

2022

Columbus Fire and EMS
Standards of Cover/Community
Risk Assessment



Friday, July 15, 2022

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INTRODUCTION

This document serves as the Columbus Fire and Emergency Medical Services (CFEMS) Standard of Cover (SOC) Document. The SOC is one of four key elements of the Commission on Fire Accreditation International (CFAI) accreditation process. The SOC as defined by the CFAI “...are those written procedures that determine the distribution and concentration of fixed and mobile resources of an organization.”

The main purpose for creating and maintaining an SOC is to place a focus on deployment and concentration of resources that ultimately assists the department in ensuring a safe and effective response force for fire suppression, emergency medical service, hazardous materials, technical rescue, and specialty response situations.

The SOC defines CFEMS’ level of service and describes the roles and responsibilities of each service, as well as deployment strategies and operational elements to maintain the stated level of service. In addition, the document contains data elements along with recommendations to enhance the department’s performance. The primary goals of the department are to improve service delivery and increase safety for the citizens of Columbus, Georgia.

One of the challenges within the fire service is keeping pace with an increasing demand for its services. The SOC provides department management with a process to constantly measure and evaluate the level and quality of service delivered to the community. It also provides quantitative data to justify financial requests made to the Columbus Consolidated Government Council.

CFEMS utilizes the SOC and accreditation process to identify shortcomings and integrate the plan to address these shortcomings into the Department’s short-term strategic plan.

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EXECUTIVE SUMMARY

The purpose of the Standards of Cover (SOC) is to define and measure the appropriate level of service based on a comprehensive study of the Department's historical performance, deployment strategies and community risk factors in order to determine the capability of its response system. This process uses a systems approach to evaluate data in the records management system and set standards based on that data. The Department will then be able to match community needs (risks and expectations) with appropriate levels of service to operate in a safe, efficient and effective manner.

This document describes Columbus Department of Fire and Emergency Medical Services' service area, the risks that must be protected and reduced within the community, our capabilities, and our performance objectives and measures. This information will allow the department to identify risks in the community, analyze and establish levels of response service to respond to those risks, and evaluate the Department's performance. Benchmark response times have been established that the Department strives to meet. These response time goals will contribute to our commitment to continually improve how we deliver our services.

The department has established baseline and benchmark performance data for all response categories for the urban setting. The efficient geographic dispersion and placement of resources near service delivery points will lead to maximum effectiveness when responding to the greatest number and types of risk.

In conclusion, this Standards of Cover is a dynamic document that reflects the changing needs of the Columbus Department of Fire and Emergency Medical Services and serves as a mechanism for constantly seeking opportunities for improvement. It is a key element in our plan to reduce risk to our residents and visitors. We are committed to providing the most effective services in a fiscally responsible manner and to continually evaluate our performance in the constant pursuit of improvement.

SECTION I: JURISDICTION PROFILE

The lure of making money from cotton and the waterpower of the Chattahoochee River shaped the Muscogee County seat of Columbus for more than a century after the Georgia legislature created the city in 1828. Located at the head of river navigation, Columbus first boomed as a cotton-trading center. Entrepreneurs quickly harnessed the river's power, and Columbus became one of the South's earliest—and remained one of its largest—mill towns. The creation of neighboring Camp Benning (later Fort Benning) in 1918 added another dimension to the city. By the 1960s Columbus began shedding the image of a mill and military town, as its business and civic leaders diversified the economy, modernized its government, and launched a series of cultural initiatives. By 2000, as the city rediscovered its picturesque river, private and public funding revitalized the original downtown into a premier venue and educational center for the fine and performing arts.

Antebellum Years

In 1828 the state legislature, realizing the economic potential of a location on the Chattahoochee River at the fall line, planned the city and auctioned its lots. The author Washington Irving's contemporary writings about explorer Christopher Columbus probably influenced its naming. The original town consisted of a rectangle, thirteen blocks north to south (from the river to Seventeenth Street) and nine blocks east to west (from the river to Sixth Avenue), nestled against the irregular bank of the river on the west and south. A four-block commons area or greenspace surrounded it on the north, east, and south.

The subsequent availability of land reinforced the obsession about making money from cotton, but only a few realized the dream of becoming wealthy planters. Columbus warehouses and merchants served planters and farmers within a fifty-mile radius. Initially the river linked the city's economy via Apalachicola, Florida, to the world cotton market, primarily to Liverpool, England.

The river's commercial advantage diminished in the 1850s with the arrival of railroads (via branch lines from Fort Valley and from Opelika, Alabama). Steamboats still plied the Chattahoochee, but rails began connecting Columbus with larger markets. The emerging rail center of Atlanta eclipsed Columbus as the western metropolis of Georgia.

The Chattahoochee rivers waterpower made Columbus a manufacturing center. The river powered gristmills and sawmills as early as 1828 and a textile mill north of town by 1838. The city of Columbus, which controlled the greatest potential waterpower site in the South, never spent any public money developing this resource. Rather than building a canal to deliver waterpower to various locations within the city (such as Augusta did), Columbus simply sold the rights to dam the river and restricted the use of the resulting power to a two-block area along the Chattahoochee (between present-day Twelfth and Fourteenth streets). That decision limited the city's early industrial development. Even so, by the 1850s five water-powered mills produced textiles, flour, and sawn lumber, and at other locations fourteen smaller companies produced a variety of goods. In 1853 the landscape architect Frederick Law Olmsted, an indefatigable traveler and astute observer, declared Columbus the largest manufacturing city south of Richmond, Virginia.

Factories tripled their output and shifted to war-related products. Storekeepers boarded up their windows and began making drums, fifes, India rubber cloth, and sewing tents and uniforms. The Iron Works produced steam engines for ships, while the Navy Yard built the ironclad *Muscogee*. The need for workers pushed the city's population from 10,000 to 15,000.

Swift's factory began on one waterpower lot (1868 and 1880) and then expanded north of Fourteenth Street, with new mills appearing in 1887, 1904, 1916, 1926, and 1950. Young's and Swift's mills became the foundations of two dynasties. As the city's economy expanded, industries moved into the remaining land on the East Commons, and middle-class suburbs grew in the Wynnton area, which was first served by streetcars and then by automobiles.

Mayor L. H. Chappell (1897-1907 and 1911-13) modernized the city. During the Spanish-American War (1898) he lured a military training camp to town, paved and curbed downtown streets, built sewers and steel bridges, planted trees, and created the modern municipal water works, which transformed the muddy Chattahoochee into drinking water.

In September 1918, the U.S. War Department created Camp Benning, located on Macon Road near what is now the public library. Extensive lobbying efforts resulted in a permanent camp, Fort Benning, in 1922. For almost twenty years it functioned primarily as a training center for infantry officers. During World War II (1941-45) the post assumed a more expanded mission.

In 1919 Ernest Woodruff, a Columbus native and Atlanta businessman, engineered the purchase of Coca-Cola from the Candler family for \$25 million. W. C. Bradley, who was chair of the board of Coca-Cola for twenty-seven years, served as Woodruff's partner, selling stock to friends and acquaintances, primarily in the Chattahoochee Valley. That investment still pays significant dividends to the community.

By 1927 the city had entered the Great Depression as the demand for cotton textiles plummeted. In the 1930s several Columbus mills borrowed money from New York banks to continue running. Construction at Fort Benning also provided much-needed jobs. By 1940 Fort Benning was brimming with activity. Meanwhile, a Greater Columbus Committee outlined new goals. These resulted in consolidating the county and city schools in 1949 and establishing Columbus College (later Columbus State University) in a closed mill in 1958. Until that time Columbus was the largest southern city without a college. In 1961 the Columbus Area Vocational-Technical School (later Columbus Technical College) was founded.

By the 1970s the Columbus Storefront economy had changed. Local businessmen stopped excluding new industries that might raise local wages and began seeking new manufacturers, such as Dolly Madison Bakery (1970) and Pratt and Whitney (1984), which made jet engine parts. But local initiative created the most dynamic enterprises—Aflac Insurance, Synovus Financial Corporation, and Total System Services.

According to the 2010 U.S. census, the population of Columbus is 189,885, the third-largest city in the state. By 2003 Columbus had renewed its appreciation for the Chattahoochee River. Under federal court order to build a combined sewer-overflow system, the Columbus Water Works began developing the Riverwalk, which is to extend for twenty miles, from Fort Benning, south of town, to Lake Oliver to the north. Once the reason for the city's establishment, the Chattahoochee River will once again become the most distinctive feature of the city.

Municipal projects have included construction of a softball complex, which hosted the 1996 Olympics softball competition; construction of the Chattahoochee River Walk; construction of the National Civil War Naval Museum at Port Columbus, construction of the Coca-Cola Space Science Center, the expansion of the Columbus Museum, and road improvements to include a new

downtown bridge crossing the Chattahoochee River to Phenix City. During the late 1990s, commercial activity expanded north of downtown along the I-185 corridor.

During the 2000s, expansion and historic preservation continued throughout the city. South Commons has been revitalized. This area combines the 1996 Olympic softball competition complex, A. J. McClung Memorial Stadium, Golden Park, the Columbus Civic Center, and the Jonathan Hatcher Skateboard Park.



The National Infantry Museum and Soldier Center, which opened in 2009, stands just outside the gates of Fort Benning. The facility includes a museum that houses thousands of unique artifacts relating to the U.S. Infantry's role in shaping the nation's history. These artifacts were formerly housed in the base's National Infantry Museum, which received a Governor's Award in the Humanities in 1991.



The River Center for the Performing Arts, which opened in 2002, houses Columbus State University's music department and is the city's venue for fine and performing arts. In 2002, Columbus State's art and drama departments moved to downtown locations. Such initiatives have provided Columbus with a cultural niche and with vibrant and modern architecture mixed among older brick facades.



The "Ready to Raft 2012" campaign is a project that created an estimated 700 new jobs and is projected to bring in \$42 million annually to the Columbus area. The project resulted in the longest urban whitewater rafting venue in the world. This, in addition to other outdoor and non-outdoor tourist attractions, led to around 1.9 million visitors coming to Columbus during the fiscal year 2018, according to the Columbus Convention and Visitors Bureau.

The Blue Heron zip line was opened in July 2014 and consists of a triple-zip lines across the Chattahoochee River, treetop aerial course consisting of 10 obstacles, 400 ft. treetop triple-zip lines along the banks of the Chattahoochee River. The zip lines run from Columbus Georgia to Phenix City Alabama and back across from Phenix City Alabama to Columbus Georgia.

LOCATION

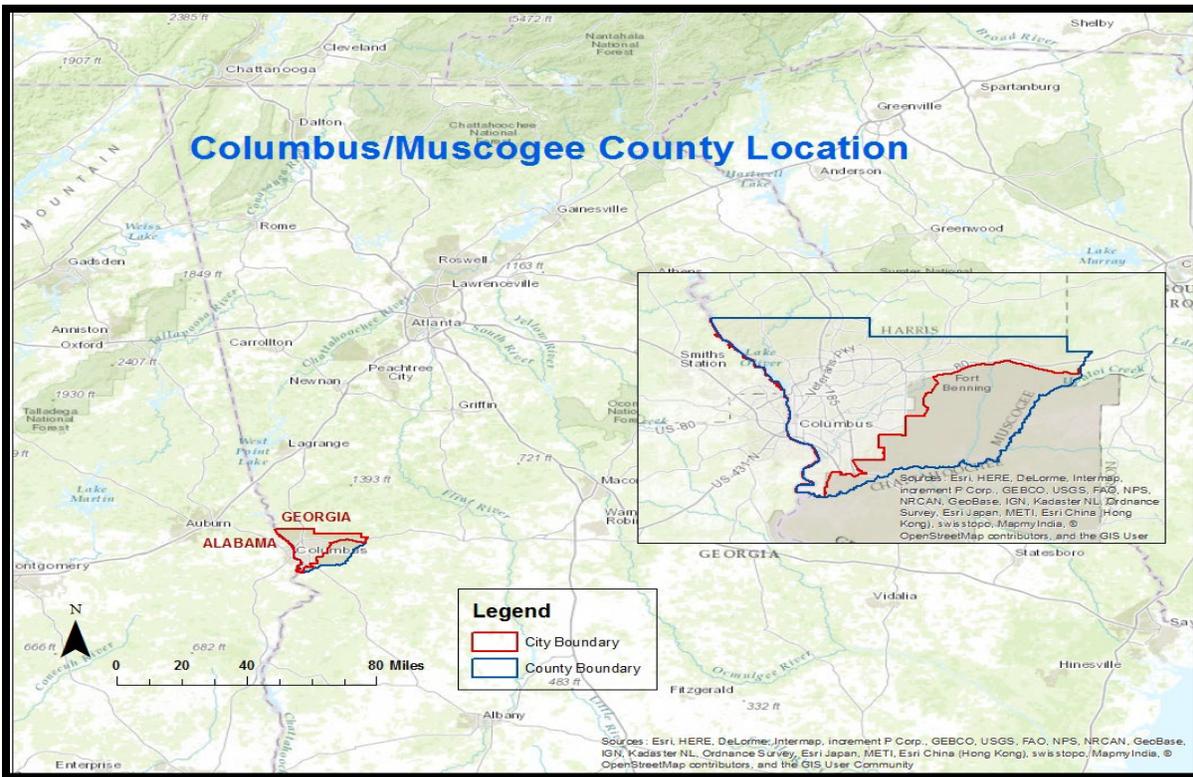


Figure 1.1 Map: Service Area Location

Interstate 185 runs east of the city, with access from exits 1, 3, 4, 6, 7, 8, 10, 12, and 14 to the city. Interstate 185 runs from Ft. Benning north 47 miles to Interstate 85. U.S. Route 27, U.S. Route 280, and Georgia State Road 520 (known as South Georgia Parkway) all meet in the interior of the city. U.S. Route 80 runs north of the city, locally known as J.R. Allen Parkway; Alternate U.S. Route 27 and Georgia State Route 85 run northeast from the city, locally known as Bill Heard Expressway.

The corporate boundaries of Muscogee, County encompass 220 square miles of which 216.3 square miles (560 km²) is land and 4.7 square miles (12 km²) (2.14%) is water. This includes approximately 3000 acres acquired in a land swap completed in 2001 between Fort Benning, Chattahoochee County and the City of Columbus. The 3000 acres (4.6 square miles) acquired in the land swap will be utilized for industrial development and recreational use. The addition of this property to the jurisdictional area will increase the need for fire protection service in the future. See Figure 1.1 for city location. The city is located at: 32°29'23"N 84°56'26"W32.489608°N 84.940422°W.

CLIMATE

Daytime summer temperatures often reach highs in the mid-90s and low temperatures in the winter average in the upper 30s. Columbus is often considered a dividing line or "natural snowline" of the southeastern United States with areas north of the city receiving snowfall annually, with areas to the south typically not receiving snowfall every year or at all. Columbus, Georgia, gets 48 inches of rain per year. The US average is 39. Snowfall is 0 inches. The average US city gets 26 inches of snow per year. The number of days with any measurable precipitation is 71. Columbus, GA is a High-Risk area for tornados. According to records, the largest tornado in the Columbus area was an F3 in 1954 that caused seven injuries and zero deaths. Columbus has a higher tornado index level than the state or nation (Figure 1.2 Tornado Index). The higher the level the higher chance of a tornado event. Columbus has a humid subtropical climate according to the Koppen climate classification system.

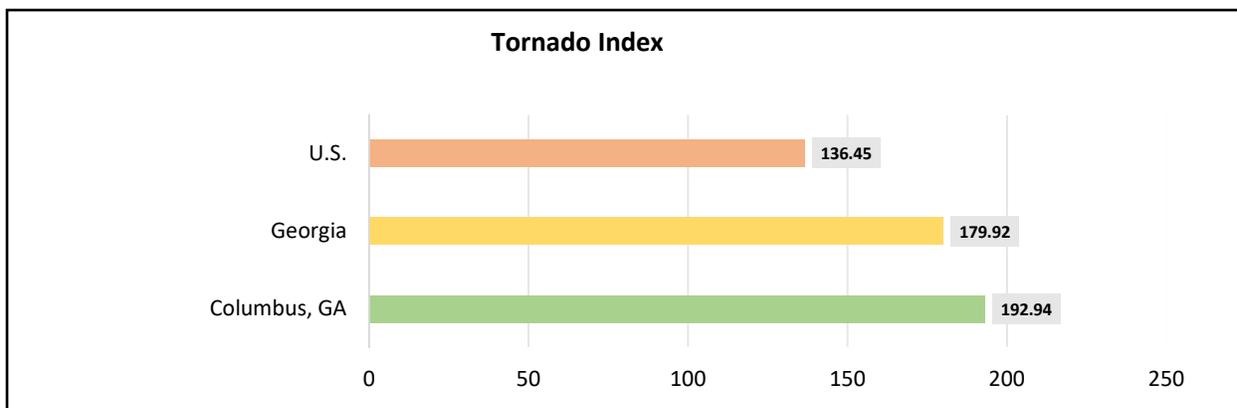
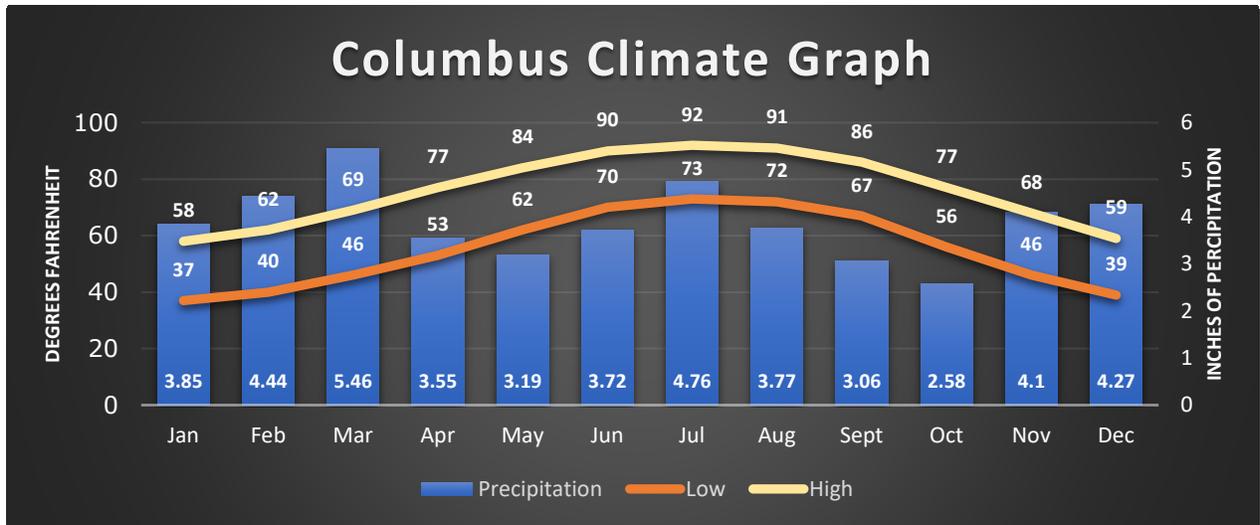


Figure 1.2 Chart: Tornado Index



Source: Intellicast 2020 Figure 1.3 Chart: Climate Averages

POPULATION

The 2020 U.S. Census population for Columbus is 206,922, up from 189,885 in the 2010 Census. The population density was 877.5 people per square mile. There were 91,617 housing units at an average density of 453.5 per square mile (136.0/km²). The racial makeup of the city per the 2020 census was 45.2% White, 48% African American, 2.8% Asian, 0.5% Native American, 0.2% Pacific Islander, and 3.2% from other races. Hispanic or Latino of any race were 7.7% of the population. (Figure 1.5 Chart: Demographic (2020) Census)

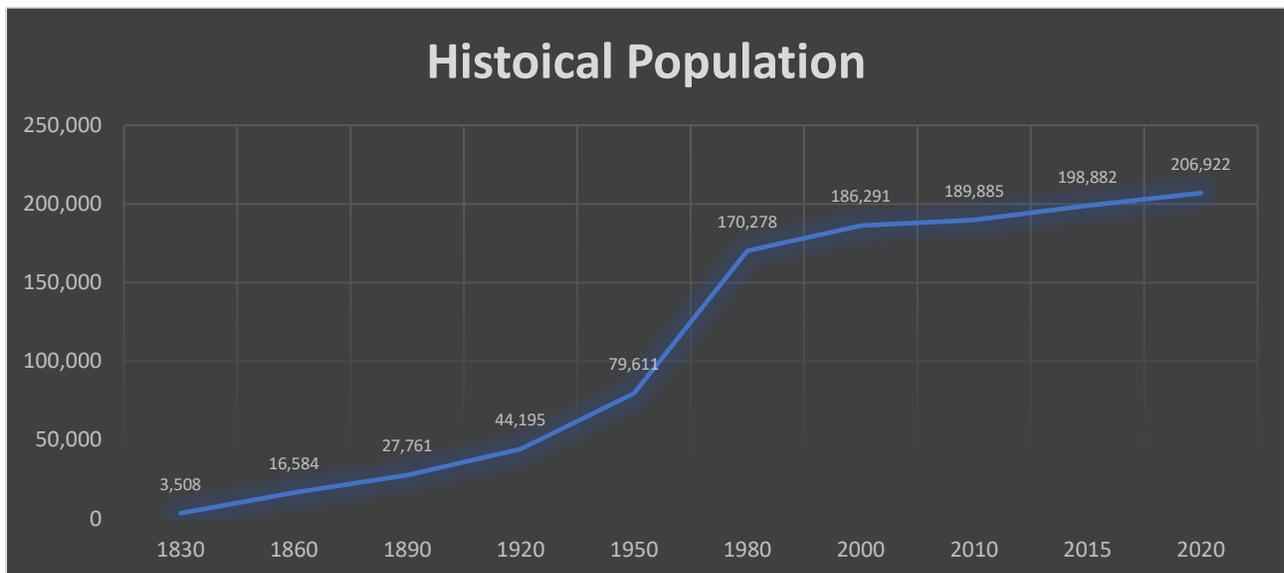


Figure 1.4 Chart: Historical Population

	Year 2010	Year 2020	% Variance
Under 18 Years	25.6%	31.8%	+6.2%
18 to 64	62.8%	54.9%	-7.9%
65 and over	11.6%	13.3%	+1.7%
Total	189,885	206,922	+17,037

Figure 1.5 Chart: Demographic 2020 Census

In the city, the population is diverse with 31.8% under the age of 19, 54.9% from 19 to 64, and 13.3% who were 65 years of age or older. The median age was 34.4 years. Population by gender is females 51.2% and males 48.8%

The median household income for Columbus in 2020 was \$47,418, as compared to \$61,224 for Georgia. As compared to the 2010 Census, the median income has increased 22%. Poverty rates for Columbus include 28.9% under 18 years and 32.4% over 18 years.

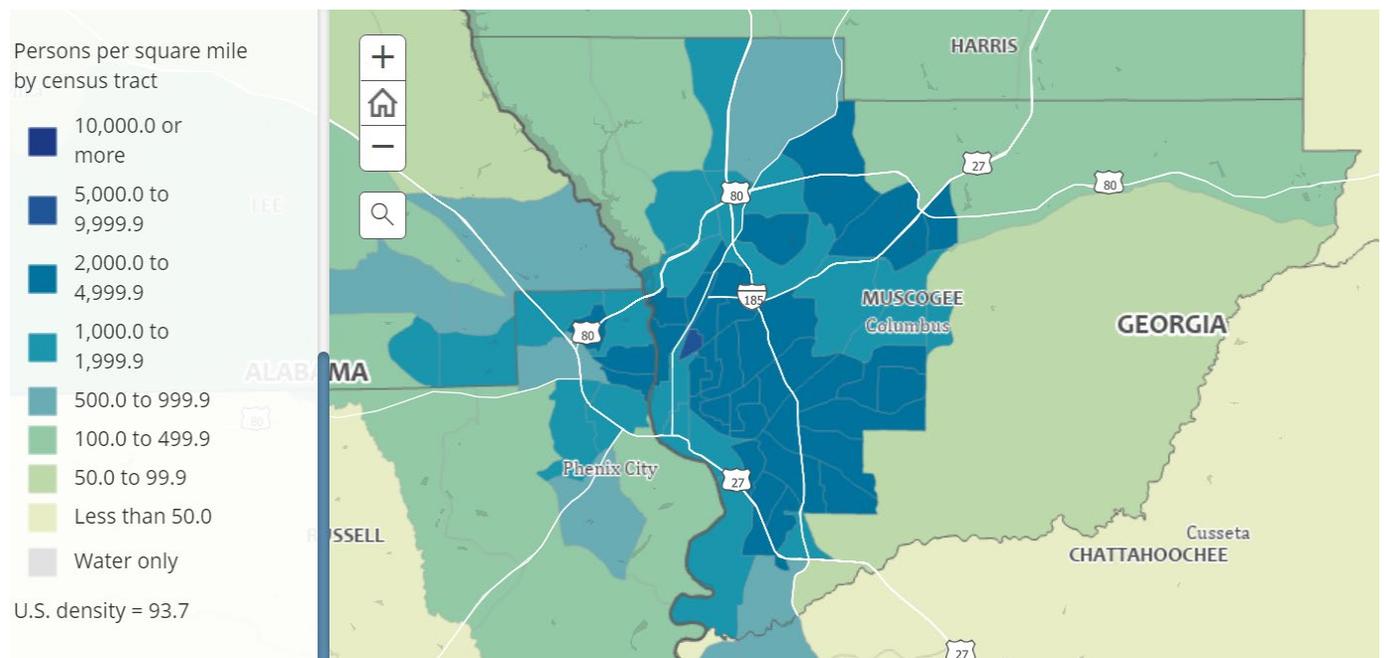


Figure 1.6: Population Density Map 2020 Census

BUSINESS AND RECREATION

The Columbus, Georgia Metropolitan Statistical Area (GA MSA), as defined by the United States Census Bureau, is an area consisting of four counties in Georgia and one county in Alabama, anchored by the city of Columbus. Estimates from 2020 census indicate, the MSA population is 329,141. The Bureau of Labor Statistics show GA MSA labor force change from 2015-2019 as; labor force decreased from 123,895 to 123,338 (-557), employment increased from 115,275 to 118,385 (3,110). The unemployment rate as of March 3, 2022, is 3.8. In Columbus, there are 13 major private sector employers (500 or more employees). They provide 25,890 jobs or 26 % of the workforce of Columbus GA-AL MSA. Top 10 employers for GA MSA are listed in Figure 1.6.

Figure 1.7: Principal Employers 2021

Columbus Metropolitan and Nonmetropolitan Area Employment			
Principle Employers for Columbus 2021			
Ft. Benning Military Reservation (U.S. Army)	45,320	1	40.0%
Muscogee County School District	5,500	2	5.0%
TSYS	4,075	3	3.6%
Aflac	3,335	4	3.0%
Kia Motors Manufacturing Georgia	2,700	5	2.4%
Columbus Consolidated Government	2,600	6	2.3%
Piedmont Columbus Regional	2,430	7	2.2%
The Pezold Companies	2,000	8	1.8%
Pratt & Whitney	1,850	9	1.6%
St. Francis-Emory Healthcare	1,735	10	1.5%
Total Top 10	71,545		63.4%
Total	111,970		

The Fall Line Trace Bike Trail (Figure 1.9) runs from the Riverwalk through Columbus West to East, for 11 miles. Extending from downtown Columbus to Psalmound Road in Midland, the trail offers an eclectic cross-section of the community: busy shopping areas, business districts, a medical complex, neighborhoods, the Columbus State University campus and other schools. A connection to the beautiful and historical 15-mile Chattahoochee Riverwalk at the trail's southern end adds to its appeal.



Figure 1.9 Fall Line Trace, Bike Trail

GROWTH AND NEW CONSTRUCTION

The Chattahoochee River is the region's greatest natural resource. In a previous era, the river helped establish Greater Columbus as a textile hub. While industry has long since evolved in a different direction, the river can continue to power economic growth by serving as an amenity and focal point around which people can gather. By continuing to develop and activate its riverfront, particularly the geologically stunning stretches through the core of the region, Greater Columbus can significantly improve its ability to attract and retain talented individuals, the most important growth consideration in the modern economy. Through decades of public and private investments in Greater Columbus have significantly improved the river, river surroundings, and the ability of individuals to access and enjoy the river. Greater Columbus now has an opportunity to go even further to differentiate its riverfront from those of other regions, which could in turn help to address or overcome other challenges and shortcomings, such as low growth rates, limited Interstate connectivity, and a lack of external awareness.

In 2014, a group of public, private, and nonprofit leaders from across the Greater Columbus Georgia region came together to create a comprehensive small community and economic development strategic plan. This 10-month process culminated in the Regional Prosperity Initiative, which addressed a full range of issues influencing the region's competitiveness, prosperity, and quality of life. The Regional Prosperity Initiative brought together local leaders and the expertise of Market Street Services— a national economic, community and workforce development consulting firm— to analyze the competitiveness of Greater Columbus as a place to live, learn, work, visit and do business. This initiative promises to transform Greater Columbus over the next decade and beyond. The implementation of this plan is the Columbus 2025 initiative. This name better reflects the central role Columbus plays in the region's future success. This strategic plan builds on the work done through the Regional Prosperity Initiative to better understand the competitive landscape for talent and economic development. We learned that we have accomplished much in our efforts to transform Greater Columbus into a community ready for the 21st century. We also learned that we have a long way to go to achieve the Columbus 2025 goals of reducing poverty, increasing prosperity, and improving the quality of life for everyone who lives here.

Recommended strategies include:

- Develop a physical, flexible, and professionally staffed center for entrepreneurial activities in a highly visible location,
- Formalize a collaborative Business Retention and Expansion (BRE) program to ensure optimal conditions for existing firms to thrive,
- Develop a comprehensive economic development marketing program,
- Create cradle-to-career (C2C) partnerships to align education, training, business and social services to increase talent levels in Greater Columbus,
- Collaborate across state lines to further promote activation of the Chattahoochee Riverfront through the region's core.

Columbus conducted a study of the feasibility of a high-speed rail system from Columbus to Atlanta-Hartsfield Airport. The Columbus to Atlanta corridor is deemed feasible for high-speed passenger rail service based on the data collected and the technical analysis. Moving forward, the Columbus Consolidated Government will begin working on both immediate and long-term next steps for successful implementation. These include incorporating the study into the Georgia State Rail Plan, preparing for the next planning and environmental assessments, and identifying funding/financing strategies for implementation.

The Opportunity Zone Program was adopted in 2015 to provide an incentive to businesses and developers to create jobs. The benefit to a business locating within the boundaries of a designated Opportunity Zone, where the business creates eligible net new jobs to Georgia, is the Georgia Job Tax Credit. This credit is up to \$3,500 per job created. In Muscogee County the maximum benefit is \$2,500 per job created. New or expanding businesses are eligible to participate.

The State of Georgia is working on creating a 1,500-acre park in north Columbus along the Chattahoochee River on Lake Oliver (Figure 1.10). The master plan includes cottages, RV and tent camping, lake view platform campsites, hiking and biking trails, disc golf, greenspace for gatherings such as festivals, and more.

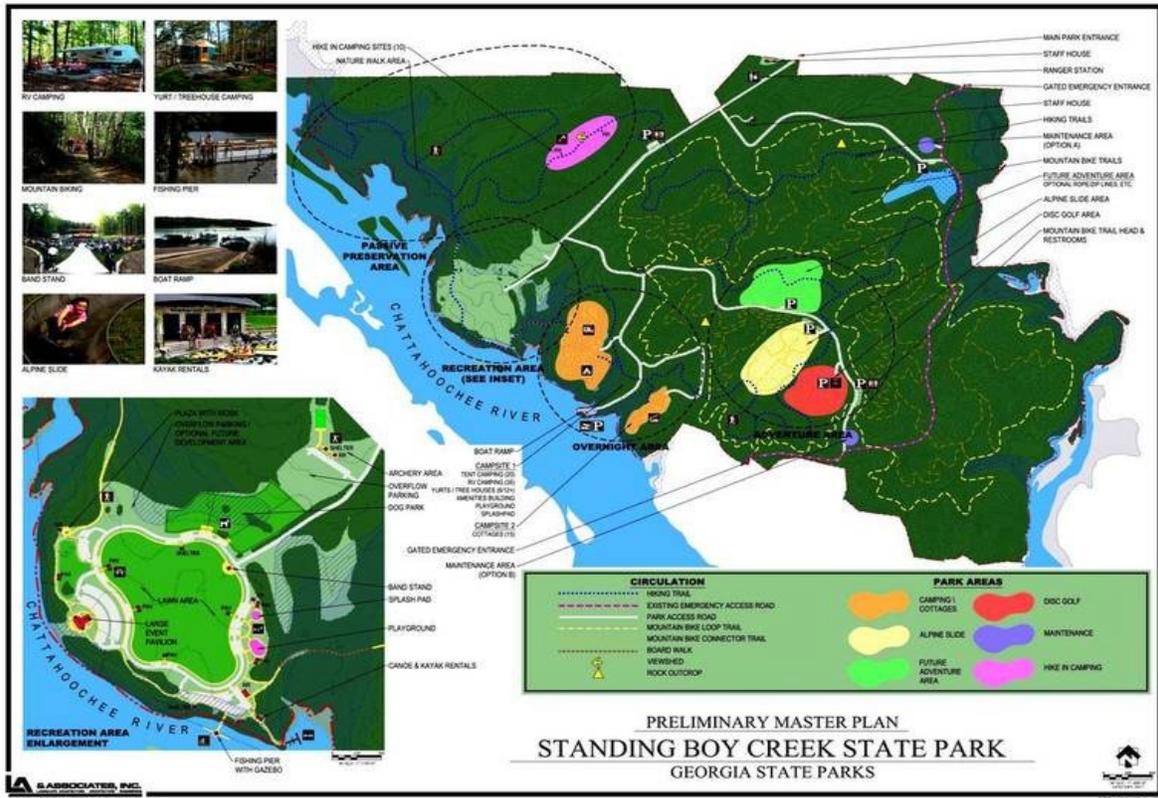


Figure 1.10 Proposed State Park

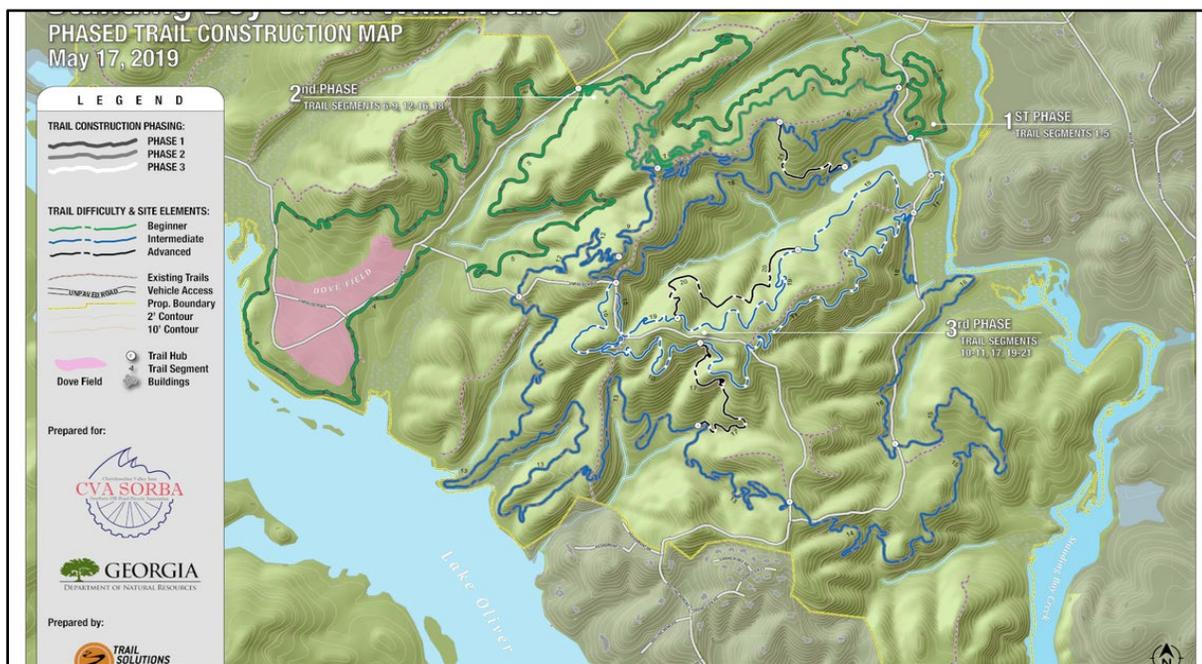


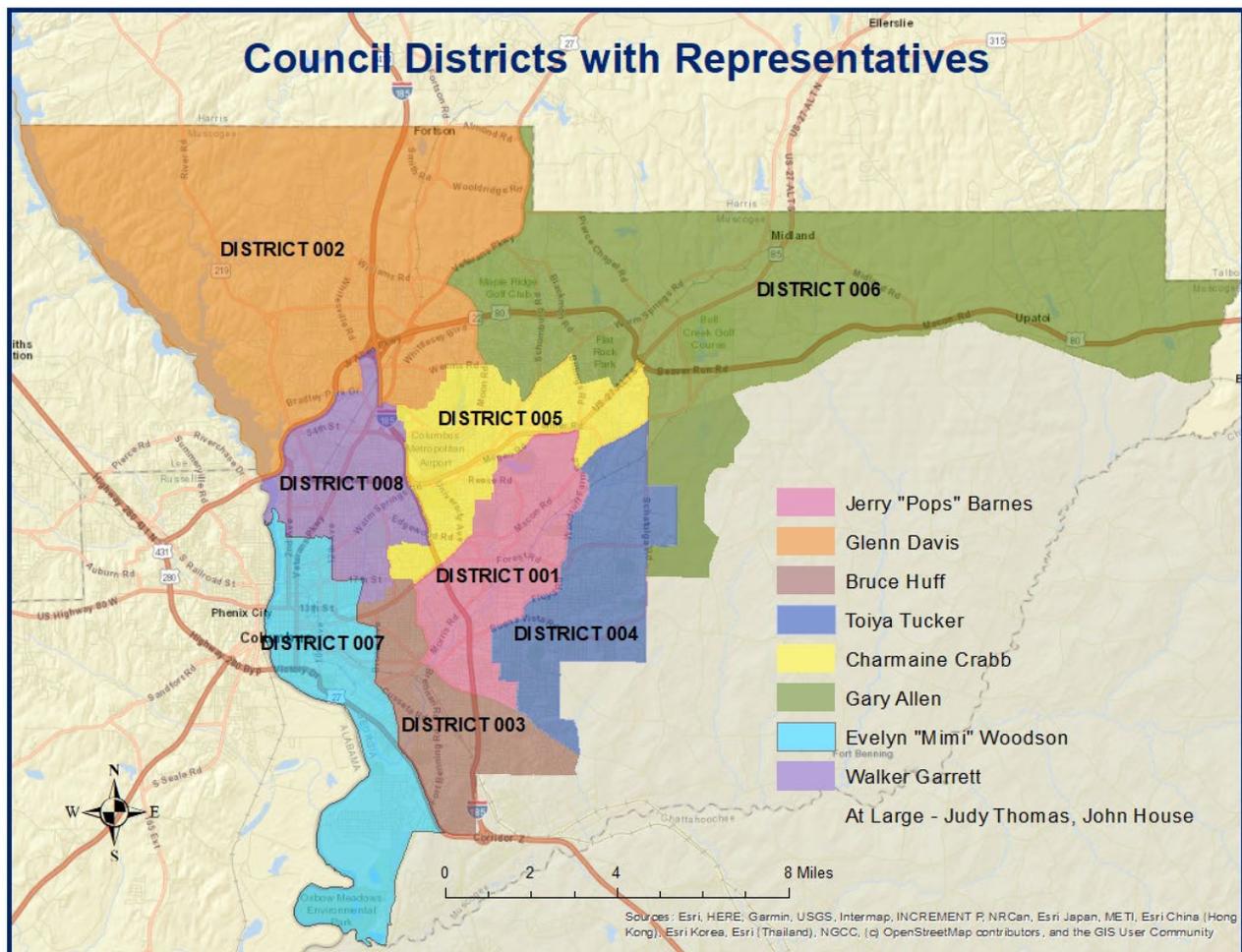
Figure 1.11 Mountain Bike Trail – Standing Boy Creek State Park

GOVERNANCE

Columbus, Georgia is a consolidated government, which establishes a single countywide government with powers and jurisdiction throughout the territorial limits of Muscogee County. The Charter of the Columbus Consolidated Government provides for a mayor-council-city manager form of government.

The mayor is aided by a city manager that, in the performance of his duties, is responsible to the mayor. The elected mayor, who also serves as the City’s Public Safety Director, is a full-time position. The Council consists of ten (10) elected councilor positions of which eight (8) members are elected from established council districts and two (2) are at large elected members.

Figure 1.11: Council Districts

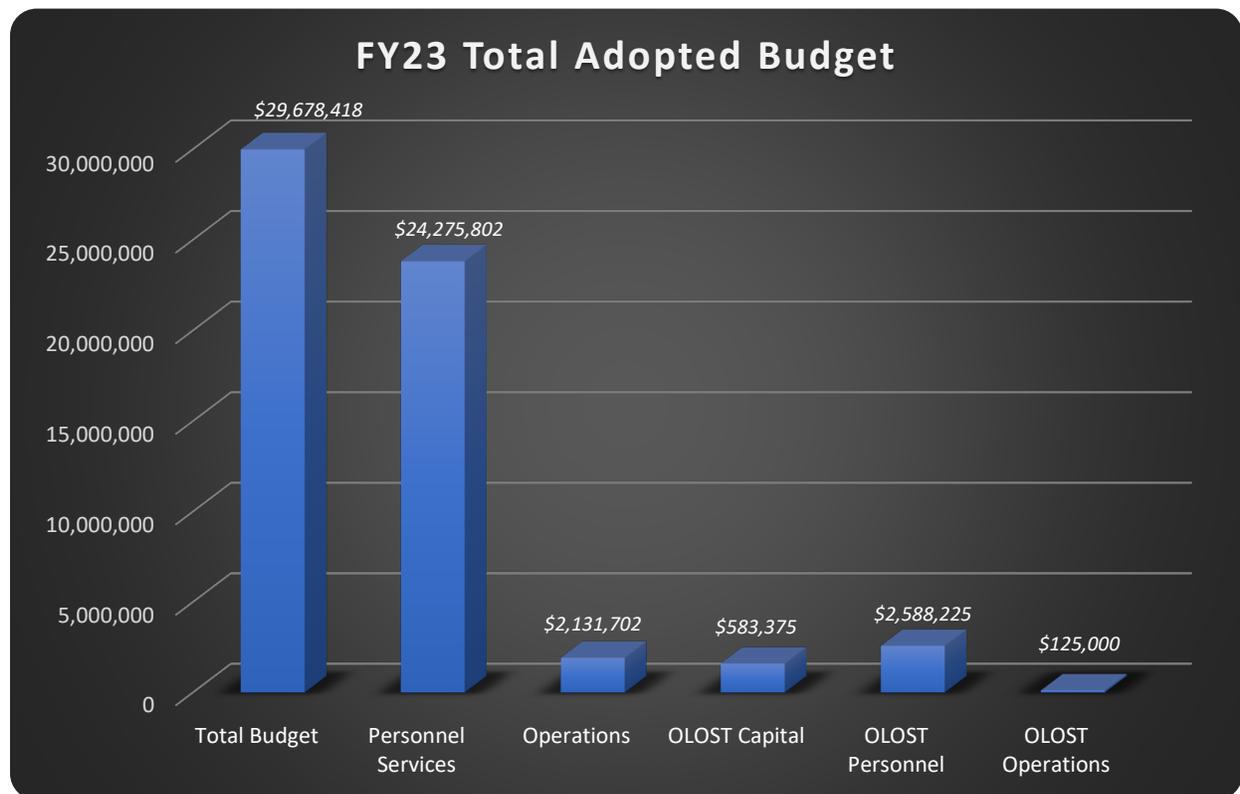


The Consolidated Government provided by the Charter shall be known as the Mayor-Council-City Manager form of government. The Mayor shall be aided by City Officers, who, in the performance of their duties, shall be responsible and accountable to the Mayor except as otherwise provided in

the Charter, by Georgia Law or by Rules of the State Bar of Georgia. Those persons who are deemed to be City Officers are set forth in sec. 4-300 of the Charter, as amended. Section 4-300 states the City Officers of Columbus, Georgia shall consist of the City Manager, the City Attorney, the Chief of the Columbus Police Department, the Chief of the Columbus Fire and EMS Department and the Warden of the Muscogee County Prison, all of whom shall be responsible to and accountable to the Mayor of Columbus, Georgia, except as otherwise provided in the Charter, by Georgia law or by Rules of the State Bar of Georgia.

FUNDING

The Department is funded through the Columbus Consolidated Government’s General Fund Budget. The Department’s fiscal year 2022 approved budget including OLOST is \$29,678,418 (Figure 1.12 Fiscal Year 2023 Budget).



Capital Improvement Program

The City (Fire/EMS, 911 Dispatch and Columbus Water Works) were re-evaluated by the Insurance Services Office (ISO) in February 2017. Results of the ISO review became available in June of 2017. CFEMS received a Public Protection Classification (PPC) rating of 1/1x; improving from a PPC of 2/9. Station 9 was completed in January of 2017. New drill tower, training pavilion and control room were completed in July of 2017. The department currently has 6 Engines, 2 Ladders, 2 Squads, and 4 Ambulances under a lease/purchase that expends 1 million dollars yearly out of the OLOST funds account.

SECTION II: DOCUMENTATION OF AREA CHARACTERISTICS

CFEMS' 220 square mile jurisdiction is divided into three battalions with 14 stations distributed throughout the jurisdiction. For dispatching purposes, the service area is broken down into 14 station territories or "planning zones." The station territories are further subdivided into geographic areas called Fire Demand Zones (FDZ). There are 102 FDZs within CFEMS' service area (Figure 2.1 Planning Zones). The type of response allows the closest unit to respond based off the location of the incident within an FDZ.

SERVICE AREA BOUNDARIES

Geographical boundaries for the Columbus Department of Fire and Emergency Medical Services are the boundary lines of Muscogee County (Columbus City Charter Section 1-102) excluding that area which lies within the boundaries of the Fort Benning Military Reservation. Boundaries were established by the consolidation of the City and County Governments in 1971 (Consolidated Government). Mutual aid agreements exist with surrounding communities. Surrounding agencies requiring assistance must make requests through proper channels as detailed in mutual aid agreements. The geographical boundaries have been set by law and have been clear and understood by all governmental entities involved. (Figure 2.2: Service Area)

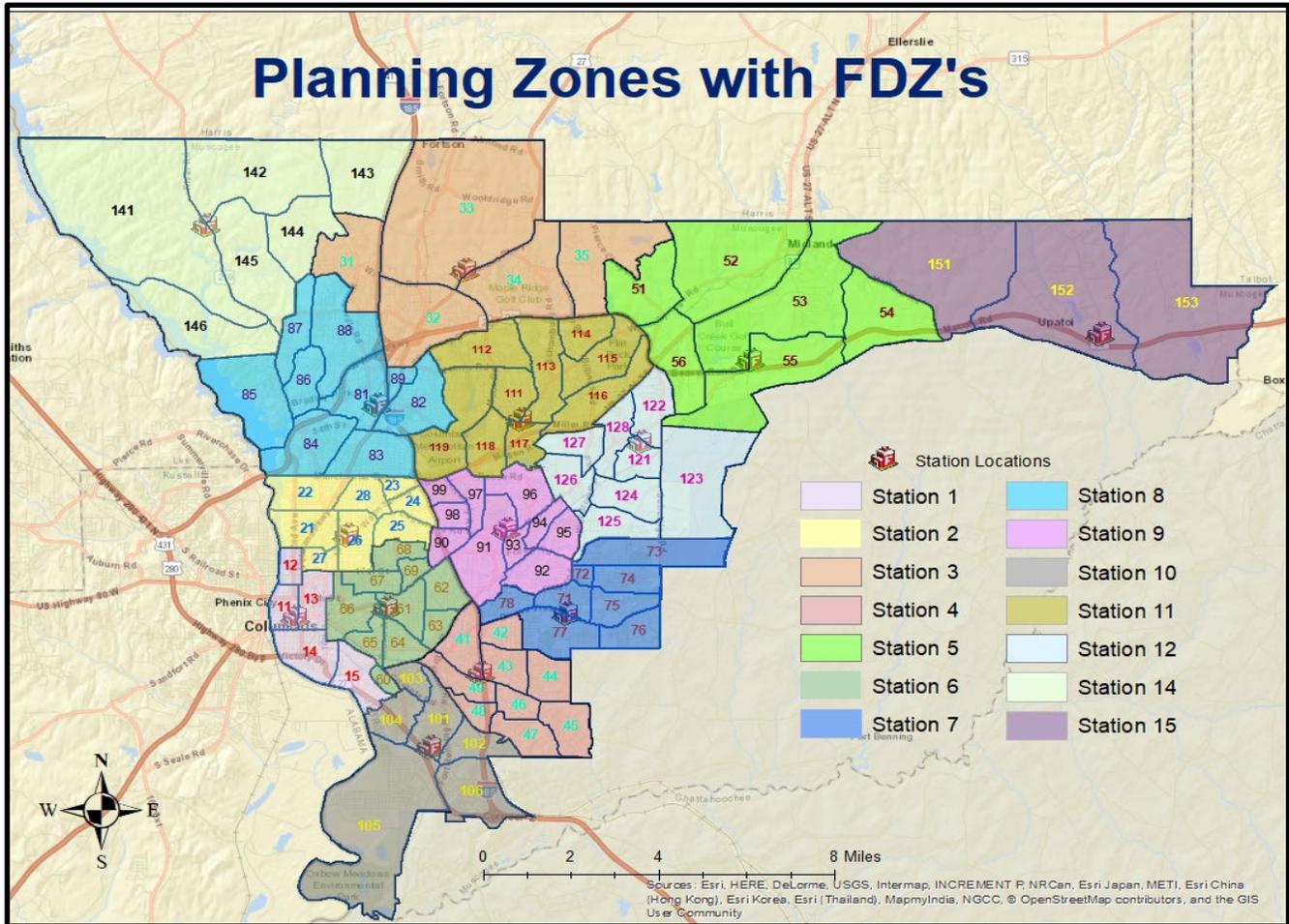


Figure 2.1 Planning Zones

MUTUAL AID BOUNDARIES

The department maintains Statewide Mutual Aid Agreement (SWMA) with local, state and federal agencies to provide for additional assistance and resources to this jurisdiction in the event of a disaster. These agreements are reciprocal in scope and clearly define the department’s responsibilities, limitations, and liabilities in the event these agreements become activated. The department currently maintains all hazard/all emergencies mutual aid agreements with all contiguous Fire and EMS departments and county governments. The department is also a member agency of the Georgia Mutual Aid Group and is designated as Georgia Search and Rescue (GSAR) Task Force 4A. These agreements have been adopted by the governing authority and signed by the Mayor.

Through these agreements the department has immediate access to additional equipment and staffing to respond to and mitigate major emergency situations in the most cost-efficient manner possible. The agreements are mutually beneficial to Columbus and the surrounding communities. The department does not have any automatic aid agreements with any of the surrounding agencies. This is due primarily to the fact that the surrounding departments are either not strategically located or staffed to respond within our jurisdiction in a timely manner. (Figure 2.2 Mutual Aid)

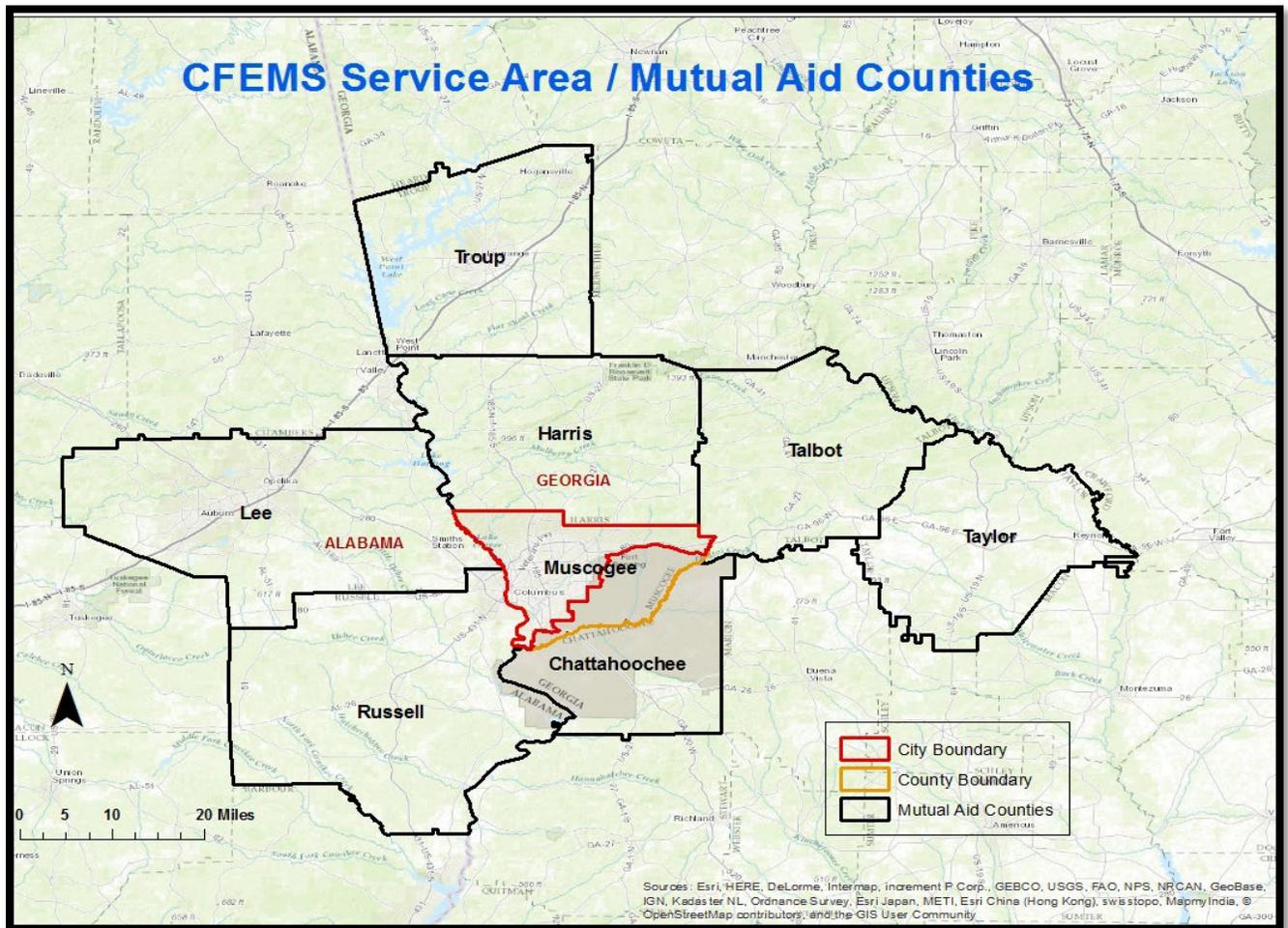


Figure 2.2 Mutual Aid

CRITICAL INFRASTRUCTURE

Critical infrastructure are systems needed to maintain minimum services for operation of a community. Critical infrastructure includes transportation, communications, water, power, and healthcare. Columbus Department of Fire and Emergency Medical Services (CFEMS) assesses the critical infrastructure within the planning zones through pre-fire planning activities and annual inspections through Community Risk Reduction.

Roadways are maintained and repaired by the city's Public Works department. The street maintenance division is responsible for over 650 miles of curbs and gutters, along with over 900 miles of public sidewalks. They provide services to Columbus residents and government personnel related to street repairs and maintenance, which includes city streets and state routes, sidewalk repair, curb/gutter, fence, guardrail repairs and graffiti removal. Columbus has 26 miles of rail lines that run through the city; operated by Norfolk Southern and Georgia Southwestern Railroad. Commodities carried most often include Chemicals, Forest Products, Lumber, Petroleum Products, Pulp and Paper. (Figure 2.6 Critical Infrastructure)

Columbus provides public transportation through the METRA department. METRA currently operates 18 buses serving 10 bus routes in the Columbus area, Monday through Saturday, excluding holidays. METRA also provides ADA Complementary Paratransit Service to eligible persons with disabilities who are, because of their disability, unable to board, ride or disembark from an accessible vehicle in METRA's regular bus service.

Columbus Water Works (CWW) provides water and a sanitary sewer system to the city of Columbus. CWW also helps to identify elements of the water system to include hydrants, water mains, system issues to include outages and improvements, maintenance, and care. The first water treatment plant was built in 1964 and currently operates as a modern treatment facility which serves the entire community. CWW operates two water treatment facilities in Columbus and one in Ft. Benning that serve Columbus, Fort Benning, and parts of Harris and Talbot counties.

Georgia Power supplies the majority of Columbus with power. Flint Energies and Diverse Power provide power to some rural areas of the city. Two of Georgia Powers nineteen hydroelectric dams

are in Muscogee County, they are; North Highlands Hydroelectric Generating Plant, and Oliver Dam Hydroelectric Generating Plant (Figure 2.3 Dams).

LAKE OLIVER DAM



NORTH HIGHLAND DAM



Figure 2.3 Dams

Columbus currently has three hospitals that provide emergency services. Piedmont Columbus Regional's Midtown Campus (Figure 2.4 Medical Center) is a Level 2 trauma center and serves most of west central Georgia and East Central Alabama. St. Francis Hospital (Figure 2.5 St. Francis) is the regional cardiac hospital; they have experienced tremendous growth in the last several years. Piedmont Northside Campus opened in 2018 and has been effective in reducing patient volume at the other hospitals. Hospitals have responded by implementing changes to personnel and processes to reduce ambulance out of service time. CFEMS implemented an extended wait time protocol, approved by the department medical director, to allow for department personnel to use the Emergency Service Index (ESI) to determine urgency of treatment. Based on the ESI score personnel can, after a 30-minute wait, advise the ED charge nurse of their finding and that they are going back in service. CFEMS will continue to work diligently with hospitals to share ideas for better delivery of services.



Figure 2.4 Piedmont Midtown



Figure 2.5 St. Francis



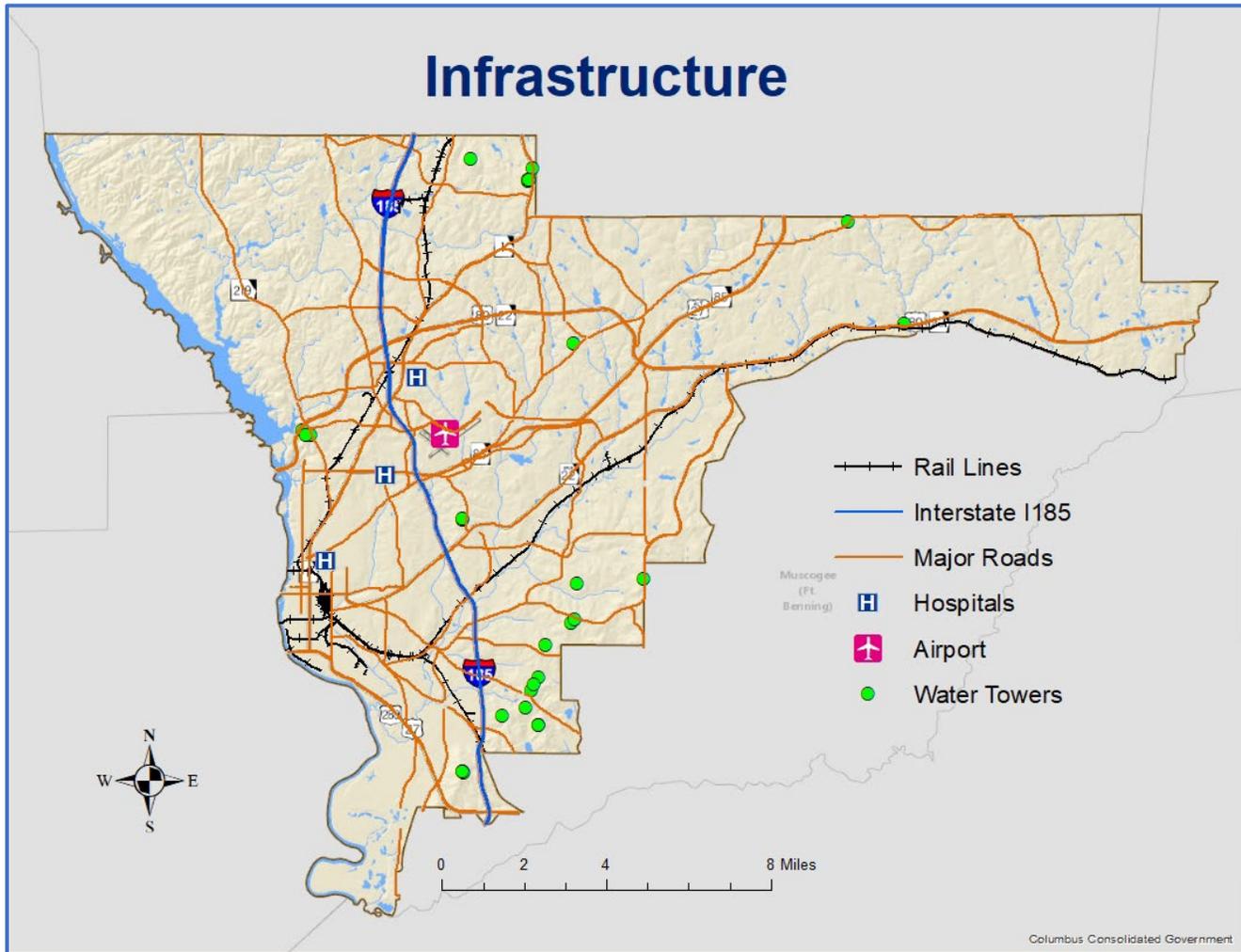
Figure 2.6 Piedmont Northside



The 911 communications center Computer Aided Dispatch (CAD) was upgraded to Premier 1 CAD in September 2019. The 911 center maintains an operational back-up center that can be accessed quickly if the main center becomes non-operational.



Figure 2.6 Critical Infrastructure



SECTION III: DESCRIPTION OF AGENCY PROGRAMS AND SERVICES

VISION

To be a model of excellence by developing innovative leaders to meet the evolving needs of the community, thereby setting the standard for other departments through professionalism and commitment to the department mission and core values.

MISSION

The Columbus Department of Fire and Emergency Medical Services is dedicated to the protection of life, property, and the environment by providing professional and courteous service of exceptional quality through incident mitigation, education, and prevention as an all-hazards response agency.

VALUES

We, the members of the Columbus Department of Fire and Emergency Medical Services are committed to the following values in our interactions with coworkers and customers:

- Professionalism – In application, appearance, and attitude
- Respect – For each other, our Department, the Consolidated Government and our customers
- Integrity – Demonstrate honesty and fairness
- Diversity – Be open minded and responsive to the uniqueness of our community and department members without regard to race, age, gender, religion, ethnic origin, or sexual orientation
- Excellence – Strive to provide the very best service possible

HISTORY OF CFEMS

Columbus' first volunteer fire department was established in 1831. In 1843, the service was ordained and chartered by Georgia State Legislation. It operated under a semi-paid plan from 1887-1898.

In 1898, city council adopted by ordinance a full paid department with twenty-six members. The ordinance gave the mayor and council the authority to elect the Fire Chief. As the city grew more personnel and apparatus were authorized and put in service.

In 2001, the Columbus Fire Department and Columbus Emergency Medical Services merged to become Columbus Fire and Emergency Medical Services. The merger, although stressful in the beginning, has produced a department better equipped to respond the needs of the community. All apparatus are staffed with a Georgia state certified firefighter that hold either an EMT-I, AEMT, or Paramedic certification.

Today, the Department provides community risk reduction, fire suppression, emergency medical services, hazardous materials response, and technical rescue services to the citizens and visitors of Columbus from fourteen (14) locations throughout the City. The department is currently organized into five (5) divisions: Fire Prevention, Operations, Logistics/Support, Emergency Management, and Training. The Chief of CFEMS serves as the Chief Administrative Officer and is responsible for the overall operation of the department. The Chief reports directly to the Mayor who serves as the Public Safety Director.

The City of Columbus has a PPC rating of 1/1x and the Department has maintained International Accreditation through the Center for Public Safety Excellence since 2002.

The department currently operates 30 daily units; technical rescue, hazardous materials and emergency management have units that operate as needed. Total number or percentage of operations personnel who are currently medically certified is 309 (95%). In 2002, the department began training personnel at the EMT-I level and in 2013 AEMT. Since the in-house EMT-I training was initiated the department has trained 284 personnel. The department began providing paramedic training in 2006 and has currently trained 87 (9 currently in class) personnel as

paramedics. The department is striving to achieve a response model that includes at its core personnel certified to render the most pre-hospital emergency care to the citizens and visitors of Columbus, Georgia.

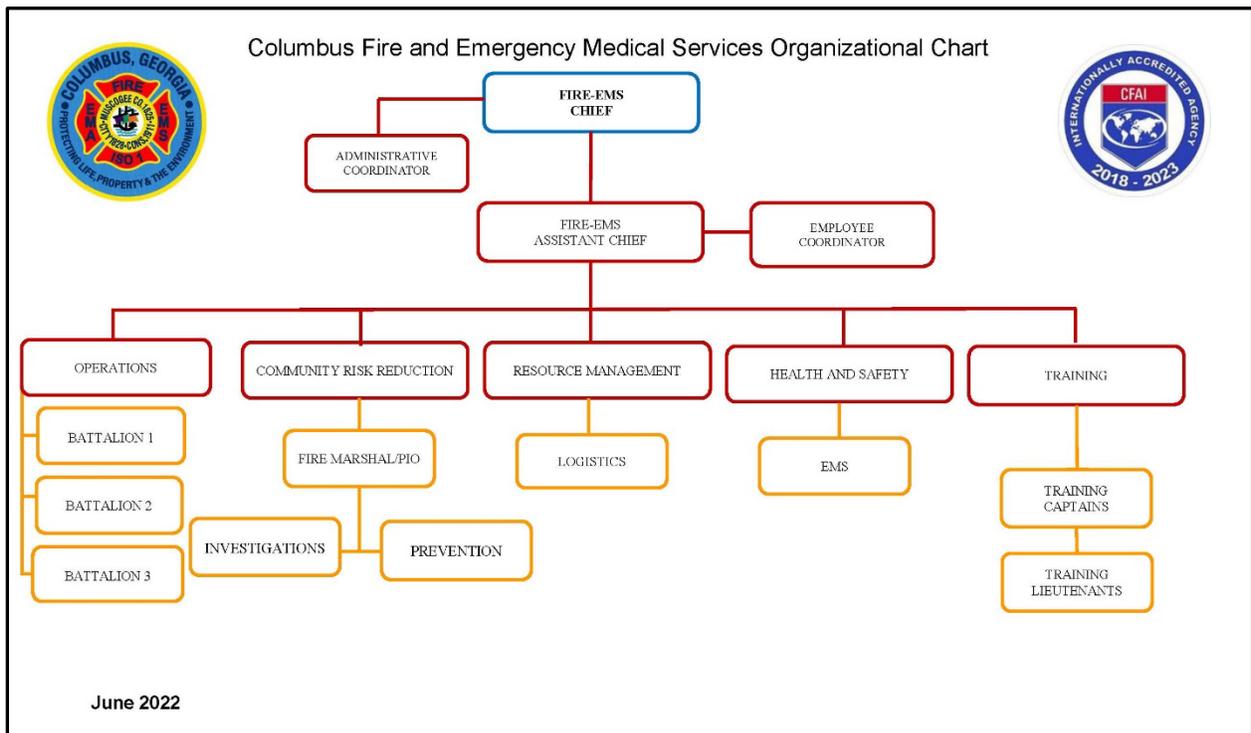
ORGANIZATION

The department falls under the umbrella of Public Safety and is governed by the Mayor, who is also the Director of Public Safety. The Mayor is the official spokesperson for the consolidated government, presides at all meetings of the City Council, and is the Director of Public Safety.

The Chief, who reports directly to the Mayor/Director of Public safety, leads the department alongside an Assistant Chief and five Deputy Chiefs who oversee daily operations. There are five Deputy Chiefs (DC): DC of Training, DC of Community Risk Reduction, DC of Operations, DC of Administrative Services and DC of Health and Safety.

Field supervision is the responsibility of nine Battalion Chiefs who report to the Deputy Chief of Operations. Daily each station has a Captain or Lieutenant that oversees station operations and call mitigation. Station Officers report directly to Battalion Chiefs. (Figure 3.1)

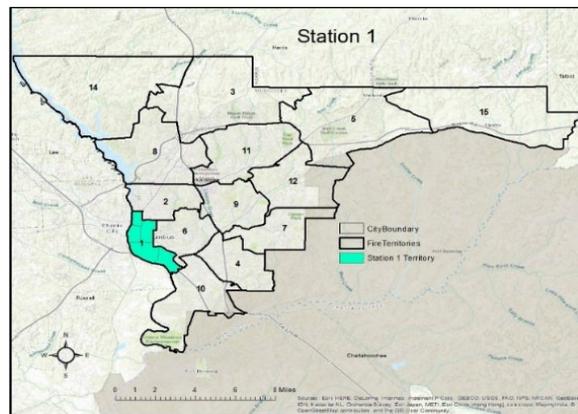
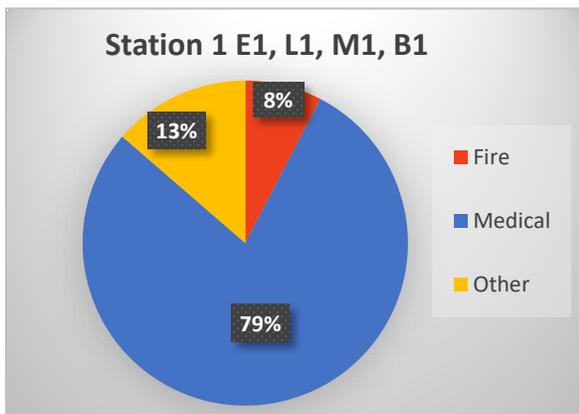
Figure 3.1: Organizational Chart



FACILITIES

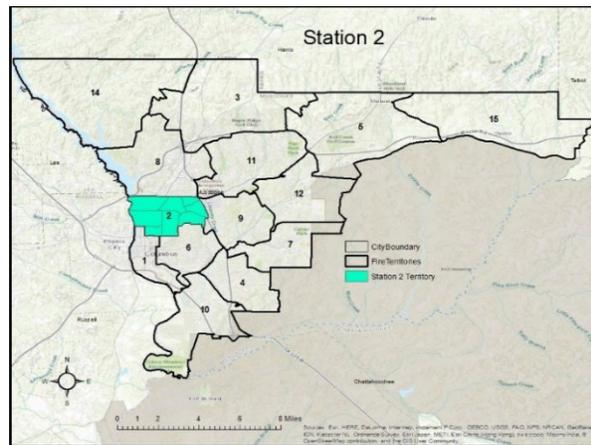
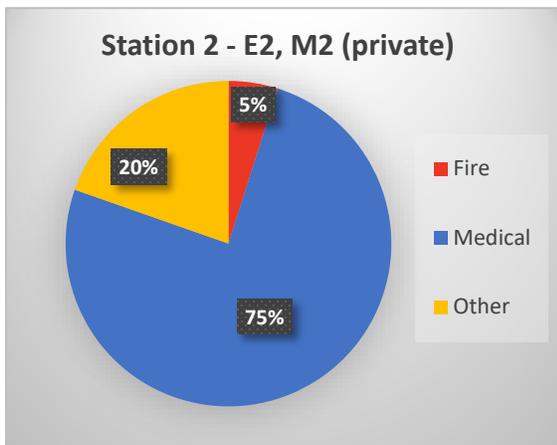
CFEMS currently operates out of 18 facilities, 14 of which house emergency response personnel and equipment. The remaining four facilities provide a variety of services to the department including training, logistics support, accredited Paramedic program, and administrative offices for CFEMS staff. The Department has identified three stations that will be renovated, and one replaced with funds approved in a 2021 special purpose local option sales tax (SPLOST) initiative.

Fire Station 1 – 205 10th St.



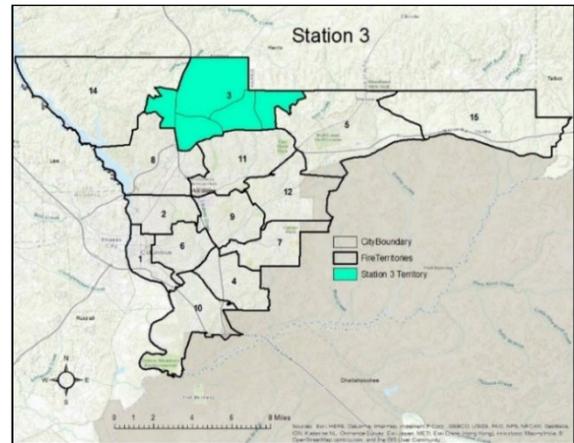
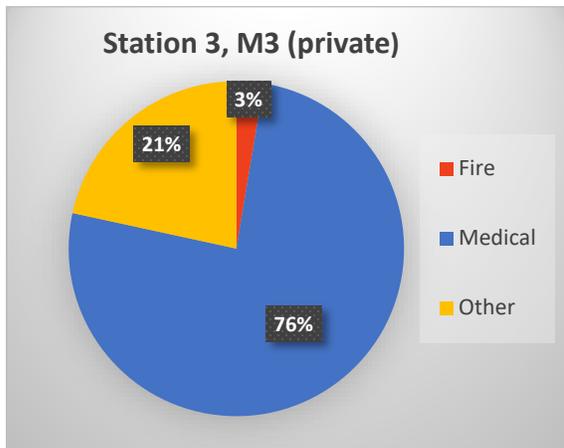
Fire Station 1 houses Engine 1, Ladder 1, Battalion 1, and Medic 1 who serve a district located the west central uptown area. Station 1 apparatus responses for 2016 thru 2021 totaled 28,612. This district services mix of occupancy, which includes Columbus State University Arts College, business and financial district, and historic uptown.

Station 2 – 1047 33rd St.



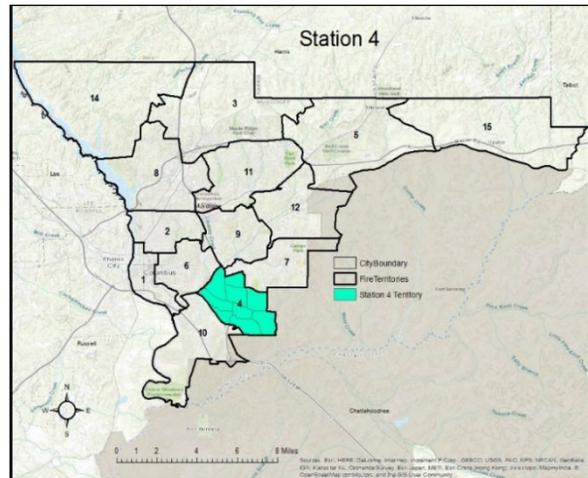
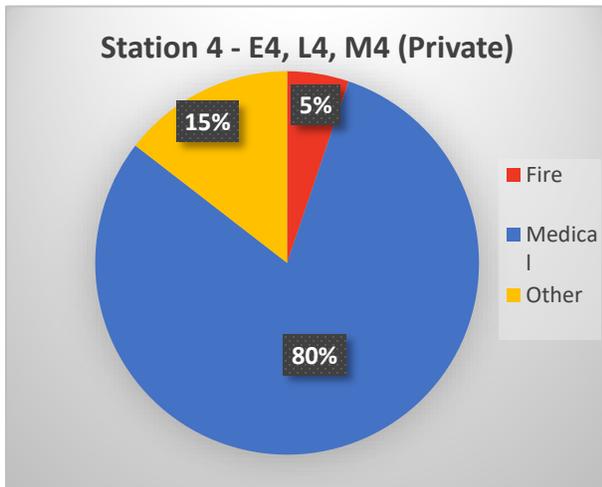
Fire Station 2 houses Engine 2, and Medic 2 (private) who serve a district located in the west central portion of the city. Engine 2 responses for 2016 through 2021 totaled 15,773. This district services mix of occupancy, which includes residential, hospitals, health department, multiple nursing homes, and numerous medical offices.

Station 3 – 2000 American Way



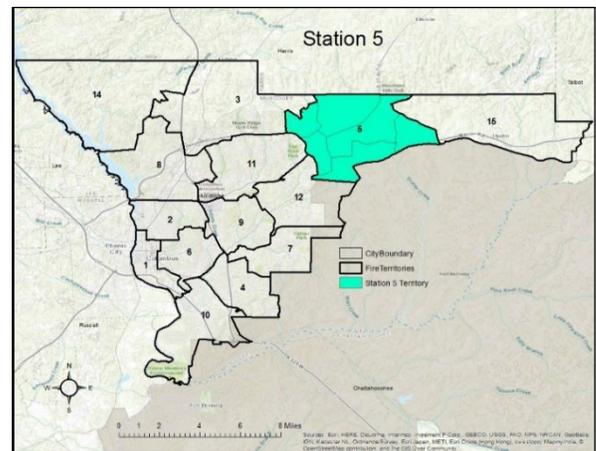
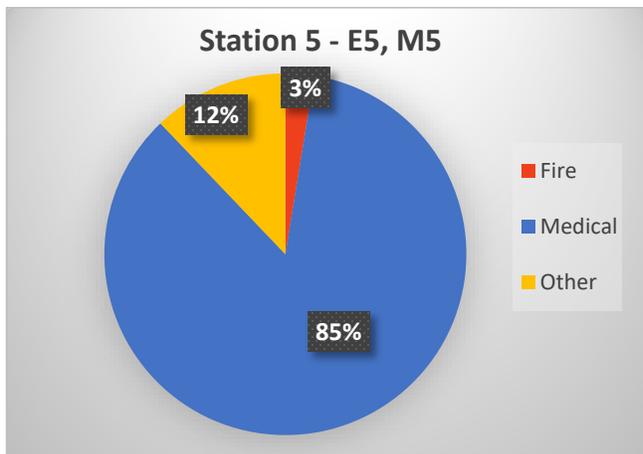
Fire Station 3 houses Engine 3, and Medic 3 who serve a district located in the north central portion of the city. Station 3 apparatus responses for 2016 through 2021 totaled 13,231. This district services mix of occupancy types, which includes residential, healthcare facilities, large, assisted living facilities, and a major shopping district.

Station 4 – 200 North Oakley Dr.



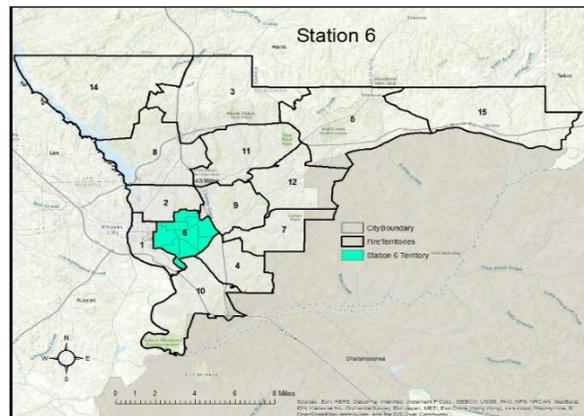
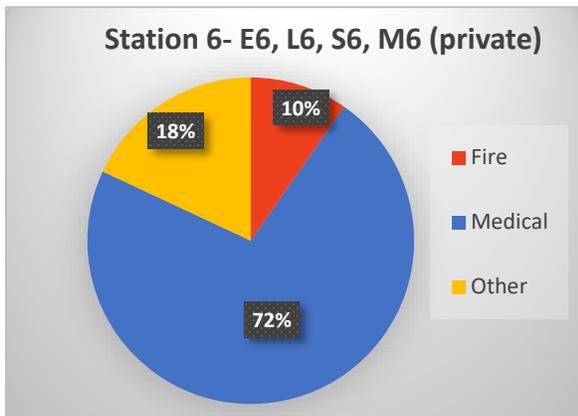
Fire Station 4 houses Engine 4, Ladder 4 and Medic 4 who serve a district located in the southeast portion of the city. Apparatus responses for 2016 through 2021 totaled 25,096 This district services mix of occupancy types, which includes primarily residential and small business.

Station 5 – 6700 Lynch Rd.



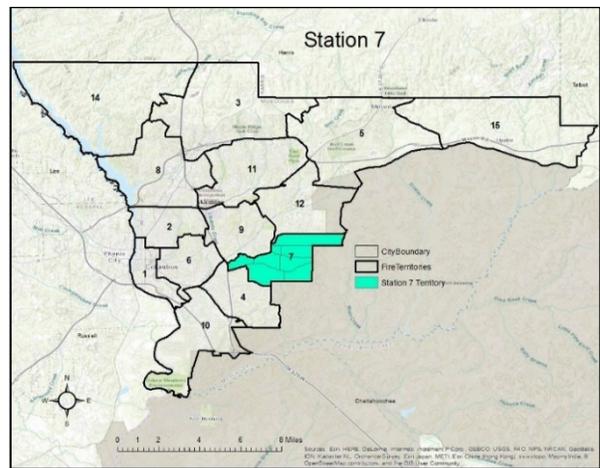
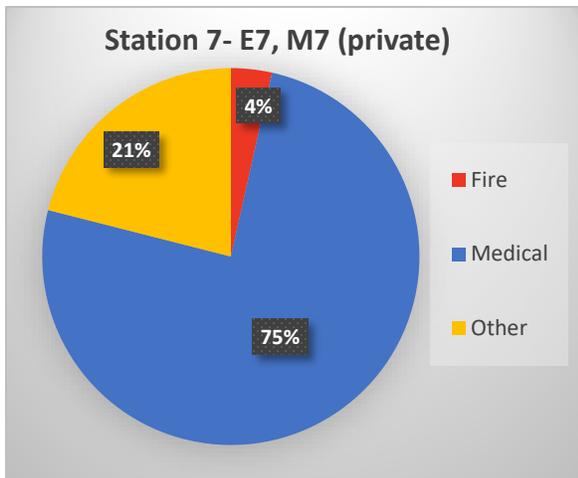
Fire Station 5 houses Engine 5, and Medic 5 who serve a district located in the northeast portion of the city. Station 5 apparatus responses for 2016 through 2021 totaled 12,171. This district services mix of occupancy types, which includes primarily residential, major arteries, and industrial.

Station 6 – 1126 Brown Ave.



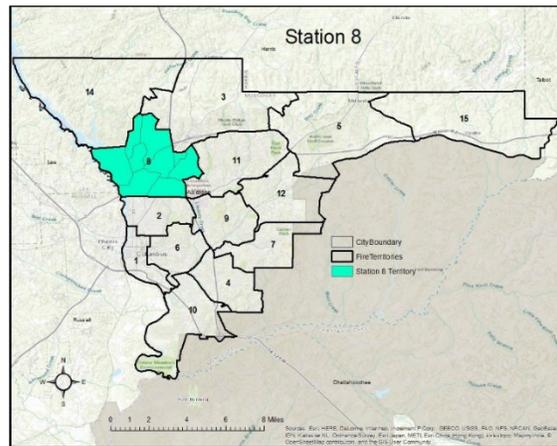
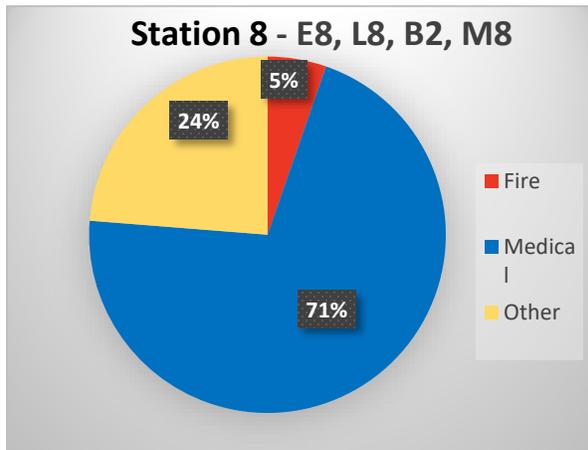
Fire Station 6 houses Engine 6, Ladder 6, Squad 6, and Medic 6 (private) who serve a district located in the midtown portion of the city. Station 6 apparatus responses for 2016 through 2021 totaled 31,250. This district services a mix of occupancy types, which includes primarily residential, major arteries, shopping, city infrastructure, and educational.

Station 7 – 5343 Buena Vista Rd



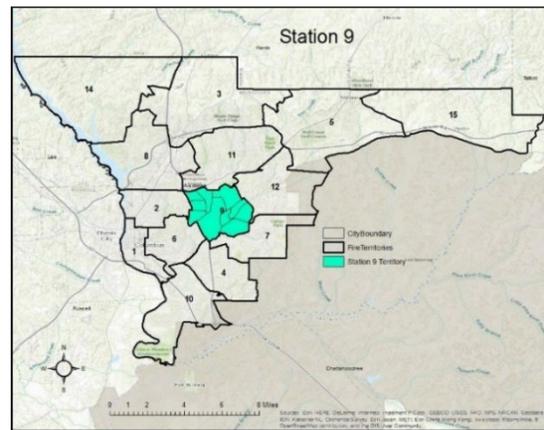
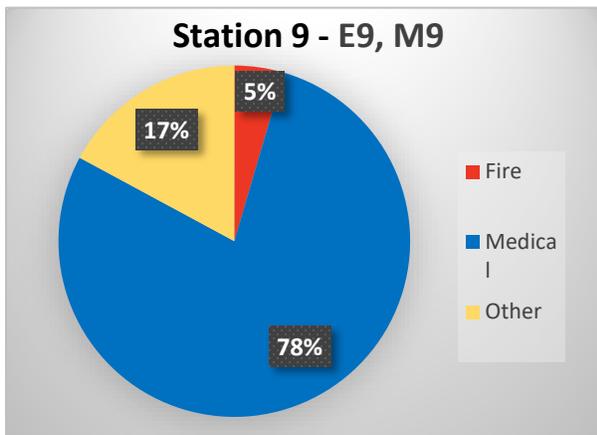
Fire Station 7 houses Engine 7, and Medic 7 (private) who serve a district located in the east central portion of the city. Station 7 apparatus responses for 2016 through 2021 totaled 11,710. This district services primarily residential with some business use occupancies.

Station 8 – 5844 Whitesville Rd.



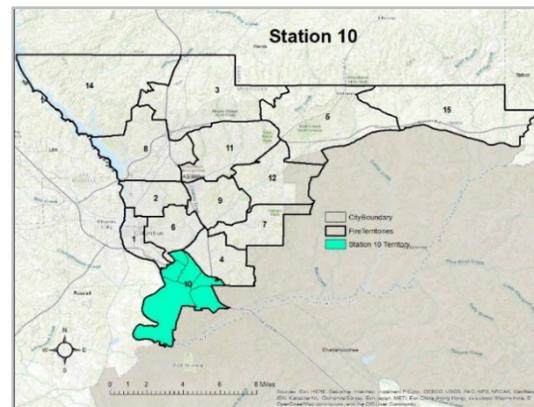
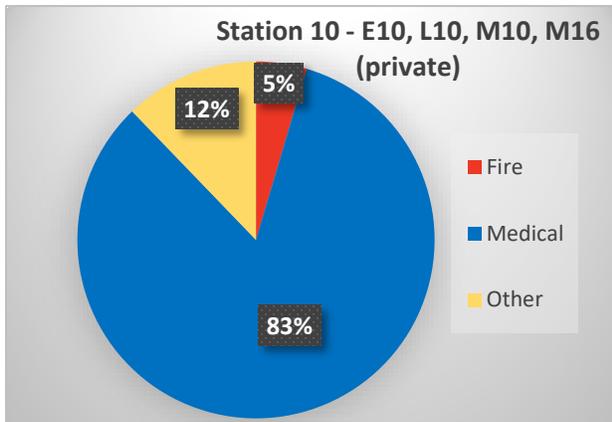
Fire Station 8 houses Engine 8, Ladder 8, Battalion 2, and Medic 8 who serve a district located in the northwest portion of the city. Station 8 apparatus responses for 2016 through 2021 totaled 20,118. This district services a mix of occupancy types, which includes residential, major arteries, shopping, industrial, and educational.

Station 9 – 4191 Macon Rd



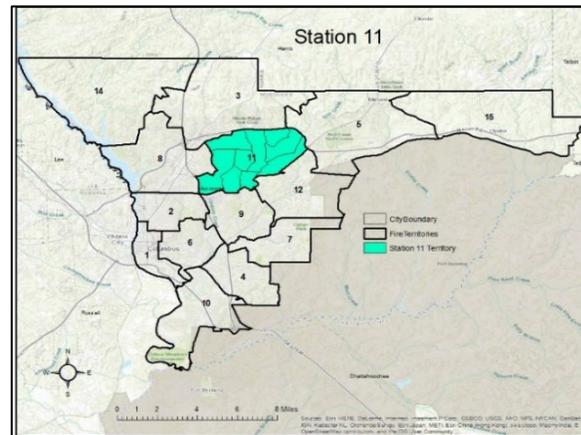
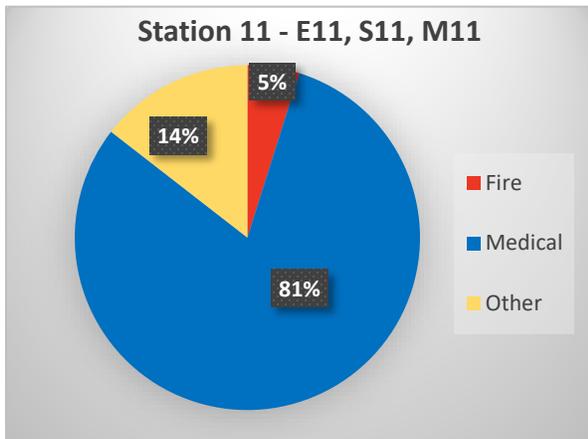
Fire Station 9 houses Engine 9, and Medic 9 who serve a district located in the central portion of the city. Station 9 apparatus responses for 2016 through 2021 totaled 14,281. This district services primarily residential with some business use occupancies.

Station 10 – 1441-U Benning Dr.



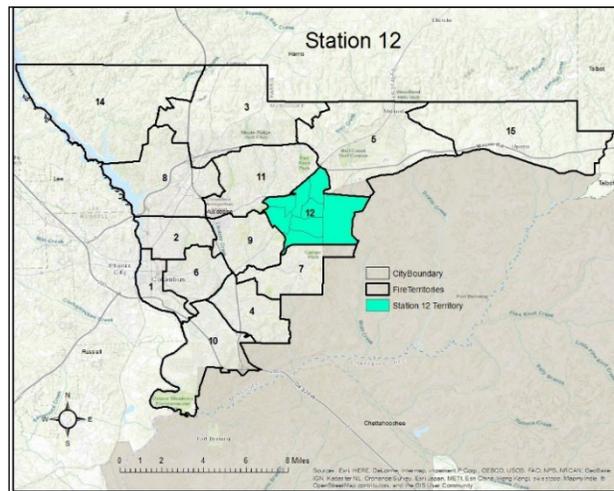
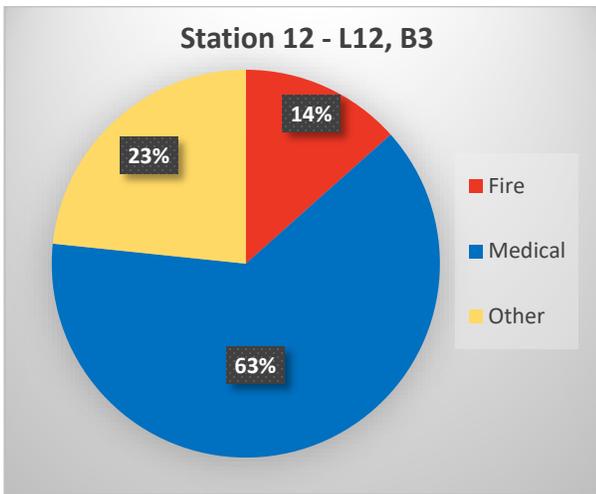
Fire Station 10 houses Engine 10, Ladder 10, Medic 10, and Medic 16 (private) who serve a district located in the southern most portion of the city. Station 10 apparatus responses for 2016 through 2021 totaled 32,365. This district services a mix of occupancy types, which includes primarily residential, large public museum, major arteries, shopping, and educational.

Station 11 – 4617 Warm Springs Rd.



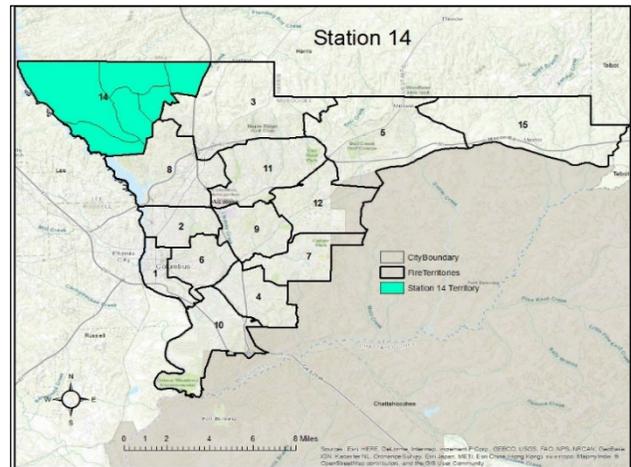
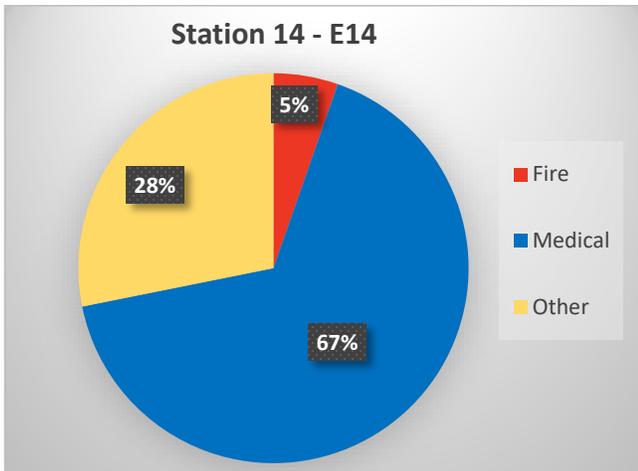
Fire Station 11 houses Engine 11, Squad 11, and Medic 11 who serve a district located in the north central portion of the city. Station 11 apparatus responses from 2016 through 2021 totaled 25,940. This district services a mix of occupancy types, which includes primarily residential, commercial airport, shopping, industrial, and educational.

Station 12 – 5225 Cargo Dr.



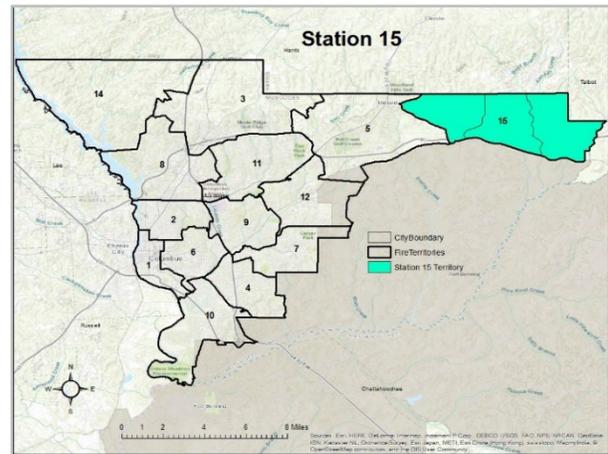
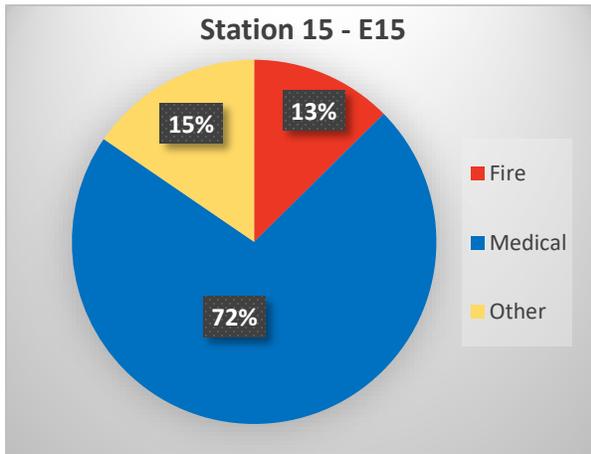
Fire Station 12 houses Ladder 12, and Battalion 3 who serve a district located in the east central portion of the city. Station 12 apparatus responses for 2016 through 2021 totaled 7,198. This district services primarily residential with some industrial use occupancies.

Station 14 – 1180 Old River Rd.



Fire Station 14 houses Engine 14 who serve a district located in the northwest portion of the city. Engine 14 responded to 1,907 incidents for the period of 2016 through 2021. This district services primarily residential areas.

Station 15 – 7301 McKee Rd.



Fire Station 15 houses Engine 15 who serve a district located in the eastern most portion of the city. Engine 15 responded to 699 incidents for the period of 2016 through 2021. This district services primarily residential areas.

SERVICES

CFEMS is a full-time, paid, fire and emergency services department with no volunteer resources. CFEMS's current level of service is adequate to deliver the services expected by the community for most incidents. For those rare incidents that tax the capacity of the department, external agency agreements have been established to provide additional resources if necessary. This level of service satisfies the expectations of Columbus' citizens and elected officials. The Department provides Fire Suppression, Emergency Medical Services, Hazardous Materials Response, Technical Rescue, Swift Water Rescue, and is a Georgia Search and Rescue Task Force (Team 4A). The County's 911 system is operated by the police department and has the responsibility of dispatching for every department within the city that requires 911 services.

CFEMS has fourteen strategically located Stations equipped with 13 engines, 6 ladder trucks, and 2 squad trucks staffed daily. CFEMS also has a dive truck, GSAR truck, trench truck, hazardous materials unit, and Emergency Management command bus that are staffed as needed. Six of the 14 stations are equipped with a CFEMS Advanced Life Support (ALS) transport ambulance. The department contracts with two private ambulance companies that provide three 24-hour ambulances. Engine minimum staffing is 4 (officer, driver and 2 FFs), Ladder minimum staffing is 3 (officer, driver, FF), (exception is Ladder 12 and it is staffed with two firefighter's due to it functioning as an engine on many occasions), Squad minimum staffing is 4 (officer, driver, 2 FF's). (Macon)Eleven of our fire apparatus are designated ALS and are staffed with a Firemedic when staffing allows. Station 6 houses the department's hazardous materials team, Station 9 and Station 11 provide technical rescue responses. Station 1 is designated as the swift water and dive rescue response team. Ambulances are staffed with one Firemedic and one EMT-Intermediate or one Advanced EMT. The Deputy Chief of Operations monitors staffing to ensure Battalion Chiefs are following the departments staffing guideline. With the transition of more officer medics than firemedics, the department is transitioning into a delivery model that will allow for ALS care reaching citizens in a timelier manner. Firemedics will be placed on all fire apparatus and ambulances will be staffed with AEMT's and EMT-I's.

DEPARTMENT DIVISIONS

Community Risk Reduction (CRR)

- CRR is responsible for the enforcement of life safety codes, issuance of permits, and plan review for suppression/detection systems, flow tests, new hydrant placement, conducts life safety inspections, and the development and implementation of the Community Risk Reduction Plan. They are involved with numerous fire and life safety initiatives that improve the safety of our citizens. These programs include the following: Free Home Safety Survey, Residential Carbon Monoxide Checks, School Fire Safety Education, Juvenile Fire Setter Program, Free Smoke Alarm Installation, and Community Improvement Projects.
- The division maintains a Georgia certified law enforcement agency. This division also investigates fires for cause and origin, is responsible for prosecution of fire related criminal activity and responds to customer inquiries and complaints. The division is aided by an Accelerant Detection K-9 team.

Operations (Macon)

- The Operations Division is responsible for delivering fire suppression, emergency medical services, and specialized rescue services to include hazardous materials emergency response, high angle rescue, confined space rescue, trench rescue, and water rescue/recovery to the community. The division has a total staff of 348 sworn personnel. The city is divided into three battalions with a minimum of 95 personnel on duty per shift. Personnel work a 24/48- hour work schedule. The Division responds multiple units to the majority of approximately 57,000 emergency responses annually. The division operates from fourteen stations which, house a total of thirteen engine companies six ladder companies (Quints), three command vehicles, two squad companies, one Georgia Search and Rescue (GSAR) heavy rescue unit, and twelve advanced life support ambulances (six operated by private ambulance services). The Operations Division is managed by one Deputy Chief that oversees the day-to-day operations and one Rescue Captain/coordinator that manages all special operations' resources including training and equipment and assists in Special Operations incidents.

- The division has Thermal Imaging Cameras (TIC) on every engine company, ladder company, and squad company throughout the department. Each apparatus is equipped with an Automatic External Defibrillator or cardiac monitor and a full complement of first responder equipment. Extrication equipment is placed strategically throughout the city for accessibility and is located on every ladder company, both squad companies and Engine 15.

Resource Management

- The Resource Management Division is responsible for the budget process to include research/development, procurement, bid specifications, and ensuring the efficient repair/replacement of all emergency equipment assigned to the department. The division works closely with other city departments to ensure the efficient repair of the department's facilities and vehicles. The division supplies fourteen stations with emergency and non-emergency equipment and is responsible for all records pertaining to the repair/replacement of all personal protective equipment to include the required testing, repair, and replacement of self-contained breathing apparatus. The division provides rehabilitation services at emergency incidents and is responsible for issuing uniforms and personal protective equipment to all sworn personnel.

Training

- The Training Division conducts and coordinates all department training activities including but not limited to recruit training, fire suppression, emergency medical, rescue, officer development, national incident management system (NIMS) and other training programs as necessary to meet established state and federal mandates each year. The division is responsible for ensuring that all department members meet the training requirements as set forth by the National Fire Protection Association (NFPA), Insurance Services Office (ISO), Georgia Firefighter Standards and Training, Columbus Consolidated Government, Georgia Department of Human Resources, and the internal requirements of the Department of Fire and Emergency Medical Services.

COMMUNITY RISK REDUCTION/OUTREACH

CFEMS is dedicated to reducing risk within the community. The Community Risk Reduction consist of Inspections, Fire Investigations and Public Education. The departments Public Education program educates on average 15,266 children (pre-K through 6th grade) and 824 (65+) adults in the areas of fire and injury prevention. The Inspections personnel ensure that businesses within Columbus follow local and state laws to provide a safe environment for employees and citizens. Through fire investigations, data is gathered as to the origin and cause of fire events; that information can later be incorporated into the public education program. The department offers free smoke detectors and installation for citizens. Through a collaboration with the Red Cross, the department has conducted community smoke detector initiatives that target a chosen geographical section of the city for door-to-door contact with citizens for smoke detector installation and fire safety education. Field personnel are the department's main providers of public education; through school visits and station visits, our personnel interact with their community frequently. The department distributes hundreds of educational materials annually; more emphasis has been placed on Spanish literature to ensure all citizens within the community are educated in fire safety.

The Fire Marshal oversees Fire Inspectors, Fire Investigators, Public Education, plan reviews, and issues permits. The Fire Marshal is also the department's public information officer.

FIRE INVESTIGATIONS

The Investigative Services section of Community Risk Reduction has three full time investigators and maintains at least three reserve investigators who serve in field operation positions when not needed for fire investigations. The three investigators work 24 hours on a designated shift. Reserve investigators fill in during vacations, sick leave, etc.

CFEMS has adopted NFPA 921 "A Guide for Fire and Explosion Investigation" and NFPA 1033 "Standard for Professional Qualifications for Fire Investigator". The principles and practices of NFPA 921 and NFPA 1033 are part of the instruction curriculum of the Georgia Public Safety Training Center's Arson Investigation Program. CFEMS personnel must complete this training prior to being placed in the position of Fire Investigator. Each Fire Investigator is required to utilize these best practices as part of a systematic approach to their fire scene investigations.

The department is authorized through City ordinance to investigate the origin, cause, and circumstances of any fire in the jurisdiction. The Georgia Peace Officer Standards and Training Council (POST) has recognized the City of Columbus, Department of Fire and Emergency Medical Services as a law enforcement agency as defined in O.C.G.A. 35-8-2et. Seq.

PUBLIC SAFETY EDUCATION

The Community Risk Reduction Division takes a pro-active approach to public fire safety education. The department offers a variety of safety-oriented programs to the public such as free smoke detectors installations, free home safety surveys, classes on fire extinguisher usage, presentations and consultations with corporate officials, speeches to civic groups and takes full advantage of local media and social media platforms in an effort to promote fire safety. The Community Risk Reduction Division utilizes the findings of the Community Risk Assessment to determine areas of concentration for the Public Education Program.

The majority of public safety education programs conducted are within the Muscogee County School District, local private schools and child daycare centers. Initiated in 1992, it is an in-depth program that is provided for all Muscogee County schools. The Community Risk Reduction Division strives to instill in children positive fire safety behaviors through these school-based programs. Children in the system learn positive safety values at an elementary level and carry it with them throughout their life. The school programs are focused on children in pre-K through the 6th grade. The Division also focuses on the elderly population age 65+ through Fire Safety education provided to large group centers and neighborhood civic groups.

YOUTH FIRE SETTER INTERVENTION

The department conducts juvenile fire setter intervention sessions with identified participants through one of the inspectors who is formally trained to conduct the session. The sessions are conducted in a structured and private environment with the legal guardian's permission. A log of all participants is kept by the inspector who coordinates with the fire investigators in providing this service.

PUBLIC ACCESS DEFIBRILLATION

Effective bystander CPR, provided immediately after cardiac arrest, can double a victim's chance of survival. Providing the public access to an AED should further increase the likelihood of a victim surviving cardiac arrest. The City has placed AED in all government buildings to ensure accessibility of early access defibrillation is available to citizens that may experience a cardiac emergency while visiting government facilities. There are businesses throughout the community that have AEDs to protect their employees as well as any patron that visits their business.

STAFF

CFEMS is authorized to fill 381 positions: 374 sworn and 7 civilian. Fire suppression personnel are assigned to one of three shifts: A, B or C. Each shift works 24 hours on-duty and 48 hours off-duty. Minimum on-duty staffing for each shift is 94 people consisting of three battalion chiefs, eight captains, 13 lieutenants, 21 sergeants (drivers), and 49 firefighters.

Sworn personnel are trained to respond to fire-related incidents, medical emergencies, hazardous materials incidents (HAZMAT), technical rescues, mass casualty, and other emergencies. All new recruits are being hired and trained to Firefighter II, Hazmat Operations and Advanced EMT (AEMT). CFEMS provides Advanced Life Support (ALS) by requiring at least one Firemedic on all ambulances and many of the engines. CFEMS has an accredited paramedic program that trains an average of 15 Paramedics annually. Contracted ambulance providers must be equipped as advanced life support, with a minimum of one paramedic per ambulance.

ATTRITION AND RECRUITING – NEED #'S TO UPDATE CAHRTS

In 2021, a diverse recruitment team was formed with volunteer field personnel to assist in the department's goal of being more representative of the community we serve. The team will attend job fairs targeting high school students, explore recruitment opportunities through a partnership with Fort Benning, as well as explore other opportunities available within the community and surrounding jurisdictions. The charts below show the current demographic of the department as well as current retention rates of new hires (First 24 Months). The recruiting efforts of the department are an effort to create a more diverse workforce that is reflective of our city's

demographic. In addition, in the targeted recruiting is an effort to increase retention rates within our newly hired employees to create a more experienced workforce.

2022 Department Demographics							
Caucasian Male	Caucasian Female	African American Male	African American Female	Hispanic Male	Hispanic Female	Other Male	Other Female
251	14	63	11	12	1	4	0
70.11%	3.91%	17.60%	3.07%	3.35%	0.28%	1.12%	0.00%

2021-2022 Cadet Demographics and Retention							
	Caucasian Male	Caucasian Female	African American Male	African American Female	Hispanic Male	Other Male	Total
Hired	56	7	36	6	4	3	112
Resigned/Terminated	15	2	20	3	2	1	43
Percentage	26.79%	28.57%	55.56%	50.00%	50.00%	33.33%	38.39%

2021 - 2022 Cadet Separation Factors						
EMT School	Fire School	Physical	Discipline Reason	Job Change	Family Reason	Total
11	3	7	7	10	5	43
25.58%	6.98%	16.28%	16.28%	23.26%	11.63%	N/A

RESOURCES

ENGINE

Thirteen of our fourteen stations have one engine with the exception being Station 12 that is equipped with one ladder truck. All engines are NFPA designated 'triple combination' engines, equipped with a 1500 GPM fire pump, hose complement, and water tank. The minimum staffing on an engine is four personnel (see SOG 02-200 Response Guideline): one officer, one driver, and two firefighters. The role of the engine company during fire suppression operations is to pump water onto the fire through a variety of fire hoses and associated appliances to lower the

temperature of the fuel below its ignition temperature thereby extinguishing the fire. The engine crew also operates hose lines, conducts search and rescue, and performs any other duties conducive to quick and effective fire containment that contributes to saving lives and protecting property. This unit and crew provide a variety of emergency medical services capabilities.

LADDER

There are six ladder truck companies strategically placed throughout the city. The length of the aerial ladders varies in length but range from 75-105 feet. All frontline ladder trucks have the capacity to pump water with a 1500 GPM pump. The minimum staffing on a ladder truck is three personnel (one officer, one driver, and one firefighter) (see SOG 02-200 Response Guideline); exception is Ladder 12 staffed with four personnel (one officer, one driver, and two firefighters) (see SOG 02-200 Response Guideline). Ladder trucks provide elevated work platforms and master streams, when the situation dictates, and otherwise they aid in fire suppression efforts conducted by engine companies including entry and ventilation. All ladder trucks carry a complete complement of first-line hydraulic extrication equipment, spreaders, cutters, forced entry tools, etc., and are routinely dispatched to rescue calls. This unit and crew provide a variety of emergency medical services capabilities.

SQUAD

CFEMS operates two squad trucks: one at Station 6 and one at Station 11. Minimum staffing is four; one officer, one driver, and two firefighters (see SOG 02-200 Response Guideline). Squad 6 acts as the department's hazardous materials truck as well as providing manpower, lighting and air tank refill at fire and rescue scenes. Squad 11 personnel are trained at a minimum level of hazardous materials operations as well as technical rescue technicians.

BATTALION CHIEF

Minimum staffing is one battalion chief/acting battalion chief assigned to each of the department's three battalions over three squads for a total of nine battalion chiefs. The vehicle is either a Ford F250 truck or Ford Explorer.

COMMAND

CFEMS operates one command unit through the Emergency Management Department. It is dispatched to major incidents that have the potential for an extended duration. The mobile command vehicle is an RV-style bus with a variety of resources on-board. It has air conditioning and heat, communication tools, restroom, and space for the on-scene command staff to set up a command post. The unit is self-sustaining with a diesel-powered generator for electrical power.

EMS

CFEMS currently staffs six 24-hour transport ambulances. They are staffed with one Firemedic and one EMT-I or AEMT. All apparatus are at least medical first responder units (MFRU) and staffed with EMT-I's or AEMT's. The city has contracted with two private ambulance services to supplement ambulance transport services and respond to 911 calls from CFEMS stations. Community Ambulance and EMS Care each provides three 24-hour trucks. The contract was renewed in 2020.

HAZARDOUS MATERIALS

CFEMS has 81 members assigned to the Hazardous Material Teams (HMT's). The teams are located at Station 6 and Station 11 on three different shifts. The department's Special Operations Captain directs the HMT in training, exercises, and leadership. The Special Operations Captain also meets with the hazmat team officers on a biannual basis, or as needed, to discuss issues involving training, personnel, policies, procedures, and equipment procurement.

HAZMAT EQUIPMENT

<u>Station 6</u>	<u>Station 11</u>
Engine 6: 2016 E-One Typhoon pumper	Squad 11: 2016 E-One Cyclone II 20' non-walk in box with special storage compartments.
Ladder 6: 2016 E-One Cyclone II 100' Quint	
Squad 6: 2017 E-One Cyclone II 22' non-walk in	
Decon 6: 2004 E-One Cyclone 20' non-walk in w/ command unit	

TECHNICAL RESCUE

CFEMS has 90 members assigned to the Technical Rescue Team (TRT). The members are located at Station 1, Station 9, and Station 11 on three different shifts. The department's Special Operations Captain directs the TRT in training, exercises, and leadership. The Special Operations Captain also meets with team officers on a biannual basis, or as needed, to discuss issues involving training, personnel, policies, procedures, and equipment procurement.

TRT Equipment

<u>Station 1</u>	<u>Station 11</u>
Rescue 1: 1997 NaviStar international 18ft. non-walk-in box	Squad 11: 2016 E-One Cyclone II 20' non-walk in box with special storage compartments allowing operation as a squad unit.
Rescue 2: 2015 Ford F-250 4x4	<u>Station 9</u>
Rescue 4: 1995 International w/ 48' goose neck tractor	Rescue 3: GSAR TF 4A 2009 Spartan Custom crew cab tractor pulling a General Safety utility trailer approximately 53' long.
Trench Rescue: Homesteader 20' x 8' tow-behind trailer	
Boat 1: 18' Alum-craft w/ 60 HP jet drive	
Boat 2: Inflatable Zodiac boat w/ a E-tec jet pump engine	
Jet Ski 1: Two 2022 Sea-Doo GTI SE 170	

SECTION IV: ALL-HAZARD RISK ASSESSMENT

Risk Assessment is a core component of Community Risk Reduction within the Columbus Department of Fire and Emergency Medical Services. With a thorough evaluation of the risks, specific to Muscogee County, the department can plan mitigating strategies for potential threats to the public's safety. CFEMS identifies risk based on the nature and magnitude of hazards and risks within the geographic boundaries of Muscogee County, Georgia.

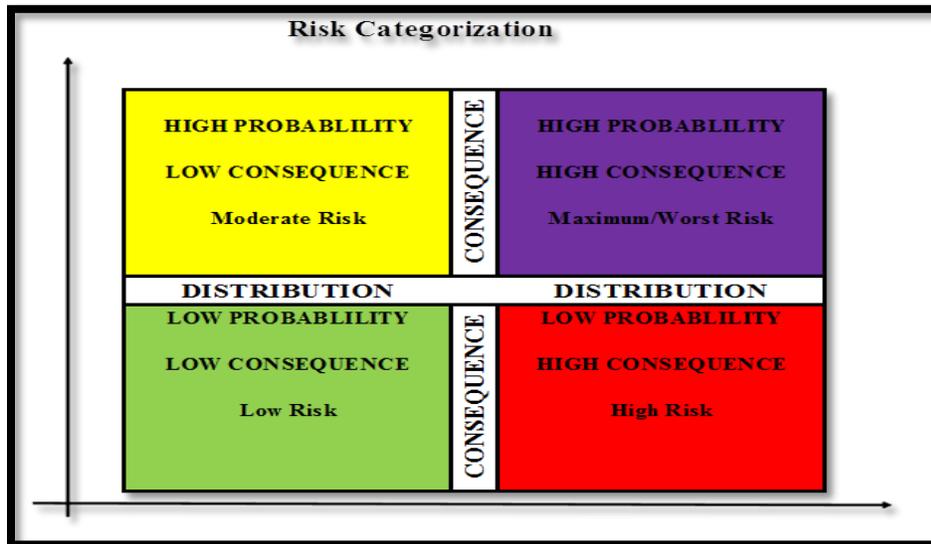
METHODOLOGY:

The Department utilizes a Two-Axis methodology to qualify the risk level from each hazard. The model is used to rate the risk based on the estimated frequency and consequence/impact of an event. The Department uses this information to determine proper distribution and concentration of its emergency response resources for a given hazard or risk. In simple terms:

Increased Impact = Increased Concentration. (Figure 4.1: Risk Categorization)

PROBABLITY/CONSEQUENCE MATRIX

Figure 4.1: Risk Categorization



The department's risk assessment is shared with external partners (Ex. Piedmont Health Care, Safe Kids, Adult Trauma Injury Prevention Committee) to determine the community risk mitigation strategies and tactics. The Community Risk Assessment is updated on a five (5) year basis.

Risk Identification:

The Columbus Department of Fire and Emergency Medical Services has identified several hazards to the community to include Fires, Emergency Medical Incidents, Hazardous Materials Incidents, Technical Rescue Incidents, Domestic Preparedness and Social Vulnerability.

Risk Assessment:

The agency assesses each risk/hazard based on probability of occurrence and community impact. While probability is described as the likelihood that a given risk/hazard will occur, community impact is best described as the magnitude or reasonably expected loss that will be experienced.

Risk Classification:

The agency classifies these hazards per several programs, which include, Emergency Management, Fire Suppression, Emergency Medical Services (EMS), Technical Rescue, Hazardous Materials, Community Risk Reduction and Domestic Preparedness. For example: Fire risks most directly affect the Fire Suppression Program and are classified as such.

Risk Categorization

The agency categorizes the threat each hazard poses within each program area on a scaled grading system (Low, Moderate, High, and Very High)

SEVERE WEATHER

TORNADO EVENT PROFILE

While the Dixie Alley, the region of maximum tornado frequency, is a nickname sometimes given to areas of the southern United States that are particularly vulnerable to strong or violent tornadoes. This is distinct from the better-known Tornado Alley and has a high frequency of strong, long-track tornadoes that move at higher speeds (50+ miles per hour). Dixie Alley includes much of the area of the lower Mississippi Valley. It stretches from eastern Texas and Arkansas across Louisiana, Mississippi, Tennessee, Alabama, Georgia, to upstate South Carolina and western North Carolina; the area reaches as far north as southeast Missouri and southwest Kentucky. The State of Georgia has experienced at least 1,500 tornadoes since 1950, with at 454 of them being classified Category EF2-EF5, strong to violent. Columbus-Muscogee County was hit by at least 14 Tornadoes and one funnel cloud since the 1950s. (Figure 4.2: Tornadoes)

Columbus-Muscogee County Tornado Events 1953-2019

Figure 4.2: Tornadoes

DATE	TORNADO F SCALE	DEATHS	INJURIES	DAMAGE PROPERTY
4/18/1953	F3	2	300	\$25,000,000
2/22/1961	F1			\$25,000
3/31/1961	F3			\$25,000
5/16/1966	F1		11	\$2,500,000
5/1/1978	EF2		3	\$2,500,000
11/20/1983	EF1		2	\$250,000
3/29/1991	EF0			\$2,500
5/5/1991	EF1			\$250,000
11/22/1992	EF1			\$250,000
3/13/1997	EF1		1	\$775,000
11/15/2006	EF0			\$500
3/1/2007	EF2		1	\$28,000,000

4/19/2009	EF1			\$3,000,000
4/3/2017	EF1			\$100,000
3/3/2019	EF3			\$500,000

Source: National Climatic Data Center

In Columbus-Muscogee County, there are approximately 84,182 structures, of which 71,450 are classified residential, 11,393 commercial, 147 industrial, 52 agricultural, and 647 religious/non-profit. The remaining 493 structures are essential facilities and include 326 government, 113 education, and 54 utility structures.

The 83,689 non-critical structures potentially are all exposed to the threat of a tornado, just like the identified critical facilities. The total population of Columbus-Muscogee County, 206,922 residents, is endangered by a tornado. Older, non-critical private homes are especially at risk of being damaged by high winds or tornados. In Columbus-Muscogee County, 28.9% of all housing units were built before 1960. These houses, older than 45 years, may be more vulnerable to natural hazards than newer houses.

FLOOD EVENT PROFILE

Floods are defined as the rising of bodies of water, such as rivers and streams, overflowing their natural or artificial banks and submerging normally dry land. These high-water stages are often related with severe tropical storms or torrential rains from hurricanes. Floods can be slow, as the result of extended rain or a storm event, or fast rising, as the result of a flash flood. Flash floods and dam failure can be expected when an area is affected by large amounts of rainfall in a short time. However, flooding usually develops over a period of days.

Much has been done in Columbus-Muscogee County to reduce damage from flooding. Due to the County's proximity to the Chattahoochee River and to the Atlantic and Gulf Coasts, risk of flooding due to tropical storms is high, but the probability of this type of flooding causing extensive damage is moderate. (Figure 4.3 Flood Zones)

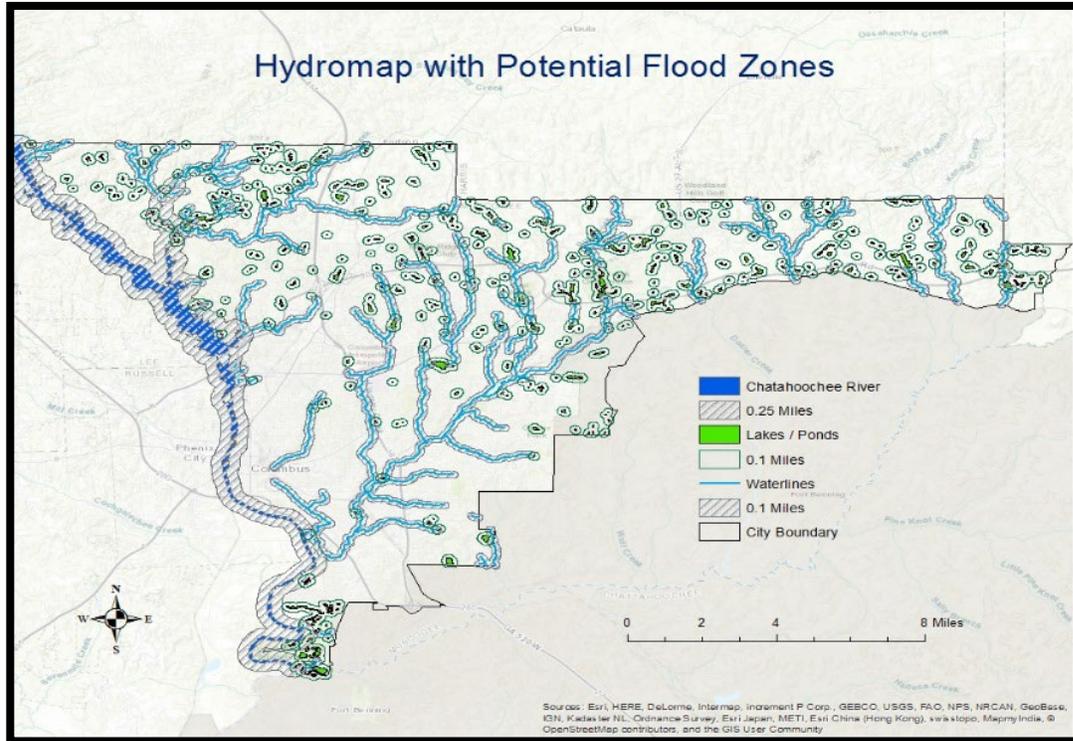


Figure 4.3:

Flood Zones

FIRE EMERGENCIES:

FIRE FLOW AND WATER SUPPLY

The City of Columbus receives its water supply from the Columbus Water Works, which is a public utility. The water supply is taken directly from the Chattahoochee River at Lake Oliver. The Columbus Water Works maintains 1,163 miles of water main and 12 storage tanks with 15.8 million gallons of storage. Normal draw for the system is 32.35 million gallons per/day, however 90 million gallons per/day is permitted. The system has 14 pumping stations with a capacity of 148 million gallons daily. The supply is distributed through three (3) distribution systems, the North Columbus Zone, the High Service Zone, and the Gravity Zone. CWW plans continually to enhance its redundancy and security capabilities related to water supply and has regular update/ planning/ coordination/ communication meetings with the Columbus Department of Fire and EMS, which have proven to be mutually beneficial. According to Columbus Water Works records, there are seven thousand two hundred and seventy-two (7,272) hydrants on the city system with new hydrants added for new development. Maintenance of hydrants installed on private property is the responsibility of the property owner. Of the 7,473 hydrants, 201 are private.

STRUCTURE RISK CATEGORIZATION:

For business, commercial, industrial, and multi-family residential structures the agency utilizes an occupancy vulnerability assessment scoring system (OVAP) to categorize the fire risk in each structure.

Occupancy types assigned a higher score are considered to be more critical than those with a lower score. A score should be assigned to each of the following categories:

- Number of occupants/life safety
- Building construction
- Impact (including economic) to the community
- Number of stories
- Presences of automatic fire suppression/detection systems
- Overall size (square footage)
- Number of fire hydrants nearby

- Level of hazard
- Building usage

The structure is scored in (10) ten areas of concern and given an overall rating from Low risk to Very High risk based on the numerical score assigned.

LOW RISK

Low-Risk properties are those, which, if involved in fire, represent a minimal threat to the community. These are less likely to have significant loss of life or financial impact because of the fire. Examples of Low-Risk properties are not limited to but, include open tracks of land, rubbish fires, vehicle fires, and detached Storage Buildings.

MODERATE RISK

Moderate-Risk properties usually have an occupancy load from 26-75 and represents a moderate community impact. These structures have monitored fire detection and at least partial fire suppression. At least 2 or more hydrants are located within 1000 feet and is usually used as a multi family residence. The building construction is ordinary type 3 and usually 2 stories in height. The total square footage is from 5000 square feet to 14,999 square feet. Note: For the purposes of this document 1 and 2 family dwelling are of moderate risk.

HIGH RISK

High-Risk occupancies are described as having an occupancy load from 76-125, represent a high community impact if lost and usually have only monitored fire detection with no fire suppression capability. These structures may have only 1 hydrant within 1000 feet and may be used as industrial/large business/large residential. These structures may be constructed using heavy timber and may range in height from 3-5 stories. The square footage is usually from 15,000 square feet to 29,000 square feet and could be minor infrastructure or contain some hazardous materials.

VERY HIGH

Very High-Risk structures may have an occupancy load over 126 represent a very high community impact if lost and may have no fire alarm or fire suppression capability. These structures may have no hydrant within 1000 ft. or may be considered critical infrastructure. The building material may be type 5 (all-wood framed) and over 5 stories in height. The square footage may exceed 30,000 and may be industrial or contain significant hazardous materials.

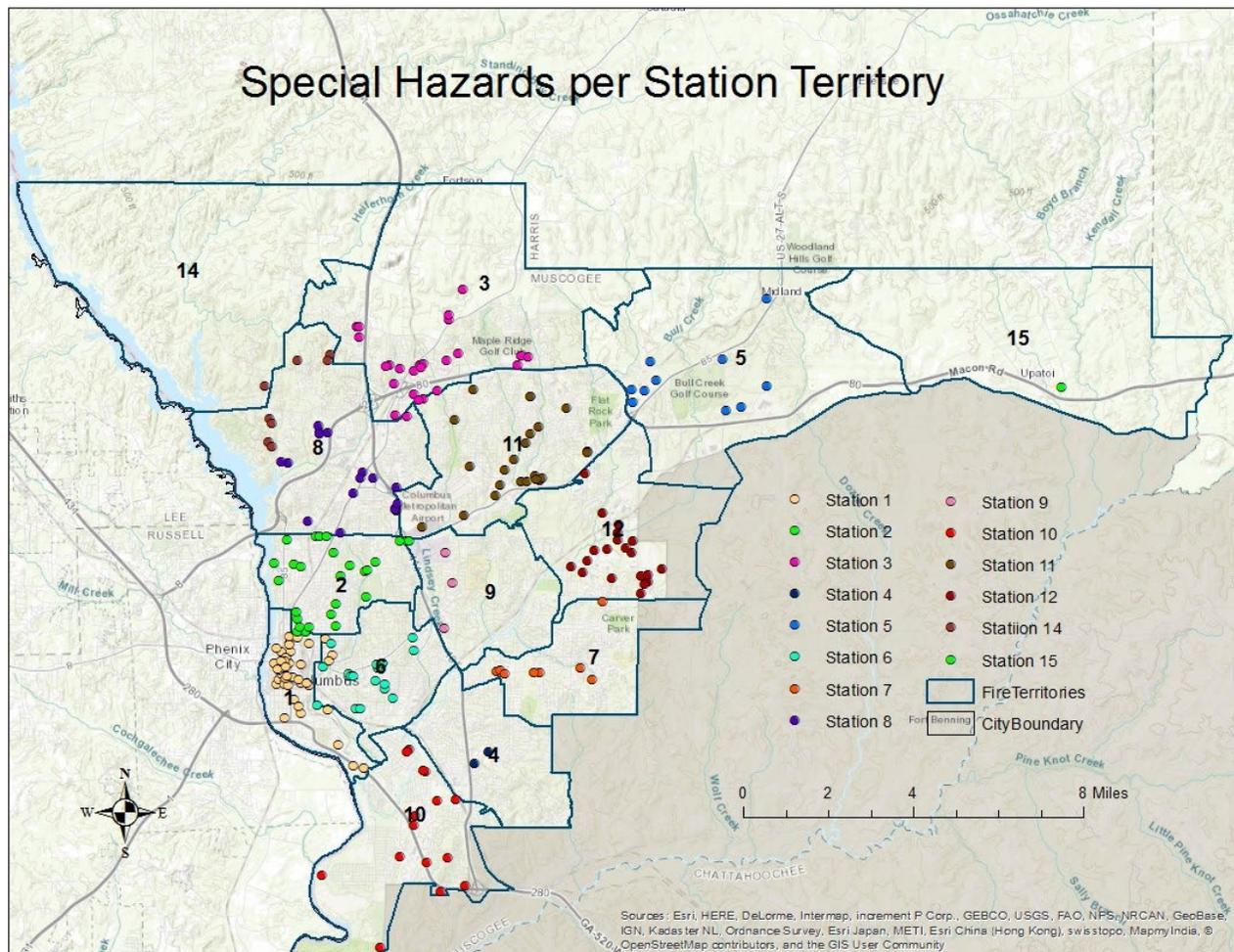
Territory	Risk Category Low	Risk Category Moderate	Risk Category High	Risk Category Very High	Special Hazards	Total
Station 1	183	372	72	10	65	702
Station 2	284	171	31	7	9	502
Station 3	239	171	38	6	35	489
Station 4	52	178	38	3	3	274
Station 5	18	51	10	0	17	96
Station 6	275	302	71	7	37	692
Station 7	98	47	10	6	9	170
Station 8	231	636	164	75	22	1128
Station 9	87	232	16	0	6	341
Station 10	181	309	26	2	20	538
Station 11	127	194	46	6	28	401
Station 12	77	87	17	4	25	210
Station 14	64	14	3	5	8	94
Station 15	7	2	0	0	1	10
Total	1,923	2,766	542	131	285	5,647

Figure 4.4: OVAP Risk Categories 2022

SPECIAL HAZARDS

Special Hazard facilities provide essential products and services to the public that are necessary to preserve the welfare and quality of life in the county. In addition, these facilities support important public safety, emergency response, and/or disaster recovery functions. It is of great importance that the county prioritizes mitigation actions, which reduce the risk of damage to these facilities, which are so essential to the county’s wellbeing.

(Figure 4.3 Special Hazards)



RISK CLASSIFICATION: FIRE SUPPRESSION (OVERALL ASSESSMENT)

After a comprehensive review of department response records from 2017-2021, the most probable type of fire event in Columbus Georgia involves a cooking fire in a detached single-family residential dwelling. For these events, the Probability is high, and the community Consequence/Impact is Moderate.

According to Department records from 2017-2021 the jurisdiction experienced a total of 1,734 Structure Fires; 1,480 of which were Residential. To include:

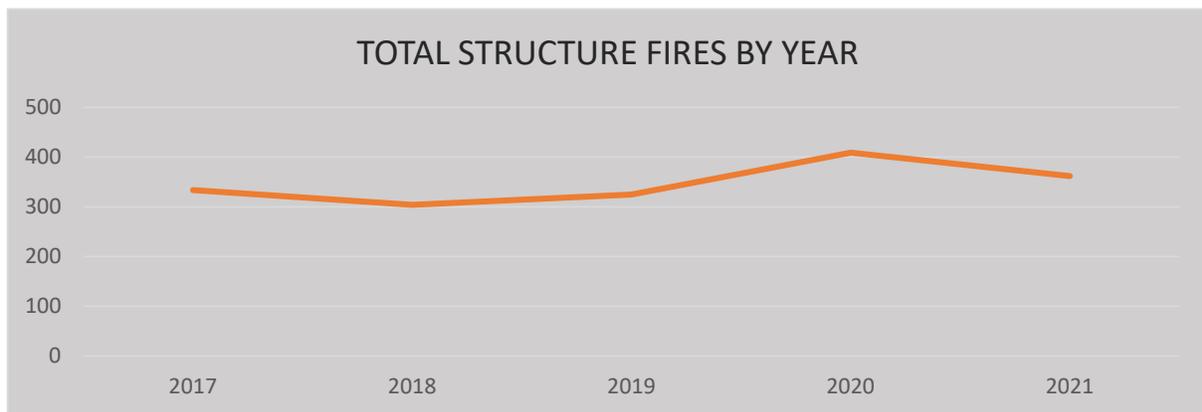
- 989 Private Dwellings
- 386 Apartments

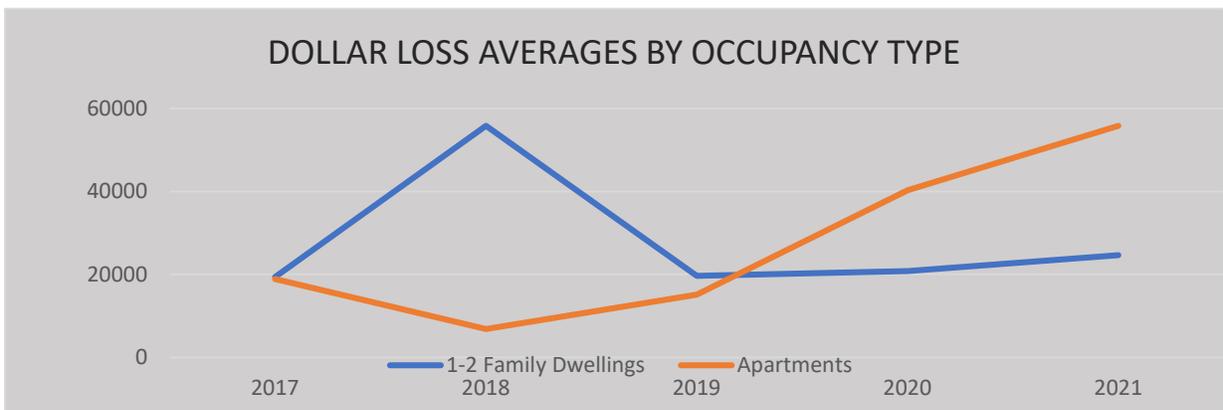
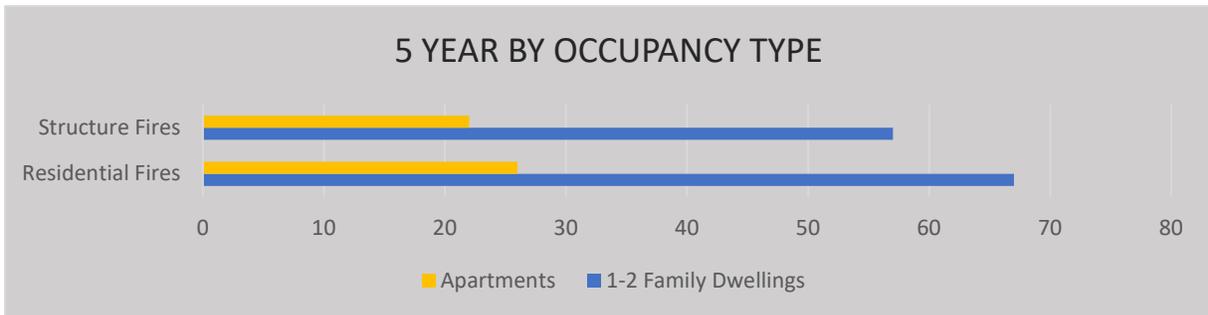
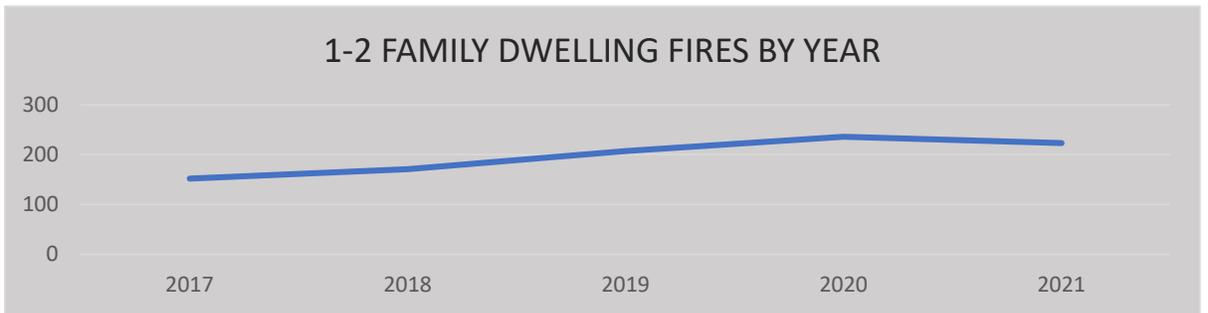
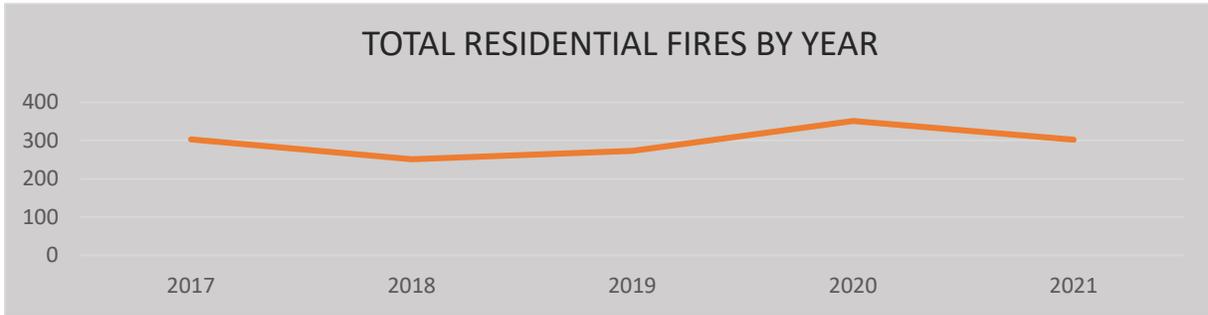
From 2017-2021, there were 989 private dwelling fires in the jurisdiction. This accounts for 67% of residential building fires and 57% of all structure fires for the 5-year period.

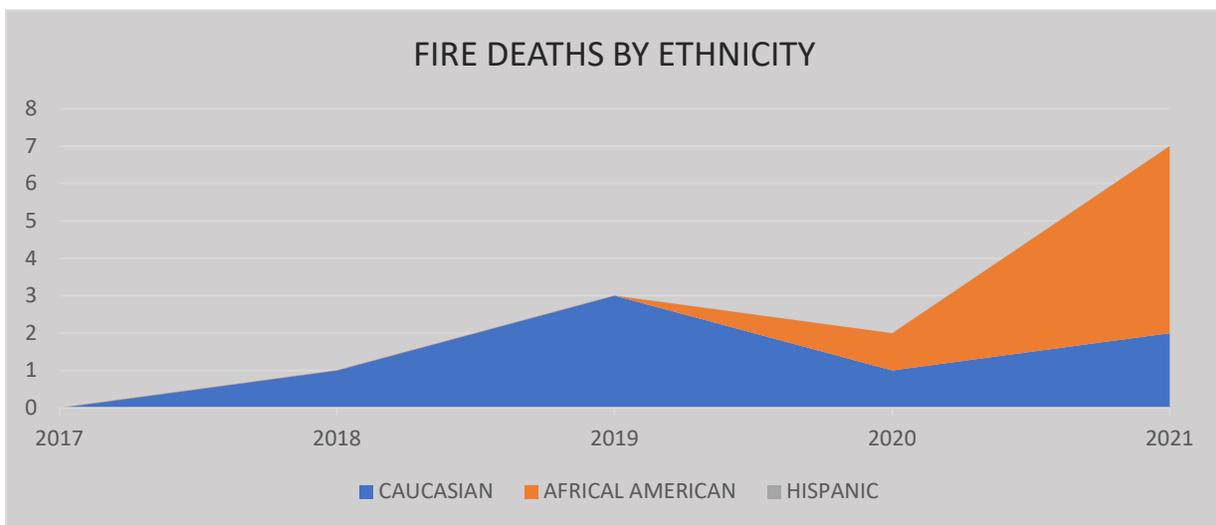
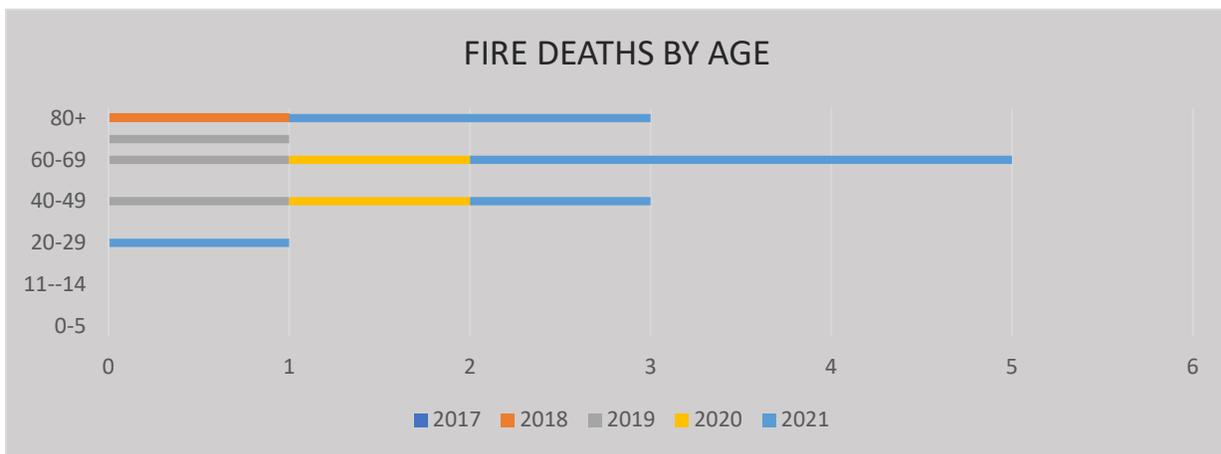
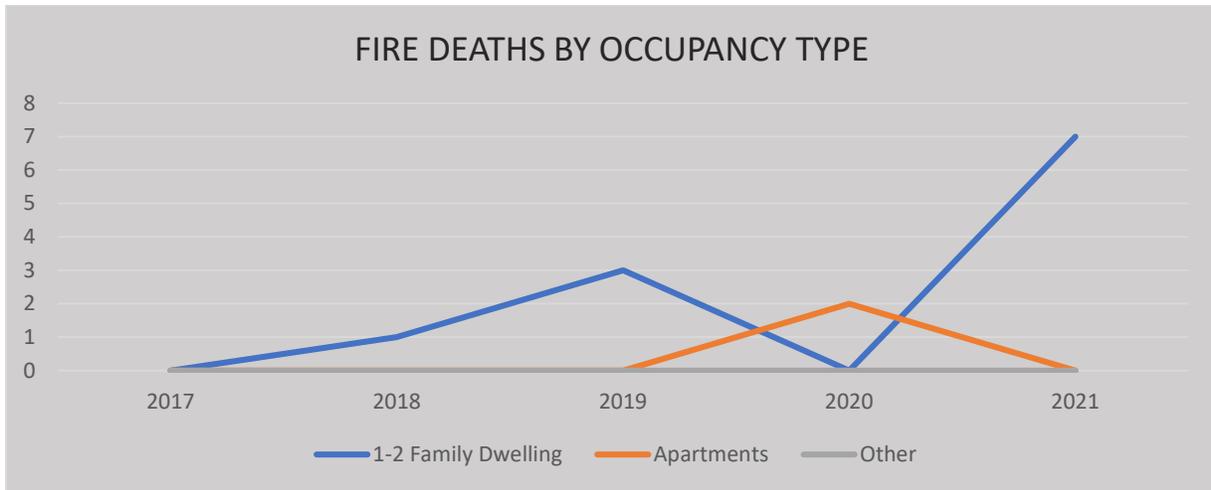
The second most probable type of fire event is apartment fires. For these events, the Probability is High, and the Consequence is Moderate due to the increased potential loss of life and family displacement as compared to private dwelling fires.

From 2017-2021 there were 386 apartment fires accounting for 26% of the residential building fires and 22% of all structure fires during the 5-year period.

These two fire incident types combined account of 93 percent of residential fires and 79 percent of total uncontrolled structure fires in the jurisdiction during the 5-year period. The most at risk age group for fire death in the jurisdiction were those 60-69.





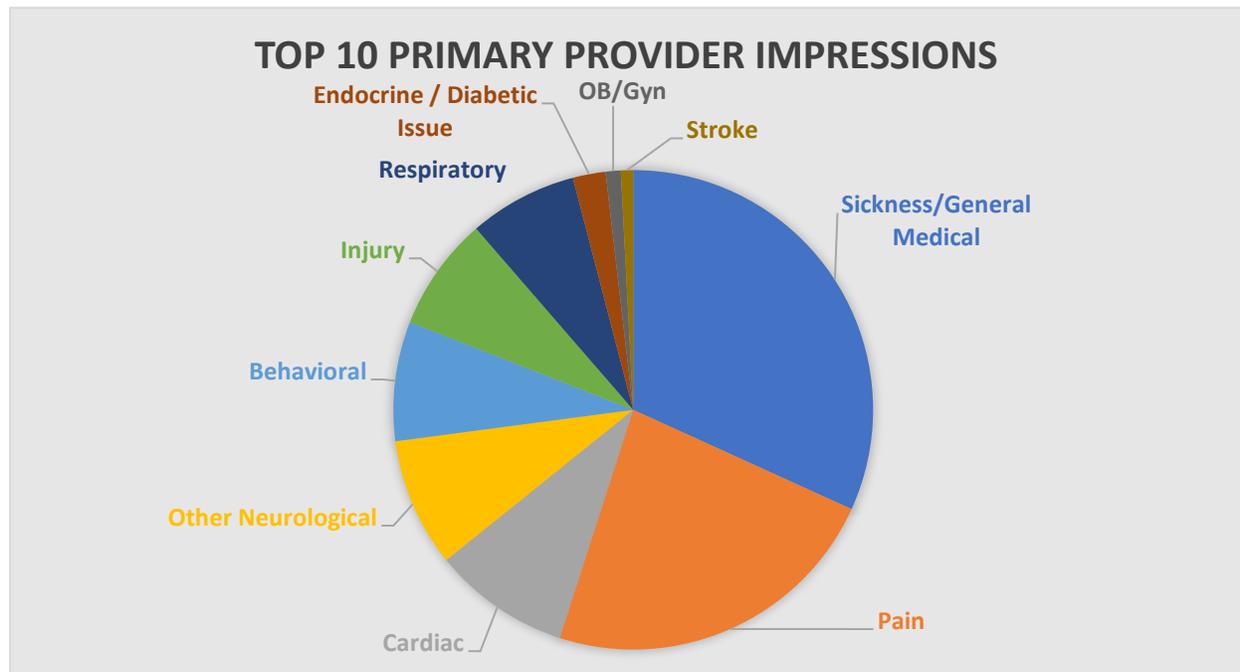


EMERGENCY MEDICAL SERVICES:

Emergency Medical Services (EMS) refers to the treatment and transportation of individuals experiencing acute medical illness or a traumatic injury. The nature of these injuries or illnesses can range from minor to life threatening. Most EMS incidents involve a single patient with repercussions to the patient’s family, employer, and community. Motor vehicle accidents, workplace accidents, epidemic infectious disease, and other mass casualty incidents can affect multiple patients. From 2018-2021, the department responded to 133,292 calls for EMS services, resulting in approximately 113,500 patient contacts.

The three most frequent collected primary first impressions involved General Sickness (31%), Pain (23%); followed by Cardiac (9%). According to Adult Injury and Prevention Committee, motor vehicle accidents and ground level falls are two of the most prominent emergencies experienced by Piedmont Regional Hospital locations.

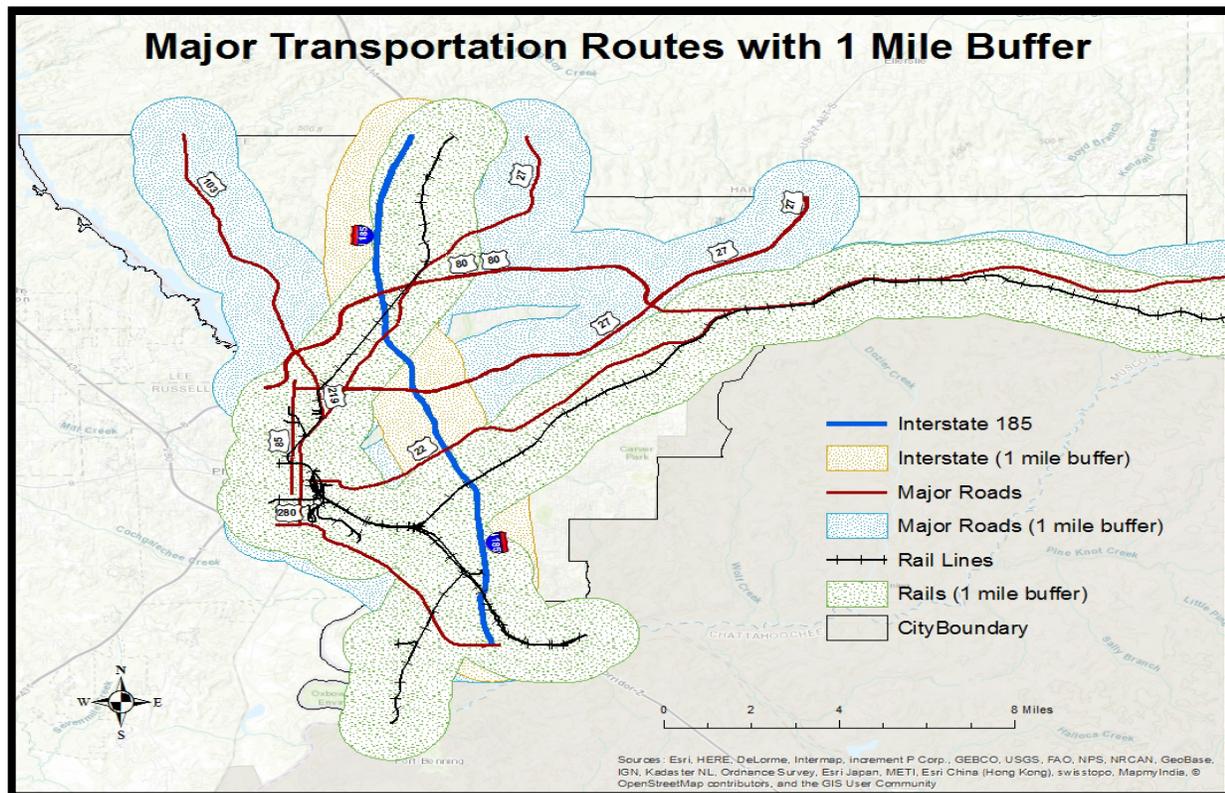
Figure 4.7: Top 10 Provider Impressions



HAZARDOUS MATERIALS:

The term “hazardous materials” (HAZMAT) refers to certain chemical substances, which can pose a threat to the health or the environment if released or misused. People affected by hazardous materials can suffer long-lasting health effects, serious injury, and even death. Sources of such materials are agriculture, industry, medicine and research, and consumer goods. In the United States, an estimated 4.5 million facilities manufacture, use, or store hazardous materials in varying quantities. This is not only true for large industrial plants, but also for local dry cleaners, gardening supply stores, and even homes, where hazardous chemicals are stored and used regularly. For the purposes of this document a Type 1 hazmat incident is defined as an incident that requires the response of multiple specialized units to include the Hazardous Materials Team to properly mitigate the incident. Type 2 hazmat incidents are of a lesser nature (Ex. Natural gas leak in a residential setting, vehicle fuel spills and generally only require the response of a single resource to properly mitigate the incident.

Columbus-Muscogee County Transportation Map with 1-Mile Buffer



HAZARDOUS MATERIALS EVENT PROFILE

Probability

Hazardous Materials are most often accidentally released by two conditions:

- From fixed locations, where the materials are produced, processed, stored, or sold.
- In-transit when the materials are transported.

There are many industrial and commercial locations who store one or more potentially hazardous chemicals and the areas around or near these storage locations are particularly at risk of fixed spills. Potential losses can be estimated for fixed source spills, because the location and a rough estimate of the hazardous materials are known. However, potential losses due to transportation related incidents are difficult to estimate due to the wide variety of circumstances inherent in this type of incident.

The jurisdiction maintains a professionally trained and equipped Hazardous Materials Response Team capable of a technician level response. When the Columbus Fire and Emergency Medical Services Department responds to hazardous materials incidents, and the responsible party is known, the CCG charges the responsible party for the cleanup. The CCG is only burdened with funding for the incident mitigation if the cause or source of the incident cannot be found. This case is rare, and especially applies to incidents concerning the Chattahoochee River. A spill of hazardous materials into Lake Oliver from specific points such as pipeline crossings is the most serious threat to Columbus-Muscogee County's water quality, according to the Columbus Water Works management. Non-point source pollution carried in storm water runoff from urban structures is also a matter of concern.

Hazardous Materials have the potential to create significant public safety challenges within the jurisdiction. Because hazardous materials are handled and stored at over seventy-four fixed facilities in Columbus-Muscogee County GA, and countless amounts of unknown products are transported on the road and railways in the jurisdiction, the threat of an accidental release is high. The traffic volume going through the county and major traffic intersections place the community at significant risk of in-transit hazardous material incidents.

Risk Classification: Hazmat Program

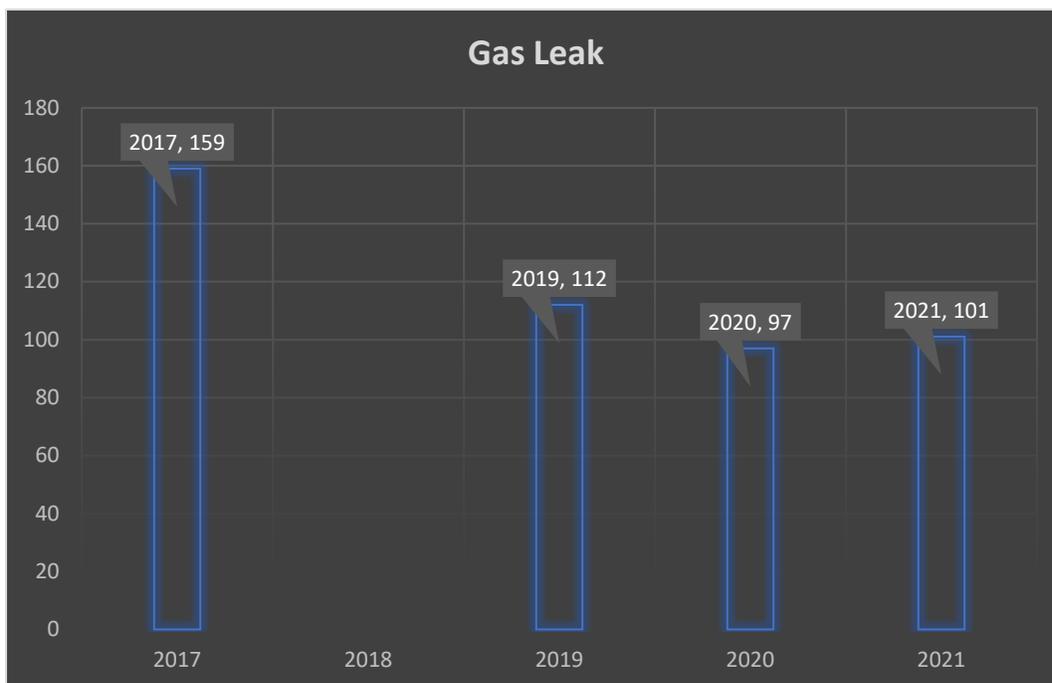
Overall Risk Assessment and Categorization:

Type 1 Haz-Mat Incident Risk Analysis / Probability-Low / Impact-High

Type 2 HazMat Incident Risk Analysis / Probability-High / Impact-Low

From 2017-2021 the jurisdiction only experienced a single reported Type 1 Haz-mat release which involved anhydrous ammonia.

From 2017-2021 the jurisdiction experienced multiple reported Type 2 Hazmat releases, most frequent being residential Natural Gas leak condition.



- (2018 data currently unavailable due to data storage issue.)

TRANSPORTATION ACCIDENTS

Transportation is the conveyance of passengers and goods from one place to another. An accident involving a car, bus, train, airplane, or other vehicle is a transportation-related accident. When commercial vehicles are involved, where enterprises convey goods in their commercial vehicles, it is also called cargo accident, and hazardous materials spills might be one of the results of transportation accidents.

Probability

Columbus-Muscogee County's roads are busy, and the combination of congestion, unsafe or illegal speed, and driving under the influence of alcohol and/or drugs or mere lack of attention (distracted drivers) can lead to accidents. The threat applies mainly along the major thoroughfares as depicted in Figure 4.9

According to the Georgia Governor's Office of Highway Safety, 125 fatalities occurred in Columbus- Muscogee County for the years 2015 through 2019. (Latest Data)

Figure 4.9 Transportation Map



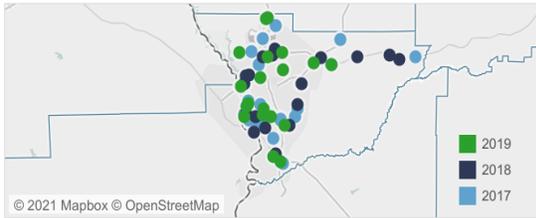
GEORGIA COUNTY FACT SHEETS 2019

Muscogee County

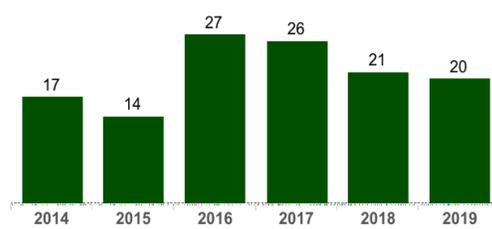
Use the dropdown menu to select a county or counties of interest.

Muscogee

Fatal Crashes | 2017-2019



All Traffic Fatalities | 2015-2019



Crashes & Injuries | 2014-2018

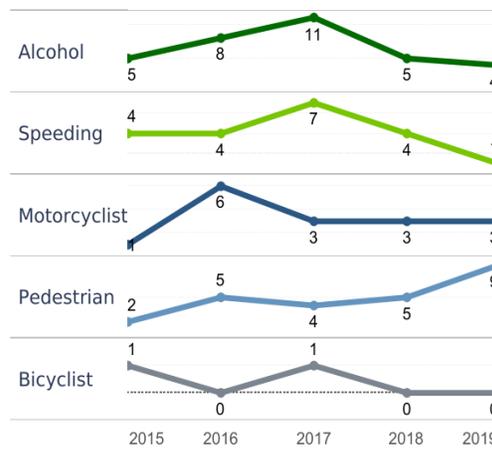
	2013	2014	2015	2016	2017	2018
Crashes	7,966	7,914	8,432	8,365	8,122	6,014
Suspected Serious Injury	39	29	32	51	53	50

** Numbers of crashes and suspected injuries may vary for other sources (i.e., GEARS or Numerics). Data presented are obtained from GDOT databases revised by Crash Outcomes Data and Evaluation System (CODES).

Passenger Vehicle Occupant Fatalities Restraint Use

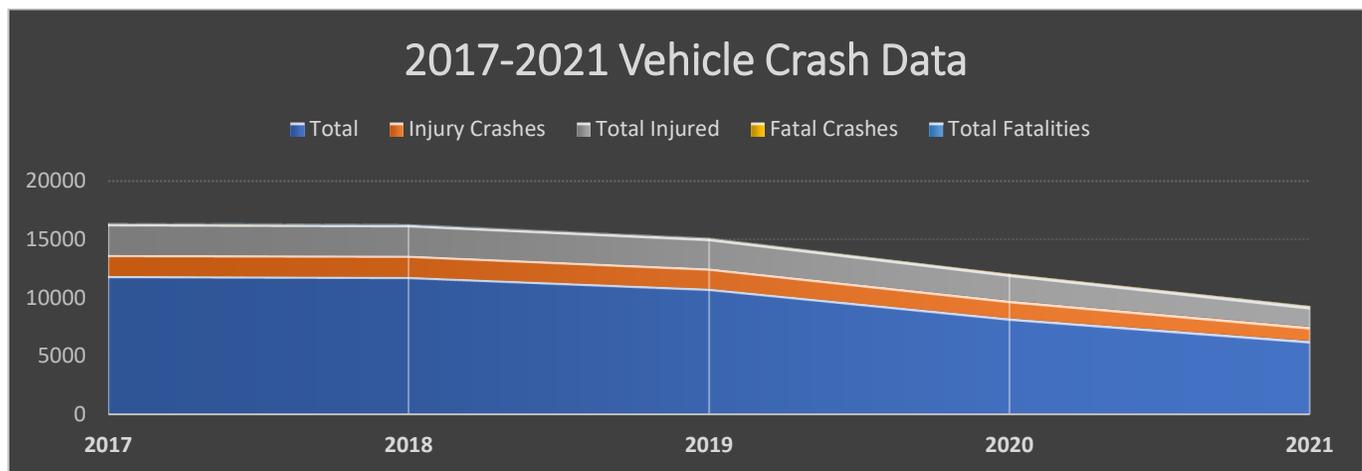
Year	Vehicle Type	Total	Not Used (%)	Used (%)	Unknown (%)
2019	Passenger Cars	6	67%	17%	17%
	Pickups	2	100%	0%	0%
2018	Passenger Cars	9	44%	44%	11%
	Pickups	1	100%	0%	0%
	Utility Vehicles	3	33%	33%	33%
2017	Passenger Cars	8	25%	38%	38%
	Pickups	5	20%	80%	0%
	Utility Vehicles	4	100%	0%	0%

Traffic Fatalities by Type* | 2015-2019



*A fatality can be more than one category. Therefore the SUM of individual cells will not equal the total due to double counting.

4.9.1 Latest Vehicle Fatality Data



TECHNICAL RESCUE

Technical rescue incidents require specialized training and equipment to mitigate loss. These incidents can include trench collapse, structural collapse, high angle rope rescue, swift water rescue, machinery extrication, advanced vehicle extrication, large animal rescue, and confined space rescue. These incidents require equipment beyond what is carried on a standard response vehicle. They also require advanced certifications and training of personnel responding.

The department responds to an average of 35 technical rescue calls per year. The vast majority of these responses are related to elevator entrapments, vehicle extrication and swift water events. The jurisdiction is unique in that the western boundary is set by the Chattahoochee River which attracts large numbers of citizens for recreation especially in the summer months. As a result, the jurisdiction must respond to frequent water emergencies in the river which can and does experience changes in water flow for power generation needs in the community. These changes in flow rate can sometimes be a surprise to patrons who venture into the riverbed and find themselves unable to exit before rising water levels become too much to overcome during exit. The department maintains a swift water rescue element for response to such emergencies.

Currently, all CFEMS ladder companies, squad companies, and Engine 15 are equipped with vehicle extrication equipment suitable to handle most common motor vehicle entrapments. Stations 1, 9, and 11 have more advanced equipment and training to deal with rescue incidents requiring a more complex response. These three stations are also geographically remote from each other which allows for a timelier response to complex technical rescue incidents. The table below lists the technical rescue incidents that occurred between 2017 and 2021.

Probability

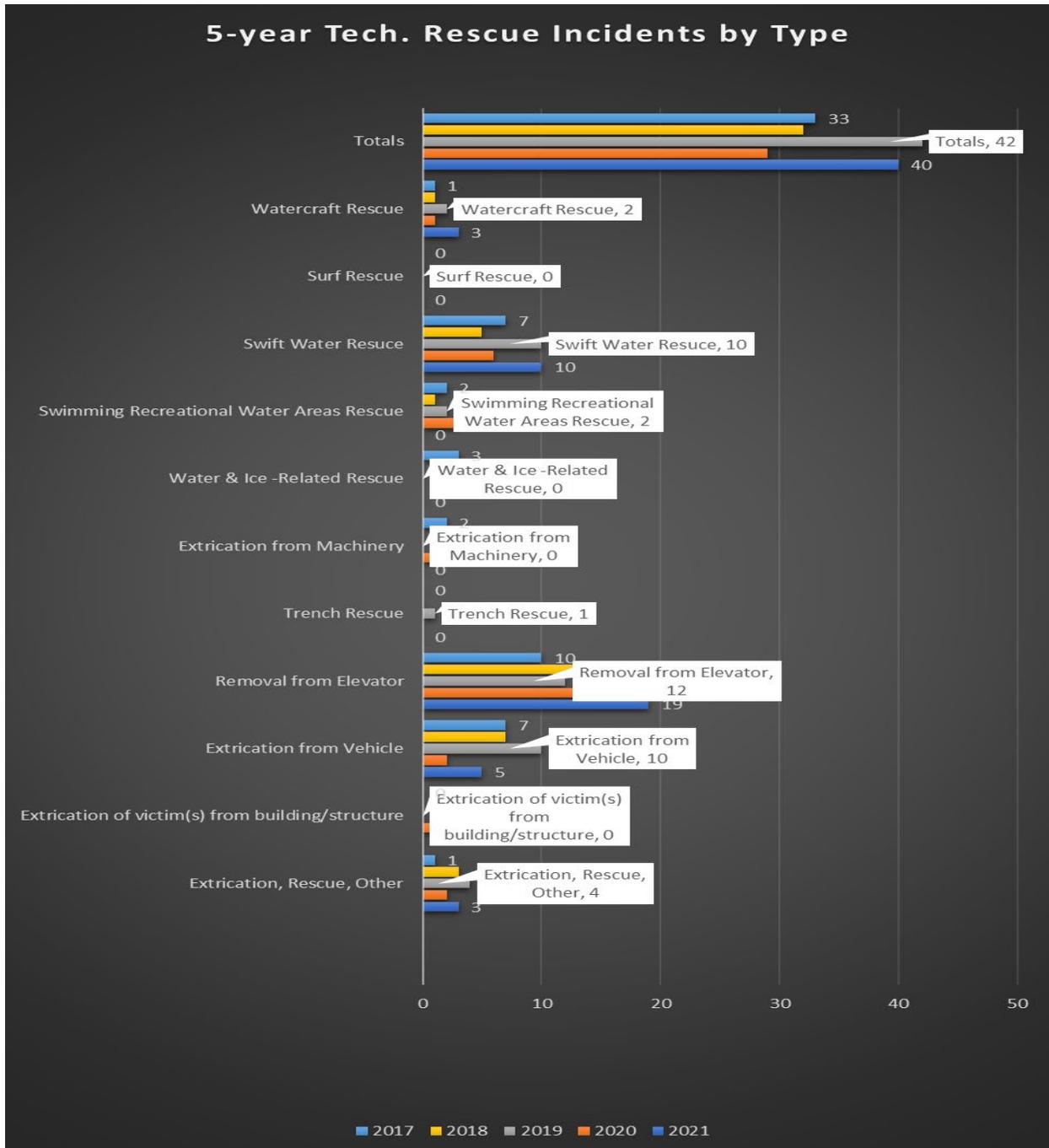
From 2017-2021 the department responded to **176** Technical Rescue Incidents

The most prevalent technical rescue incidents were:

- Extrication from Elevator- **69**
- Swift Water Rescue - **38**
- Extrication from Vehicle-**31**

Risk Classification: Technical Rescue
 Overall Risk Assessment and Categorization:

- Elevator Rescues - the Probability is Moderate, and the Community Impact is Low.
- Vehicle Extrications - the Probability is Moderate, and the Community Impact is Low.
- Swift Water Rescues - the Probability is Moderate, and the Community Impact is Low.



Technical Rescue Responses by Year

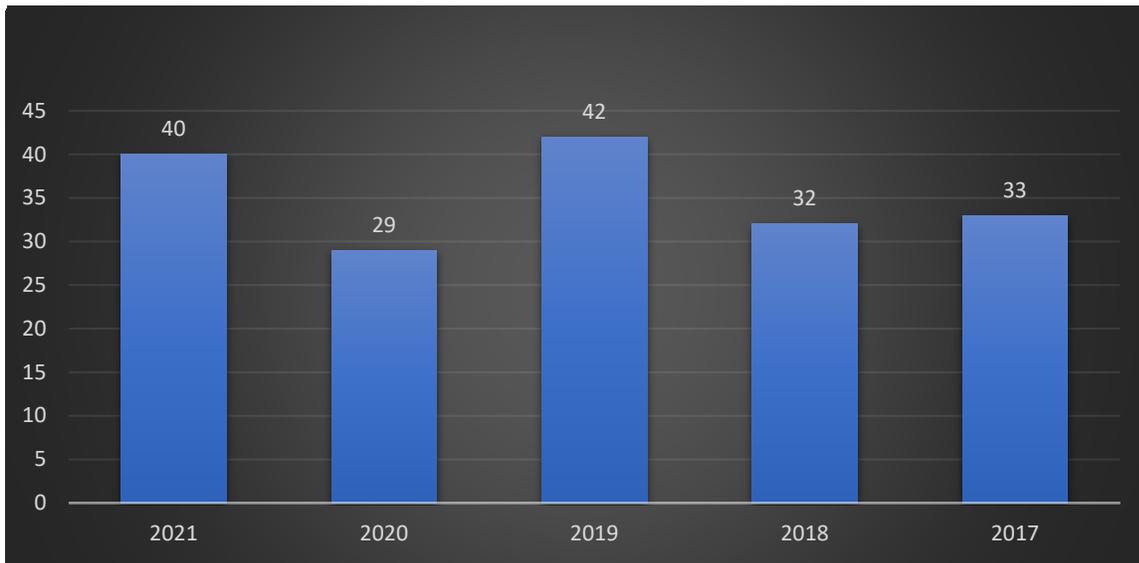
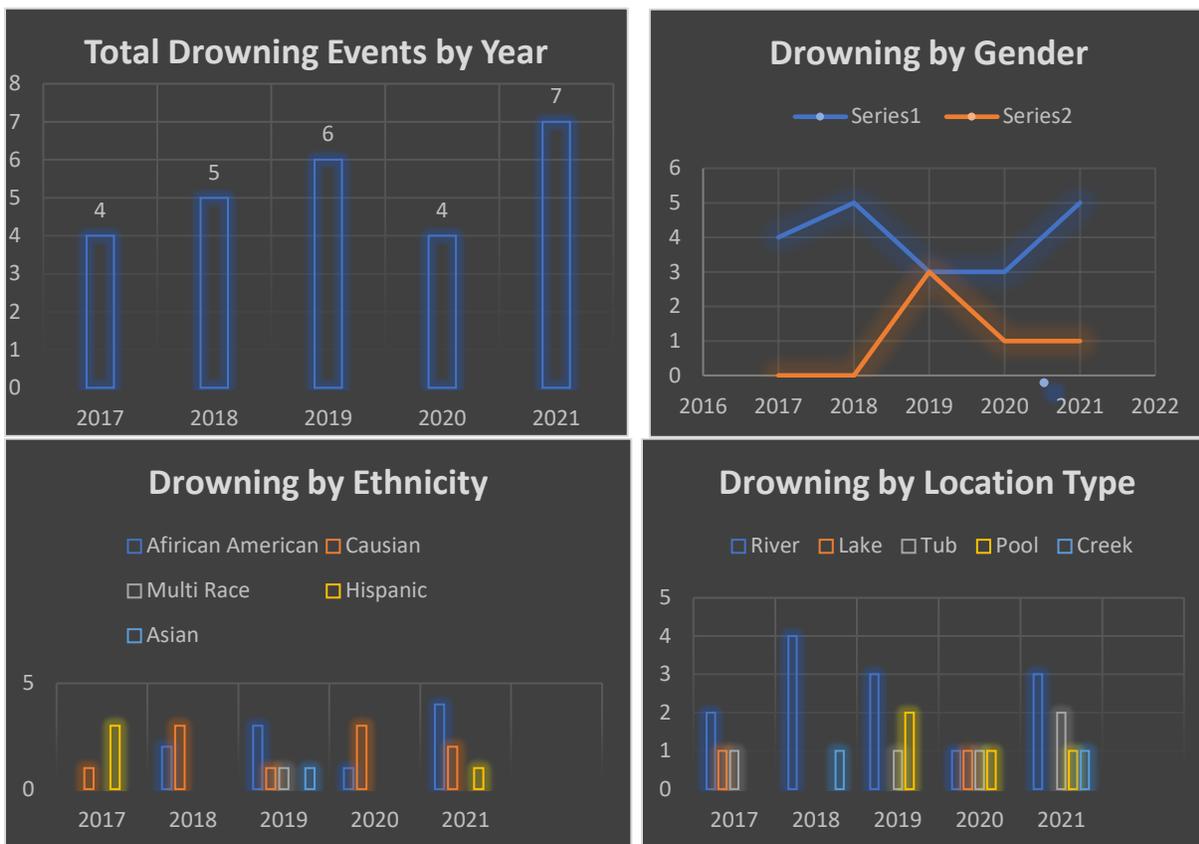


Figure 4.6 Technical Rescue Incidents by Year



TERRORISM:

A standard definition of terrorism is the use of violence to elicit a general climate of fear in a population, with the goal of bringing about a certain political objective or coercing or intimidating a government or civilian population. Terrorists may be members of political organizations, nationalistic and religious groups, revolutionaries, and even state institutions (such as armies and intelligence services).

Terrorism can take many different forms, including but not limited to the use of explosives, taking of innocent civilians as hostages, contaminating water or food supplies, plotting assassinations of prominent figures, or utilizing chemical, biological and /or radiological agents in populated areas.

TERRORISM EVENT PROFILE, FREQUENCY OF OCCURRENCE, AND PROBABILITY

The location of Ft. Benning, the largest Army training post in the nation, is contiguous to south Columbus. A terrorist act on the post would severely impact the army's training ability and the economy of the entire area. A large number of private citizens are employed by Ft. Benning. This heightens the threat level to the county because an attack on the base would also directly affect Columbus.

Within the county, several international and multi-national corporations reside. These corporations and entities are identified in a separate document which is classified and not available to the public. They employ thousands of individuals from Columbus and the surrounding area. The loss of any one of them from a terrorist incident would cause substantial losses to the economy and well-being of the entire region.

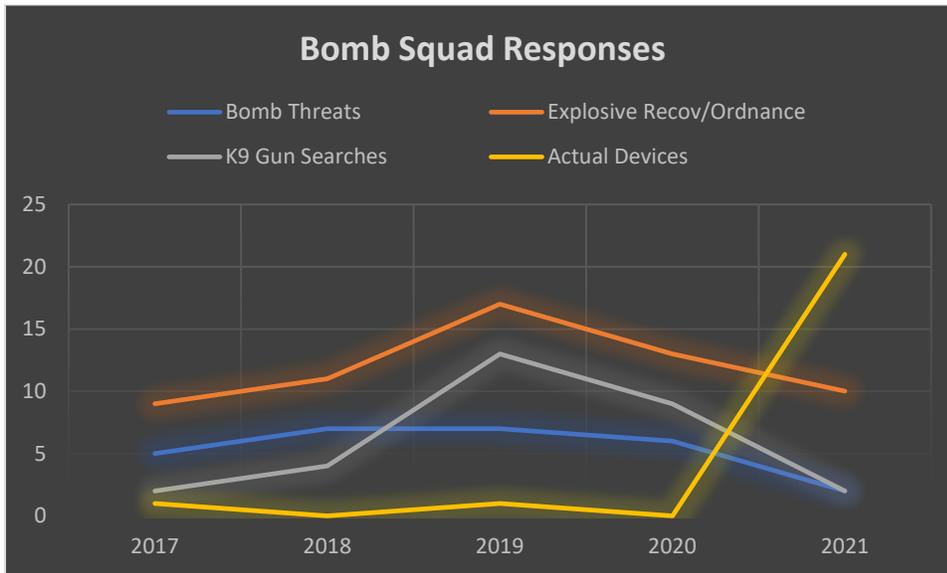
Columbus is the trade and economic center for a 16-county region, representing an effective buying income of approximately seven billion dollars annually. A terrorist incident would seriously affect commerce and trade for the entire region.

Critical infrastructure, such as telecommunications, natural gas and petroleum pipelines, banking and finance, air, rail and highway transportation is either centralized in or traverses this jurisdiction. Any interruption to any part of the infrastructure would have a domino effect throughout the region, impacting areas hundreds of miles away. Employment, trade, tourism and even recreation would suffer catastrophic damage.

From 2017-2021 the jurisdiction responded to *** domestic preparedness incidents.

The most prevalent Domestic Preparedness incidents were:

- Explosive Device Recovery-60
- K-9 Gun Searches-30
- Bomb Threats-27
- Devices-23



Risk Classification: Domestic Preparedness

Overall Risk Assessment and Categorization:

Regarding: Bomb Threats Probability-Low Community Impact-High

Regarding: Cyber Terrorism Probability-High Community Impact-High

DAM FAILURE

A dam is a barrier that prevents the flow of water, especially when it is built across a watercourse for impounding water. Dams have many benefits, which include navigation, agricultural irrigation, provision of drinking water, and hydroelectric power. Dams are constructed in order to create lakes for recreation, and to help in preventing or reducing floods.

Dam failure can pose serious risks. Dams fail for two main reasons: physical weakness in the structure, caused by a faulty design, wrong operation or poor maintenance, weathering, mechanical changes, and chemical agents; and inundation of the dam by flood waters, such as in the wake of a hurricane. Once a dam breaks, property damage and the loss of life downstream of the dam can be caused through the energy of the water stored upstream.

DAM FAILURE EVENT PROFILE

To date, no problems have been recorded pertaining to dam failure in Columbus-Muscogee County. Regulation of the Chattahoochee River started when the first of eight privately owned dams were constructed on the river upstream from Columbus-Muscogee County between 1860 and 1962. Lake Oliver Dam was the last of these dams. Oliver Dam between Phenix City, Alabama, and Columbus-Muscogee County impounds the waters of Lake Oliver. Throughout the years, however, the Oliver Dam continues to have updated construction additions. Oliver Dam is owned and operated by the Georgia Power Company and impounds the waters of Lake Oliver. The property line of the reservoir is the 337-foot contour line. The Georgia Power Company has an easement to flood land between the 337 and 342-foot contour line.

The federally funded West Point Dam, about 30 miles' linear distance upstream of Columbus-Muscogee County, was operational in 1975, and is the first dam upstream from Columbus-Muscogee County to have floodplain management as one of its purposes.

Should a breach occur at West Point Dam, upstream of Columbus-Muscogee County or of Oliver Dam between Phenix City and Columbus-Muscogee County, the areas downstream, including uptown Columbus, would be in danger of flooding, destruction and economic hardship.

SECTION V: CURRENT DEPLOYMENT AND PERFORMANCE

CFEMS has established a dispatch configuration for each incident type to which the department responds. The incident type is based on the type of risk and critical task analysis. CFEMS attempts to provide consistent service levels based on the number of resources available within the city and the distance between these resources.

DATA COLLECTION & ANALYSIS

CFEMS has had the technology and ability to record, store, archive, and recall information pertaining to fire loss, injury and life loss, property loss, and other associated losses. In 2014, the department changed records management systems and began using Image Trend Records Management Software, which is presently used. Image Trend is a National Fire Incident Reporting System 5.0 (NFIRS 5.0) incident reporting software package; it allows personnel to input incident, hydrant, occupancy, training, and personnel information, and retrieve reports regarding the same. The department also uses Image Trend for electronic patient care reporting on all medical calls.

The incident module within Image Trend is used to record all fire and emergency medical services incidents. The incident module complies with the National Fire Incident Reporting System (NFIRS) and National Emergency Medical Services Information Systems (NEMSIS) requirements. CFEMS standard operating guideline (SOG) 01-136 Incident Reporting details the standard used for records management. Each officer in charge (or acting officer) of the station from which a unit(s) responded is responsible for ensuring that each incident record from his/her station has been thoroughly completed with accurate information and includes all narrative information necessary to document specific details of the incident. The Report Quality Control/Quality Improvement process is completed by the battalion chief of the stations within each battalion.

The QA/QI process (facilitated by the Deputy Chief of Operations, Fire Marshal and EMS Coordinator) further reviews incidents for quality control, data entry and archiving purposes. QA/QI personnel are dedicated to the systematic monitoring and evaluation of fire and EMS reports to ensure that standards of quality are met. The EMS Coordinator reviews a minimum of

10% of all EMS reports. Records are corrected as necessary, and quality control issues are addressed through the chain of command

Quality assurance of fire investigations is the responsibility of the Fire Marshal and the Deputy Chief of Community Risk Reduction. Fire investigations within the incident module are sealed from field personnel.

CFEMS gained the ability to analyze the response area to determine the impact of deployment changes based on historical data.

CFEMS now utilizes a variety of analysis tools to evaluate historical incidents. Below is a list of some of the analysis tools used:

- Excel Services
- Image Trend RMS – storage of records
- Motorola Premier One CAD
- ESRI ArcGIS - ArcGIS is a collection of GIS software products that provides a standards-based platform for spatial analysis, data management, and mapping.

CFEMS has identified an essential need for a planning and data management analyst. The person(s) will be responsible for putting into place these needed processes, analyzing the data, and preparing reports.

DEFINING SYSTEM PERFORMANCE

The measurement of system performance falls into four categories: distribution, concentration, reliability, and comparability.

An adequate distribution of resources is necessary to respond to incidents throughout the jurisdiction, regardless of significance. Distribution of fire companies assures a specific response time performance for a percentage of the calls for service. Ideally, 100% of the community would have a fire company on the scene within the allotted response time. Distribution of fire companies

is considered adequate if fire companies can respond to at least 90% of the incidents within the stated travel response-time goal.

Concentration is the spacing of multiple resources arranged close enough so an initial effective response force (ERF) can be assembled on the scene within the Department's established response time goals. An initial ERF will most likely stop the escalation of the emergency for a specific risk type.

Stations and apparatus must be equally distributed in the community to provide a timely initial response for all calls. Additionally, the station locations and staffing patterns must concentrate resources to respond to a major event within the desired ERF goals. CFEMS apparatus have historically been placed based on distribution, while much of the equipment carried had been based on concentration.

DISTRIBUTION

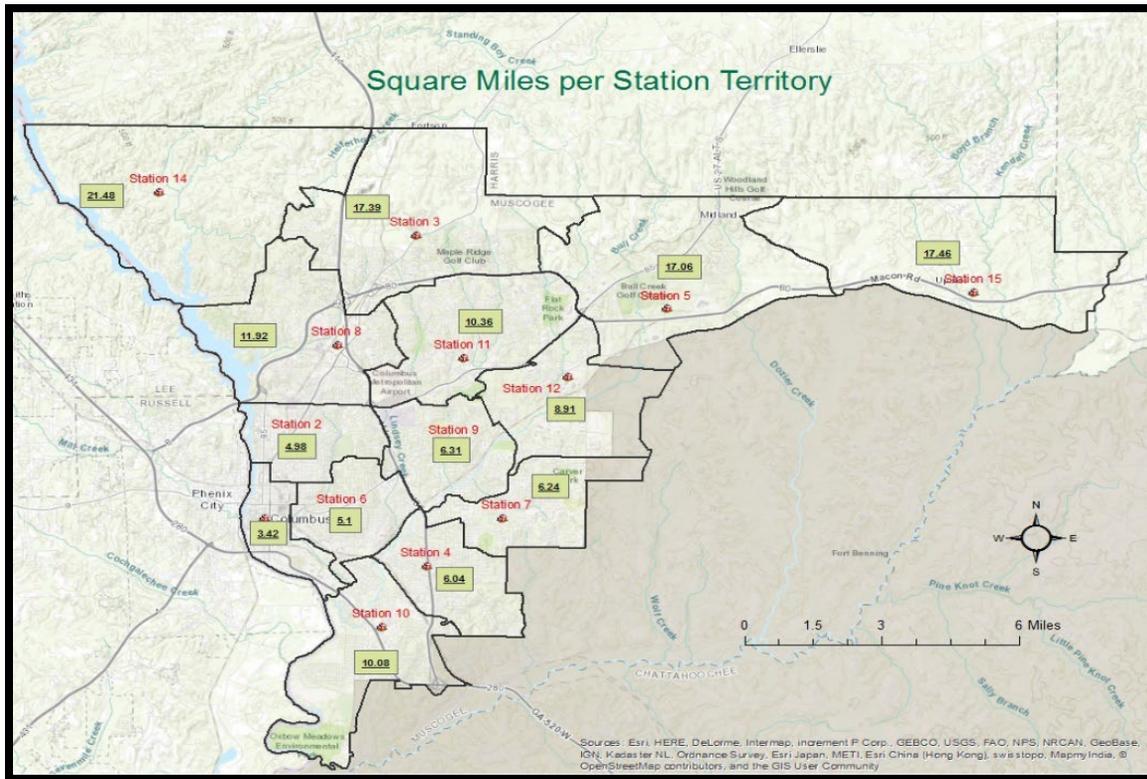
These measures are comparative measurements relative to the distribution of CFEMS resources. An example is locating first-due resources throughout the jurisdiction to provide all citizens with a quick response for initial intervention. CFEMS stations are located to ensure rapid deployment of first-due resources (primarily engines) for the purpose of minimizing and mitigating routine emergencies. The department goal for an equitable level of service is that everyone has a station within five road miles.

In the past, stations and equipment were placed based on the assumption that all areas have the same risk and probability of an event occurring. Every member of the community expects the same level of service regardless of risk. Because of this, stations in Columbus will continue to be distributed evenly around the city.

SERVICE DELIVERY AREA

Columbus spans 220 square miles. Columbus has 1,164 miles of public streets. Each of the 14 first-due territories averages 10.48 square miles.

(Figure 5.1 Territory Square Miles)



ALS RESOURCES

Tracking of medical information and technologies must be ongoing to ensure that a high standard of care is met at every patient contact and to ensure the best possible protection for our personnel.

Data was analyzed that showed movement of current resources would result in minimal improvements. The only movement that would result in significant improvement was moving ALS capabilities to all fire apparatus.

CONCENTRATION

Concentration is the arrangement of resources within the jurisdiction. Resources should be spaced near one another to assemble the Effective Response Force (ERF) for the type and magnitude of the incident. (Figure 5.3: Calls per Year by Station)

Incidents: Incidents per Station Territory by Year

Station	2017	2018	2019	2020	2021	Grand Total
1	2688	2326	2420	2392	1920	11,746
2	3577	3535	2935	3203	3891	17,141
3	2008	1593	1898	1866	2141	9,506
4	2715	2717	2587	2632	2432	13,083
5	609	638	623	643	634	3,147
6	4012	3394	2506	2925	3709	16,546
7	1581	1540	1252	1672	1971	8,016
8	2670	2425	2191	2683	3644	13,613
9	2327	1740	1440	1795	2324	9,626
10	4999	4032	3964	4708	4278	21,981
11	2530	2271	2311	2946	2730	12,788
12	1642	1450	1427	1777	1954	8,250
14	155	261	256	269	354	1,295
15	146	154	135	143	134	712
Grand Total	31659	28076	25945	29654	32116	147,450

Figure 5.3 Calls per Station Territory by Year

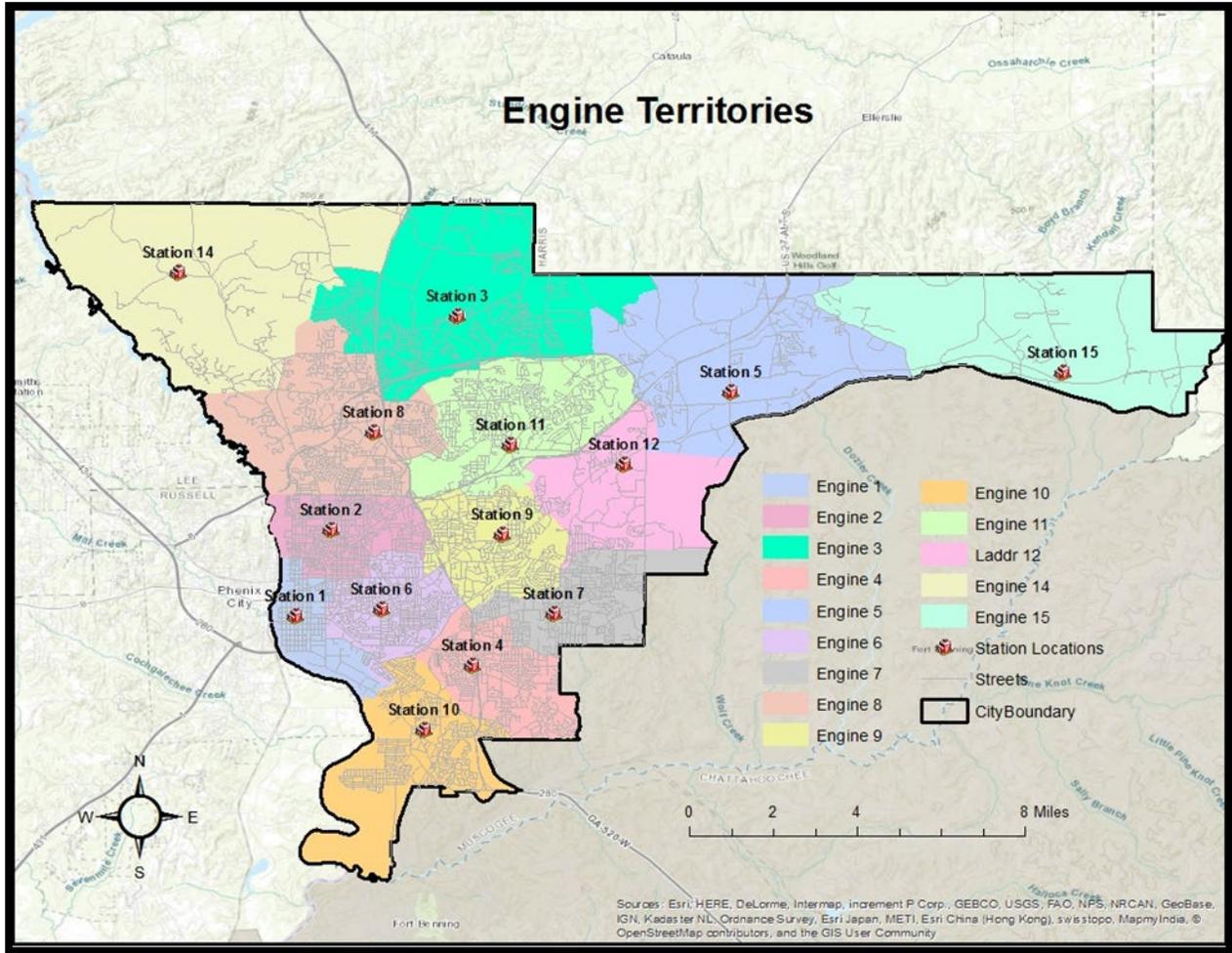


Figure 5.4: Engine Territory

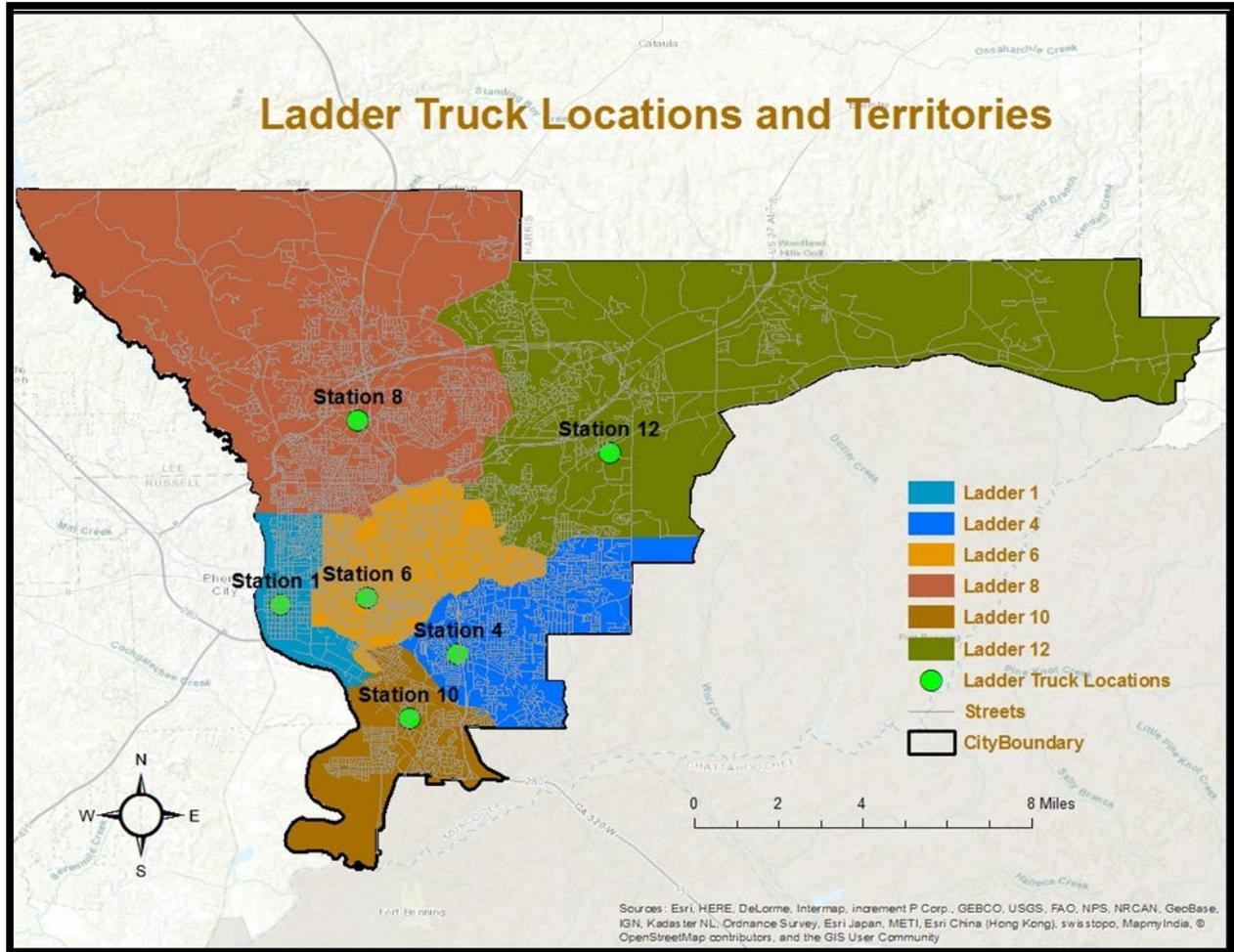


Figure 5.5: Ladder/Quint Territory

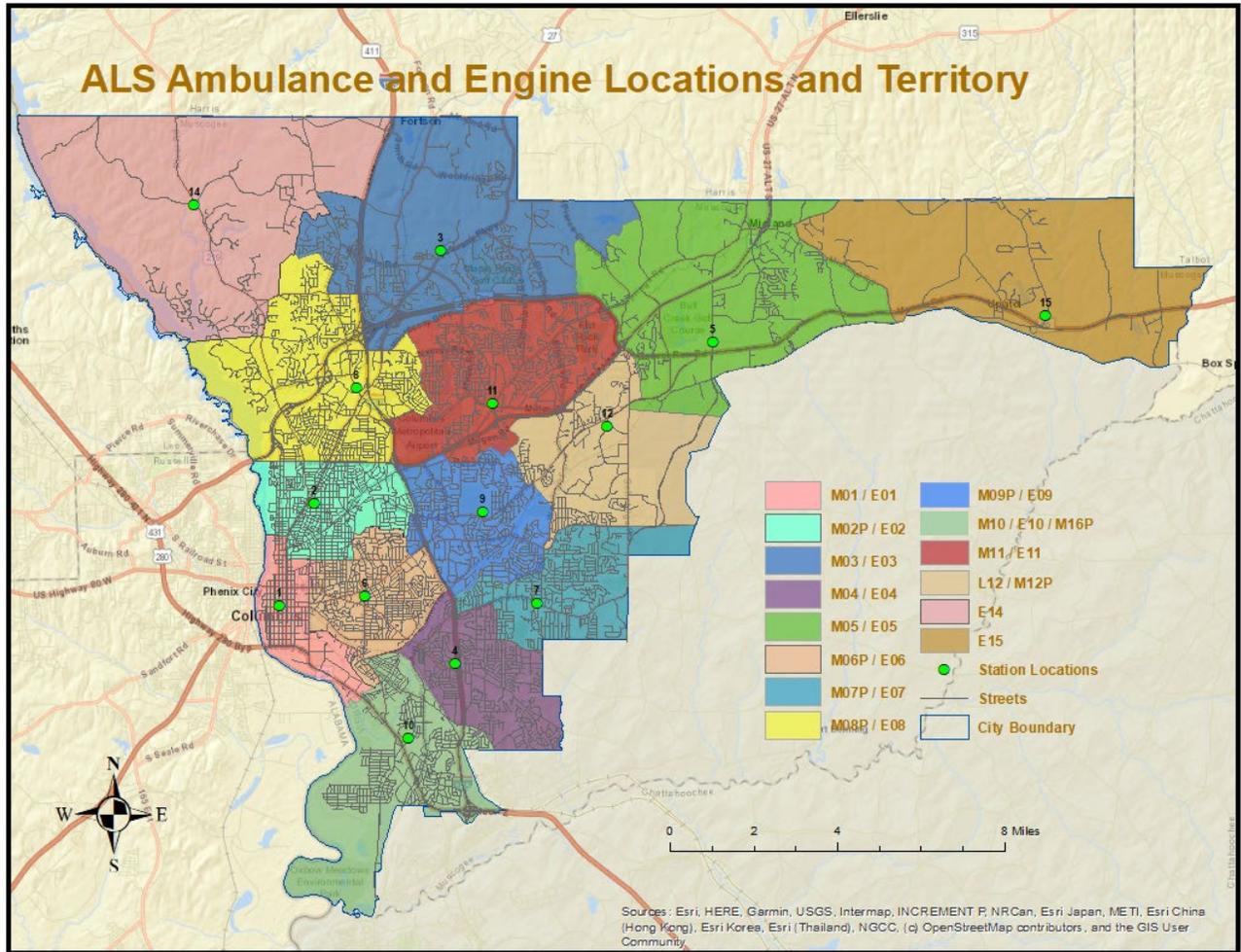


Figure 5.6: Ambulance & ALS Engine Territory

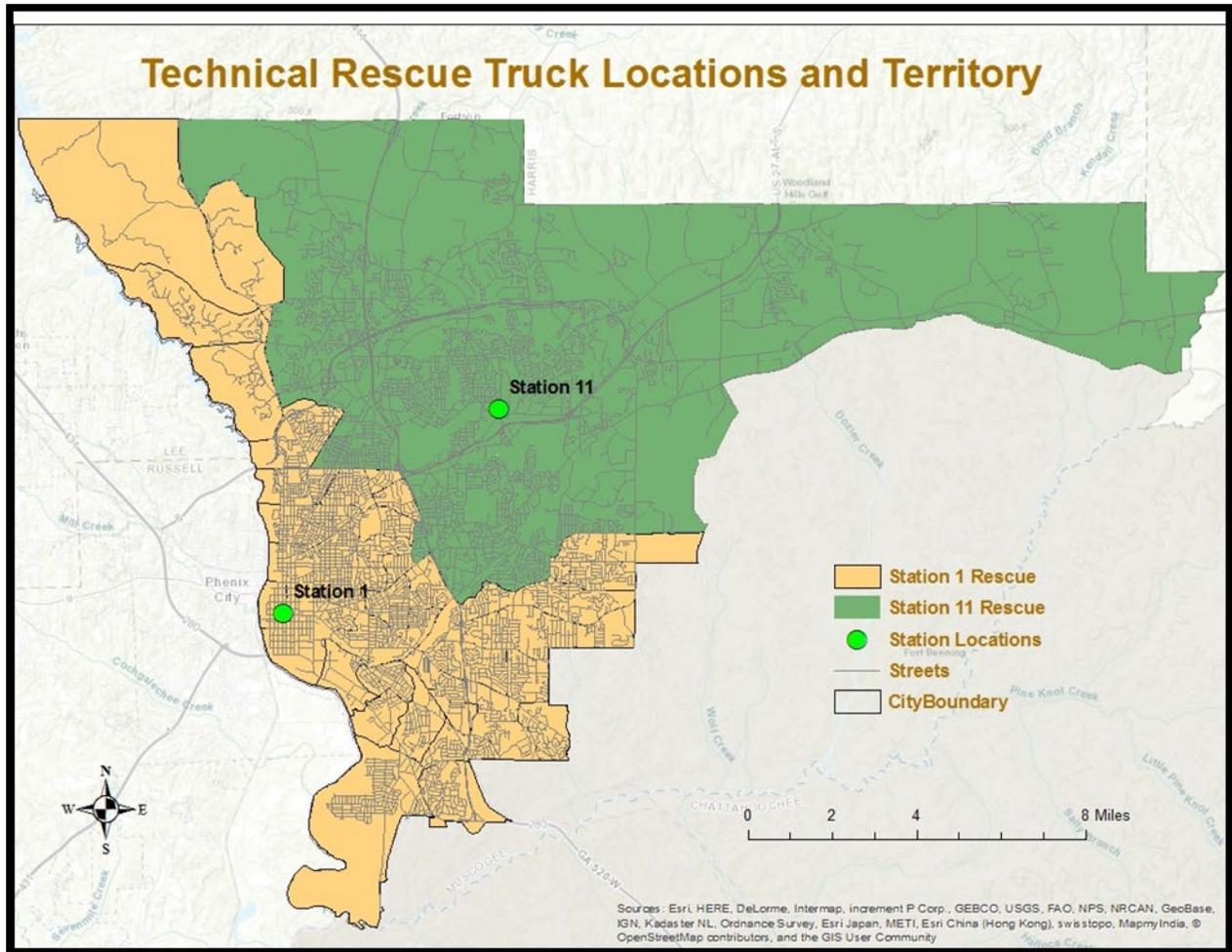


Figure 5.7: Technical Rescue Trucks Locations and Territory

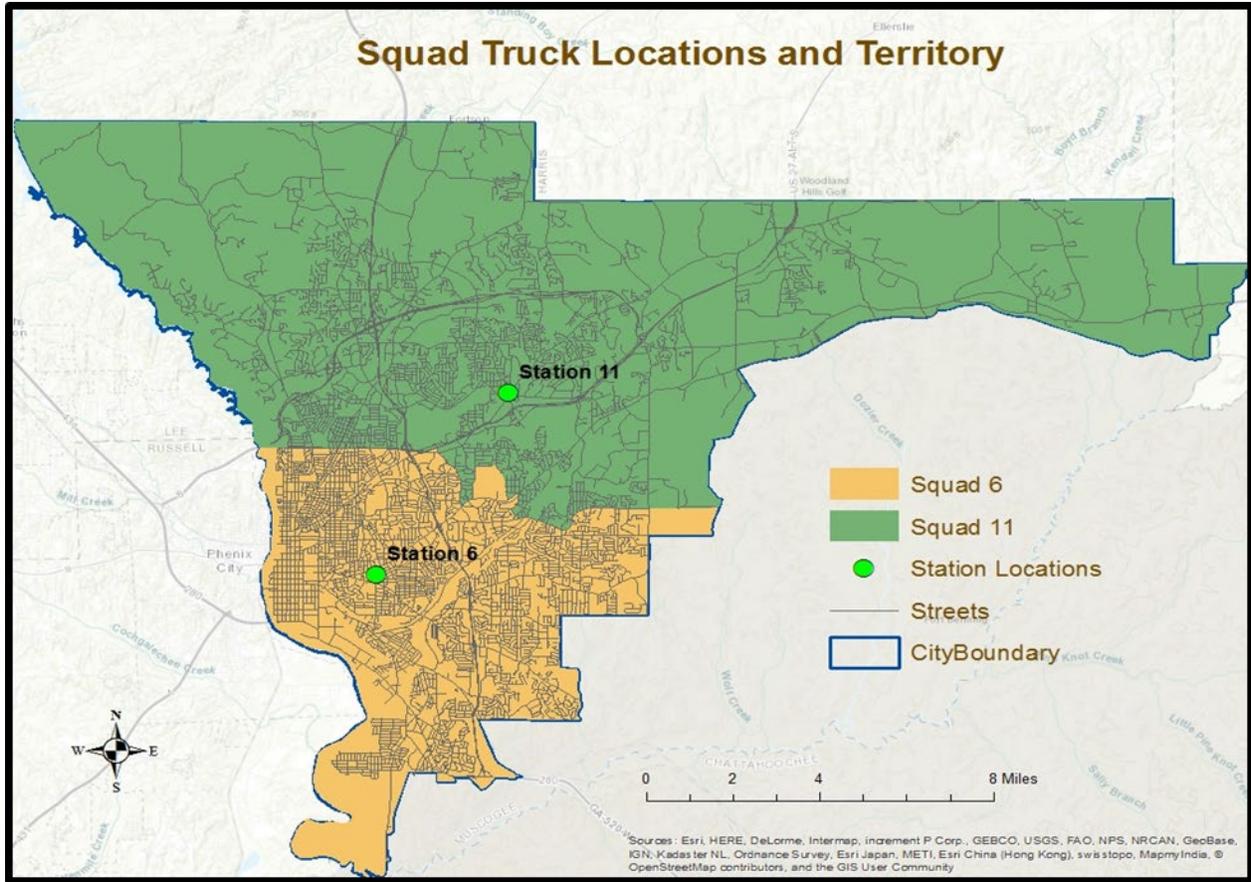
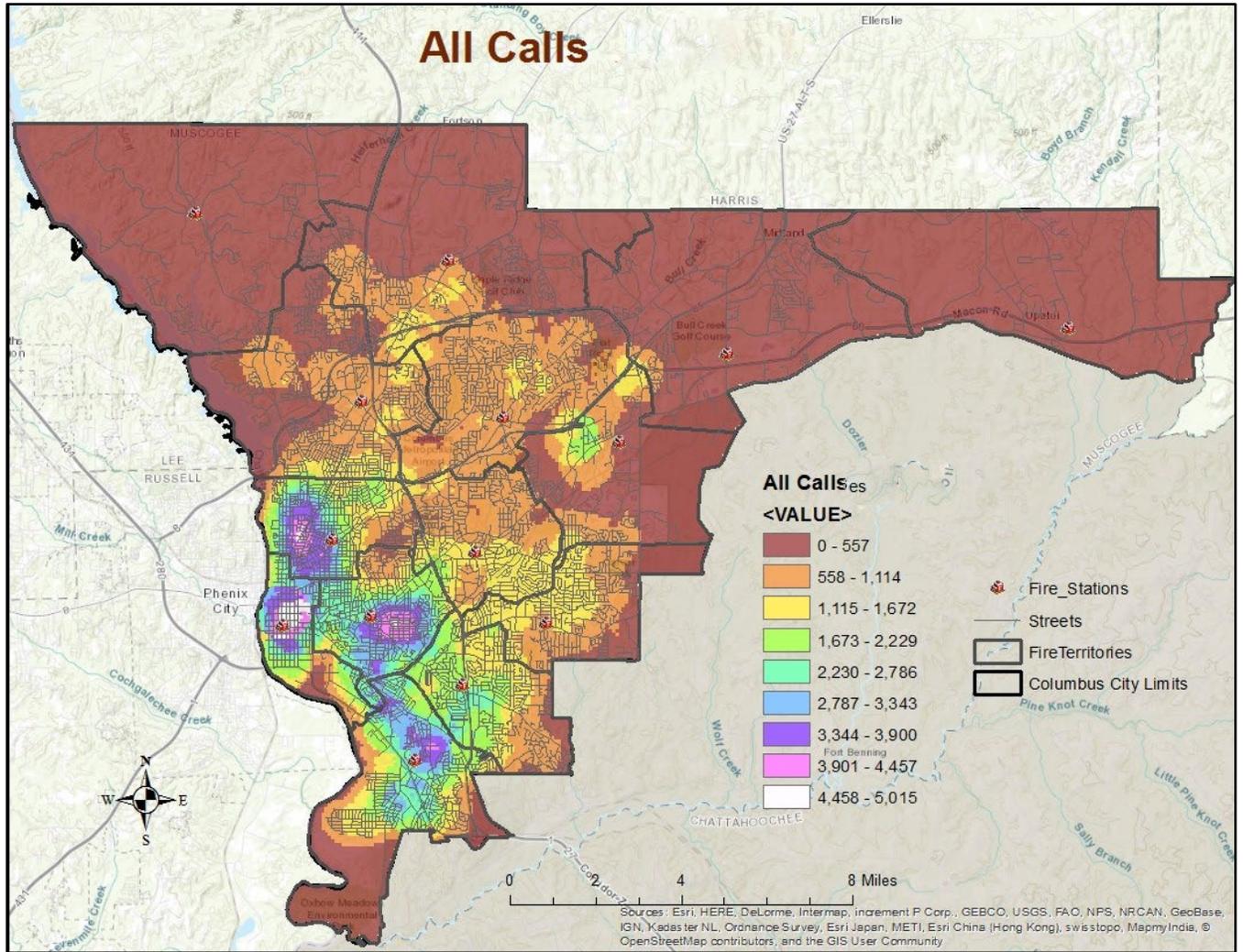
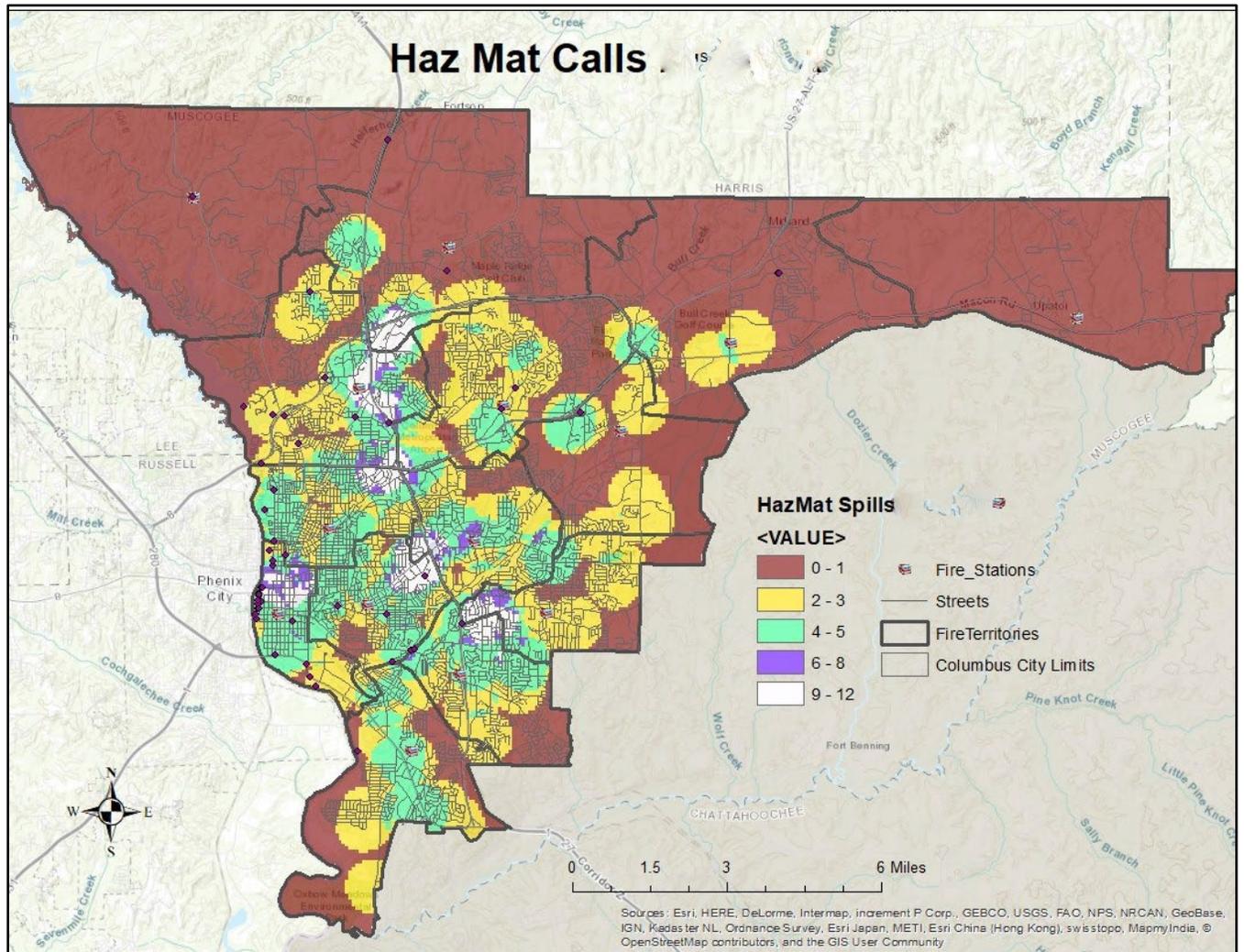
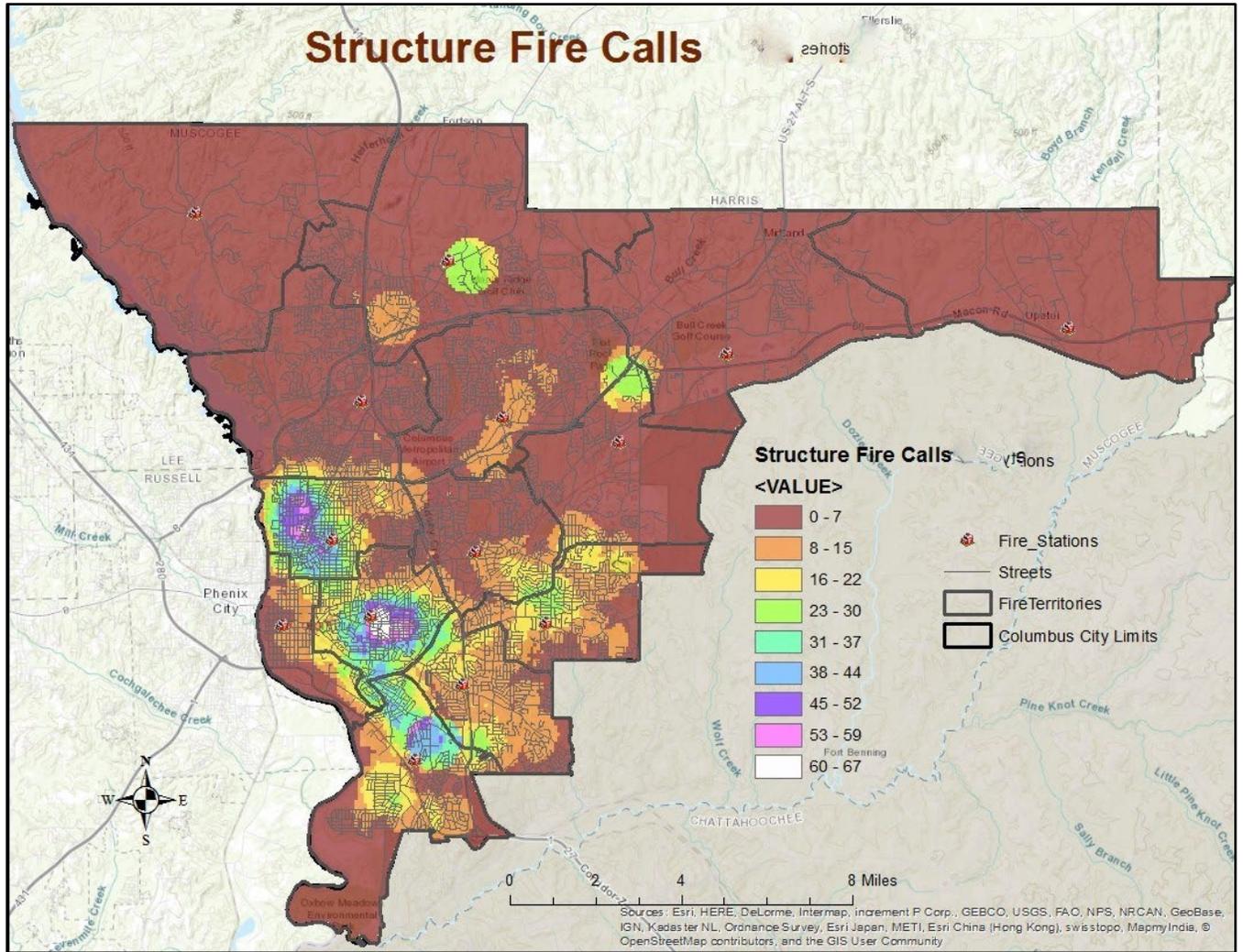
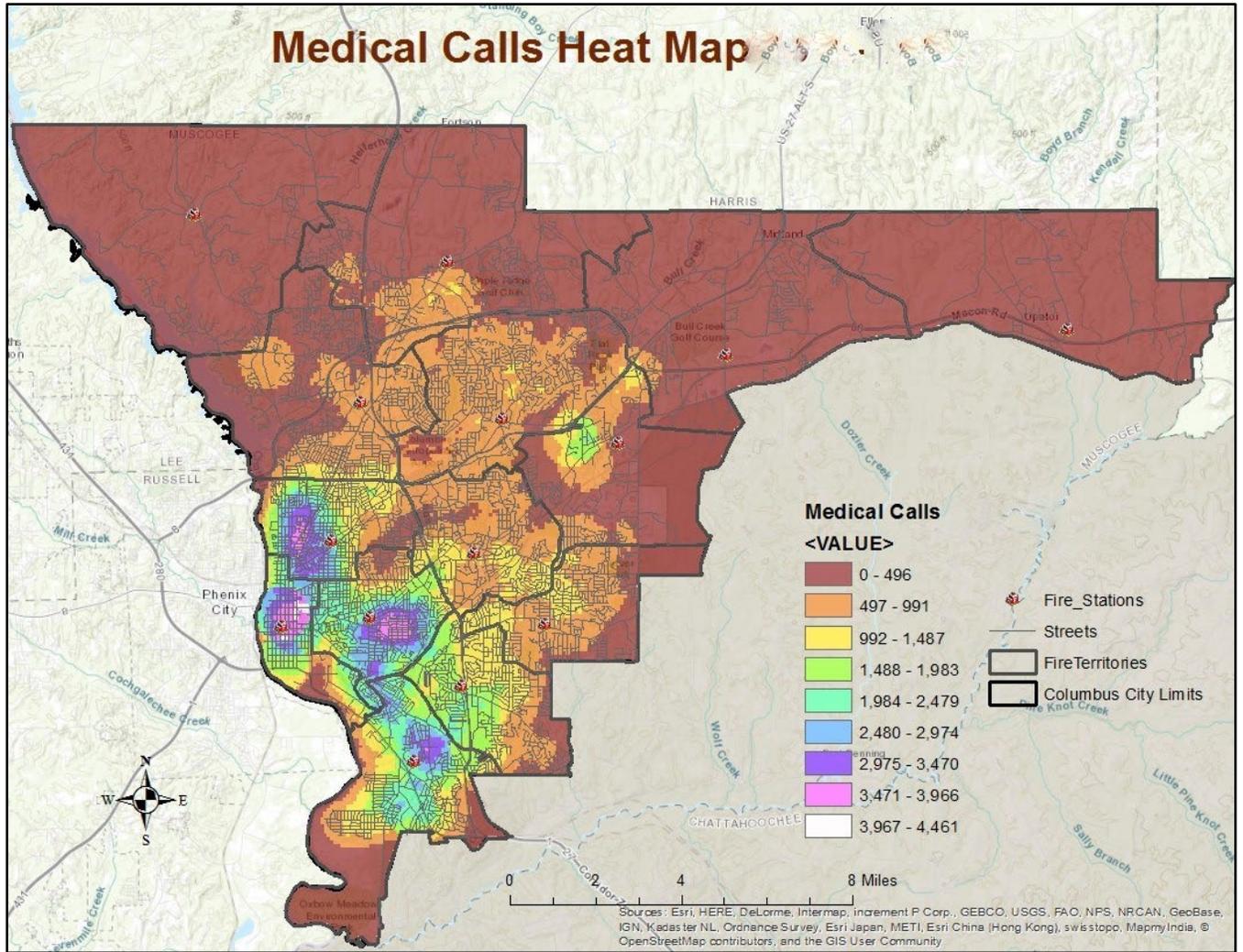


Figure 5.8: Hazmat Territory









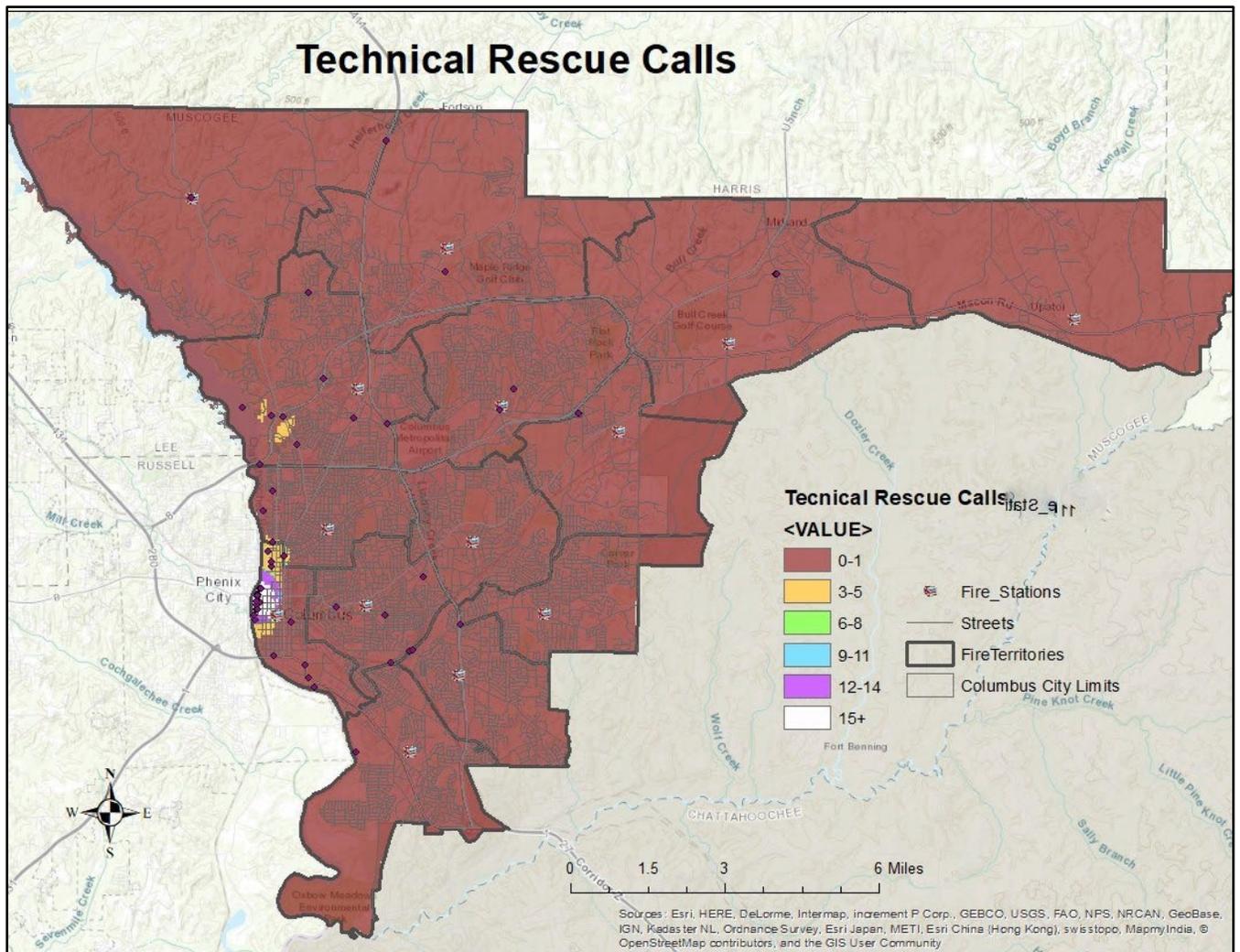


Figure 5.9 Heat Maps

MOVE-UPS

During daily operations, CFEMS utilizes a move-up procedure to back-fill certain stations effected by an incident. This procedure allows the department to maintain adequate geographic coverage during prolonged incidents. On all major incidents, an unaffected Battalion Chief is tasked with handling move-ups. Battalion 1 covers for Battalion 3, Battalion. 2 covers for Battalion 1, and Battalion 3 covers for Battalion 2. The move-up Battalion Chief may request mutual aid during exceptionally large or complex incidents that substantially affect the department’s response capability. The move-up Battalion Chief will notify dispatch operators which crews to move where, and when to do so. When the original crew returns to service and the response area from their incident, the crew that was covering their territory will return to their assigned station.

ISO

FSRS Feature	Earned Credit	Credit Available
Emergency Communications		
414. Credit for Emergency Reporting	2.55	3
422. Credit for Telecommunications	3.99	4
432. Credit for Dispatch Circuits	3	3
440. Credit for Emergency Communications	9.54	10
Fire Department		
513. Credit for Engine Companies	6	6
523. Credit for Reserve Pumpers	0.5	0.5
532. Credit for Pump Capacity	3	3
549. Credit for Ladder Service	3.08	4
553. Credit for Reserve Ladder and Service Trucks	0.5	0.5
561. Credit for Deployment Analysis	9.57	10
571. Credit for Company Personnel	11.75	15
581. Credit for Training	8.54	9
730. Credit for Operational Considerations	2	2
590. Credit for Fire Department	44.94	50
Water Supply		
616. Credit for Supply System	29.11	30
621. Credit for Hydrants	3	3
631. Credit for Inspection and Flow Testing	7	7
640. Credit for Water Supply	39.11	40
Divergence	-1.58	-
1050. Community Risk Reduction	4.26	5.5
Total Credit	96.27	105.5

September 1, 2017, CFEMS was awarded a Public Protection Classification (PPC) of 1/1x by the Insurance Services Office. (Figure 5.12: PPC Rating)

NFPA 1710

While this standard is a goal for the organization, it must be understood that reaching the standard will take a significant amount of time. In examining this, the past needs of the community should be evaluated as well as the present and the future needs.

The NFPA 1710 standard fails to take service area square miles or population density into consideration. The lack of consideration for area and population served makes meeting the standard more difficult for a city department. The cost associated with station placement alone is prohibitive.

Beginning in 2002, during the department's first accreditation process, CFEMS began analyzing data. The CFAI Accreditation process brought about a more formal need to identify gaps in coverage. Historical data was analyzed to reveal that station location should consider service demands, population density, and historical data to best determine new station locations.

The self-assessment process and the organization's shift to becoming a data-driven organization will begin to bring CFEMS more in line with the NFPA standard. The department is currently delivering service with an asset deployment plan based largely on geographical considerations and 90th percentile times. Moving forward, these considerations will drive the location of future assets to reduce CFEMS response times.

The self-assessment has revealed where the department currently is in relation to NFPA 1710 and reinforced the goal of meeting the standard. The process will take a considerable amount of time.

CRITICAL TASKS

On-scene operations, critical tasking, and an ERF are the elements of a standard of cover analysis that aid in determining appropriate staffing levels, number of units needed, deployment strategies, and duties to be performed at an incident. A department must be able to determine what tasks should be completed to have a positive influence on the outcome of the situation and define the number of personnel and apparatus required to complete those tasks in an effective manner. Because each emergency scene is different, and the order of activities undertaken to achieve objectives may vary depending on the immediate needs. The variables of the scene should be assessed upon arrival to determine where the resources available can be most effectively used to meet our primary objectives, which are:

1. Life Safety (Occupants, emergency workers, bystanders, etc.)
2. Incident Stabilization
3. Property Conservation

CFEMS defines critical tasks for fire, EMS, technical rescue, and HazMat. A minimum number of personnel must be identified to initiate all tasks required, and an incident commander must be on-scene to assign the specific tasks. CFEMS critical tasks are not pre-assigned based on unit designation (e.g.: ladder trucks are not always assigned the task of ventilation); however, the incident commander takes into consideration the type of unit and equipment available before assigning a specific task to a crew.

All personnel have the training required to perform the specific tasks assigned. Assigning tasks to crews rather than to individuals maintains crew integrity and thereby increases firefighter safety, efficiency, and accountability.

STRUCTURE FIRES

On-scene operations, critical tasking, and an ERF are the elements of the SOC that aid in the determination of appropriate staffing levels, number of units/companies needed, optimal deployment strategies, and duties to be performed on the fire ground or emergency incident scene. A department must be able to determine what tasks need to be completed to have a positive influence on the outcome of the situation, as well as the number of personnel and apparatus required to complete those tasks in an effective manner. Critical tasking for suppression activities is outlined in CFEMS Operating Guidelines for Response Standards, Volume II 02-200.

A critical task during a structure fire is one that must be conducted by firefighters in a timely manner to control the fire prior to flashover, perform rescues, or extinguish the fire. Life safety is paramount when identifying critical tasks. The National Fire Protection Agency guidelines were used to assist in identifying CFEMS critical tasks. The 2-in/2-out standard was also used to identify critical tasks on the fire ground. The standard requires firefighters to go into a fire with at least one other firefighter and not leave without them. The 2-in/2-out also ensures the safety of those entering the structure by requiring personnel to remain outside and to function as a firefighter rescue team. This means that when crews are working in a hazardous environment, they will have in place a Rapid Intervention Team (RIT) after the arrival of the effective response force.

The tasks assigned to each unit are based on the priority presented when units arrive on scene.

B. Level II Accountability:

1. Any time during the course of an emergency, the Incident Commander has the option to direct units to account for personnel operating at the emergency by means of PAT's and Collector Rings.
2. The Incident Commander will direct all Collector Rings to be brought to the Command Post.
3. The Company Commander or his/her designee will secure the unit collector ring and take it to the Command Post.
4. Administrative staff personnel that respond to an emergency incident where the Incident Commander has directed Level II accountability or greater shall report to the command post to have their Yellow or Silver PAT collected and logged in on the Accountability Chart.
5. The designated Accountability Control Officer will organize and log Collector Rings and PAT's utilizing an Accountability Control Chart and the command assignment board.

C Level III Accountability:

1. When the Incident Commander determines that the incident requires extremely stringent accountability, he will implement Point of Entry, (i.e., Hazardous Materials Zones, large commercial structures).
2. To implement Points of Entry Control, the Incident Commander will designate officer(s) to monitor all points of entry into the hazard zones, structures, confined space, etc. These officers will coordinate closely with the Safety Officer. The designated radio call sign will be "Entry Control".
3. "Entry Control" will ensure that each entering member's White or Black PAT is collected and the time of entry and assignment are recorded on the Entry Control Chart.
4. When members exit a control point their time out shall be logged on the Entry Control Chart and their PAT will be returned to be placed back onto their turn out coat. Members that exit via a remote-control point shall inform Entry Control of their exit.

D Level IV Accountability:

1. Any time during an incident the Incident Commander has the option/responsibility to initiate a Personnel Accountability Report (PAR). Accountability Report Benchmarks would include but not be limited to:
 - a. Any report of a missing or trapped firefighter.
 - b. A change from offensive to defensive mode during the incident.
 - c. Any sudden hazardous event; flashover, back draft, collapse, eminent BLEVE, expansion of the hazard/hot zones, etc.

- d. Rescue Teams reporting an all clear.
 - e. At the report that the fire is under control.
2. The Incident Commander can initiate a PAR by means of:
 - a. A radio command to all on scene units to respond PAR to command.
 - b. A face-to-face command via the Safety or designated Accountability Officer.
 - c. Initiating **“CODE RED” all personnel shall exit the building when signaled by a 30 second blast of apparatus air horns.**
 - d. Initiating a **“Mayday”** a universal signal for someone in distress.
 3. Upon Commands, Initiation of a PAR:
 - a. All personnel/crews will immediately report to their assigned apparatus. 4
 - b. Companies whose engine has reversed lines to distant hydrants will report to a unit of close proximity to their working group.
 - c. Company Officers - by means of Collector Rings and PATs will account for all their personnel and report a PAR to Command (i.e., "Command, from Engine 6, I have a PAR" [all members present]).

Incident Safety Officer (ISO) (1) – The designation of the incident safety officer will be held by staff at the rank of Lieutenant or higher. The ISO should be certified by either a national or CFEMS certification program. The ISO will follow the “Incident Safety Officer” guideline as established by the CFEMS SOG:02-204. In the typical arrival of apparatus, the arriving Squad Truck will be designated as the rapid intervention team with the officer becoming the ISO. The ISO has the direct responsibility to focus solely on all safety aspects of the incident.

Pump Operator (1) – One engineer/driver or acting engineer/driver is designated as the pump operator. In a typical response, the 1st in engine will supply the Pump Operator. The pump operator will operate the pump, participate in establishing water supply, provide necessary lighting, and make necessary equipment accessible.

Water Supply (1) – If the pump operator is unable to establish a permanent water supply, the engineer/driver of the 2nd arriving engine is designated as water supply. Water supply will establish a permanent water supply to the Pump Operator.

Attack Line (2) – A minimum of two firefighters is designated as fire attack and is assigned to the attack line. An attack line is a 1 ¾” hose that produces 100-150 GPM usually handled by a minimum of two firefighters. Each CFEMS engine carries two attack lines pre-connected to the

pump. Hose selection is dependent upon the type of structure involved, distance to the seat of the fire, and the stage of the fire.

Back-Up Line (2) – A minimum of two firefighters are designated as Fire Attack and are assigned to the back-up line. A back-up line is usually a 1 ¾” hand line (the same size as the initial attack line) that is taken in behind the attack crew to provide cover in case the fire overwhelms them, or a problem develops with the attack line.

Search and Rescue (SAR) (2) – A minimum of two firefighters are assigned to search for and remove victim(s). SAR is coordinated with fire attack on the Attack Line with life safety as priority. A two-person SAR crew is normally sufficient for most moderate/low risk structures, but additional crews are needed in multi-story buildings or structures with people who are not capable of self-preservation.

Ventilation Crew (2) – A minimum of two firefighters are assigned to the ventilation crew and given the designation of Ventilation. Ventilation removes super-heated gases and obscuring smoke, thereby preventing flashover and allowing attack crews to see and work closer to the seat of the fire. It also gives the fire an exit route so that attack crews can push the fire out the opening they choose and keep it from endangering people or property. Ventilation is coordinated with Fire Attack and Incident Command.

Rapid Intervention Team (2) - A Rapid Intervention Team (RIT) should consist of a minimum of two (2) firefighters, assembled on the scene, whose primary assignment is planning and carrying out actions necessary for the rescue of fire personnel. More than one RIT may be necessary for large incidents or large-scale training exercises.

LOW RISK FIRE INCIDENT

For a Low-Risk Fire incident, the total personnel needed for an effective response force is 3 personnel. A Low-Risk fire incident (vehicle, dumpster, grass, etc.) dispatch compliment is either 1 engine (4) or 1 ladder truck (3). An effective response force arrives when the unit arrives on the scene.

Low Risk Fire Incident (vehicle, dumpster, grass, etc.)	
Critical Task	Minimum Personnel
Size up and 360 walk around completion, command	1
Pump operator	1
Initial attack line (1 ¾ line minimum with 150 GPM capabilities)	1

MODERATE RISK FIRE INCIDENT

For a Moderate Risk Fire Incident (Residential Structure Fire), the total personnel needed for an effective response force is 16 personnel. A Residential structure fire dispatch compliment of at least: 2 engines (8), 1 Squad (4), 1 ladder truck (3), 1 battalion chief (1). An effective response force arrives when both engines, the squad truck, ladder truck and battalion chief arrives on the scene. When all units are on scene, 16 personnel are available for assignment.

Moderate Risk Fire Incident (<i>Single Family Residence < 2,500 sq. ft.</i>)	
Critical Task	Minimum Personnel
Size up and 360 walk around completion, command	1
Pump operator	1
Initial attack line (1 ¾ line minimum with 150 GPM capabilities)	3
Water Supply (dual 3" lines or 5" supply lines from permanent water supply)	1
Safety officer (Lt. or higher certified incident safety officer)	1
Back up line (same size line or higher of initial attack line)	3
Search and Rescue	2
Ventilation Operations	2
Rapid intervention team (RIT)	2

HIGH RISK FIRE INCIDENT

For a High-Risk Fire incident (Commercial Building Fire), the total personnel needed for an effective response force is at least 20 personnel. A Commercial Building fire dispatch compliment is: 3 engines (12), 1 squad (4), 1 ladder trucks (3), 1 battalion chief (1). An effective response force arrives when all units are on scene 20 personnel are available for assignment.

High Risk Fire Incident (Commercial Structures)	
Critical Task	Minimum Personnel
Size up and 360 walk around completion, command	1
Pump operator	1
Initial attack line (1 ¾ line minimum with 150 GPM capabilities)	3
Second attack line (1 ¾ line minimum with 150 GPM capabilities)	3
Water Supply (dual 3" lines or 5" supply lines from permanent water supply)	1
Safety officer (Lt. or higher incident safety officer)	1
Back up line (same size line or higher of initial attack line)	2
Search and Rescue	2
Rapid intervention team (RIT)	4
Ventilation Operations	2

VERY HIGH-RISK FIRE INCIDENT

For a Very High-Risk Fire Incident (**High Risk Occupancy**), the total personnel needed for an effective response force is at least 28 personnel. A High-Density Occupancy fire dispatch compliment is: 4 engines (16), 2 ladder trucks (6), 2 battalion chief's cars (2), and 1 squad truck (4). An effective response force arrives when all units are on scene 28 personnel are available for assignment.

Very High Risk Fire Incident (High Density Occupancy)	
Critical Task	Minimum Personnel
Size up and 360 walk around completion, command	1
Pump operator	2
Initial attack line (1 ¾ line minimum with 150 GPM capabilities)	3
Second attack line (1 ¾ line minimum with 150 GPM capabilities)	2
Water Supply (dual 3" lines or 5" supply lines from permanent water supply)	2
Safety officer (Lt. or higher incident safety officer)	1
Back up line (same size line or higher of initial attack line)	2
Sector Lobby Control Officer	1
Base Control Officer	1
Accountability officer	1
2 nd Battalion Chief	1
Search and Rescue	2
Staging Officer	1
Rapid intervention team (RIT I and RIT II)	5
Ventilation Operations	3

EMS CRITICAL TASKS

CFEMS responds to an average 28,613 EMS calls per year or approximately 78 calls per day. The calls are of a wide variety including sick calls, motor vehicle accidents, childbirths, difficulty breathing, and cardiac arrests. In Columbus, ambulances and fire apparatus respond to all basic and advanced life support (ALS) calls.

As with fire, EMS calls are planned for by assuming worst-case scenario – a patient in cardiac arrest. The American Heart Association (AHA) recommends a minimum of two emergency medical technicians and two certified paramedics to adequately manage an emergency cardiac scene. A cardiac arrest is classified as an ALS call, and all ALS calls have the closest fire apparatus and one ambulance dispatched. All ALS calls involving a motor vehicle crash (MVC) with possible entrapment have a ladder truck dispatched with extrication equipment, additional ambulance and a battalion chief. Based on CFEMS minimum staffing, a typical ALS call would provide a minimum of five personnel to manage the call.

EMS Critical Tasks BLS Response (Non-Life-Threatening Events)	
Critical Task	Minimum Personnel
Dispatched ambulance (Provide ALS services and transport)	2

EMS Critical Tasks ALS Response (Cardiac, Stroke, or Trauma)	
Critical Task	Minimum Personnel
Closest fire apparatus (Provide ALS/BLS services)	3
Dispatched ambulance (Provide ALS services and transport)	2

LOW VOLUME MULTI-UNIT

CFEMS responds to a multitude of incidents other than fires or EMS. These include HAZMAT calls, Technical Rescue, severe weather and natural disasters, and service calls. While individually these calls do not occur in large numbers, as a total they do represent a substantial amount of calls. CFEMS uses the National Fire Service Incident Management System (NIMS) as a model for management of emergency scenes. NIMS is a guide for any emergency incident that does not have a specific CFEMS guideline. Implementing the NIMS model prevents the dangerous scenario of free-lance operations and allows for unity of command with an effective span of control.

HAZMAT Critical Tasks

Critical tasks for the CFEMS hazardous material team are impossible to define because the nature of assets needed are not determined until the arrival of the first-arriving fire officer. Action taken can differ substantially based on the type of incident involved. There are various levels of personal protection as well as different mitigation tactics. There are also incidents that may only require an operations level trained response engine.

Response is the portion of incident management in which personnel are involved in controlling a hazardous materials incident defensively or offensively. The activities in the response portion of hazardous materials incident include:

- (a) Analyzing the incident
- (b) Planning the response
- (c) Implementing the planned response
- (d) Evaluating the process

Hazmat Operations Critical Tasks	
Critical Task	Minimum Personnel
FIRST ENGINE- Officer assumes command; size up; initial incident safety officer; notify and call for resources. Isolate site and deny entry (decon and resources as needed)	3
FIRST AMBULANCE- Medical team; pre-entry & post-entry vitals	2
HAZMAT TRUCK- Field safety officer (hazmat tech qualified), Entry team, Back up team	3
FIRST LADDER TRUCK- Decon Setup	3
SECOND ENGINE- Decon team	3
BATTALION CHIEF- Receives command, provides continual size up	1

TECHNICAL RESCUE CRITICAL TASKS

Critical tasks for the Technical Rescue Team are impossible to define because the nature of assets that are needed are not determined until the arrival of the first-arriving fire officer.

Depending on the incident, other assets may be sent non-emergency. The goal of the Technical Rescue team is to recognize and identify the need for Technical Rescue services involving incidents such as structural collapse, trench collapse, complicated or advanced vehicle/machinery extrication, confined space rescue, rope rescue, etc. They perform rescue or incident stabilization as necessary to accomplish life safety and property conservation. In cases of very large events such as a large life hazard structural collapse, perform initial steps toward incident mitigation to involve size-up, requesting additional Technical Rescue services, performing rescue, shoring, and other steps toward incident stabilization until additional resources arrive to assist.

Water Rescue

Water Rescue Critical Tasks	
Critical Task	Minimum Personnel
ENGINE- Officer assumes command; size up; initial incident safety officer	3
FIRST AMBULANCE- Medical team	2
LADDER TRUCK- Entry team supervisor, Back up team supervisor, Back up team	3
SECOND AMBULANCE- Surface Support	2
BATTALION CHIEF- Receives command, provides continual size up	1

Vehicle Extrication

Vehicle Extrication Critical Tasks	
Critical Task	Minimum Personnel
ENGINE- Officer assumes command; size up; initial incident safety officer	3
FIRST AMBULANCE- Initiate patient care	2
LADDER TRUCK- Perform Extrication	3
SECOND AMBULANCE- Lifting, equipment shuttle	2
BATTALION CHIEF- Receives command, provides continual size up	1

Technical Rescue

Technical Rescue Critical Tasks	
Critical Task	Minimum Personnel
FIRST ENGINE- Officer assumes command; size up; initial incident safety officer, Set up	3
AMBULANCE- Medical	2
LADDER TRUCK- Rescue supervisor, Safety officer, Set up anchors/main line/belay line	3
SECOND ENGINE- Line attendant/edge monitoring, Rigging/rope/entry team plus tenders	3
SECOND AMBULANCE- Lifting, equipment shuttle	2
BATTALION CHIEF- Receives command, provides continual size up	1

TIME COMPONENTS

In Columbus, the vast majority of calls originate from the Columbus 911 Center, which serves as the public safety answering point (PSAP) for Columbus.

CFEMS measures alarm handing (processing), turnout, travel, and total response time.

- Alarm handling/processing - begins when call is received by 911 and ends when dispatcher has completed dispatching units.
- Turnout - begins when a unit receives notification of the emergency and ends when the unit is enroute to the emergency incident (the unit's wheels begin to roll). The maximum time for turnout should not exceed the benchmark of 80 seconds for fire and 60 seconds for medical alarms.
- Travel - begins when a unit is enroute to the emergency incident (the unit's wheels begin to roll and 911 is notified that the unit is responding) and ends when the unit arrives on the scene.
- Total response - is the sum of all the time components (Alarm handling + Turnout + Travel) Time begins when 911 receives notification of the emergency and ends when the unit(s) arrive(s) on the scene.

The special service-level objectives in the benchmark statements are based on industry standards, best practices, and the needs of the department. The objectives are approved and adopted by department management with the full support of the Mayor, City Manager and City Council.

RESPONSE TIME PERFORMANCE

Columbus is mainly urban regarding population density with some small areas of rural densities.

CFEMS utilizes fractal measurements to measure performance. Using the 90th percentile more accurately describes response times over a broad geographical area. The 90th percentile measures how often a unit can reach a particular area of their response district. For the purpose of Accreditation, CFEMS utilizes the 90th percentile to measure response times.

Prior to establishing baseline performance, the data needs to be cleaned to remove statistical outliers. CFEMS removes non-emergency responses, exposures, mutual-aid responses, and response times with a NULL value. CFEMS does not rely on mutual aid to complete the ERF.

Outliers in the data set are examined to monitor the changes we implement concerning quality control. Outliers are used in identifying and analyzing possible problem areas.

Several factors affect response times that are beyond the control of responders and dispatchers. When responding to reported structure fires all units respond in emergency mode.

BENCHMARKING

Establishing a benchmark offers the agency a figurative “Special” to aim for. Below are CFEMS benchmark response-time objectives for each level of service. CFEMS considers the area served as an urban community. All response time benchmarks are for an urban population density.

FIRE

The Department’s benchmark service-level objectives are as follows:

Benchmark

For 90% of all Low-Risk Fire incidents, the total response time for the arrival of the 1st Unit shall be 6 minutes and 20 seconds. The first arriving Engine shall be capable of: providing a minimum of 3 personnel, providing 1500 GPM and a static water source (tank water) of 750 gallons; initiating command and providing for incident safety; requesting additional resources; deploying 200’ of 1 ¾” hose-line while flowing a minimum of 150 GPM; establishing an uninterrupted water supply as needed; containing the fire; performing salvage and overhaul operations; conduct a fire cause determination, and produced related documentation.

For 90% of all moderate risk structure fires, the total response time for the arrival of the first-due unit, staffed with a minimum of 3 fire personnel, shall be 6 minutes and 20 seconds. The first due unit shall be capable of but not required to simultaneously perform the following tasks: providing 1500 GPM and a static water source of 750 gallons initiating command; requesting additional resources; establishing and advancing an attack line flowing a minimum of 150 GPM; establishing an uninterrupted water supply; containing the fire; rescuing at-risk victims; and performing salvage operations. It is understood that the first due unit has the responsibility to conduct a proper size up and may delegate the other task to other arriving equipment. These operations shall be done in accordance with departmental standard operating guide lines while providing for the safety of responders and the general public.

For 90% of all moderate-risk structure fires, the total response time for the arrival of the ERF of sixteen personnel is 10 minutes and 20 seconds. The ERF for moderate risk shall be capable of: Establishment of incident command outside of the hazard area for the overall coordination and

direction of the initial full alarm assignment with a minimum of one member dedicated to this task. Establishment of an uninterrupted water supply of a minimum of 400 GPM for 30 minutes with supply lines maintained by the driver/operator. Establishment of an effective water flow application rate of 300 GPM from two hand-lines, each of which has a minimum flow rate of 150 GPM with each hand-line operated by a minimum of two members, provision of at least one team, consisting of a minimum of two members to raise ground ladders and perform ventilation, establishment of a rapid intervention team consisting of a minimum of two members and if an aerial device is used in operations one member to function as an aerial operator to maintain primary control of the aerial device at all times.

For 90% of all high-risk structure fires, the total response time for the arrival of the first-due unit, staffed with a minimum of three firefighters, shall be 6 minutes and 20 seconds. The first due unit for all risk levels is capable of: providing 750 gallons of tank water and 1,500 GPM pumping capacity; initiating command; requesting additional resources; establishing and advancing an attack line flowing a minimum of 150 GPM; establishing an uninterrupted water supply; containing the fire; rescuing at-risk victims; and performing salvage operations. These operations are done in accordance with departmental standard operating guidelines while providing for the safety of responders and the general public.

For 90% of all high-risk structure fires, the total response time for the arrival of the ERF, staffed with twenty personnel shall be 13 minutes and 20 seconds. The ERF for high risk structure fires shall be capable of: Establishment of incident command outside of the hazard area for the overall coordination, direction, and safety of the initial full alarm assignment with a minimum of two members dedicated to managing this task, establishment of two uninterrupted water supply lines at a minimum of 400 GPM, with an operator, establishment of an effective water flow application rate of 300 GPM from three hand-lines each which has a minimum flow rate of 150 GPM with each hand-line operated by a minimum of two members to effectively and safely maintain each hand-line, provision for one support member for each attack back-up and exposure line deployed to provide hydrant hookup and to assist in laying of hose lines utility control and forcible entry, provision of at least two victim search-and-rescue teams each consisting of a minimum of two members, provision of at least two teams each team consisting of a minimum of two members to raise ground ladders and perform ventilation, establishment of a rapid intervention team with a

minimum of two members, if an aerial device is used in operations one member to function as an aerial operator and maintain primary control of the aerial at all times.

For 90% of all very high-risk structure fires, the total response time for the arrival of the first-due unit, staffed with a minimum of three firefighters, shall be 6 minutes and 20 seconds. The first due unit for all risk levels is capable of: providing 750 gallons of tank water and 1,500 GPM pumping capacity; initiating command; requesting additional resources; establishing and advancing an attack line flowing a minimum of 150 GPM; establishing an uninterrupted water supply; containing the fire; rescuing at-risk victims; and performing salvage operations. These operations are done in accordance with departmental standard operating guidelines while providing for the safety of responders and the public.

For 90% of all very high-risk structure fires, the total response time for the arrival of the ERF, staffed with twenty eight personnel shall be 15 minutes and 20 seconds. The ERF for very high risk structure fires shall be capable of: Establishment of incident command outside of the hazard area for the overall coordination, direction, and safety of the initial full alarm assignment with a minimum of two members dedicated to managing this task, establishment of two uninterrupted water supply lines at a minimum of 400 GPM, with an operator, establishment of an effective water flow application rate of 300 GPM from three hand-lines each which has a minimum flow rate of 150 GPM with each hand-line operated by a minimum of two members to effectively and safely maintain each hand-line, provision for one support member for each attack back-up and exposure line deployed to provide hydrant hookup and to assist in laying of hose lines utility control and forcible entry, provision of at least two victim search-and-rescue teams each consisting of a minimum of two members, provision of at least two teams each team consisting of a minimum of two members to raise ground ladders and perform ventilation, establishment of a rapid intervention team with a minimum of two members, if an aerial device is used in operations one member to function as an aerial operator and maintain primary control of the aerial at all times.

EMERGENCY MEDICAL SERVICES

Advanced Life Support (ALS)" means the assessment, and if necessary, treatment or transportation by ambulance, utilizing medically necessary supplies and equipment provided by at least one individual licensed above the level of emergency medical technician. Basic Life Support (BLS)" means treatment or transportation by ground ambulance vehicle or treatment with medically necessary supplies and services involving non-invasive life support measures. Medical First Responder Service means an agency or company duly licensed by the department that provides on-site care until the arrival of the department's designated ambulance provider. Thirteen engines, six ladder trucks, and two squad trucks are staffed with a paramedic if staffing permits, if not they are all basic life support (BLS) first responders. The engines are staffed with 4 personnel (SOG 02-200 Response Guideline), ladder trucks are staffed with 3 personnel (except ladder 12 it is staffed with 4 personnel), and the squad trucks are staffed with 4 personnel. There are twelve advanced life support (ALS) ambulances (six city and six private), one peak load ALS ambulance (12 hours) and one ALS engine to provide ALS response. The ALS ambulances are staffed with a minimum of two personnel, one of which must be a paramedic. The ALS engines are staffed with minimum of four personnel, one of which must be a paramedic.

The department contracts with three third-party providers to supplement EMS coverage for the city. The ambulance providers are required to meet response time criteria for 90% of all dispatches. The initial arriving unit shall have the capabilities of providing first responder medical aid including automatic external defibrillation, until the ambulance arrives on scene. If the ambulance arrives on scene first, its personnel shall initiate care and the staff from the initial fire apparatus shall provide support as needed.

For 90% of all moderate risk ALS EMS response incidents, the total response time for the arrival of the 1st Unit shall be 6 minutes and 00 seconds. The first-due unit shall be capable of: providing incident command and producing related documentation; completing patient assessment; providing appropriate treatment; performing AED; initiating CPR; and providing IV access medication administration.

For 90% of all ALS EMS response incidents, the total response time for the arrival of the ERF, staffed with a minimum of 4 firefighters and officers, shall be 10 minutes and 00 seconds. The ERF shall be capable of providing incident command and producing related documentation; completing patient assessment; providing appropriate treatment; performing manual external defibrillation; initiating CPR; and providing IV access and medication administration.

HAZMAT

For 90% of responses to low-risk HazMat incidents, the total response time for the first unit, staffed with a minimum of 3 personnel shall be: 6 minutes and 20 seconds. The first arriving Hazmat unit HMRT shall be capable of assessing safe entry routes to the incident, identifying a defensive perimeter and an operational area, staging area, and defensive operations.

For 90% of all moderate risk Hazmat incidents, the total response time for the arrival of the first-due unit, staffed with a minimum of three fire personnel, shall be 6 minutes and 20 seconds. The first due unit shall be capable of but not required to simultaneously perform the following tasks: be able to implement command and control operations that include a preliminary identification of the substance in accordance with the 15 SOG's in Section 3 of CFEMS Standards Operating Guidelines.

For 90% of all moderate risk Hazmat incidents, the total response time for the arrival of the ERF of eighteen personnel is 10 minutes and 20 seconds. The ERF for moderate risk shall be capable of being able to implement command and control operations in accordance with the 15 SOG's in Section 3 of CFEMS Standards Operating Guidelines.

High Risk – All units at station 6 must respond

Very High Risk –High risk plus calling in an off-duty shift of hazmat members

A slower response standard is necessary to account for travel time to distant portions of the county as well as non-emergency responses to some incidents.

High and very high level responses are rarely if ever utilized. Most of the hazardous materials incidents in the city can be mitigated with an Operations level response unit.

TECHNICAL RESCUE

For 90% of responses to moderate-risk rescue incidents (vehicle extrication), the total response time for the first unit, staffed with a minimum of 3 personnel shall be: 6 minutes and 20 seconds. The first arriving unit will determine if rescue equipment is needed and request a rescue unit with the proper equipment. The first arriving unit shall establish command and control to determine the need for rope rescue equipment as outlined in SOG 03-316 through 03-325.

The technical rescue team (vehicle extrication) with an effective response force (EFR) twelve firefighters and officers shall arrive on scene shall be 10 minutes and 20 seconds, total response time 90 percent of the time and be able to implement command and control operations which include establishing a safety zone, incident command as outlined in SOG 03-316 through 03-325.

For 90% of responses to high-risk rescue incidents (swift water), the total response time for the first unit, staffed with a minimum of 3 personnel shall be: 6 minutes and 20 seconds. the first arriving unit will determine if rescue equipment is needed and request a rescue unit with the proper equipment. The first arriving unit shall establish command and control to determine the need for technical rescue equipment as outlined in SOG 03-316 through 03-325.

The technical rescue team (swift water) with an effective response force (EFR) twelve firefighters and officers shall arrive on scene shall be 12 minutes and 20 seconds, total response time 90 percent of the time and be able to implement command and control operations which include establishing a safety zone, incident command as outlined in SOG 03-316 through 03-325.

BASELINE PERFORMANCE

Before measuring baseline emergency responses, statistical outliers were removed, as well as all non-emergency responses, mutual aid assistance, exposures, 2nd alarm times and NULL time values. Non-emergency responses are also not considered because they would have been driving with the flow of traffic for a portion of their response. Measuring mutual-aid units does not assess CFEMS capabilities. Exposures are removed. Exposure reports are generated on the same incident report as the initial incident. These incidents reflect a skewed response time. Unless otherwise noted, NULL time values are removed. These times represent an incomplete time segment. E.g.: if a unit was cancelled, the arrival time would be equal to NULL because the unit did not arrive on scene. The categories and criteria for measuring baseline performance at the 90th percentile is detailed below.

FIRE PERFORMANCE

STRUCTURE FIRES - MODERATE RISK

For 90% of all moderate risk structure fires, the total response time for the arrival of the first-due unit, staffed with a minimum of 3 fire personnel, is 8 minutes. The first due unit shall be capable of but not required to simultaneously perform the following tasks: providing 1500 GPM and a static water source of 750 gallons initiating command; requesting additional resources; establishing and advancing an attack line flowing a minimum of 150 GPM; establishing an uninterrupted water supply; containing the fire; rescuing at-risk victims; and performing salvage operations. It is understood that the first due unit has the responsibility to conduct a proper size up and may delegate the other task to other arriving equipment. These operations shall be done in accordance with departmental standard operating guidelines while providing for the safety of responders and the general public.

For 90% of all moderate risk fires, the total response time for the arrival of the ERF of sixteen personnel is 15 minutes and 33 seconds. The ERF for moderate risk shall be capable of: Establishment of incident command outside of the hazard area for the overall coordination and direction of the initial full alarm assignment with a minimum of one member dedicated to this task. Establishment of an uninterrupted 5" water supply line maintained by the driver/operator.

Establishment of an effective water flow application rate of 300 GPM from two hand-lines, each of which has a minimum flow rate of 150 GPM with each hand-line operated by a minimum of two members, provision of at least one team, consisting of a minimum of two members to raise ground ladders and perform ventilation, establishment of a rapid intervention team consisting of a minimum of two members and if an aerial device is used in operations one member to function as an aerial operator to maintain primary control of the aerial device at all times.

(Moderate Risk) Fire Suppression - 90th Percentile Times - Baseline Performance			Benchmark (Target)	2017-2021	2021	2020	2019	2018	2017
Alarm Handling	Pick-up to Dispatch	Urban	01:00	03:06	02:21	03:54	02:50	02:07	02:26
Turnout Time	Turnout Time 1st Unit	Urban	01:20	01:39	01:37	01:50	01:48	01:24	01:26
Travel Time	Travel Time 1st Unit Distribution	Urban	04:00	05:01	04:34	04:26	04:34	05:07	05:16
	Travel Time ERF Concentration	Urban	08:00	11:01	11:41	11:09	10:57	11:34	11:16
Total Response Time	Total Response Time 1st Unit on Scene Distribution	Urban	06:30	8:00	07:09	08:21	05:33	08:07	07:50
				n=672	n=163	n=135	n=102	n=97	n=152
	Total Response Time ERF Concentration	Urban	010:30	15:33	13:51	14:40	14:04	16:00	14:26
				n=644	n=101	n=91	n=92	n=96	n=135

2017-2021 Moderate Risk Fire Suppression Response Times				
1st/ERF	Urban/Rural	Baseline	Benchmark	Gap
1st Due	Urban	8:00	6:20	01:40
		n=672		
ERF	Urban	15:33	10:20	05:13
		n=644		

STRUCTURE FIRES – HIGH RISK

An effective response force (ERF) for high risk, maximum and special risk fires is not available due to the limited number of incidents (N=0).

STRUCTURE FIRES – VERY HIGH RISK

An effective response force (ERF) for high risk, maximum and special risk fires is not available due to the limited number of incidents (N=0).

EMS PERFORMANCE**ALS - MODERATE RISK**

For 90% of all moderate risk ALS EMS response incidents, the total response time for the arrival of the 1st Unit with a minimum of 2 personnel is 8 minutes and 54seconds. The first-due ALS unit shall be capable of: providing incident command and producing related documentation; completing patient assessment; providing appropriate treatment; performing AED; initiating CPR; and providing IV access medication administration.

For 90% of all ALS EMS response incidents, the total response time for the arrival of the ERF, staffed with a minimum of five firefighters and officers, is 13 minutes and 05 seconds. The ERF shall be capable of: providing incident command and producing related documentation; completing patient assessment; providing appropriate treatment; performing manual external defibrillation; initiating CPR; and providing IV access and medication administration.

(Moderate Risk) EMS - 90th Percentile Times - Baseline Performance			Benchmark (Target)	2017-2021	2021	2020	2019	2018	2017
Alarm Handling	Pick-up to Dispatch	Urban	01:00	03:33	03:33	04:03	02:31	02:07	02:27
Turnout Time	Turnout Time 1st Unit	Urban	01:00	01:43	2:07	01:50	01:34	01:46	01:25
Travel Time	Travel Time 1st Unit Distribution	Urban	04:00	05:55	06:28	05:47	06:04	05:54	05:29
	Travel Time ERF Concentration	Urban	06:00	07:28	10:54	07:49	09:36	09:04	08:34
Total Response Time	Total Response Time 1st Unit on Scene Distribution	Urban	06:00	08:54	10:19	10:22	07:57	08:01	07:57
				n=32262	n=6375	n=7354	n=6241	n=6363	n=5929
	Total Response Time ERF Concentration	Urban	08:00	13:05	14:42	12:20	12:07	12:04	11:07
				n=32024	n=6376	n=7220	n=6240	n=6252	n=5936

2016-2020 Moderate Risk EMS (ALS) Response Times				
1st/ERF	Urban/Rural	Baseline	Benchmark	Gap
1st Due	Urban	8:54	6:20	02:34
		n=32262		
ERF	Urban	13:05	10:20	02:45
		n=32024		

HAZMAT PERFORMANCE

HAZMAT MODERATE RISK

For 90 % of all moderate risk Hazmat incidents, the total response time for the arrival of the first-due unit, staffed with a minimum of three fire personnel, is 8 minutes and 41 seconds. The first due unit shall be capable of but not required to simultaneously perform the following tasks: be able to implement command and control operations that include a preliminary identification of the substance in accordance with the 15 SOG's in Section 3 of CFEMS Standards Operating Guidelines.

For 90 % of all moderate risk structure fires, the total response time for the arrival of the ERF of eighteen personnel is 16 minutes and 43 seconds. The ERF for moderate risk shall be capable of: be able to implement command and control operations in accordance with the 15 SOG's in Section 3 of CFEMS Standards Operating Guidelines.

(Moderate Risk) Hazmat - 90th Percentile Times - Baseline Performance			Benchmark (Target)	2017-2021	2021	2020	2019	2018	2017
Alarm Handling	Pick-up to Dispatch	Urban	01:00	02:30	03:08	03:20	02:25	02:07	03:30
Turnout Time	Turnout Time 1st Unit	Urban	01:00	01:40	01:02	00:59	02:01	00:56	02:09
Travel Time	Travel Time 1st Unit Distribution	Urban	04:00	05:16	6:37	04:31	04:53	03:22	04:46
	Travel Time ERF Concentration	Urban	06:00	09:41	10:24	05:47	10:01	10:21	10:51
Total Response Time	Total Response Time 1st Unit on Scene Distribution	Urban	06:00	08:41	10:19	04:53	06:34	05:42	07:20
				n=28	n=7	n=4	n=6	n=5	n=4
	Total Response Time ERF Concentration	Urban	10:00	16:43	17:40	06:33	14:27	18:29	17:48
				n=27	n=6	n=4	n=6	n=5	n=4

2016-2020 Moderate Risk Haz Mat Response Times				
1st/ERF	Urban/Rural	Baseline	Benchmark	Gap
1st Due	Urban	8:41	6:20	02:21
		n=28		
ERF	Urban	16:43	10:20	06:23
		n=27		

TECHNICAL RESCUE PERFORMANCE

TECHNICAL RESCUE MODERATE RISK

For 90 percent of responses to moderate risk_rescue incidents, the total response time for the first unit, staffed with a minimum of 3 personnel is: 8 minutes and 37 seconds. The first arriving unit will determine if rescue equipment is needed and request a rescue unit with the proper equipment. The first arriving unit shall establish command and control to determine the need for extrication equipment as outlined in SOG 03-318 Vehicle Extrication.

The technical rescue team with an effective response force (EFR) 12 firefighters and officers shall arrive on scene in 12 minutes and 46 seconds, total response time 90 percent of the time and be able to implement command and control operations which include establishing a safety zone, incident commander shall assign duties as outlines in SOG 03-318 Vehicle Extrication.

(Moderate Risk) Technical Rescue - 90th Percentile Times - Baseline Performance			Benchmark (Target)	2017- 2021	2021	2020	2019	2018	2017
Alarm Handling	Pick-up to Dispatch	Urban	01:00	03:20	02:33	04:28	03:19	03:24	03:58
Turnout Time	Turnout Time 1st Unit	Urban	01:20	01:48	02:41	01:05	01:15	01:49	02:28
Travel Time	Travel Time 1st Unit Distribution	Urban	04:00	05:05	05:09	06:03	06:11	05:20	04:31
	Travel Time ERF Concentration	Urban	08:00	07:41	05:22	08:10	09:32	08:00	07:28
Total Response Time	Total Response Time 1st Unit on Scene Distribution	Urban	06:20	08:37	09:40	08:18	08:32	09:00	06:14
				n=37	n=5	n=8	n=12	n=5	n=7
	Total Response Time ERF Concentration	Urban	10:20	12:46	12:25	13:19	15:29	10:11	10:20
				n=36	n=5	n=8	n=12	n=5	n=6

2016-2020 Moderate Risk Tech Rescue Response Times				
1st/ERF	Urban/Rural	Baseline	Benchmark	Gap
1st Due	Urban	08:37	6:20	02:17
		n=37		
ERF	Urban	12:46	10:20	02:26
		n=36		

TECHNICAL RESCUE HIGH RISK

For 90 percent of responses to high-risk rescue incidents, the total response time for the first unit, staffed with a minimum of 3 personnel is: 10 minutes and 57 seconds. The first arriving unit will determine if rescue equipment is needed and request a rescue unit with the proper equipment. The first arriving unit shall establish command and control to determine the need for water rescue equipment as outlined in SOG 03-321 Water Rescue.

The technical rescue team with an effective response force (EFR) 12 firefighters and officers shall arrive on scene in 15 minutes and 47 seconds, total response time 90 percent of the time and be able to implement command and control operations which include establishing a safety zone, incident commander shall assign duties as outlined in SOG 03-321 Water Rescue.

(High Risk) Technical Rescue - 90th Percentile Times - Baseline Performance			Benchmark (Target)	2017-2021	2021	2020	2019	2018	2017
Alarm Handling	Pick-up to Dispatch	Urban	01:00	4:37	04:52	04:33	03:58	02:55	03:38
Turnout Time	Turnout Time 1st Unit	Urban	01:20	01:27	01:16	01:31	01:10	00:48	01:23
Travel Time	Travel Time 1st Unit Distribution	Urban	04:00	06:31	03:30	06:36	04:34	05:51	06:22
	Travel Time ERF Concentration	Urban	10:00	12:01	06:42	14:47	12:46	11:59	15:27
Total Response Time	Total Response Time 1st Unit on Scene Distribution	Urban	6:20	10:57	08:09	13:50	08:26	06:59	09:46
				n=49	n=9	n=7	n=10	n=9	n=14
	Total Response Time ERF Concentration	Urban	12:30	15:47	11:41	17:52	18:32	15:41	20:30
				n=46	n=9	n=6	n=9	n=8	n=14

2016-2020 High Risk Tech Rescue Response Times				
1st/ERF	Urban/Rural	Baseline	Benchmark	Gap
1st Due	Urban	10:57	6:20	04:37
		n=49		
ERF	Urban	15:47	12:20	03:27
		n=46		

SECTION VI EVALUATION OF CURRENT DEPLOYMENT AND PERFORMANCE

The objectives of this section are to complete a comparative review of agency benchmark baseline statements, and an overall evaluation including conclusions and recommendations. To date, CFEMS has had some difficulty regularly reporting response times due to computer hardware issues (MDTs). The Department received funding for all unit MDT upgrades. The methodology begins with the identification of baseline performance at the 90th percentile. After evaluating the data, the benchmark was established. During analysis, the department identified the gaps between the baseline and benchmark. While some analysis was done, there is a defined need for additional analysis. Call volume continues to rise, making reaching current benchmarks even more difficult. The department will reassess current benchmarks to decide if adjustment need to be made given the current climate.

RELIABILITY

The response reliability for Engines 2021 is 84.56%, with 15.44% of all calls being handled by non-first due units. CFEMS is continually analyzing data to determine why units are responding outside of their own first-in territory.

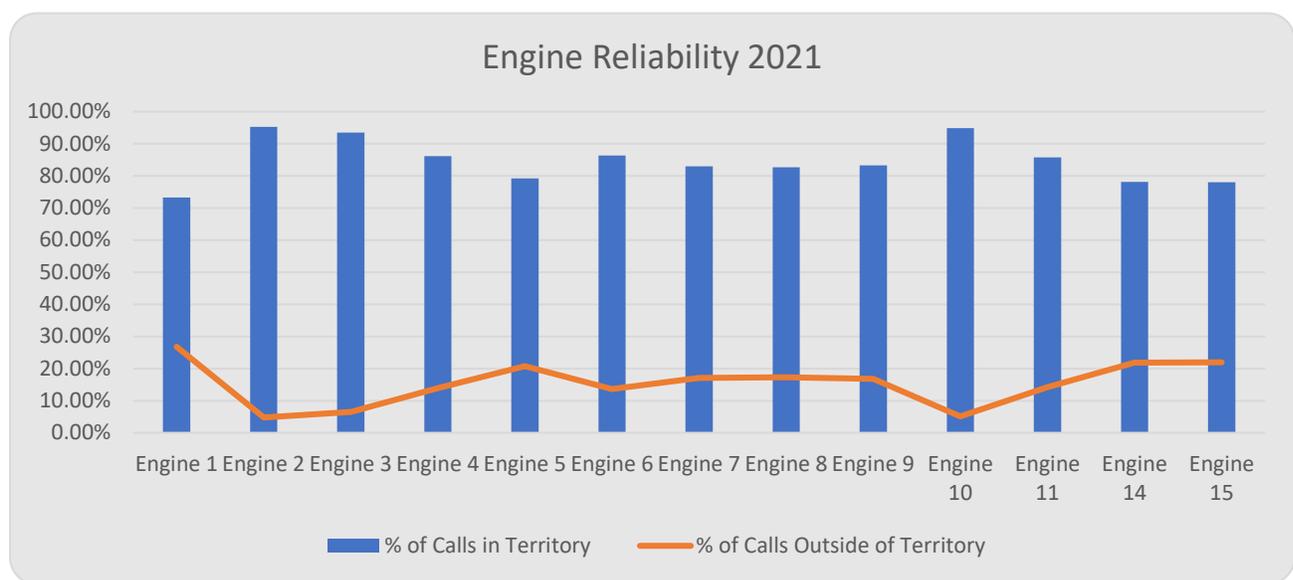


Figure 6.1 Engine Reliability

The response reliability for Ladders is 92.32%; with 6.68% of all calls being handled by non-first due units. CFEMS is continuously analyzing data to determine why units are responding outside of their own first-in territory.



Figure 6.2 Ladder Reliability

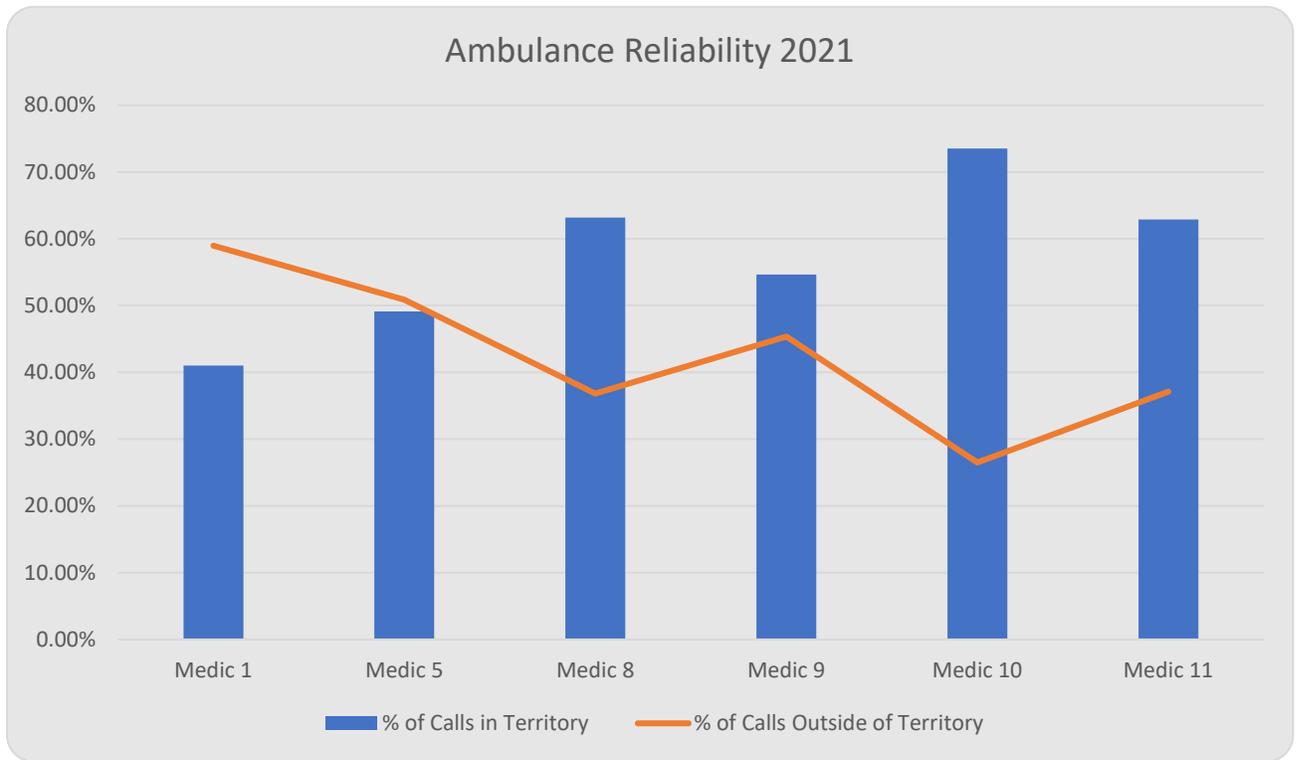
The response reliability for Squads is 95.09%, with 4.91% of all calls being handled by non-first due units. CFEMS is continuously analyzing data to determine why units are responding outside of their own first-in territory. (Figure 6.3 Squad Reliability)



Figure 6.3 Squad Reliability

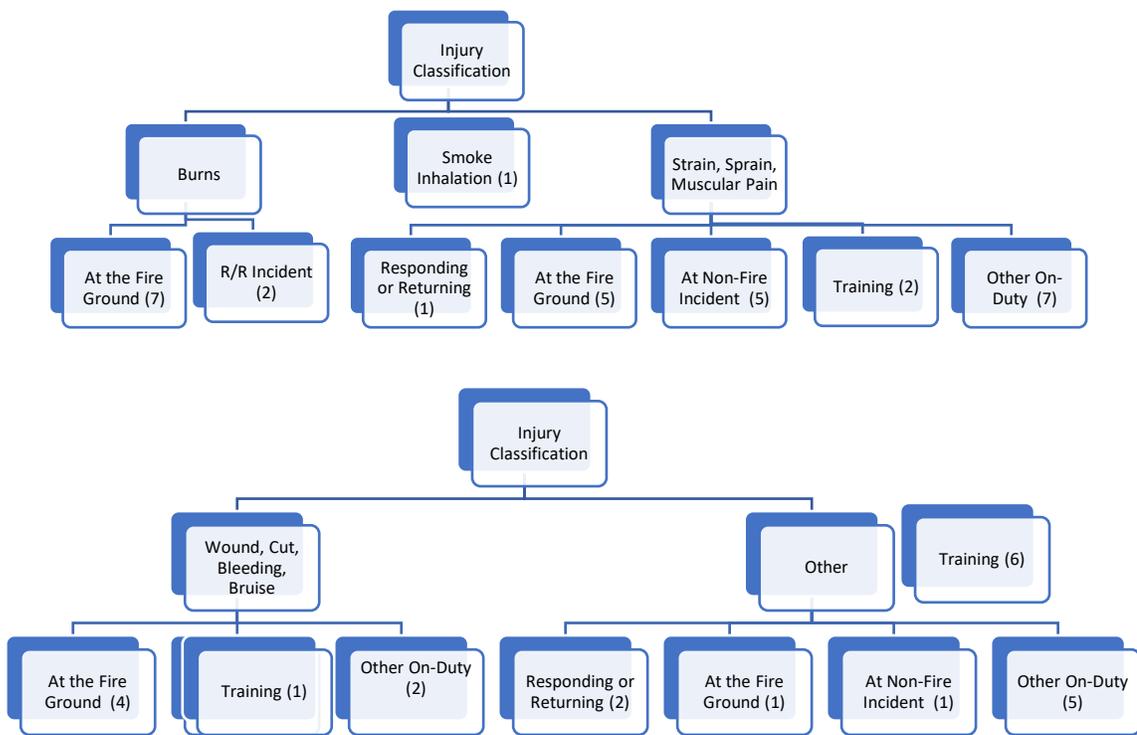
The average response reliability for Ambulances is 57.39 %, with 42.61% of all calls being handled by non-first due units. CFEMS is continuously analyzing data to determine why units are responding outside of their own first-in territory. (Figure 6.4 Ambulance Reliability)

Figure 6.4 Ambulance Reliability



FIREFIGHTER INJURY/FATALITIES

CFEMS understands that the department has been very fortunate and has not had an on-scene line of duty death (LODD) since March 26, 1973. CFEMS is continually making cultural changes to increase firefighter health, safety, and wellness. Risk of injury and fatalities are managed through proper training, personal protective equipment (PPE), and actions on the fire ground. All are being trained as safety officers and are trained on incident size-up, initial company operations, and first in tactical decision-making. Many of the standard operating procedures are life-safety focused as well. (Figure 6.6 Injuries)



The department promotes a healthy lifestyle through annual mandatory health screens. CFEMS has been approved funding for the OneTest cancer screening blood test for all members as well as a low-dose CT scan available for members 40 years and older. After Action Reviews are held after large incidents to ensure continuous improvement of performance, identification of unsafe actions, and to ensure proper communications. On-the-job injuries are monitored to identify unsafe working practices and trends. Identified hazards and trends in injury cause are addresses through policy changes and personnel education.

CIVILIAN CASUALTY/FATALITY

According to the National Safety Council (NSC) Injury Facts 2020, 1 in 1,450 people will die from exposure to fire, flames or smoke. Fire is the fourteenth leading cause of injury-related death over all ages. (Figure 6.7 NSC)

Cause of Death	Odds of Dying
Heart Disease	1 in 6
Cancer	1 in 7
COVID-19	1 in 12
All preventable causes of death	1 in 21
Chronic lower respiratory disease	1 in 28
Opioid Overdose	1 in 67
Suicide	1 in 93
Motor Vehicle Crash	1 in 101
Fall	1 in 102
Gun Assault	1 in 221
Pedestrian Incident	1 in 541
Motorcyclist	1 in 799
Drowning	1 in 1,024
Fire or Smoke	1 in 1,450

Source: National Safety Council estimates based on data from National Center for Health Statistics—Mortality Data for 2020, as compiled from data provided by the 57 vital statistics jurisdictions through the Vital Statistics Cooperative Program. Population and life expectancy data are from the U.S. Census Bureau. Deaths are classified on the basis of the 10th Revision of the World Health Organization's "The International Classification of Diseases" (ICD). Numbers following titles refer to External Cause of Morbidity and Mortality classifications in ICD-10.

Figure 6.7 NSC

According to the US Fire Administration (2020), rates per 1,000,000 population:

- National fire death rate: 10.7
- National fire injury rate: 50.6
- Gender and Race: African American males (19.1) and American Indian males (18.7) have the highest fire death rates per million population
- Age: People ages 85 or older have the highest fire death (38.0) and ages 50-54 have the highest injury (66.4) rates

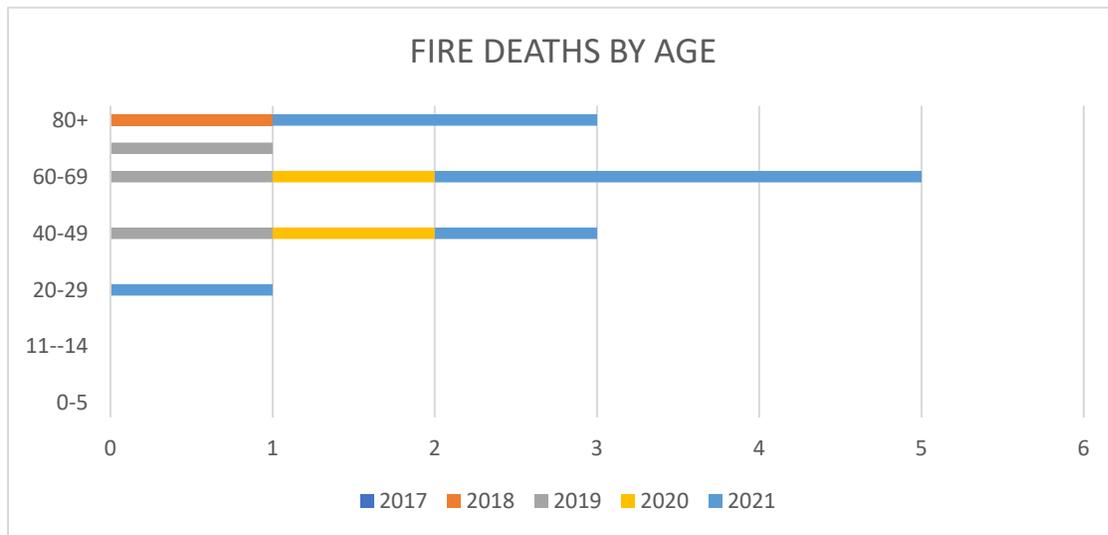
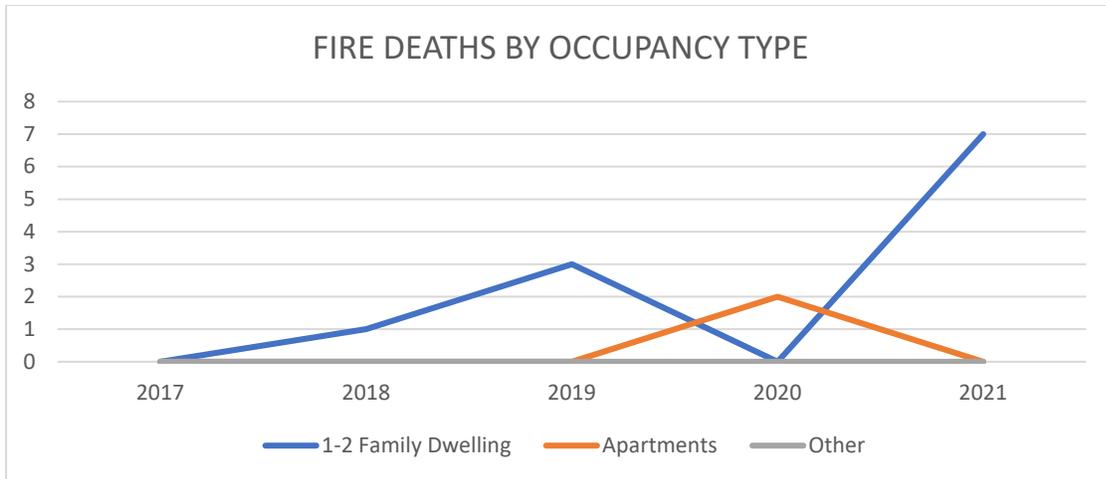


Figure 6.8 CFEMS Fire Deaths

SECTION VII: PLAN FOR MAINTAINING AND IMPROVING RESPONSE CAPABILITIES

CALL PROCESSING

In August of 2019, the 911 center implemented the new Premiere One CAD upgrade. Since its implementation, call processing times have been calculated at approximately 4 minutes at the 90th percentile. With a change in leadership in the 911 center and through conversation with them on our expectations and identified benchmarks, times have improved to close 2 minutes. NFPA standard for call processing is 60 seconds. CFEMS is actively communicating with 911 to reduce call processing times. Quarterly 911 meeting were suspended during the COVID crises but are scheduled to resume at the beginning on the 3rd quarter 2022. With continued communications and cooperation between the 911 center and CFEMS, times should improve further.

TURNOUT

In 2013, the department began daily reporting of turnout times to the Operations Chief. Any incident that had a turnout time over 2 minutes was reported. Turnout times began to decrease to become more in line with operating standards. Response time analysis of 2020 data has indicated an increase in turnout times. Continued monitoring of turnout times is crucial to improving the overall response time.

RESOURCE ALLOCATION

In 2004, the department has contracted with private ambulance providers to provide four 24 hr. trucks to enhance response capabilities while reducing workload for personnel. In 2017, two additional 24 hr. units were added due to increase in calls for service. The contract was amended in 2020 when one of the three providers stopped providing services. Currently, two private providers provide 3 24-hour ambulances.

SUPPLEMENTAL AMBULANCE CONTRACT

CFEMS' supplemental ambulance contract with the ambulance providers was renewed in 2020.

To ensure CFEMS' response time requirements are met, the new contract specifies:

- Mandatory data reporting to CFEMS
- Bill patients at the current rate for CFEMS
- All equipment shall be equivalent to CFEMS' equipment
- Participate in QA/QI process on care delivery
- Conflict resolution policy

ALS CAPABILITIES

All department and private ambulances responding out of CFEMS stations are staffed with a Paramedic and able to provide ALS care. The department has designated 11 fire apparatus as paramedic engines as staffing allows. All fire apparatuses are designated as medical first responder units (MFRU). Tracking of medical information and technologies must be ongoing to ensure that a high standard of care is met at every patient contact and to ensure the best possible protection for EMS providers. The Medical Control Committee was formed in 2004 to foster the relationship between all medical providers in the city. The committee along with the medical director ensures consistency in patient care through the meetings and issues are addressed that affect delivery of quality service. The meetings were suspended in 2020 and 2021 due to the Covid pandemic.

AMBULANCE WALL TIME

Time units are out at the hospital has consistently reduced the number of apparatus available to respond to calls for service. CFEMS has worked with local hospitals to reduce “Wall Time”. The hospitals have made changes to their triage and processes to reduce wall time until Covid became widespread in the area overwhelming the hospital system. In 2020, ED #1 is at 50 min at 90th percentile, ED #2 is at 37 min at 90th percentile, and ED #3 is at 36 min at 90th percentile but when Covid became prevalent in 2021, wall times increased in comparison to 2020 due to the hospitals in-patient beds being full causing a backlog of patients in the ED. In 2021, ED #1 is at 1 hr. 1 min at 90th percentile, ED #22 is at 1 hr. 9 min and ED #3 is at 57 min at 90th percentile.

QUALITY ASSURANCE/QUALITY IMPROVMENT

The departments Quality Assurance and Quality Improvement (QA/QI) process provides for the review of all reports entered into Image Trend, the departments records management software. Responsibility of the Company Officer /Acting Officer is to review each NFIRS report and Patient Care Report (PCR) to ensure the report shows 100% validity and to ensure all pertinent data has been entered and is accurate. Response times are monitored, and aberrant times can be corrected if known to be incorrect. After completion of their review, Station Officers will change the “Status” to “Reviewed” or “QA/QI by Station Officer. The next step is the review of the Battalion Chief /Acting Battalion Chief. They are responsible to review all NFIRS reports within their Battalion. Reports that are marked “Reviewed” are selected and following their review, Battalion Chiefs will change the “Status” to “QA/QI” or “QA/QI by Battalion Chief”. This process is to be completed no later than the following shift. Staff conducts a monthly review of NFIRS reports to ensure the Quality Assurance process is working to produce accurate/complete NFIRS reports. The EMS Division Chief (EMS Coordinator) reviews patient care reports on high acuity calls involving stroke, STEMI, cardiac arrest, significant trauma and pediatric patients to ensure protocol is being followed. Once reviewed, the EMS Coordinator will select “QA/QI by EMS Coordinator.”

TURNOVER/RETIREMENT

Each year CFEMS has vacancies due to retirements, resignations, and terminations. Hiring for vacant positions does not pose a problem for the department, the problem is the hardship in staffing to fill the gap. The critical positions to fill are the Firemedic positions. With the ordinance changes that increased paramedic incentive pay to \$6,200 as well as moving Firemedics from a Grade 14 to 15, retention of Firemedics has increased the number of volunteers to attend paramedic training to fill vacant positions.

	2016	2017	2018	2019	2020	2021
Retired	7	2	14	12	19	13
Resigned	26	21	15	34	30	39
Terminated	0	1	0	0	0	3
Firemedics	13	5	5	7	3	9

CFEMS PARAMEDIC PROGRAM

Columbus Fire and EMS began the first in house paramedic program in 2004 to fulfill the need for paramedics in the department and the community. The National Registry of EMTs (NREMT) implemented programmatic accreditation as an eligibility requirement for National EMS Certification at the paramedic level. Following a lengthy, time intensive process to become accredited through CAAHEP in 2018. The paramedic program consists of a 14-month in-house program that entails 1400 total training hours (736 Didactic, 224 Lab, 440 Clinical). Students must pass a pre-test plus Anatomy and Physiology to enter the program. We signed an articulation agreement with Columbus Technical College in January 2020. Students are awarded 41 semester hours upon completion of the program.

ORGANIZATIONAL IMPROVEMENT PLAN (5 YEAR)

Delivery of services with a continued increases to call volume and apparatus integrity issues is a constant concern. The department will focus on the health and safety of personnel through fitness and wellness initiatives. The department will work to improve technology to allow for safer operations and more robust collection of data. In the next 5 years, CFEMS hopes to affect change in the following areas:

- Apparatus Replacement and Maintenance
- Professional Development
- Community Risk Reduction Efforts
- Delivery of Services
- Technology Advancement
- Health, Wellness, and Safety of Personnel