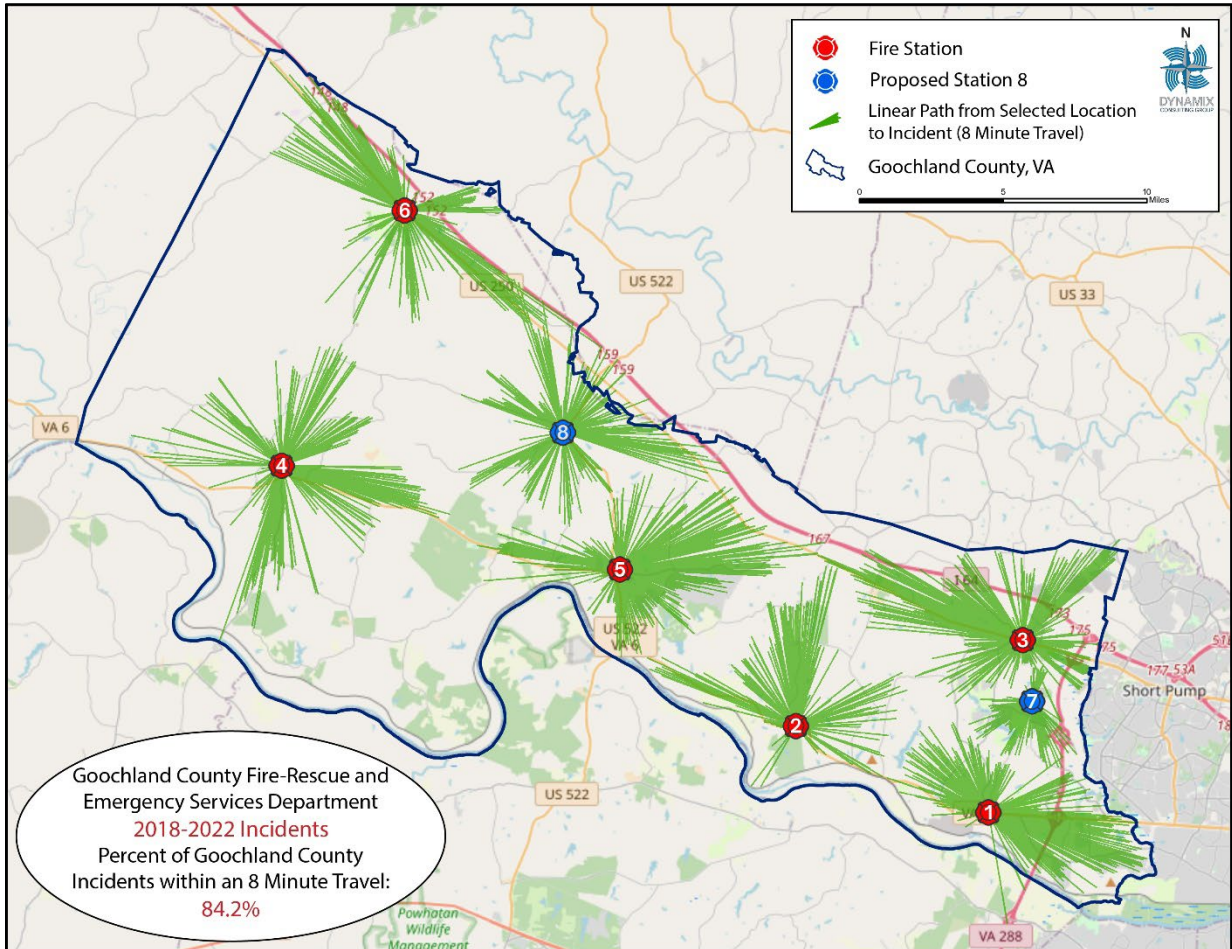
Seven Station Model



Eight Stations

Projections suggest Goochland County will reach 84.2% of the incidents between 2018 and 2022 within 8 minutes or less if it adequately staffs and equips the current six stations, and both the planned Station 7 and planned Station 8 are added.

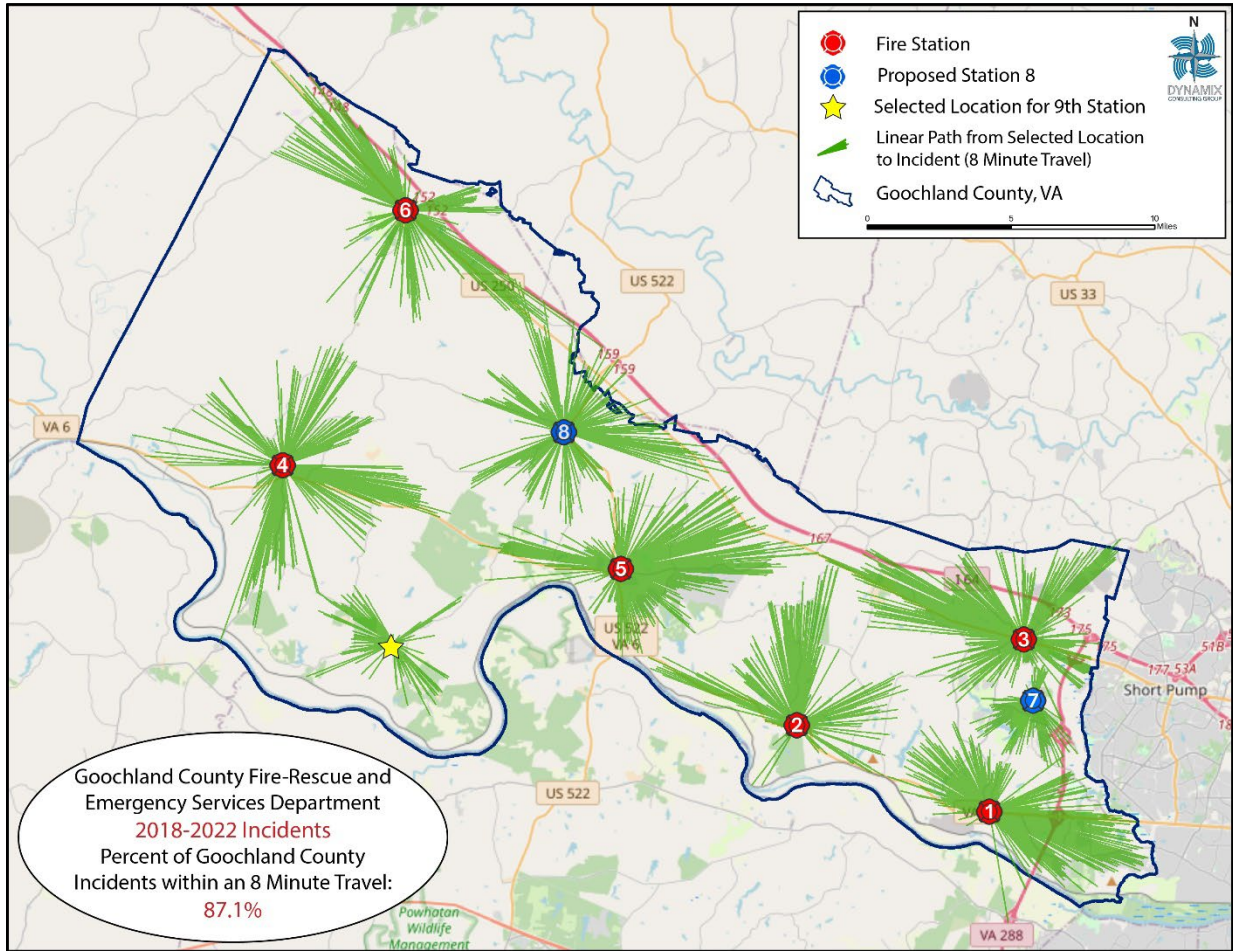
Eight Station Model



Nine Stations

Finally, for incidents that occurred between 2018 and 2022 within an 8-minute or less travel time, Goochland County should reach 87.1% of the incidents from a combination of their current six stations and the planned Stations 7, 8, and 9 to address the anticipated future development of the county. However, the county should reevaluate the demand for services and the growth progress at that time to ensure the Station 9 location remains viable.

Nine Station Model



Next Steps

Once the leadership of Goochland County selects a delivery model, it is imperative that all levels of the organization, from the newest firefighter to the County's elected officials, understand this model. Equally important is understanding the mission and priorities of the Goochland County Department of Fire-Rescue and Emergency Services so that decisions made at all levels consistently possess the same focus and priorities.

Dynamix Consulting Group recognizes that this report contains a multitude of recommendations that cannot all be implemented simultaneously. Goochland County Department of Fire-Rescue and Emergency Services should facilitate a Strategic Plan to consider, prioritize, and implement the goals and objectives recommended in this Fire Department Master Plan.

The strategic planning process would ideally result in a three-to-five-year work plan that will guide the work effort of the entire organization toward a common set of goals and objectives. The process should include representation from every major interest group in the organization.

A successful strategic planning process will result in a plan for the Goochland County Department of Fire-Rescue and Emergency Services to implement the recommendations in this report systematically. Internal or outside facilitators can assist in the strategic planning process.

Organizations not engaging in strategic planning often fail to benefit from the evaluation and planning process. The recommendations within this Master Plan will do little more than exist in the report if not prioritized, assigned to specific individuals for oversight, and then implemented.

Introduction

Evaluation Process

Using organizational, operational, staffing, and geographic information system (GIS) models, this evaluation comprehensively appraises the fire and emergency medical services provided in Goochland County, Virginia, upon Dynamix Consulting Group's completion of fieldwork and data collection in April 2023.

Dynamix Consulting Group based this evaluation on data provided by the Goochland County Department of Fire-Rescue and Emergency Services and data collected during the consultants' fieldwork. The information was then compared to a combination of Virginia Laws, Insurance Services Office requirements, National Fire Protection Association Standards, accepted best practices within the emergency services community, and the experience of the Dynamix Consulting Group Consultants.

Referenced Laws and Industry Standards

Virginia Occupational Safety and Health Administration

State Plans are Occupational Safety and Health Administration (OSHA) approved workplace safety and health programs operated by individual states or U.S. territories. In the U.S., 22 State Plans cover the private sector, state, and local government workers, and seven State Plans cover only state and local government workers. OSHA monitors state plans to ensure they are at least as effective as OSHA in protecting workers and preventing work-related injuries, illnesses, and deaths.

The Virginia Occupational Safety and Health (VOSH) Program is part of the Virginia Department of Labor and Industry (DOLI) in the Commonwealth of Virginia. Maintaining a safe work environment is essential, and Virginia takes safety and health regulations seriously. Based in Richmond, with field offices in Abingdon, Lynchburg, Manassas, Norfolk, Richmond, Roanoke, and Verona. It is important to note that the Virginia State Plan applies to state, local government, and maritime workers. Safety and health regulations are crucial for maintaining a safe work environment for all workers.

Insurance Services Office

The Insurance Services Office (ISO) is a data analytics organization that provides insurance carriers with a classification rating of a local community's fire protection. The Property Protection Class (PPC®) score or rating classifies communities based upon an overall scale of 1 (best protection) to 10 (no protection) and assesses all areas related to fire protection. These areas are divided into four major categories, which include emergency dispatch and communications (10% of the rating), water supply system and distribution capabilities (40%), the fire department (50%), and Community Risk Reduction efforts (an additional 5.5% credit is available above 100%). ISO requirements are not law, but compliance (or lack thereof) with ISO requirements will directly impact a community's fire protection rating.

National Fire Protection Association Standards

The National Fire Protection Association (NFPA) is an industry trade association that develops and provides standards and codes for fire departments and emergency medical services for local governments.

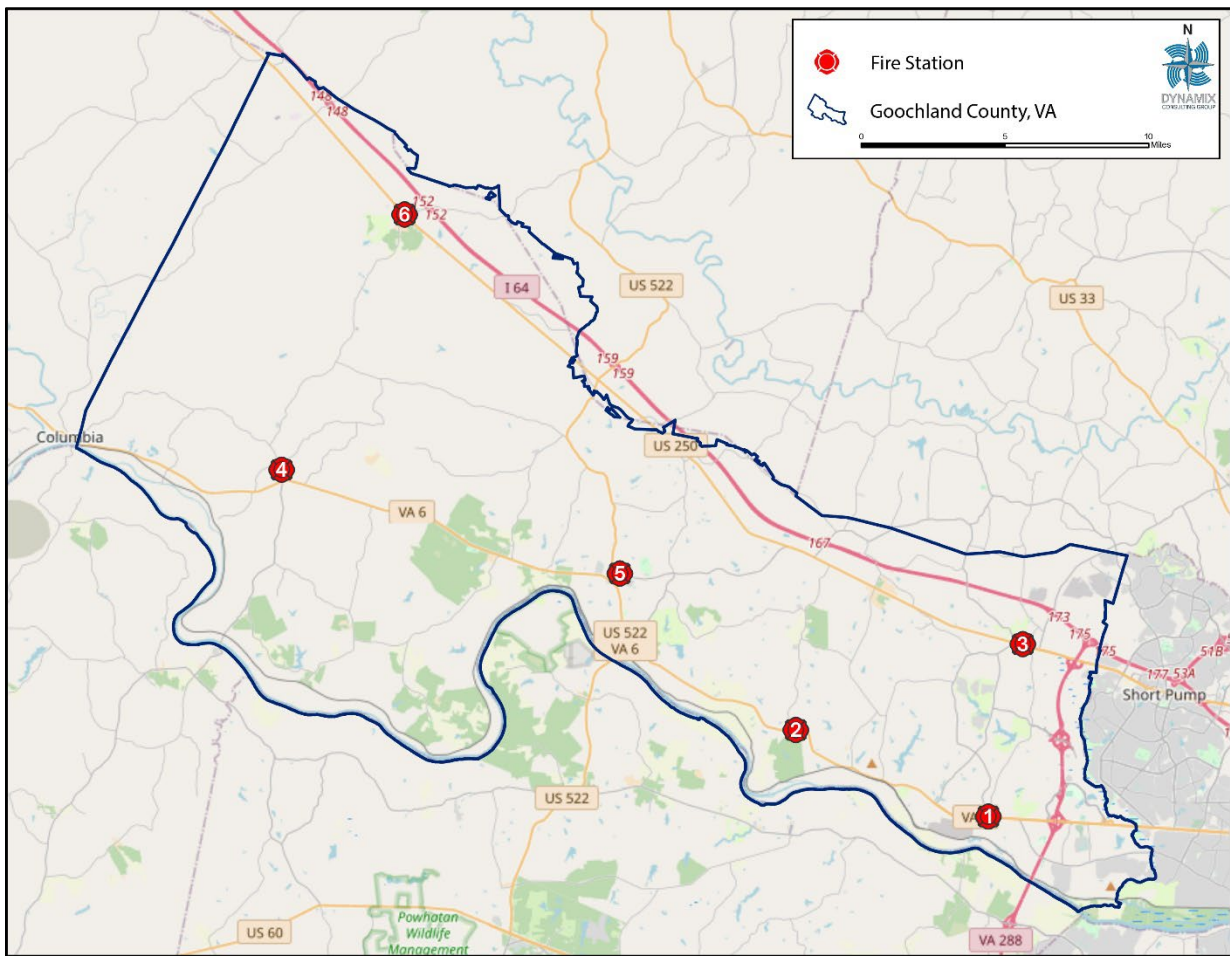
Community Profile

Unless otherwise stated, the source of all population information is the Environmental Systems Research Institute (ESRI), the global market leader in Geographic Information Systems (GIS) Mapping since 1969.

Service Area

Goochland was founded in 1728 and named for Sir William Gooch, 1st Baronet and royal lieutenant governor of the area from 1727 to 1749. The County consists of 281 square miles of land and 8 square miles of water, totaling 289 square miles. The County is centrally located in Virginia, part of the Greater Richmond Region, and is considered a Metropolitan Statistical Area (MSA). With almost 1.26 million residents, it is no surprise that the Greater Richmond Region is the 45th largest MSA in the country.

Goochland County, Virginia



Goochland County is a rural area in central Virginia's Piedmont Plateau region. It is situated just 13 miles west of Virginia's capital, Richmond. The County is easily accessible via Interstate 64, which runs along its northern edge, making it a convenient commute for both residents and visitors of Richmond and Charlottesville. State Route 288, an interstate quality four-lane limited access road that runs through Goochland County, provides for Richmond's western bypass.

In the early 2000s, Goochland County had significant growth, mainly due to the development of West Creek Business Park. This synergic development attracted businesses to the area and provided growth for residential living. The top corporate employers in the area include Capital One, CarMax, Luck Stone, Virginia Farm Bureau, Federal Reserve Bank of Richmond, Hermitage Country Club, and Food Lion. Edith Richmond provided the Goochland County Department of Fire-Rescue and Emergency Services history to the Goochland County Historical Society.¹

History of the Fire Department

From Ashes...The Beginning of Goochland County's Fire Department was compiled by Mary Katherine H. Sheppard in June 1999, with clarification and updates provided by Fire-Rescue Chief Dillard E. Ferguson, Jr. to document the history to the present.

In the early pre-dawn hours of October 30, 1951, orange flames leaped skyward to pierce the morning mist over the sleepy village of Manakin. Dover Baptist Church, on present-day Manakin Road, having stood the ravages of both religion and the elements for over ninety-six years, burned to the ground.

The community was in shock. By sunrise, all that remained was smoldering debris and a pile of grey ashes. Yet, from these smoking ashes came the recognition, inspiration, and determination of interested community folks for the need to organize a fire protection company for the area.

Earl H. Henley remembers well-being present on the scene of this early morning fire. Mr. E. F. (Ned) Willis, of Pembroke Farm on River Road, had established the "Pembroke Farm Fire Department" and had purchased an old fire engine from the City of Richmond for use on his farm. He had been called to respond with his fire engine to the Dover Church blaze. He graciously responded, but the building was completely burned when he arrived. As a stunned and subdued group stood helplessly watching while the last smoke curled into the morning sky, Earl remembers Mr. Willis saying to him, "We've got to get some people together and organize a fire department. Will you help?" Earl also remembers, "I was young and energetic and welcomed Ned's challenge."

¹ <https://goochlandhistory.wordpress.com/tag/fire-department/>

Plans were made. The call went out. Twenty men were recruited who would become the nucleus of a new community spirit:

Austin Clarke

Earl Henley

Bob Phillips

Henry Heusmann

R. S. Cridlin

M. D. Long

John Smith

Fred Wimble

Ned Willis

Walter Joyce

Tom Staples

Seymour Breed

Vernon Clarke

Arden Henley

C. T. Paxton

Gilbert Moore

A. L. Long

Morton Smith

John Hill

J. S. Graham

Soon, a training program was in progress. Soot and blazing heat became commonplace for these men. Mr. Willis set up a small training ground on his property near the River Road-Pagebrook Drive intersection. A slab-plank structure was built to facilitate actual firefighting techniques, and a small lake provided training for water drafting. Captain Frank Lucchesi from the Henrico County/Tuckahoe Fire Department taught the first class - 32 hours of training beginning on November 27, 1951, and graduating 20 students on March 17, 1952.

By February of 1952, only four months after the Dover Church fire, the Articles of Association for Dover" Pembroke Fire Department Volunteer Association" were drafted and approved. This is a set of very comprehensive instructions, the overall purpose of the Association reading thusly:

"We, the undersigned citizens of Dover Magisterial District, Goochland County, Virginia, recognizing that a need exists for creating and maintaining an effective means of preventing and fighting fires within said District, do hereby associate ourselves for the purpose of forming, organizing, equipping, maintaining and operating one or more fire companies within said District for said purpose, and to render such aid to our neighbor Districts within and without Goochland County as may be practical in the judgment of the Association's Board of Governors and its Chief."

The organizational officers and duties are set forth in detail. A total of forty-six charter members, both ladies and gentlemen, signed this document. Mr. E. F. (Ned) Willis was elected Fire Chief. An eleven-member Board of Governors and other officers were elected. Twenty graduated volunteers are also listed. COMPANY NO. 1 IN MANAKIN IS BORN!

Prompt communication was a vital need for the new organization. A telephone tree (of sorts) was established. Calls for help were reported by residents to a central location, then relayed by telephone to community members (usually stay-at-home moms) who, in turn, telephoned the homes of firefighters, alerting them to the need to respond. No doubt that busy signals, no-answers, and out-of-order encounters delayed many alerts to the volunteers.

In 1953, plans were made to build a fire station. The Association's treasury contained fifteen hundred dollars! A one-acre parcel of land just east of the Route 621/Route 6 intersection was donated to the organization by Mr. J. W. Harman. A two-bay station was built by the membership. Members, families, and friends devoted many days, nights, and weekends to complete this project. A forty-foot hose tower for draining and drying hose was built on the west-rear side.

The fire station quickly became the hub of community activities, and the 1950s were busy years for this new organization. Training of new recruits continued, and in 1953, the Crozier (Company No. 2) department was organized, and, in September of 1954, a third Company (No. 3) was established at Centerville.

Company No. 1 became the Headquarters Company, and the new departments became a part of the "Dover-Pembroke Fire Department Association." Also, in 1954, Mr. Earl H. Henley became Association Fire Chief upon the retirement of Mr. Ned Willis.

Chief Henley's report to citizens of Goochland County on the 1954 status of fire services available in the County indicated that Company No. 1 was equipped with two tractor-trailer water carriers, one high-pressure fog unit, one hose-carrying vehicle, and twenty-four trained volunteer firefighters.

The mid-fifties brought visions of an improved communications system. There were no radios on the units of equipment, and the existing telephone alert system was no longer sufficient to ensure early response for a growing organization.

But There was no money! Again, drawing on Earl Henley's memory, he contacted the owner of Radio Communications Service for suggestions on how to go about implementing a radio system. He was advised to contact the Virginia State Police, where old units were being replaced in some of the police cruisers. He determined the old units were available for fifty dollars each. The Board of Governors authorized him to purchase three units. After frequency changes to allotted fire frequencies, two units were installed in equipment, and one unit was converted to a base station, which would be located at Company No. 1.

Headquarter's station (Call Sign KIL401). An antenna was installed on the existing hose tower. This base station was manned by volunteers who were required to hold valid Class Three Radio Operator Permits. Fire (and later Rescue) communications were served by this station until Headquarters was moved to the old stone jail on the Courthouse Green in 1968.

In November of 1956, a Ladies' Auxiliary was organized at Company No. 1.

Their purpose was to assist the Fire Company in raising operations funds, improving existing facilities, and providing social activities for the community. Company No. 2 at Crozier had organized an Auxiliary two months prior in September.

1956 also heralded the establishment of a fourth fire company in Goochland-Fife, Company No. 4.

In 1958, a fifth fire company was formed in Goochland Courthouse, Company No. 5.

In 1962 the sixth fire company, Hadensville Company No. 6, was organized in the northwestern corner of Goochland County.

In 1966 volunteer rescue squads began to organize in the communities and were merged into the fire department. Prior to 1966 transportation of the sick and injured was handled by local funeral homes and sometimes by the Tuckahoe Volunteer Rescue Squad in Henrico County. American Red Cross Standard and Advanced First Aid and CPR classes were organized and well attended by citizens from all over the county.

Company 5 started rescue services in the fall of 1966 and Company 1 followed in April 1967. Company 3 began rescue squad services in August 1968.

In 1971, a rescue squad was jointly organized at Companies 4 and 6 sharing an ambulance that was rotated between the two stations; eventually in 1979 each station would have its own ambulance and separate rescue squad memberships.

In 1972, Hurricane Agnes caused extensive damage along the James River Basin and in Goochland County. One positive result from the horrible loss of life and property associated with "Agnes" was the organization of Goochland's Water Rescue service under the able and dedicated leadership of County Captain of Rescue Clarence "Jake" Proffitt. Tucker Hill served as the group's first Captain of Water Rescue Company No. 7, composed of members from all six companies.

Over the years, all five rescue companies added crash trucks that responded to vehicle accidents and fire scenes equipped with hand tools, hydraulic tools, salvage equipment, medical supplies, lights, and a generator. Company 2 operated as a fire only station until rescue was added in June 2003, completing the transformation of all six companies into fire and rescue, an ambulance at each location.

Over the decades, Goochland's Rescue Squads evolved into a respected emergency medical service organization composed of well-trained EMS providers, state of the art ambulances and medical equipment, operating with advanced patient care protocols and medical direction, delivering both basic and advanced life support care.

In 1981, a full-time Fire-Rescue Secretary (Mrs. Linda Thurston) was hired to support the volunteer Fire Chief and Staff Officers. Mrs. Thurston was the first county employee assigned to the Fire-Rescue Department.

In the late 1990s, a contract ambulance vendor provided supplemental EMS staffing covering day hours while volunteers were at work. This was eventually expanded to include nights and some weekends.

In 2009, the contract vendor was replaced with the hiring of the first group of 10 career Firefighter EMS providers, also county employees, the start of the combination department that has expanded to 76 career members today.

Volunteer Fire Chiefs continued to serve until 2002. There were six volunteer Fire Chiefs from 1951 to 2002: E. F. "Ned" Willis, Earl H. Henley, Howard H. Henley, Fred T. Carter, Jr., Wayne M. Allen, L. Franklin Wise, Jr. A career Director of Fire-Rescue was hired in 1998 and served through 2001.

The first career Fire-Rescue Chief was hired in 2002, replacing the Director and the last serving volunteer Fire Chief. There have been three career fire chiefs to date: Kenneth J. Brown, William D. MacKay, Dillard E. Ferguson, Jr.

The first Fire Marshal was hired in 2003. The first Deputy Chief of EMS was hired in 2004. A second volunteer Deputy Chief position continues forward, filled by a volunteer member today.

Governance and Lines of Authority

Five Board of Supervisors members oversee the Goochland County government. The Board of Supervisors implements County policies, approves land rezoning, creates ordinances, allocates funds, and grants special exceptions to the Zoning Ordinance, among other duties. The Board of Supervisors is dedicated to serving the people of Goochland County and making decisions that benefit the community. They hold meetings throughout the year to make decisions on these requests and conduct Public Hearings to allow the community to participate in developing and updating public policies. These sessions provide valuable information and recommendations for programs and projects that may impact the community. During these meetings, the Board of Supervisors reviews and approves annual operating and capital budgets, including appropriations and funds for expenditures. The Board of Supervisors appoints various positions, such as a County Administrator who manages the County's daily operations, a County Attorney who oversees the County's legal affairs, and advisory boards, committees, and commissions, such as the Planning Commission, which advises the Board on land use issues.

Chapter 6, Article 1, Section 6-1 of the Goochland County, Virginia Code of Ordinances establishes the Fire Department.²

The department of fire-rescue and emergency services (the "department") is hereby established. The department shall be comprised of the officials, staff, and employees of the department, and the various volunteer organizations that comprise the Goochland County Volunteer Fire-Rescue Association, Inc. (the "association"). The department shall be responsible for the protection from fire of life and property within the County and shall provide, regulate, and manage the provision of pre-hospital emergency medical services in the County. The department shall also be responsible for the administration of local, state, and federal emergency responses, assistance and recovery services and programs within the County.

Goochland County's Fire-Rescue Chief reports directly to the County Administrator; the Fire-Rescue Chief also maintains a close working relationship based on professional courtesy with the Volunteer Association Board of Directors as they play a critical role within the Fire-Rescue Department. The Fire Marshal, Emergency Management Coordinator, Administrative Assistant, Business Manager, Medical Directors, and Deputy Chiefs report directly to the Fire-Rescue Chief. Chapter 6, Article 1, Section 6-2 of the Goochland County, Virginia Code of Ordinances establishes the powers and duties of the chief.

²

https://library.municode.com/va/goochland_county/codes/code_of_ordinances?nodetid=COOR_CH6PUSASE

(a) The chief of the department shall be appointed by the county administrator in consultation with the Board of supervisors. The chief shall be the director of the department and shall provide general management of the department including all functions of the department described in this chapter and in statutes and regulations relating to local fire and emergency medical services.

(b) The chief of fire-rescue and emergency services shall:

(1) Be in direct command of the department and its resources;

(2) Hire, appoint, and terminate officers, staff, and employees;

(3) Assign all officers, staff, employees, and volunteers of the department to their respective posts, shifts, details and duties;

(4) Regulate, assign, and direct the use of all department vehicles, equipment, and other resources of the department in response to emergencies;

(5) Be responsible for the efficiency, discipline, and good conduct of the department;

(6) Make rules and regulations in conformity with state law and regulations, and county ordinances and policies concerning the following:

a. The operation of the department;

b. The conduct of the officers, staff, employees, and volunteers of the department;

c. The uniforms, equipment and training of the officers, staff, employees, and volunteers of the department; and

d. The penalties to be imposed for the infractions of such rules and regulations.

(c) The chief may delegate any and all operational authority to other officers and employees of the department. References to the chief in this chapter shall include his designees.

(d) The chief shall provide general management of the planning, preparation and response for any emergency or disaster which occurs in the County and requires implementation of the County's emergency response plan.

Financial Services

The Financial Services Division provides financial support services for all County operations and oversees the budgeting, accounting, procurement/purchasing, and financial reporting functions of Goochland County to ensure compliance with local, state, and federal laws. The Division's responsibilities include coordination of the annual audit, budget preparation and monitoring, debt management, accounts payable, payroll, and bids and proposals.

The Goochland County Board of Supervisors approves a one-year operating budget that includes multi-year projections each year.

- The Board of Supervisors also approves a five-year Capital Improvement Program each year.
- An outside firm conducts a financial audit each year that covers the finances of the County, Goochland Public Schools, and the Economic Development Authority.
- Goochland County maintains an Online Check Register each month to provide a single place to see who receives payments from the County.
- Consistent with the Virginia Public Procurement Act, the Purchasing Department obtains high-quality goods and services at a reasonable cost and gives all qualified vendors access to the County's business.

Audit & Finance Committee

The Audit & Finance Committee aims to assist the Board of Supervisors in fulfilling its oversight responsibilities for financial reporting, internal control systems, and audit processes. Membership includes three Board members, the County Administrator, and the Director of Financial Services. The Committee meets quarterly or as needed. The Committee's responsibilities include:

- Consider the independent auditor's proposed audit scope and approach and provide input on areas for special attention.
- Review annual financial statements and the results of the independent audit.
- Review the independent auditor's findings, recommendations, and management's responses regarding internal controls.
- Recommend appointment, reappointment, or dismissal of independent auditors to the Board of Supervisors.
- Request regular/periodic financial reports on potential areas of concern.
- Monitor any areas of concern regarding internal controls over financial reporting, as needed.

Total Budget Summary

The total FY 2024 adopted budget of all funds is \$141.4 million, an increase of \$38.8 million or 37.9% from FY 2022. The County has planned investments in education and public safety. Fire & Rescue Services account for \$10,551,438 for FY 2024, representing an increase of 23% over the previous budget year. The FY 2024 Budget includes two tax relief measures to help care for our community's citizens. It decreases the personal property tax rate from \$3.75 to \$2.99 per \$100 assessed value for citizens whose vehicles are eligible for personal property tax relief (PPTR). It also increases the personal property tax relief (PPTR) rate applied to the first \$20,000 of each personal vehicle to 32%.

Historical Data

The following graph compares the county budget to the Fire and Rescue Budget from 2022 through 2024³.

	FY 2022 Actual Budget	FY 2023 Actual Budget	FY 2024 Adopted Budget
Total Salaries and Benefits	\$5,091,401	\$6,225,392	\$7,870,344
Total Operating Expenses	\$1,754,773	\$2,202,083	\$2,529,440
Other	\$129,616	\$149,119	\$151,654
Total Fire Rescue	\$6,975,790	\$8,576,594	\$10,551,438

Projected General Fund Revenue Outlook

Projections indicate General Fund revenues will increase by \$17 million, or 13.7%, to \$141 million. Real estate and personal property tax have contributed to the strong growth, which has increased by 14.8% and 15.3%, respectively. Real estate assessments increased by 11.1%, while construction materials costs are causing new construction values to increase. Projections also suggest the FY 2023 real estate tax revenue will increase by \$4.7 million and personal property tax will increase by \$2.1 million.

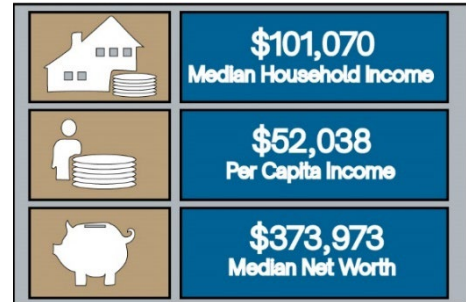
³ <https://county-goochland-va-budget-book.cleargov.com/11241/departments/fire-rescue>

Community Risk Analysis

Population and Demographics

Goochland County is home to 25,872 people spread across 9,788 households. The County boasts a highly educated population, with 92% of its residents graduating from high school, compared to the national average of 88.5%. Additionally, 43% of Goochland County's population holds a bachelor's degree or higher, significantly higher than the national average of 32.9%.

The median household income in Goochland County is \$101,070. This amount is significantly higher than the median income of the United States (\$64,994). The per capita income in the County is \$52,038, and the median net worth is \$373,973.



Poverty

Although much of Goochland County lives above the income averages, it is essential to consider the increased risk that persons living in poverty face regarding fire and medical emergencies. Residents living at lower income levels often live in older houses and often in poorer conditions. Lacking access to funds for preventative maintenance and licensed trades for significant repairs leads to housing at greater risk for many common fire causes. Similarly, impoverished citizens also lack proper medical insurance, leading to a lack of preventative health and routine medical care. These challenges often lead to increased demands on fire and emergency medical services. The risk is even greater for those living below the poverty line when combined with factors such as education, disability, and work status. Unfortunately, facing poverty or near poverty is more likely to occur in specific demographics such as Black or African American, Hispanic, or families headed by single women. In Goochland County, 602 households (7%) are below the poverty level. Additionally, 201 households without access to transportation should be considered when planning for emergencies such as storms or evacuations.



At-Risk Individuals

Numerous factors place certain citizens at greater risk from disasters within the community. It is, therefore, essential to identify these people at greater risk and tailor programs and response plans to their needs. Community Risk Reduction (CRR) Programs provide education and assist in emergency response for the at-risk population and should become an integral part of the County's service.

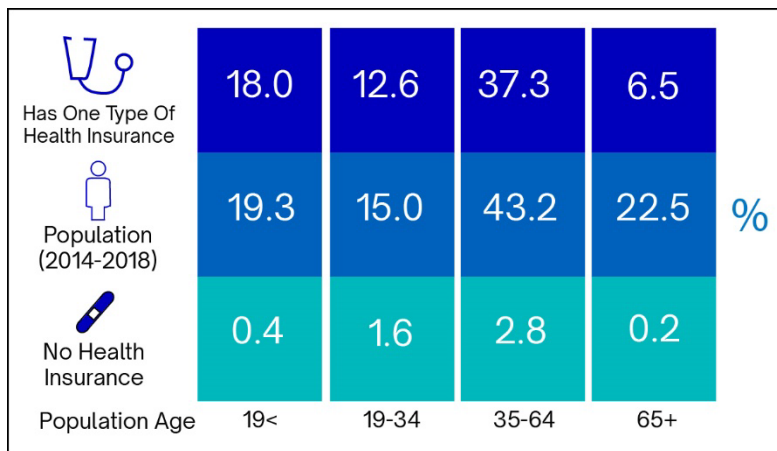
The at-risk population includes four broad categories of citizens:

- **Household Factors:** Households with residents over 65 and under 17 years of age, those with a disability, and single-parent situations
- **Minority Factors:** Households containing minorities and those who speak little or no English.
- **Socioeconomic Factors:** Households that lack stable income, basic education, and includes those living in poverty
- **Housing and Transportation Factors:** Households that include overcrowding, multi-unit structures, those who lack transportation, and residences poorly kept and maintained.



In Goochland County, the at-risk population includes 2,043 households with one or more members with a disability. It is essential to develop education programs to target persons with disabilities to assist in their escape from fire or reduce their vulnerability during disaster situations. Citizens who lack access to healthcare also rely more heavily on emergency medical services than those with access to routine medical care. In Goochland County, estimates suggest that over 5% (approximately 1,293) of citizens do not have healthcare insurance.

Community partnerships and education programs assist in mitigating and managing the risks associated with the effects of not having healthcare insurance.



Persons by Age-Risk

In Goochland County, the median age is 49.4 years old. The county population comprises children ages 18 and under, who account for 19% (approximately 4,915); adults ages 18 to 65, who comprise 57%; and those aged 65 and older, who account for 24% (approximately 6,209) citizens. According to the U.S. Fire Administration, citizens aged 17 and younger and those 65 and older are significantly more likely to suffer from fire and other disasters than the population at large. Education and prevention programs targeting these age populations lead to reduced risk and loss and suffering associated with fire and other disastrous situations.

Persons with Language Barriers

According to the National Fire Protection Association (NFPA), language barriers, cultural differences, and unfamiliar home technologies increase risk factors. While speaking a language other than English at home does not necessarily increase the risk of emergencies, it can be a challenge if someone has difficulty communicating during an emergency. Prevention programs and community outreach assist in mitigating the factors leading to increased risks for those with language barriers.

Language Spoken (ACS)	Age 5-17	18-64	Age 65+	Total
English Only	3,069	13,039	4,782	20,890
Spanish	85	318	46	449
Spanish & English Well	85	283	46	414
Spanish & English Not Well	0	35	0	35
Spanish & No English	0	0	0	0
Indo-European	64	210	77	351
Indo-European & English Well	64	199	77	340
Indo-European & English Not Well	0	11	0	11
Indo-European & No English	0	0	0	0
Asian-Pacific Island	0	233	19	252
Asian-Pacific Island & English Well	0	188	15	203
Asian-Pacific Island & English Not Well	0	45	4	49
Asian-Pacific Island & No English	0	0	0	0
Other Language	0	38	17	55
Other Language & English Well	0	38	17	55
Other Language & English Not Well	0	0	0	0
Other Language & No English	0	0	0	0

Hazard Mitigation Plan

A hazard mitigation plan aims to reduce the potential loss of life and property by lessening the impact of natural and manmade disasters. Implemented in 2021, the Goochland County Emergency Operations Plan developed a solid framework for emergency operations before, during, and after an event. The plan aims to prepare Goochland County for various emergencies and hazards. The plan is based on research and data that support planning for and coordinating response efforts that can save lives, protect property, and more quickly restore essential services. Virginia law requires updating the Goochland County Emergency Operations Plan every four years and formally adopting the revised plan.

During major hazardous events, information typically starts at the local level. The data then proceeds to the County, state, and, ultimately, the federal government. Without the proper framework, such as Goochland County's Plan, information becomes diluted, confused, or lost before it can reach decision-makers. The Goochland County Department of Fire-Rescue and Emergency Services applies the National Incident Management System (NIMS) and the Incident Command System (ICS) standards to all Goochland County organizations. Utilizing these two hazard communication best practices for emergency activities ensures the same information is available in the field, emergency operations centers, and governmental offices. In these areas, officials are best positioned to coordinate response plans, complete funding measures, and make critical decisions regarding emergency declarations.

The Dynamix Consulting Group reviewed the Goochland County Emergency Operations Plan and compared it to FEMA's best practices for hazard mitigation planning. Dynamix recommends that the Goochland County Department of Fire-Rescue and Emergency Services continue to use the framework in the Emergency Operations Plan and update information regularly to minimize the impact of disasters. By continuing to identify risks, training first responders, and adequately resourcing the fire department, Goochland County can develop long-term strategies for protecting people and property in this growing County.

Risk Analysis

The Emergency Operations Plan includes a thorough Risk Analysis that identifies the following hazards in Goochland County and ranks them in likelihood and severity.

Hazard	Likelihood of Occurrence	Estimated Impact of Severity
Winter Storm	Likely	Moderate
Rain and Windstorms	Likely	Moderate
Hazardous Materials Spill	Likely	Limited
Disruption at State Correctional Facility	Likely	Limited
Evacuation of Hamptons Roads	Likely	Limited
Public Health Emergency	Possible	Major
Nuclear Power Disaster	Less Likely	Major
Earthquake	Possible	Major
Tornado	Possible	Major
Hurricane	Possible	Moderate
Agricultural Disaster	Possible	Limited
Terrorism (Domestic)	Possible	Major
Terrorism (Foreign)	Less Likely	Major
Civil Disorder	Possible	Moderate

Community Land Use Regulations

Goochland County is balancing responsible community development that increases the quality of life for residents and visitors while preserving the attractive rural character the County is known for. The Goochland County Zoning regulations and ordinances establish districts and rules as authorized by state law, including Virginia Code 15.2-2200 and 15.2-2280. These zoning and regulations promote the current and future needs of health, safety, order, convenience, and general welfare to the citizens of Goochland County.

The zoning administrator acts on behalf of the County to administer and enforce the land use regulations in Goochland County. The zoning administrator has the authority to remedy any condition that violates zoning ordinances, bring legal actions, including injunction, abatement, or other appropriate measures, and make findings of fact under the Virginia Code.

Government administrators must monitor and plan for increased and expanded infrastructure needed in Goochland County to support population growth, development sprawl, and increased demand for government services. These plans should consider improved transportation networks, police, and fire department availability, emergency responder staffing levels, zoning regulations, and access to utilities, including fire hydrants, hospitals, and schools. The plans must consider the reality that property values and population growth figures fluctuate, causing varying levels of revenue over long periods of time. New development, growth, and modification of existing structures may impact public safety response capabilities. It should also be considered when studying zoning and the increasing population of Goochland County.

Occupancy Types by Land Use Designation

Risk classification begins with documenting the types of activities and the number of people gathering inside a structure or on a property. This documentation is essential to first responders in Goochland County as it assists with preplanning, inspections, code enforcement, and emergency management processes.

The Goochland County 2035 Comprehensive Plan assists with long-rang planning for the physical development of the County over the next 20 years (adopted in August 2015). This comprehensive plan provides a framework for future growth and development in Goochland County. The Planning Commission reviews this plan every five years to consider updates and amendments. The 2035 Comprehensive Plan must "be general in nature, meaning it designates the general or approximate location, character, and extent of features shown in maps in the text." The Comprehensive Plan was recently updated to include the Court House Village Plan.

Several of the residential occupancy land use designations in Goochland County include:

- Single Family Residential, Low Density- Single-family residential uses with an average lot of two acres.
- Single Family Residential, Medium Density- Single-family residential uses with an average lot size of one acre.
- Suburban Residential- Single-family residential uses with a maximum density of 2.5 units per acre.
- Rural Enhancement Area- Rural character with low-density residential, forest, or other uses not planned for public or central utilities. Users should have significant open space.

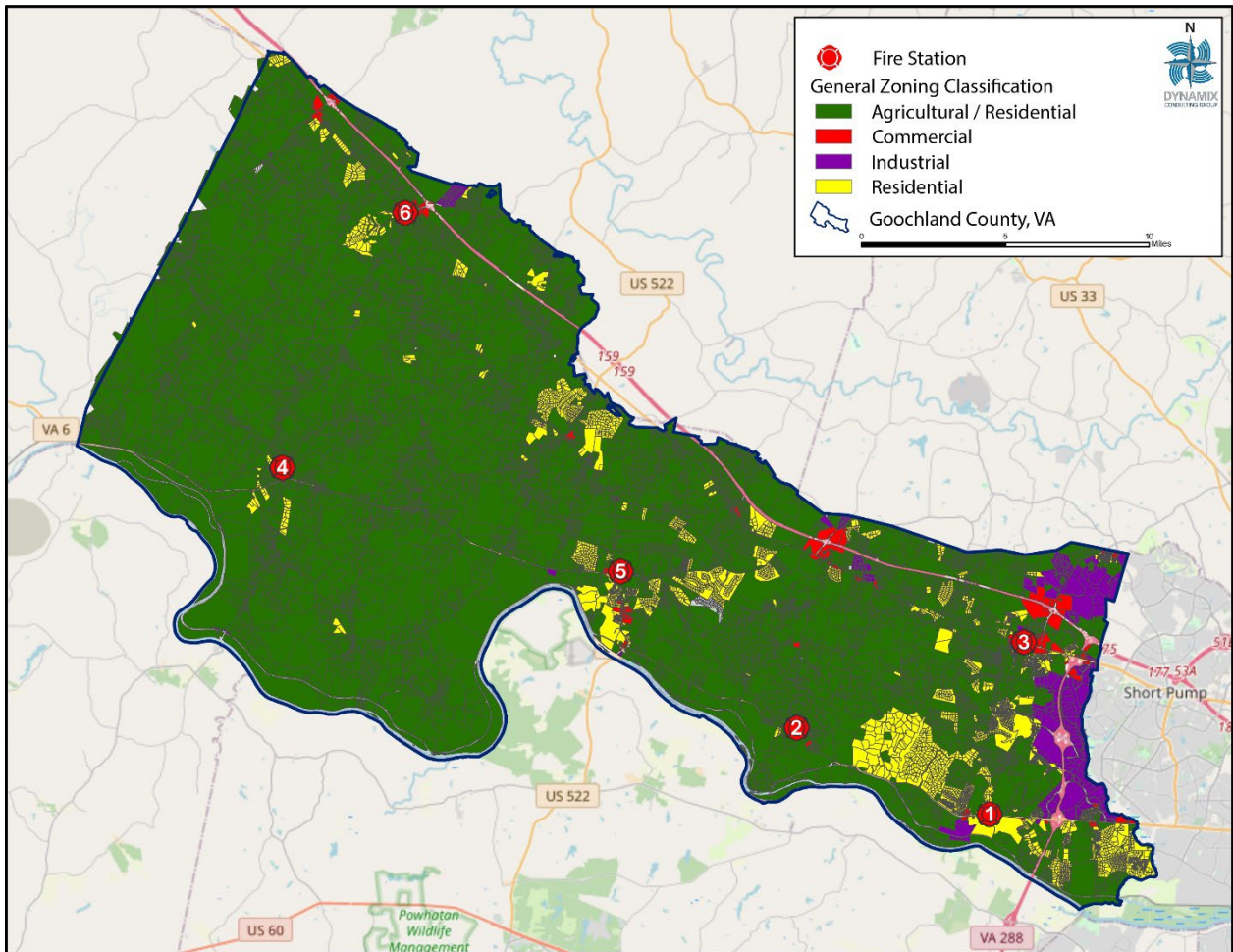
Non-residential land use designations in Goochland County include:

- Commercial - Generally, retail, retail services, office, and warehouse. The plan allows churches, hospitals, and nursing homes if the surroundings are compatible.
- Industrial - Manufacturing, assembly, fabricating, warehouse, office, and mining. The plan permits retail if the surroundings are compatible.
- Flexible - A combination of land uses such as office, commercial, office/service, and light industrial may be considered. Growth should be planned and coordinated for balance among various uses and should generally consist of interconnected, high-quality developments.

Land use regulations and oversight from the Goochland County Planning Commission and various County officials enable the County to manage and direct expansion and land use regulations. This level of County involvement helps the development process comply with federal, state, and local laws for land, architecture, environmental protection, public health, and fire safety.

Zoning maps assist with identifying each parcel of land and the appropriate zoned-use designation. Undeveloped areas or vacant land have a lower risk profile than residential, commercial, or industrial occupancies because these areas lack people and the process associated with emergency incidents.

General Zoning Classifications



Substances and Processes

The Goochland County Department of Fire-Rescue and Emergency Services coordinates all emergency management activities. The department is legally authorized to serve as the coordinating agency for the execution of the Goochland County Emergency Operations Plan. The Fire Chief serves as the County's Emergency Management Coordinator under the direction of the County Administrator. They may also function as the onscene incident commander for any hazardous substance release or hazardous process emergency.

The risk of hazardous substance releases comes from several sources, including over-the-road transport, on the rail system, or while in production. Accidental incidents can also occur during residential or industrial use, packaging, and storage in a fixed facility. When released accidentally or with malicious intent, hazardous substances can create a dangerous environment for the area surrounding the release, the community at large, and the first responders of the Goochland County Department of Fire-Rescue and Emergency Services and the Goochland County Sheriff's Office assigned to mitigate the incident. These responders will require specialized training, equipment, and protective clothing to navigate a release and operate in a hazardous environment within the hot, warm, and cold zones.

Products of hazardous materials processes occur almost anywhere in the County. Locations zoned for residential, industrial, and agricultural uses may store hazardous materials and complete processes that can cause severe injuries to the working first responder. During fire events, the danger compounds when smoke masks hazardous material's characteristics and the capability of heat to cause some materials to change state. This state change can make materials more dangerous as fumes generated by pyrolysis and vaporization combine synergistically to create an even more lethal combination of substances and chemicals.

Typically, the most effective method of operating safely in a structure or location where a hazardous materials event occurs is to gather as much information as is available and prepare for operations ahead of time. Preplanning or pre-incident planning allows first responders to visit hazardous locations before an emergency. Routine visits to target hazards allow firefighters and incident commanders to develop solutions to potential events effectively.

Knowledge of hazardous processes in Goochland County assists in strategic planning and tactical objective development well before an incident occurs. Additionally, identifying hazardous materials and dangerous processes beforehand enables fire officers to determine appropriate operational modes. Other considerations in the preplanning phase should include identifying the proper extinguishing agent for suppression and the safest way to control runoff or vapor clouds. This forethought will help protect the environment, citizens, and first responders.

During the operational period of a hazardous materials incident, incident commanders should consider the number of firefighters available in the County and surrounding jurisdictions. The Goochland County Emergency Plan designates three response categories:

- Category One- Hazardous Materials Facilities Resources
- Category Two- County Resources
- Category Three- External Resources

Even moderate-sized hazardous materials releases draw many first responders and resources. Responders must commit to the incident for sufficient time to control the emergency scene, identify the problem and the chemical involved, identify the risk associated with the incident, determine, and execute the appropriate remediation plan, equipment list, and appropriate protective clothing, and resolve the issue to render the problem safe for the environment and the surrounding community. These actions typically commit responders to longer durations than other emergency incident types, such as medical incidents, crashes, and fires.

A thorough, slow, and complete process of hazardous materials mitigation is essential to public safety, first responder protection, and responsible defense of the environment. Once an incident concludes, responders and agencies involved in the emergency incident should participate in a formal after-action review. This documented review will allow for plan modification and the improvement of emergency operations.

Target Hazards

FEMA defines target hazards as "public or private sector facilities that provide essential products and services to the general public, are otherwise necessary to preserve the welfare and quality of life in the community, or fulfill important public safety, emergency response, and disaster recovery functions." The NFPA breaks down target hazards into four risk categories for occupancies:

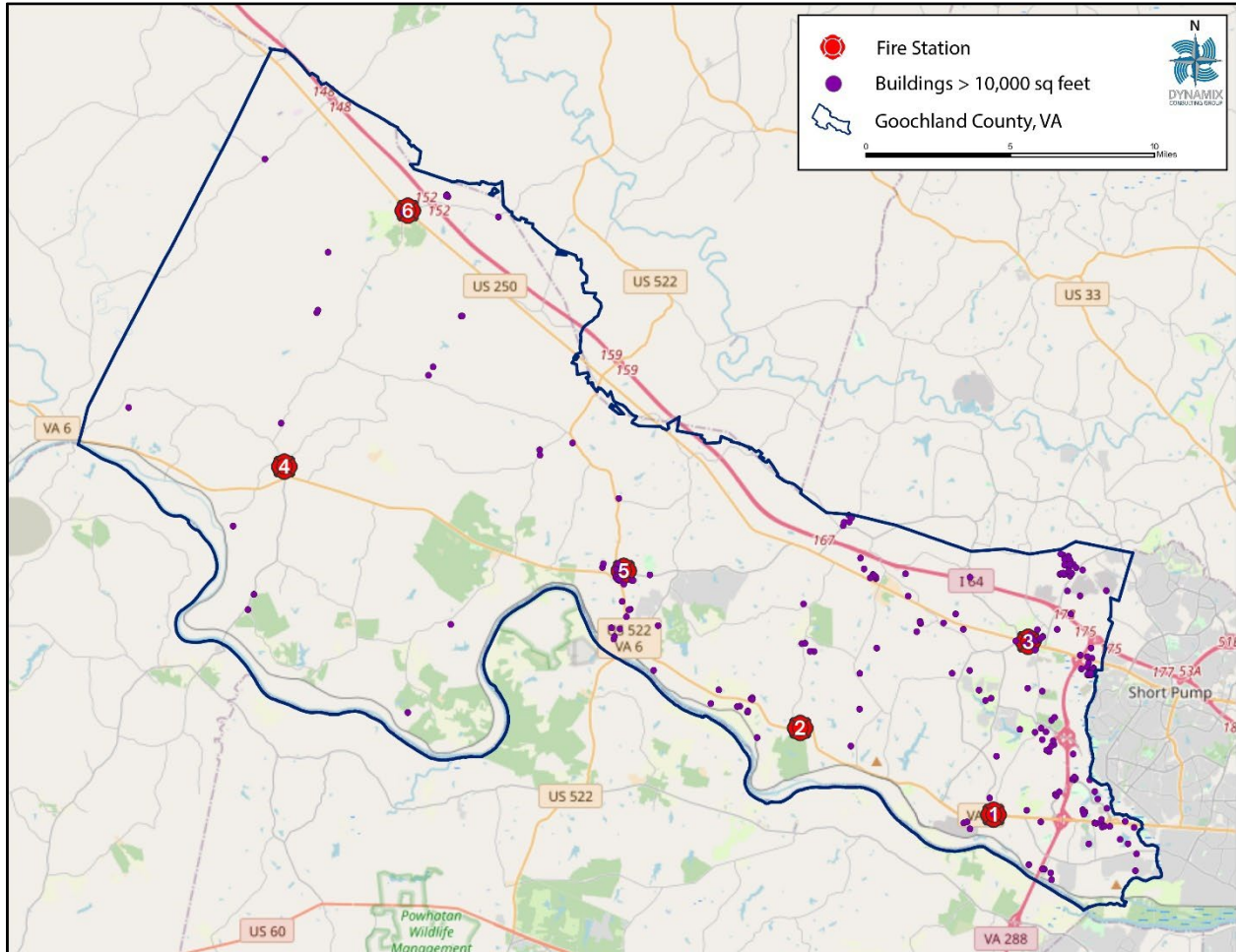
- **High-Risk Occupancy** - An occupancy with a history of a high frequency of fires, high potential for loss of life or economic loss, or a low or moderate history of fires or loss of life. Occupants with a high dependency on the built-in fire protection features or staff to assist in an evacuation during a fire or other emergency.
- **Moderate-Risk Occupancy** - An occupancy with a history of an average frequency of fires or reasonable potential for the loss of life or economic loss.
- **Low-Risk Occupancy** - An occupancy with a history of a low frequency of fires and a minimal potential for life or economic loss.
- **Critical Infrastructure** - The assets, systems, and networks, whether physical or virtual, that are so vital to the community that their damage or destruction would have a debilitating effect.

Critical infrastructure or target hazards include hospitals, schools, water/sewage treatment facilities, government offices, communications, and utilities. The following Target Hazards exist within Goochland County.

Large Buildings

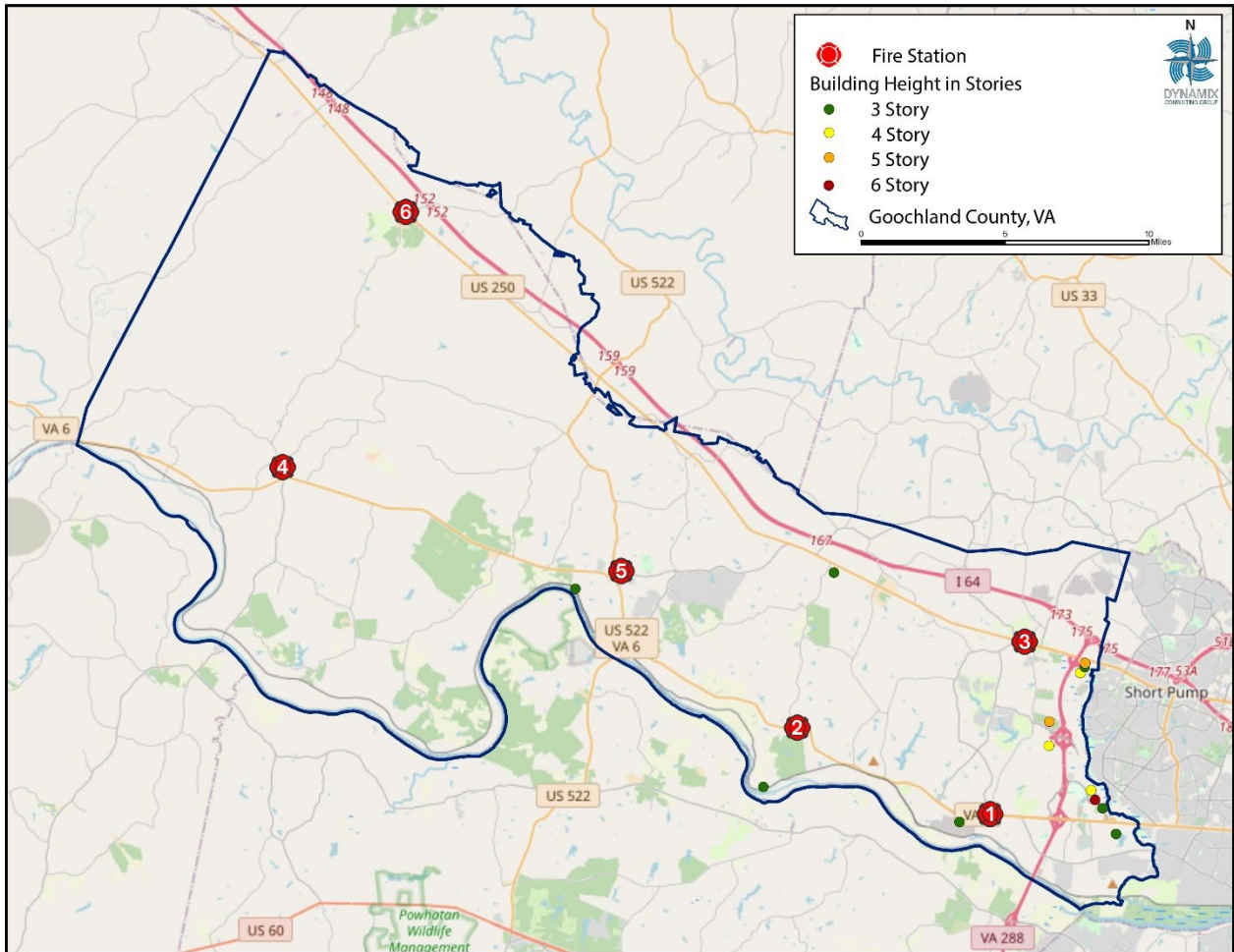
Large buildings, such as warehouses, malls, and large "box" stores, require more significant volumes of water for firefighting and more firefighters to advance hose lines long distances into the building. Large buildings and facilities also have a greater risk for occupants, creating heightened negative impacts on the local economy following a disaster or emergency. The following map shows the locations of buildings in Goochland County that are larger than 10,000 square feet.

Buildings Larger than 10,000 Square Feet



The following map shows the locations of buildings within Goochland County that are three or more stores tall.

Buildings Taller than 3 Stories



Transportation

People and goods travel throughout Goochland County through various transportation methods, including roads, air, water, and rail.

Roads

Interstate 64 traverses the northern part of Goochland County from East to West along the north boundary of the County for more than 22 miles. I-64 intersects I-295 three miles east of the county line. Interstates 195, 95, and 85 are also accessible from Goochland County. Three four-lane highways are also within Goochland County – 250, 288, and 6.

Air

There are five private airports located within Goochland County. They are:

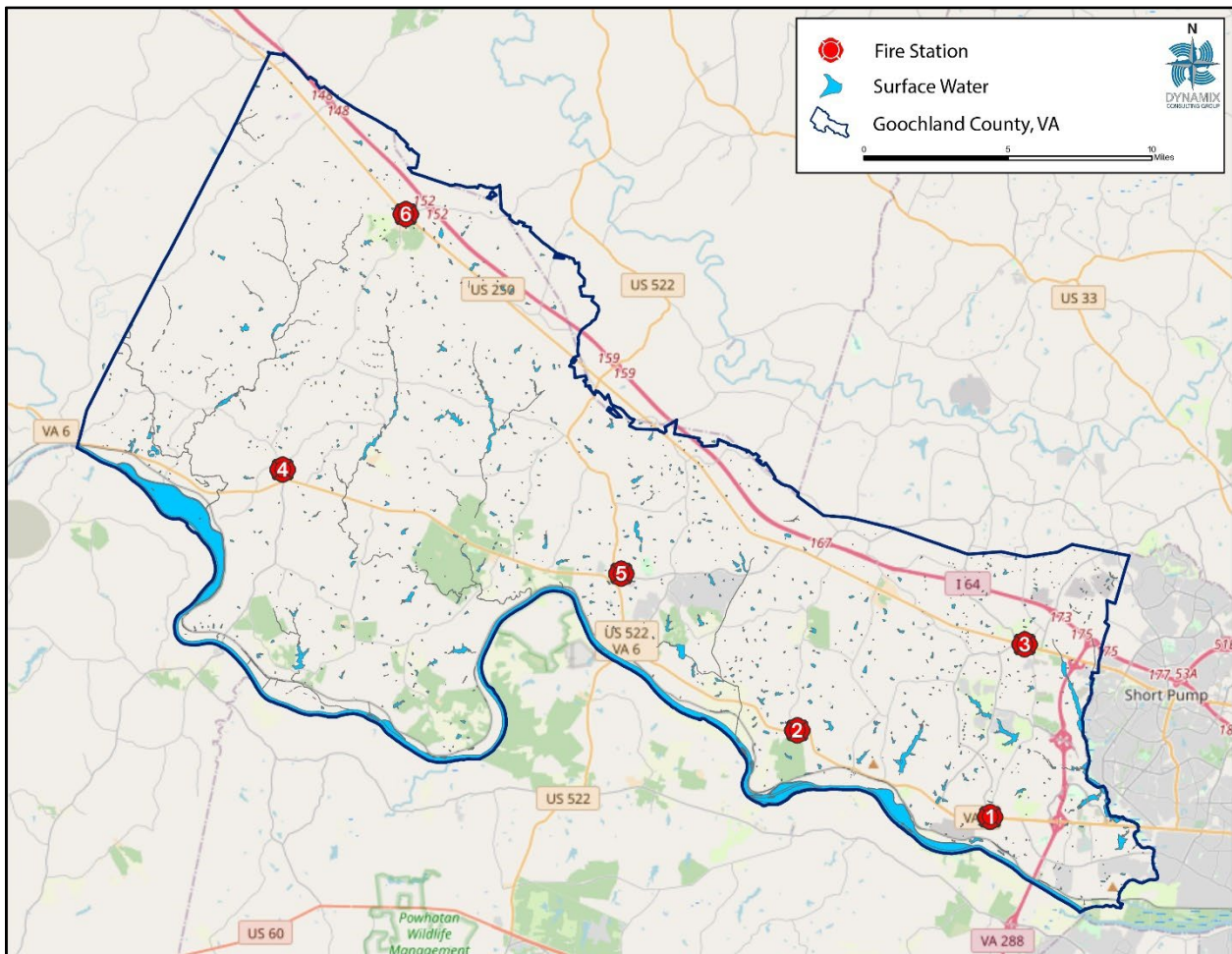
Airport	Location
Byrd Creek Airport – 46VA	Caledonia
Rose Retreat Farm Airport – VA44	Goochland
Federal Reserve Heliport – VG63	Richmond
Sabot Airport – 1VA0	Sabot
Payne Airport – VG05	Tabscott

Additionally, Richmond International Airport is 30 miles from Goochland County.

Water

The James River comprises the southern border of Goochland County. The river flows southeast to the Chesapeake Bay.

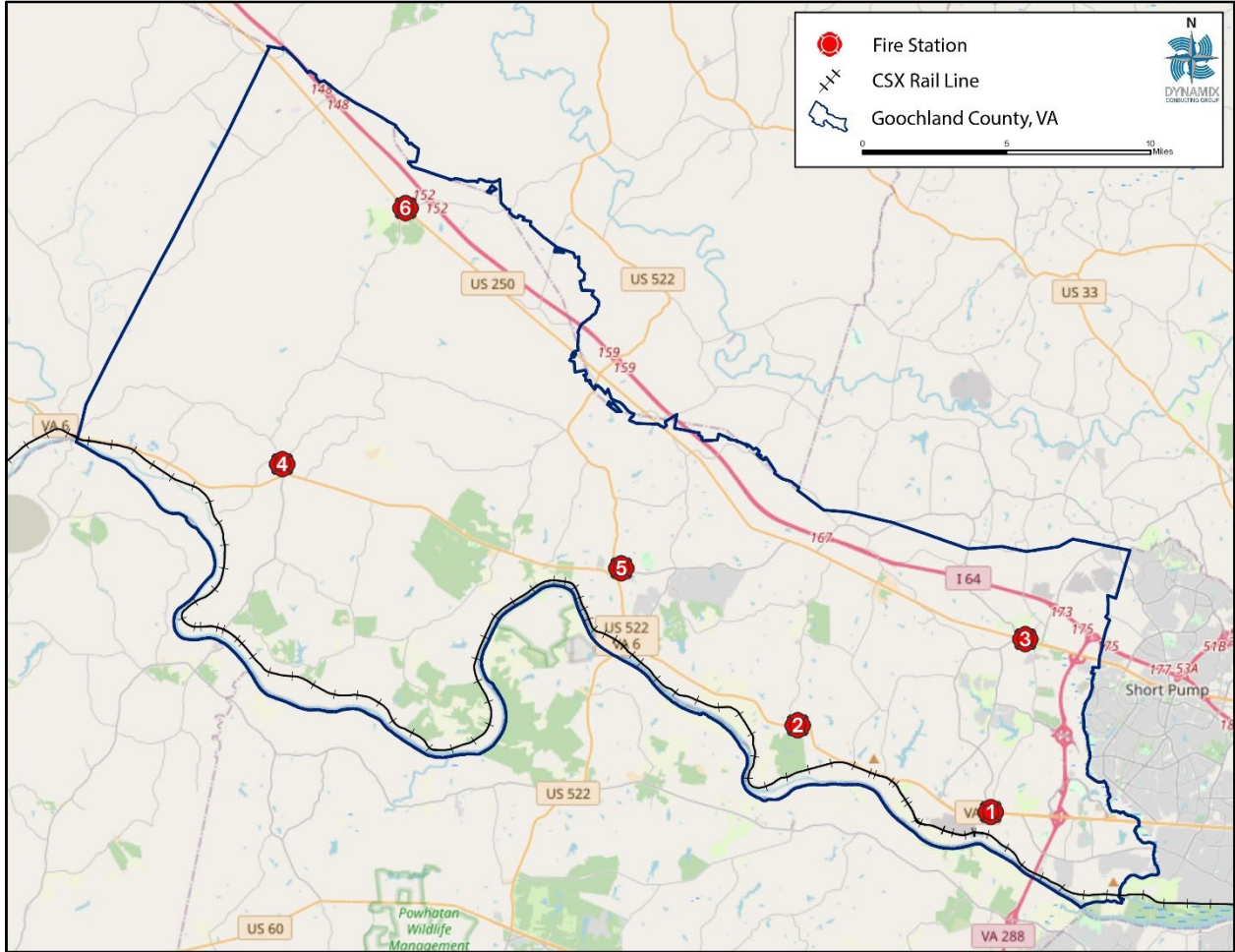
Surface Water



Rail

The CSX Railroad traverses Goochland County along the James River. A train derailment will disrupt services for the fire department, other emergency services, and the general public. Depending on the commodity involved in a derailment, considerable outside assistance may be required to mitigate the situation.

CSX Rail Line

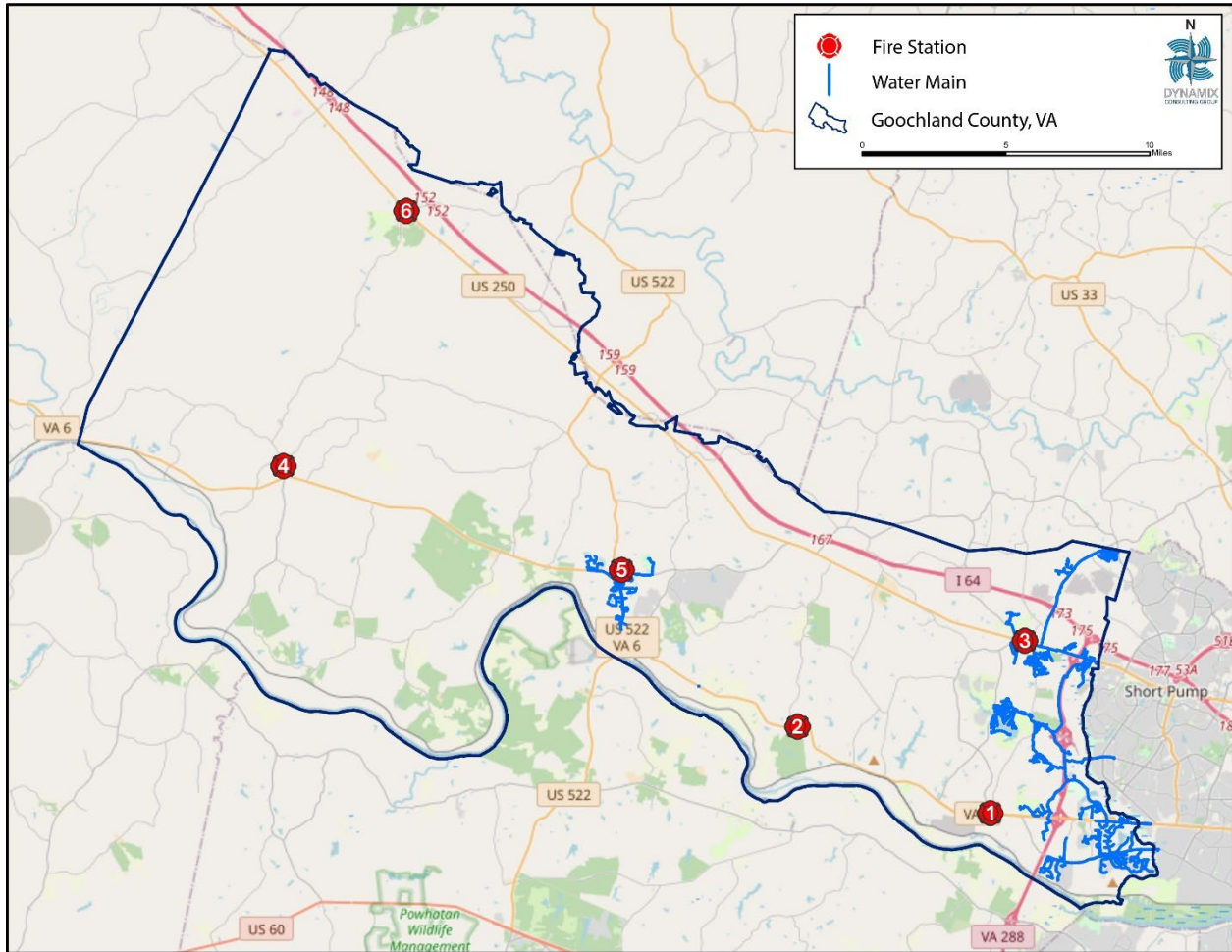


Utilities

Water

Four public waterline access locations are in the east end of Goochland County, supplied by Henrico County. These access locations are Broad Street, Ridgefield, Patterson Avenue, and River Road. The Department of Corrections provides one waterline access location to the Courthouse zone on Route 6.

Water Mains



Communication

Verizon and Centel Communications provide telephone communications in Goochland County. Verizon is a national service provider, and Centel is a private company in Charlottesville.

Natural and Liquefied Gas

The Columbia Gas Transmission Corporation has three 18" natural gas lines that cross the eastern and northeastern areas of the County and run along the Goochland-Louisa boundary line. A small section of the Plantation (Kinder Morgan) pipeline, which carries refined petroleum products, crosses the County's southeastern corner across from the Henrico line.

Two industrial parks – Goochland Industrial Park and West Creek – and the Fox Downs subdivision - are served by natural gas. The Lower Tackahoe Subdivision has gas service provided by a propane tank farm.

Electricity

Dominion Virginia Power Company supplies power to 85% of Goochland County. The Rappahannock Electric Cooperative provides a small part of the northeastern part of the County, and sections along the northwestern corner and southwestern edge are supplied by the Central Virginia Electric Cooperative. A 500KV bulk power transmission line extends from Louisa's North Anna Generating Plant. It runs through Goochland County into Chesterfield County and beyond.

Stakeholder Input

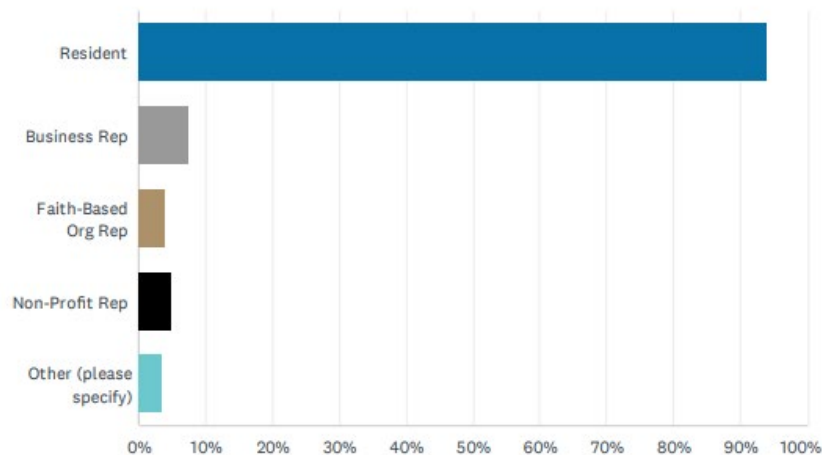
Input from the community is critical to evaluating the services the Goochland County Department of Fire-Rescue and Emergency Services provides. To that end, Dynamix Consulting Group solicited stakeholder input by conducting listening sessions with fire department members and Goochland County elected and appointed officials. Additional information was requested through two online surveys – one of the community and the second of the fire department members.

Community Member Input

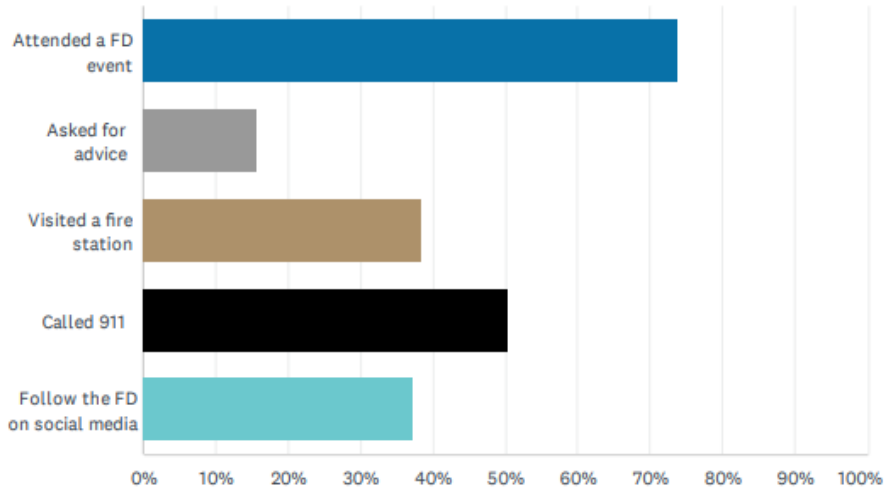
Dynamix Consulting Group encouraged all residents, businesses operating in the County, faith-based organizations, and nonprofit organizations to provide their opinions on the services offered by the Goochland County Department of Fire-Rescue and Emergency Services by participating in an anonymous survey. The survey was available from March 8th through April 30th, 2023.

A total of 308 members of the Goochland County Community participated in the survey; 94.12% were residents, 7.49% were representatives of businesses, 3.74% were from faith-based organizations, 4.8% from nonprofit organizations, and 3.48% were otherwise associated with the community. Survey participants were from all neighborhoods local to the County's fire stations.

Survey participants generally interacted positively with the Goochland County Department of Fire-Rescue and Emergency Services during emergency and non-emergency situations. The following is a summary of the survey results.



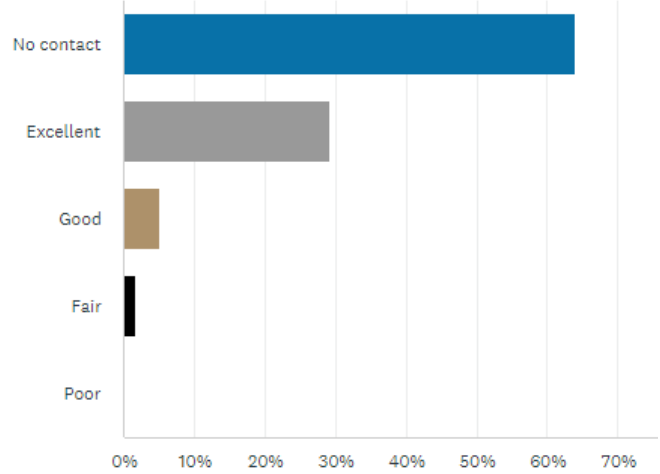
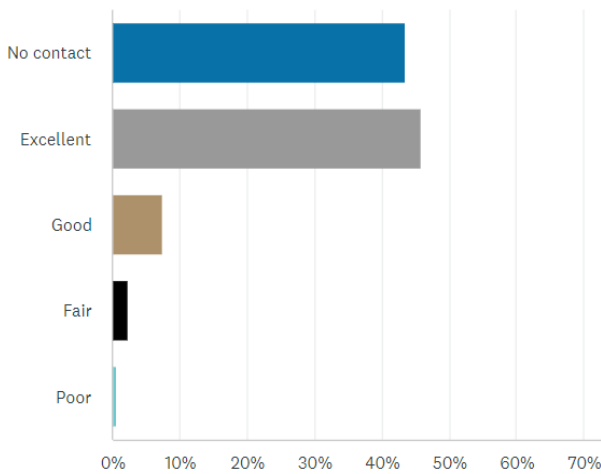
Regarding interacting with the fire department, 73.70% of survey participants had attended a community event involving the fire department. This is important to note because only 50.32% attributed their fire-rescue department interaction to calling 911, meaning that non-emergency fire-rescue department interactions reached more survey participants than emergency interactions.



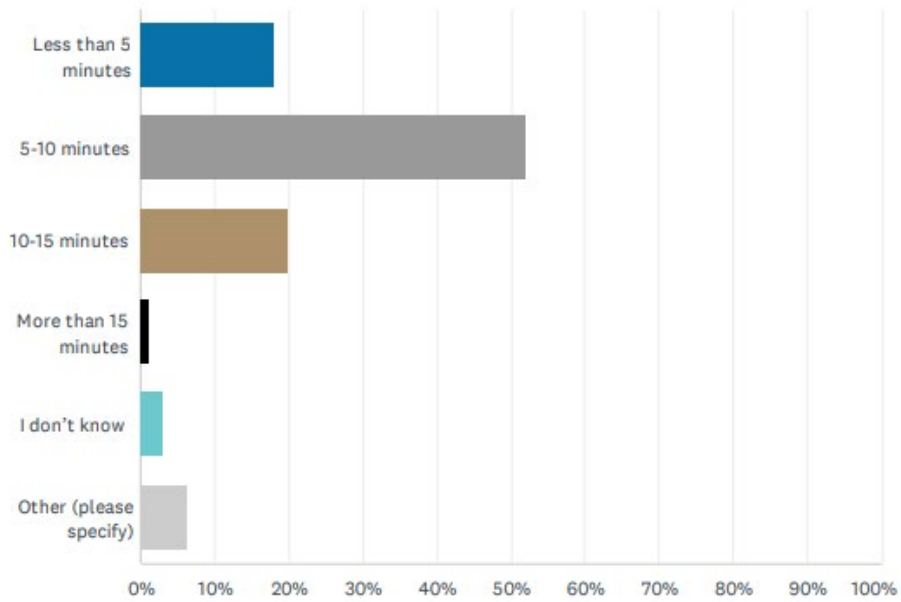
Among those who have personally witnessed or had either an emergency or non-emergency interaction with the Goochland County Department of Fire-Rescue and Emergency Services, the vast majority rated their interaction as excellent.

Emergency Services

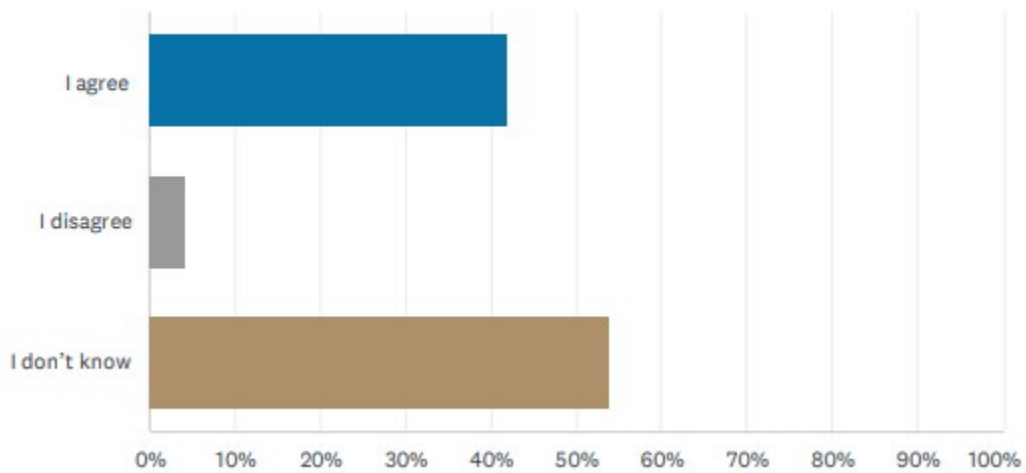
Non-Emergency Services



Most survey participants (52.01%) felt that the appropriate time from when a person calls 911 until the arrival of firefighters and emergency medical services is 5-10 minutes.



While 41.96% of survey participants felt that the Goochland County Department of Fire-Rescue and Emergency Services responds to emergency calls in a timely manner, the majority of survey participants (53.95%) selected "I don't know."



The complete results of the Community Survey appear in this Master Plan as Appendix A.

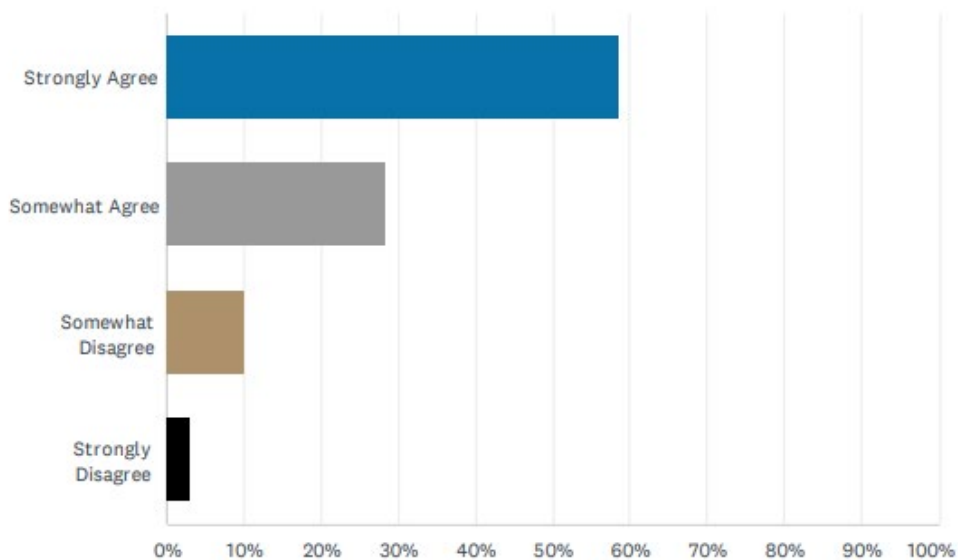
Department of Fire-Rescue and Emergency Services Member Input

Dynamix Consulting Group encourages all Goochland County Department of Fire-Rescue and Emergency Services members to provide their opinions on the services of the fire-rescue department by participating in an online, anonymous survey. The survey was available from March 31st through April 30th, 2023.

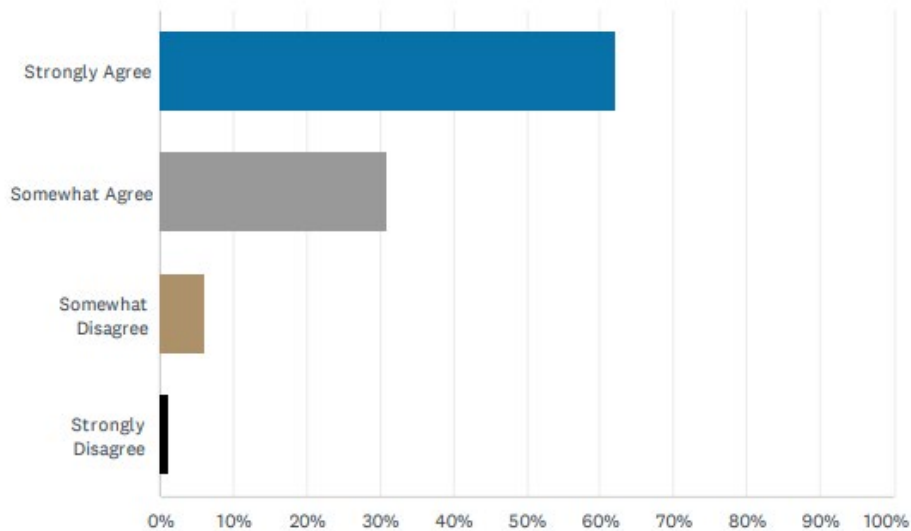
A total of 100 members of the Goochland County Department of Fire-Rescue and Emergency Services participated in the survey. Almost half – 47% - of the survey participants had been members for less than five years, representing that the department has many new members. An additional 19% of survey participants had 6-10 years of service with the organization, 19% had 11-20 years of service, and 15% had 20 years or more of service. Survey participants equally represented career and volunteer membership, with 53.54% being a career and 46.46% being volunteers. Survey respondents represented all ranks within the department.

Goochland County Department of Fire-Rescue and Emergency Services members were proud to serve their community, felt respected by the community, and believed they had the appropriate tools and equipment to perform their jobs safely. Members felt strongly that there is a need for additional staffing, were interested in more training and communication, and while they felt there was room for improvement in firefighter morale, most rated their work environment as good.

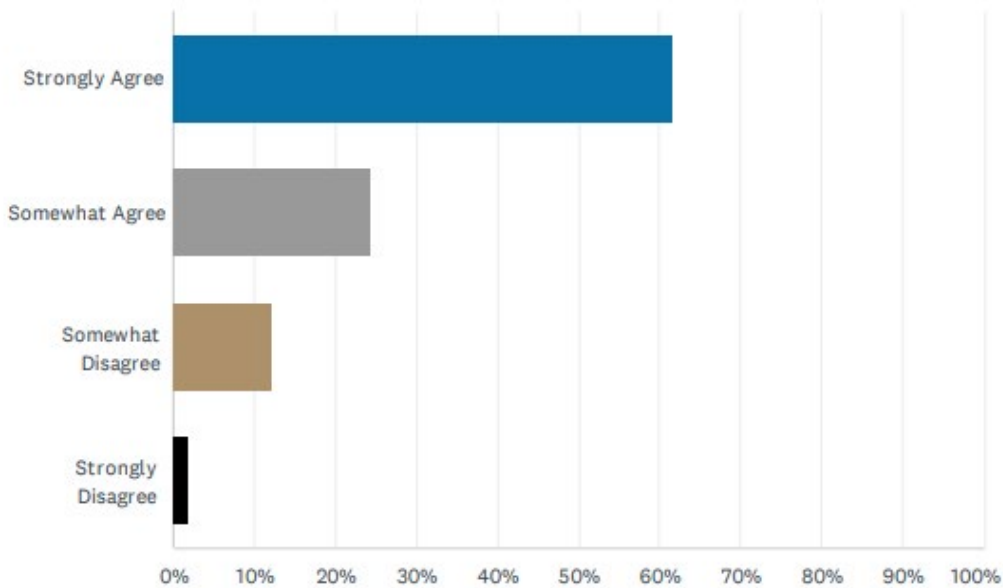
The vast majority of the members of the Goochland County Department of Fire-Rescue and Emergency Services either Strongly Agreed (58.59%) or Somewhat Agreed (28.28%) with the statement, "I am proud to tell other people that I am a member of Goochland County Department of Fire-Rescue and Emergency Services."



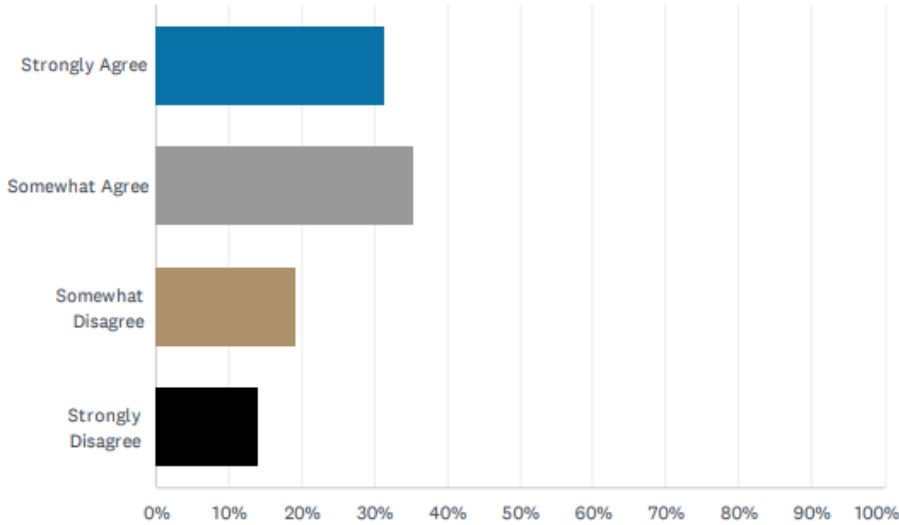
The vast majority of the survey participants either Strongly Agreed (62%) or Somewhat Agreed (31%) with the statement, "Goochland County Department of Fire-Rescue and Emergency Services is respected by the community that it serves."



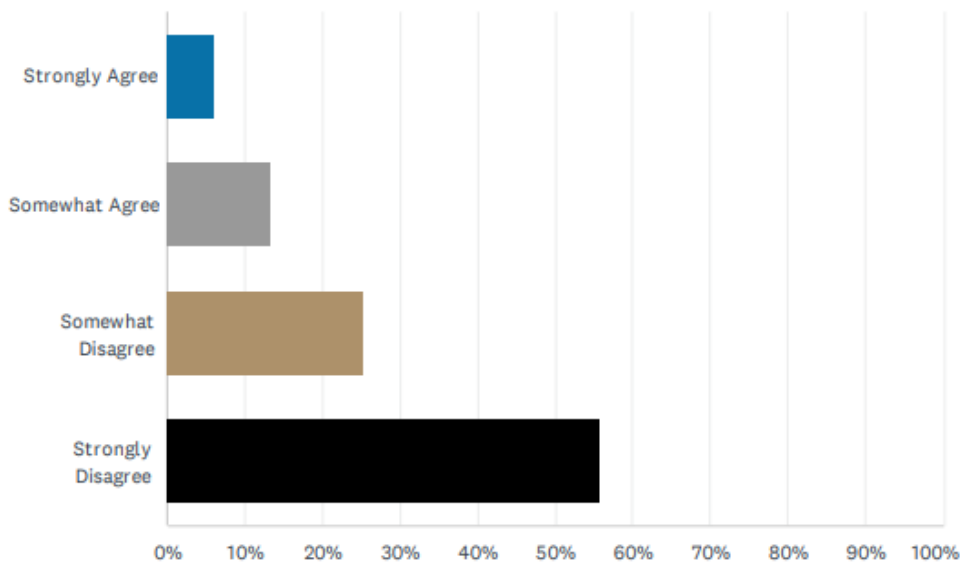
The vast majority of survey participants Strongly Agreed (61.2%) or Somewhat Agreed (24.24%) with the statement, "Goochland County Department of Fire-Rescue and Emergency Services provides me with the appropriate personal protective equipment to do my job safely and efficiently. Survey participants responded similarly when asked whether they had the appropriate tools, equipment, and apparatus to do their jobs."



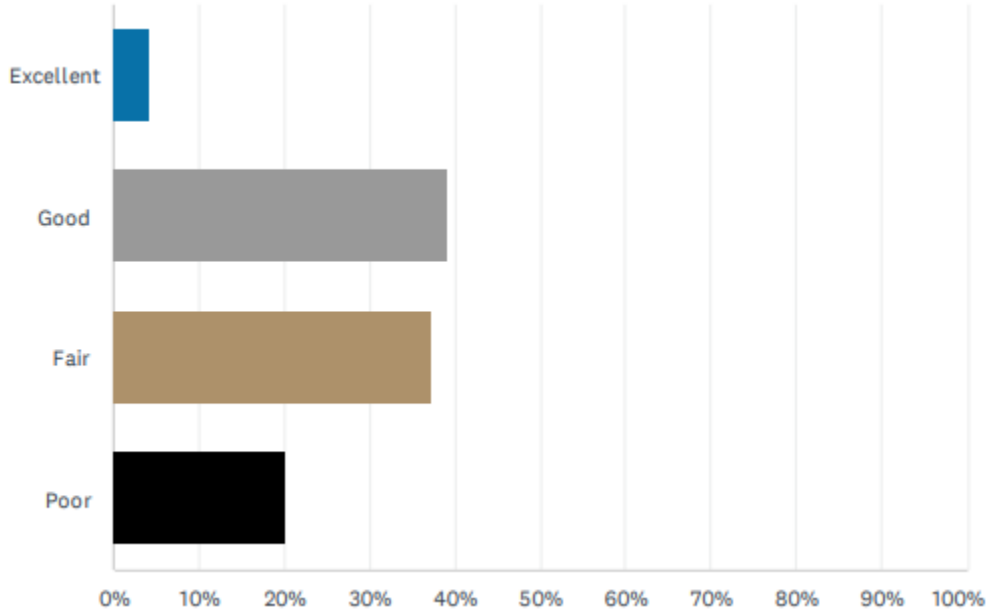
The vast majority of the survey participants Strongly Agreed (31.31%) or Somewhat Agreed (35.35%) with the statement, "Goochland County Department of Fire-Rescue and Emergency Services provide me with the appropriate type and number of training hours to do my job safely and efficiently."



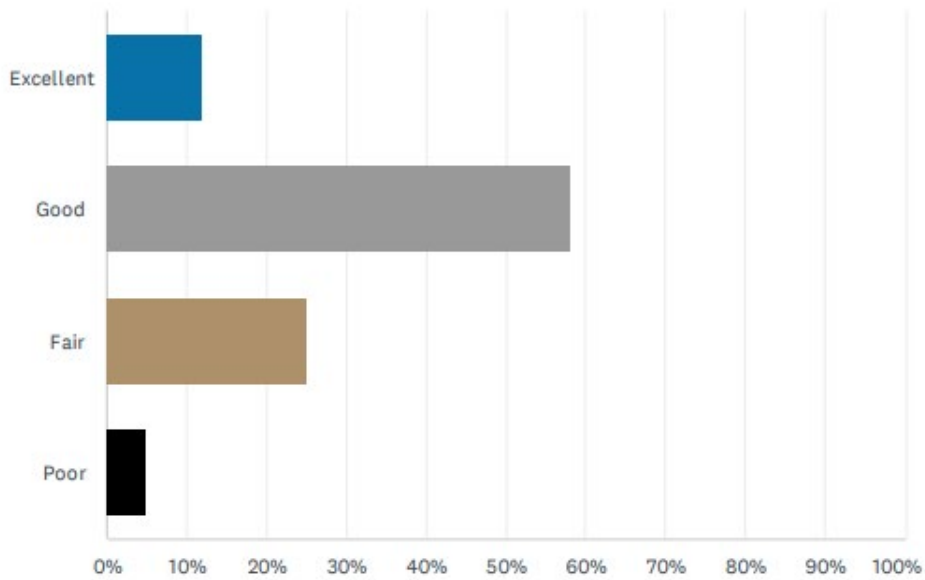
The majority of survey participants Somewhat Disagreed (25.25%) or Strongly Disagreed (55.56%) with the statement, "Goochland County Department of Fire-Rescue and Emergency Services staffs all its front-line apparatus with the appropriate number of personnel."



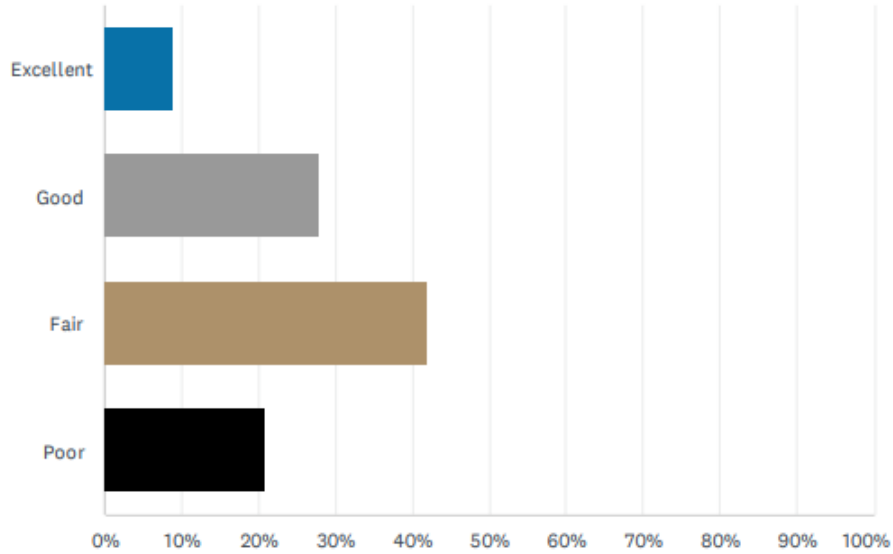
Slightly less than half (43%) of the survey participants felt that morale among members of the fire-rescue department was Excellent (4%) or Good (39%). In comparison, slightly more than half (57%) felt that morale among members of the fire department was Fair (37%) or Poor (20%).



The majority of survey respondent rated their work environment as Excellent (12%) or Good (58%).



The majority of survey participants rated communication within the Goochland County Department of Fire-Rescue and Emergency Services as Fair (42%) or Good (28%).



The complete results of the Goochland County Department of Fire-Rescue and Emergency Services Member Survey appear in this Master Plan as Appendix B.

Staffing

The size and structure of an organization's staffing are dependent upon the specific needs of the organization. These needs must directly correlate to the needs of Goochland County, as a structure that works for one agency may not necessarily work for another. This section provides an overview of the Goochland County Department of Fire-Rescue and Emergency Service's staffing configuration and management practices.

Fire-rescue department staff can be divided into two distinct groups. The first group works behind the scenes to support the operation's personnel who provide emergency responses. This group is commonly known as the administrative section or support services section. The second group is the operations section, which includes the members of the department who respond to calls for assistance. Like many fire departments, the Goochland County Department of Fire-Rescue and Emergency Services has Chief Officers who perform specific administrative functions but also perform operationally when needed.

While a fire department's master plan evaluation focuses on many factors, staffing is among the most important. When reviewing staffing, one must define the expectations of each work unit and the organization's overall performance. Once the work product (output or outcome) is defined and performance metrics are established, senior leadership assumes responsibility for determining the appropriate staffing necessary to accomplish goals and meet performance objectives.

Within the Goochland County Department of Fire-Rescue and Emergency Services, the Volunteer Association Board of Directors oversees and manages Association assets, including five of the six fire-rescue stations. Each of the six stations has a Director on the Board, and the Goochland County Board of Supervisors appoints a seventh Director. The Fire Chief, two Deputy Chiefs, and the Medical Directors serve as Ex-Officio Members of the Board of Directors.

Administrative Division

One of the primary responsibilities of the administrative team is to ensure that the organization has the ability and means to respond to and mitigate emergencies safely and efficiently. An effective administration system is critical to the success of the fire-rescue department. Typical responsibilities of the administrative personnel include planning, organizing, directing, coordinating, and evaluating the various programs within the Goochland County Department of Fire-Rescue and Emergency Services. This list of functions is not exhaustive; the list can expand with other functions as necessary. It is also essential to understand that these functions do not occur linearly and can more often coincide. This requires the fire chief, administrative, and support staff to focus on many different areas concurrently.

The division's staffing includes eight full-time, two part-time, and one volunteer personnel. The Full-Time employees are all assigned to a 40-hour work week. Employees assigned to the administration division typically work during regular business hours, Monday through Friday.

Administrative Division Staffing

Position	Number of Employees	Status
1. Fire Chief	1	Full-Time
2. Deputy Chief	1	Full-Time
3. Deputy Chief	1	Volunteer
4. Battalion Chief	1	Full-Time
5. Fire Marshal	1	Full-Time
6. Emergency Management Coordinator	1	Full-Time
7. Captain of Training and Safety	1	Full-Time
8. Training Instructor	2	Part-Time
9. Logistics Officer	1	Full-Time
10. Business Manager	1	Full-Time
Total Personnel	8 Full-Time, 2 Part-Time, and 1 Volunteer Personnel	

Fire Chief

The administrative functions of the Goochland County Department of Fire-Rescue and Emergency Services are carried out by the Fire Chief, who is supported by two Deputy Chiefs, a Battalion Chief, and a Business Manager.

Interviews with fire department personnel revealed that the regular work schedule of the Fire Chief often exceeds the traditional 40-hour work week in order to keep up with the workload and demand. The Fire Chief regularly works during nights and weekends to attend meetings and respond to emergencies in addition to the regular weekday work schedule.

Dynamix Consulting Group notes that in the spring of 2023, the fire department consisted of 170 volunteers, 71 full-time uniformed fire personnel, and two (2) part-time employees. The administrative functions of the Goochland County Department of Fire-Rescue and Emergency Services represent only 3.7% of the total staffing of 243 personnel, which is much lower than the effective administrative staffing totals for municipal fire department operations.

Deputy Chiefs

Goochland County Department of Fire-Rescue and Emergency Services staff has one full-time and one volunteer Deputy Chief. The full-time Deputy Chief oversees the Battalion Chief, who supervises the full-time fire officers and firefighters, the Training Officer, and two part-time instructors. The Volunteer Deputy Chief is responsible for the volunteer Water Rescue Captain and the volunteer Chaplains. The six volunteer District Chiefs (one for each station) report to both the full-time Deputy Chief and the volunteer Deputy Chief.

In addition to their supervisory responsibilities, the Deputy Chiefs perform significant administrative duties. The full-time Deputy Chief is the second in command of the fire department. His responsibilities include planning, budgeting, policy development, oversight of the EMS program, and emergency response, among others. The volunteer Deputy Chief is responsible for the management of the fleet of county fire apparatus in addition to serving as the recruitment and retention coordinator for the department and responding to emergency calls. The volunteer Deputy Chief reported working an average of 15-20 hours weekly for the fire department, mostly on nights and weekends. However, there are weeks when workload demands exceed 30-40 hours per week or more. The full-time Deputy Chief's work schedule includes 40 hours per week. However, nights or weekends are often required to attend meetings, events, or respond to emergencies.

Dynamix Consulting Group notes that the current volunteer Deputy Chief has served in this capacity for 13 years. During this time, the fire department has evolved from predominately volunteer to a model that includes more career employees, and the workload placed on the volunteer Deputy Chief has increased as the fire-rescue department has grown.

According to the 2017 National Incident Management System (NIMS), the ideal span of control for incident management is one supervisor to five subordinates. However, this ratio may vary depending on the incident or the activation of the Emergency Operations Center. The current organizational structure of the fire-rescue department includes a full-time Deputy Chief who supervises one Battalion Chief, one training Captain, and one Infectious Disease Control Officer, as well as managing the day-to-day activities and planning for the Operations fire and EMS divisions. Including the six Lieutenants and the three major divisions of the department, the full-time Deputy Chief has nine direct reports, in addition to overseeing fire suppression and EMS.

Battalion Chief

The Battalion Chief is scheduled for a 40-hour workweek, typically on weekdays, but nights and weekends are included as necessary to attend meetings, events, and to respond to emergencies. The Battalion Chief is responsible for the oversight of the three Shift Commanders (Captains), who supervise the Lieutenants and Firefighter/EMTs on their respective shifts. The Battalion Chief is also responsible for the supervision of the county's one Station Captain. The Station Captain and the volunteer District Chief jointly manage Station 6. The volunteer District Chief also supervises volunteer officers. In the absence of the Battalion Chief, the Shift Commander reports to the Deputy Chiefs. In addition to supervisory and operational responsibilities, the Battalion Chief performs critical administrative duties such as time accounting to support payroll and emergency operations staffing both career and volunteer.

Subsequent to the Dynamix Consulting Group site visit in the spring of 2023, the Goochland County Department of Fire-Rescue and Emergency Services added three more Captain positions. These Captains now serve as Shift Commanders. Three Lieutenants were then promoted to backfill those positions that became vacant due to the three Captain promotions.

Fire Marshal

The role of the Fire Marshal is of paramount importance in guaranteeing the safety of the public. Fire Prevention, Education, and Code Enforcement are the cornerstones of their responsibilities. Although the fire prevention division might not garner as much public attention as operations, its function is just as critical. Firefighters respond reactively to incidents, while the prevention division works proactively to prevent injuries and fatalities. Their ultimate aim is to avert accidents altogether.

The Fire Marshal shoulders a vast array of duties under fire prevention. Although consisting of only one person, the division tasks include fire code compliance, conducting inspections of businesses, collaborating with developers and the building department to ensure that the fire department has proper access, and ensuring the public's overall safety. The Fire Marshal also conducts educational programs for schools and businesses, investigates fires, and employs data to identify trends and implement programs to reduce injuries and illnesses. Neglecting fire prevention can result in an elevated risk of preventable injuries or fatalities for the public and firefighters. The failure to conduct adequate inspections of buildings can lead to the allowance of hazardous substances or dangerous processes, culminating in disastrous consequences.

Subsequent to the Dynamix Consulting Group site visit, the Goochland County Department of Fire-Rescue and Emergency Services hired a full-time Fire Plans Examiner.

Inspections 2019-2022

	2019	2020	2021	2022
Attendance for Public Education Classes	1,365	180	335	689
Average Length in Days to Gain Compliance	30	30	30	30
Meetings and Classes Attended	60	55	70	165
Notice Of Violations Issued	6	6	10	5
Number of Burn Permits Issued	25	53	34	56
Number of Fire Investigations	13	20	14	20
Number of Inspections	521	557	576	630
Number of Inspections more than 45 Days Past Due	3	4	6	2
Number of Plans Reviewed	52	53	70	82
Number of Public Education Classes	23	5	6	43
Number of Re-Inspections	53	17	34	35
Number of Smoke Detector Installs or Checks	30	42	14	34
Parking Tickets Issued	0	5	28	10
Pre-Plans Updated or Completed	8	6	11	27
Number of Upcoming Projects	19	4	18	21
Total Number of Assignments Per Year	843	857	921	1,849

Code Enforcement

Enforcing fire prevention codes for commercial structures and educational facilities is a crucial responsibility of the Fire Marshal in Goochland County. In this role, the Fire Marshal has the authority to take appropriate action, such as educating individuals, issuing warnings, or issuing citations, as necessary. In cases where warnings or citations prove insufficient, escalation to a magistrate judge is an option for further action.

New Construction Approval and Involvement

New construction drives Goochland County's ability to provide services at a lower tax rate. For this to happen, multiple divisions and agencies must cooperate to attract new business and provide superior customer service. The process often begins with Goochland County Economic Development, the Building Official, and the Fire Marshal discussing the proposed project with the potential developer and assisting them through the county's process.

When new projects are in development, coordinating multiple county divisions is crucial for projects to occur on time and within budget. Once the fire and building officials review and approve plans, construction typically begins. It is difficult and costly for a developer to undo the approved work. The Fire Marshal plays a crucial role in this process because, although the building and fire codes contain many of the same codes, the Fire Marshal's experience as a firefighter and inspector provides the public safety perspective for projects.

As projects and developments progress, the Fire Marshal must conduct inspections at regular intervals to ensure code compliance. While the number of inspections varies depending on project complexity, commercial and industrial projects often require multiple inspections. Some complex inspections require coordinating the schedules of all parties, to ensure attendance by all involved. The availability of the fire marshal and building official are critical to keeping projects on track.

General Inspection Program

Fire safety inspections provide a critical link between the fire department and commercial and industrial facilities in Goochland County. These inspections include ensuring the fire panel, suppression system, and emergency exit lighting are correctly installed and functional, that a fire extinguisher is in place and properly maintained, that the appropriate number of egress points are functional and not locked or blocked with inventory, and other fire-related precautions such as electrical panel inspections and ensuring extension cords are used appropriately.

The Fire Marshal's Office endeavors to inspect all commercial and educational buildings annually; however, this often requires scheduling fire safety inspections around other meetings throughout the day. Given the size of Goochland County and that county and fire administration are located in the center of the county, while most commercial and industry is located on the east side, one person performing inspections on every building while conducting all other functions is difficult. Fire safety inspections are necessary as many business owners do not know or realize the impact their actions could have during a fire, such as keeping a back door locked during business hours or storing inventory in front of a fire panel. These inspections allow the fire marshal to educate business owners while developing a rapport.

Fire and Life Safety Public Education Programs

While limited in capacity, the Fire Marshal performs several fire and life safety public education programs annually for county 4th graders. The department plans to hire a part-time public fire safety educator in the next fiscal year to assist with this function. Fire and life safety education is critical in preventing future injuries and losses as at-risk populations learn to recognize fire-related threats and react appropriately. Other groups that benefit from fire and life safety education include older adults, special hazard industries, and special needs populations. During the latest ISO evaluation, the fire department received an additional 4.42 points of credit based on community risk reduction programs, including fire and life safety programs.

Fire Investigations

Fire investigations occur when the fire's cause cannot be determined, or there is a suspicion of arson. Arson is challenging to prove as fire or fire suppression operations often destroy much of the evidence. As a certified law enforcement officer, the Fire Marshal conducts fire investigations and can make arrests if warranted.

Pre-Incident Planning

Pre-incident planning is crucial for responding firefighters as conditions inside a working fire are the worst-case scenario for conducting operations. Firefighters entering a working fire often have zero visibility, high heat, and a deteriorating structure. Pre-incident planning allows firefighters to develop a plan of the building layout, where units will be positioned, water supply, and any additional hazards such as storage of volatile substances or overhead hazards such as the location of air conditioning units on the roof. Such an incident occurred in Orange County, Florida, taking two firefighters' lives and injuring a third.

Two Firefighters Die in Gift Shop Fire and Roof Collapse - Lake Buena Vista, Florida - February 24, 1989

“On February 24, 1989, Acting Lieutenant Todd Aldridge and Firefighter/Paramedic Mark Benge of the Orange County Fire Rescue Division died while battling a multiple alarm fire in a gift shop that was part of a strip mall in the Lake Buena Vista section of southern Orange County, Florida. The firefighters were operating on the interior of the shop, attempting to extinguish a fire in the attic of the structure, when they sustained fatal injuries due to the collapse of the lightweight wood truss roof. A third member, Firefighter Richard Marcotte, survived by breaking his way through the bottom of a glass side door that was illegally chained and padlocked shut. The collapse occurred after the first arriving fire unit was on scene for only eight minutes.”⁴

This story illustrates the importance of pre-incident planning and an understanding of building construction, fire safety inspections, and the identification of hazards to prevent future injuries or loss of life.

Emergency Management Coordinator

Goochland County Department of Fire-Rescue and Emergency Services established the full-time Emergency Management Coordinator position in November 2022. The primary functions of this position include:

1. **Mitigation:** Reducing or eliminating the impact of potential hazards.
2. **Preparedness:** Building the capacity and capability to manage hazards.
3. **Response:** Acting to stop ongoing adverse effects.
4. **Recovery:** Working to restore essential functions and return to normal.

Specific to these primary functions, the Emergency Management Coordinator manages the Emergency Operations Center when activated, coordinating a 25-member Community Emergency Response Team (CERT), community outreach, plan development, and grant writing.

Captain of Training and Safety

The Captain of Training and Safety manages the Goochland County Department of Fire-Rescue and Emergency Services Training and Safety Programs with the assistance of a Part-Time Instructor.

⁴ <https://www.orlandosentinel.com/news/orange-county/os-ne-road-honors-firefighters-benge-aldridge-20190212-story.html>

Training

A comprehensive training program is one of the most critical factors for helping to ensure the safe and effective provision of emergency services. This is especially true of organizations such as the Goochland County Department of Fire-Rescue and Emergency Services, which provides a broad range of services throughout the community. To ensure maximum effectiveness and safety in complex environments, firefighters and officers must acquire and maintain sufficient initial training, ongoing training, and continuing medical education (CME). Failure to provide necessary training endangers firefighters and citizens and exposes the fire and EMS department to liability. In addition, a well-trained workforce substantially contributes to better emergency incident outcomes and community services.

Fire Training Competencies

Training is most effective when it is based on established and proven standards. The Commonwealth of Virginia does not require certification as a firefighter; however, many jurisdictions, including the Goochland County Department of Fire-Rescue and Emergency Services, require that their firefighters become certified. Certification provides a recognized standard to measure and provide a gauge for department operations.

The Virginia Fire Services Board governs fire service certification and instruction. The Virginia Fire Services Board (VFSB) is a policy board within the meaning of state statute § 2.2-2100 in the executive branch of state government. The VFSB shall consist of 15 members appointed by the Governor as follows: a representative of the insurance industry; two members of the general public with no connection to the fire services, one of whom shall be a representative of those industries affected by SARA Title III and OSHA training requirements; one member each from the Virginia Fire Chiefs Association, the Virginia State Firefighters Association, the Virginia Professional Fire Fighters, the Virginia Fire Service Council, the Virginia Fire Prevention Association, the Virginia Chapter of the International Association of Arson Investigators, the Virginia Municipal League, and the Virginia Association of Counties; a local Fire Marshal as defined by § 27-30; and a certified Virginia fire service instructor. Of these appointees, at least one shall be a volunteer firefighter. The State Forester and a member of the Board of Housing and Community Development appointed by the chairman of that Board serve as ex officio members. This board provides guidance and direction for the Commonwealth relative to the training of firefighters.

The firefighter Job Performance Requirements (JPR) utilized in Virginia are based on the NFPA standards for Firefighter I and Firefighter II. Completing the standardized training helps prepare personnel for the National Board on Fire Service Professional Qualifications (commonly referred to as The Pro Board). The VFSB voluntarily entered this system to validate its program against international expectations. This rigorous assessment ensures that evaluations meet the best national practices.

Furthermore, the Insurance Services Office (ISO) requires detailed hours of specific training as part of its fire and EMS department ranking. As with the previously mentioned competencies, below is a summary of the annual ISO-required training hours the department works to ensure each firefighter receives.

ISO was formed in 1971 as an advisory and rating organization for the property/casualty insurance industry. It provides statistical and actuarial services to assist insurance companies in meeting state regulatory requirements. ISO is a subsidiary of Verisk Analytics, Inc. A key service ISO provides is the Public Protection Classification (PPC) program, an assessment tool designed to rate fire protection agencies on behalf of property and casualty insurers.

ISO employs a proprietary Fire Suppression Rating Schedule (FSRS) in more than 47,000 communities across the United States. It evaluates major categories such as Emergency Communications, Fire Department Training, Water Supply, Fire Prevention, and Public Fire Safety Education Programs. The following is a list of training components assessed for a community's PPC:

- Company Training: requires 192 hours per year in accordance with the general criteria of the National Fire Protection Association (NFPA) 1001 Standard for Fire Fighter Professional Qualifications,
- Hazardous Materials Training: requires 6 hours per year. Training should be at a minimum awareness level in accordance with the general criteria of NFPA 472 Standard for Competence of Responders to Hazardous Materials/ WMD Incidents,
- Driver Training: requires 12 hours per year in accordance with the general criteria of NFPA 1002 Standard for Fire Apparatus Driver/Operator Professional Qualifications and NFPA 1451 Standard for a Fire Service Vehicle Operations Training Program,
- New Driver Training: One-time completion requirement of 60 hours,
- Officer Training: The Officer Certification Requirement remains steady at 12 hours per year,
- Recruit Training: Personnel who automatically get credit if their department requires state certification as an employment pre-requisite are required to complete 240 hours,
- Facility Training: This category, formerly "Training Drills," refers to training at a training facility. ISO defines a training facility as a 3-story tower on 2 acres of property with a burn room, smoke room, or burn prop. Personnel must complete 18 hours per year.

Even though ISO requires specific training for fire and EMS department personnel, training programs must go beyond simply fulfilling mandatory hours. Emergency services training administrators and instructors must ensure that firefighters, EMS personnel, and officers are competent and self-confident in the variety of skills necessary to perform effectively in high-stress situations.

EMS Training Competencies

Relative to the training of emergency medical personnel, education programs are based on Virginia EMS Education Standards (VEMSES), which the Office of EMS of the Virginia Department of Health then regulates. These standards outline the minimal terminal objectives for entry-level EMS personnel to achieve within the parameters outlined in the Virginia Scope of Practice Formulary and Procedures. These standards are rooted in the National EMS Education Agenda, including the National EMS Education Standards (NEMSES), National EMS Core Content, National EMS Scope of Practice, National EMS Certification, and National EMS Program Accreditation. The United States Department of Transportation (DOT) and the National Highway Traffic Safety Administration (NHTSA) regulate these programs.

Virginia certification requires successful completion of a standardized cognitive and psychomotor skills examination. For Virginia-trained EMTs and Paramedics, successful certification at the National Registry level will automatically lead to a Virginia certification. All National Registry EMT and Paramedic certified technicians trained outside of Virginia must apply for Virginia certification through reciprocity before practicing at this level. It is optional for an individual to maintain National Registry certification once the individual receives Virginia certification, but under no circumstances can the individual fail to maintain state certification and continue to provide patient care.

Goochland County Department of Fire-Rescue and Emergency Services Training Programs

The Goochland County Department of Fire-Rescue and Emergency Services Training Division coordinates, delivers, and documents new and incumbent training for all of the department's firefighters and EMS providers.

- New Goochland County Department of Fire-Rescue and Emergency Services firefighters must participate in firefighter recruit training. The National Fire Protection Association (NFPA)—in its standard NFPA 1001, identifies the minimum training requirements that can serve as the basis for entry-level firefighters. The NFPA recommends other standards that address initial and ongoing training for firefighters and officers in a variety of specific topics. The Goochland County Department of Fire-Rescue and Emergency Services Training Division runs the academy annually from October to March.
- The Training Division coordinates incumbent training. Company Officers typically deliver this training; however, the Training Division will assist as requested. The following is the 2023 Annual Training Calendar for incumbent firefighters.

2023 Training Calendar

April	MCIM 1 and 2	29	0800-1600	HFTC	OEMS Mass Casualty
May	Helicopter Operations	13	13-15	CO5	Medflight Demo
	DPO Class	5/2/23-6/10/23	Nights and Weekends	HFTC	VDFP
June	Mod 2	TBA	TBA	HFTC	VDFP
	K9 EMS	3	09-17	HFTC	K9 EMS
	TECC	23, 24, 25	Fri: 18-21, Sat: 08-17, Sun: 08-17	HFTC	Annual TECC
July	RSI In Service	TBA	4 hour block	HFTC	Required Airway Training Workshops
August	Super CE Weekend	4, 5, 6	18-21, 08-17, 08-17	HFTC	20 hours ALS/BLS CAT1
September	Instructor I	TBA	TBA	HFTC	VDFP
October	Fall Fire In Service	TBA	TBA	HFTC	Multi Company Operations
November	Vehicle Extrication Class	13, 15, 18	18-22, 18-22, 08-17	HFTC	VDFP
December	HOLIDAY	No Classes Scheduled			

CPR New/Recert Class starts @ 0800 HFTC CR#3) 2/11/23 4/8/23 6/10/23 8/12/23 10/14/23 12/9/23

- Goochland County Department of Fire-Rescue and Emergency Services recognizes and trains its members up to one of three levels of EMS certification: Emergency Medical Technician, Emergency Medical Technician Intermediate, and Paramedic. Paramedic certification is optional but highly encouraged. The Goochland County Department of Fire-Rescue and Emergency Services Training Division runs an EMT training program every spring.
- As the Goochland County Department of Fire-Rescue and Emergency Services has continued to grow, so has the workload of the Training Division. In addition to training more firefighters each year, the Training Division develops new programs, puts new equipment in service, and manages new programs. Specific recommendations to better position the Training Division to manage the increasing anticipated future needs of the Goochland County Department of Fire-Rescue and Emergency Services appear in this report's Future Service Delivery Models section.

Safety Committee

In addition to Training, the Training and Safety Division is responsible for the Goochland County Department of Fire-Rescue and Emergency Services Safety Programs. The Goochland County Department of Fire-Rescue and Emergency Services did not have a formal functioning Safety Committee at the time of the Dynamix Consulting Group site visit. NFPA 1500: *Standard on Fire Department Occupational Safety and Health Program* is the industry standard for developing and administering a fire department safety program. Dynamix Consulting Group strongly encourages the Goochland County Department of Fire-Rescue and Emergency Services to establish a Safety Committee and ensure all safety committee activities align with Chapter 4 of NFPA 1500. To be effective, safety committees must be diverse in their representation from across the department, ensuring representation by shift, rank, function, and interest, and including representation from non-uniformed and staff members as well.

The safety committee should meet monthly and include in its mission the raising of awareness and modifying member behaviors that will result in a safe work environment. Additionally, the committee should review all accidents, injuries, near-miss incidents, and workplace safety suggestions. The committee should analyze the information and report its findings to the Fire-Rescue Chief. In contrast to being reactionary through the development of additional rules, Dynamix Consulting Group recommends that the committee should work to implement member safety education programs and encourage members' safety self-awareness. The committee should maintain regular and open meeting times and locations and record minutes of the meetings for posting for all members of the department to review.

Logistics

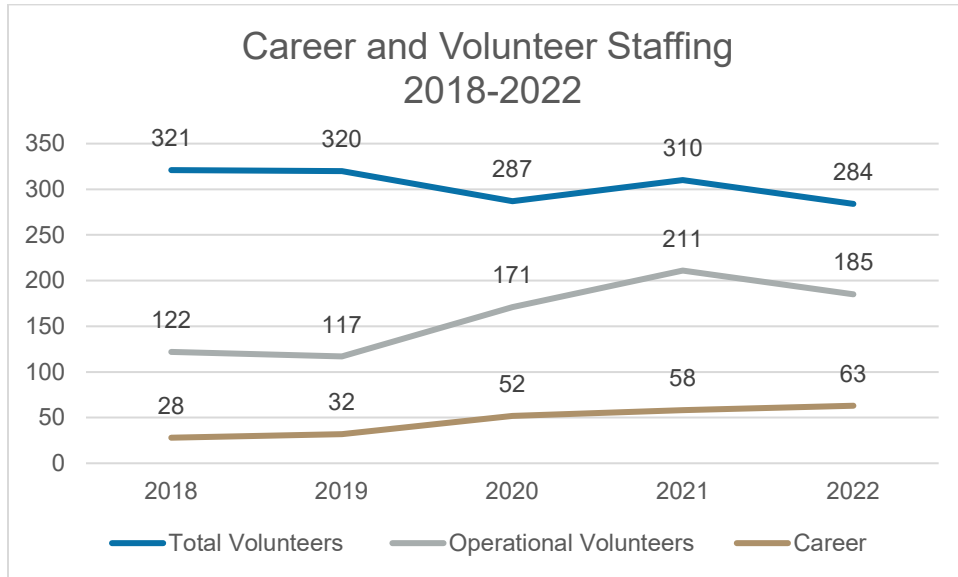
Logistical services for the Goochland County Department of Fire-Rescue and Emergency Services conduct logistical services using a combination of day staff and on-duty company officers at each station. Cleaning supplies, paper consumables, and other items for day-to-day operations are stored in fire stations anywhere room can be found. While the daily needs of employees at each station have improved recently, future growth will necessitate additional improvements as the county grows and crew sizes at fire stations increase. Goochland County does not have a central storage facility, and items such as spare turnout gear, air packs, and tools and equipment are stored in multiple locations across the county anywhere space can be obtained.

Business Manager

The Business Manager manages the business functions of the Goochland County Department of Fire-Rescue and Emergency Services. Specific functions of this position include assisting members of the public who come to Administrative Offices, answering phones, processing invoices, onboarding new members, and validation of patient care reports for billing purposes.

Operations

The Goochland County Department of Fire-Rescue and Emergency Services is a combination department staffed by volunteer and career members. In recent years, the fire-rescue department has seen a decrease in the total number of volunteer members and an increase in career members.



Volunteer Members

Volunteer members are critical to the Goochland County Department of Fire-Rescue and Emergency Services staffing model. Each of the six Goochland County Department of Fire-Rescue and Emergency Services stations is managed by a volunteer District Chief, Fire Captain, and Rescue Captain elected by their volunteer fire company membership. According to the 2022 Goochland County Department of Fire-Rescue and Emergency Services Annual Awards Book, two of the stations did not have an interested volunteer member with the necessary qualifications during that year, so one station had a vacant Fire Captain position, and another station staffed a Rescue Lieutenant instead of a Rescue Captain.

The challenge of adequately staffing volunteer fire and rescue positions is not unique to Goochland County. In September 2022, NFPA published its 2020 U.S. Fire Department Profile report.⁵ Based on data collected via a national survey of fire departments, the report estimated 676,900 volunteer firefighters in the United States in 2020, a 12.92% decrease from 2000. This is the most recent data available from NFPA at the time of this Master Plan.

⁵ www.nfpa.org/-/media/Files/News-and-Research/Fire-statistics-and-reports/Emergency-responders/osfdprofile.pdf

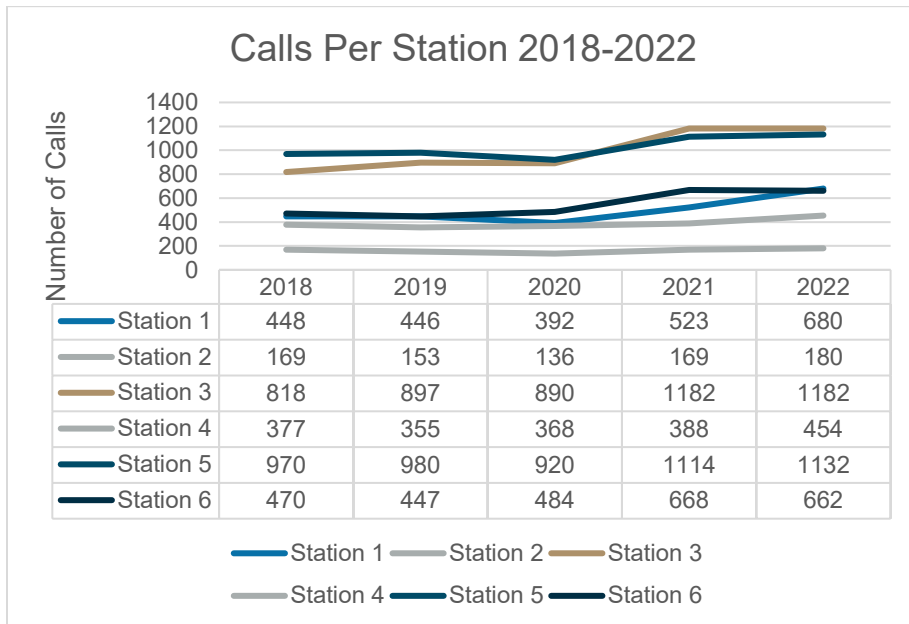
Volunteer Firefighters in the U.S., 2000-2020

Year	# Volunteer Firefighters in the U.S.	Change from Previously Reported Year (%) in the U.S.
2000	777,350	-
2010	768,150	-1.18
2015	814,850	6.07
2016	729,000	-10.54
2017	682,600	-6.36
2018	745,000	9.14
2019	722,800	-2.98
2020	676,900	-6.35
2000 Compared to 2020		-12.92%

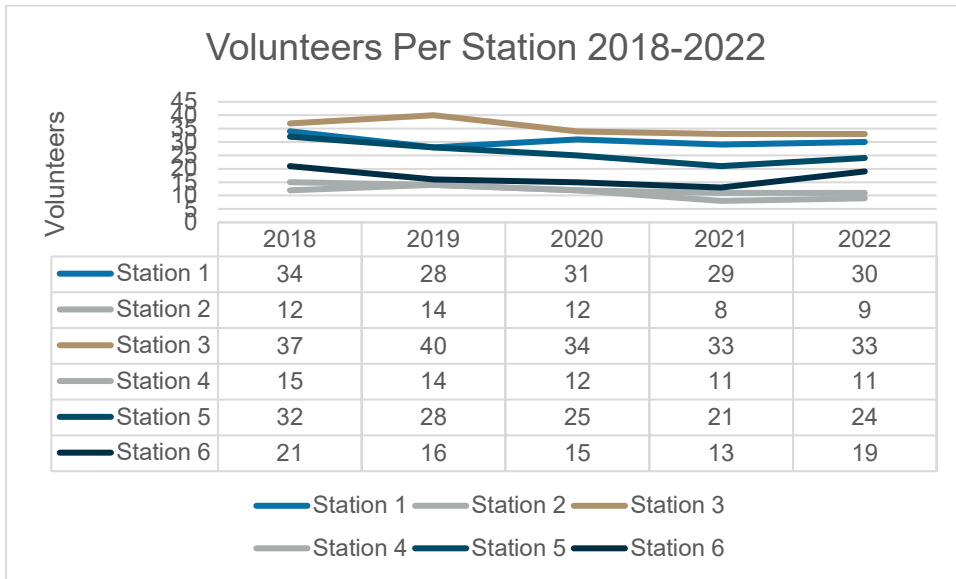
Additionally, the number of all-career or mostly-career fire departments increased from 3,043 in 1986 to 5,244 in 2020, an increase of 72%, while the number of all-volunteer or mostly-volunteer departments decreased from 26,797 in 1986 to 24,208 in 2020, a decrease of 10%.

Dynamix Consulting Group analyzed volunteer activity within the Goochland County Department of Fire-Rescue and Emergency Services for 2018-2022 and made the following observations.

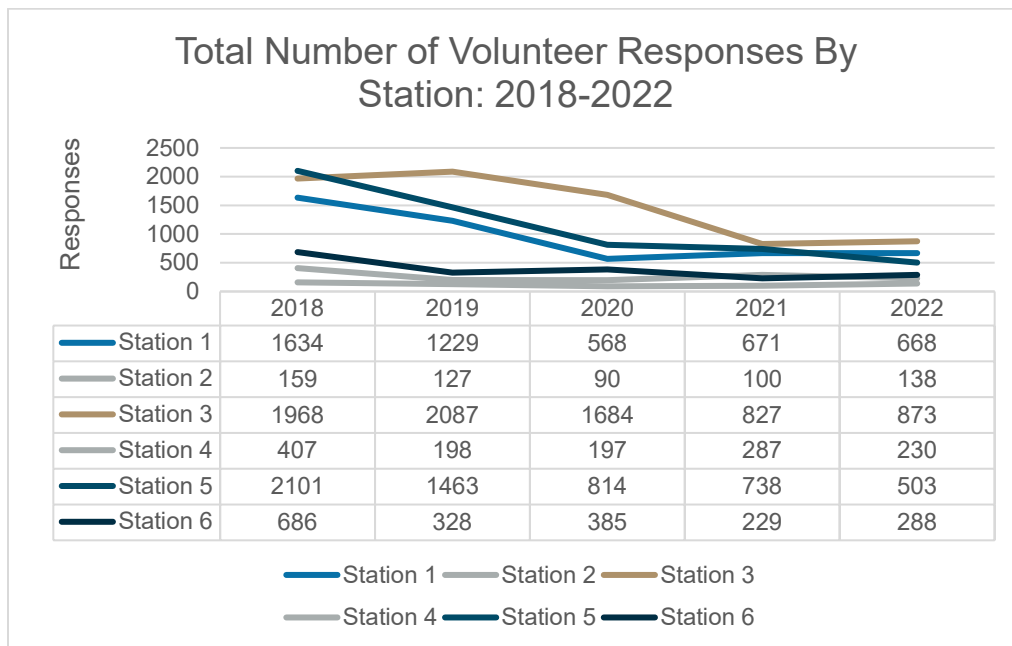
The number of calls per station has increased at all six fire stations.



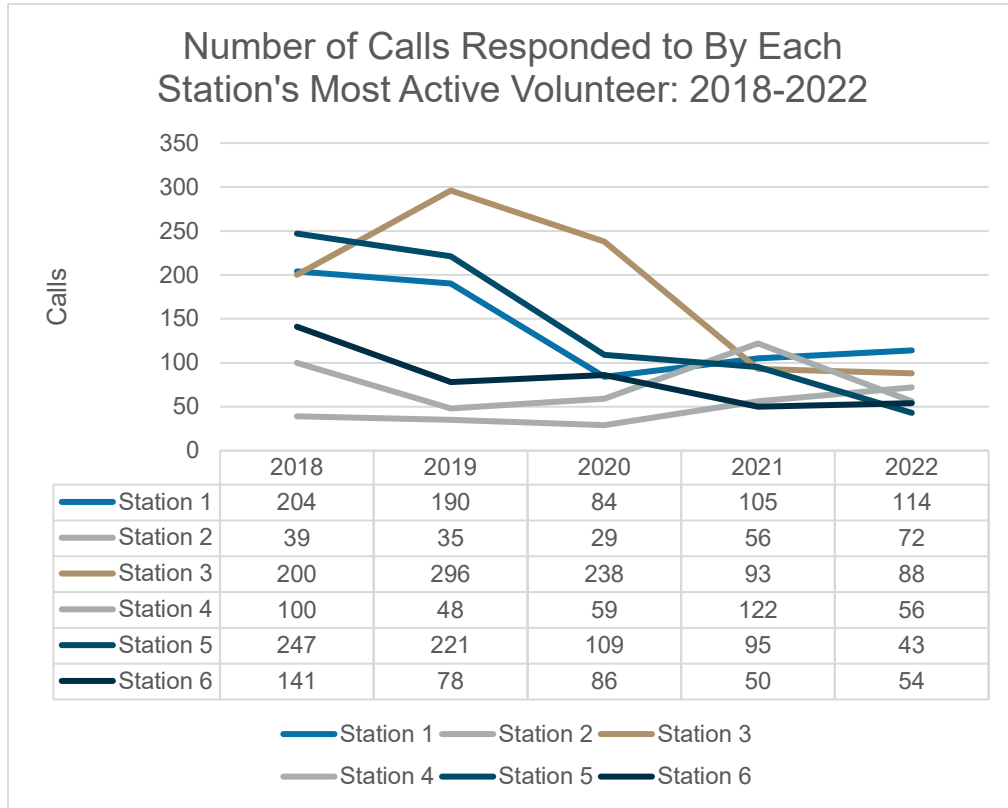
All six stations had fewer volunteers in 2022 than they did in 2018.



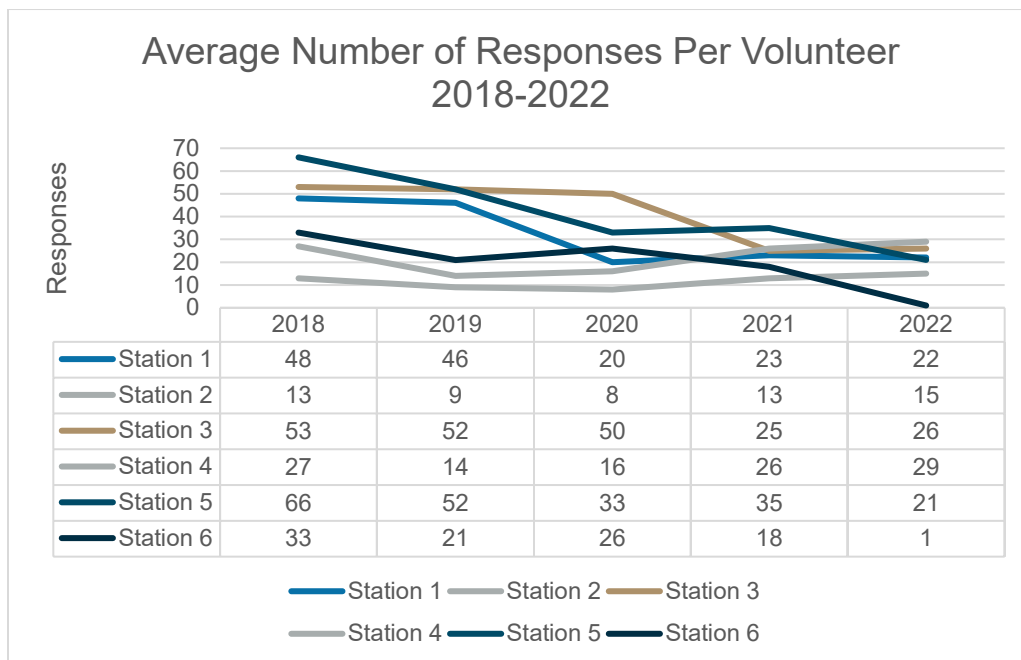
The Total Number of Volunteer Responses By Station, which was calculated by adding together the number of responses for each volunteer at each station for the time period of 2018-2022, has declined at all six fire stations since 2018.



The activity level of the most active volunteer firefighters at five of the six fire stations was lower in 2022 than it was in 2018.



The Average Number of Responses Per Volunteer was lower at five of the six fire stations in 2022 than in 2018.



In the spring of 2023, the Federal Emergency Management Agency notified the Goochland County Department of Fire-Rescue and Emergency Services of a Staffing for Adequate Fire and Emergency Response (SAFER) Grant award. The Grant award is for \$556,972, distributed over four years, and includes funding to support volunteer recruitment and retention. The Fire-Rescue Department plans to use this grant to recruit new volunteers and incentivize and reward current members for responding to calls.

Subsequent to the Dynamix Consulting Group site visit, the Goochland County Department of Fire-Rescue and Emergency Services hired a part-time Recruitment and Retention Coordinator with part of this grant funding.

Career Members

Shift Staffing

The Goochland County Department of Fire-Rescue and Emergency Services staffs its six fire stations with 51 full-time operational employees. Shift staffing per station is as follows.

Shift Staffing

Advanced Life Support Provider: EMTP or EMTI

Officer: Lieutenant or Captain

Advanced Life Support Provider and Officer: EMTP or EMTI and Captain or Lieutenant

Station	A Shift	B Shift	C Shift
Station 1	Lieutenant/EMT Firefighter/EMTP Firefighter/EMT	Lieutenant/EMTP Firefighter/EMT Firefighter/EMT	Lieutenant/EMTP Firefighter/EMTP Firefighter/EMT
Station 2	Lieutenant/EMT-I Firefighter/EMT	Firefighter/EMT Firefighter/EMT	Firefighter/EMTP Firefighter/EMT
Station 3	Firefighter/EMT-I Firefighter/EMT Firefighter/EMT	Firefighter/EMTP Firefighter/EMT Firefighter/EMT	Lieutenant/EMTP Firefighter/EMT Firefighter/EMT
Station 4	Lieutenant/EMTP Firefighter/EMT Firefighter/EMT	Firefighter/EMTP Firefighter/EMT Firefighter/EMT	Firefighter/EMTP Firefighter/EMT Firefighter/EMT
Station 5	Lieutenant/EMT Firefighter/EMTP Firefighter/EMT	Lieutenant/EMTP Firefighter/EMT Firefighter/EMT	Lieutenant/EMT Firefighter/EMTP Firefighter/EMT
Station 6	Firefighter/EMTP Firefighter/EMT Firefighter/EMT	Captain/EMTP Firefighter/EMT Firefighter/EMT	Lieutenant/EMT Firefighter/EMTP Firefighter/EMT

Subsequent to the Dynamix Consulting Group site visit, the fire-rescue department received approval to add six additional full-time employees in Fiscal Year 2024. This added a third firefighter per shift to Station 2 and a 4th firefighter per shift to Station 1 and brought the Minimum Shift Staffing to 14 personnel. Minimum staffing will be increased to 16 personnel in January 2024.

Shift numbers may dwindle to 12 to accommodate employee leave, sick leave, military leave, workers' compensation, and light duty, all detracting from on-duty numbers in emergency operations. Historically, Goochland County Department of Fire-Rescue and Emergency Services positions have been conservatively budgeted, never considering a relief factor to account for leave.

Emergency Response

NFPA 1710, *Standard for Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Career Fire Departments* addresses apparatus staffing, response time, and the effective firefighting force (also referred to as the effective response force), which is the minimum number of firefighters to conduct essential fire ground tasks. NFPA 1710 defines a “Career Fire Department” as “A fire department that utilizes full-time or full-time-equivalent (FTE) station-based personnel immediately available to comprise at least 50 percent of an initial first alarm assignment.”⁶

The number and types of tasks needing simultaneous action dictate the minimum number of firefighters required to combat different types of fires. Without adequate personnel to perform concurrent action, the commanding officer must prioritize the tasks and complete some in chronological order rather than concurrently. These tasks include:

- Command
- Scene safety
- Search and rescue
- Fire attack
- Water supply
- Pump operation
- Ventilation
- Back-up/rapid intervention

While the community served must establish the levels of fire and rescue services provided, considerable debate surrounds the matter of firefighter staffing. Frequently, this discussion is set in the context of firefighter safety. The 2020 Edition of NFPA 1710 specifies the number of firefighters assigned to a particular response apparatus, often characterized as a “minimum of four personnel per engine company.”

⁶ NFPA 1710 3.3.13

Dynamix Consulting Group notes that the more critical issue is the number of firefighters that assemble at the scene of an incident in conjunction with the scope and magnitude of the job tasks expected of them, regardless of the type or number of vehicles that arrive. Staffing levels are determined at the community level based on risk, capability, citizen expectations, and willingness/ability to fund. There are no mandated requirements that fit all situations, although NFPA 1710 has objectives to meet regarding the number required for some typical scenarios.

Some terms are interchangeable, such as the assembly of firefighters on an incident, which is known as the “Initial Full Alarm Assignment,” the “Effective Firefighting Force” (EFF), or the “Effective Response Force” (ERF). Dynamix Consulting Group outlines the NFPA 1710 levels for this effective response force for three scenarios in the following figures.

The following figure describes initial full alarm assignments for a residential structure fire, an open-air shopping center fire, and an apartment fire. All three types of occupancies exist in Goochland County. These are generalizations representative of different structures and risks. Each department may handle these types of fires with fewer or more personnel; however, this describes the work functions that must take place to handle a fire.

NFPA 1710 states that in response zones with high-number incidents, geographical restrictions, geographical isolations, or urban areas, the engine and truck staffing should increase to five, while in response zones with tactical hazards, high-hazard occupancies, or dense urban areas, the staffing should increase to six. The standard defines geographical isolation as areas where over 80% of the response area is outside of a 10-minute response of the next closest fire suppression unit and geographical restriction where there are predictable response delays.

NFPA 1710 Initial Full Alarm Assignments

2,000 SF Residential Structure Fire		Open-Air Shopping Center (13,000 SF to 196,000 SF)		1,200 SF Apartment (3-story garden apartment)	
Incident Commander	1	Incident Commander	2	Incident Commander	2
Water Supply Operator	1	Water Supply Operators	2	Water Supply Operators	2
2 Application Hose Lines	4	3 Application Hose Lines	6	3 Application Hose Lines	6
1 Support Member per line	2	1 Support Member per line	3	1 Support Member per line	3
Victim Search and Rescue Team	2	Victim Search and Rescue Team	4	Victim Search and Rescue Team	4
Ground Ladder Deployment	2	Ground Ladder Deployment	4	Ground Ladder Deployment	4
Aerial Device Operator	1	Aerial Device Operator	1	Aerial Device Operator	1
Rapid Intervention Crew	4	Rapid Intervention Crew	4	Rapid Intervention Crew	4
		EMS Care	2	EMS Care Crew	2
Total	17	Total	28	Total	28

The minimum response to the benchmark structures is 17 firefighters for a residential structure, 28 for an open-air shopping center, and 28 for an apartment. The previous standard was 15 members. The two additional positions required in the 2020 standard result from an increase in the recommended size of the rapid intervention crew (RIC). As previously noted, both NFPA 1500 and OSHA 29 CFR 1910.134(g)(4) require a minimum of a team with at least two members located outside an immediately dangerous to life and health (IDLH) atmosphere to monitor and provide emergency rescue for responders until a more formalized rapid intervention crew is created; this is generally referred to as “two-in/two-out.” The four-person RIC outlined in the revised standard must consist of an officer and three firefighters.

Full-staffing for the Goochland County Department of Fire-Rescue and Emergency Services is 17 firefighters, which is the minimum recommended number of firefighters for a single-family residential structure and 11 firefighters fewer than the recommendation for a fire in an open-air shopping center or garden apartment. There are shifts when the department staffing falls below 17 firefighters, and even when the department is fully staffed, there are often multiple emergency calls that occur simultaneously, thus reducing the available number of personnel. Volunteer firefighters and firefighters from mutual aid jurisdictions must be relied upon to supplement the available on-shift Goochland County Department of Fire-Rescue and Emergency Services Firefighters; however, it must be anticipated that they will have a prolonged response as volunteers will likely be coming from home or work and mutual aid firefighters will be responding from other communities.

For these reasons, Dynamix Consulting Group recommends that the Goochland County Department of Fire-Rescue and Emergency Services move away from the current model of having firefighters cross-staff both an ambulance and an engine and instead assign each firefighter to an ambulance or an engine for their shift.

While staffing each engine with four firefighters should be the ultimate goal to bring the Goochland County Department of Fire-Rescue and Emergency Services into compliance with NFPA 1710, a realistic short-term goal would be to assign two Firefighter/EMTs for each ambulance and three Firefighter/EMTs to each engine and ladder truck. Ideally, this would result in having five Firefighter/EMTs on duty at each station; however, Stations 2 and 8 are not able to accommodate five firefighters due to facility limitations. To staff this model, the Goochland County Department of Fire-Rescue and Emergency Services should plan for 29 Firefighter/EMTs staffing fire apparatus, plus one more serving as a Shift Commander, for a total of 30 personnel on duty.

Staffing Recommendations

1. Transition the Volunteer Deputy Fire Chief Position to a Full-Time Position.

Considering the size of the Goochland County Department of Fire-Rescue and Emergency Services' current fleet of vehicles, it is appropriate to transition the responsibility for fleet oversight to a full-time county employee.

It is the opinion of Dynamix Consulting Group that the Administrative Division is understaffed when benchmarked to industry standards and best practices; the creation of a second Full-Time Deputy Chief Position will create additional administrative capacity to ease the workload of the current Fire Chief and Full-Time Deputy Chief.

2. Work toward compliance with NFPA 1710 5.2.2.2.2. Each company shall be led by an officer who shall be considered a part of the company.

There are times when fire companies operate without an officer. Goochland County Department of Fire-Rescue and Emergency Services should work toward ensuring that, whenever possible, each company is led by an officer.

3. Eliminate cross-staffing and work toward compliance with NFPA 1710 of staffing four firefighters on engines.

5.2.3.1 Engine Companies. Fire Companies whose primary functions are to pump and deliver water and perform basic firefighting at fires, including search and rescue, shall be engine companies.

5.2.3.1.1 These companies shall be staffed with a minimum of four on-duty members.

5.2.3.1.2 In first-due response zones with a high number of incidents, geographical restrictions, geographical isolation, or urban areas, as identified by the AHJ, these companies shall be staffed with a minimum of five on-duty members.

5.2.3.1.2.1 In first-due response zones with tactical hazards, high-hazard occupancies, or dense urban areas as identified by the AHJ, these fire companies shall be staffed with six on-duty members.

Goochland County Department of Fire-Rescue and Emergency Services currently endeavors to staff its Engine Companies with three firefighters; however, due to firefighter absences, it sometimes staffs its Engine Companies with only two firefighters.

4. Eliminate cross-staffing and work toward compliance with NFPA 1710 of staffing four firefighters on ladder companies.

5.2.3.2 Ladder/Truck Companies. Fire companies whose primary functions are to perform the variety of services associated with truck work, such as forcible entry, ventilation, search and rescue, aerial operations for water delivery and rescue, utility control, illumination, overhaul, and salvage work, shall be known as ladder or truck companies.

5.2.3.2.1 These fire companies shall be staffed with a minimum of four on-duty members.

5.2.3.2.2 In first-due response zones with a high number of incidents, geographical restrictions, geographical isolation, or urban areas, as identified by the AHJ, these companies shall be staffed with a minimum of five on-duty members.

5.2.3.2.2.1 In first-due response zones with tactical hazards, high-hazard occupancies, or dense urban areas as identified by the AHJ, these fire companies shall be staffed with six on-duty members.

Goochland County Department of Fire-Rescue and Emergency Services currently cross-staffs Ladder Companies with three firefighters. Dynamix Consulting Group recommends that the Goochland County Department of Fire-Rescue and Emergency Services work toward future compliance with NFPA 1710 5.2.3.2.

5. Increase the number of fire inspectors to bring inspection frequency into compliance with NFPA 1730.

NFPA 1730: Standard on Organization and Deployment of Fire Prevention Inspection and Code Enforcement, Plan Review, Investigation, and Public Education Operations, 2019 Edition, specifies:

6.6 Required Personnel. The AHJ shall determine the minimum resources, personnel, and equipment levels necessary to perform code enforcement and inspection activities.*

6.7 Minimum Inspection Frequency. Existing occupancy fire prevention inspection and code enforcement inspection frequencies shall not be less than those specified in Table 6.7.

Minimum Inspection Frequency

Occupancy Risk Classification	Frequency
High	Annually
Moderate	Biennially
Low	Triennially
Critical Infrastructure	Per AHJ

6. Establish a formal feedback/input mechanism to receive necessary end-user feedback about the training program.

Dynamix Consulting Group recommends that the Goochland County Department of Fire-Rescue and Emergency Services evaluate the use of a survey tool to collect performance feedback from firefighters about the training program. Examples of online survey tools that could be used for this purpose include SurveyMonkey, SurveyLegend, and Typeform. Gathering information directly from firefighters on an annual basis will allow department leadership to keep a focus on those aspects of the training program that firefighters indicate as being of high value. This type of feedback also enables leadership to key in on specific performance issues that may exist. The annual survey would be a good opportunity to encourage firefighters to share new ideas or other suggestions they may have about the Goochland County Department of Fire-Rescue and Emergency Services Training Program.

7. Add a full-time instructor to the Training and Safety Division.

Goochland County Department of Fire-Rescue and Emergency Services is a growing and progressive department with a focus on protecting the health and safety of its members. As the number of firefighters in the department continues to increase, so has the need for training. Additionally, the implementation of new technology, equipment, and safety initiatives are important but time-consuming effort that requires the addition of at least one full-time instructor.

8. Regularly assess the workload of the Training Division to determine whether additional staffing is necessary to ensure that effective training is delivered on a continual basis.

As the size of the Goochland County Department of Fire-Rescue and Emergency Services increases, so, too, should the Training Division. Goochland County Department of Fire-Rescue and Emergency Services should regularly assess the workload of the Training Division to ensure that adequate staff is dedicated to the division as demands placed on the staff continue to increase.

9. Intentionally integrate outside instructors into the Training Program.

The use of instructors from outside of Goochland County is critical to the future success of the Goochland County Department of Fire-Rescue and Emergency Services Training Program as it diversifies the perspectives of the firefighters and brings new ideas into the organization.

10. Encourage all uniformed members to avail themselves of the opportunity to attend the National Fire Academy on a paid stipend once each year.

Active members of fire or emergency management organizations are eligible for a stipend reimbursement to attend the National Fire Academy in Emmitsburg, Maryland. All tuition, instruction, course materials, and lodging for National Fire Academy courses are provided at no cost. All active members of fire and emergency management organizations are eligible for stipend reimbursement once every fiscal year.

11. Train and certify all personnel who hold the position of Lieutenant to the level of Fire Officer I.

NFPA 1021 is the Standard for Fire Officer Professional Qualifications. This standard identifies the minimum job performance requirements (JPRs) for the various ranks of fire officers. NFPA 1021 defines a Fire Officer I as a fire officer, at the supervisory level, who has met the requirements established in Sections 4.2–4.7 of the standard.

12. Train and certify all personnel who hold the position of Captain to the level of Fire Officer II.

NFPA 1021 is the Standard for Fire Officer Professional Qualifications. This standard identifies the minimum JPRs for the various ranks of fire officers. NFPA 1021 defines a Fire Officer II as a fire officer, at the supervisory/managerial level, who has met the requirements established in Sections 5.2–5.7 of the standard.

13. Require completion of the National Fire Academy’s Managing Officer Program for all personnel holding the position of Battalion Chief within the department.

The National Fire Academy’s Managing Officer Program is a multi-year curriculum that introduces emerging emergency services leaders to personal and professional skills in change management, risk reduction, and adaptive leadership.⁷

14. Require completion of the National Fire Academy’s Executive Fire Officer Program for those holding the position of Deputy Chief and Chief within the department.

The Executive Fire Officer (EFO) Program is the flagship program of the National Fire Academy. It provides senior fire officers with a broad perspective on various facets of fire and emergency medical services administration. The courses and accompanying research examine how to exercise leadership when dealing with difficult or unique problems within communities.⁸

⁷ https://www.usfa.fema.gov/training/nfa/programs/mo_program.html

⁸

[https://www.usfa.fema.gov/training/nfa/programs/efop.html#:~:text=The%20Executive%20Fire%20Officer%20\(EFO,medical%20services%20\(EMS\)%20administration.](https://www.usfa.fema.gov/training/nfa/programs/efop.html#:~:text=The%20Executive%20Fire%20Officer%20(EFO,medical%20services%20(EMS)%20administration.)

15. Establish a formal Safety Committee.

Goochland County Department of Fire-Rescue and Emergency Services should establish a Safety Committee and ensure all safety committee activities align with Chapter 4 of NFPA 1500. To be effective, safety committees must be diverse in their representation from across the department, ensuring representation by shift, rank, function, and interest, and including representation from non-uniformed and staff members as well.

The safety committee should meet monthly and include in its mission the raising of awareness and modifying member behaviors that will result in a safe work environment. Additionally, the committee should review all accidents, injuries, near-miss incidents, and workplace safety suggestions. The committee should analyze the information and report its findings to the Fire-Rescue Chief. In contrast to being reactionary through the development of additional rules, Dynamix Consulting Group recommends that the committee should work to implement member safety education programs and encourage members' safety self-awareness. The committee should maintain regular and open meeting times and locations and record minutes of the meetings for posting for all members of the department to review.

16. Establish a Full-time Public Educator Position.

Public education is an essential function performed by the fire service and is a vital part of any agency's community risk reduction program. NFPA 1730 and the Vision 20/20 *National Strategies for Fire Loss Prevention* program are the current best practices regarding this area of fire prevention.

17. Make it a priority to recruit and retain new volunteer firefighters.

Goochland County Department of Fire-Rescue and Emergency Services has received a grant to fund a Recruitment and Retention Coordinator. It is now incumbent on the fire department and county leadership to ensure that this position has the resources that are required to successfully recruit and retain firefighters. While the number and activity levels of volunteer firefighters in the Goochland County Department of Fire-Rescue and Emergency Services are declining, the department relies heavily on volunteer firefighters, especially for labor-intensive operations such as structural firefighting and water shuttles.

18. Establish participation requirements for volunteer firefighters to ensure that the county is not paying a higher cost per call for volunteer firefighters than it does for career firefighters.

Volunteer firefighters are not free. The county incurs significant costs for volunteer firefighter medical evaluations, training, and turnout gear. Taking these expenses into account, annual minimum participation requirements should be established to ensure that the county is not paying a higher cost per call for volunteer firefighters than it does for career firefighters.

Management Components

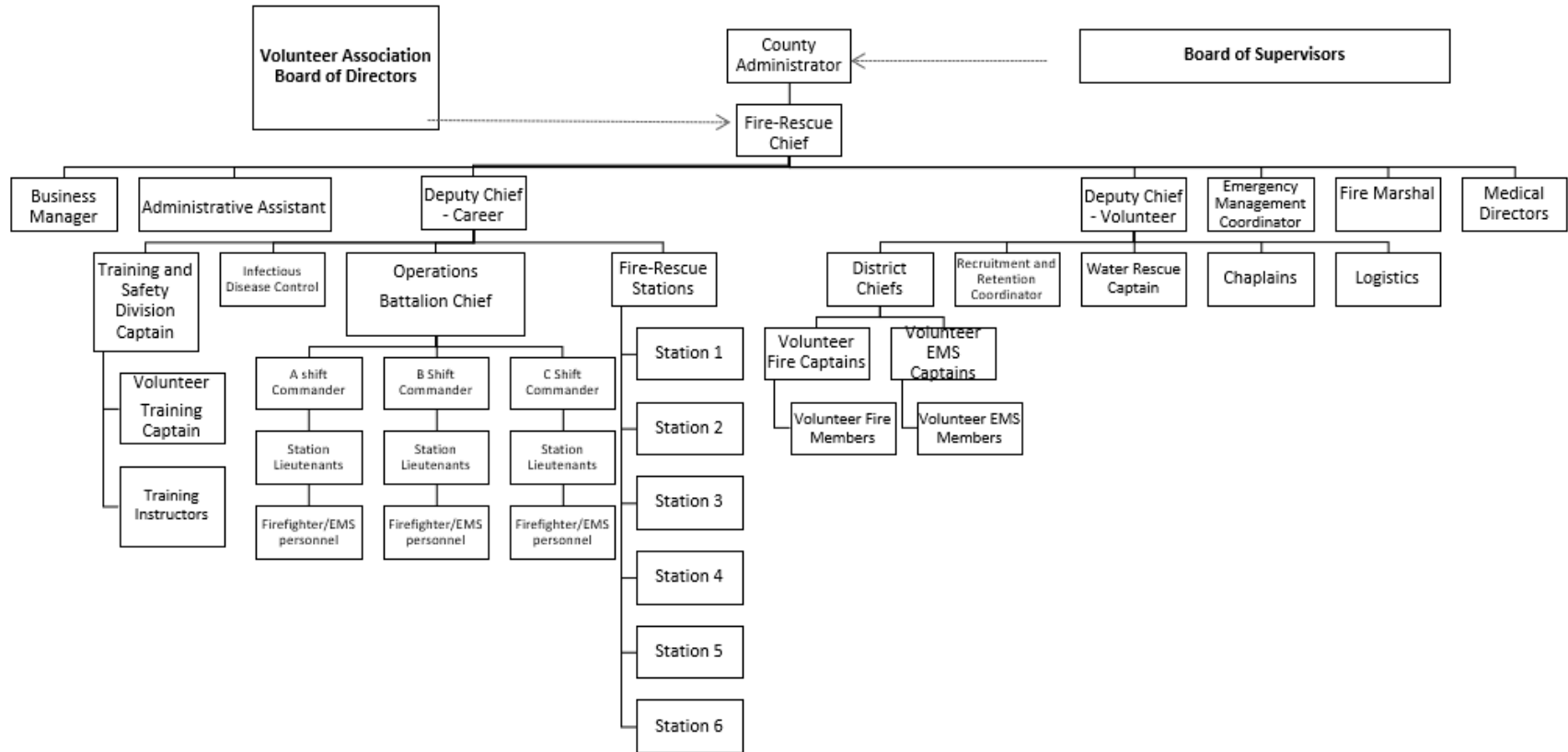
Organizational Structure and Chain of Command

A fire department's organizational structure is the method by which work should flow through the organization. The chain of command refers to the line of authority that exists within that organizational structure. When appropriately deployed, an effective organizational structure combined with a well-defined chain of command establishes accountability, lines of authority, and decision-making power. An effective chain of command ensures that every task, job position, and division have one person responsible for performance.⁹

The 2024 Goochland County Department of Fire-Rescue and Emergency Services Organizational Chart is as follows.

^{9 9} <https://smallbusiness.chron.com/chain-command-organizational-structure-59110.html>

2024 Goochland County Department of Fire-Rescue and Emergency Services Organizational Chart



Goochland County Department of Fire-Rescue and Emergency Services has grown rapidly due to the increasing population within the county and the increased demand for emergency services. While the organizational structure and resulting chain of command have changed several times in recent years, Dynamix Consulting Group found that the structure is not entirely effective for the fire-rescue department's current and anticipated future needs.

An effective chain of command does not happen by accident. Dynamix Consulting Group suggests a five-step process for developing an effective organizational structure and resulting chain of command for the fire-rescue department.

1. Leadership must first consider the department's goals; this is because the organizational structure must support its strategy.
2. Leadership should then determine the tasks required to reach the goals.
3. The development of divisions follows as leadership decides how to best group the tasks. It is important to note that grouping affects resource sharing and the ease with which people communicate and coordinate work.
4. After establishing divisions, leadership must assign authority for tasks and areas.
5. Once department leadership assigns authority, leaders can effectively lay out the relationships between positions, creating a chain of command.

Goochland County Department of Fire-Rescue and Emergency Services transitioned rapidly from a predominately volunteer department with limited staffing and Chief Officers regularly responded to emergency calls to assist with the workload to a combination fire department where the Chief Officers must transition to leading, mentoring, and directing the members that now work for them.

Internal Communications

Routine communications for the Goochland County Department of Fire-Rescue and Emergency Services include email distribution of a Daily Business Plan and a Weekly Newsletter to all members. Additionally, the Chief holds Staff Officer Meetings on the 4th Wednesday of every other month.

Multiple stakeholders repeatedly identified communications as an area where there was an opportunity for improvement within the Goochland County Department of Fire-Rescue and Emergency Services. It was one of the very first concerns identified in every one of the in-person and virtual meetings conducted by Dynamix Consulting Group for this project. Additionally, more than half of the internal survey participants (63%) rated communication within the fire-rescue department as Fair or Poor. Approximately one-quarter of the survey participants rated it as Good (28%), and only 9% rated it as Excellent. The survey's complete results appear in the Stakeholder Input section of this report.

Multiple stakeholders reported communication challenges in accurately getting information from the Chief Officers to the front-line firefighters and sharing information between career and volunteer members. Additional feedback from numerous stakeholders included that the Daily Business Plan and Weekly Newsletter are very long, often contain information unchanged from previous correspondence, and often the same information appears in both the Daily Business Plan and the Weekly Newsletter. Dynamix Consulting Group reviewed a random sampling of the Daily Business Plans and Weekly Newsletters from the spring of 2023 and found that the Daily Business Plan was typically about seven pages long, while the Weekly Newsletter was about 24 pages. Staff Officer Meetings typically lasted about two and a half hours.

EmailAnalytics.com reports that approximately 46% of all emails are now opened on mobile devices.¹⁰ Mobile device users tend to have smaller screens and less interest in reading, so shorter, more concise emails are better.

Policies and Procedures

Goochland County Department of Fire-Rescue and Emergency Services has rapidly evolved from a predominately volunteer to a combination fire department. As the department has added staff, there is an increased need for updated and more direction for members. Dynamix Consulting Group's review of policies and procedures identified the following types of policy documents:

- Several Chief Officers have issued a series of Goochland County Fire-Rescue Department Orders/Directives.
- Goochland County Volunteer Fire-Rescue Association Standard Operating Guidelines.
- Goochland County Volunteer Fire Rescue Association Policies.
- Procedural Memos issued by the Goochland County Department of Fire-Rescue and Emergency Services.
- Procedural Memos issued by the Goochland County Volunteer Fire-Rescue Association.
- Emails from the Goochland County Department of Fire-Rescue and Emergency Services providing “informal guidance” to officers on a variety of operational issues.

Dynamix Consulting Group repeatedly heard from internal stakeholders that the different types of policy documents are an ongoing source of confusion. Goochland County Department of Fire-Rescue and Emergency Services has been meeting weekly with Lexipol since the Fall of 2022 to address this issue.

¹⁰ <https://emailanalytics.com/ideal-email-length/>

Performance Evaluations

Goochland County Department of Fire-Rescue and Emergency Services conducts Performance Evaluations per the County Human Resources Policy:

3.13 Performance Evaluations: The work of each employee will be evaluated at least annually:

- Evaluations are a collaborative effort between the employee and the employee's supervisor. The supervisor should obtain input from the employee via a self-evaluation or some other format.
- The supervisor will meet with the employee to discuss the employee's performance for the preceding year and expectations for the upcoming year.
- A written report of the evaluation will be prepared with a copy provided to the employee being evaluated and a copy for the employee's personnel files.
- If the employee believes the report is incomplete or inaccurate, the employee may prepare comments to be attached to the supervisor's evaluation report.

The evaluation intends to be an interactive process between the employee and supervisor. Employees are rated as follows:

1 = **UNSATISFACTORY** - Consistently fails to meet job requirements, performance clearly below minimum requirements. Immediate improvement is required to maintain employment.

2 = **NEEDS IMPROVEMENT** – Occasionally fails to meet job requirements; performance must improve to meet expectations of the position.

3 = **MEETS EXPECTATIONS** – Able to perform 100% of job duties satisfactorily. Normal guidance and supervision are required.

4 = **EXCEEDS EXPECTATIONS** – Frequently exceeds job requirements; all planned objectives were achieved above the established standards, and accomplishments were made in unexpected areas.

5 = **EXCEPTIONAL** – Consistently exceeds job requirements; this is the highest level of performance that can be attained.

If an employee receives a score below 3 or a 5 rating, this will prompt a discussion between the Department Head and the Human Resources Director for further review.

Professional Development

The population within the county is growing, and with that, so is the demand for emergency services. As this trend continues, the Goochland County Department of Fire-Rescue and Emergency Services must plan to develop its members to take on increasing levels of supervisory responsibility. There should be a formal collaborative effort between the county's Human Resources Department and the Training Division to establish a Professional Development Program that starts at the recruit level. Each recruit graduate should receive written instructions on what they need to accomplish to prepare for their first promotion as permitted by the contractually required years of service.

During the employee's second year of service, Human Resources and the Training Division should collaborate with the employee to create a Personalized Professional Development Program. The Personalized Professional Development Program should highlight available classes and explain the county's tuition reimbursement program. As part of the employee's annual performance evaluations, this Personalized Professional Development Program should be revisited and modified accordingly as the employees' interests and the fire rescue department's needs evolve.

Dynamix Consulting Group suggests that the county put a focus on developing employee's "soft skills" into its Professional Development Program. While it is essential for a fire officer to have "hard skills" that are measurable, such as raising a ladder in a specified period of time, these activities comprise only a tiny part of an officer's job. A much more significant part of an officer's job includes tasks such as motivating employees to do something they may not want to do – whether it is a patient who does not want to go to a hospital or a crew that does not want to complete a specific training evolution because it is hot outside. These tasks require "soft skills" such as personality traits and characteristics rooted in behavior, attitude, and values.

Subsequent to Dynamix Consulting's site visit, Goochland County implemented a professional development program for all employees. The Goochland County Board of Supervisors and Administration acknowledges that professional development is integral to personal job satisfaction and is critical to the achievement of Goochland County's mission and continuous improvement in the quality of its programs and services. The county's mission is to "ignite a passion for learning and career development," and this mission is taken seriously.

The county offers a wide range of training and development opportunities through the Goochland "EDGE" Career Development Program. "EDGE" stands for "Engagement, Development, Growth, and Education. The EDGE Professional Development Program has been prepared to provide a framework for employee development programs throughout the county that is inclusive of all employees. Understanding that some departments or positions already have employee development programs, the EDGE program plan will provide uniformity of the programs and provide each employee with a road map for career development opportunities.

The county's intent is to create a comprehensive learning experience that is rigorous, relevant, and results-oriented as employees chart their course toward career development. The goal is to provide employees with:

- The opportunity to plan and develop skills, knowledge, and attributes that complement the County's goals.
- The opportunity to participate in professional development activities that extend and enhance their capabilities and capacity for advancement within the County.
- Equity of access to professional development opportunities.

The Department of Human Resource's desire is to encourage and support employees in their personal and professional development as part of their employment with Goochland County and to provide administrative guidelines to facilitate fairness and equity in the application of the program. The Goochland County Department of Fire-Rescue and Emergency Services and the Sheriff's Office will have their own professional

development plans that exist within the framework of Goochland County's EDGE Professional Development Program. Additionally, the County Government and Board of Supervisors have funded two significant competitive salary adjustments for public safety (Fire-Rescue and Sheriff) in the last 18 months.

Succession Planning

A succession plan identifies future staffing needs and the people with the skills and potential to perform in these future roles. Before the annual review of Personalized Professional Development Programs with each employee, the fire-rescue department should evaluate the critical positions within the department and develop action plans for individuals to assume those positions. Taking a holistic view of current and future goals, this type of preparation will ensure that the fire-rescue department has the right people in the right jobs today and in the years to come. Annual Succession Planning will strengthen the overall capability of the fire-rescue department by:

- Identifying critical positions and highlighting potential vacancies
- Identifying key competencies and skills that are necessary for these positions
- Focusing the development of individuals to meet future fire-rescue department needs

Succession Planning should work in tandem with the Professional Development Program. Goochland County Department of Fire-Rescue and Emergency Services should formally adopt both programs and communicate the importance of both to all members of the fire-rescue department.

Medical Examinations

NFPA 1582 is the *Standard on Comprehensive Occupational Medical Programs for Fire Departments*. In the spring of 2023, the Federal Emergency Management Agency notified the Goochland County Department of Fire-Rescue and Emergency Services of a grant award for a Staffing for Adequate Fire and Emergency Response (SAFER) Grant. The Grant award is for \$556,972 distributed over four years and includes \$10,668 to fund 12 NFPA 1582 Medical Exams each year.

Also, in early 2023, the Goochland County Department of Fire-Rescue and Emergency Services began offering respirator clearance medical assessment through Compass M.D. for all personnel who have been fit tested to don an SCBA mask. There is no cost to the members for this medical assessment. The fire-rescue department was encouraging voluntary compliance for volunteer members. The fire-rescue department hopes to expand annual health assessments to all our active volunteer members in future years. New volunteer members already receive a health assessment upon joining the department. Historically, the fire-rescue department had conducted annual fit testing for both SCBA and N95 respirators, but it had not consistently offered the medical evaluation component necessary to obtain "Medical Clearance for Respirator Use" in accordance with OSHA 1926.1101.

Counseling Services

Our nation's firefighters face emotional needs that are quite different and unique to the occupation. The percentage of firefighters struggling with career-related stress is exceptionally high, with suicide rates climbing each year. These issues manifest through higher divorce rates and addictions such as alcohol, drugs, or gambling. Recent studies indicate another major concern is Post-Traumatic Stress Disorder (PTSD). As these symptoms occur, employees need support systems that are readily accessible and provide access to someone who is qualified and genuinely understands the employee's circumstances.

Goochland County Department of Fire-Rescue and Emergency Services members have access to the County's Employee Assistance Program (EAP) as well as the Fire-Rescue Department Chaplains. Dynamix Consulting Group commends the Goochland County Department of Fire-Rescue and Emergency Services for offering multiple resources to serve the varied needs of its members.

Management Components Recommendations

19. Update the Goochland County Department of Fire-Rescue and Emergency Services Organizational Structure to meet the fire-rescue department's current and anticipated future needs.

Dynamix Consulting Group recommends that the updated organizational structure address the following:

- Transition the Volunteer Deputy Fire Chief Position to a Full-Time Position.
- The full-time Deputy Chief currently has nine direct reports in addition to overseeing fire suppression and EMS. If the current Volunteer Deputy Fire Chief is transitioned to a full-time position, the workload should be redistributed among the two Deputy Chiefs.
- The Chain of Command should be simplified; Division Chiefs should not report to two Deputy Chiefs at the same time.
- Best practices are for everyone in an organization to have only one supervisor. Station 6 is managed jointly by the full-time Captain and a volunteer District Chief who supervises volunteer officers. This should be streamlined.
- Recommendations to ensure a fire officer in charge of every company, increased crew staffing, additional fire inspectors, an additional fire instructor, and a public educator were all included in the Staffing Recommendations Section of this Master Plan. Should the Goochland County Department of Fire-Rescue and Emergency Services choose to implement any of those recommendations, those positions should be included in the updated organizational structure.

20. Design and implement a Department-wide Communication Plan.

Communication is a common issue for many organizations and is a major deficiency within the Goochland County Department of Fire-Rescue and Emergency Services. It is imperative that a Fire Department Communication Plan be designed and implemented. The plan must identify the information to be shared with various and specific ranks of personnel within the department and by what means.

The Communication Plan must then be implemented and consistently followed. The implementation of a Communications Plan manages the expectations of the membership within the Goochland County Department of Fire-Rescue and Emergency Services as it relates to the type and quantity of information personnel will receive. This allows for personnel to know where to direct questions they may have related to programs, policies, or other events within the Goochland County Department of Fire-Rescue and Emergency Services.

21. Make it a priority to complete the update of Policies and Procedures with Lexipol.

Dynamix Consulting Group repeatedly heard from internal stakeholders that the different types of policy documents are an ongoing source of confusion. Goochland County Department of Fire-Rescue and Emergency Services has been meeting weekly with Lexipol since the Fall of 2022 to address this issue; Dynamix Consulting Group recommends that it be a priority to finish this project.

22. Develop a Professional Development Program for all positions within the organization.

The International Association of Fire Chiefs has developed the Officer Development Handbook, which is intended to function as the foundation for any organization's Professional Development Program. The handbook provides a foundation and explanation of the basic tenets of a Professional Development Program upon which an organization can build upon and customize to meet its own needs.

23. Develop a Succession Plan.

Annual Succession Planning will strengthen the overall capability of the fire-rescue department by:

- Identifying critical positions and highlighting potential vacancies
- Identifying key competencies and skills that are necessary for these positions
- Focusing the development of individuals to meet future fire-rescue department needs

Succession Planning should work in tandem with the Professional Development Program. Goochland County Department of Fire-Rescue and Emergency Services should formally adopt both programs and communicate the importance of both to all members of the fire-rescue department.

24. Provide a second set of turnout gear or access to a second set of turnout gear to all firefighters.

Goochland County Department of Fire-Rescue and Emergency Services should ensure that all firefighters have a second set of turnout gear or access to a second set of turnout gear.

Planning for Fire Protection and Emergency Medical Services

Mission, Vision, and Values

An organization's mission creates focus, the vision provides direction, and the values define the expected behavior of the organization's members.

Mission

A mission statement is an explanation of the organization's reason for existence. The mission statement supports the vision and communicates purpose and direction to employees, customers, and other stakeholders. The mission statement should answer “What is our organization's purpose?” and “Why does our organization exist?”

According to the Lucas Group¹¹, there are three key areas where mission statements really help to transform the employee experience and ultimately drive productivity¹²:

- 1. Clarity in organizational values helps employees prioritize better.**

When the entire organization aligns to a clear set of written objectives visible to everyone, employees make the right decisions about allocating their time and effort. A clearly articulated mission statement also helps employees to know what not to do because all potential activities can be evaluated based on whether they support the mission.

¹¹ The Lucas Group is rated in the top 10 by Forbes as both one of America's Best Professional Recruiting Firms and one of America's Best Executive Recruiting Firms

¹² <https://www.lucasgroup.com/your-career-intel/mission-statements-matter/>

2. Mission statements help employees find meaning in their work.

A good mission statement shows employees how their work will improve the lives of their customers, their community, and even the world. An example of this is the clothing manufacturer Patagonia's mission statement: *"Build the best product, cause no unnecessary harm, use business to inspire and implement solutions to the environmental crisis."* Basic human nature is to want to be part of something bigger than oneself. When employees understand how their work contributes toward a larger goal, they find meaning in their work. This creates a sense of ownership, leading to a more substantial commitment to the work and improved productivity.

3. A strong mission statement helps employees to become ambassadors.

A great mission statement defines a company's existence and what makes it different from every competitor. When employees can articulate why the company is the best, they become more passionate about being part of the organization. This makes them effective brand ambassadors.

The mission of the Goochland County Department of Fire-Rescue and Emergency Services is:

To provide the highest quality, comprehensive Fire, Emergency Medical Services, and Emergency Management in an efficient, effective, accountable, and compassionate manner.

Vision

A vision statement establishes the ideal image that the organization wishes to achieve. The vision statement should answer "Where are we headed?" and "If we achieved all strategic goals, what would we look like ten years from now?"

The vision of the Goochland County Department of Fire-Rescue and Emergency Services is as follows:

Demonstrate excellence in service, safety, prevention, and education through an integrated volunteer and career department honoring our past, protecting our present, and building resiliency for our future.

Values

An organizational values statement includes the core principles that guide the organization and its culture. In a values-led organization, the values guide decision-making and establish a standard against which one can assess actions. The values statement should answer “What values should guide our organization?” and “What conduct should our employees uphold?”

The values of the Goochland County Department of Fire-Rescue and Emergency Services are:

Accountability

Community

Compassion

Integrity

Dedication

Organizational Planning Process

Now, more than any other time in the history of the United States, the fire service is operating in a rapidly changing environment. Along with improved tools and technologies used to provide services, increased regulation of activities, new risks to protect, and other challenges that can quickly catch the unwary off guard. An organization can stay on the leading edge only through continuous internal and external environmental awareness and periodic course corrections.

For the Goochland County Department of Fire-Rescue and Emergency Services to do the best job possible with available resources, it must focus on improving services while identifying programs or activities that may no longer serve its changing needs. The department can establish a vision through planning, create a framework to produce quality decisions, and chart its course to the future. The quality and accuracy of the planning function determine the organization's success.

Without adequate planning, no organization can know when it is reaching milestones or providing exceptional services to its constituency. The National Fire Protection Association established NFPA 1600: *Standard on Disaster/Emergency Management and Business Continuity/Continuity of Operations Programs* and NFPA 1201: *Standard for Providing Fire and Emergency Services to the Public* as standards to assist fire and EMS departments in establishing and maintaining planning documents and conducting planning activities.

Master Planning in the Organization

Master or long-range planning is preparation for the department's future service delivery effectiveness based on future service delivery environment projections. This long-range master plan focuses on the big-picture perspective and distant future needs of the department and is critical for an agency experiencing growth. Members of the fire service and the communities they serve regularly communicate the need for more robust planning processes. Fire service organizations that engage in a long-range master planning process will be able to utilize this valuable information to answer the following three questions:

- Where is the organization today?
- Where will the organization need to be in the future?
- How will this organization get there?

Goochland County Department of Fire-Rescue and Emergency Services has contracted Dynamix Consulting Group to develop a Master Plan. This Master Plan will give the department a clear idea of where it is today based on evaluating current conditions. The Master Plan will also project the department's future needs and provide the strategies to meet them. A Master Plan provides a view of the organization in a 10-year time frame.

Strategic Planning in the Organization

Strategic planning supports the organization's mission and sets and prioritizes short-term internal goals. A Strategic Plan typically involves a three-to-five-year planning window. Community involvement in the process is critical as the strategic plan should be customer-oriented while accomplishing the following:

- Review the mission statement, paying careful attention to the services currently provided and those that the department can logically provide in the future.
- Review of the vision statement of the fire department moving forward.
- Reaffirm the values of the members of the fire department.
- Identification of the strengths, weaknesses, opportunities, and challenges of the fire department
- Determination of the community's service priorities.
- Understanding the community's expectations of the fire department.
- Establishment of realistic goals and objectives for the future.
- Identification of implementation tasks for each objective.
- Definition of service outcomes in the form of measurable performance objectives and targets.

Planning for Fire Protection and Emergency Medical Services Recommendations

25. Review and update as necessary the Goochland County Department of Fire-Rescue and Emergency Services mission statement.

When done correctly, reevaluating a fire department mission statement will create buy-in—bringing together a cross-section of the fire department members to discuss the mission and potentially how it has or needs to change, which shows that the department values input from its members. Adopting an updated mission statement based on this input further reaffirms that the department values the member's input.

26. Review and update as necessary the Goochland County Department of Fire-Rescue and Emergency Services vision statement.

The vision statement should be reviewed and updated for all of the same reasons that were identified in Recommendation #26.

27. Review and update as necessary the Goochland County Department of Fire-Rescue and Emergency Services organizational values.

The organizational values should be reviewed and updated for all of the same reasons that were identified in Recommendation #26.

28. The Goochland County Board of Supervisors should adopt this Master Plan either as written or with amendments.

It is imperative that the Goochland County Board of Supervisors approve all or part of this Master Plan to establish a formal direction for the future of the Goochland County Department of Fire-Rescue and Emergency Services.

29. Develop a Fire Department Strategic Plan.

Once the Goochland County Department of Fire-Rescue and Emergency Services approves its Master Plan, the list of recommendations, guidance for changes, and new initiatives will provide direction for developing a new Strategic Plan, as it is the most effective way to prioritize and plan for implementation of the Master Plan's findings.

The Strategic Planning process would ideally result in a three-to-five-year work plan intended to guide the work effort of the entire organization toward a common set of goals and objectives. The process should include representation from every major interest group in the organization. Representatives of the organization participating on the planning team should represent the interests of each person within the organization.

Capital Assets

Facilities

There are six fire-rescue stations and a Fire-Rescue Training Center in Goochland County. Goochland County Volunteer Fire-Rescue Association, Inc. owns fire stations 1, 2, 3, 4, and 5. The County owns Station 6 and the Fire-Rescue Training Center.

The Goochland County Volunteer Fire-Rescue Association conducts fundraising and accepts donations for the fire department. The Association raises approximately \$500,000 for the fire department annually and manages about 1.8 million in liquid assets.

The Goochland County Volunteer Fire-Rescue Association created an Executive Director position in 2021 to oversee renovations to the five association-owned fire stations. The Executive Director is a temporary volunteer position.

The 2018 Memorandum of Understanding between Goochland County, Virginia, and the Goochland County Fire Rescue Association establishes that the Goochland County Volunteer Fire-Rescue Association will purchase or provide the following items, including any repairs, maintenance, or replacement:

- Furniture at Association-owned fire stations;
- Building maintenance and upkeep, including electrical, mechanical, and plumbing systems at Association-owned stations or Association sheds/fixtures at the County-owned station. Maintenance and upkeep include the roof, interior and exterior lighting, and interior/exterior paint;
- Parking lots at Association-owned stations, including snow and ice removal and
- Any apparatus, equipment, or materials purchased by the Association for fundraising or social activities or purchased for operational use without the approval of the County's Fire-Rescue Chief.

Appendix C of this plan includes the Memorandum of Understanding between Goochland County and the Goochland County Volunteer Fire-Rescue Association.

Fire Station Current Conditions



The five association-owned fire stations initially intended to store fire apparatus and equipment for volunteer firefighters to operate in emergencies. While the Volunteer Fire-Rescue Association has done a commendable job renovating the stations better to serve the changing needs of the fire department with the hiring of career firefighters. Alterations included adding office space, living areas, and sleeping quarters, and additional renovations are necessary at each station to meet current and anticipated future needs.



Dynamix Consulting Group visited each of the stations in March of 2023 and categorized them according to the following criteria:



Fire Station Condition Classifications

Excellent	Like new conditions. No visible structural defects. The facility is clean and well-maintained. The interior layout is conducive to function with no unnecessary impediments to the apparatus bays or offices. No significant defect history. Building design and construction match the building’s purposes. Age is typically less than ten years.
Good	The exterior has a good appearance with minor or no defects. Clean lines, good workflow design, and only minor wear on the building interior. The roof and apparatus apron are in good working order, absent any significant full-thickness cracks, crumbling of the apron surface, or visible roof patches or leaks. Building design and construction match the building’s purposes. Age is typically less than 20 years.
Fair	The building appears structurally sound with a weathered appearance and minor to moderate non-structural defects. The interior condition shows normal wear and tear but flows effectively to the apparatus bay or offices. Mechanical systems are in working order. Building design and construction may not match the building’s purposes well. Shows increasing age-related maintenance but with no critical defects. Age is typically 30 years or more.
Poor	The building appears cosmetically weathered and worn with potential structural defects, although not imminently dangerous or unsafe. Large, multiple full-thickness cracks and crumbling concrete on the apron may exist. The roof has evidence of leaking and/or multiple repairs. The interior is poorly maintained or shows signs of advanced deterioration with moderate to significant non-structural defects. Problematic age-related maintenance and/or major defects are evident. May not be well suited to its intended purpose. Age is typically greater than 40 years.

Goochland County Fire Station Facility Evaluation

Goochland County Facilities	History	Owner	Apparatus	Current Conditions	Condition
<p>Station 1 Manakin</p> <p>180 River Road West Manakin-Sabot, VA 23103</p> 	<p>1953 Two bays, two units deep, block and brick construction</p> <p>1975 renovation to add three smaller bays to the rear (present meeting room)</p> <p>1999 Renovation to add living quarters, office, kitchen, two large truck bays, public meeting room, and training room</p> <p>2023 Interior renovations</p>	<p>Goochland County Volunteer Fire-Rescue Association</p>	<p>Engine 611 Tanker 616 Brush 619 Truck 601 Ambulance 610 Ambulance 613 Boat 601 Water Rescue 607</p>	<p>Two Bunk Rooms</p> <p>Office</p> <p>Day Room</p> <p>Training Room</p> <p>Large Kitchen</p> <p>Public Meeting Room</p> <p>Bay Space: 300 linear feet</p>	<p>Good</p>
<p>Station 2 Crozier</p> <p>1529 River Road West Crozier, VA 23039</p> 	<p>1953 block construction, siding</p> <p>2006 - Addition to southern truck bays</p>	<p>Goochland County Volunteer Fire-Rescue Association</p>	<p>Engine 621 Tanker 626 Brush 629 Ambulance 620 Haz Mat 602 Boat 602</p>	<p>Bunk Room</p> <p>Day Room/Office</p> <p>Bathroom</p> <p>Small Kitchen</p> <p>Bay Space: 190 linear feet</p>	<p>Poor</p>

Goochland County Facilities	History	Owner	Apparatus	Current Conditions	Condition
<p>Station 3 Centerville</p> <p>52 Broad Street Road Manakin-Sabot, VA 23103</p> 	<p>1954 Two drive-through, two deep bays built with wood frame construction on a concrete slab with wood siding</p> <p>1962 Meeting room built on the east side of the two bays</p> <p>1972 Ambulance and Crash Truck bay built on the west side</p> <p>1989 Addition added three large eastern bays and a meeting room</p> <p>2023: Interior renovations</p>	<p>Goochland County Volunteer Fire-Rescue Association</p>	<p>Engine 631 Engine 632 Tanker 636 Brush 639 Rescue 637 Ambulance 630 Ambulance 633 QRV 603</p>	<p>Two Bunk Rooms Office Day Room Training Room Public Meeting Room Bay Space: 220 linear feet</p>	<p>Fair</p>
<p>Station 4 Fife</p> <p>2397 Hadensville-Fife Road Goochland, VA 23063</p> 	<p>1958 converted from a wood frame schoolhouse donated by the School Board with truck bays added to the front and a deeper bay to the side</p> <p>1979 added four apparatus bays to the front of the building.</p> <p>2016 renovation added a commercial kitchen for an auxiliary, two bunk rooms, an office, laundry, and two renovated bathrooms with showers</p> <p>2022 Bay expansion with new bay doors</p>	<p>Goochland County Volunteer Fire-Rescue Association</p>	<p>Engine 641 Engine 642 Tanker 626 Brush 649 Rescue 647 Ambulance 640 Boat 604</p>	<p>Two Bunk Rooms Office Day Room Training Room Public Meeting Room Bay Space 190 lineal feet</p>	<p>Fair</p>

Goochland County Facilities	History	Owner	Apparatus	Current Conditions	Condition
<p>Station 5 Courthouse</p> <p>2710 Fairground Road Goochland, VA 23063</p> 	<p>1984 Brick and Block construction with a steel superstructure</p> <p>2023: Renovations to commence in December</p>	<p>Goochland County Volunteer Fire-Rescue Association</p>	<p>Engine 651 Attack 605 Tanker 656 Brush 659 Ambulance 650 Ambulance 653 Boat 605 QRV 605</p>	<p>Two Bunk Rooms</p> <p>Office</p> <p>Day Room</p> <p>Training Room</p> <p>Public Meeting Room</p> <p>Bay Space: 300 linear feet</p>	<p>Fair</p>
<p>Station 6 Hadensville</p> <p>4810 Three Chopt Road Louisa, VA 23093</p> 	<p>Constructed in 2017</p>	<p>Goochland County</p>	<p>Engine 651 Tanker 666 Brush 669 Rescue 667 Ambulance 660 Ambulance 663 QRV 606</p>	<p>Bunk Rooms</p> <p>Office</p> <p>Day Room</p> <p>Training Room</p> <p>Bay Space</p>	<p>Good</p>

The Goochland County Department of Fire-Rescue and Emergency Services Stations will require significant financial investment in the coming years. Four of the six stations are in fair or poor condition. Dynamix Consulting further notes that some of the stations, particularly Crozier Company 2, have outlived their useful life and that others are no longer located in the optimal location to meet the current service demands of Goochland County. For this reason, consider relocating some fire stations rather than renovating them. GIS Models for Fire Station Optimization appear in the Service Delivery section of this plan. Specific recommendations appear in this plan's Future Service Delivery Models section for those stations not relocated or replaced.

Fire-Rescue Training Center Current Conditions

The Henley Fire-Rescue Training Center provides classroom and physical fire and EMS education for the Goochland County Department of Fire-Rescue and Emergency Services. The training center lacks municipal water and is no longer adequate to serve the needs of the Goochland County Department of Fire-Rescue and Emergency Services.

As the department continues to add additional firefighters, there will be an increased need for facilities to provide training. The existing training center's overall square footage does not offer sufficient space to operate and position modern apparatus, particularly when utilizing multiple apparatus, such as training for multi-company drills. For this reason, Dynamix Consulting Group recommends that Goochland County plan to construct a new training center on a property large enough to accommodate the current and anticipated future needs of the Goochland County Department of Fire-Rescue and Emergency Services.

Subsequent to the Dynamix Consulting Group site visit, the Henley Fire-Rescue Training Center has received one new modular classroom, and a second modular classroom has been ordered. A Draeger Containerized (3) Class B Fire Training Tower has been ordered as well, which was partly funded by a grant from the Virginia Department of Fire Programs.

Apparatus

Reliable fire apparatus and the emergency equipment they store are critical to the Goochland County Department of Fire-Rescue and Emergency Services mission. Without the proper apparatus, emergency personnel could not provide suppression and emergency services to the citizens of Goochland County. Along with apparatus, firefighters also require adequate equipment to perform necessary rescue activities. Performing rescue work safely and efficiently requires effective equipment, apparatus, and training.

Dynamix Consulting Group found the Goochland County Department of Fire-Rescue and Emergency Services vehicles well-maintained and in good condition. Goochland County apparatus ranges in age from a low of 1 year to a high of 33 years. By averaging the fleet list, excluding staff vehicles and boats, the average age is 13.37 years. The following fire apparatus are on order but had not arrived at the time of the Dynamix Consulting Group site visit:

- New Ladder Truck: Scheduled delivery in August 2024.
- New Tanker: Scheduled delivery in February 2024.
- New Ambulance: Scheduled delivery June 2024.

The following is the vehicle inventory of the Goochland County Department of Fire-Rescue and Emergency Services.

Emergency Response Apparatus by Station

*Over Age Recommendation for Frontline Per NFPA

Station	Unit Call Sign	Make	Model	Year	Age in 2023
1	A610	HORTON/FORD	F550	2019	4
1	A613	HORTON/FORD	E350	1998	25
1	B619	FORD	F350	2017	6
1	E611	PIERCE		2007	16
1	K616	INTERNATIONAL /S & S		2002	21
1	TRUCK-601	PIERCE		2021	2
1	BOAT 601	ROCKPROOF		2021	2
1	BOAT 601 TRLR	ROCKPROOF		2021	2
2	A620 (RM)	HORTON/FORD	F550	2022	1
2	B629	FORD	F450	2011	12
2	BOAT 602	LOWE		2001	22
2	BOAT 602 TRAILER	HAUL RITE		2001	22
2	E621	PIERCE		2007	16
6	HM-602	GMC/PIERCE		2008	15
2	K626	INTERNATIONAL/S & S		2002	21
3	QRV 603	FORD	INTERCEPTOR	2016	7

Station	Unit Call Sign	Make	Model	Year	Age in 2023
3	A630	HORTON/FORD	F550	2019	4
3	A633	HORTON		2009	14
3	B639	FORD	F350	1995	28
	(NEW) B639	FORD	F350	2023	0
3	E632	PIERCE		2007	16
3	E631	PIERCE	Enforcer	2022	1
3	K636	INTERNATIONAL/S & S		2002	21
3	R637	SPARTAN		2013	10
4	A640	FORD/HORTON	F550	2021	2
4	B649	FORD	F250	1999	24
4	BOAT 604	ROCKPROOF		2015	8
4	BOAT 604 TRLR	ROCKPROOF		2016	7
4	E641	PIERCE		2007	16
4	E642	FORD		1990	33
4	K646	INTERNATIONAL/S & S		2002	21
4	R647	INTERNATIONAL		2005	18
5	A653	HORTON		2013	10
5	A650	FORD/HORTON	F550	2021	2
5	ATTACK 605	INTERNATIONAL	7400	2009	14
5	B659	FORD	F350	1996	27
5	BOAT 605	RESCUE SLED		2011	12
5	BOAT 605 TRLR	RESCUE SLED		2011	12
5	E651	PIERCE		2008	15

Station	Unit Call Sign	Make	Model	Year	Age in 2023
5	K656	KENWORTH	T880	2021	2
5	QRV 605	FORD	INTERCEPTOR	2019	4
5	TRUCK 605	PIERCE		1993	30
6	A660	HORTON/FORD	F550	2021	2
6	A663	INTERNATIONAL	4300	2016	7
6	B669	FORD	F350	2000	23
6	E661	PIERCE		2007	16
6	K666	INTERNATIONAL/S & S		2002	21
6	QRV 606	FORD	INTERCEPTOR	2019	4
6	R667	PIERCE		2006	17



In addition to Fire Apparatus and Specialty Vehicles, the fire department uses the units listed below as staff and utility functions relative to emergency response, administration, fire prevention, and other operations.




Station	Unit Call Sign	Make	Model	Year	Age in 2023
ADMN	LOG-2	CHEVY	SILVERADO	2011	12
ADMN	ADMN 602	FORD	TAURUS	2014	9
ADMN	ATV EMS	POLARIS		2017	6
ADMN	CAR 601	CHEVROLET	TAHOE	2019	4
ADMN	TRNG 601	CHEVROLET	TAHOE	2015	8
ADMN	STAFF SPARE (CO.2)	CHEVROLET	TAHOE	2013	10
ADMN	COURIER VAN (LOG3)	GMC	SAVANNA	2015	8
ADMN	TRN-602	CHEVROLET	TAHOE	2013	10
ADMN	ERU 602 (MCI Trailer)	CIM TRANSTAR		2005	18


Station	Unit Call Sign	Make	Model	Year	Age in 2023
ADMN	ERU 603 (ATV Trailer)	HAULMARK		2006	17
ADMN	GREY TRAILER	PATRIOT		2018	5
ADMN	FM 601	FORD	F250	2020	3
ADMN	FOAM TRAILER	TRAILER		2015	8
ADMN	ERU-601	CHEVROLET	SILVERADO	2020	3
ADMN	SHELTER TRAILER	HERCULES		2010	13
ADMN	SHELTER TRAILER	HAULMARK		2001	22
ADMN	WR 607	FORD	F250	2010	13
ADMN	BC 601	CHEVROLET	TAHOE	2021	2
ADMN	CAR 603	CHEVROLET	TAHOE	2021	2
ADMN	CAR 602	CHEVROLET	TAHOE	2021	2
ADMN	EM-601	FORD	EXPLORER	2017	6
ADMN	LOG 601	CHEVROLET	2500	2022	1
ADMN	ERU 604 (SE Trailer)	PROLINE		2022	1
ADMN	E681	SPARTAN/SMEAL		2001	22

Capital Assets Recommendations

30. Incorporate automatic sprinkler protection, electronic access control, cancer prevention engineering, back-in bays, silent stations, and other improvements into plans to renovate the existing six fire stations.

Goochland County Facilities	Owner	Future Considerations
<p>Station 1 Manakin 180 River Road West Manakin-Sabot, VA 23103</p> 	<p>Goochland County Volunteer Fire-Rescue Association</p>	<p>Building not completely sprinkled – 13D System only in the bunkroom</p> <p>Inadequate Cancer Prevention Engineering</p> <p>Lack of Silent Station</p>
<p>Station 2 Crozier 1529 River Road West Crozier, VA 23039</p> 	<p>Goochland County Volunteer Fire-Rescue Association</p>	<p>Building not completely sprinkled – 13D System scheduled for installation in May - only in the bunkroom</p> <p>Lack of Electronic Access Control</p> <p>Inadequate Cancer Prevention Engineering</p> <p>Lack of Silent Station</p> <p>Accommodates only two crew members comfortably</p> <p>Parking lot settlement issues</p> <p>The bathroom and shower require renovation</p> <p>Single Small Unisex Bunkroom</p> <p>No Public Water or Sewer</p> <p>Exercise equipment in the bay</p> <p>Limited Expansion Opportunities</p>

Goochland County Facilities	Owner	Future Considerations
<p>Station 3 Centerville 52 Broad Street Road Manakin-Sabot, VA 23103</p> 	<p>Goochland County Volunteer Fire-Rescue Association</p>	<p>Lack of Automatic Sprinkler Protection</p> <p>Lack of Electronic Access Control</p> <p>Inadequate Cancer Prevention Engineering</p> <p>Lack of Silent Station</p> <p>Bay space is limited in length</p> <p>Bathrooms are not contiguous to living quarters</p> <p>Lack of individual bunk rooms</p> <p>Limited room for expansion of the building</p> <p>Drainage issues inside and out</p> <p>Lead paint on walls</p> <p>Lack of workout area</p>
<p>Station 4 Fife 2397 Hadensville- Fife Road Goochland, VA 23063</p> 	<p>Goochland County Volunteer Fire-Rescue Association</p>	<p>Lack of Automatic Sprinkler Protection</p> <p>Lack of Electronic Access Control</p> <p>Inadequate Cancer Prevention Engineering</p> <p>Lack of Silent Station</p> <p>Apparatus bays are too short</p> <p>No dedicated workout facilities</p> <p>Lack of water and sewer</p>
<p>Station 5 Courthouse 2710 Fairground Road Goochland, VA 23063</p> 	<p>Goochland County Volunteer Fire-Rescue Association</p>	<p>Lack of Automatic Sprinkler Protection</p> <p>Lack of Electronic Access Control</p> <p>Inadequate Cancer Prevention Engineering</p> <p>Lack of Silent Station</p> <p>Lack of individual bunk rooms</p> <p>Lack of workout area</p>

Goochland County Facilities	Owner	Future Considerations
<p>Station 6 Hadensville 4810 Three Chopt Road Louisa, VA 23093</p> 	<p>Goochland County</p>	<p>Lack of Electronic Access Control</p> <p>Inadequate Cancer Prevention Engineering</p> <p>Lack of Silent Station</p>

Automatic Sprinkler Protection

As noted above, five fire stations are not entirely sprinklered. NFPA 1: *Fire Code* requires that “New buildings housing emergency fire, rescue, or ambulance services shall be protected throughout by approved supervised automatic sprinkler systems.” The requirement for sprinkler protection protects the emergency services personnel occupying the facility. It reduces the risk of disrupting emergency services to the community because of a fire. While not required by the code for existing buildings, Dynamix Consulting Group recommends that the county consider installing fire sprinkler systems in all existing fire stations – beyond just the sleeping quarters - for the safety of the firefighters who occupy the stations, as well as to demonstrate to the community the importance of automatic fire sprinkler systems.

Electronic Access Control

Fire stations were historically places where residents and visitors from the community accessed any part of a fire station with very few limitations. Unfortunately, the current social environment requires emergency service providers to implement specific security measures limiting and controlling access to fire-rescue facilities. The need to protect firefighters drives the control of limited access, installation of expensive equipment, and protection of sensitive data from access by individuals desiring to harm the community. Presently, fire station access in the county by keys or key codes. This is unreliable for securing buildings, as members can copy keys or share access codes. The county should consider installing electronic access control systems that monitor who enter and exit buildings and allow the department to turn off access to individuals as needed in all facilities. Dynamix Consulting Group was advised that the county plans to install an electronic system with discrete codes or key fobs on two doors at each station and recommends that this be a priority.

Cancer Prevention Engineering

Firefighting is an occupation with higher rates and varieties of cancer than many other occupations. Regrettably, exposure to cancer-causing agents (carcinogens) does not end with fire extinguishment. Exposure for firefighters continues when returning to the fire station until gear, equipment, and the firefighters themselves become “clean” of the carcinogens from the smoke and other products of the fire through decontamination efforts. Until this time, the risk of continued cross-contamination remains for the firefighters.

Within the county, there are cancer prevention policies in place. Firefighters have received training protocols for both cancer prevention and decontamination. To limit or reduce firefighter exposure to toxic products of combustion that occur *after the fire*, firefighters must store turnout gear in well-ventilated rooms to prevent additional firefighter exposure to off-gassing of chemicals absorbed into turnout gear during a fire. To that end, the county should protect firefighters from cancer, including pressurizing corridors to help keep contaminants out of designated clean areas, private showers, and a second set of turnout gear or access to a second set for all firefighters.

Back in Bays

All of the fire stations have “back-in bays.” The lack of drive-throughs at these facilities constitutes a safety concern, as many firefighter injuries and accidents occur when backing emergency vehicles into the bays. Dynamix Consulting Group notes that all stations use “back in” procedures; however, drive-through bays are the recommended configuration. For all future buildings that will house apparatus, the department should consider a design that allows for drive-through bays that are large enough to accommodate all frontline and reserve apparatus.

Silent Stations

One issue that was repeatedly brought up to Dynamix Consulting Group during the site visit meetings was a strong desire by the membership to have quiet stations. Goochland County Department of Fire-Rescue and Emergency Services responded to more than 4,397 calls last year. That’s an average of 12 calls per day. At the time of Dynamix Consulting Group’s site visit, personnel in every station heard the radio traffic for every call, whether or not the members of that station were assigned to respond.

A study published in the *American Journal of Industrial Medicine* in 2018 found higher rates of hypertension and high cholesterol in people regularly exposed to loud noises at work. Loud noises were defined as four or more hours a day, several days a week, when individuals needed to raise their voices or shout to be heard by someone standing a few feet away. The researchers concluded that as many as 14% of cases of hypertension and 9% of cases of high cholesterol were potentially a result of noise exposure—possibly due to the stress of a loud working environment. The fire-rescue department should make it a priority to alert only the fire station(s) that are dispatched to calls to reduce the constant radio traffic that is currently transmitted to all of the stations.

Dynamix Consulting Group recommends that beyond adequate space and municipal water, consideration should also be given to the following if plans are developed to relocate the training center:

31. Develop a plan for the future ownership, repair, and maintenance of Stations 1, 2, 3, 4, and 5.

The Goochland County Volunteer Fire-Rescue Association conducts fundraising and accepts donations for the fire department. The Association raises approximately \$500,000 for the fire department annually and manages about 1.8 million in liquid assets. This is a tremendous benefit for Goochland County and the Goochland County Department of Fire-Rescue and Emergency Services.

Considering the magnitude and criticality of the services provided by the Goochland County Volunteer Fire-Rescue Association, Goochland County should commence discussions about the sustainability of this model, understanding that the responsibility for these buildings could fall to the county if Goochland County Volunteer Fire-Rescue Association should choose not to continue to serve in their current capacity.

32. Establish a single logistics facility.

Goochland County does not have a central storage facility, and items such as spare turnout gear, air packs, and tools and equipment are stored in multiple locations across the county anywhere space can be obtained.

33. Relocate and expand the Training Facility.

The following elements should be included in plans for a new facility.

Driver Training Course

The existing training facility does not have adequate room for a driver training course. This is a significant deficiency. In 2021 alone, more than 18,775 fire department vehicles were involved in collisions nationwide, resulting in 4,950 firefighter injuries and 16 firefighter fatalities that occurred while responding to or returning from an incident.¹³ Considering the risk involved in operating emergency vehicles, it would be prudent for the Goochland County Department of Fire-Rescue and Emergency Services to have a driver training course to provide regular hands-on driver training. These vehicles' safe and efficient operation depends on a structured introductory qualification program and an ongoing annual refresher training program for apparatus operators deemed qualified. The 2007 edition of NFPA 1002: *Standard for Fire Apparatus Driver/Operator Professional Qualifications* provides nationally accepted, peer-reviewed standards for initial and ongoing training programs. The 2019 edition of NFPA 1402: *Standard for Building Fire Service Training Centers* recommends the following driver training course infrastructure:

¹³ [chrome-extension://efaidnbmnnnibpcajpcglclefindmkaj/https://www.nfpa.org/-/media/Files/News-and-Research/Fire-statistics-and-reports/Emergency-responders/osffinjuries.pdf](https://www.nfpa.org/-/media/Files/News-and-Research/Fire-statistics-and-reports/Emergency-responders/osffinjuries.pdf)

B.7.4.5¹⁴ The components of a driver training course should incorporate the following basic driving maneuvers as a minimum:

- | | | | |
|----|----------------------------|----|----------------------------------|
| 1. | (1) Serpentine | 5. | (5) Straight-line driving |
| 2. | (2) Alley docking | 6. | (6) Backing |
| 3. | (3) Opposite alley pull-in | 7. | (7) Station parking |
| 4. | (4) Diminishing clearance | 8. | (8) Confined space
turnaround |

B.7.4.5.1 The basic components listed in B.7.4.5 would ideally be accommodated with a dedicated paved area measuring 400 ft × 300 ft or 2.8 acres (122 m × 91 m). If that is not feasible within the site, a smaller paved area measuring 300 ft × 200 ft or 1.4 acres (91 m × 61 m) could be used, or driver training could be incorporated into the road network, as described in B.7.4.2.

B.7.4.5.2 In addition to the basic components, a hill-incline ramp, with sufficient angle to test the student driver’s ability to “hold” apparatus or to demonstrate stopping on an incline, could be valuable.

Classroom and Showers

The Goochland County Department of Fire-Rescue and Emergency Services Training Center includes a classroom building. The primary classroom seats approximately 20 students at tables. The facility also has a single unisex bathroom, a storage closet, recruit firefighters’ equipment storage, and a kitchenette area.

The classroom facility is in fair condition; however, it lacks the bathroom and shower facilities common in modern training facilities. This is a health and safety issue because the best practice is for firefighters to shower immediately following live fire training evolutions to minimize potential exposure to the carcinogens that are a byproduct of fire. NFPA 1402 requires the following:

5.3*¹⁵ Personnel Gross Decontamination. The training center shall facilitate personnel wash-down after training exercises that expose personnel to products of combustion in accordance with the requirements of the AHJ.

Due to a lack of storage at the training facility, part of the classroom is used as a storage area.

¹⁴ Annex B Nonmandatory Information About Planning, Designing, Constructing, and Maintaining Fire Training Centers. This annex is not a part of the requirements of this NFPA document but is included for informational purposes only.

¹⁵ *Indicates additional information is include within the appendix of the code.

Burn Room/Smoke House

Dynamix Consulting Group was advised during the March 2022 site visit that a Draeger Containerized Live Fire Training System had been ordered to conduct live fire training. NFPA 1402 requires the following:

5.4* Environmental Consideration. The training center shall be designed to meet the minimum environmental requirements of the AHJ as they relate to fire training centers.

6.1.9* Drainage for training water used in training structures and props shall be provided in the design.

7.2.1.1 If visible structural defects are found, such as cracks, rust, spalls, or warps in structural floors, columns, beams, walls, or metal panels, the owner/operator shall have a follow-up evaluation conducted by a licensed professional engineer with live fire training structure experience and expertise, or by another qualified professional as determined by the owner/operator or AHJ.

7.2.1* The structural integrity of live fire training structures shall be evaluated and documented annually by the owner/operator or AHJ.

7.2.1.1 If visible structural defects are found, such as cracks, rust, spalls, or warps in structural floors, columns, beams, walls, or metal panels, the owner/operator shall have a follow-up evaluation conducted by a licensed professional engineer with live fire training structure experience and expertise, or by another qualified professional as determined by the owner/operator or AHJ.

7.2.2* The structural integrity of the live fire training structure shall be evaluated and documented by a licensed professional engineer with live fire training structure experience and expertise, or by another qualified professional, as determined by the AHJ, at the following intervals:

- 1) For gas-fired live fire training structures, at least once every 10 years or more frequently if determined to be required by the evaluator.
- 2) For non-gas-fired live fire training structures, at least once every 5 years or more frequently if determined to be required by the evaluator.
- 3) For structures constructed with calcium aluminate refractory structural concrete, every 3 years or more frequently if determined to be required by the evaluator.

7.2.2.1 The structural evaluation of structures constructed with calcium aluminate refractory structural concrete shall include the removal of concrete core samples from the structure to check for delamination within the concrete.

7.2.2.2* Part of the live fire training structure evaluation shall include, at the same intervals listed in 7.2.2, the removal and reinstallation of a representative area of thermal linings (if any) to evaluate the concealed conditions behind the linings.

Training Tower

NFPA 1402 requires the following:

6.1.5 Stairs in or adjacent to training structures and props shall meet the requirements of the building code for tread and riser dimensions, stair and landing widths, and railing heights and strengths.

6.1.6 Guardrails and handrails at training structures and props shall be provided at locations required by the building code for an occupied building and shall meet the building code requirements for height and loading.

7.1.8 Doors and window shutters that are exposed to elevated temperatures related to live fire training shall meet the following requirements: (1) Resist binding when exposed to temperature cycles associated with live fire training, which could cause significant expansion and contraction; (2) Operate from both sides of the door or shutter without special tools or keys during live fire training.

Drafting Pit

Fire hydrants do not protect many areas of Goochland County. For this reason, any plans for a new training facility must include a drafting pit. NFPA 1402 recommends the following:

B.7.3 Drafting Area.¹⁶

B.7.3.1 A drafting area could be desirable to facilitate the training of pump operators and to test pumper apparatus. The drafting area could consist of a drafting pit (underground cistern), stormwater retention pond, or natural body of water, such as a pond, lake, or river.

B.7.3.2 In general, a capacity of at least 20,000 gal (75,700 L) of water should be provided, assuming water will be recycled to the drafting area. Where the drafting area also serves as the sole supply of water for training, larger quantities could be needed.

B.7.3.3 The size of the drafting area and the configuration of water return elements, interior baffles, and other features should be designed to reduce or minimize the heating of the water, turbulence, and air entrapment.

B.7.3.4 The drafting area should be proportioned so that the water will be at least 4 ft (1.2 m) deep, with the top surface of the water no more than 10 ft (3 m) below the pump intake (preferably less), so that the water level will not drop lower than 10 ft (3 m) below the pump intake during pump operations. Drafting area proportions should match the anticipated apparatus that would be used, including apparatus that is anticipated for future use.

B.7.3.5 The drafting area should have at least one 6 in. (0.15 m) diameter dry hydrant with an intake strainer at the bottom of the dry hydrant, close to the bottom of the water supply, and at least 2 ft (0.6 m) below the top surface of the water. If large flows are anticipated, two dry hydrants should be considered.

¹⁶ Annex B Nonmandatory Information About Planning, Designing, Constructing, and Maintaining Fire Training Centers. This annex is not a part of the requirements of this NFPA document but is included for informational purposes only.

B.7.3.6 A drafting pit should have access openings at the top, both for maintenance personnel and for suction hard sleeves. The access openings should have hinged covers that are capable of supporting personnel.

B.7.3.7 There should be a collection tube or hood to direct pumper discharge back into the drafting area. The tube or hood configuration should allow for handlines to be held in place by a stand or other means so that personnel do not have to hold handlines during pump operations.

B.7.3.8 Instrumentation should be placed in a protected location. It might be advantageous to locate instruments in an area removed from apparatus noise. In this case, an intercom system might be needed between the instrumentation area and the pump operator. Where portable instrumentation could be used, provisions should be made for the units.

B.7.3.9 Paving adjacent to the drafting area should be concrete to support apparatus weight and to be resistant to exhaust heat during prolonged pump operations.

34. Develop a plan for the number and location of fire stations that will be operated in Goochland County.

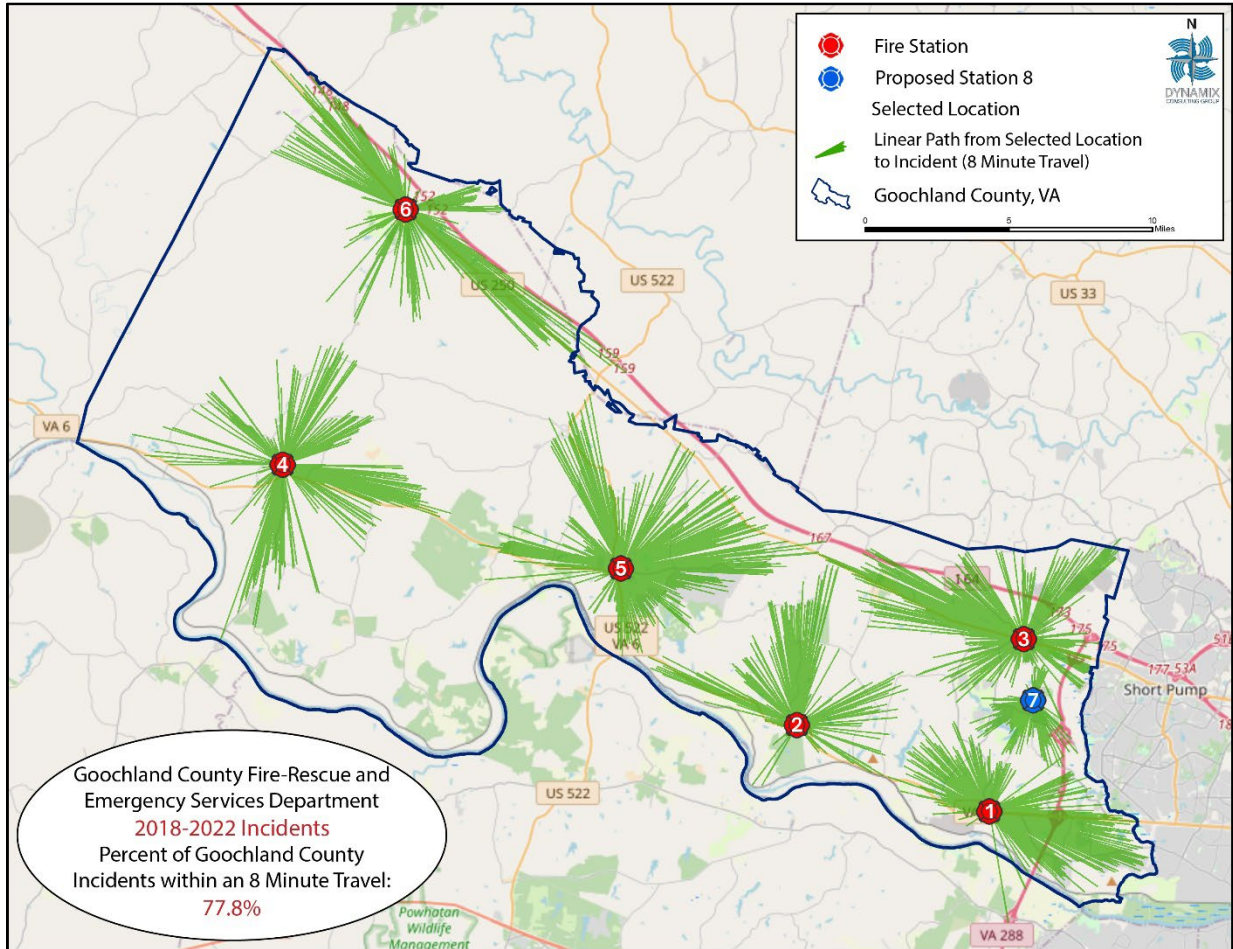
The Service Delivery Recommendations section of this report includes a full explanation of the development of performance objectives. Dynamix Consulting Group offers the following three options for the foundation of the initial Goochland County Department of Fire-Rescue and Emergency Services Performance Objectives.

A fire station can only be effective if adequately staffed and equipped; the county must be prepared to fund staffing and equipment for every station it places into service. Once established, the performance objectives should be regularly monitored and evaluated at least every three years to ensure that they continue to meet the changing needs of the county.

Seven Stations

Projections indicate that the Goochland County Department of Fire-Rescue and Emergency Services can reach 77.8% of incidents occurring between 2018 and 2022 within 8 minutes or less if it chooses to adequately staff and equip the current six stations and the planned Station 7.

Seven Station Model



Subsequent to the Dynamix Consulting Group site visit, ownership of the property for the future Station 7 was transferred to Goochland County from the West Creek Developer. The property has undergone rezoning. An Architectural and Engineering Firm was selected, and the design phase of the West Creek Fire-Rescue Station has commenced.

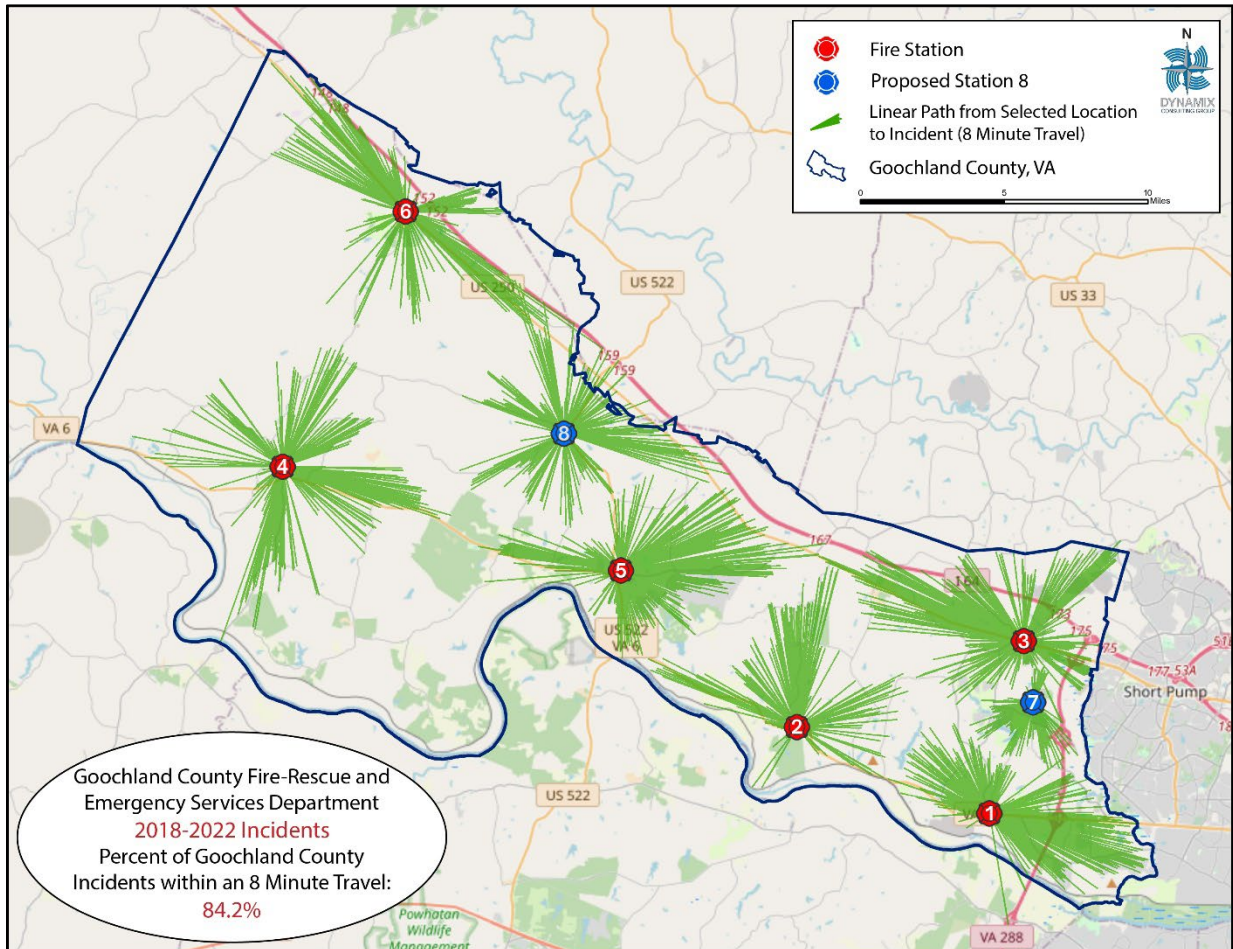
The West Creek Fire-Rescue Station is necessary to address the explosive growth in the eastern end of Goochland County while reducing emergency 911 response times. County-wide, there are six Fire-Rescue Stations, with the east end served primarily by Companies 1 (Manakin) and 3 (Centerville). Eastern Goochland has already experienced and anticipates additional and significant growth along the 288 corridor over the next several years, both residential and commercial, including several congregate care facilities. Residential growth alone is projected to generate over 1,000 additional Fire-Rescue 911 calls in the eastern end of Goochland County. Annual call volumes are already rapidly increasing, and additional Fire-Rescue resources are necessary to continue to meet response time standards and provide for the number of emergency responders to mitigate fire and medical emergencies safely and effectively. The station will be fully staffed 24/7 by career personnel, supplemented by volunteers when available, and equipped with both fire suppression apparatus and an ambulance.

The station location in the vicinity of the Hockett Road and Tuckahoe Creek Parkway intersection allows for road connectivity in all directions while continuing to address response in the 1/3/5-mile radius. The West Creek Fire-Rescue station is the first additional fire station added to the original six volunteer station locations, established in the 1950s and early 1960s.

Eight Stations

Projections suggest Goochland County will reach 84.2% of the incidents between 2018 and 2022 within 8 minutes or less if it adequately staffs and equips the current six stations, and both the planned Station 7 and planned Station 8 are added.

Eight Station Model



Subsequent to the Dynamix Consulting Group site visit, the Goochland County Board of Supervisors and the Goochland County Department of Fire-Rescue and Emergency Services Department identified the need for a new Fire-Rescue Station in District 2 at Sandy Hook. This would be the future Station 8. The County’s current Capital Improvement Plan includes the construction of a fire station in the Sandy Hook area of the County in 2028.

In April 2022, the County purchased two adjacent properties at 3535 Whitehall Road, including a single-family home at the intersection of Dogtown Road. On September 5, 2023, a third adjacent property with a single-family home located at 2913 Dogtown Road was purchased, bringing the total acreage for the fire station project to 6.596 acres.

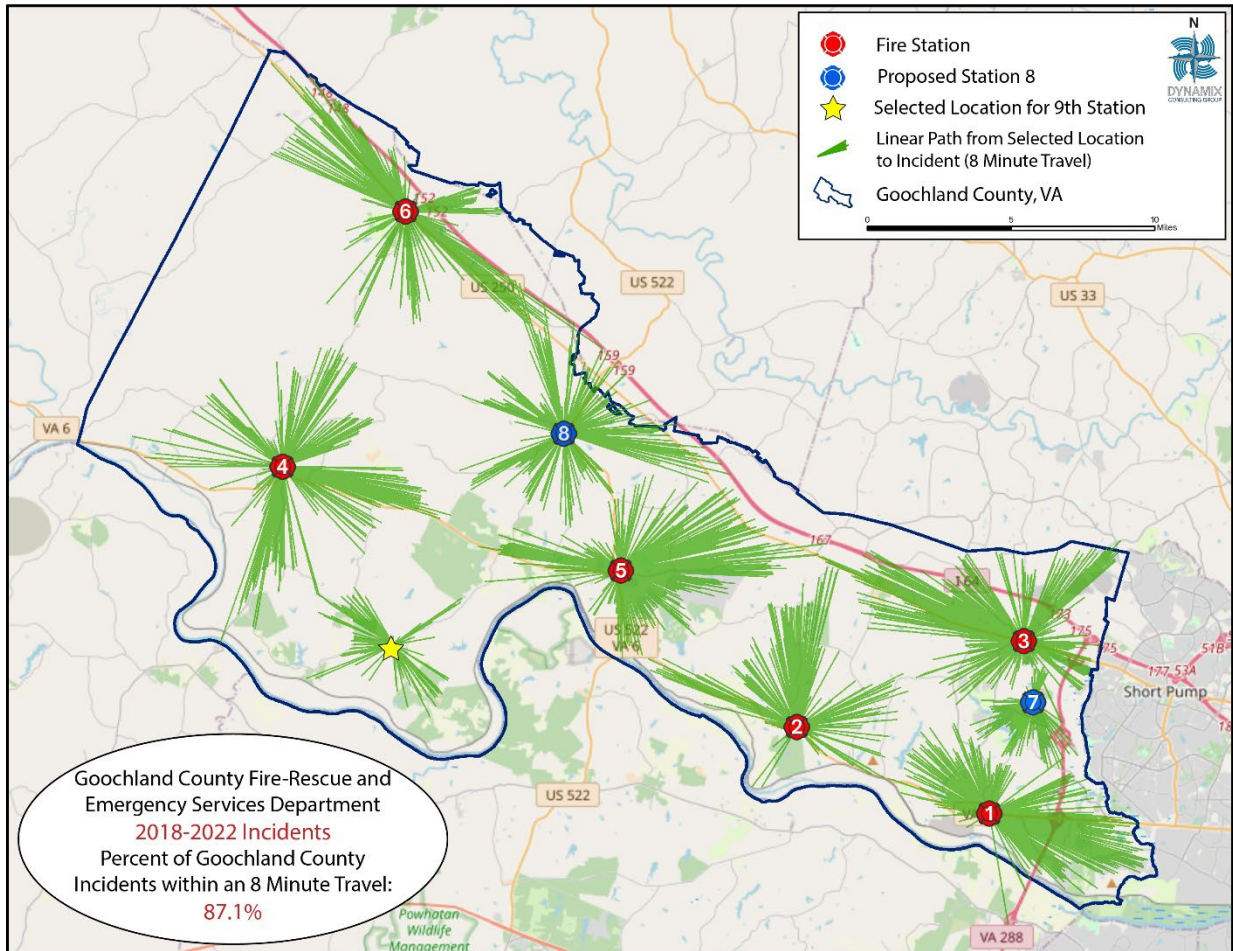
In April 2023, the Goochland County Department of Fire-Rescue and Emergency Services started running a daytime ambulance out of the future Sandy Hook Fire-Rescue Station location to reduce response times as the result of the roundabout construction at Fairground Road and Sandy Hook Road, using the single-family home as living and office quarters. At the completion of the roundabout construction, the daytime ambulance coverage in Sandy Hook continued and expanded to seven days a week, 7 a.m. to 7 p.m., as often as both career and volunteer staffing allows.

To date, the ambulance has demonstrated a reduction in response times in the Sandy Hook area, as well as additional EMS resource availability during times when other units in the county are busy on calls. It is the desire of the County Government and the Goochland County Department of Fire-Rescue and Emergency Services to immediately start making site improvements to the property, expanding the temporary Fire-Rescue station quarters to include an approximately 40' X 60' metal building that can serve as climate-controlled apparatus bays for one fire engine and an ambulance, select logistics supply storage, and driveway entrance and exit improvements onto Dogtown Road. Timmons Group is assisting in developing a site plan. The goal of this design is to create a suitable temporary location for Fire-Rescue staff to serve the local area that does not inhibit the sites' ability to house a future fully functioning station in the coming years. With that in mind, the existing single-family home on parcel 21-1-0-26-0 has already been updated for fire rescue staff on site. The proposed approximately 40' x 60' apparatus bay building would cover two emergency vehicles as well as house other storage and operation space for the fire department. This apparatus bay will be placed at the rear of the site to allow room for future construction. The location selected allows for the expansion of the apparatus bay as well as the phasing of a future fire station to allow the temporary apparatus bay to retain functionality during construction and to continue to serve logistics operations afterward. These site improvements will expand the temporary quarters operations in Sandy Hook to include both fire suppression and EMS services and allow for the option of 24-hour coverage until a permanent Fire-Rescue Station facility can be constructed.

Nine Stations

Finally, for incidents that occurred between 2018 and 2022 within an 8-minute or less travel time, Goochland County should reach 87.1% of the incidents from a combination of their current six stations and the planned Stations 7, 8, and 9 to address the anticipated future development of the county. However, the county should reevaluate the demand for services and the growth progress at that time to ensure the Station 9 location remains viable.

Nine Station Model



35. Conduct a county-wide evaluation of all the apparatus in the fleet with the goal of eliminating apparatus that does not see regular use and does not serve a specific and necessary need.

The cost of maintaining apparatus does place a significant burden on a fire department's operating budget in addition to the burden that replacement costs incur on the capital budget. The department has a fleet reduction strategy in place based on the needs of the community; this strategy should be evaluated and updated regularly.

36. Plan to increase the size of the apparatus fleet.

The current number and types of apparatus are sufficient in quantity to service the County; however, additional fire stations will require additional apparatus and additional reserve apparatus.

37. Evaluate the Vehicle Replacement Plan at regular intervals.

As the county's call volume increases, evaluate the Vehicle Replacement Plan at regular intervals to adjust replacement schedules accordingly. This is especially important because as the front-line vehicles respond to an increasing number of emergency incidents, the vehicles placed in reserve status will have increasingly more wear and tear and decreased reliability. It is imperative to fund this replacement plan to ensure that it remains reliable as demand for service increases.

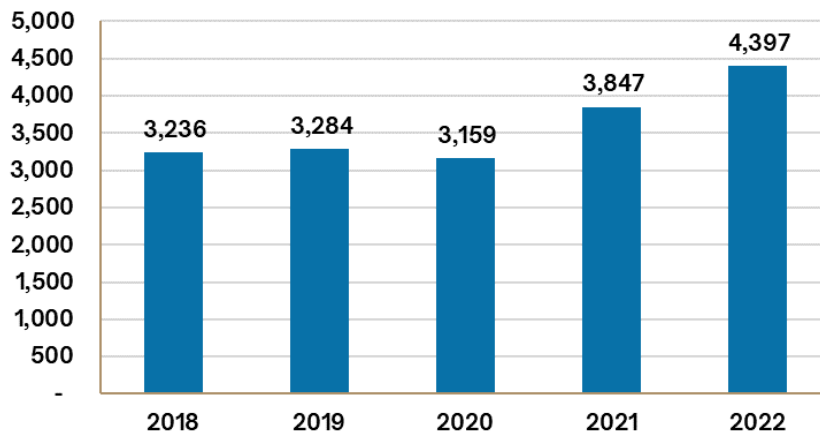
Service Delivery and Performance

When an emergency occurs, the speed with which the fire department arrives is one of the most visible elements viewed by the public. In addition to the first arriving unit, how quickly other units arrive on the scene and how efficiently they resolve emergencies may be the only interaction many residents have with the organization. Goochland County Department of Fire-Rescue and Emergency Services provides services from six fire stations across the county.

Service Demand Study

The public’s demand for services drives the need for public safety organizations like Goochland Fire-Rescue. As service demands and demographics of the community change over time, so should the local fire and rescue companies. This section provides an overview of the total demand for service within Goochland County and the call volume for individual units providing services.

Annual Service Demand

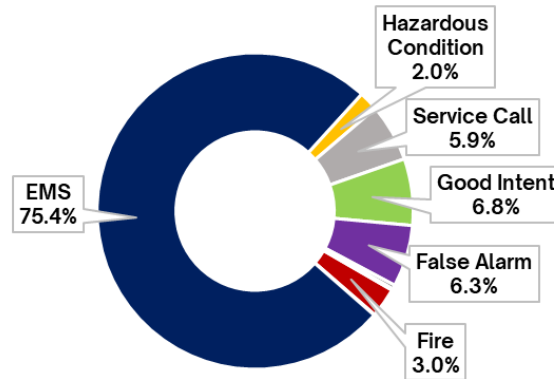


Categories used in this analysis are based on the National Fire Incident Reporting System (NFIRS) guidelines for grouping incident types. Within the NFIRS classifications, the following incident types are grouped within the corresponding series:

- 100 Fire
- 200 Overheat/Overpressure
- 300 EMS
- 400 Hazardous Conditions
- 500 Service Call
- 600 Good Intent
- 700 False Alarms
- 800 Severe Weather
- 900 Special Incident

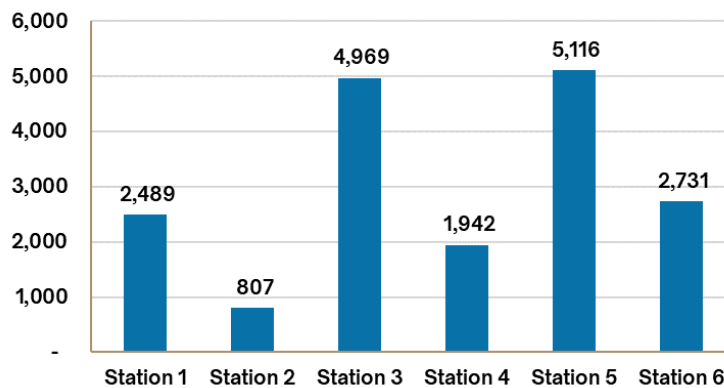
Between 2020 and 2022, demand for services increased by 39.2%. Emergency medical services (EMS) represent three-quarters of service demand within Goochland County, which is typical of most fire-rescue organizations. However, in Goochland County, crossed-staffed units with two personnel cannot reasonably respond to calls for service within NFPA recommendations as they must transfer personal protection equipment between units based on the nature of the call.

Frequency by Incident Type



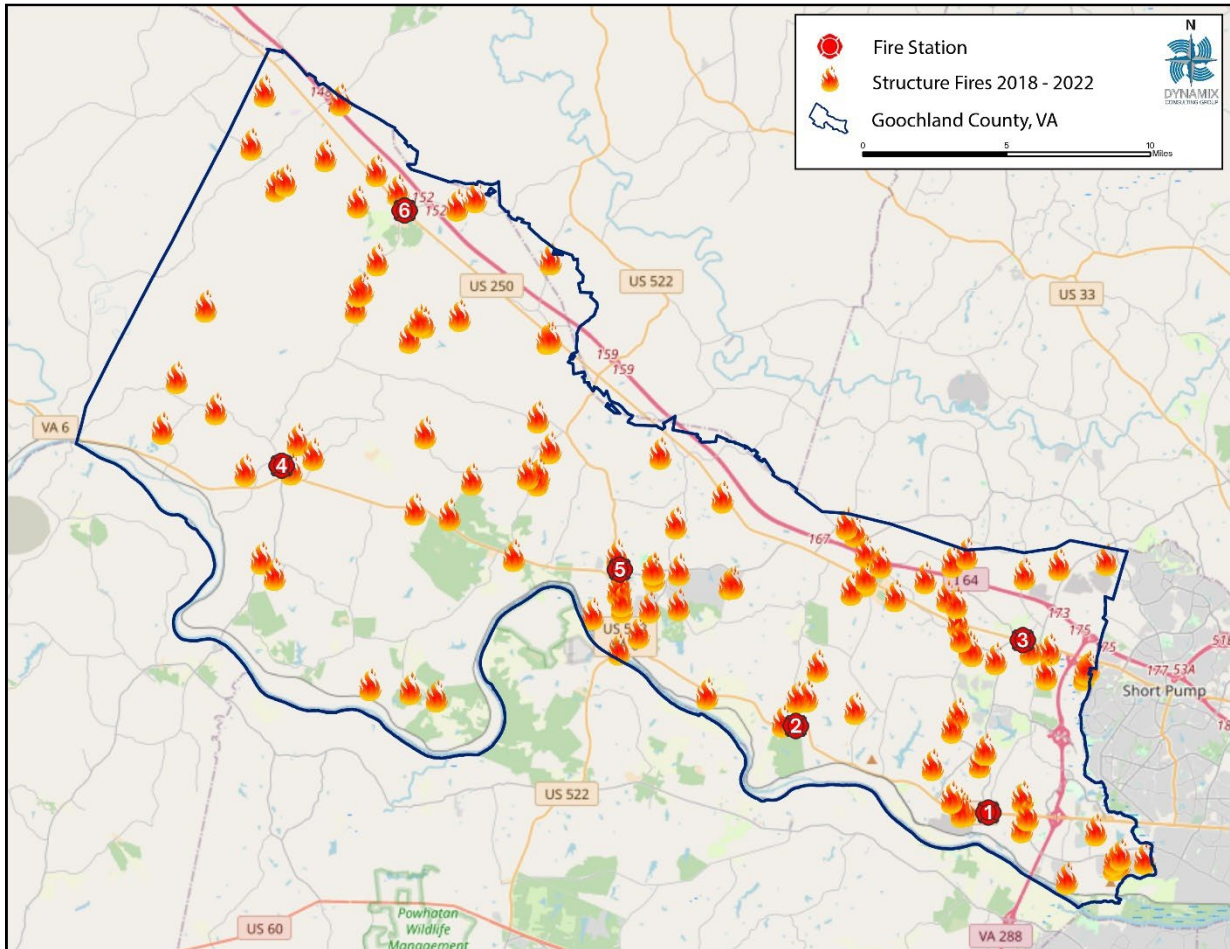
When call volume is examined by station, Station 5 and Station 3 receive nearly double the call volume of stations 1 and 6. As the majority of calls are EMS-related, it is likely that these stations would not be available to contribute to fire suppression as they spend most of their day responding to EMS calls and transporting patients to the hospital.

Service Demand by Station 2018-2022



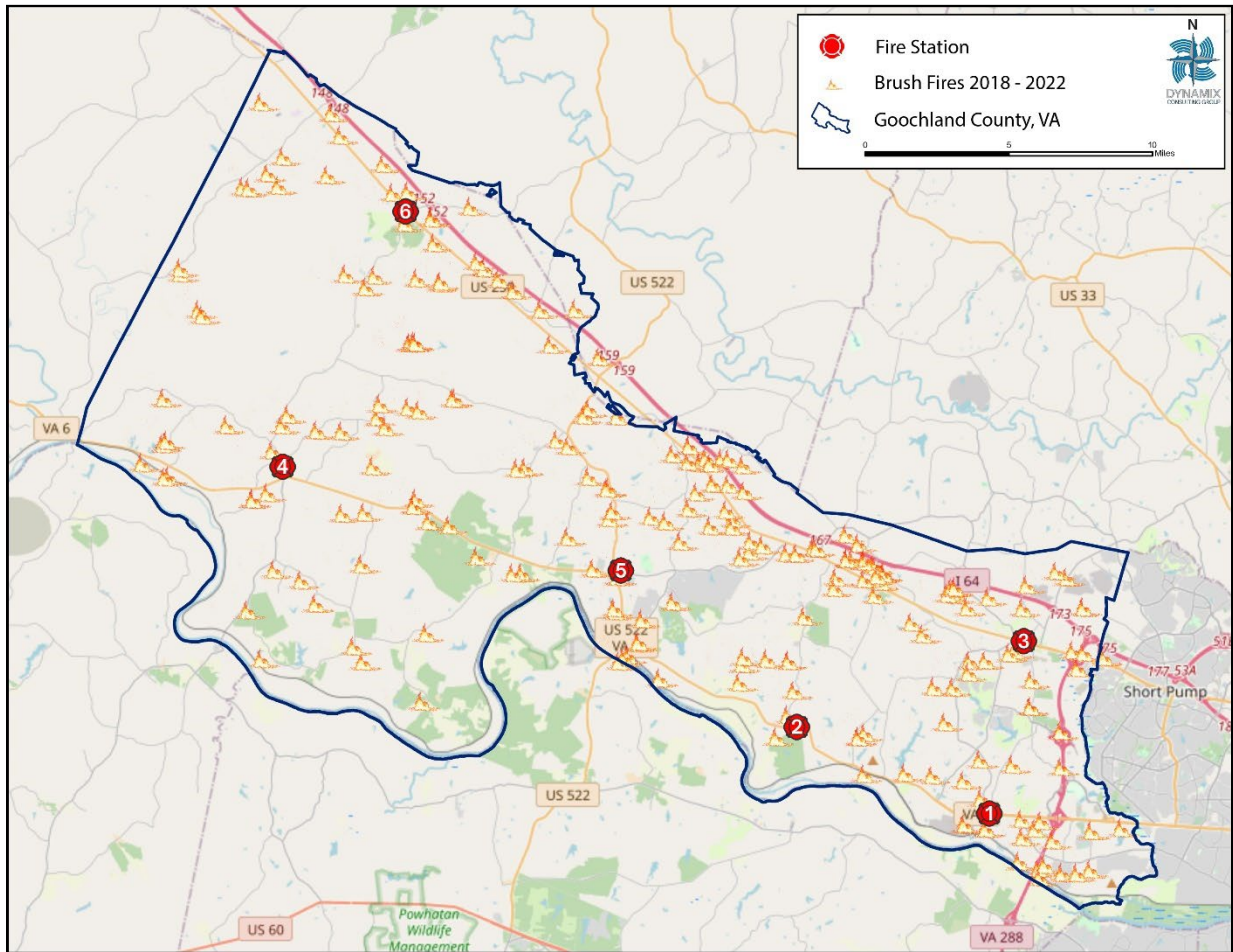
While most structure fires occurred in the central to eastern areas of Goochland County between 2018 and 2022, fires occurred countywide and likely required all available resources during suppression operations. Given the size and distribution of limited resources in Goochland County, many fires likely grow beyond the incipient stage, resulting in structural damage or total loss.

Structure Fires 2018-2022



Similarly, brush fires occurred more densely within the eastern half of Goochland County; however, brush fires were also most likely to occur along Interstate 64.

Brush Fires 2018-2022

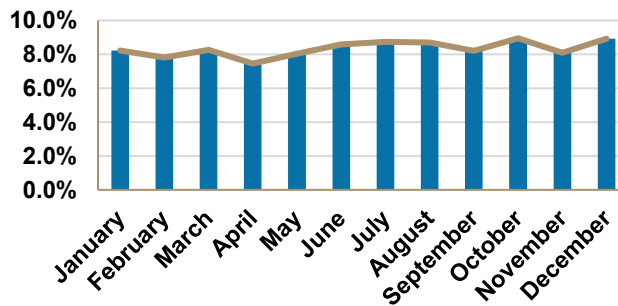


Temporal Variation

Analyzing temporal variation is crucial when it comes to understanding patterns over time. These patterns give us valuable insight into when service demands are highest and lowest. This becomes even more important because the County includes rural, suburban, and urban areas spread across a large geographical area.

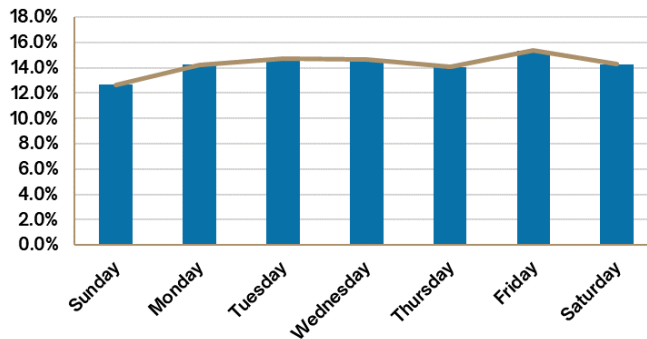
Typically, service demand is at its lowest during the spring and gradually increases throughout the year until it peaks in late fall. While there are some month-to-month variations, call volume remains stable throughout the year.

Service Demand by Month 2018-2022



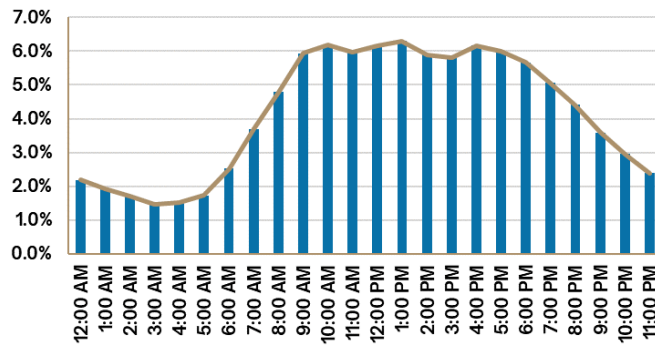
When observed by the day of the week, service demand also follows a typical pattern of increased activity during the workweek that drops off on weekends—the average difference in call volume from the high on Fridays to the low on Sundays.

Service Demand by Day



Finally, the temporal variation by the hour of the day is displayed. In this chart, service demand increases at the beginning of the day, peaking near midday and tapering off to its low point at 3 a.m. Regular office hours, from 8 a.m. to 5 p.m., represent 53.1% of call volume within the County. With this in mind, it may be difficult for some of the busier stations to conduct training or other duties during times that day staff is present. Alternative training schedules such as weekend training or night drills may provide an option allowing more firefighters to participate in uninterrupted training.

Service Demand by Hour 2018-2022



Population Density and Geographical Demand

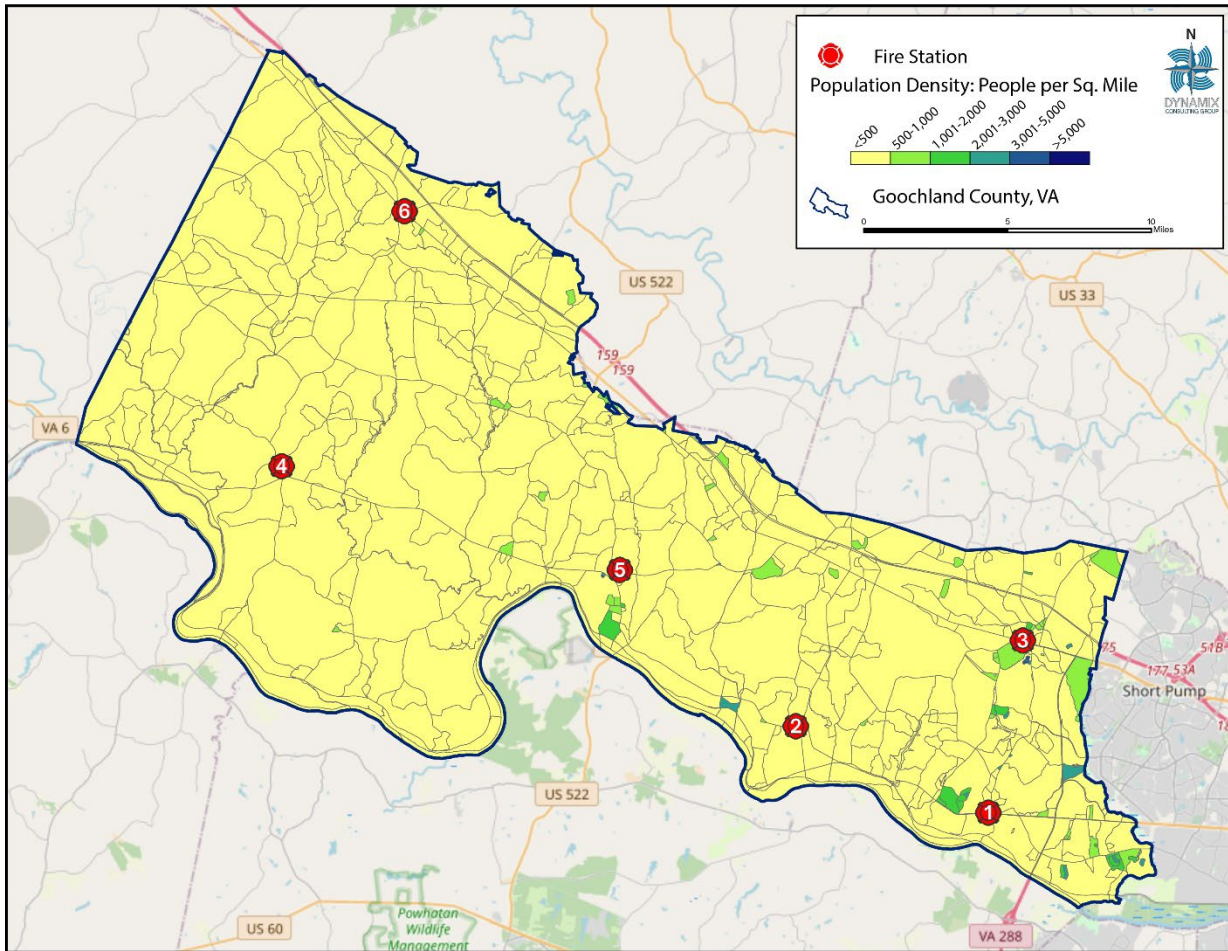
The recent county population density analysis by US Census Blocks using 2022 American Community Survey (ACS) estimates revealed some interesting insights. As expected, areas with higher population densities have higher service demand. This information is crucial for developing an optimized deployment strategy to swiftly respond to fires or significant medical events.

The speed at which first-due resources reach the incident scene is critical in ensuring a positive outcome. The distribution of population densities is a fundamental element in achieving this goal. By understanding the demographics of a given area, responders can develop a deployment strategy tailored to that area's unique needs.

The data collected through the US Census Blocks using 2022 American Community Survey (ACS) estimates is a valuable tool in ensuring that response times are as efficient as possible. This population density analysis is fundamental in areas with high population densities, where the demand for services will likely be the highest.

Dynamix Consulting Group's analysis of population density in the District by US Census Blocks using 2022 American Community Survey (ACS) estimates has provided valuable insights into the demand for services in the area. By using this information to develop an optimized deployment strategy, responders can ensure that they can provide a swift and effective response to incidents, thereby increasing the chances of a positive outcome.

Population Density 2022 ACS Estimates

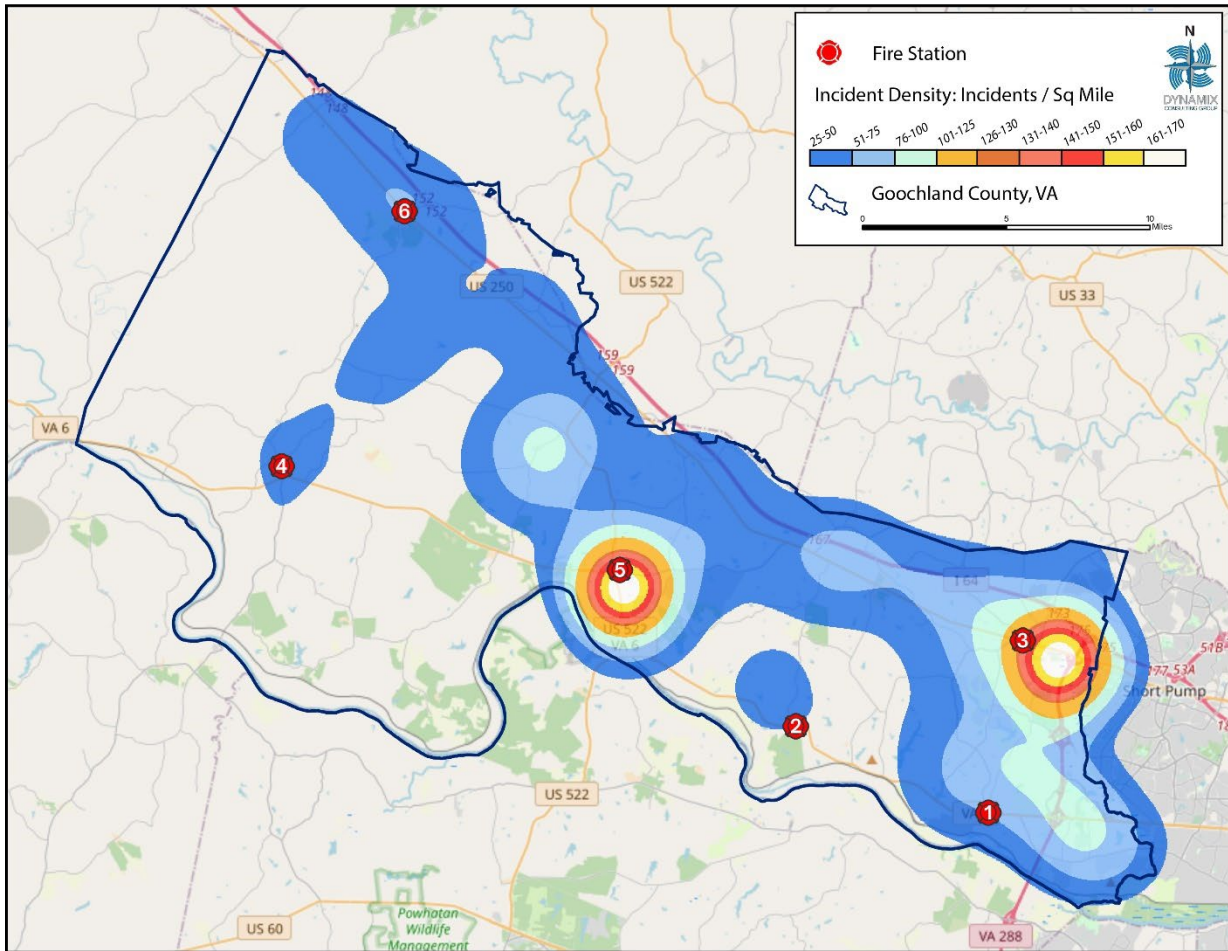


Using GIS software, an incident density analysis, or Hot Spot Analysis,” was created for Goochland County based upon the relative closeness of events to one another. This Hot Spot analysis allows the department to identify areas with the densest activity relative to other areas, providing a valuable tool for allocating resources and addressing service demands.

By examining incident data from 2018 through 2022, the analysis does not simply count the number of calls in each area. Instead, it compares incident density in different regions across the jurisdiction. This provides a more accurate picture of where resources are most needed.

The following figure provides an analysis of incident density using three years of fire rescue response data from 2018 through 2022. This analysis, commonly referred to as Hot Spot Mapping, calculates areas of greatest demand based on the density of incidents within an area. This analysis does not indicate how many calls actually occurred within each ring, but instead provides a way to compare each area to one another. In this analysis, each ring is calculated to display incidents per square mile and provides a range of how densely located calls for service were to each other.

Incident Density Analysis 2018-2022



The greatest incident densities generally cluster around stations 3 and 5 and stretch along Interstate 64. While incident density is lesser for stations 1, 2, 4, and 6, this figure illustrates density as opposed to call volume; however, call volume is greatest for stations 3 and 5, as indicated previously.

Resource Distribution Study

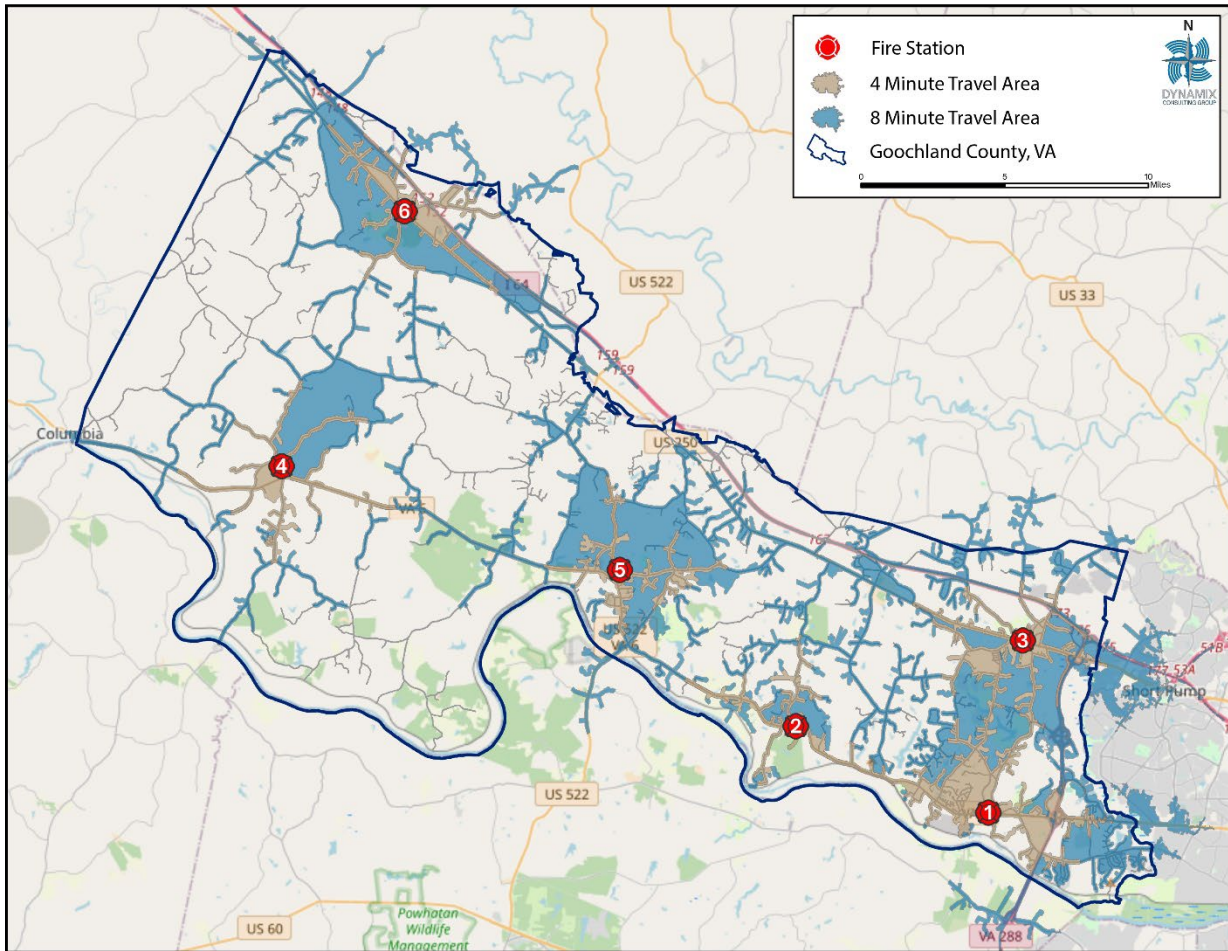
When evaluating the performance of the Goochland County Department of Fire-Rescue and Emergency Services, it is essential to consider the equitable distribution of available resources. This ensures that the department provides the highest level of service to the maximum number of residents possible. Dynamix Consulting Group's approach to assessing the department's performance involves conducting a gap analysis based on industry standards. We have focused on two primary benchmarks: NFPA 1710 and the Insurance Services Office (ISO). The latter utilizes proprietary evaluation criteria based on NFPA 1710. Analyzing these standards provides a better understanding of the fire department's performance level and identifies areas that require improvement.

NFPA 1710 Criteria

The National Fire Protection Association (NFPA) establishes standards and codes for fire departments and emergency medical services for local governments. One of the critical standards that NFPA provides is 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*, which outlines guidelines for career fire department performance, operations, and safety. This standard requires that career departments reach emergency calls with the first arriving unit within 4 minutes and that the balance of the response arrives within 8 minutes.

To help assess how well the Goochland County Department of Fire-Rescue and Emergency Services meets these standards, the map below utilizes historical traffic data to predict travel times for 8 a.m. on Monday mornings. The map shows unshaded pockets where the area falls outside the model's maximum extension from the road network. This information will help emergency responders plan and prepare for emergencies.

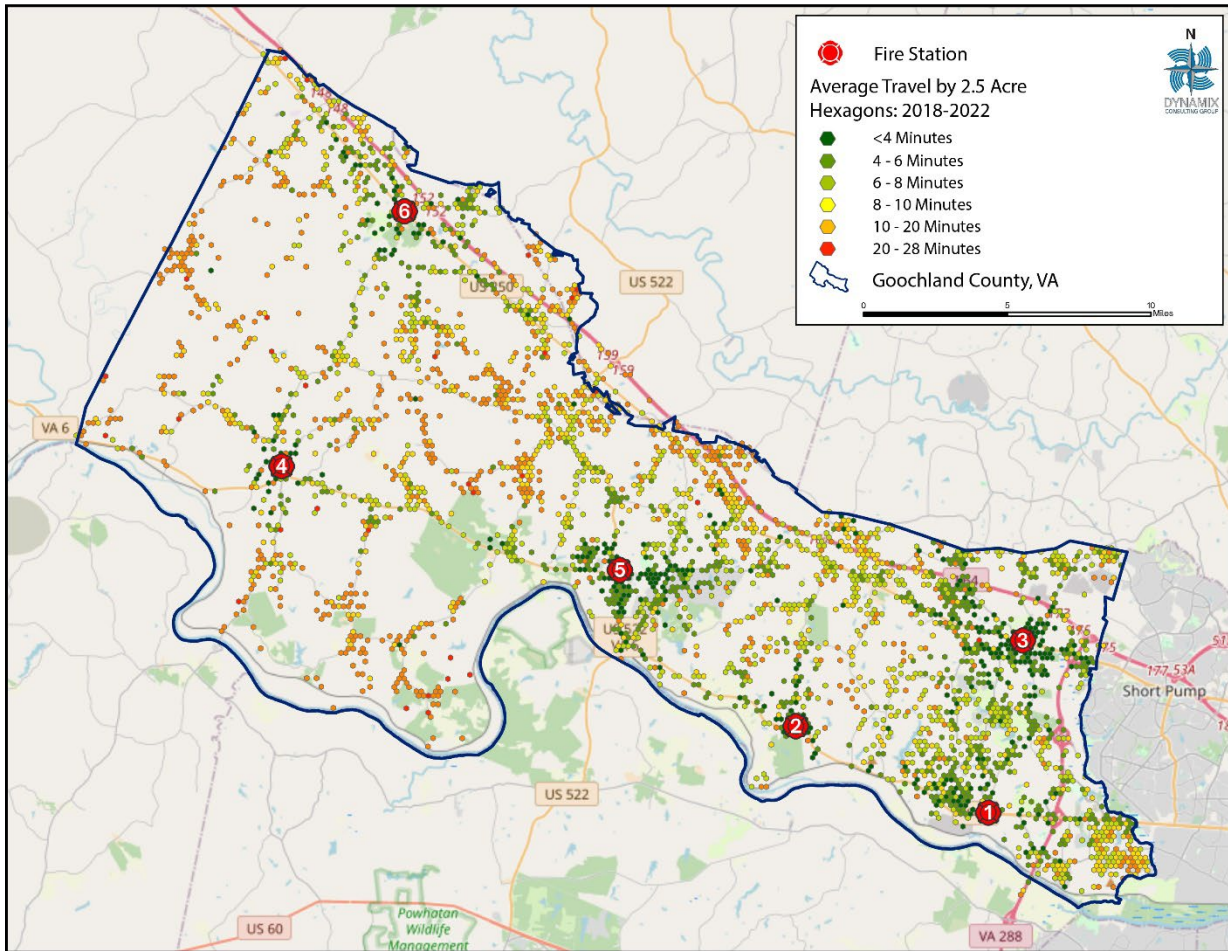
1710 Projected 4 & 8 Minute Travel



NFPA 1710 states that for emergency incidents, the first arriving unit should arrive on scene within four minutes or less, 90% of the time, and that an ALS unit arrives on scene within eight minutes of travel. While the majority of the more densely populated areas of the county lie within an eight-minute travel time when all units are available and in quarters, should stations 4, 5, or 6 receive an additional call in their respective area while already committed to a previous call or otherwise unavailable, extended travel times over 10 minutes and as great as 20 minutes should be anticipated in the western half of Goochland County.

The following figure displays the average travel time by 2.5-acre hexagons. This figure subdivided the county using GIS software and incident locations with their travel times superimposed. The result of each hexagon containing at least one data point is the average travel to that area. As observed, while areas proximal to fire stations tend to display more green hexagons, areas outside of a four to five-mile travel tend to display yellow, orange, and red hexagons, indicating travel times ranging from eight to 28 minutes.

NFPA Travel Times Based on Average Experience by 2.5 Acre Hexagons 2018-2022



ISO Response Performance

Dynamix Consulting Group notes that ISO is only one metric to rate a fire department. ISO’s focus is on property preservation. The Goochland County Department of Fire-Rescue and Emergency Services’ mission is “To provide the highest quality, comprehensive Fire, Emergency Medical Services and Emergency Management in an efficient, effective, accountable, and compassionate manner.” As previously noted, EMS calls comprise 75.4% of Goochland County Department of Fire-Rescue and Emergency Service’s calls for service. In July of 2022, the American Heart Association (AHA) awarded the Goochland County Department of Fire-Rescue and Emergency Services the Mission: Lifeline® EMS Gold Plus AHA Mission Lifeline Award in 2022 for its commitment to offering rapid and research-based care to people experiencing the most severe form of heart attacks, ultimately saving lives. Goochland County Department of Fire-Rescue and Emergency Service has received AHA Mission Lifeline Awards during each of the last seven years. Dynamix Consulting Group commends the Goochland County Department of Fire-Rescue and Emergency Services for its commitment to both life safety and property conservation.

On July 10, 2023, the Fire-Rescue Department was presented with a Gold Target: Heart Attack Honor Roll American Heart Association “Mission Lifeline Award.” This is a special recognition that is a direct reflection of the department’s ability to deliver state-of-the-art prehospital cardiac and stroke care, all-encompassing of Cardiac and STEMI patient care protocols, including Pre-Hospital 12 Lead EKGs performed in a timely manner, and transport to Cath Lab. This award is truly a team acknowledgment as it would not have been possible without the support of the Fire-Rescue Department’s Operational Medical Directors, Department Leadership, County Administration, and the Board of Supervisors.

The Insurance Services Office (ISO) uses a classification rating system that assesses a community’s fire protection capabilities. The ISO Property Protection Class (PPC®) score is a comprehensive rating system that classifies communities on a scale of 1 to 10, with 1 being the best protection and 10 having no protection. The rating system evaluates four key areas: emergency dispatch and communications (10% of the rating), water supply system and distribution capabilities (40%), fire department (50%), and community risk reduction efforts (an additional 5.5% credit is available above 100%).

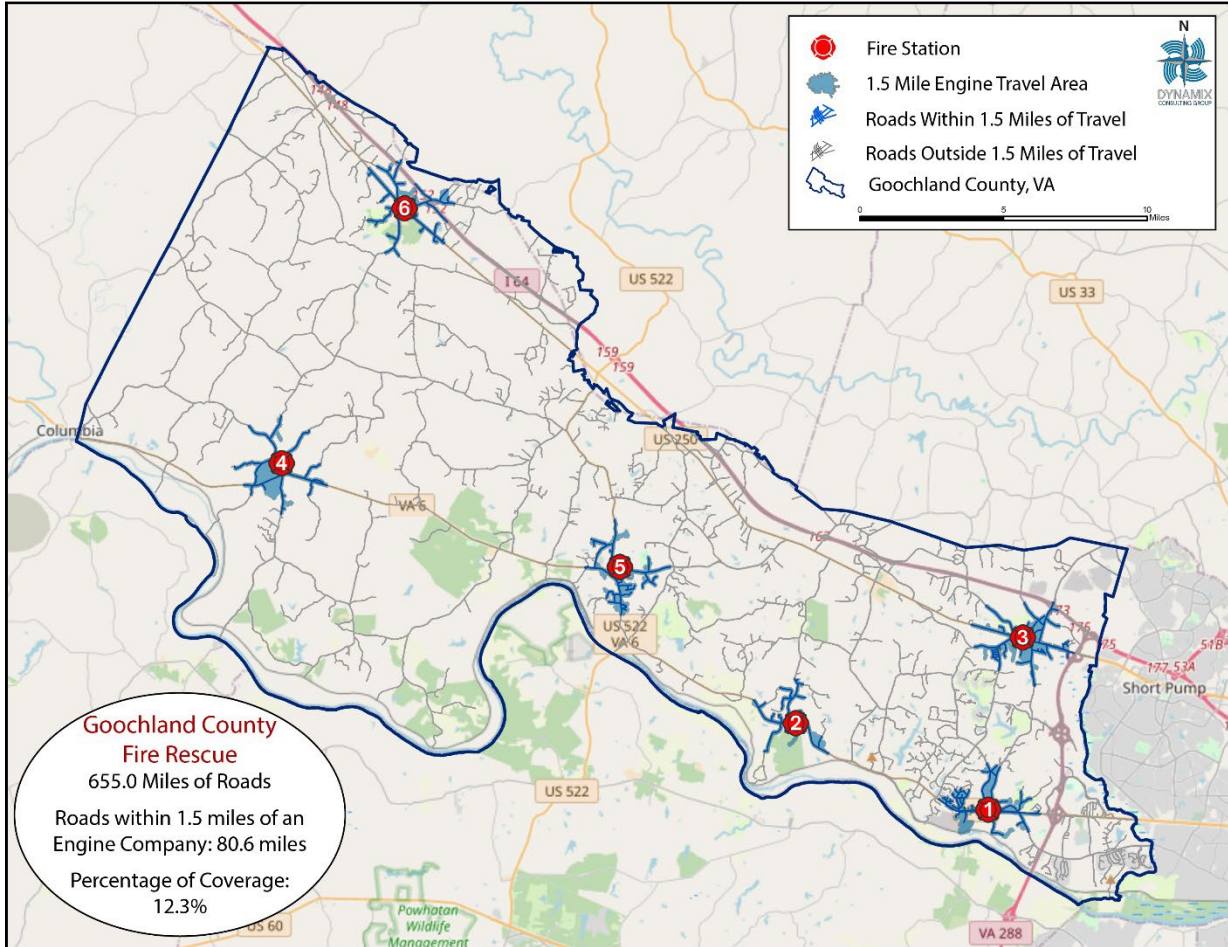
ISO's new PPC® rating system provides insurance carriers with a detailed report of a community's fire protection capabilities. The report includes an overall score and detailed information on the four key areas. This information helps insurance carriers determine insurance premiums for properties in a particular community. Additionally, it provides communities with valuable information on areas where improvements can enhance their fire protection capabilities.

In February 2023, ISO awarded the Goochland County Department of Fire-Rescue and Emergency Services an improved PPC Rating of 4/4X. This rating was an improvement over the previous 5/5Y from 2017 and was a direct result of a year-long process that culminated in an in-depth review of the County’s fire department and fire suppression capabilities.

Engine Company Performance

According to the analysis, a crucial aspect of a jurisdiction's PPC® score is how many structures protected by the fire department are located within a 1.5-mile service area of a fire station. This is because ISO estimates a 4-minute travel time for first responders, as required by NFPA 1710, using the 1.5 road-mile standards. Based on the ISO engine company travel criteria, the map shows that only 12.3% of Goochland County falls within this 1.5-mile distance.

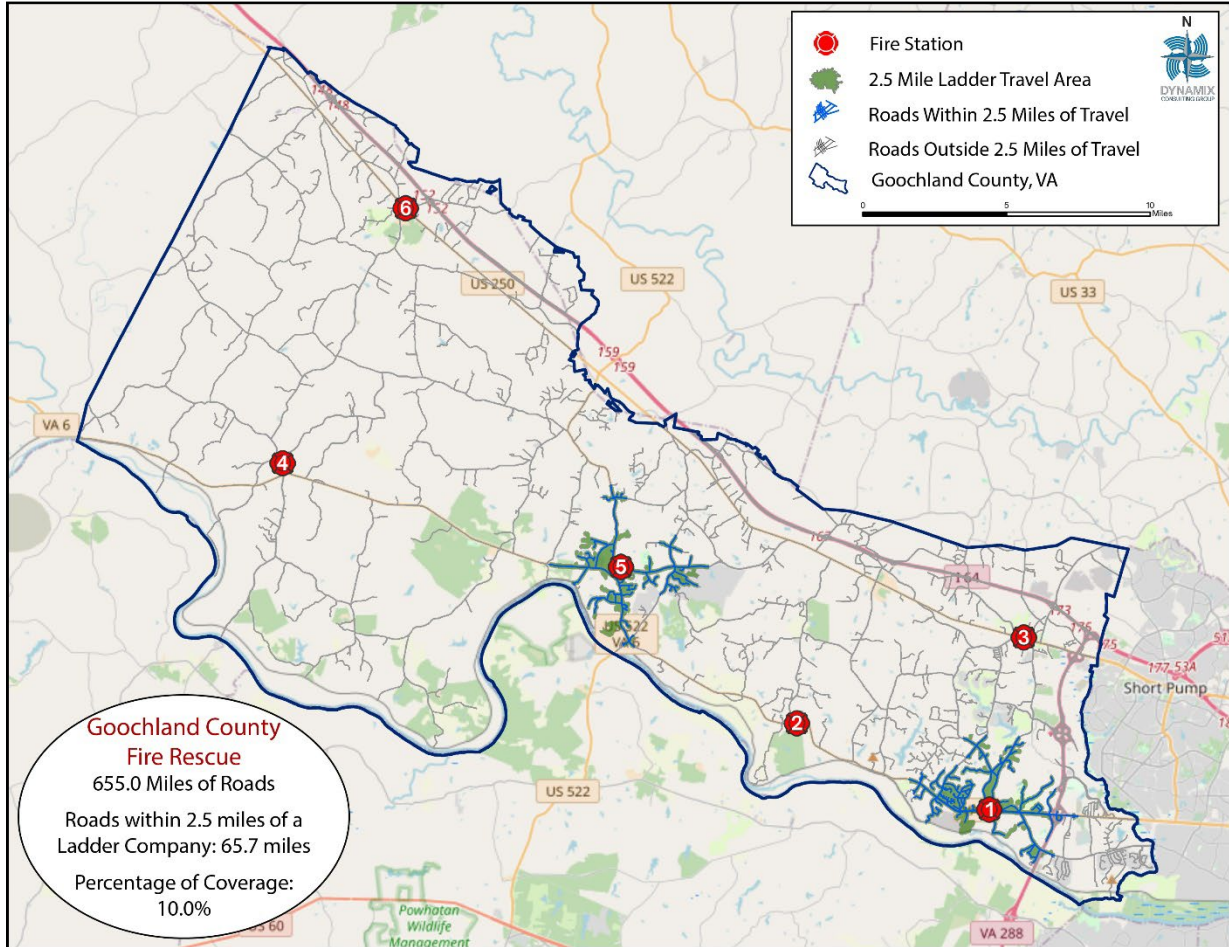
ISO Engine Company Performance – Goochland County, VA



Ladder Company Performance

It is common in many areas for ladder companies to respond only to certain types of incidents, and they may not always be the first unit on the scene for other incident types. To estimate travel time for ladder companies in urban and suburban areas, ISO uses a 2.5 road-mile distance, which typically takes about 8 minutes. This allows ladder companies to provide personnel and equipment for incidents like fires. Below is a chart showing how ladder companies in Goochland County performed.

ISO Ladder Company Performance – Goochland County, VA

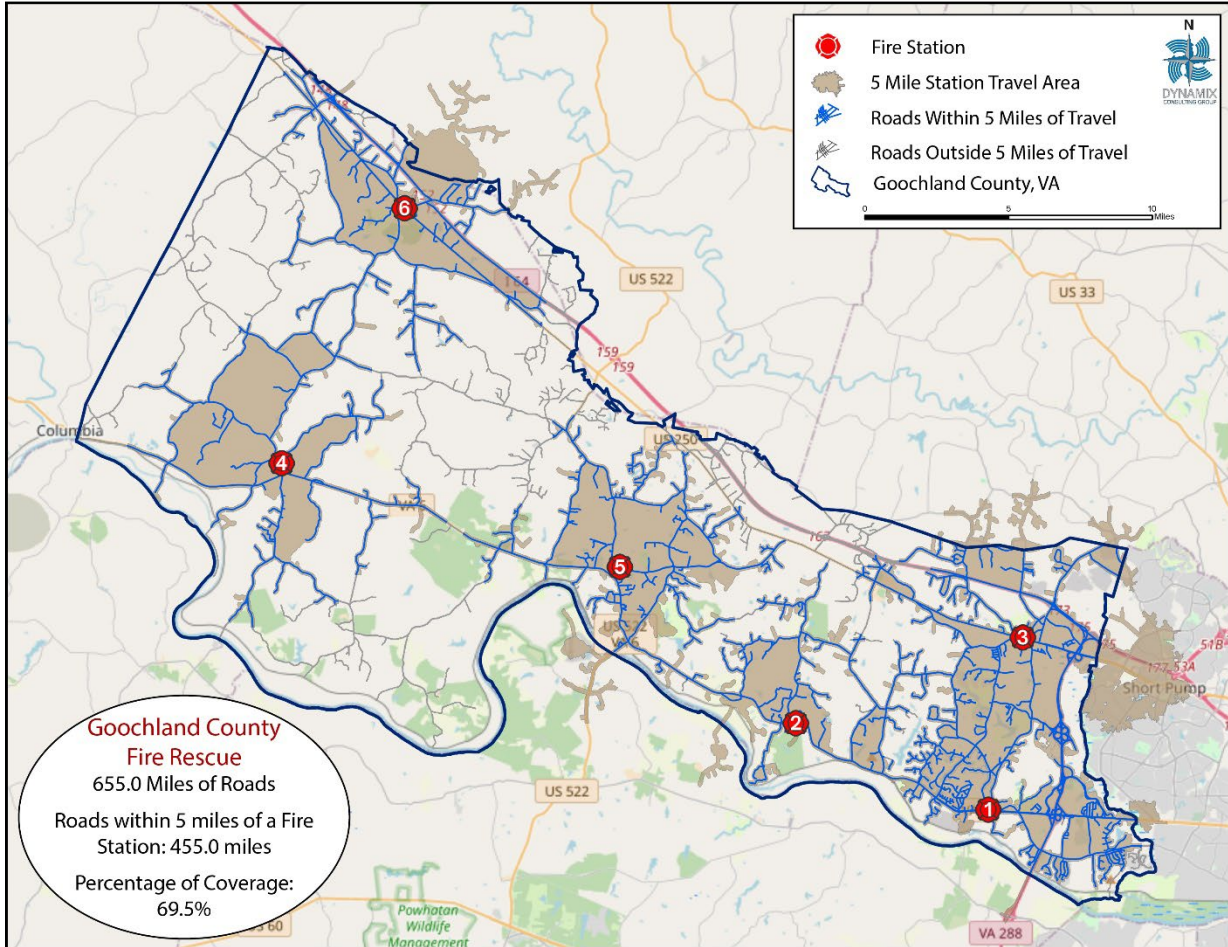


Using the ISO 2.5-mile travel criteria, only 10% of the County would receive credit for ladder coverage. However, given the cost to purchase and maintain aerial apparatus such as ladder and tower trucks, the location, and densities of buildings of three stories or more, and access to mutual aid via Henrico County, Goochland County must find a balance between operational costs and the deployment of these types of companies.

ISO Fire Station Coverage

To ensure fire coverage is available and have the ability to obtain a PPC® rating from ISO, structures must be within 5 miles of a fire station. A structure outside this range may receive a PPC® rating of 10, indicating no fire department coverage is available. Fortunately, most areas (69.5%) fall within the 5-mile coverage area and are eligible for a rating based on the fire department's performance; however, 30% of Goochland County lies outside of a 5-mile travel from a fire station.

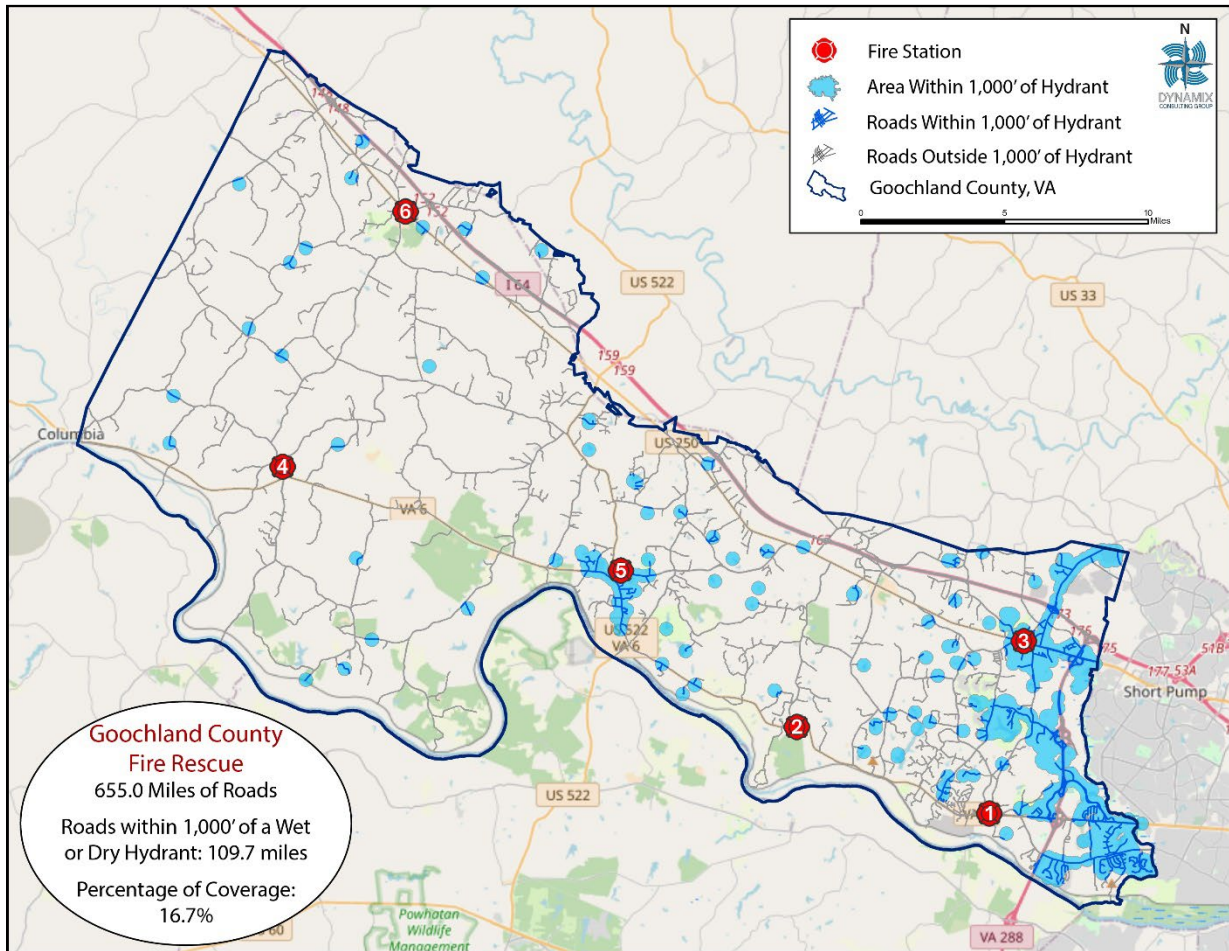
ISO Fire Station Coverage – Goochland County, VA



Water Supply and Hydrant Locations

Adequate access to water is an essential component of effective fire suppression operations. Without a reliable water supply, the execution of such procedures can prove to be highly challenging. Additionally, it is imperative that the water source be close to the structure in question, enabling swift access for the fire department. With that in mind, we have included a fire hydrant coverage map for Goochland County, which illustrates that structures must be within 1,000 feet of a fire hydrant to comply with ISO requirements.

ISO Hydrant Coverage – Goochland County, VA

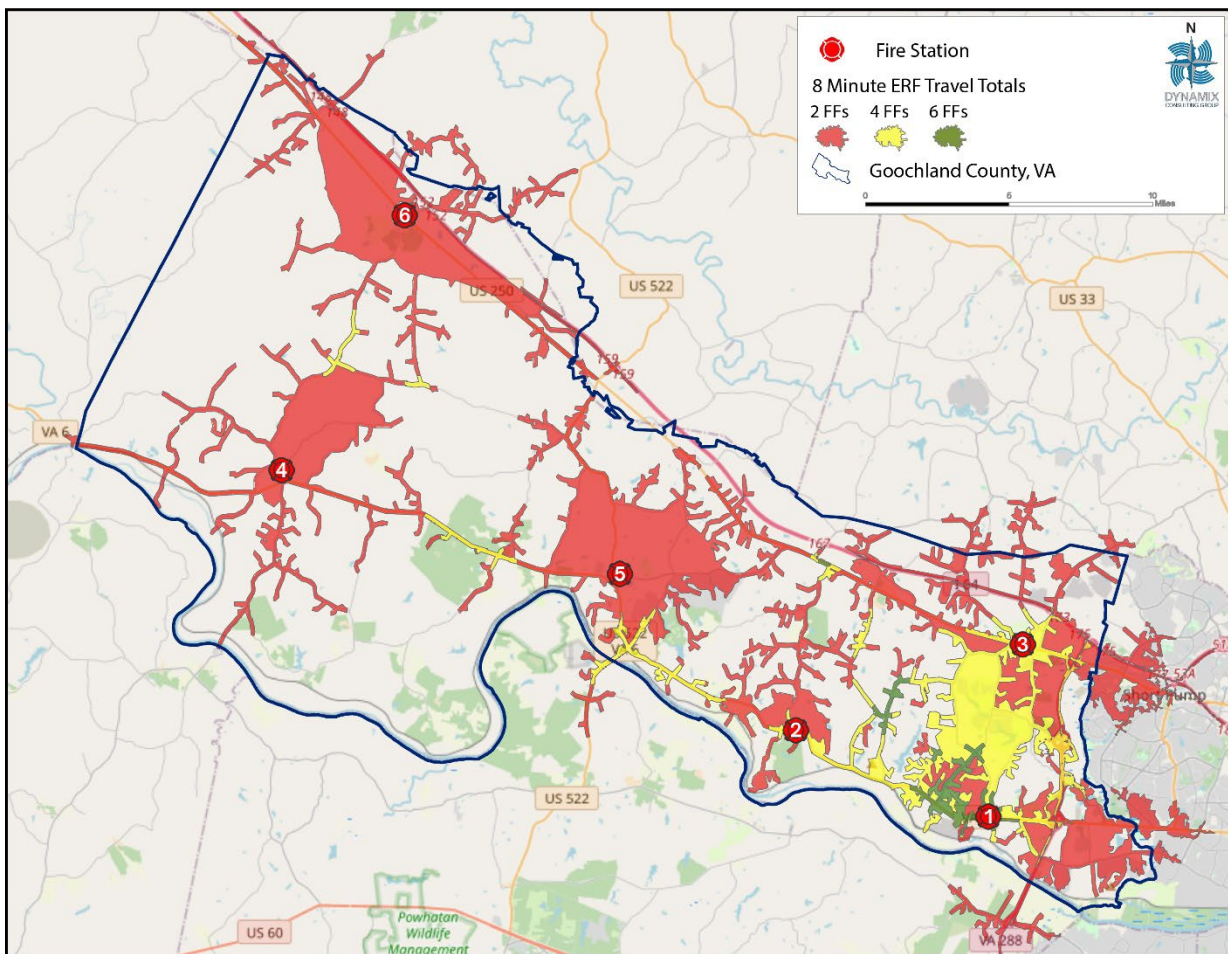


Access to reliable water supplies is an issue for Goochland County as it grows and expands. While the Goochland County Department of Fire-Rescue and Emergency Services technically has the ability to establish and maintain a sufficient water supply using water shuttle operations, this is a labor-intensive operation requiring all available resources to maintain, particularly when suppression operations must also occur simultaneously. As new development occurs, the county should continue to invest in infrastructure to supply services to these developments, further providing future opportunities for development and fire protection.

Resource Concentration Study

In Goochland County, most emergency incidents are handled by one to two units. However, some require a more significant deployment of resources and personnel for a safe and effective response. The county's ability to deploy multiple units quickly can make a substantial difference in the outcome of an emergency. To meet the requirements set by NFPA 1710, an effective response force must arrive at the scene of a moderate or more significant risk incident, such as a fire in a 2,000-square-foot residential dwelling, within 8 minutes. This force must be capable of initial fire suppression, EMS, and mitigation. It is also important to note that OSHA 29 CFR 1910.134 requires that at least two firefighters be positioned outside the structure and ready to enter if needed before two interior firefighters can enter. To meet NFPA 1710 standards, 16 firefighters must arrive at the scene within 9 minutes and 20 seconds unless a ladder truck is deployed. Goochland County evaluated its resource concentration and daily minimum staffing levels at each fire station to ensure they can assemble an effective response force within the required time frames.

NFPA 1710 8-Minute Effective Response Force



Upon examination of the geographic map provided, it is evident that a significant portion of Goochland County is situated beyond an 8-minute travel time from a fire station. Consequently, only a small area between stations 1 and 3 on the county's eastern side, along River Road West between stations 1 and 5, and a few stretches of roadway in rural areas of the county could satisfy the OSHA 2-in, 2-out requirement. It is imperative to note that this assumption is contingent upon the presence and accountability of all available units. Given the limited water supply within the County and the necessity for tender shuttle operations, Goochland County is not well-equipped to extinguish structure fires beyond the incipient or possibly the room and contents stages.

Additional System Concentration and Reliability Metrics

Data provided by the Goochland County Department of Fire-Rescue and Emergency Services and the Emergency Communications Center each utilize CAD data entries and the accompanying time stamps for the NFIRS and performance reporting. During this project, staff identified limitations to data and the accuracy of reporting. The analysis results regarding Unit Hour Utilization, Actual or Estimated Failure Rates of Individual Companies, and Call Concurrency yielded unreflective results of staff's experience and consultant observations while onsite. These data limitations are most likely due to the current software used by the Emergency Communications Center, its age, and its applicability to fire-rescue as opposed to specific law enforcement needs.

To avoid presenting metrics that likely have a low-reliability level for accuracy, a description of each metric is presented with an explanation of how this data is used.

County Emergency Communications Center is implementing a new Computer Aided Dispatch System during Fiscal Year 2024, which is expected to correct these stated deficiencies.

Unit Hour Utilization

Unit Hour Utilization (UHU) expresses the workload on the crew assigned to that station or unit. This metric does not measure hours or miles placed on vehicles but instead looks at how busy individual crews are throughout the time measured. It can also describe the time a unit is unavailable for response because it has already been committed to another incident. The larger the percentage, the greater its utilization, and the less available it is for assignment to subsequent calls for service, training, and ancillary duties. UHU rates are expressed as a percentage of the total hours in a year.

UHU rates are beneficial in determining changes in system performance, additional duties and training compliance, employee fatigue, and for planning the addition of fire-rescue stations and units. As the UHU rate increases, planning for additional units or stations can occur at reliable intervals to plan for growth as it occurs. Additionally, crews that are unavailable at least 90% of the time will experience a decrease in performance in their coverage area as available units from other areas must travel extended distances to respond to those calls. Finally, when crews exceed a UHU rate of 25% to 30%, this often accompanies employee fatigue, burnout, lack of training or additional duty compliance, and organizational turnover.

Actual or Estimated Failure Rates of Individual Companies

As UHU can predict changes in performance for crews exceeding 10% UHU rates, failure rates of companies describe the percentage of time that the first due unit was unavailable to respond to an incident within their respective district or coverage area. While additional stations help locate resources in areas where they do not currently reside, another issue can occur. If an insufficient number of units or resources exist in a particular area, units from other districts will consistently respond to the unstaffed district, further compounding performance issues and their own failure rate as those units will also be committed and out of zone.

Failure rates can help identify whether additional units or stations are necessary to support the system, maintain levels of service and performance, and locate which areas are in need. By monitoring growth and performance trends, administrators can plan for the future appropriately.

Call Concurrency

Call concurrency compares how often multiple calls occur and places additional demand on system resources. A concurrent call occurs when an available unit is dispatched to a separate incident before the first committed unit clears the scene and becomes available. When two incidents coincide, a third incident is dispatched, three concurrent calls are present, and so on. While in a countywide system, it is anticipated that multiple calls will occur simultaneously, the limited staffing of Goochland County fire stations results in significant impacts on the system's ability to deploy a unit during times when multiple calls are occurring or when a resource-intensive incident occurs such as a structure fire, a significant motor vehicle collision with multiple patients, or other events that require more than two to four firefighters on scene.

Call concurrency provides data points as the percentage of time single or multiple events are presented as single, two, or three, etcetera. By monitoring this metric, administrators can determine if on-duty resources are sufficient to meet demand and how this data changes over time.

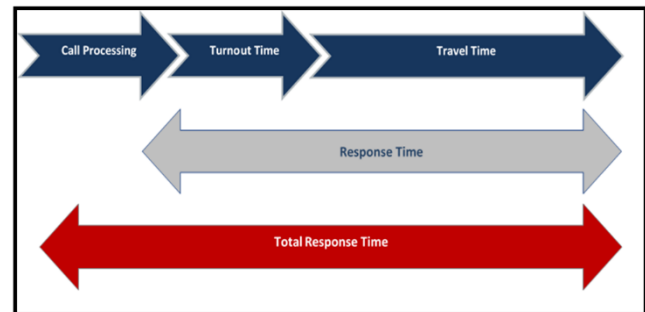
Response Performance Summary

The most visible element of the Goochland County Department of Fire-Rescue and Emergency Services is its response performance. How quickly units arrive on the scene and the efficiency with which they resolve an emergency situation are typically the only interactions most residents will have with the fire department. To evaluate the fire department's performance, NFPA 1710, which is the applicable standard for career fire departments, was used.

Response time performance is comprised of the following components:

- **Call-Processing Time:** The amount of time between when a call is answered by the 911 Primary Public Safety Answering Point, or dispatch center, and when resources are dispatched.
- **Turnout Time:** The time interval between when units are notified of the incident and when the apparatus responds.
- **Travel Time:** The amount of time the responding unit actually spends on the road traveling to the incident until arrival at the scene. This is a function of speed and distance.
- **Response Time:** This time is calculated from the time the fire department is dispatched to the arrival of the first apparatus. Response Time equals the sum of "Turnout Time" and "Travel Time."
- **Total Response Time:** This is the most apparent time to the caller requesting emergency services. Total response time is the amount of time that occurs from the time they place the emergency call until the units arrive. This time often includes factors both within and outside the control of the fire department, particularly when another agency provides dispatch services.

Tracking the individual components of response time will enable the Goochland County Department of Fire-Rescue and Emergency Services to identify deficiencies and areas for improvement. Once Goochland County's leadership understands the current performance for Call Processing, Turnout Time, and Travel



Time, this information can be used to develop response goals and standards that are both relevant and achievable. Fire service best practices recommend that fire service organizations monitor and report the components of Total Response Time.

The Time Continuum is comprised of the three elements described above – Call Processing, Turnout Time, and Travel Time. Total Response Time is the sum of all of the times starting with the call-processing time, turnout time, and travel time. The components of the Goochland County Department of Fire-Rescue and Emergency Services Response Time Continuum will each be evaluated in further detail in the following sections. The following figure is an illustration of the total response time continuum.

Historically, fire rescue service providers have used the performance measurement of average response to describe the levels of performance. The average is a commonly used descriptive statistic, also called the mean of a data set. Averages may not accurately reflect the performance for the entire data set because the average can be significantly skewed by data outliers, especially in small data sets. One extremely good or bad value can skew the “average” for the entire data set. Percentile measurements are a better measure of performance since they show that most of the data set has achieved a particular level of performance. The 90th percentile means that 90% of responses were equal to or better than the performance identified and that the other 10% can be attributed to data outliers, inaccurate data, or situations outside of normal operations that delayed performance. This can be compared to the desired performance objective to determine the degree of success in achieving the goal.

An important consideration when evaluating fractile performance is that the results of each category are not additive, meaning that the sum of two or more constituent metrics cannot be simply added together to find the sum. This is because each dataset is discrete and, as such, must be observed individually, particularly when data quality is an issue. If a metric, such as response time, possesses the majority of its data points, while turnout time is not accurately documented, a significant difference can exist between the response time calculated using the fractile descriptive and the sum of turnout time and travel time.

In evaluating the various response time components using the fractile analysis method, each component must be evaluated and quantified separately, as the available data—and the quality of the data may vary significantly.

To provide an analysis of performance for emergency calls within Goochland, the following assumptions were made:

- Non-emergency incident types were removed
- Mutual and auto aid given were removed
- Other aid given were removed
- NFIRS call types within the 500, 600, 800, and 900 series were removed
- Cells containing zeros or no value were removed

Public Safety Answering Point

The Goochland County Sheriff's Office Emergency Communications Center is the public safety answering point (PSAP) for Goochland County and the incorporated towns within the county. The Emergency Communications Center is responsible for answering all 9-1-1 and non-emergency public safety calls and then dispatching Sheriff's Deputies or Goochland County Department of Fire-Rescue and Emergency Services personnel to aid citizens in mitigating the situation. Once responders have been dispatched, communications officers continue to monitor the situation and provide any additional services and updates necessary.

The Emergency Communications Center operates 24 hours a day, seven days a week. All communications personnel receive training through the Virginia Department of Criminal Justice Service and in call processing with certifications in emergency medical dispatch (EMD) and Virginia Criminal Information Network (VCIN).

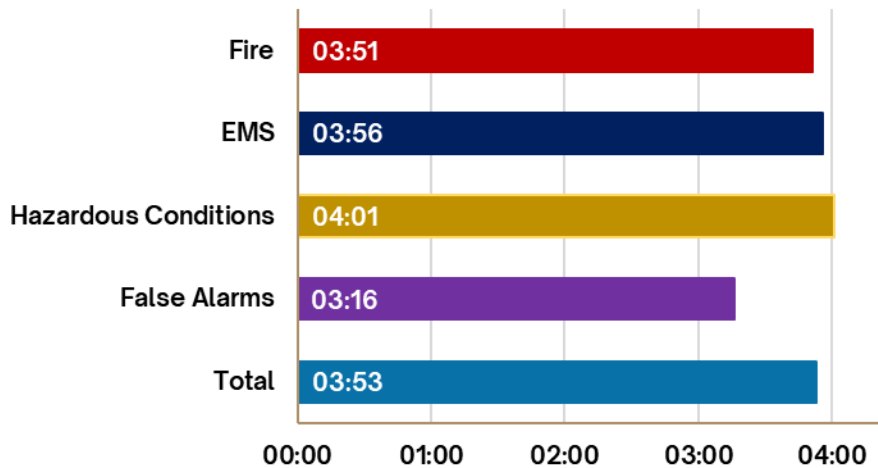
During the March 2023 site visit, Dynamix Consulting Group met with the leadership of the Emergency Communications Center. Emergency Communications Center leadership shared that a new Computer-Aided Dispatch System, CentralSquare, will go online in January 2024. The new system will provide advanced location and recommendation capabilities to quickly send the closest appropriate unit to the correct location. The fire-rescue department has assigned an employee to work with the communications center to prepare for implementing the new system. Dynamix Consulting Group found the leadership of the Emergency Communications Center to be very open to working with the fire-rescue department to ensure support for their emergency communications needs. Recommendations for the Emergency Communications Center appear in this report's Future Service Delivery Models section.

Call Processing

The industry standard for call processing (or alarm handling) is NFPA 1221: Standard for the Installation, Maintenance, and Use of Emergency Services Communications Systems. This standard allows communication centers to have processing times of not more than 60 seconds 90% of the time. For special operations, calls requiring translation, or other factors described in the standard, times should not exceed 90 seconds at the 90th percentile. Call processing by the Goochland County Emergency Communications Center is nearly four minutes, almost four times the call processing time recommended by NFPA.

Although performance is consistent with other emergency communication centers observed, the Goochland County Sheriff’s Office has implemented new procedures following receipt of the initial review and site visit by the Dynamix Consulting Group. These new procedures will allow for quicker call processing times, which will bring the Emergency Communications Center’s times closer to compliance with the NFPA standard.

Call Processing Time 2018-2022

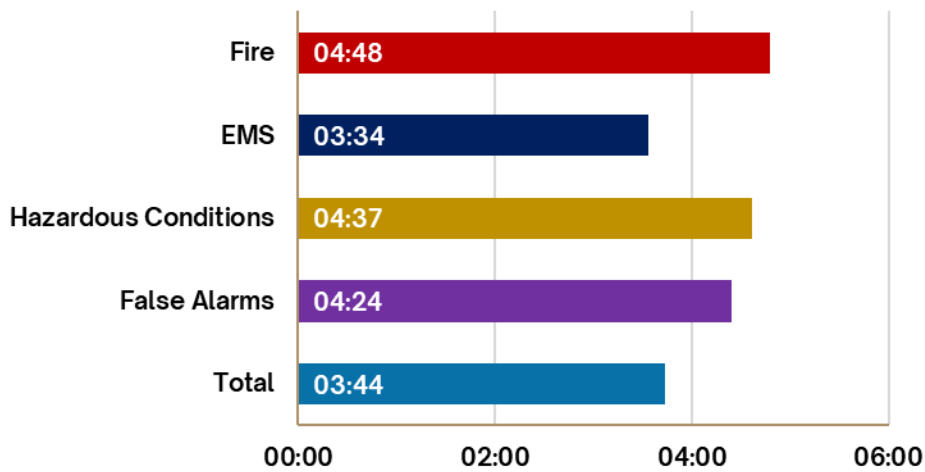


Turnout

The second component of the response continuum, directly affected by response personnel, is turnout performance. Turnout is when personnel receive the dispatch information, move to the appropriate apparatus, and respond to the incident. NFPA 1710 calls for turnout times of 80 seconds for fire and special operations responses and 60 seconds for all other emergency incidents.

Goochland County Department of Fire-Rescue and Emergency Services' turnout time performance is three to four times that of what NFPA 1710 recommends. It is important to note that turnout performance is not always a function of compliance. It may result from other factors such as station design, distance from living and sleeping quarters to the apparatus, or deployment methodologies such as cross-staffing units, which is the current practice for Goochland County. Goochland County Department of Fire-Rescue and Emergency Services should regularly monitor turnout performance and identify improvement opportunities.

Turn Out Time 2018-2022

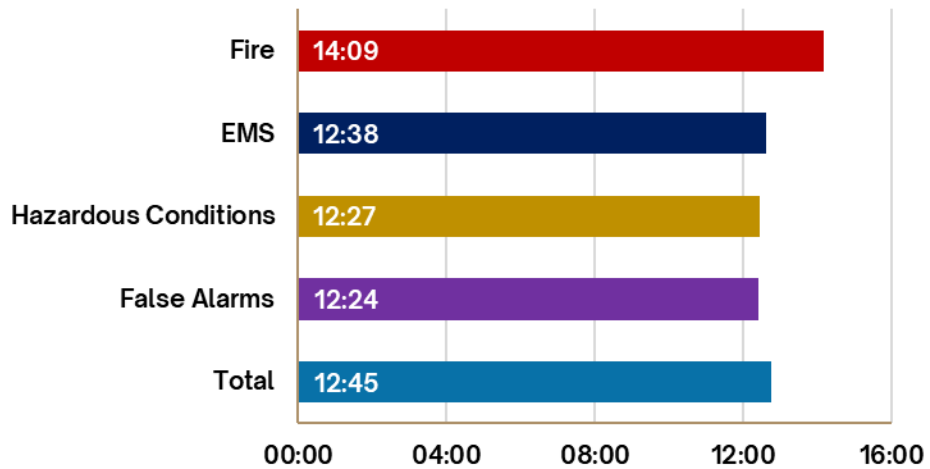


Travel

The third component of the response continuum is travel time. It is essential to understand that travel time is not specifically a factor of speed as much as it results from the proper placement of fire stations from which emergency responses begin. Travel time is when the apparatus departs for the call until it arrives on the scene. Travel time is a function of distance, roadway, and traffic conditions. Typically, the only way to improve travel time is to locate additional resources throughout the service area.

NFPA 1710 has adopted a four-minute travel time at the 90th percentile for the first due responding resource in career systems. At approximately triple that performance, Goochland County has opportunities to improve its service levels.

Travel Time 2018-2022



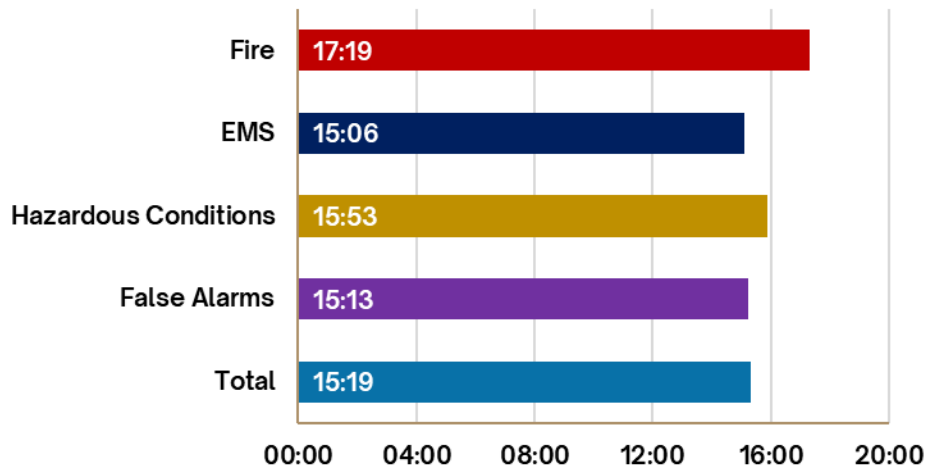
Response Performance

Response time begins upon initial notification to the fire department until the first unit arrives on the scene. Response time performance is the calculation of the difference between the initial notification time and the arrival time.

For Fire and Special Operations, the combined response time target is 5 minutes 20 seconds, and for emergency medical services and all other emergency calls, a response time of 5 minutes at the 90th percentile.

Response time performance for Goochland County is over three times that of industry standards. Goochland County Department of Fire-Rescue and Emergency Services should consider staffing additional units and station location options to improve performance.

Response Time 2018-2022

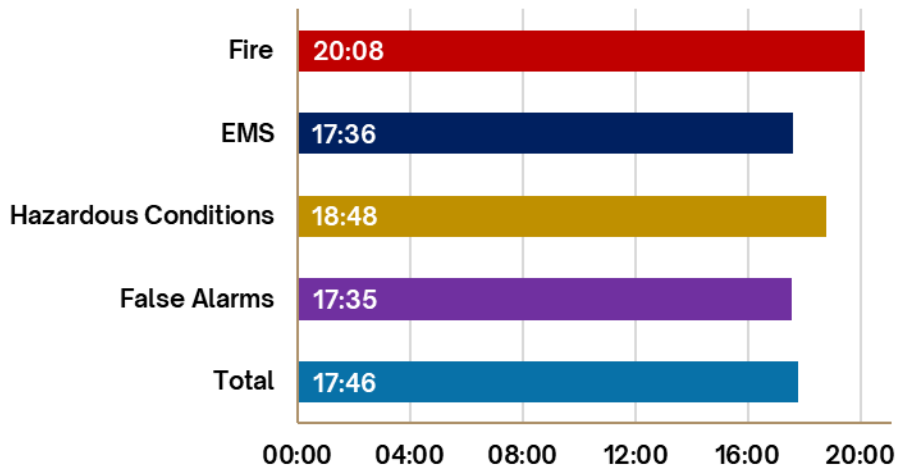


Total Response Performance

The culmination of the Response Time Continuum is total response time. When citizens call for emergency assistance, this metric represents what they experience as they place the call and wait for help to arrive. Total response time is the time that elapsed from when the call was initiated at the communications center until the first emergency unit arrived on the scene. Ideally, the total response time should be 6 minutes 20 seconds for fire and special operations and 6 minutes for all other emergency responses.

Total response time measured at the 90th percentile was approximately three times that of industry standards, with all categories approaching or exceeding 20 minutes. Goochland County Department of Fire-Rescue and Emergency Services should continue to monitor performance and seek to continuously improve where possible.

Total Response Time 2018-2022



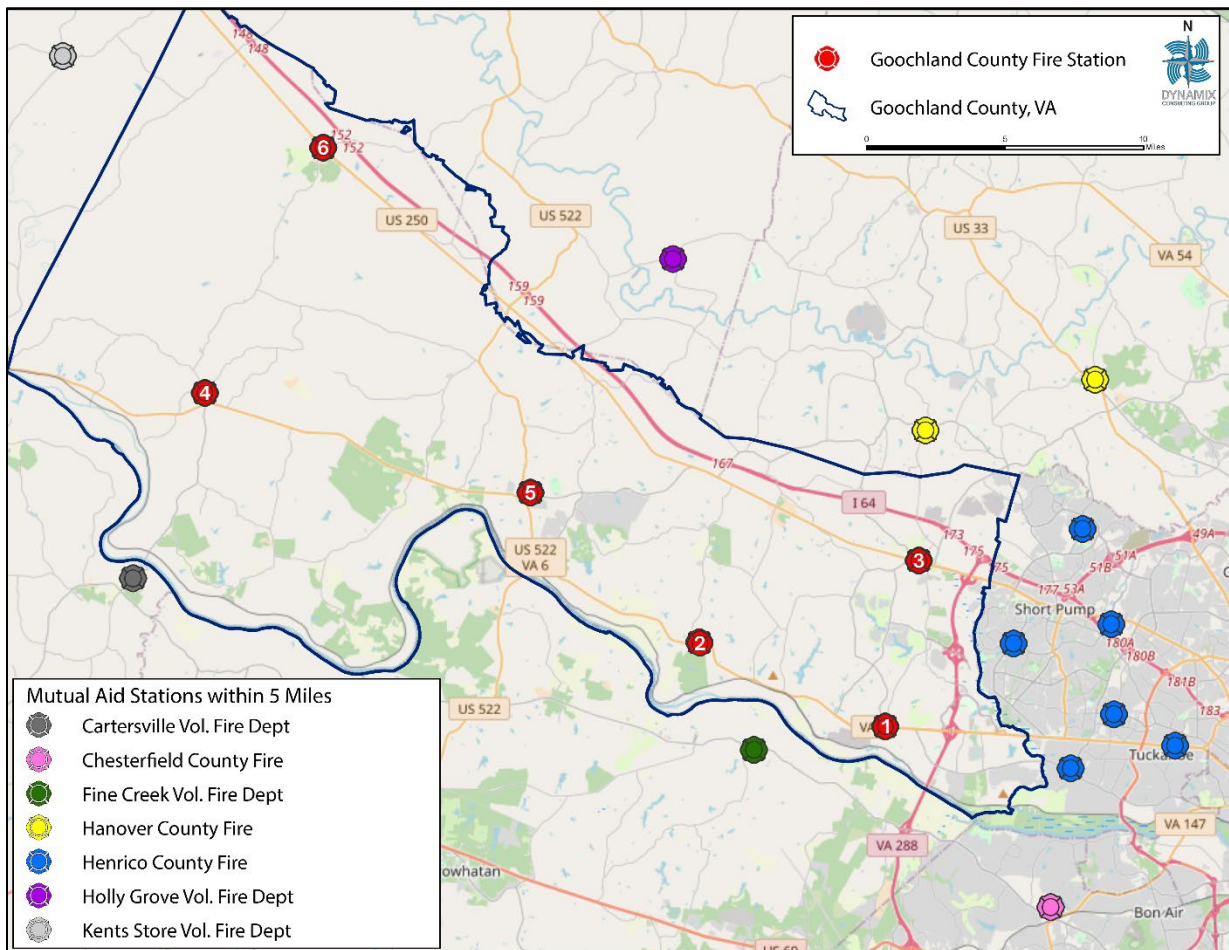
Mutual and Automatic Aid Systems

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

Two types of agreements in this section include mutual and automatic aid agreements. In mutual aid agreements, two or more organizations agree that, when requested, they will supply the other agency with the requested resources if available. For emergency services, this typically occurs at the request of responding or on-scene personnel. The other type of agreement, automatic aid, occurs automatically, as the name implies. When dispatch centers receive an emergency call, dispatchers examine all available resources based on the appropriate unit type and their proximity to the call, typically with the closest unit responding regardless of the jurisdiction in which the incident occurred.

The following figure presents the locations of Goochland County’s fire stations and the locations of mutual aid fire stations surrounding the boundaries of the County.

Mutual Aid Stations Within 5 Miles of Goochland County



On the eastern and more populous side of the county, several career departments possess resources that could potentially assist Goochland County if requested. These include Chesterfield County, Hanover County, and Henrico County. Beyond the Short Pump area, options for mutual aid become limited as there are few stations located within 5 miles of Goochland County, and as volunteer departments, they will likely struggle to gather a response of any significance during regular business hours, weekends, and holidays.

Service Delivery Recommendations

38. Submit an annual report to the AHJ in accordance with NFPA 1710 4.1.2.5.1.

4.1.2.5.1 The fire department shall evaluate its level of service and deployment delivery of alarm handling time, turnout time, and travel time performance objectives on an annual basis.

4.1.2.5.2 The evaluations shall be based on emergency incident data relating to the level of service, deployment, and the achievement of each travel time performance objectives in each geographic area within the jurisdiction of the fire department.*

4.1.2.6 The fire department shall provide the AHJ with a written report annual.

4.1.2.6.1 The annual report shall define the geographic areas and/or circumstances in which the requirements of this standard are not being met.

4.1.2.6.2 The annual report shall explain the predictable consequences of these deficiencies and address the steps that are necessary to achieve compliance.

4.1.2.6.3 The annual report shall identify any deficiencies that are anticipated to develop in the next 3 years and address the steps necessary to continue to achieve compliance to this standard.

Goochland County Department of Fire-Rescue and Emergency Services should include a concise report to the AHJ that includes only the aforementioned information. This document should serve as an ongoing source of evaluation and discussion between the Goochland County Department of Fire-Rescue and Emergency Services and County Officials about the resources that are required to meet the established performance criteria.

39. Regularly review county demographic information for “at risk” populations and realign targeted Community Risk Reduction Programs as population changes occur.

Often defined very broadly, the term “populations at risk” does not include all citizens within a defined group, as they experience risk at varying levels or rates. Coupling two or more risk factors contributes to significantly higher levels of risk than those who only experience one risk category. Those with compounded risk factors should be a priority in prevention programs and strategies.

Broadly, “populations at risk” include citizens at the lower end of socioeconomic status, those with housing and transportation challenges, those of minority status or with English-speaking challenges, and households containing citizens with disabilities or individuals over 65 and under 17 years of age. More specifically, citizens most at risk include the impoverished, disabled, homeless, racial, and ethnic minorities, as well as people with low literacy. Also, groups suffering from poor health or who are uninsured/underinsured may be at greater risk during emergency or disaster situations.

Fires in the home can be potentially dangerous and deadly for everyone, but persons with disabilities and impairments face additional challenges. Persons with disabilities often have a difficult time identifying or escaping a fire. There are 2,043 households in Goochland County that have identified as having one member with a disability.¹⁷ These citizens in the community would benefit from programs to assist in their needs during times of emergency and for emergency planning efforts.

40. Establish Fire Department Performance Standards.

Dynamix Consulting Group recommends that the county establish and adopt fire department performance standards and set trigger points for when to add additional resources to achieve the desired fire department performance. Through the adoption of performance standards, the county can provide a consistent level of performance, justify future additions as required by demand for services, and plan to fund the necessary resources to achieve the desired performance.

Development of Performance Objectives

Three main factors lead to the successful mitigation of emergencies: sufficient numbers of well-trained *personnel*, arriving on reliable and well-equipped *apparatus* appropriate to the task at hand, and *quickly enough* to make a positive difference in property preserved or lives saved.

The previous sections of this report have laid out the current staffing levels, facilities and equipment, and response to fire and EMS calls within Goochland County. The following describes the consequences of failing to deliver sufficient personnel and equipment early enough to mitigate the emergency addressed.

¹⁷ Environmental Systems Research Institute.

Dynamics of Fire in Buildings

Most fires within buildings develop predictably unless influenced by highly flammable material. Ignition, or the beginning of a fire, starts the sequence of events. It may take several minutes or even hours from ignition until a flame is visible. This smoldering stage is perilous, especially when people are asleep, since large amounts of highly toxic smoke may be generated during this phase.

Once flames do appear, the sequence continues rapidly. Combustible materials adjacent to the flame heat and ignite, which heats and ignites adjacent materials if sufficient oxygen is present. As the objects burn, heated gases accumulate at the room's ceiling. Some of the gases are flammable and highly toxic.

The spread of the fire from this point continues quickly. Soon, the flammable gases at the ceiling and other combustible material in the room of origin reach ignition temperature. At that point, an event termed “flashover” occurs; the gases and other materials ignite, igniting everything in the room. Once a flashover occurs, damage caused by the fire is significant, and the environment within the room can no longer support human life. Flashover usually occurs about five to eight minutes from the appearance of flames in typically furnished and ventilated buildings. Since flashovers dramatically influence a fire event's outcome, any fire agency's goal is to apply water to a fire before a flashover occurs.

Although modern codes tend to make fires in newer structures more infrequent, today's energy-efficient construction (designed to hold heat during the winter) also tends to confine the heat of a hostile fire. In addition, research has shown that modern furnishings generally ignite more quickly and burn hotter (due to synthetics). In the 1970s, scientists at the National Institute of Standards and Technology found that building occupants had about 17 minutes to escape after a fire broke out before being overcome by heat and smoke. Today, that estimate is as short as three minutes.¹⁸ The necessity of adequate early warning (smoke alarms), early suppression (fire sprinklers), and firefighters arriving on the scene of a fire in the shortest time is more critical now than ever.

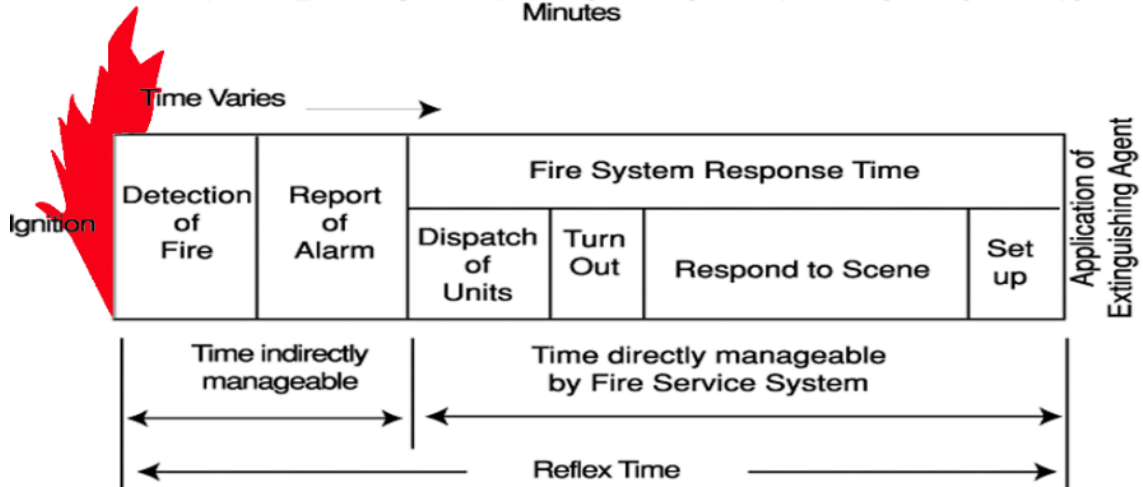
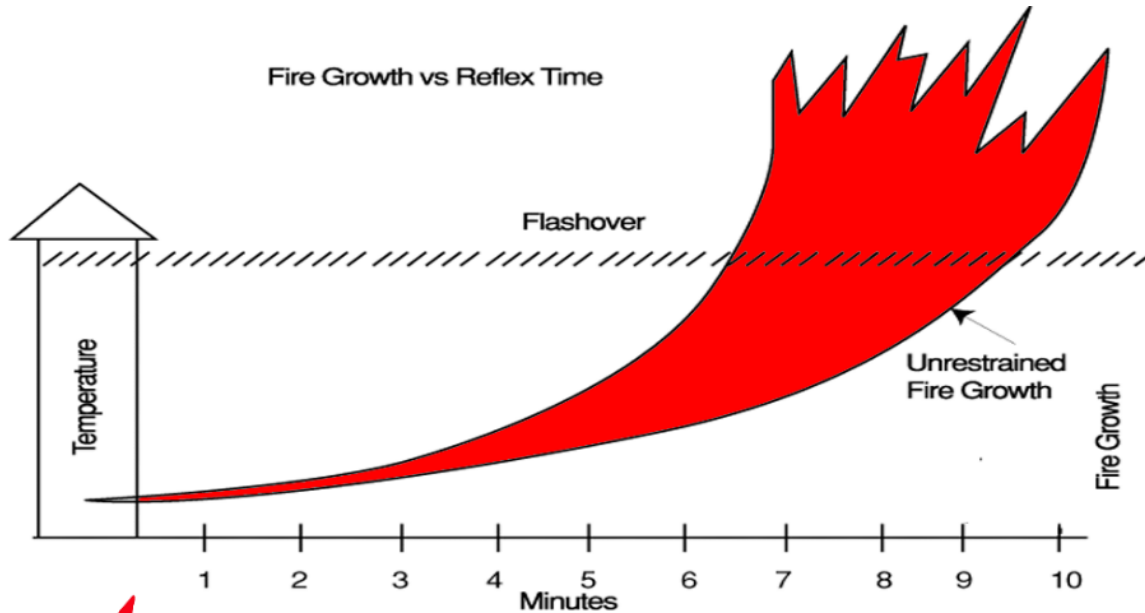
The prompt arrival of at least four personnel is critical for structure fires. Federal regulations (CFR 1910.120) require personnel entering a building involved in a fire must be in groups of two. Further, before personnel can enter a building to extinguish a fire, at least two personnel must be on the scene and assigned to conduct search and rescue in case the fire attack crew becomes trapped. This is referred to as the two-in, two-out rule. However, if it is *known* that victims are trapped inside the building, a rescue attempt can be performed without additional personnel ready to intervene outside the structure. Further, all four are not required to arrive in the same response vehicle. Many fire departments rely on more than one unit arriving to initiate an interior fire attack.

¹⁸ National Institute of Standards and Technology, *Performance of Home Smoke Alarms, Analysis of the Response of Several Available Technologies in Residential Fire Settings*, Bukowski, Richard, et al.

Perhaps as critical as preventing flashovers is the need to control a fire before it damages the structural framing of a building. Materials used to construct buildings today are often less fire-resistant than the heavy structural skeletons of older frame buildings. Roof trusses and floor joists are commonly made with lighter materials that are more easily weakened by the effects of fire. "Lightweight" roof trusses fail after five to seven minutes of direct flame impingement. Plywood I-beam joists can fail after as little as three minutes of flame contact. This creates a dangerous environment for firefighters.

In addition, the contents of buildings today have a much greater potential for heat production than in the past. The widespread use of plastics in furnishings and other building contents rapidly accelerates fire spread. It increases the amount of water needed to control a fire effectively. These factors make early water application essential to a successful fire outcome.

The following figure illustrates the sequence of events during the growth of a structure fire over time.



As is apparent by this description of the sequence of events, applying water in time to prevent flashover is a severe challenge for any fire department. It is critical, though, as studies of historical fire losses can demonstrate.

The NFPA found that fires contained to the room of origin (typically extinguished before or immediately following flashover) had significantly lower rates of death, injury, and property loss when compared to fires that had an opportunity to spread beyond the room of origin (typically extinguished post-flashover). As evidenced in the following figure, fire losses, casualties, and deaths rise significantly as the extent of fire damage increases.

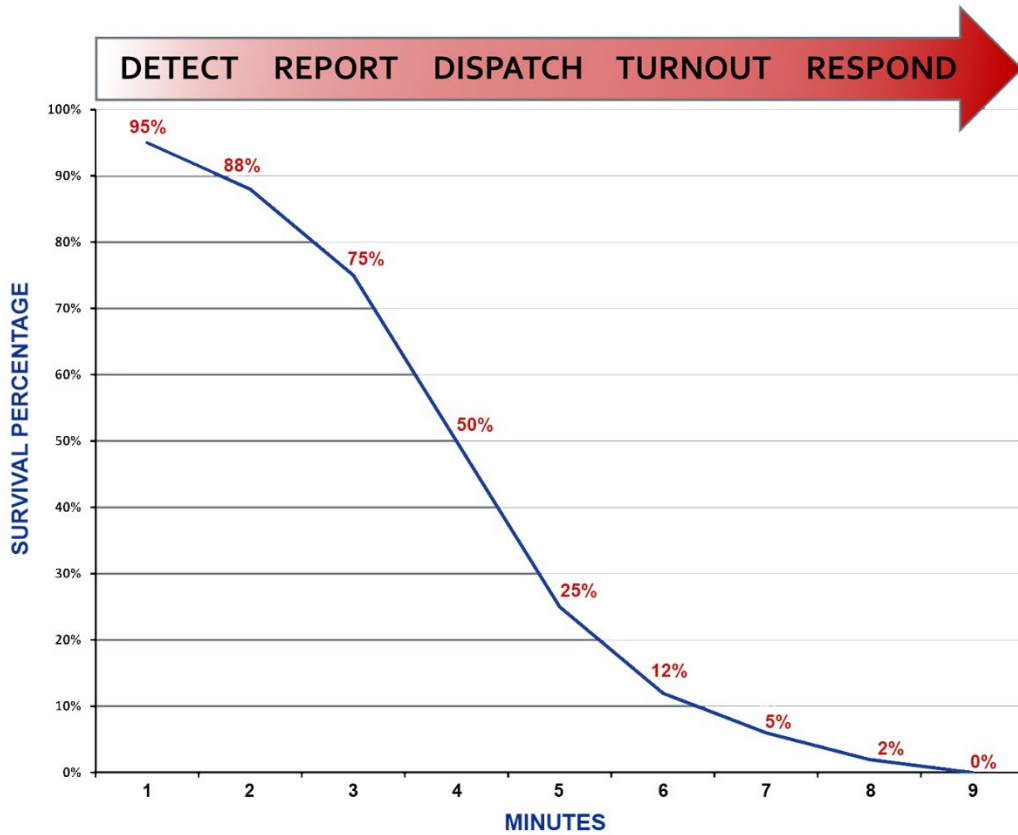
Fire Extension in Residential Structures

Fire Extension	Rates per 1,000 Fires		
	Civilian Deaths	Civilian Injuries	Average Dollar Loss Per Fire
Confined to the room of origin or smaller	1.8	24.8	\$4,200
Confined to the floor of origin	15.8	81.4	\$36,300
Confined to the building of origin or larger	24.0	57.6	\$67,600

Emergency Medical Event Sequence

Cardiac arrest is the most significant life-threatening medical event in emergency medicine today. A cardiac arrest victim has mere minutes to receive lifesaving care if there is to be any hope for resuscitation. The American Heart Association (AHA) issued a set of cardiopulmonary resuscitation guidelines designed to streamline emergency procedures for heart attack victims and to increase the likelihood of survival. The AHA guidelines include goals for applying cardiac defibrillation to cardiac arrest victims. Cardiac arrest survival chances fall by 7 to 10% for every minute between collapse and defibrillation. Consequently, the AHA recommends cardiac defibrillation within five minutes of cardiac arrest. As with fires, the sequence of events that lead to emergency cardiac care can be graphically illustrated, as in the following figure.

Cardiac Arrest Event Sequence



The percentage of opportunity for recovery from cardiac arrest drops quickly as time progresses. The stages of medical response are very similar to the components described for fire response. Recent research stresses the importance of rapid cardiac defibrillation and administering certain medications to improve the opportunity for successful resuscitation and survival.

People, Tools, and Time

Time matters significantly in achieving an effective outcome in an emergency event. Time, however, is not the only factor. Delivering sufficient numbers of adequately trained and appropriately equipped personnel within the critical time period completes the equation.

For medical emergencies, this can vary based on the nature of the emergency. Many medical emergencies are not time-critical. However, a rapid response is essential for severe trauma, cardiac arrest, or conditions that may lead to cardiac arrest. Equally critical is delivering enough personnel to the scene to perform all concurrent tasks required to deliver quality emergency care. For a cardiac arrest, this can be up to six personnel: two to perform CPR, two to set up and operate advanced medical equipment, one to record the actions taken by emergency care workers, and one to direct patient care. Thus, for a medical emergency, the actual performance test is the time it takes to provide the personnel and equipment needed to deal effectively with the patient's condition, not necessarily the time it takes for the first person to arrive.

Critical Tasks, Risk, and Staffing Performance

The goal of any fire service organization is to provide adequate resources within a period of time to mitigate an emergency event reasonably. However, all emergency events inherently carry their unique circumstances and will require varying levels of staffing based on factors surrounding the incident. High-fire risk properties often require more personnel and apparatus to mitigate fire emergencies effectively. Staffing and deployment decisions should be made considering the level of risk involved. Common risk categories used in the fire service are:

- **Low Risk:** Areas and properties used for agricultural purposes, open space, low-density residential, and other low-intensity uses.
- **Moderate Risk:** Areas and properties used for medium-density single-family residences, small commercial and office use, low-intensity retail sales, and equivalently sized business activities.
- **High Risk:** Higher-density businesses and structures, mixed-use areas, high-density residential, industrial, warehousing, and large mercantile structures.

Fire emergencies are even more resource-critical. Again, the actual test of performance is the time it takes to deliver sufficient personnel to initiate water application to a fire. This is the only practical method to reverse internal temperature increases and prevent flashover. The arrival of one person with a portable radio does not provide fire intervention capability. It should not be counted as an “arrival” by the fire department. This report’s Management and Staffing section detailed the NFPA 1710 critical tasks expected to be performed by firefighters concurrently, referred to as the “effective response force” (ERF), and compared that to the number of firefighters initially deployed for structure fires.

Response Time Performance Objectives

Several items must be considered to initiate the process of developing performance objectives. Although the specific information needed to complete this process will vary with each organization, the following items will generally need to be addressed during this process. Historical call data must be collected and analyzed to determine current performance baselines and identify any gaps in data required; response zones must be established based on agreed-upon criteria (i.e., population zones, geographic boundaries, etc.); and benchmarks established as goals for these demand zones.

Response Goals

Dynamix Consulting Group emphasizes the importance of establishing and regularly monitoring performance metrics for the deployment of resources. These metrics serve as the foundation for determining whether or not the organization is meeting the expectations of the community it serves. Without regular and consistent performance evaluation, setting and achieving goals established to meet community expectations is impossible.

Response standards established by the department must originate from the community served to create a balance between what is desired and what can be afforded. Because of this, Dynamix Consulting Group cannot establish baselines and benchmark performance metrics for a given organization. However, recommendations based upon the analysis conducted throughout this report may help serve as a starting point for these discussions with the community served or may serve as a reevaluation tool for the organization’s current standards.

Response standards are individual to each organization. Multiple factors such as staffing, financial constraints, size of the service area, and politics will influence each department’s ability to set achievable goals and objectives for response.

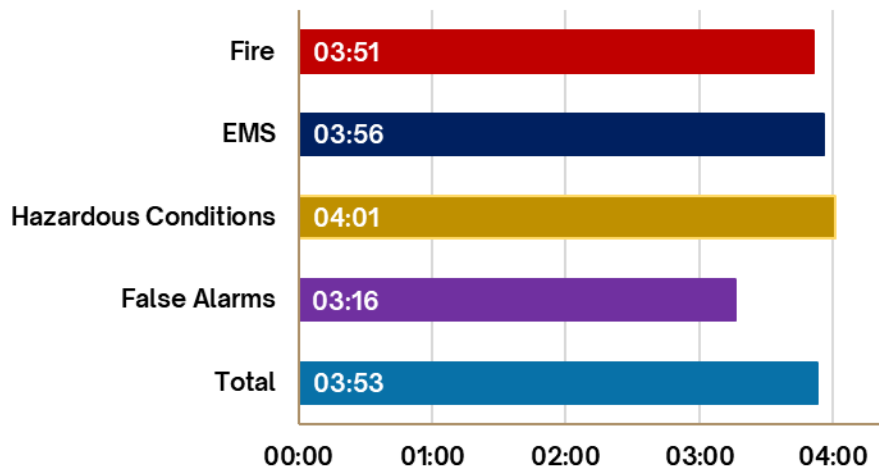
Dynamix Consulting Group recommends that the Goochland County Department of Fire-Rescue and Emergency Services Adopt Performance Goals in the following areas:

1. Call Processing Performance

The industry standard for call processing (or alarm handling) is NFPA 1221: *Standard for the Installation, Maintenance, and Use of Emergency Services Communications Systems*. This standard allows communication centers to have processing times of not more than 60 seconds 90% of the time. For special operations, calls requiring translation, or other factors described in the standard, times should not exceed 90 seconds at the 90th percentile.

While performance is consistent with other emergency communication centers observed by Dynamix Consulting Group, room for improvement is possible. Dynamix Consulting Group recommends that the Goochland County Department of Fire-Rescue and Emergency Services actively work with the communications center to ensure compliance with NFPA 1221.

Call Processing Time 2018-2022

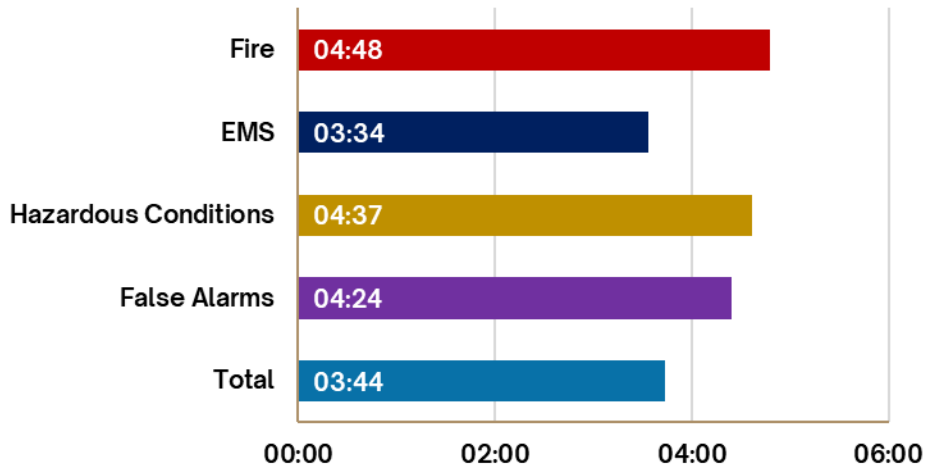


2. Turnout Time Performance

Turnout is the time it takes personnel to receive the dispatch information, move to the appropriate apparatus, and begin responding to the incident. NFPA 1710 calls for a 90th percentile turnout performance of 80 seconds for fire and special operations calls and 60 seconds for all other emergency calls.

Goochland County Department of Fire-Rescue and Emergency Services' turnout time performance is three to four times that of what NFPA 1710 recommends. It is important to note that turnout performance is not always a function of compliance. It may result from other factors such as station design, distance from living and sleeping quarters to the apparatus, or deployment methodologies such as cross-staffing units, which is the current practice for Goochland County. Goochland County Department of Fire-Rescue and Emergency Services should regularly monitor turnout performance and identify improvement opportunities.

Turn Out Time 2018-2022

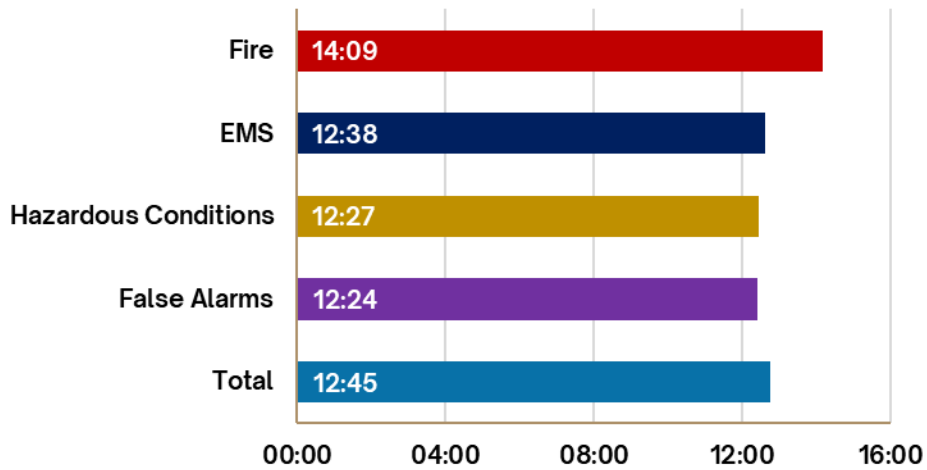


3. Travel Time Performance

It is essential to understand that travel time is not specifically a factor of speed as much as it results from the proper placement of fire stations from which emergency responses begin. Travel time is when the apparatus departs for the call until it arrives on the scene. Travel time is a function of distance, roadway, and traffic conditions. Typically, the only way to improve travel time is to locate additional resources throughout the service area.

NFPA 1710 has adopted a four-minute travel time at the 90th percentile for the first due responding resource in career systems. At approximately triple that performance, Goochland County has opportunities to improve its service levels.

Travel Time 2018-2022



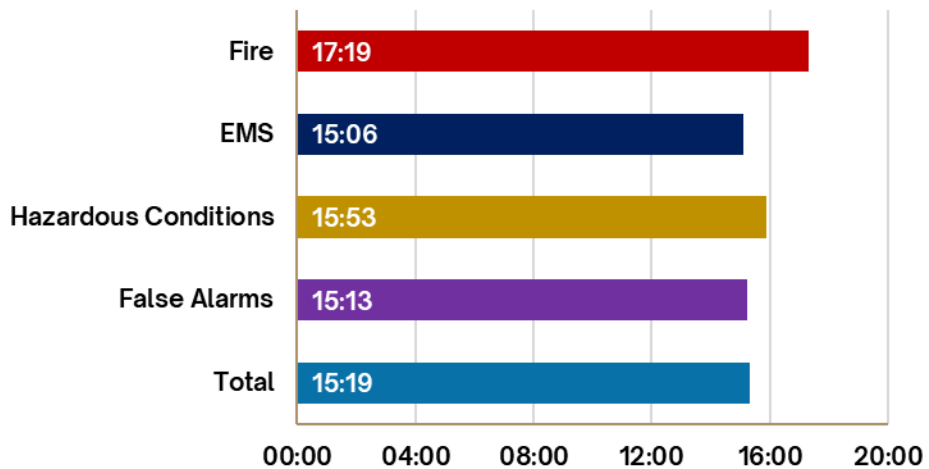
4. Response Time Performance

Response time begins upon initial notification to the fire department until the first unit arrives on the scene. Response time performance is the calculation of the difference between the initial notification time and the arrival time.

For Fire and Special Operations, the combined response time target is 5 minutes 20 seconds, and for emergency medical services and all other emergency calls, a response time of 5 minutes at the 90th percentile.

Response time performance for Goochland County is over three times that of industry standards. Goochland County Department of Fire-Rescue and Emergency Services should consider staffing additional units and station location options to improve performance.

Response Time 2018-2022

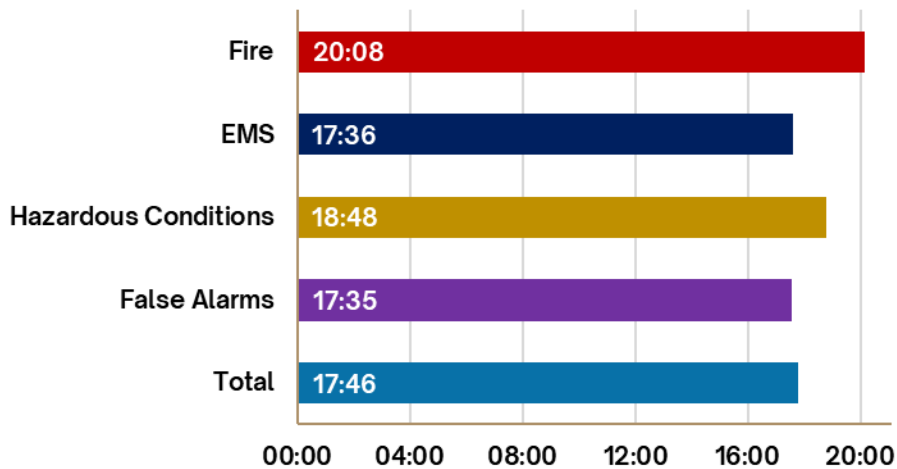


5. Total Response Time Performance

The culmination of the Response Time Continuum is total response time. When citizens call for emergency assistance, this metric represents what they experience as they place the call and wait for help to arrive. Total response time is the time that elapsed from when the call was initiated at the communications center until the first emergency unit arrived on the scene. Ideally, the total response time should be 6 minutes 20 seconds for fire and special operations and 6 minutes for all other emergency responses.

Total response time measured at the 90th percentile was approximately three times that of industry standards, with all categories approaching or exceeding 20 minutes. Goochland County Department of Fire-Rescue and Emergency Services should continue to monitor performance and seek to continuously improve where possible.

Total Response Time 2018-2022



41. Goochland County Department of Fire-Rescue and Emergency Services and the Emergency Communications Center should collaboratively update the communications policy to require that all fire-rescue department calls make better use of the tactical channels.

Justification for better using the tactical channels includes:

- Goochland County Department of Fire-Rescue and Emergency Services' call volume continues to increase, thus increasing the occurrence of multiple calls simultaneously. When there is already a call in progress, the dispatch of a call may be delayed. At the same time, the dispatcher waits for a break in radio traffic to dispatch the next call.
- The dispatch of an emergency call, while another emergency call is already in progress, can disrupt the communications of the initial call, potentially endangering fire-rescue personnel.
- Requiring all calls to move to a tactical channel will make the process second nature for all fire-rescue and communications personnel. This is preferred to only moving severe or significant incidents to tactical channels where responders and dispatchers will likely have a significant workload and must operate on a tactical channel when that is not their standard practice.

42. Investigate the benefits of implementing the use of an automated dispatch system.

Automated dispatching includes the use of a computer that is programmed to efficiently deliver pre-alert information to fire-rescue personnel, freeing the dispatcher to perform other functions simultaneously. The use of an automated dispatching system can help to lower dispatcher stress and better prepare first responders. There are multiple automated dispatching systems on the market. Goochland County should investigate the available options to identify a system that best meets its needs.

43. Goochland County Department of Fire-Rescue and Emergency Services should invite Emergency Communications Center Staff to provide training sessions on the county's Emergency Medical Dispatch program to fire-rescue department personnel.

Emergency Medical Dispatch is a systematic program for handling medical calls for assistance. Dispatchers use locally approved guidelines to determine the nature and priority of the call, dispatch the appropriate response, and give the caller instructions to help treat the patient until the responding EMS unit arrives quickly and properly. While dispatchers receive substantial training on these protocols and the science behind the protocols, fire-rescue personnel often do not have this same training.

44. Reinstigate a shadowing program for fire-rescue personnel to observe the operations of the dispatchers and for the dispatchers to observe the operations of fire-rescue personnel.

Goochland County Department of Fire-Rescue and Emergency Services and the Emergency Communications Center have added many new employees recently. Many of these employees are from outside of the county. As such, many fire-rescue personnel and dispatchers have never met each other. Dynamix Consulting Group suggests that the Goochland County Department of Fire-Rescue and Emergency Services and the Emergency Communications Center collaborate and reinstitute a shadowing program for fire-rescue personnel to observe the operations of the dispatchers and for the dispatchers to observe the operations of fire-rescue personnel. The scheduled interactions will additionally provide networking opportunities and hopefully build a foundation for future professional interactions.

Future System Demand Projections

Anticipated Future Community Conditions and Service Demand

To properly plan for the future of Goochland County, it is crucial to have a thorough understanding of how the community will evolve. Doing so will ensure the availability of adequate resources for future years. When budgeting and planning, it is essential to consider the types, intensity, location, and duration of anticipated changes.

The County's Community Development office supports the Accessibility, Connectivity, Readiness, Education, and Sustainability (ACRES) of Goochland County's agricultural community concept to provide sustainable strategies, policies, and procedures to agriculturally focused citizens and groups within Goochland County. The 'Rural Strategies' section of the 2035 Comprehensive Plan supports the implementation of agriculture and rural development strategies. The County's comprehensive plan outlines an 85/15 rural versus designated growth policy, which provides the Board of Supervisors with guidance as they review planning, zoning, and development cases.

To support balanced growth initiatives, the County promotes several strategies, such as utilizing the Comprehensive Plan to determine appropriate densities for specific areas, directing new growth towards Designated Growth Areas or Major Villages, concentrating density towards the center of Villages while reducing density along the fringes, providing buffers at subdivision entrances and along roadways, and safeguarding rural uses while encouraging equestrian uses in the Deep Run Hunt Community.

Commercial Development

Situated on the Interstate 64 corridor on the western side of the Richmond metroplex, Goochland County possesses tremendous potential for future growth as current and emerging industries continue to develop. Three current primary economic drivers within Goochland County have benefited for decades from the Commonwealth's and Goochland County's low tax structure and centralized location to transport corridors up and down the eastern seaboard and Midwest.

Existing Target Industries:

Construction

The construction industry is a vital part of Goochland County's economy and continues to expand. Goochland High School offers students the opportunity to gain hands-on experience, internships, and apprenticeships. This practical experience provides graduates with the skills, certifications, and real-world knowledge they need to succeed on active job sites in Goochland County.

In addition to the high school's efforts, J. Sargeant Reynolds Community College has a campus in Goochland County and partners with the Community College Workforce Alliance to provide workforce training to local businesses. This training covers various topics such as heavy equipment operation, electrical work, HVAC, and more. Best of all, many of these programs come at low or no cost to businesses.

With more than 1,600 construction workers in Goochland County and over 40,000 in the surrounding region, a clear talent pipeline is available to companies in need. By partnering with local schools and community colleges, businesses can help ensure that this talent pool remains strong and continues to grow. Major employers within Goochland County include Luck Stone, Liesfeld Contactor, Inc., and Branscome Incorporated.

Corporate Services

For over two decades, the Corporate Services Industry in Goochland County has seen remarkable growth. The pre-zoned business park, covering more than 1,700 acres, offers readily available utilities, making it an ideal location for companies to establish their presence, particularly those in the Fortune 500.

The Richmond metro market provides companies access to a robust business ecosystem, a diverse and skilled labor pool, a low-cost business environment and tax structure, and excellent connectivity to all major East Coast markets. Goochland County is an optimal choice for businesses looking to establish themselves in the region due to the numerous amenities and resources it offers.

Goochland County is committed to fostering a supportive and collaborative business environment, as evidenced by the success of its numerous corporate residents. Whether small startups or large multinational corporations, Goochland County offers everything businesses need to succeed.

Focusing on providing the best resources and support provides the County's Corporate Services Industry opportunities for businesses to grow and expand to the next level. Significant employers in the County include Capital One, Performance Food Group, and Carmax.

Finance & Insurance

Goochland County has become an attractive destination for financial institutions and insurance companies due to its highly skilled and diverse workforce. The region boasts 23 esteemed colleges and universities, which provide a constant stream of professionals with various qualifications and specializations from which these organizations can draw.

Virginia's corporate tax rate, which has remained unchanged at 6% since 1972, has further contributed to the appeal of this location for businesses. Unsurprisingly, these companies are opting to establish themselves in Virginia.

Goochland County's status as the only county of its size in the US with dual AAA bond ratings is a testament to its stability and security, making it an ideal destination for companies seeking a reliable base of operations. Examples of top employers within Goochland County include the Farm Bureau and the Federal Reserve Bank of Richmond.

All these factors combine to make Goochland County a top choice for businesses seeking to prosper. The community is supportive, and the foundation is strong, making it an attractive destination for companies of all sizes and industries.

Emerging Industries

Food & Beverage Manufacturing

The food and beverage industry in Goochland County has thrived due to its deep-seated agricultural roots. The area is home to a multitude of farms, breweries, wineries, and hydroponic facilities, making it an attractive destination for numerous businesses. Additionally, Goochland County's strategic location along Interstate 64 facilitates efficient transportation of goods to major markets.

The Controlled Environment Agriculture Innovation Center, a joint venture between Virginia Tech and the Institute for Advanced Learning and Research (IALR), propels the industry to new heights. By collaborating with academia and industry, the Innovation Center is leading the way in advancing the controlled environment agriculture sector in the United States and beyond.

Moreover, the region benefits from a highly skilled and trained labor force thanks to the robust community college system and higher education programs. The agriculture program at Goochland High School offers practical experience and valuable apprenticeships and internships, providing students with the necessary skills and knowledge to succeed in their future careers. The food and beverage market within Goochland County is diverse, with current employers such as Midnight Brewery, Courthouse Creek Cider, Sabra, and Tyson.

Innovation Center is poised to significantly impact the future of the food and beverage industry in Goochland County and beyond through cutting-edge research and educational programming.

Healthcare & Lifesciences

The Richmond metropolitan area is home to a thriving healthcare and life science industry bolstered by a network of prestigious educational institutions promoting research and innovation. These institutions produce highly skilled graduates who are well-equipped to embark on successful careers in this field. With a tax rate assessed at \$0.53 per \$100, a 6% corporate tax rate, and ranked #4 by Forbes, Goochland County offers a business-friendly environment with ample access to distribution centers and major transportation networks.

The Virginia Bio-Tech Park, a dynamic hub for early-stage companies, offers a collaborative environment for launching life science ventures. Located in a vibrant innovation ecosystem, it has access to ample capital, providing an affordable market in which companies in the Richmond region can thrive and expand.

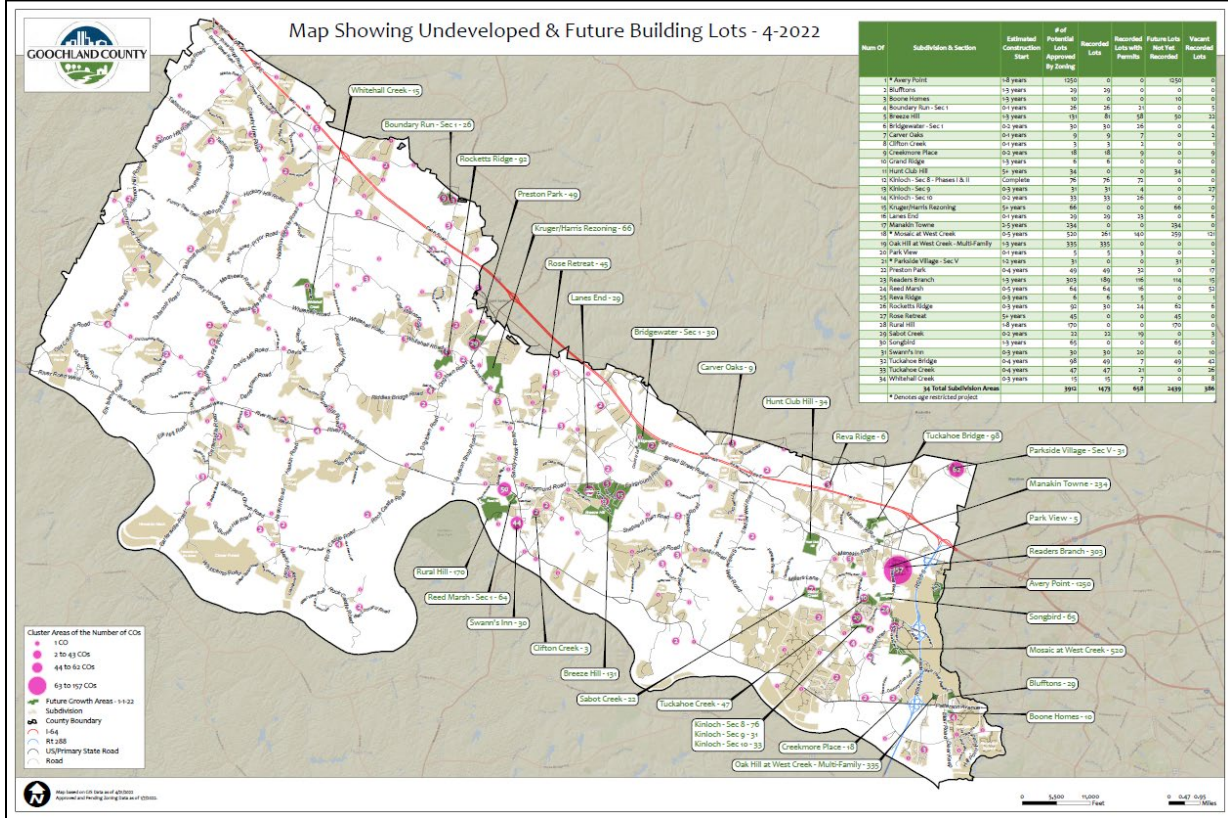
The Richmond metro area fosters collaboration, creativity, and innovation, establishing itself as a leading healthcare and life science research and development center. Companies in this region have access to world-class facilities and resources and a supportive and welcoming community committed to advancing the frontiers of healthcare and life science.

Logistics

Goochland County presents a strategic location for businesses seeking to expand their market reach along the eastern seaboard. With direct access to major interstate highways such as I-64, enterprises can connect with two significant metropolitan areas in Virginia and access consumers within a four to eight-hour drive of the Richmond market. Additionally, this central location affords convenient entry to other parts of the East Coast through I-95 and I-295.

Adding to its appeal, Goochland County boasts an international airport and the Port of Richmond, facilitating faster transportation of goods to their intended destinations. Businesses can confidently rely on these transportation options to ensure their products arrive promptly and efficiently.

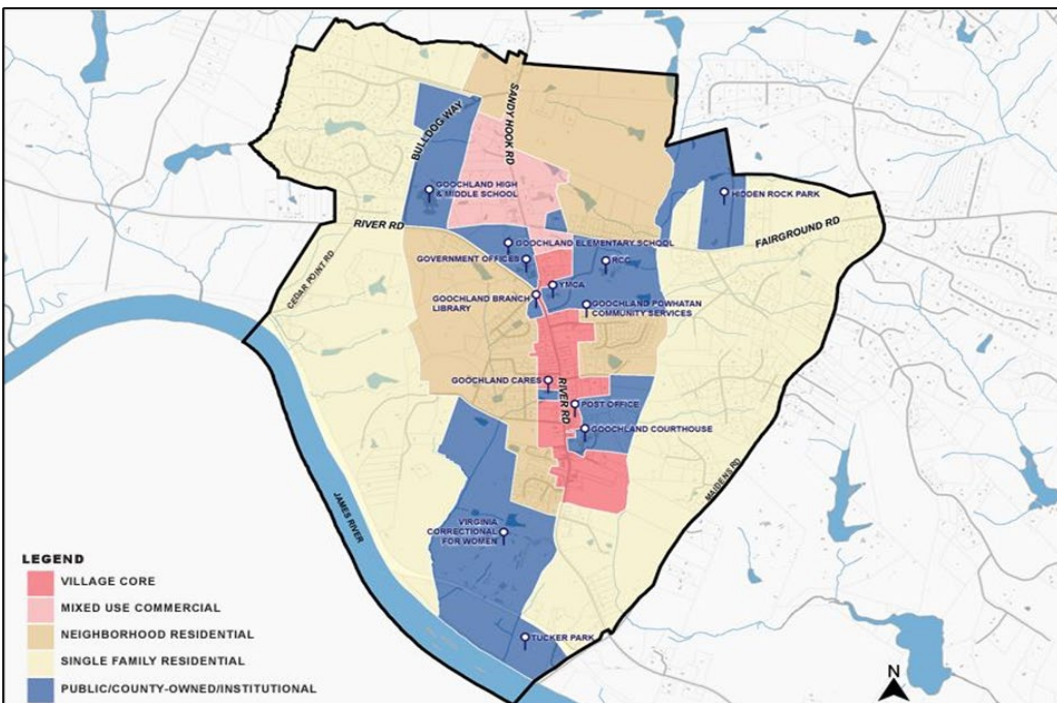
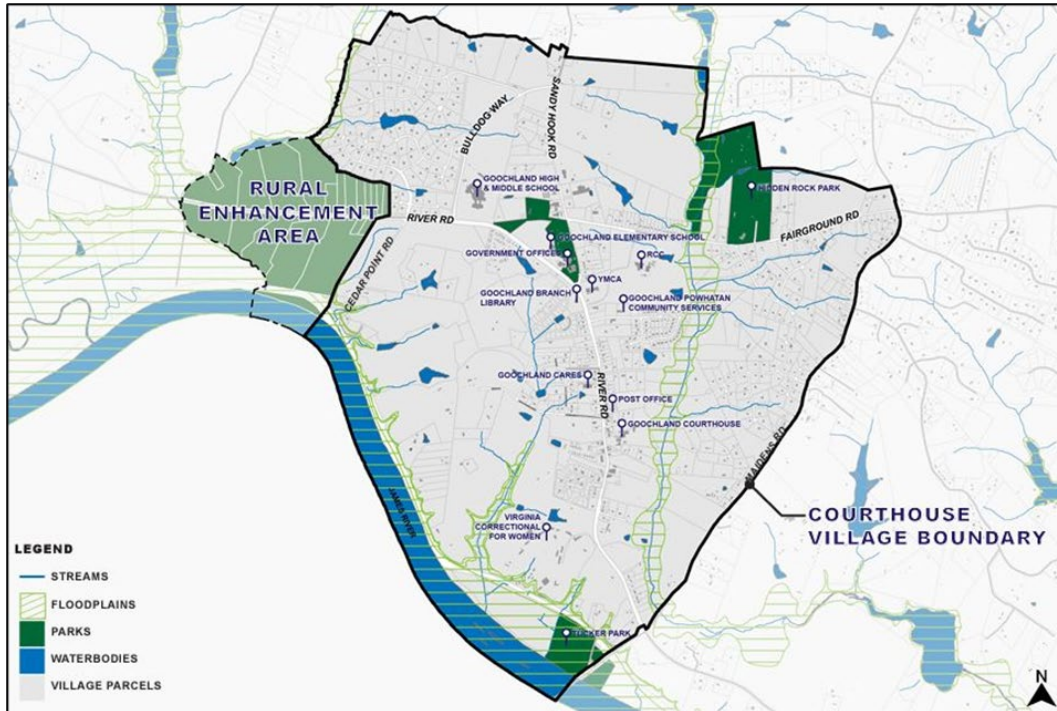
With major companies in the region, including FedEx, UPS, DSC Logistics, and Amazon, and access to the Port of Virginia and Richmond International Airport located 20 miles from Goochland County in Foreign Trade Zone #207, annually, the Richmond International Airport cargo facility transports more than 70,000 tons of cargo and has up to 750,000 square feet of storage space.



Residential Development

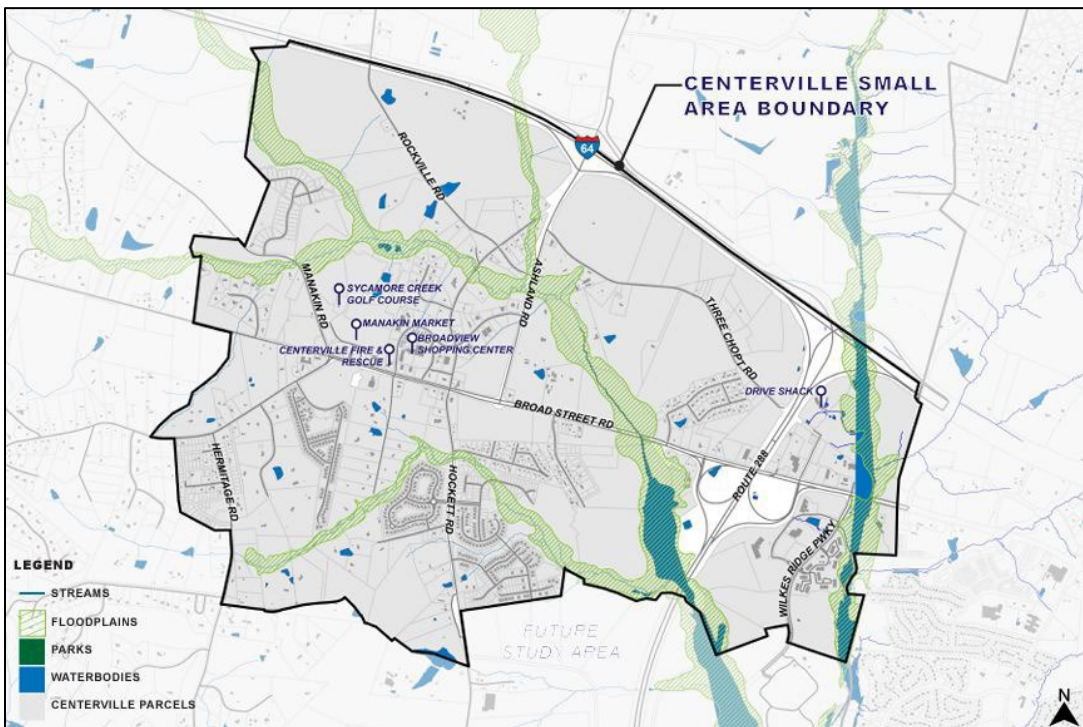
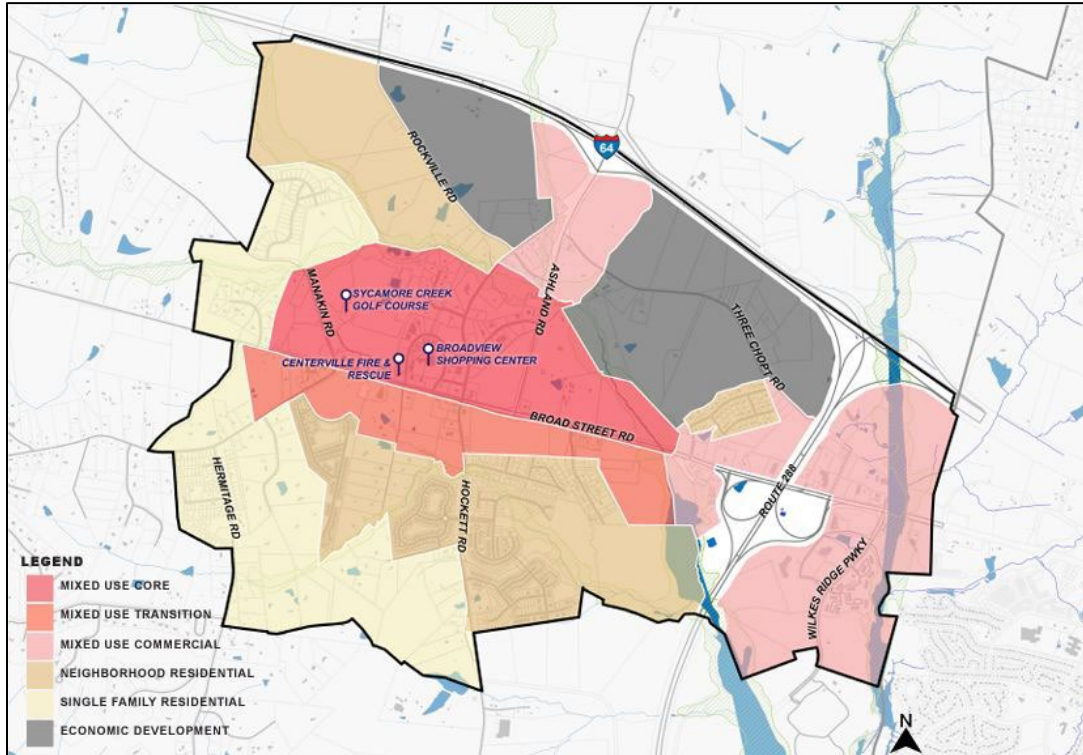
In addition to commercial development, Goochland County is also experiencing significant residential development, primarily via the Courthouse Village and Centerville Village projects.

Courthouse Village



Centerville Village

Subsequent to the Dynamix Consulting Group site visit, the Goochland County Board of Supervisors **denied** the Centerville Small Area Plan during a special called meeting on the evening of October 4, 2023.

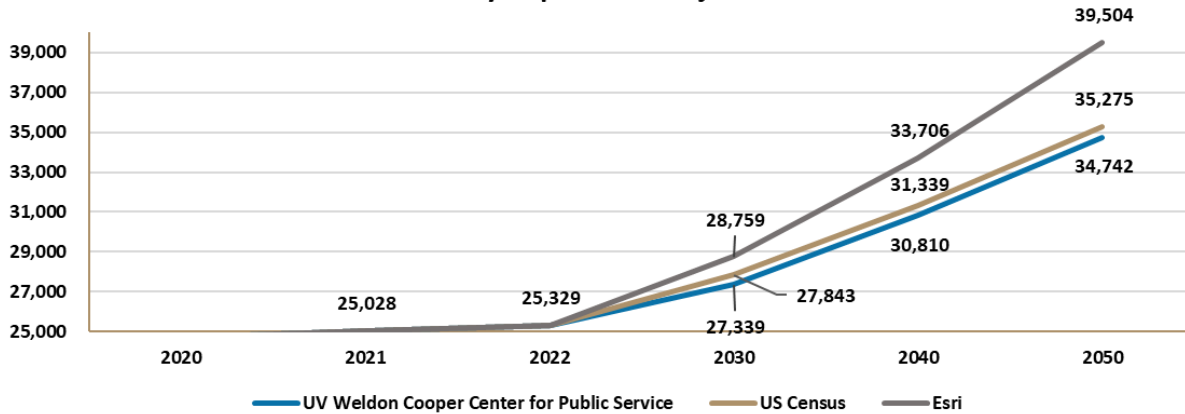


Community Growth Projections

All communities experience some change in population and demographics over time. This change is vital to understand as diverse groups of people have varying levels of dependence upon emergency services. For example, when comparing a group of people from 25 to 35 years of age who own a home and have access to health care with a group aged 65+ with a disability, the second group would be more likely to utilize emergency services. Likewise, increases in population over time ordinarily lead to a higher demand for services.

Since 2000, Goochland County’s population has increased at a Compound Annual Growth Rate (CAGR) of 1.9% annually and 1.2% from 2010 to 2020. This CAGR represents a 46.0% overall increase since 2000 and a 12.9% increase since 2010. To provide future projections of potential growth, a high and a low-end annual growth rate was selected of 1.19% to represent current census growth rates since 2020, 1.13% annually, which is Esri’s estimation of predicted annual yearly growth rate, and population projections provided by the University of Virginia Cooper Center for Public Service.

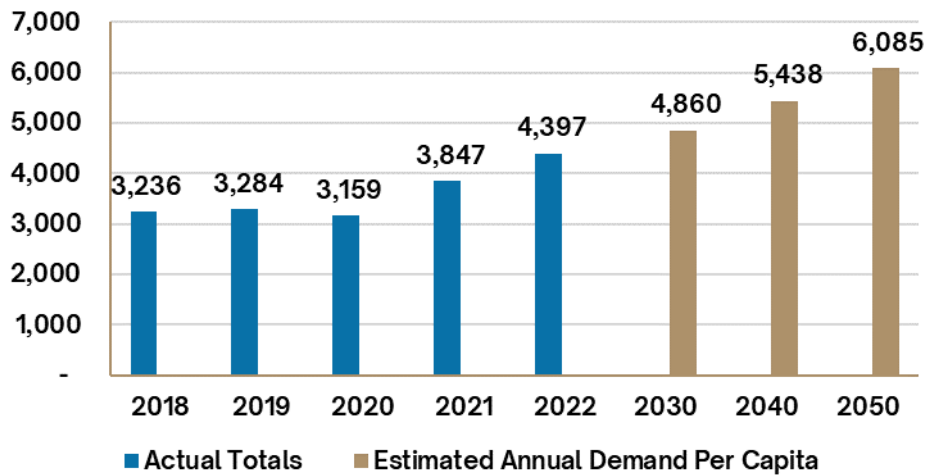
Goochland County Population Projections 2022-2050



Service Demand Projections

Demand for services drives all service delivery organizations, and planning for the organization's future needs is a critical administrative task. To calculate estimates for future demand, the 2022 per capita rate of the annual service demand for Goochland County's population was calculated, resulting in 173.6 calls per 1,000 in population. This was then applied to the 1.13% projected annual growth rates used in the population projection.

Actual and Projected Service Demand



Goochland County can anticipate a consistent increase in demand based on the current service demand per 1,000 in population, along with an estimated 1.13% annual growth rate. By 2050, demand levels for fire rescue resources may exceed 6,000 calls annually. However, as development continues and higher population densities occur, demand could be even higher than current projections.

Master List of Recommendations

The following recommendations are listed in the order they appear within the report. In the electronic copies of the Master Plan, each of the recommendations listed below is a hyperlink that will take the reader to the section of the report where the recommendation appears.

Goochland County Department of Fire-Rescue and Emergency Services Master Plan Recommendations
1. Transition the Volunteer Deputy Fire Chief Position to a Full-Time Position.
2. Work toward compliance with NFPA 1710 5.2.2.2.2. Each company shall be led by an officer who shall be considered a part of the company.
3. Eliminate cross-staffing and work toward compliance with NFPA 1710 of staffing four firefighters on engines.
4. Eliminate cross-staffing and work toward compliance with NFPA 1710 of staffing four firefighters on ladder companies.
5. Increase the number of fire inspectors to bring inspection frequency into compliance with NFPA 1730.
6. Establish a formal feedback/input mechanism to receive necessary end-user feedback about the training program.
7. Add a full-time instructor to the Training and Safety Division.
8. Regularly assess the workload of the Training Division to determine whether additional staffing is necessary to ensure that effective training is delivered on a continual basis.
9. Intentionally integrate outside instructors into the Training Program.
10. Encourage all uniformed members to avail themselves of the opportunity to attend the National Fire Academy on a paid stipend once each year.
11. Train and certify all personnel who hold the position of Lieutenant to the level of Fire Officer I.
12. Train and certify all personnel who hold the position of Captain to the level of Fire Officer II.
13. Require completion of the National Fire Academy's Managing Officer Program for all personnel holding the position of Battalion Chief within the department.

Goochland County Department of Fire-Rescue and Emergency Services Master Plan Recommendations	
14.	<u>Require completion of the National Fire Academy's Executive Fire Officer Program for those holding the position of Deputy Chief and Chief within the department.</u>
15.	<u>Establish a formal Safety Committee.</u>
16.	<u>Establish a Full-time Public Educator Position.</u>
17.	<u>Make it a priority to recruit and retain new volunteer firefighters.</u>
18.	<u>Establish participation requirements for volunteer firefighters to ensure that the county is not paying a higher cost per call for volunteer firefighters than it does for career firefighters.</u>
19.	<u>Update the Goochland County Department of Fire-Rescue and Emergency Services Organizational Structure to meet the fire-rescue department's current and anticipated future needs.</u>
20.	<u>Design and implement a Department-wide Communication Plan.</u>
21.	<u>Make it a priority to complete the update of Policies and Procedures with Lexipol.</u>
22.	<u>Develop a Professional Development Program for all positions within the organization.</u>
23.	<u>Develop a Succession Plan.</u>
24.	<u>Provide a second set of turnout gear or access to a second set of turnout gear to all firefighters.</u>
25.	<u>Review and update as necessary the Goochland County Department of Fire-Rescue and Emergency Services mission statement.</u>
26.	<u>Review and update as necessary the Goochland County Department of Fire-Rescue and Emergency Services vision statement.</u>
27.	<u>Review and update as necessary the Goochland County Department of Fire-Rescue and Emergency Services organizational values.</u>
28.	<u>The Goochland County Board of Supervisors should adopt this Master Plan either as written or with amendments.</u>
29.	<u>Develop a Fire Department Strategic Plan.</u>
30.	<u>Incorporate automatic sprinkler protection, electronic access control, cancer prevention engineering, back-in bays, silent stations, and other improvements into plans to renovate the existing six fire stations.</u>
31.	<u>Develop a plan for the future ownership, repair, and maintenance of Stations 1, 2, 3, 4, and 5.</u>
32.	<u>Establish a single logistics facility.</u>

Goochland County Department of Fire-Rescue and Emergency Services Master Plan Recommendations	
33.	<u>Relocate and expand the Training Facility.</u>
34.	<u>Develop a plan for the number and location of fire stations that will be operated in Goochland County.</u>
35.	<u>Conduct a county-wide evaluation of all the apparatus in the fleet with the goal of eliminating apparatus that does not see regular use and does not serve a specific and necessary need.</u>
36.	<u>Plan to increase the size of the apparatus fleet.</u>
37.	<u>Evaluate the Vehicle Replacement Plan at regular intervals.</u>
38.	<u>Submit an annual report to the AHJ in accordance with NFPA 1710 4.1.2.5.1.</u>
39.	<u>Regularly review county demographic information for “at risk” populations and realign targeted Community Risk Reduction Programs as population changes occur.</u>
40.	<u>Establish Fire Department Performance Standards.</u>
41.	<u>Goochland County Department of Fire-Rescue and Emergency Services and the Emergency Communications Center should collaboratively update the communications policy to require that all fire-rescue department calls make better use of the tactical channels.</u>
42.	<u>Investigate the benefits of implementing the use of an automated dispatching system.</u>
43.	<u>Goochland County Department of Fire-Rescue and Emergency Services should invite Emergency Communications Center Staff to provide training sessions on the county’s Emergency Medical Dispatch program to fire-rescue department personnel.</u>
44.	<u>Reinstitute a shadowing program for fire-rescue personnel to observe the operations of the dispatchers and for the dispatchers to observe the operations of fire-rescue personnel.</u>

Conclusion

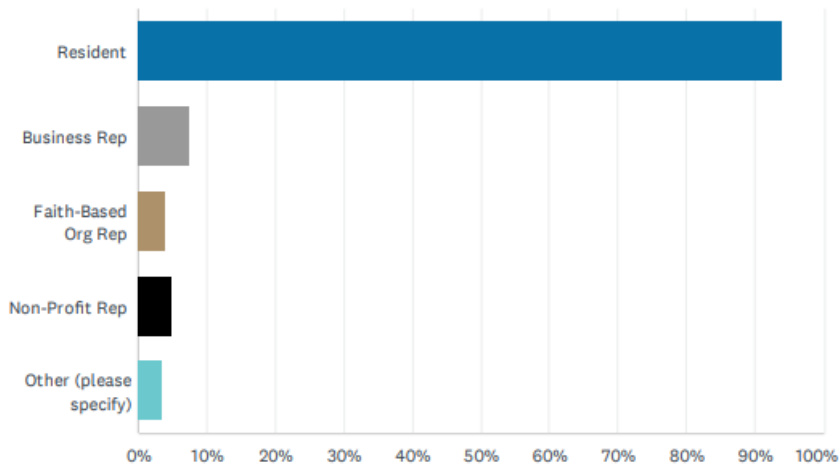
Dynamix Consulting Group sincerely hopes the information in this report serves to its fullest extent and that the emergency services that the Goochland County Department of Fire-Rescue and Emergency Services provides to the community will improve by its implementation.

Appendices

Appendix A. Community Survey

Q1 I am a: (Check all that apply)

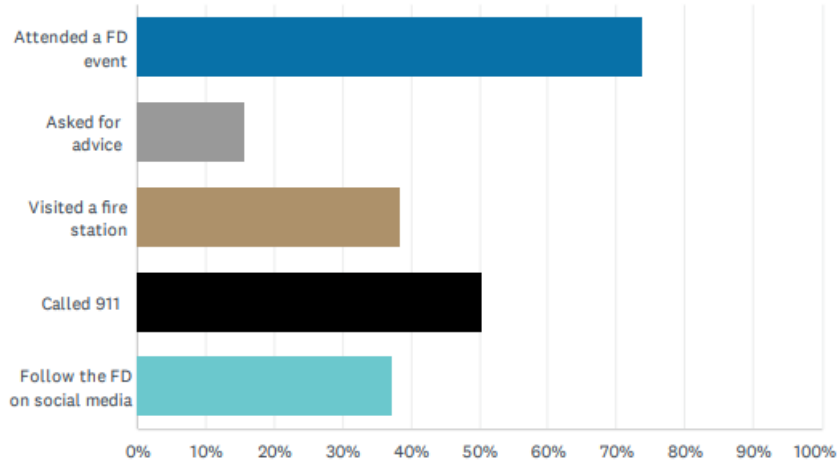
Answered: 374 Skipped: 1



ANSWER CHOICES	RESPONSES	
Resident	94.12%	352
Business Rep	7.49%	28
Faith-Based Org Rep	3.74%	14
Non-Profit Rep	4.81%	18
Other (please specify)	3.48%	13
Total Respondents: 374		

Q2 Have you ever: (Check all that apply):

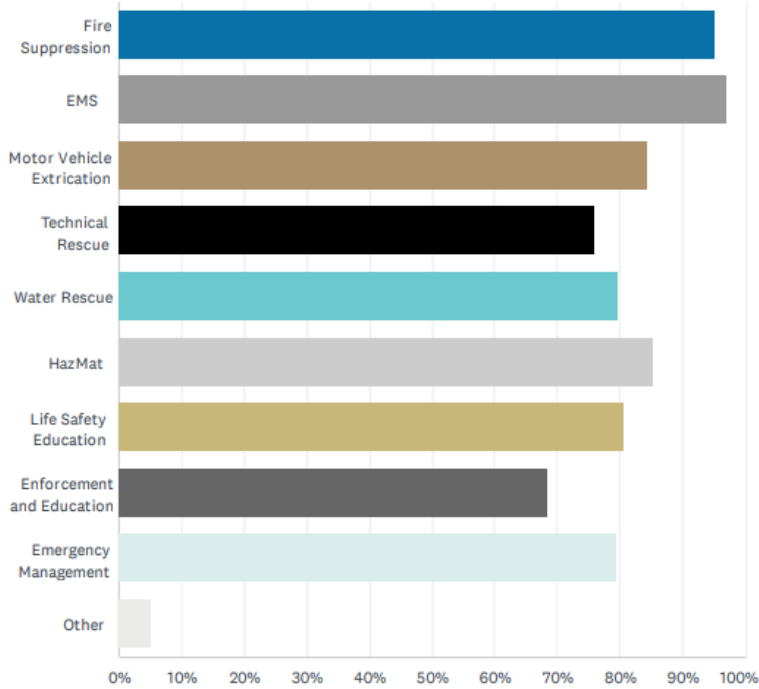
Answered: 308 Skipped: 67



ANSWER CHOICES	RESPONSES	
Attended a FD event	73.70%	227
Asked for advice	15.58%	48
Visited a fire station	38.31%	118
Called 911	50.32%	155
Follow the FD on social media	37.01%	114
Total Respondents: 308		

Q3 I expect the following services to be provided by Goochland County Department of Fire-Rescue and Emergency Services (Check all that apply):

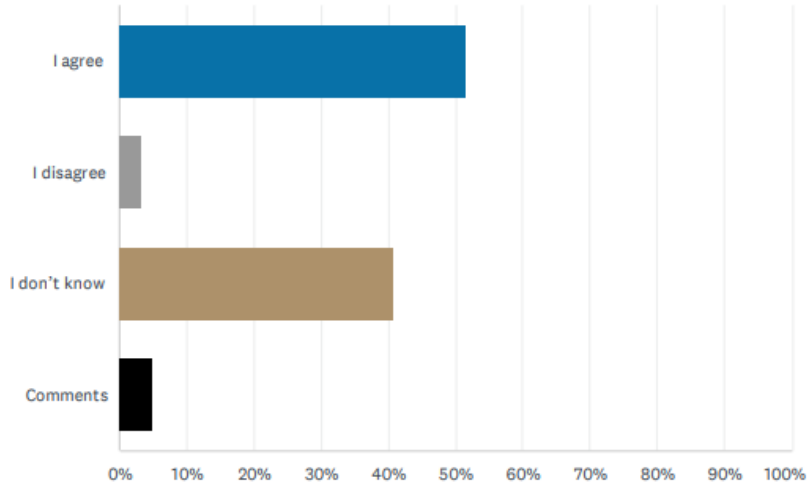
Answered: 373 Skipped: 2



ANSWER CHOICES	RESPONSES	
Fire Suppression	95.17%	355
EMS	97.05%	362
Motor Vehicle Extrication	84.18%	314
Technical Rescue	75.87%	283
Water Rescue	79.62%	297
HazMat	85.25%	318
Life Safety Education	80.70%	301
Enforcement and Education	68.36%	255
Emergency Management	79.36%	296
Other	5.09%	19
Total Respondents: 373		

Q4 Goochland County Department of Fire-Rescue and Emergency Services provides appropriate community education and outreach programs.

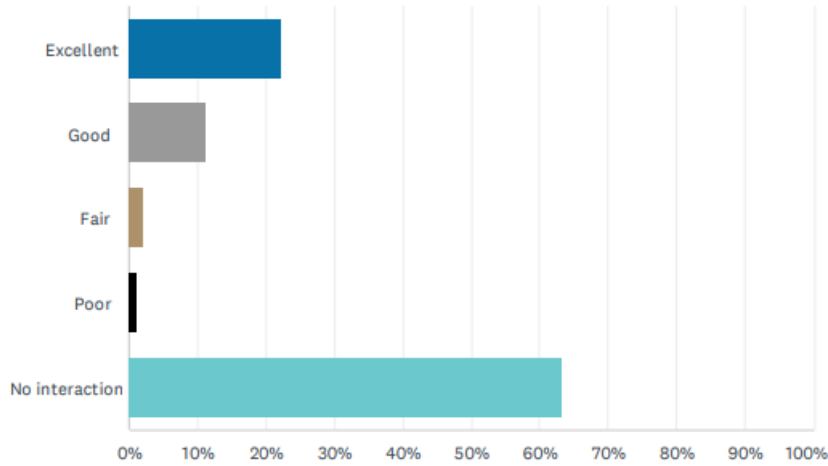
Answered: 374 Skipped: 1



ANSWER CHOICES	RESPONSES	
I agree	51.34%	192
I disagree	3.21%	12
I don't know	40.64%	152
Comments	4.81%	18
TOTAL		374

Q5 The Goochland County Fire Marshal's Office provides education and seeks voluntary compliance with the Virginia Statewide Fire Prevention Code. Please rate and describe your experience with the Fire Marshal's Office.

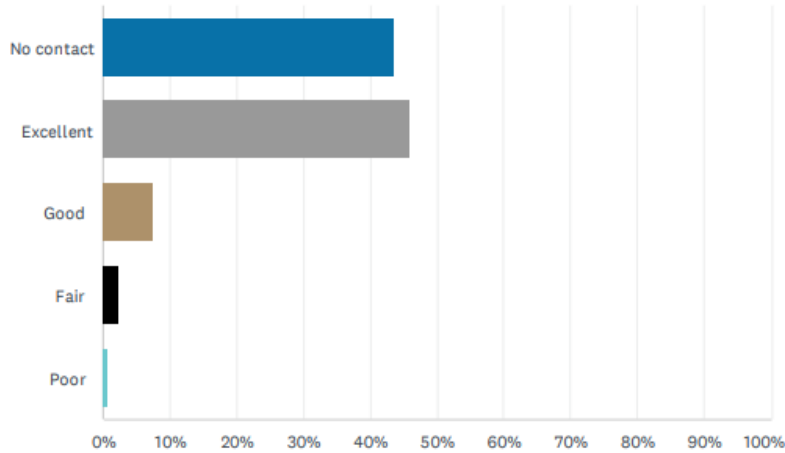
Answered: 374 Skipped: 1



ANSWER CHOICES	RESPONSES	
Excellent	22.19%	83
Good	11.23%	42
Fair	2.14%	8
Poor	1.07%	4
No interaction	63.37%	237
TOTAL		374

Q6 In the last three years, have you personally received or witnessed an emergency response from Goochland County Department of Fire-Rescue and Emergency Services? If so, how would you rate the quality of the service?

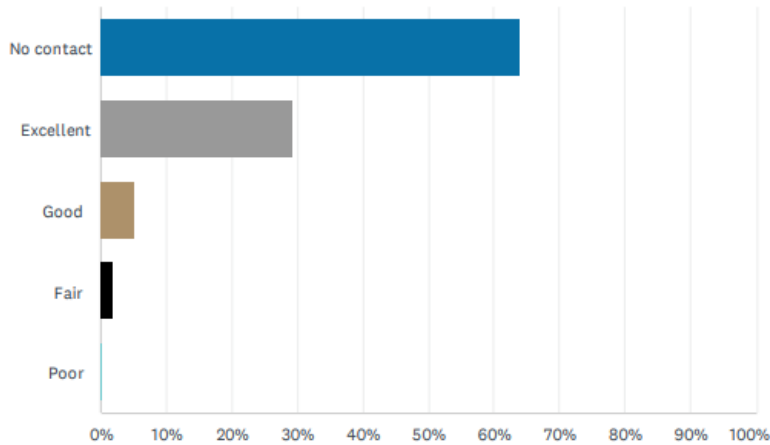
Answered: 370 Skipped: 5



ANSWER CHOICES	RESPONSES	
No contact	43.51%	161
Excellent	45.95%	170
Good	7.57%	28
Fair	2.43%	9
Poor	0.54%	2
TOTAL		370

Q7 In the last three years, have you personally received or witnessed any non-emergency services (such as the Fire Marshal's Office, Public Fire and Life Safety Education, Emergency Management, etc) provided by Goochland County Department of Fire-Rescue and Emergency Services? If so, how would you rate the quality of the non-emergency service?

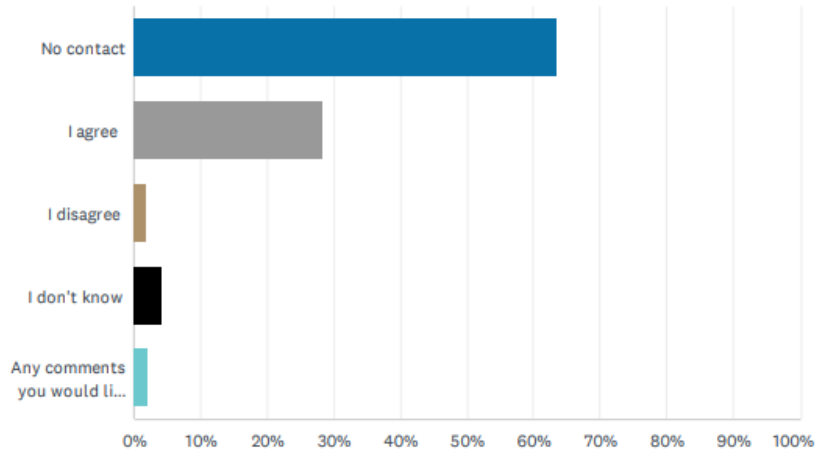
Answered: 371 Skipped: 4



ANSWER CHOICES	RESPONSES	
No contact	63.88%	237
Excellent	29.11%	108
Good	5.12%	19
Fair	1.62%	6
Poor	0.27%	1
TOTAL		371

Q8 When I called 911 to request emergency medical services, the instructions that I was given to assist the person in need prior to the arrival of firefighters and emergency medical services providers were helpful.

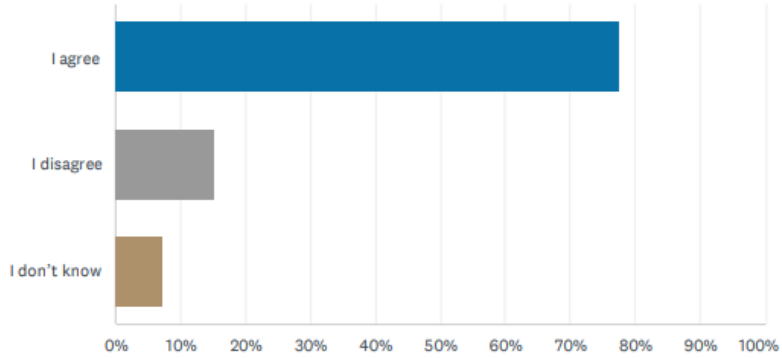
Answered: 370 Skipped: 5



ANSWER CHOICES	RESPONSES
No contact	63.51% 235
I agree	28.38% 105
I disagree	1.62% 6
I don't know	4.32% 16
Any comments you would like to share	2.16% 8
TOTAL	370

Q9 The proximity of a fire station to my home or work is appropriate for my needs.

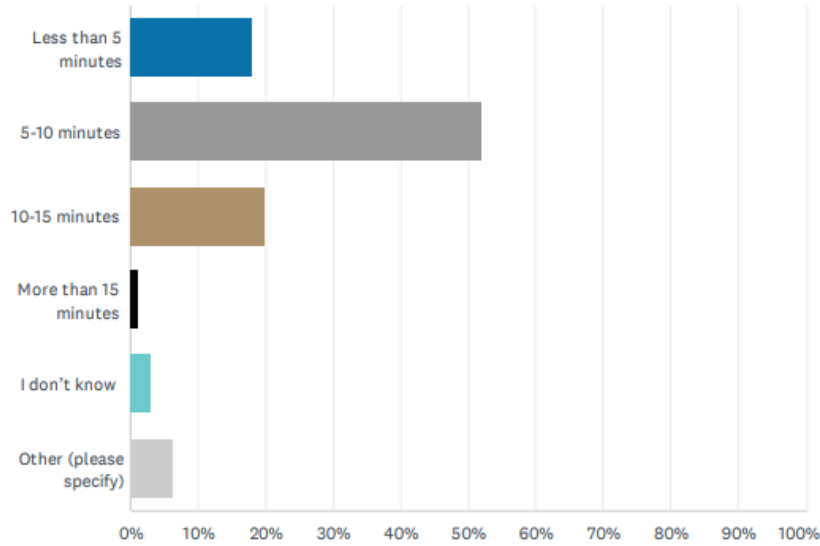
Answered: 370 Skipped: 5



ANSWER CHOICES	RESPONSES	
I agree	77.57%	287
I disagree	15.14%	56
I don't know	7.30%	27
TOTAL		370

Q10 What do you feel is the appropriate amount of time from when a person calls 911 until the arrival of firefighters and emergency medical services providers at an emergency?

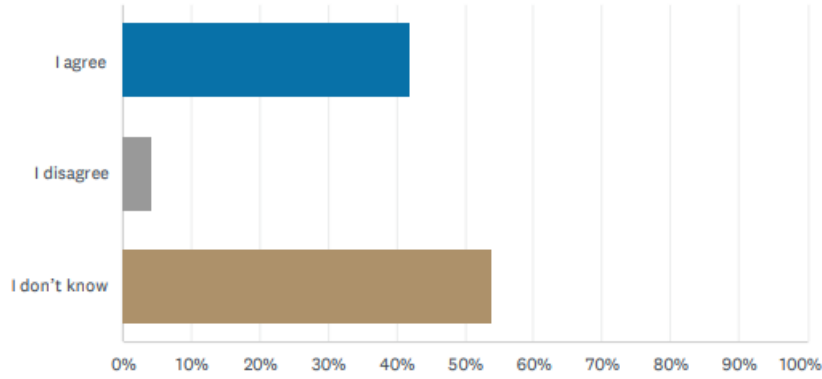
Answered: 373 Skipped: 2



ANSWER CHOICES	RESPONSES	
Less than 5 minutes	17.96%	67
5-10 minutes	52.01%	194
10-15 minutes	19.84%	74
More than 15 minutes	1.07%	4
I don't know	2.95%	11
Other (please specify)	6.17%	23
TOTAL		373

Q11 Goochland County Department of Fire-Rescue and Emergency Services responds to all emergency calls in a timely manner.

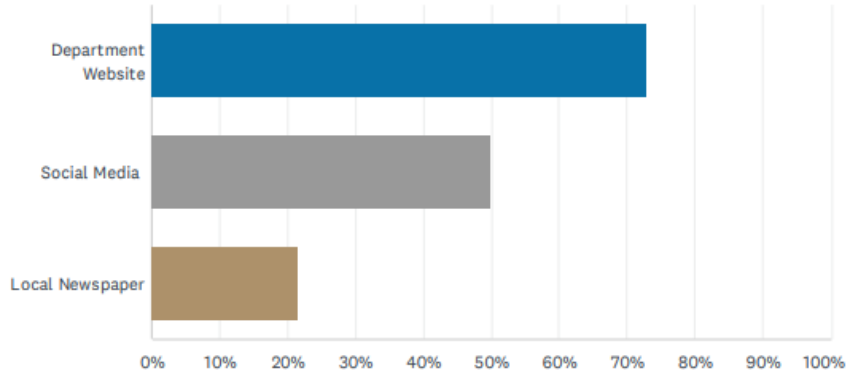
Answered: 367 Skipped: 8



ANSWER CHOICES	RESPONSES	
I agree	41.96%	154
I disagree	4.09%	15
I don't know	53.95%	198
TOTAL		367

Q12 Where do you look for information from Goochland County Department of Fire-Rescue and Emergency Services? (Please check all that apply):

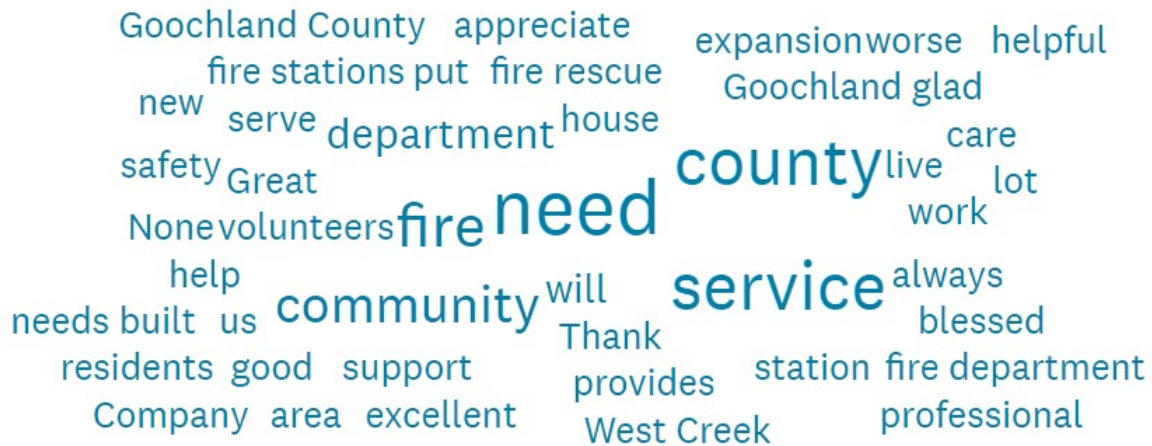
Answered: 325 Skipped: 50



ANSWER CHOICES	RESPONSES
Department Website	72.92% 237
Social Media	49.85% 162
Local Newspaper	21.54% 70
Total Respondents: 325	

Q13 Other comments you would like to share about Goochland County Fire-Rescue and Emergency Services Department:

Answered: 111 Skipped: 264



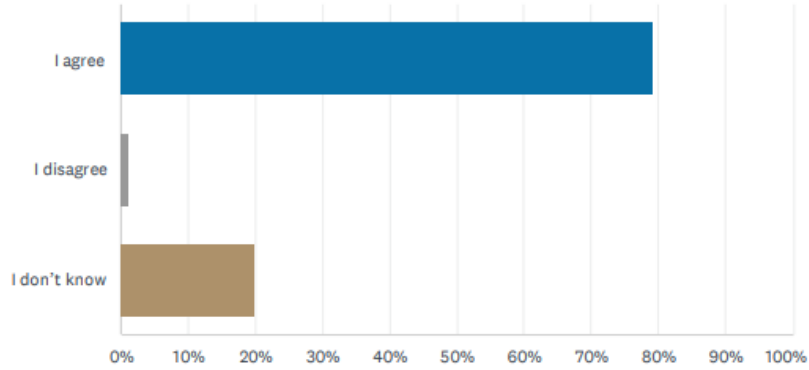
Q14 What additional information would you like to see on the Goochland County Fire-Rescue and Emergency Services Department website?

Answered: 47 Skipped: 328



Q15 Goochland County's Firefighters and Emergency Medical Services providers are kind, courteous, and professional.

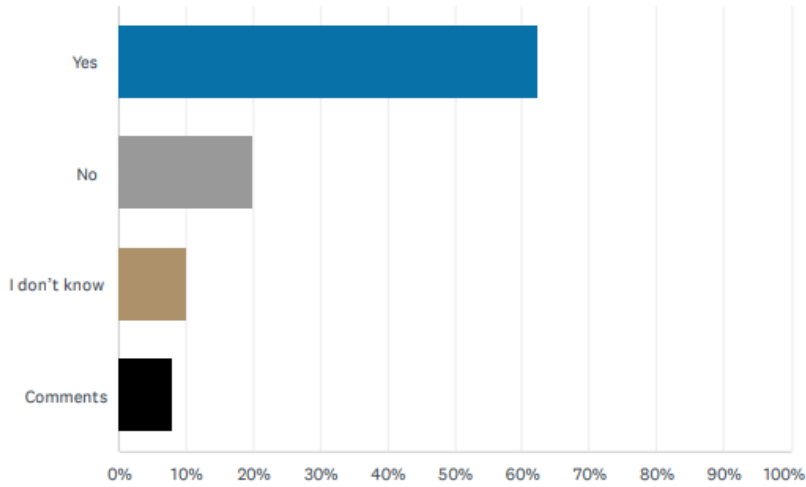
Answered: 369 Skipped: 6



ANSWER CHOICES	RESPONSES	
I agree	79.13%	292
I disagree	1.08%	4
I don't know	19.78%	73
TOTAL		369

Q16 Are you aware that the Goochland County Volunteer Fire-Rescue Association, Inc. owns five of the six fire stations in Goochland County and that they solicit donations to fund the maintenance and repairs of the buildings?

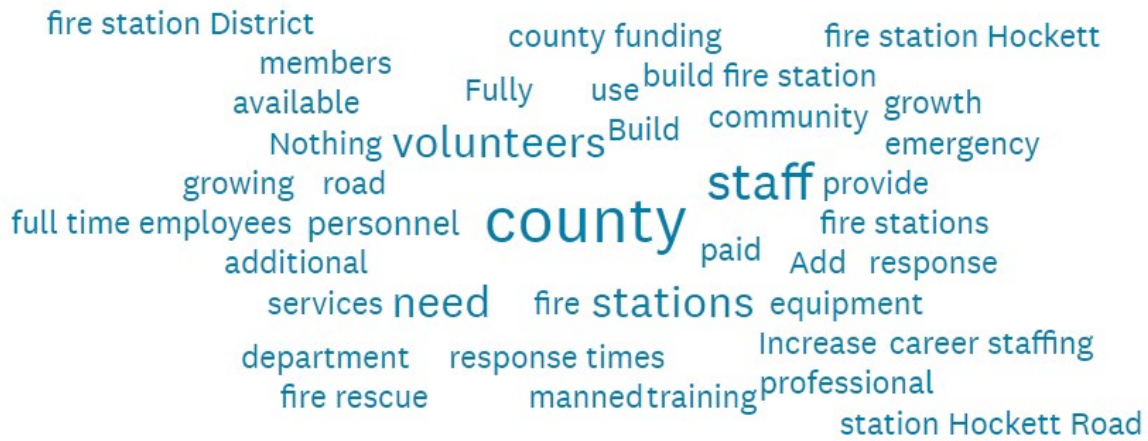
Answered: 372 Skipped: 3



ANSWER CHOICES	RESPONSES	
Yes	62.37%	232
No	19.89%	74
I don't know	9.95%	37
Comments	7.80%	29
TOTAL		372

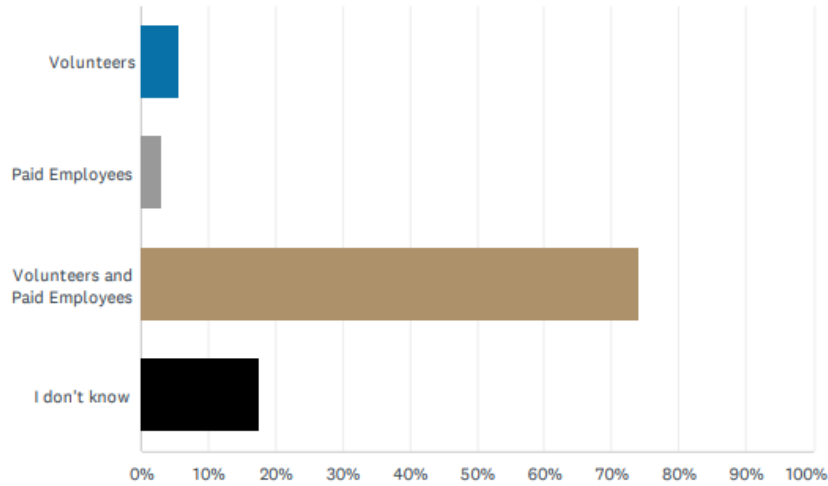
Q17 If you could change one thing about Goochland County Fire-Rescue and Emergency Services Department, what would it be?

Answered: 123 Skipped: 252



Q18 Goochland County Department of Fire-Rescue and Emergency Services is staffed by:

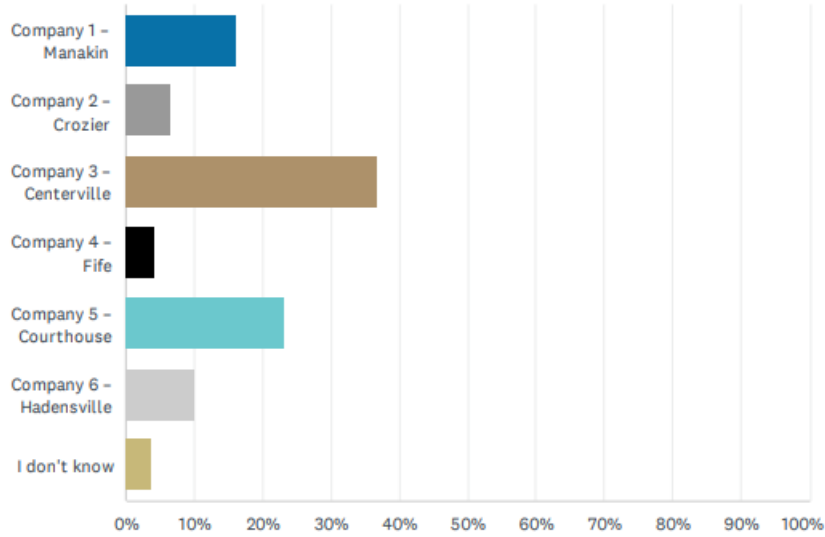
Answered: 366 Skipped: 9



ANSWER CHOICES	RESPONSES	
Volunteers	5.46%	20
Paid Employees	3.01%	11
Volunteers and Paid Employees	74.04%	271
I don't know	17.49%	64
TOTAL		366

Q19 The closest fire station to where I live or work is:

Answered: 369 Skipped: 6

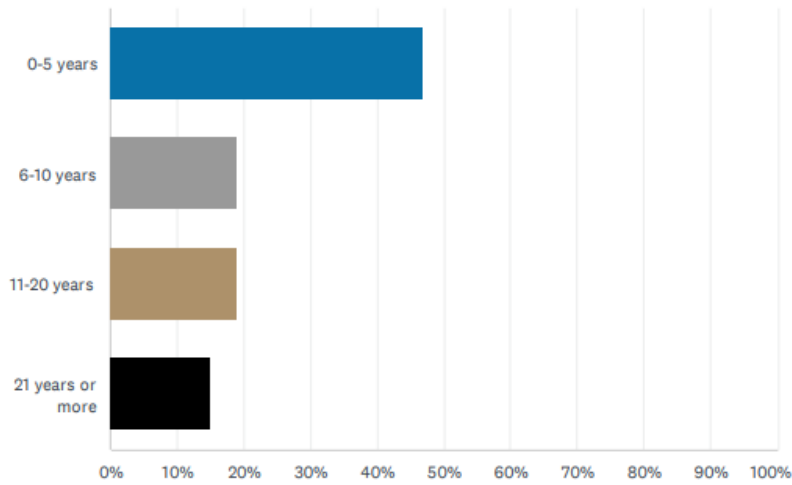


ANSWER CHOICES	RESPONSES	
Company 1 – Manakin	15.99%	59
Company 2 – Crozier	6.50%	24
Company 3 – Centerville	36.59%	135
Company 4 – Fife	4.07%	15
Company 5 – Courthouse	23.31%	86
Company 6 – Hadensville	10.03%	37
I don't know	3.52%	13
TOTAL		369

Appendix B. Fire-Rescue Department Member Survey

Q1 Please identify your number of years of service to Goochland County Department of Fire-Rescue and Emergency Services.

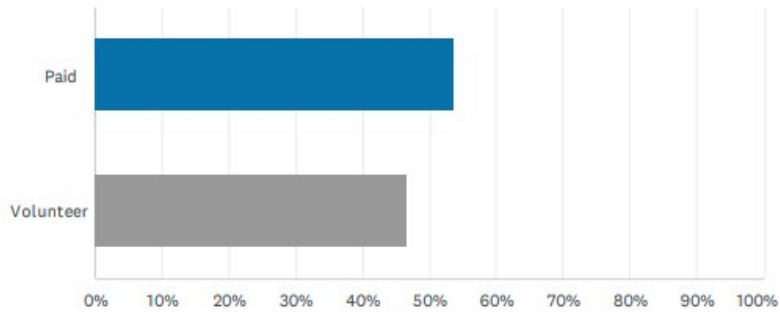
Answered: 100 Skipped: 0



ANSWER CHOICES	RESPONSES	
0-5 years	47.00%	47
6-10 years	19.00%	19
11-20 years	19.00%	19
21 years or more	15.00%	15
TOTAL		100

Q2 I am

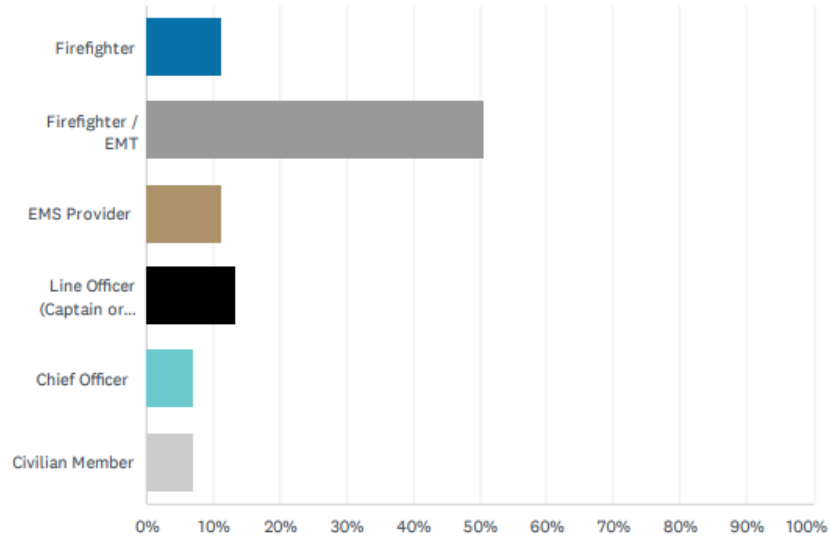
Answered: 99 Skipped: 1



ANSWER CHOICES	RESPONSES	
Paid	53.54%	53
Volunteer	46.46%	46
TOTAL		99

Q3 What is your current position?

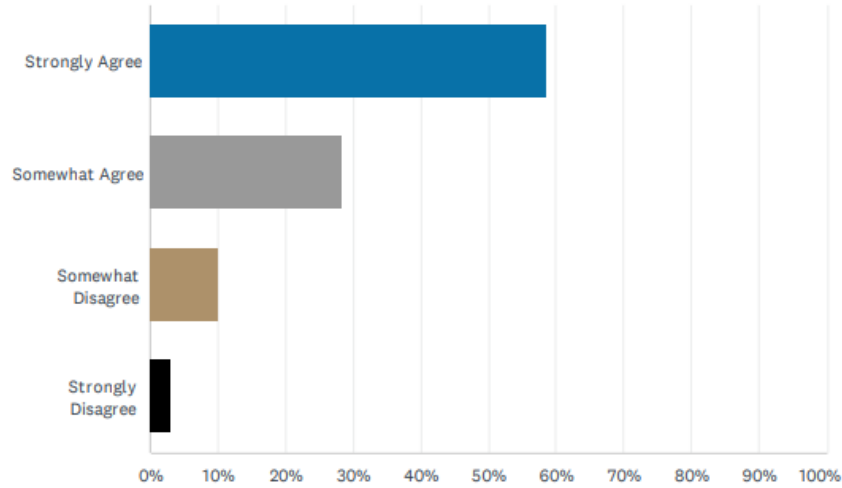
Answered: 99 Skipped: 1



ANSWER CHOICES	RESPONSES
Firefighter	11.11% 11
Firefighter / EMT	50.51% 50
EMS Provider	11.11% 11
Line Officer (Captain or Lieutenant)	13.13% 13
Chief Officer	7.07% 7
Civilian Member	7.07% 7
TOTAL	99

Q4 I am proud to tell other people that I am a member of Goochland County Department of Fire-Rescue and Emergency Services.

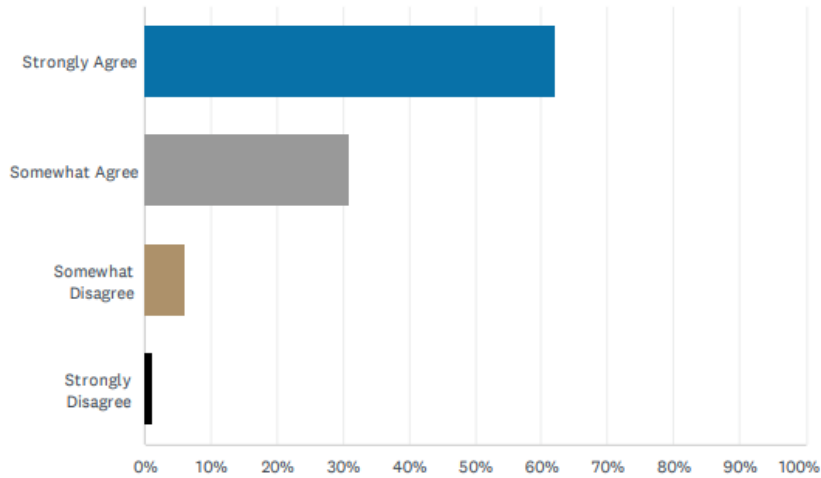
Answered: 99 Skipped: 1



ANSWER CHOICES	RESPONSES	
Strongly Agree	58.59%	58
Somewhat Agree	28.28%	28
Somewhat Disagree	10.10%	10
Strongly Disagree	3.03%	3
TOTAL		99

Q5 Goochland County Department of Fire-Rescue and Emergency Services is respected by the community that it serves.

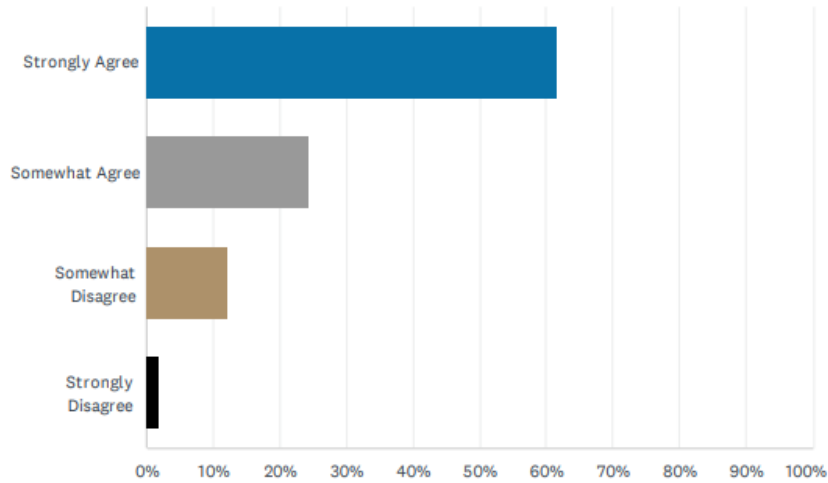
Answered: 100 Skipped: 0



ANSWER CHOICES	RESPONSES
Strongly Agree	62.00% 62
Somewhat Agree	31.00% 31
Somewhat Disagree	6.00% 6
Strongly Disagree	1.00% 1
TOTAL	100

Q6 Goochland County Department of Fire-Rescue and Emergency Services provides me with the appropriate personal protective equipment to do my job safely and efficiently.

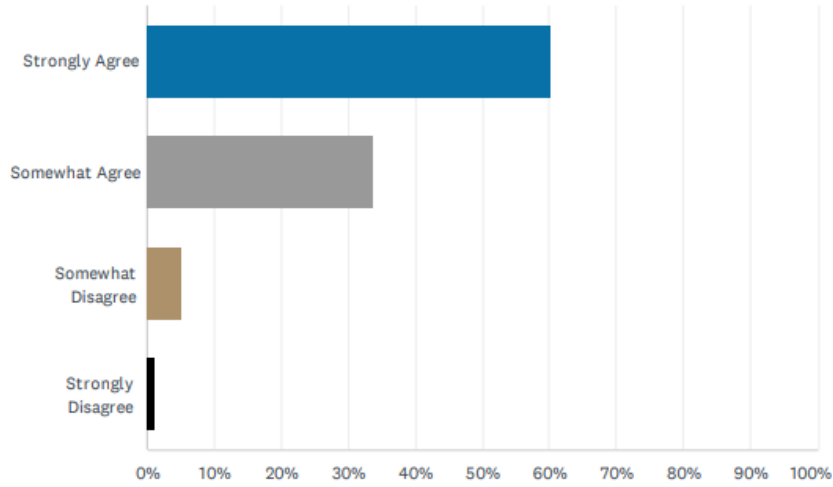
Answered: 99 Skipped: 1



ANSWER CHOICES	RESPONSES	
Strongly Agree	61.62%	61
Somewhat Agree	24.24%	24
Somewhat Disagree	12.12%	12
Strongly Disagree	2.02%	2
TOTAL		99

Q7 Goochland County Department of Fire-Rescue and Emergency Services provides me with the appropriate equipment and tools to do my job safely and efficiently.

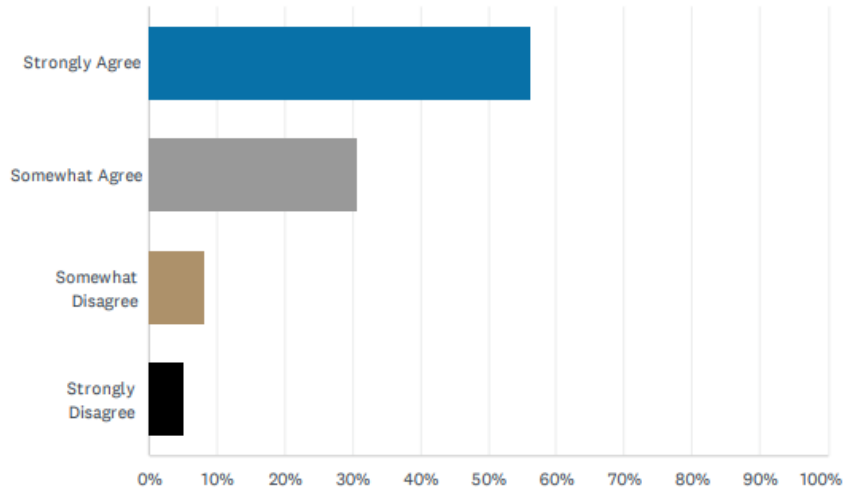
Answered: 98 Skipped: 2



ANSWER CHOICES	RESPONSES	
Strongly Agree	60.20%	59
Somewhat Agree	33.67%	33
Somewhat Disagree	5.10%	5
Strongly Disagree	1.02%	1
TOTAL		98

Q8 Goochland County Department of Fire-Rescue and Emergency Services provides me with the appropriate apparatus/vehicles to do my job safely and efficiently.

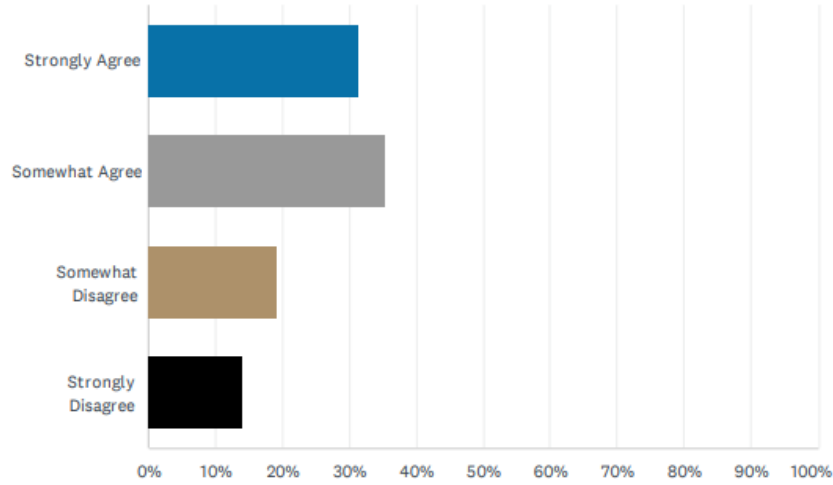
Answered: 98 Skipped: 2



ANSWER CHOICES	RESPONSES	
Strongly Agree	56.12%	55
Somewhat Agree	30.61%	30
Somewhat Disagree	8.16%	8
Strongly Disagree	5.10%	5
TOTAL		98

Q9 Goochland County Department of Fire-Rescue and Emergency Services provides me with the appropriate type and number of training hours to do my job safely and efficiently.

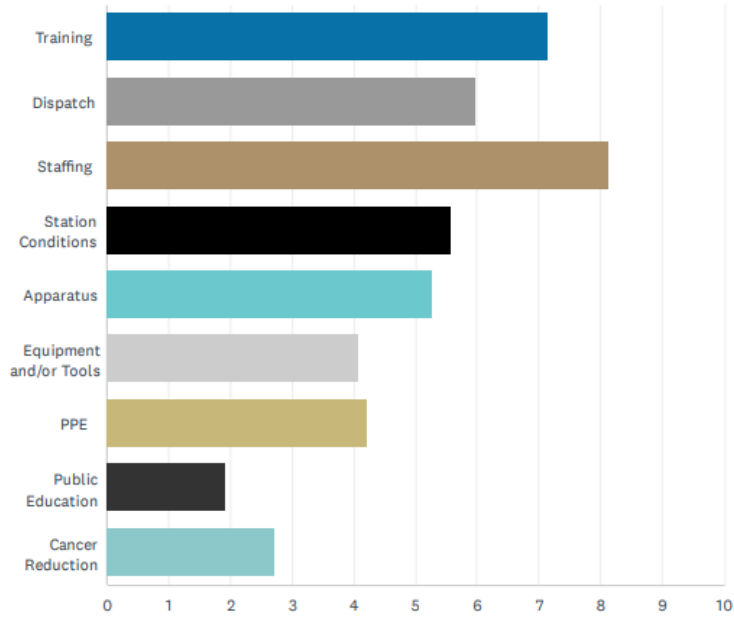
Answered: 99 Skipped: 1



ANSWER CHOICES	RESPONSES	
Strongly Agree	31.31%	31
Somewhat Agree	35.35%	35
Somewhat Disagree	19.19%	19
Strongly Disagree	14.14%	14
TOTAL		99

Q10 Please prioritize items from 1-9 with 1 being the priority you feel would benefit Goochland County Department of Fire-Rescue and Emergency Services the most and 10 being the priority you feel would benefit Goochland County Fire-Rescue and Emergency Services the least.

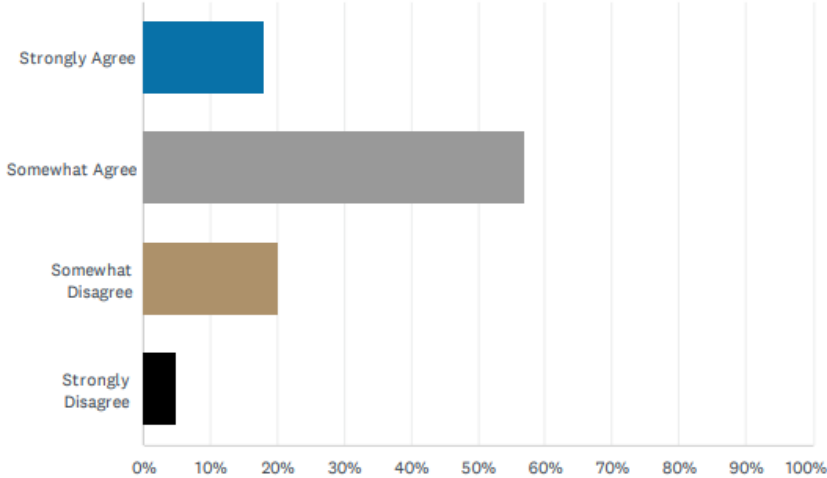
Answered: 99 Skipped: 1



	1	2	3	4	5	6	7	8	9	TOTAL	SCORE
Training	18.18% 18	32.32% 32	20.20% 20	14.14% 14	11.11% 11	1.01% 1	1.01% 1	2.02% 2	0.00% 0	99	7.15
Dispatch	12.12% 12	20.20% 20	21.21% 21	13.13% 13	3.03% 3	8.08% 8	9.09% 9	10.10% 10	3.03% 3	99	5.96
Staffing	64.65% 64	10.10% 10	13.13% 13	4.04% 4	5.05% 5	0.00% 0	2.02% 2	1.01% 1	0.00% 0	99	8.12
Station Conditions	2.02% 2	19.19% 19	18.18% 18	19.19% 19	11.11% 11	8.08% 8	13.13% 13	6.06% 6	3.03% 3	99	5.57
Apparatus	2.02% 2	8.08% 8	11.11% 11	22.22% 22	28.28% 28	15.15% 15	8.08% 8	2.02% 2	3.03% 3	99	5.27
Equipment and/or Tools	0.00% 0	2.02% 2	3.03% 3	11.11% 11	19.19% 19	31.31% 31	20.20% 20	9.09% 9	4.04% 4	99	4.08
PPE	0.00% 0	6.06% 6	8.08% 8	7.07% 7	11.11% 11	29.29% 29	29.29% 29	5.05% 5	4.04% 4	99	4.22
Public Education	0.00% 0	0.00% 0	0.00% 0	3.03% 3	5.05% 5	0.00% 0	6.06% 6	44.44% 44	41.41% 41	99	1.92
Cancer Reduction	1.01% 1	2.02% 2	5.05% 5	6.06% 6	6.06% 6	7.07% 7	11.11% 11	20.20% 20	41.41% 41	99	2.71

Q11 I have adequate time and resources to engage with the community and provide public education.

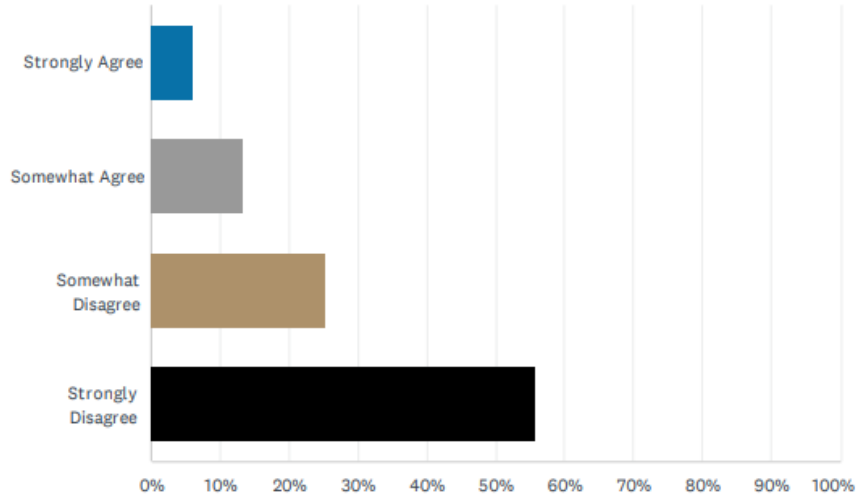
Answered: 100 Skipped: 0



ANSWER CHOICES	RESPONSES	
Strongly Agree	18.00%	18
Somewhat Agree	57.00%	57
Somewhat Disagree	20.00%	20
Strongly Disagree	5.00%	5
TOTAL		100

Q12 Goochland County Department of Fire-Rescue and Emergency Services staffs all its front-line apparatus with the appropriate number of personnel.

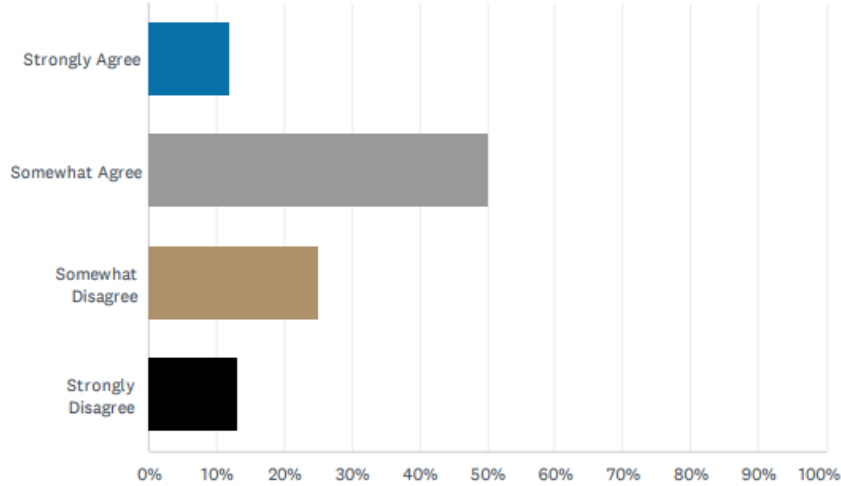
Answered: 99 Skipped: 1



ANSWER CHOICES	RESPONSES
Strongly Agree	6.06% 6
Somewhat Agree	13.13% 13
Somewhat Disagree	25.25% 25
Strongly Disagree	55.56% 55
TOTAL	99

Q13 Goochland County Department of Fire-Rescue and Emergency Services fire stations are well maintained.

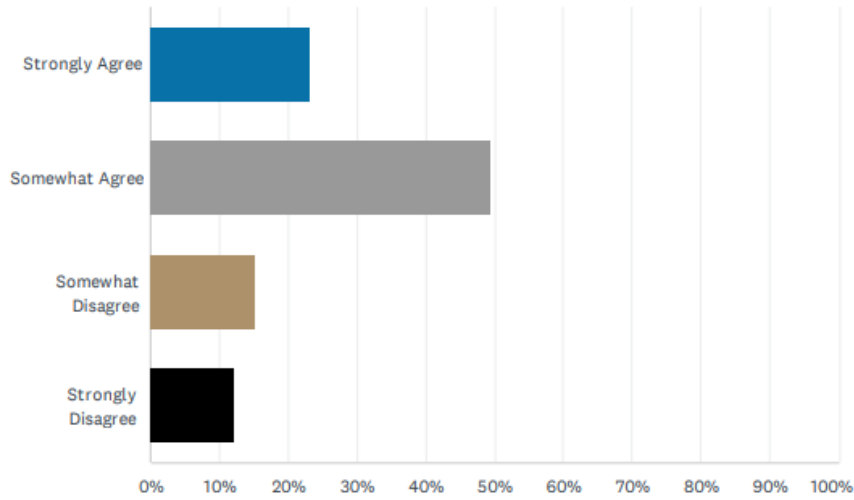
Answered: 100 Skipped: 0



ANSWER CHOICES	RESPONSES
Strongly Agree	12.00% 12
Somewhat Agree	50.00% 50
Somewhat Disagree	25.00% 25
Strongly Disagree	13.00% 13
TOTAL	100

Q14 Goochland County Department of Fire-Rescue and Emergency Services provides the most up-to-date measures to address cancer reduction measures amongst its members.

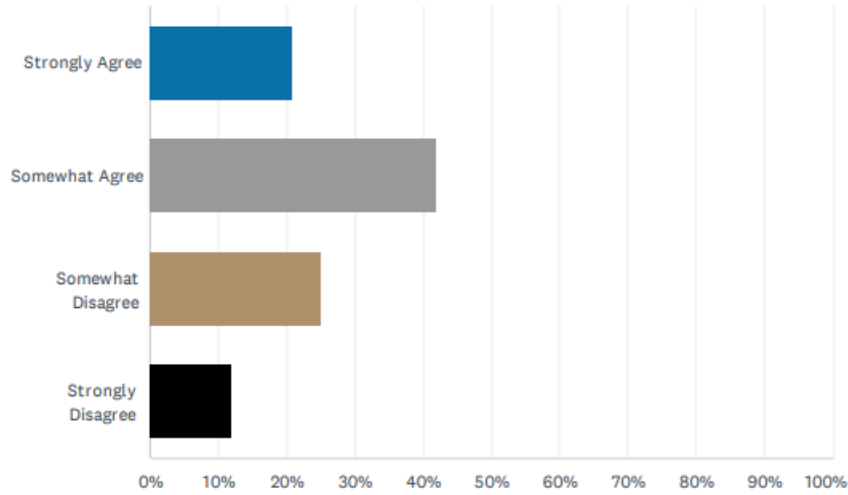
Answered: 99 Skipped: 1



ANSWER CHOICES	RESPONSES	
Strongly Agree	23.23%	23
Somewhat Agree	49.49%	49
Somewhat Disagree	15.15%	15
Strongly Disagree	12.12%	12
TOTAL		99

Q15 Goochland County Department of Fire-Rescue and Emergency Services provides the most up-to-date measures to provide mental wellness training and access to resources amongst its members.

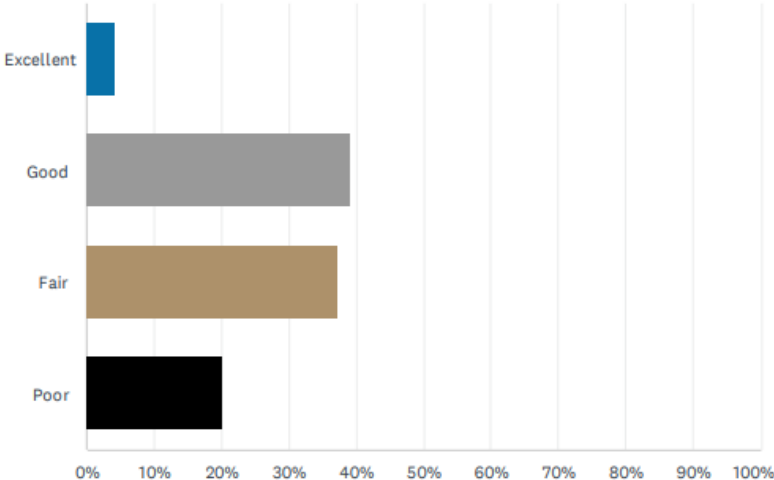
Answered: 100 Skipped: 0



ANSWER CHOICES	RESPONSES	
Strongly Agree	21.00%	21
Somewhat Agree	42.00%	42
Somewhat Disagree	25.00%	25
Strongly Disagree	12.00%	12
TOTAL		100

Q16 Morale among members of Goochland County Department of Fire-Rescue and Emergency Services is:

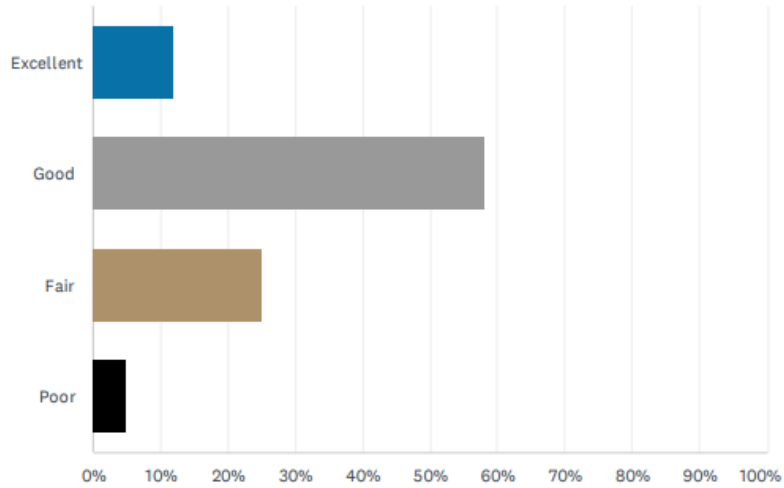
Answered: 100 Skipped: 0



ANSWER CHOICES	RESPONSES	
Excellent	4.00%	4
Good	39.00%	39
Fair	37.00%	37
Poor	20.00%	20
TOTAL		100

Q17 I would describe my work environment as:

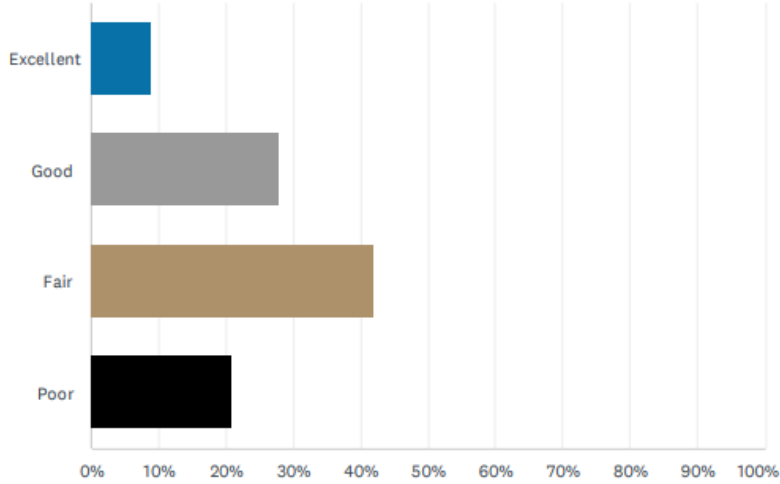
Answered: 100 Skipped: 0



ANSWER CHOICES	RESPONSES
Excellent	12.00% 12
Good	58.00% 58
Fair	25.00% 25
Poor	5.00% 5
TOTAL	100

Q18 How would you rate communication within Goochland County Department of Fire-Rescue and Emergency Services?

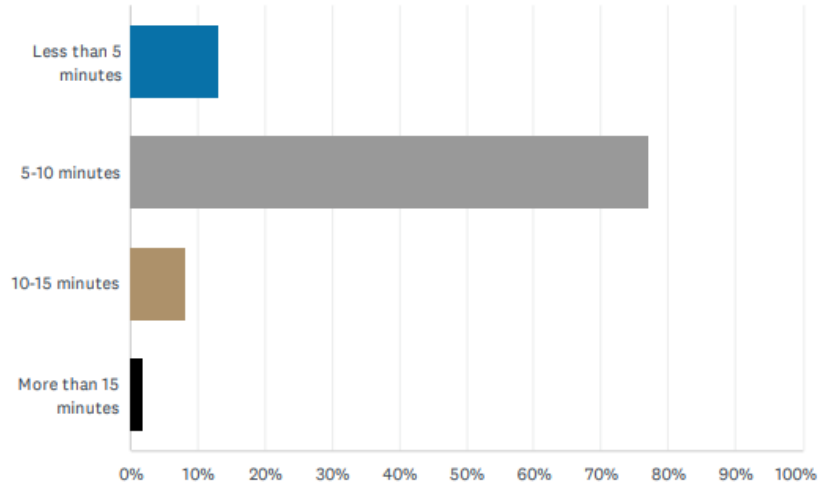
Answered: 100 Skipped: 0



ANSWER CHOICES	RESPONSES	
Excellent	9.00%	9
Good	28.00%	28
Fair	42.00%	42
Poor	21.00%	21
TOTAL		100

Q19 What do you consider to be an acceptable amount of time from when someone calls 911 until the arrival of Goochland County Department of Fire-Rescue and Emergency Services at an emergency?

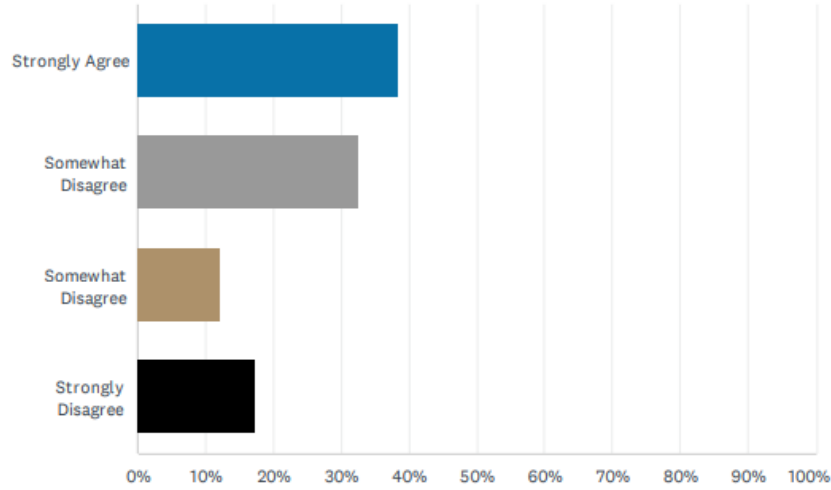
Answered: 100 Skipped: 0



ANSWER CHOICES	RESPONSES	
Less than 5 minutes	13.00%	13
5-10 minutes	77.00%	77
10-15 minutes	8.00%	8
More than 15 minutes	2.00%	2
TOTAL		100

Q20 I feel my skills and talents are properly used by Goochland County Department of Fire-Rescue and Emergency Services.

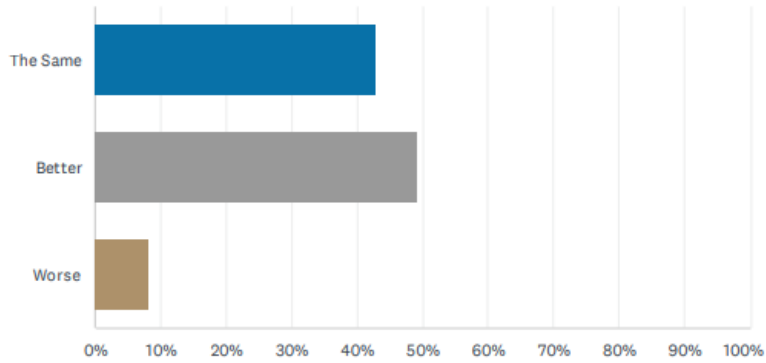
Answered: 99 Skipped: 1



ANSWER CHOICES	RESPONSES	
Strongly Agree	38.38%	38
Somewhat Disagree	32.32%	32
Somewhat Disagree	12.12%	12
Strongly Disagree	17.17%	17
TOTAL		99

Q21 In the next 5 years, I feel the opportunities for me professionally in the Goochland County Department of Fire-Rescue and Emergency Services will be:

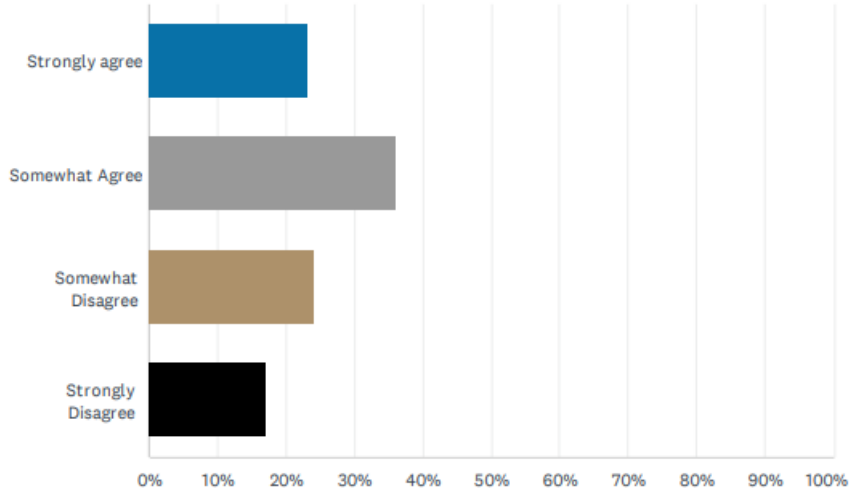
Answered: 98 Skipped: 2



ANSWER CHOICES	RESPONSES	
The Same	42.86%	42
Better	48.98%	48
Worse	8.16%	8
TOTAL		98

Q22 I feel like my voice is heard and valued by Goochland County Department of Fire-Rescue and Emergency Services Leaders.

Answered: 100 Skipped: 0



ANSWER CHOICES	RESPONSES	
Strongly agree	23.00%	23
Somewhat Agree	36.00%	36
Somewhat Disagree	24.00%	24
Strongly Disagree	17.00%	17
TOTAL		100

Q23 What would you recommend to help Goochland County Fire-Rescue and Emergency Services Department better deliver on its mission?

Answered: 82 Skipped: 18



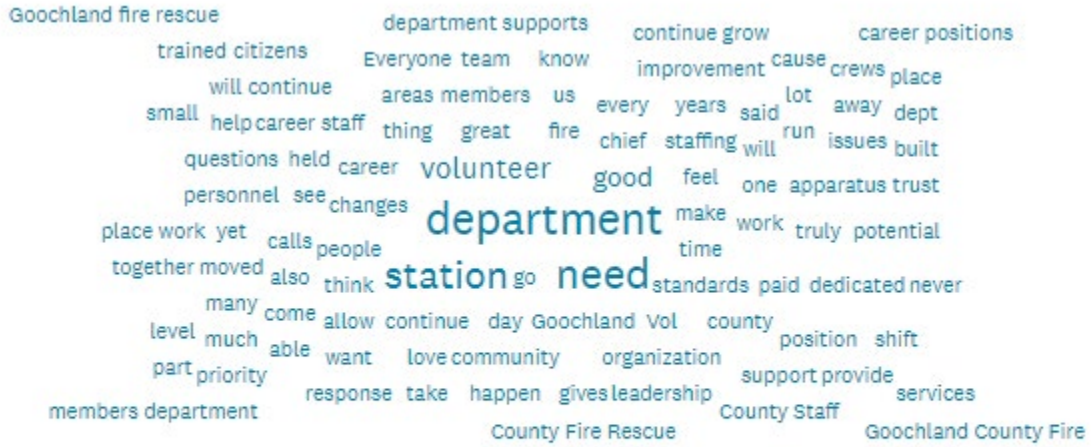
Q24 If you were to leave the Goochland County Fire-Rescue and Emergency Services Department, what would be the reason?

Answered: 89 Skipped: 11



Q25 Other comments you would like to share about Goochland County Fire-Rescue and Emergency Services or explanations for your replies to any of the above questions:

Answered: 56 Skipped: 44



Appendix C: Volunteer Fire-Rescue Association Memorandum of Understanding

MEMORANDUM OF UNDERSTANDING

This memorandum of understanding is made as of this 10 day of May, 2018, between Goochland County, Virginia (County) and the Goochland County Volunteer Fire-Rescue Association, Inc. (Association) for the purpose of clarifying each party's contributions to the successful provision of fire and rescue services to the citizens of Goochland County. This agreement shall be effective as of July 1, 2018.

While the County has historically provided in-kind and financial support to the Association, the categories of funding and/or support have not been clearly defined and delineated. The parties agree that the financial and operational commitments made herein are not dependent upon a particular funding source and that these commitments are sufficient to provide Goochland County citizens a high quality fire and rescue operation.

The parties acknowledge that each contributes to provide high quality fire and rescue services to county citizens, but that the Association also has fundraising and social activities which it funds, supports, and provides independently.

County Obligations

In furtherance of the parties' partnership to provide a safe and effective fire and rescue services operation, the County agrees as follows:

County will purchase or provide the following items:

- Vehicle fuel for apparatus;
- Telephone service for the stations;
- Office supplies for fire-rescue operations only;
- Routine trash removal for the stations (not bulk items);
- Janitorial supplies for operational and living areas (not for fundraising activities, including room rentals);
- Operational Medical Director's stipend;
- Insurance for County-owned station, equipment and apparatus;
- Electric, heat, water, and sewer services for stations; and
- Annual Dinner and Awards according to annual budget appropriations and county purchasing requirements.

County will purchase or provide the following items, including any repairs, maintenance or replacement:

- Apparatus as approved by the County Fire-Rescue Chief;
- Operational uniforms, and protective clothing;
- All operational equipment and materials;
- Station generators;
- Fire-Rescue Station fire alarm systems and monitoring;

- Computers, printers, copiers, scanners, and fax machines for operational uses only; and
- Station alerting systems.

County will reimburse Association for its receipts or paid invoices for the following items:

- Insurance, including vehicle, property, accident, fraud/embezzlement, medical, and disability; and
- Basic internet service which conforms with County policy for content and speed, and, where available, basic satellite or cable television for the stations.

County will continue to make training available to Association members and, at the discretion of the County Fire-Rescue Chief and upon input from the respective District Chief, reimburse individual Association members for completed training, including travel expenses.

Association Obligations

In furtherance of the parties' partnership to provide a safe and effective fire and rescue services operation, and to support its independent fundraising and social activities, the Association agrees as follows:

Association will purchase or provide the following items:

- Office supplies for fundraising and non-operational needs;
- Janitorial supplies for fundraising and non-operational needs, including meeting room rentals;
- Cable/satellite television or internet in excess of basic services;
- Company-specific apparel;
- Association Treasurer salary; and
- Annual audit by a certified public accountant for Association's books and records.

Association agrees to provide County with copies of its insurance policies and annual audits. To the extent that insurance policies paid for by Association provide proceeds for apparatus, equipment, or other items for which County is responsible for maintenance, replacement and repair, Association agrees to remit those proceeds to County.

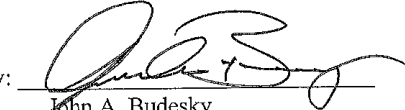
Association will purchase or provide the following items, including any repairs, maintenance or replacement:

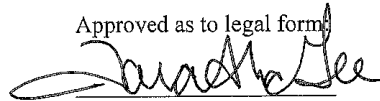
- Furniture at Association-owned stations;
- Building maintenance and upkeep, including electrical, mechanical, and plumbing systems at Association-owned stations or Association sheds/fixtures at the County-owned station. Maintenance and upkeep includes the roof, interior and exterior lighting, and interior/exterior paint;
- Parking lots at Association-owned stations, including snow and ice removal; and

- Any apparatus, equipment, materials purchased by the Association for fundraising or social activities, or purchased for operational use without the approval of the County's Fire-Rescue Chief.

WHEREFORE, a duly authorized representative of each party has executed this document as shown.

GOOCHLAND COUNTY, VIRGINIA

By: 
John A. Budesky
County Administrator

Approved as to legal form

County Attorney

**GOOCHLAND COUNTY VOLUNTEER
FIRE-RESCUE ASSOCIATION, INC.**

By: 
William McGuire
President

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