



Commission on  
Fire Accreditation  
International

## COMMUNITY RISK ANALYSIS STANDARD OF COVER

COBB COUNTY FIRE AND EMERGENCY SERVICES

2020

# COBB COUNTY FIRE AND EMERGENCY SERVICES LEADERSHIP

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*Cobb County...Expect the Best!*

## EXECUTIVE SUMMARY

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

The main purpose for creating and maintaining a CRA-SOC is to reduce risk by placing a focus on the deployment and concentration of resources that ensures a safe and effective response force for fire suppression, emergency medical service, hazardous materials, and specialty response situations.

The CRA-SOC starts by describing the community profile and response area characteristics. It then documents the risk factors specific to the response area’s unique community profile. Following risk factor analysis, the CRA-SOC defines service levels and describes the roles and responsibilities of each service, along with the deployment strategies and operational elements that maintain their stated level of service. Finally, performance is evaluated and the department’s plans for maintaining and improving response capabilities are enumerated.

The CRA-SOC provides department management with a process to constantly measure and evaluate the level and quality of service delivered to the community.

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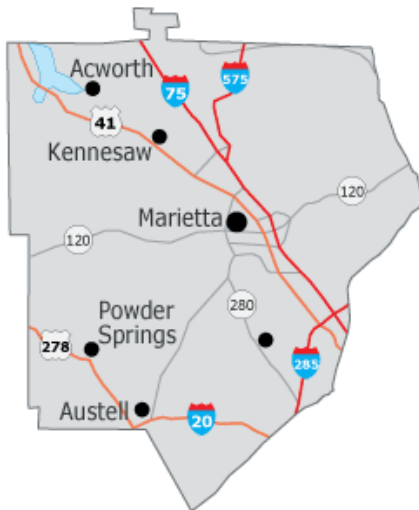
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## SECTION I: COMMUNITY PROFILE

### LOCATION

Cobb County is located northwest of Atlanta on the Piedmont Plateau of north central Georgia, near the foothills of the Appalachian Mountains. Cobb's physical features include hills with broad ridges, sloping uplands, and relatively narrow valleys with several creeks and streams that flow south into the Chattahoochee River. Approximately ninety percent of the 220,000 acres of land are developed.



Cobb County includes six incorporated cities: Acworth, Austell, Kennesaw, Marietta, Powder Springs, and Smyrna. Marietta is the county seat and the largest city. Cobb County's borders include Bartow County and Cherokee County to the north, Fulton County to the east, Douglas County to the south, and Paulding County to the west. Cobb County is part of the area commonly referred to as the "Atlanta Metropolitan Area." Cobb County has two interstates: I-20 and I-75, and two intrastate highways: I-285 and I-575.

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## CLIMATE

The following is the National Weather Service's description of the climate of North Georgia which covers Cobb County<sup>i</sup>.

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### TEMPERATURE

The area experiences all four seasons. Summers typically consist of long spells of warm and humid weather. Average afternoon high temperatures are in the upper 80s to around 90. Readings of 90 or higher can be expected on 30 to 60 days. Overnight lows usually range from the middle 60s to lower 70s.

Temperatures during winter months are more variable. Oftentimes, stretches of mild weather will alternate with cold spells. Winter high temperatures average in the 50s. Lows average in the mid to lower 30s. Lows of 32 degrees or lower can be expected on 50 to 70 days.

Spring and Autumn seasons are characterized by much variability from day to day and from year to year. The average date of the first freeze in the autumn is in late October. The average date of the last freeze in the spring is in early April.

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### PRECIPITATION

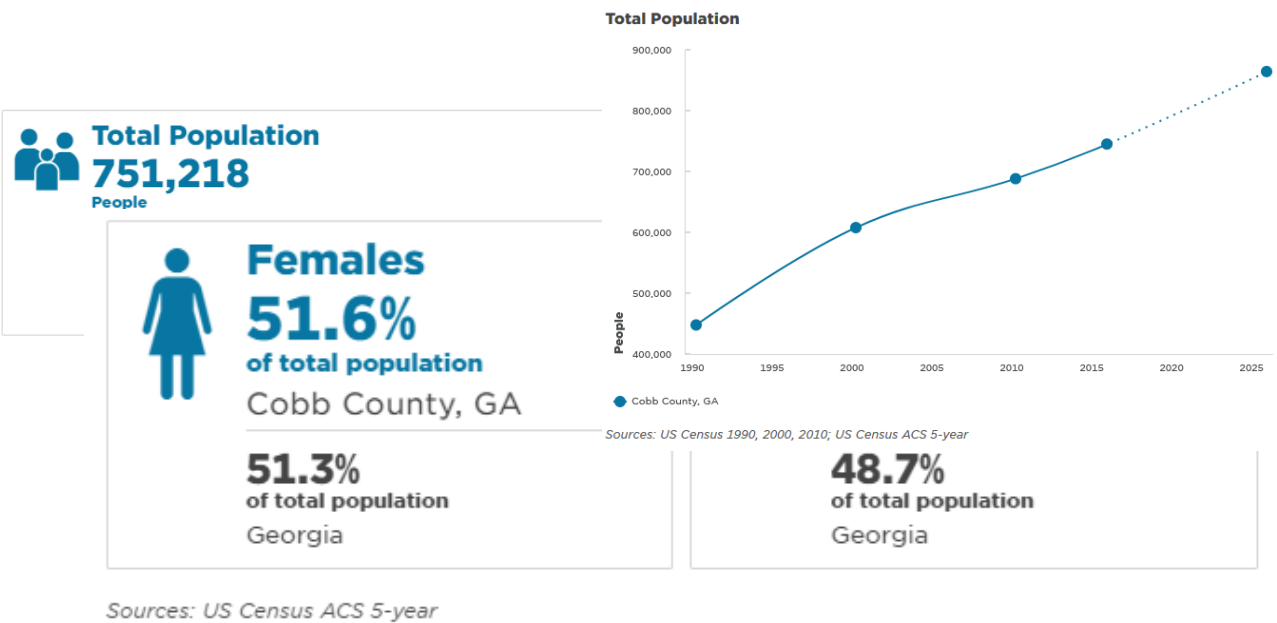
A measurable amount of rain falls on about 120 days each year, producing amounts averaging between 50 and 55 inches. As for snowfall, the average annual total is 1 or 2 inches in the northern counties. Usually, this snowfall occurs on just one or two days.

On average, the driest months are September and October while the wettest month is March. Thunderstorms are common in the spring and summer months. On a typical year, thunder will be heard on 50 to 60 days.

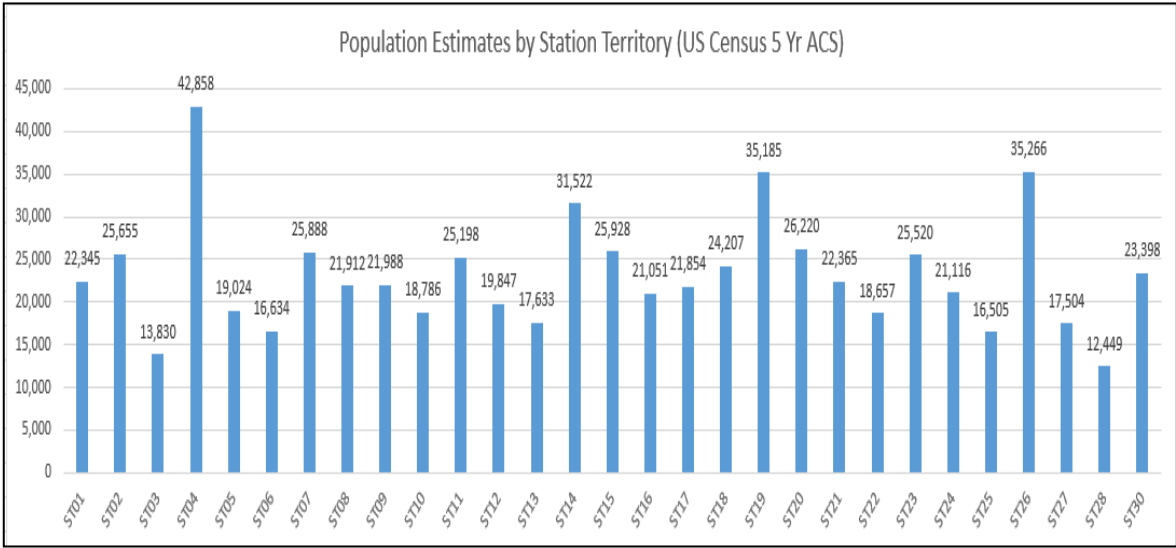
DEMOGRAPHICS<sup>ii</sup>

POPULATION

In 1955, when the Georgia Legislature authorized the creation of county fire districts, Cobb County’s population was approximately 75,000 people. Today, Cobb County continues to experience rapid growth with an estimated population of 760,141<sup>iii</sup> (July 2019), a 10.5% increase since 2010. The population of Cobb County is made up of about 52% females and 48% males with a median age of 36.7 years old.



Population estimations by station territories are displayed below.



**Population Estimates & Land Area of Cobb County and Municipal Jurisdictions**

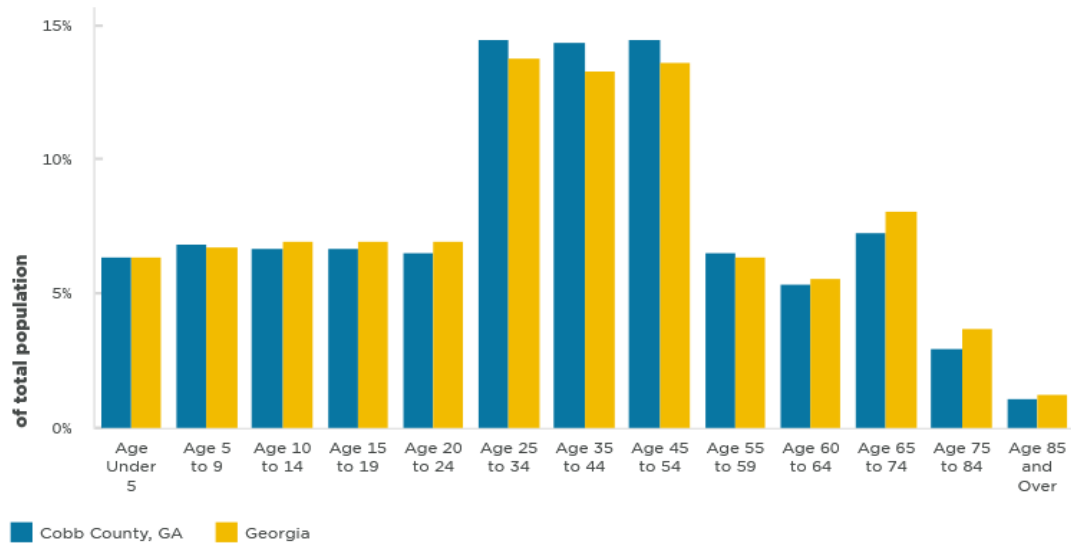
	<b>2000 Census</b>	<b>2010 Census</b>	<b>2019 Census est.</b>	<b>Land Area</b>
<b>Cobb County</b>	455,067	509,497	562,785	271
<b>Acworth</b>	13,422	20,425	22,818	8.24
<b>Austell</b>	5,359	6,581	7,170	5.97
<b>Kennesaw</b>	21,675	29,783	34,077	9.44
<b>Marietta</b>	58,748	56,579	60,867	23.08
<b>Powder Springs</b>	12,481	13,940	15,758	7.17
<b>Smyrna</b>	40,999	51,271	56,666	15.35
<b>Total</b>	607,751	688,076	760,141	340 sq. mi

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## AGE

Ages 25-54 constitute the largest age group in Cobb County.

**Age Totals**



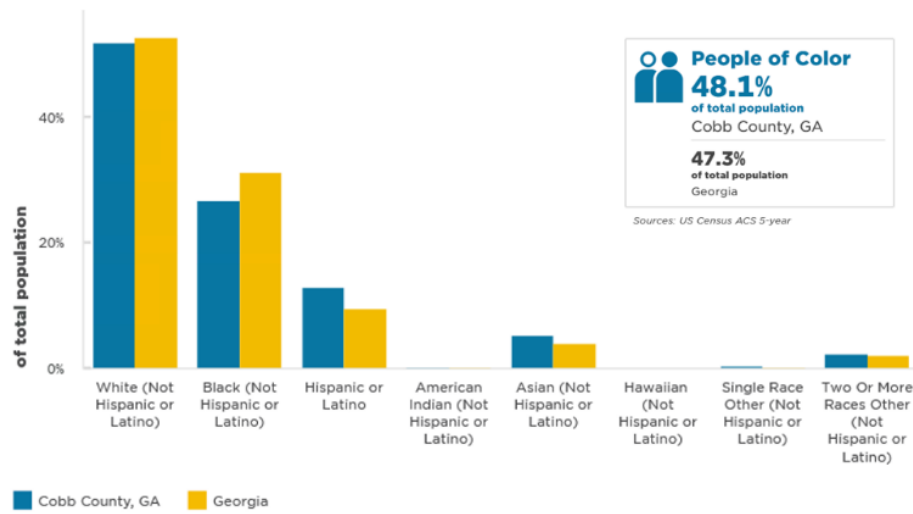
Sources: US Census ACS 5-year

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## RACE/ETHNICITY

People of color which include Black, Hispanic, and Asian, make up nearly 48.1% of the population.

## Race/Ethnicity Totals

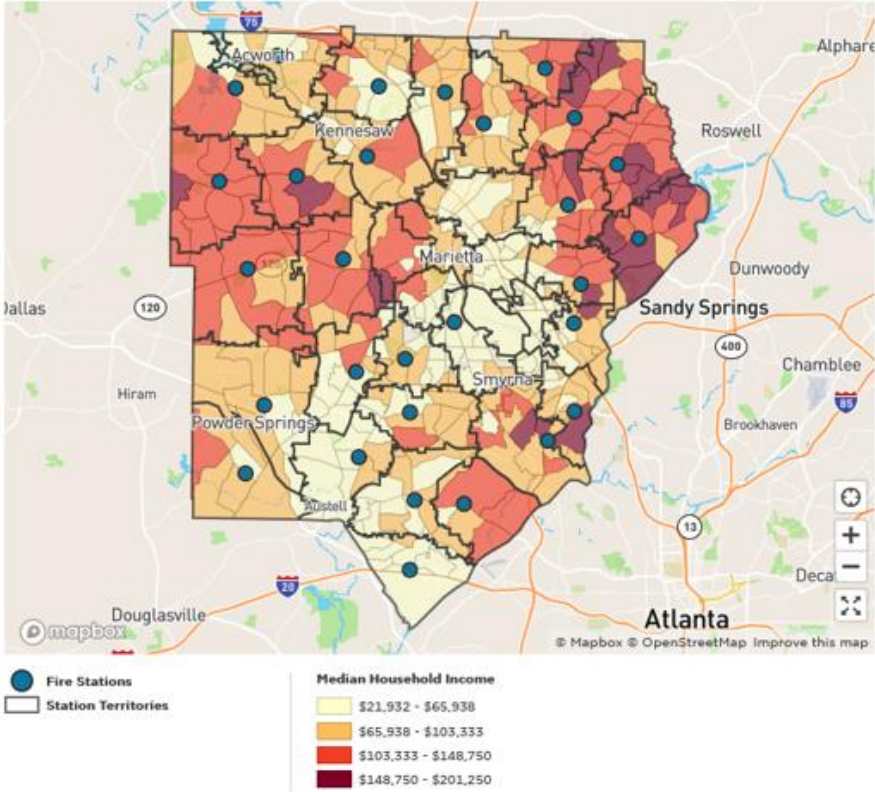


Sources: US Census ACS 5-year

## INCOME

Cobb county citizens have better than state averages in people below poverty level and median household income.

Cobb County - Median Household Income by Census Block



Sources: US Census ACS 5-year

**People Below Poverty Level**  
**9%**  
People per capita  
Cobb County, GA

**14.7%**  
People per capita  
Georgia

**Ratio of Income to Poverty Level: 150% and Under - Very Low Income Population**

**16.4%**  
People per capita  
Cobb County, GA

**24%**  
People per capita  
Georgia

**Median Household Income**  
**\$77,932**  
USD  
Cobb County, GA

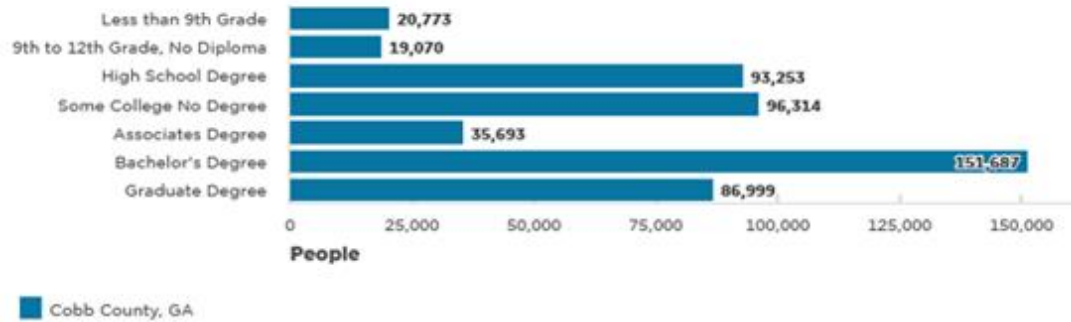
**\$58,700**  
USD  
Georgia

Sources: US Census ACS 5-year

## EDUCATION

Cobb county enjoys better than average state levels of high school and college educated citizens.

### Overview of Educational Attainment



Sources: US Census ACS 5-year Only individuals 25 and older are represented

#### Percent College Educated

**47.38%**

Cobb County, GA

**31.32%**

Georgia

#### Percent High School Educated

**92.09%**

Cobb County, GA

**87.14%**

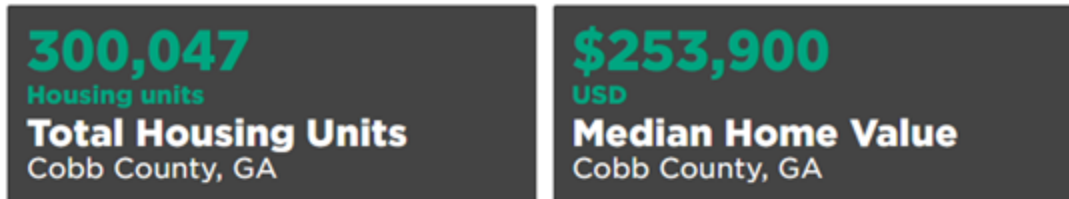
Georgia



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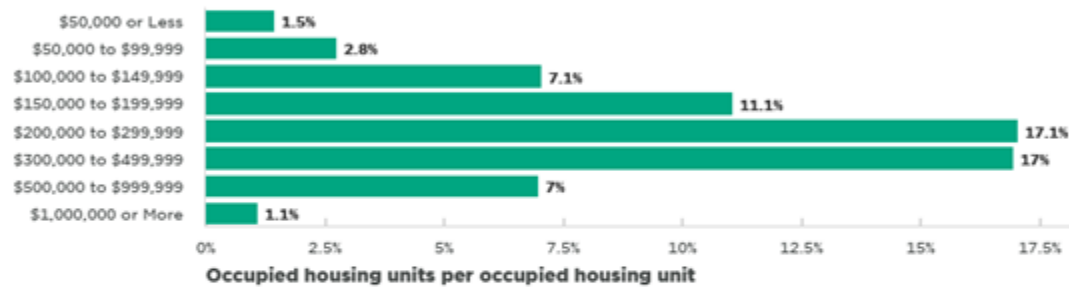
## HOUSING

Cobb County has over 300,000 housing units with a median value of \$253,900. Those housings units are occupied by the owner at a rate of 64.53% compared to renters.



Sources: US Census ACS 5-year

### Home Value



Cobb County, GA

Sources: US Census ACS 5-year

### Owner vs Renter Occupied



Cobb County, GA

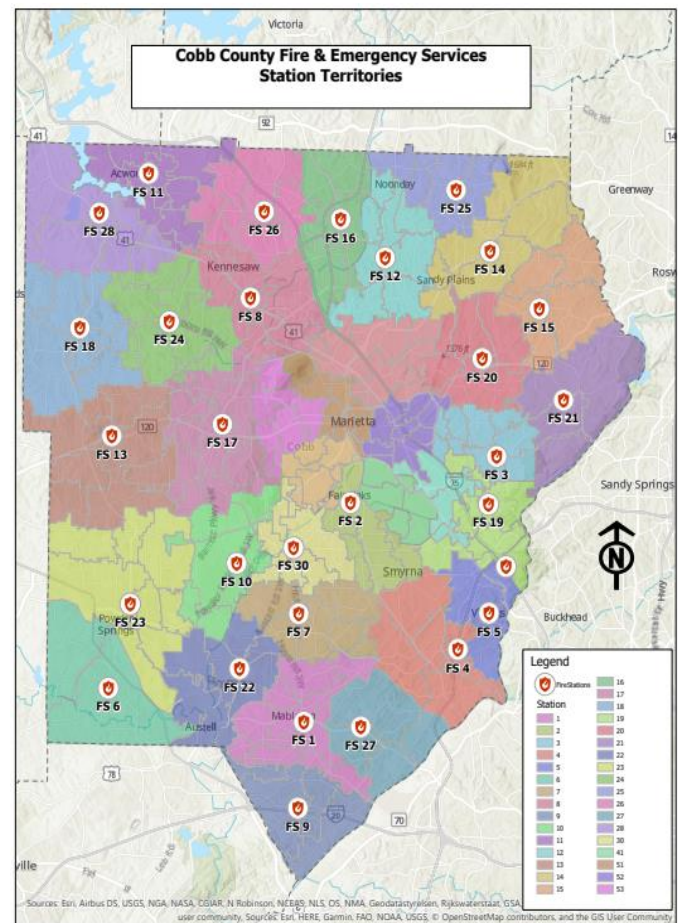
Sources: US Census ACS 5-year

## SECTION II: RESPONSE AREA CHARACTERISTICS

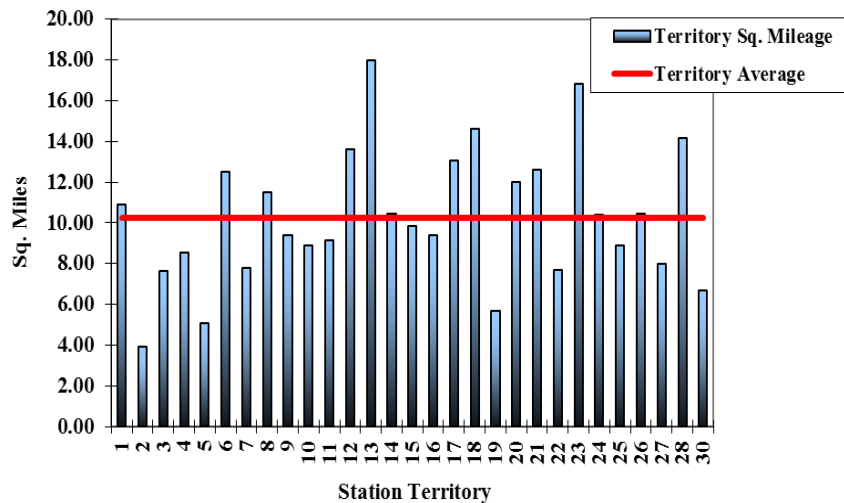
CCFES' 304 square mile jurisdiction is divided into five battalions with 29 fire stations distributed throughout the jurisdiction. For dispatching purposes, the service area is broken down into 29 station territories or "planning zones." The station territories are further subdivided into geographic areas called Fire Demand Zones (FDZ). There are 249 FDZs within CCFES' service area. The type of response CCFES uses is box area response; this system allows the closest unit to respond based off the location of the incident within the FDZ.

Within each station territory, the FDZs are divided into 3 sections: one for each shift. These smaller planning zones are used for assigning hydrant inspections, pre-incident planning, and identifying various hazards.

Cobb County spans 340.2 square miles of which CCFES protects about 304 square miles. Cobb County has 3,773 miles of public streets. Each of the 29 first-due territories averages 10.26 square miles. The maximum and minimum travel distance to territory borders averages from 1.65 to 2.33 miles.



Territory Sq. Miles vs. Avg. Territory Sq. Miles



## SERVICE AREA BOUNDARIES

In 1955, the Georgia Legislature adopted legislation to create fire districts for each county in the state. Funding for the districts came from levying a five-mill fire tax on homeowners protected in the individual districts. Referendums were held in the County, and by 1964, eight districts had been established in Cobb County. All but three cities, Marietta, Smyrna, and Austell, had established a Fire District.

On January 24, 1971, the Cobb County Board of Commissioners adopted a resolution to combine the Cobb County Fire Protection Districts under one fire chief.

Since 1989, the Department has added and expanded several programs over time to now include the following:

- Fire Suppression
- Emergency Medical Services – Advanced and Basic Life Support, Pharmacy Services, Specialized Medical Operations, Vulnerable Population and Mental Health Services, Public Access AED
- Hazardous Materials Identification and Mitigation
- Technical Rescue - Trench, High Angle/Rope, Machine and Vehicle Extrication, Swift-Water Rescue, Search and Rescue

- Community Risk Reduction – Fire Marshal Office, Investigation, Prevention and Education

Although not under the command of the Fire Department, the County also provides its citizens with 911 Services and an Emergency Management Agency (EMA). These entities work closely with the Fire Department.

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## MUTUAL AID BOUNDARIES

Cobb County Fire & Emergency Services has a mutual aid agreement with the cities of Austell and Smyrna and a hybrid type of automatic aid agreement with the City of Marietta. Cobb provides fire and EMS coverage for the cities of Acworth, Kennesaw, and Powder Springs with agreements that Cobb will provide continual coverage in each of the three jurisdictions. The cities of Austell, Marietta, and Smyrna each have fire and emergency medical coverage for their population. Each city has its own local governing bodies in place, consisting of an elected mayor and city council and an appointed city manager that oversees the day-to-day operations of city's functions.

During incidents that require multiple units, CCFES resources are shifted or “moved up” to ensure fire coverage in accordance with the contractual agreement with these cities.

CCFES responds efficiently and effectively to mitigate most incidents but occasionally they experience incidents where assistance is required. CCFES has a significant number of mutual aid contracts with local, state and federal agencies to support the department in these rare instances.

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## CRITICAL INFRASTRUCTURE

Critical infrastructure is the systems needed to maintain minimum services for operation of a community. Critical infrastructure includes transportation, communications, water, power, and healthcare. CCFES assesses some of the critical infrastructure within the planning zones through our community risk assessment, pre-fire planning activities, and JHAT efforts.

The Department of Transportation maintains roads (improvements and closures) and access points. The Water Department monitors hydrants and water mains for improvement opportunity, maintenance and outages. The hospital and public health systems within the county have been

identified and classified according to their capabilities. All Cobb County critical facilities maintain emergency backup power to maintain operations during a power outage. Radio communications and backup power for the fire department's immediate needs have also been taken into consideration.

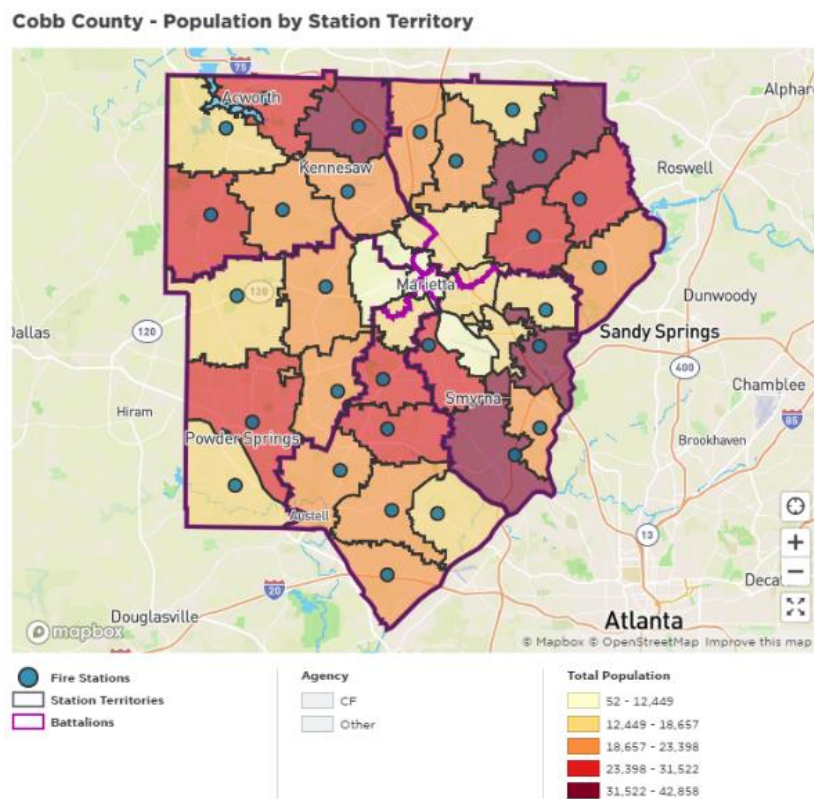
## SECTION III: RISK FACTORS

### GENERAL RISK FACTORS

#### POPULATION DENSITY II

Population density was evaluated by station territory to determine elevated risk and increased demands. Station territories were categorized by population density.

Stations 4, 19, 14, and 26 were identified as the most densely populated. These areas ranged from 31,500 – 42,800 people per station territory. Stations 11, 20, 15, 30, 2, 7, 23, and 18 were the next most densely populated. These areas ranged from 23,300 – 31,500 people per station territory. No single station territory had less than 12,449 people in the station territory.

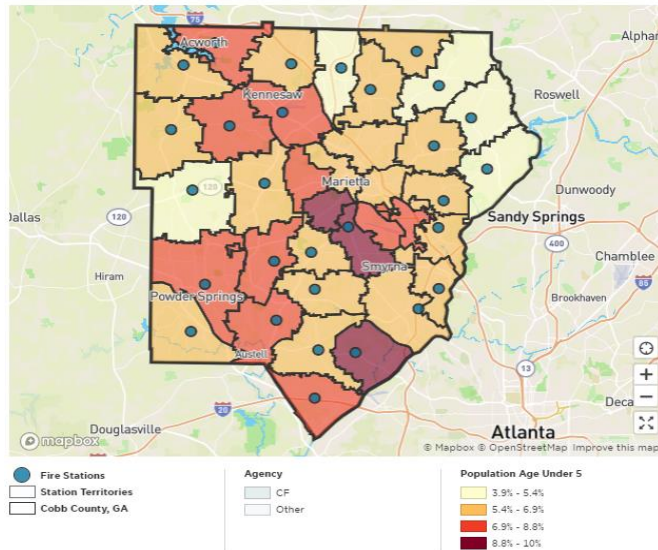




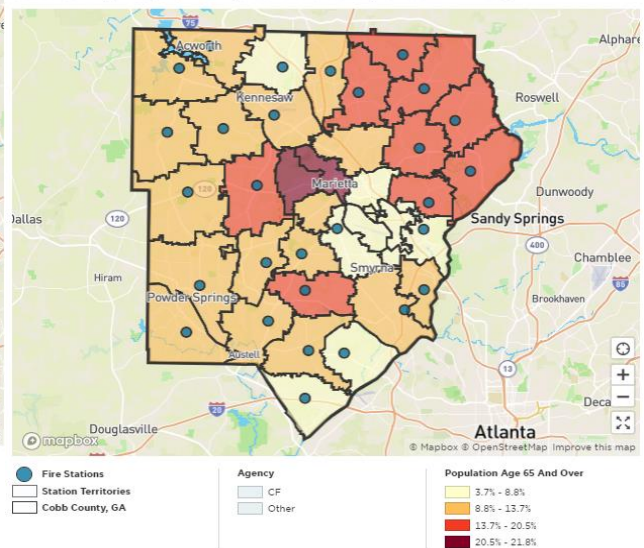
## VULNERABLE POPULATIONS <sup>11</sup>

Vulnerable population groups include children under 5, seniors 65 and older and those living with a disability – see below. Additional vulnerable populations and their characteristics are found in the “What are the known factors?” subsections of the “Fire Risk” and “EMS Risk” sections.

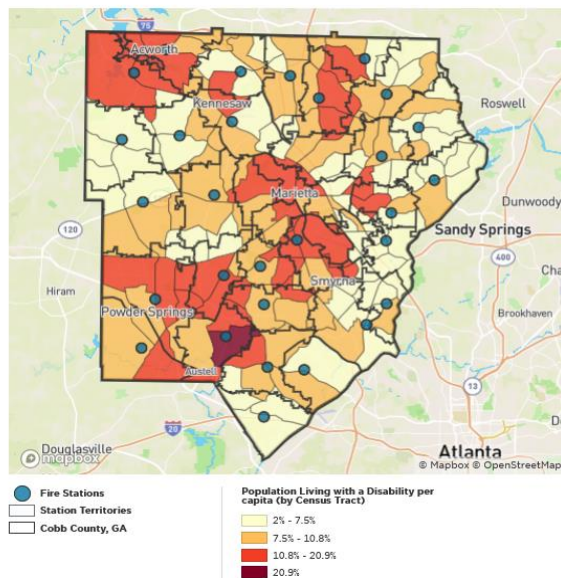
Cobb County - Population Under Age 5 by Station Territory



Cobb County - Population Age 65 and Older by Station Territory



Cobb County - Population Living with a Disability (by Census Tract)



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## SEVERE WEATHER

For the purpose of this document, severe weather encompasses thunderstorms (including hail), lightning, flooding, and winter storms.

Cobb County is particularly prone to severe thunderstorms, tornadoes and flooding. Blizzards are rare in this area; ice storms are more common and can cause more problems than snow. Downed trees, power outages, and dangerous road conditions are examples of possible consequences of such storms which pose a major threat to the community.

According to the Cobb County Water System (CCWS) Flood Mitigation Plan (FMP), cold frontal boundaries moving from Canada into the Midwest and into Cobb County during the early spring frequently collide with warm fronts moving north into Cobb County from the Gulf of Mexico. These collisions can spawn intense thunderstorms and tornadoes. These storms commonly occur in late February or early March and can produce severe flooding. Thunderstorms can also occur in late June, July or August when orographic lifting of water vapor during the summer transforms into powerful thunderstorms.

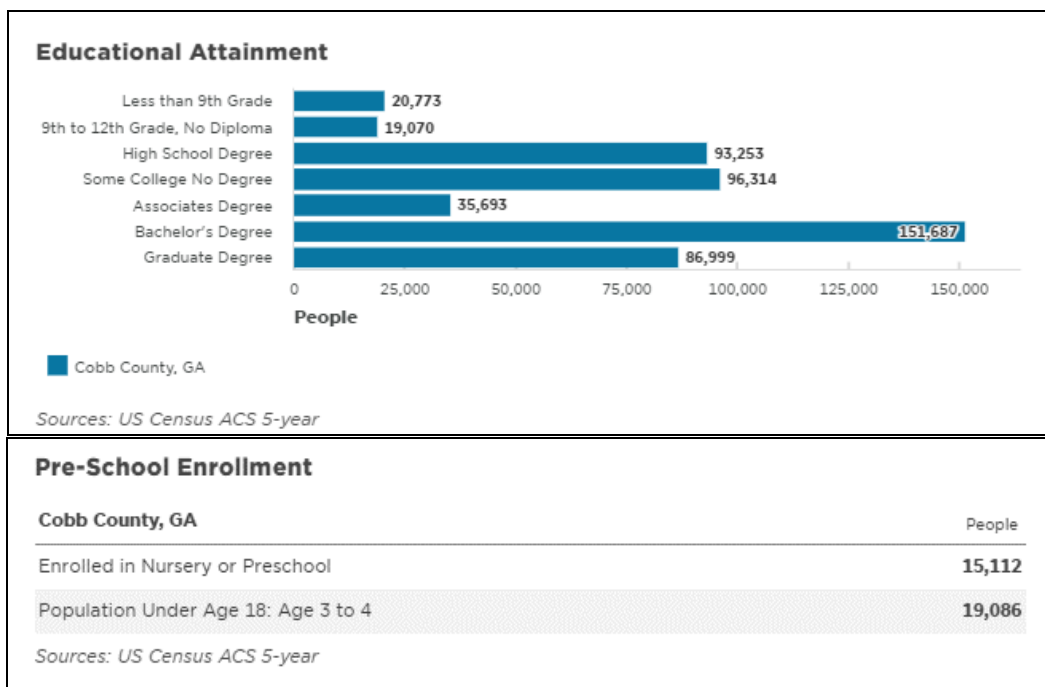
The most prevalent natural hazard event occurring in Cobb County is thunderstorms. In evaluating assets that are susceptible to thunderstorms and hail, all critical facilities, as well as all public, private, and commercial property, are susceptible to thunderstorms and hail.

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## EDUCATION <sup>11</sup>

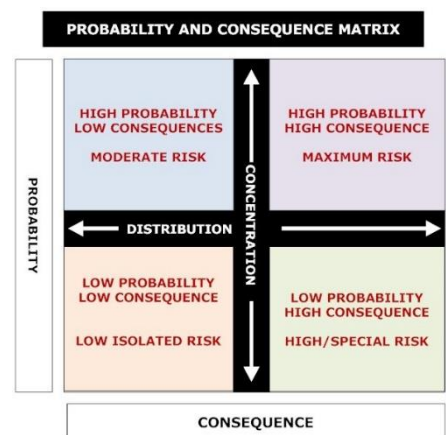
Education improves nearly every factor impacting an individual's life. Literacy and the ability to understand information is correlated with longer lifespans, safer actions, and improved decision making. Greater educational attainment improves economic opportunity, and high school graduation is a critical predictor for whether an individual will be exposed to violent crime in their lifetime. Lifelong educational outcomes begin in preschool. Enrollment in a high-quality preschool or nursery school often predicts lifelong educational and health outcomes.





## RISK CLASSIFICATIONS

CCFES utilizes four main hazard classifications for each station territory within Cobb County based on identified risk factors. These classifications are fundamentally based on the Commission on Fire Accreditation International's hazard classification guidelines illustrated in the "Probability and Consequence Matrix" and include Low, Moderate, High, and Maximum Hazard. Modifications have been made to the commission's matrix to more accurately accommodate this system for use in Cobb County, such as taking into consideration multiple factors in the categories of Fire, EMS, Technical Rescue, and Hazardous Materials. Each of these categories were scored to determine an individual category risk classification as well as an overall risk classification.



### LOW RISK – LOW PROBABILITY, LOW CONSEQUENCE

A low-risk area is typically isolated from any centers of population and contain few buildings. These structures present the same strategic and logistical issues with low life loss potential and minimal

financial impact to the local community if any at all. Typical call types for a low-risk area include automobile fires, carbon monoxide leaks, grass fires, industrial accidents, and tractor-trailer fires.

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#### **MODERATE RISK – HIGH PROBABILITY, LOW CONSEQUENCE**

A moderate risk property will be in developed areas of average size. Structures will have significant risk of fire, but the consequence of a fire would be minimal to the community. For instance, the risk of life loss or property damage from fire in single-occupancy dwellings is usually limited to the residents. Other examples of incidents in this risk category would be single-patient EMS calls and automobile accidents. These incidents have a high probability with limited consequences.

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#### **HIGH RISK – LOW PROBABILITY, HIGH CONSEQUENCE**

High and Special Risk areas are generally the structures over 7,500 and less than 15,000 square feet. Most of these structures will have built-in fire suppression capabilities. The likelihood of fire is low, but the consequence of a fire would be significant and include high life loss. However, due to the built-in fire protection and suppression, the potential for a significant fire is greatly reduced. Occupancies in this category include large commercial structures, shopping and business complexes, multi-story hotels, apartment buildings, theatres, schools, hospitals, and infrastructure facilities.

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#### **MAXIMUM RISK = HIGH PROBABILITY, HIGH CONSEQUENCE**

Maximum Risk areas are typically commercial structures over 15,000 square feet, without built-in fire suppression systems. Occupancies include large shopping areas, multi-story hotels and office complexes, and commercial facilities with extremely high fire load or hazardous materials. These locations have the highest potential for life loss and community impact; additionally, they have the greatest risk of fire due to the lack of fire protection and suppression systems. Risks such as these frequently increase a fire department's need to have multiple alarm capability and an accurate assessment of its ability to concentrate resources. Failure to identify these risks often results in a department's inability to control the loss once a fire has occurred. These risks also create a fundamental need to assess mutual and automatic aid requirements to support the department's operations through assistance from other fire departments.

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## SCORING CATEGORY RISKS (FIRE, EMS, TRT, HAZMT)

CCFES assigned a score to factors associated with increased risk for each category. These factors were identified as the following: population density, vulnerable populations, poverty, old or vacant structures, incident types and their proximity to the mitigation resource, prevention efforts, high-risk occupancy's distance from fire stations or distance from a hydrant, time sensitive emergencies, and density of target hazards within the station territory. These factors were scored in each station territory and applied to each applicable category. These scores were then aggregated for Fire, EMS, Hazmat, and TRT and then combined to get an overall Risk Score.

To weigh the factors in relationship to others, a multiplier was applied based on three additional factors.

- Was the risk or event likely to occur? Yes – High Probability, Plus 1 Multiplier
- If an event occurred, it would likely be significant? Yes – High Consequence, Plus 1 Multiplier
- Does a risk factor significantly impact the results of an event? Yes – Significant Factor, Plus 1 Multiplier

The higher the overall station score the greater the risk based on the identified factors. Below is the final scoring table. Each risk type has a score range with its corresponding risk classification; following the individual risk types is an overall station territory risk level:

Risk Type	Score Range	Risk Classification
Fire	1-4	Low
	5-8	Moderate
	9-12	High
	13-15	Extreme
EMS	1-6	Low
	7-12	Moderate
	13-19	High
	20	Extreme
TRT	1-6	Low
	7-12	Moderate
	13-19	High
	20-22	Extreme
Hazmat	1-4	Low
	5-9	Moderate

	10-14	High
	15-18	Extreme
Overall	1-19	Low
	20-39	Moderate
	40-59	High
	60-75	Extreme

### Factors Used by Category To Score Risk

<b>FIRE Factor #</b>	<b>Factor Category</b>	<b>Factor Desc</b>	<b>Criteria</b>	<b>Multiplier</b>
1	FIRE	Avg distance from fire station*	LT 1.5 miles = 0 GTE 1.5 miles = 1	2
2	FIRE	Avg distance from fire hydrant*	LT 500 ft = 0 GTE 500 ft = 1	1
3	FIRE	Avg pre-fire plan review age*	LT 1.5 years = 0 GTE 1.5 years = 1	1
4	FIRE	J-Hat facilities (avg/sq mi)	LTE avg = 0 GT avg = 1	2
5	FIRE	Population density (per sq mi)	LT 2000 = 0 GTE 2000 = 1	2
6	FIRE	Age under 5 (6.1%-msw national avg)	LTE national avg = 0 GT national avg = 1	1
7	FIRE	Age >= 65 (15.3%-msw national avg)	LTE national avg = 0 GT national avg = 1	1
8	FIRE	Targeted fire prevention	MSW rpt LT 1K people = 0 MSW rpt GTE 1K people=1	3
9	FIRE	100 series calls (5 yr avg)	LTE 5 yr avg = 0 GT 5 yr avg = 1	2

EMS Factor #	Factor Category	Factor Desc	Criteria	Multiplier
1	EMS	Avg distance from fire station*	LT 1.5 miles = 0 GTE 1.5 miles = 1	2
2	EMS	Avg distance from hospital *	LT 10 miles = 0 GTE 10 miles = 1	2
3	EMS	Avg distance from ALS station *	LT 3 miles = 0 GTE 3 miles = 1	2
4	EMS	J-Hat facilities (avg/sq mi)	LTE avg = 0 GT avg = 1	2
5	EMS	Population density (per sq mi)	LT 2000 = 0 GTE 2000 = 1	2
6	EMS	Age under 5 (6.1%-msw national avg)	LTE national avg = 0 GT national avg = 1	1
7	EMS	Age >= 65 (15.3%-msw national avg)	LTE national avg = 0 GT national avg = 1	2
8	EMS	Targeted fire prevention	MSW rpt LT 1K people = 0 MSW rpt GTE 1K people=1	3
9	EMS	Time sensitive emergency calls **	LT 50% for 3 Yr Total = 0 GTE 50% for 3 Yr Total = 1	2
10	EMS	All 300 series	top 10 station territories	2

HZMT Factor #	Factor Category	Factor Desc	Criteria	Multiplier
1	HZMT	Avg distance from fire station *	LT 1.5 miles = 0 GTE 1.5 miles = 1	1
2	HZMT	Avg time from HZMT station * (St 8, St 22)	LT 10 minutes = 0 GTE 10 minutes = 1	1
3	HZMT	Avg distance from ALS station *	LT 3 miles = 0 GTE 3 miles = 1	1
4	HZMT	J-Hat facilities (avg/sq mi)	LTE avg = 0 GT avg = 1	1
5	HZMT	Population density (per sq mi)	LT 2000 = 0 GTE 2000 = 1	2
6	HZMT	Airports	Does not contain = 0 Contains = 1	3
7	HZMT	Industrial Facilities	Does not contain = 0 Contains = 1	3
8	HZMT	Chemical Facilities	Does not contain = 0 Contains = 1	3
9	HZMT	Major Roadways/ Interstates	Does not contain = 0 Contains = 1	3

\* FIRE: highest risk occupancies only

\* EMS/TRT/HZMT: all address points

\*\* EMS: Targeted Situation Provider Impressions

TRT Factor #	Factor Category	Factor Desc	Criteria	Multiplier
1	TRT	Avg distance from fire station *	LT 1.5 miles = 0 GTE 1.5 miles = 1	1
2	TRT	Avg time from TRT station * (St 4, St 16)	LT 10 minutes = 0 GTE 10 minutes = 1	2
3	TRT	Avg distance from ALS station *	LT 3 miles = 0 GTE 3 miles = 1	1
4	TRT	J-Hat facilities (avg/sq mi)	LTE avg = 0 GT avg = 1	2
5	TRT	Population density (per sq mi)	LT 2000 = 0 GTE 2000 = 1	2
6	TRT	Age 16-24 (12.2%-msw national avg)	LTE national avg = 0 GT national avg = 1	1
7	TRT	Age >= 65 (15.3%-msw national avg)	LTE national avg = 0 GT national avg = 1	1
8	TRT	Targeted fire prevention	MSW rpt LT 1K people = 0 MSW rpt GTE 1K people=1	1
9	TRT	Avg MVC per road mile	LTE 5 yr avg = 0 GT 5 yr avg = 1	1
10	TRT	Male population (49.2%- msw national avg)	LTE avg = 0 GT avg = 1	1
11	TRT	Rivers & Lakes	Does not contain = 0 Contains = 1	2
12	TRT	Hazardous Terrain	Does not contain = 0 Contains = 1	2
13	TRT	Flooding Hazard	Does not contain = 0 Contains = 1	1
14	TRT	Major Roadways/ Interstates	Does not contain = 0 Contains = 1	2
15	TRT	Managed Lanes	Does not contain = 0 Contains = 1	2

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## ANALYZING INCIDENT RISK

Risk in the community is reflected in incident data. Analyzing this data, the following methodology was used. Attempts were made to determine the answers to the following questions regarding incident data by the categories of FIRE, EMS, Technical Rescue, and Hazmat:

What is happening?

Why is it happening?

Where is it happening?

When is it happening?

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## FIRE INCIDENT RISK

- What are the known factors?
- What are the top incident types?
- What are the incident-type trends?
- Why did these incidents occur?
  - Structure Fires – Top Heat Source Causes
  - Structure Fires – Heat Source and Related Factors
  - Structure Fires – Smoke Detector Present & Effectiveness
  - Structure Fires – Sprinklers Present & Effectiveness
  - Cooking Fires – Heat Source and Related Factors
- Where did these incidents occur?
  - Map incidents by station territory
    - Structure Fires
    - Cooking Fires
- When did these incidents occur?
  - Incidents by time of day, day of week, month of year

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## EMS INCIDENT RISK

- What are the known factors?
- What are the top incident types?
- What are the incident-type trends?
- Why did these incidents occur?
  - Cardiac Arrest – Witnessed and Non-Witnessed
  - Cardiac Arrest – Nature or Cause
  - Cardiac Arrest – CPR Performed & Effectiveness
  - Injuries – Top Injury Types
  - Injuries – Injury Types by Age Group
  - Chest Pains – Age Groups
  - Stroke – Age Groups
  - Altered Mental Status – Age Groups
  - Respiratory Distress – Age Groups and Severity
- Where did these incidents occur?
  - Map incidents by station territory
    - Cardiac Arrest
    - Respiratory Distress
    - Chest Pains
    - Injuries by Type
- When did these incidents occur?
  - Incidents by time of day, day of week, month of year

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## TRT INCIDENT RISK

- What are the known factors?
- What are the top incident types?

- What are the incident-type trends?
- Why did these incidents occur?
  - MVA – Related Factors
  - MVA Extrication – Related Factors
- Where did these incidents occur?
  - Map incidents by station territory
    - Top MVA Intersections
    - Top Specialty Incident – Trench, Collapse, Animal Rescue, Disentanglement, Swift Water, High Angle Rescue
- When did these incidents occur?
  - Incidents by time of day, day of week, month of year

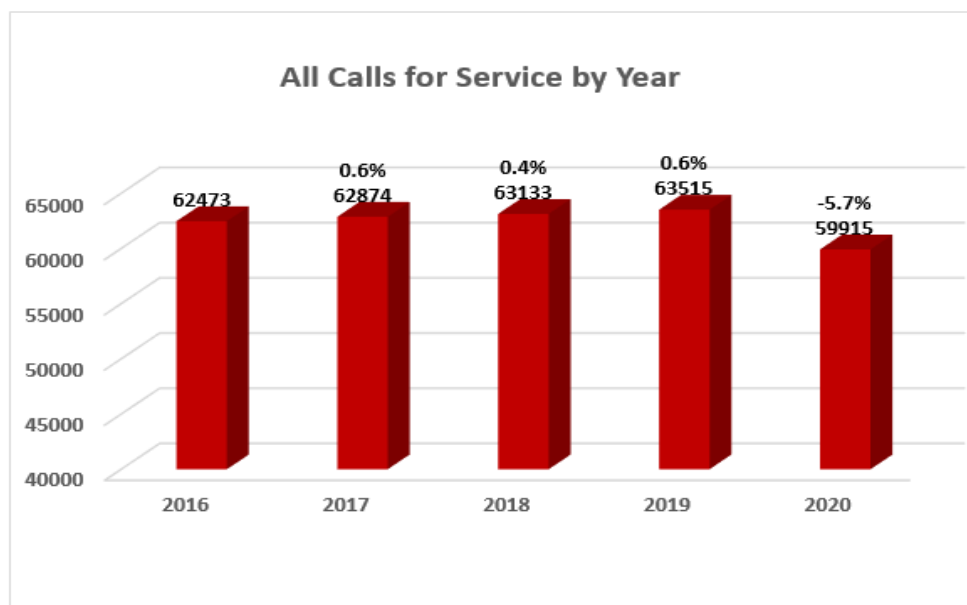
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## HAZMAT INCIDENT RISK

- What are the known factors?
- What are the top incident types?
- What are the incident-type trends?
- Why did these incidents occur?
  - Chemical or Hazardous Substance Release – Location and Related Factors
- Where did these incidents occur?
  - Map incidents by station territory
    - Chemical or Hazardous Substance Release
- When did these incidents occur?
  - Incidents by time of day, day of week, month of year

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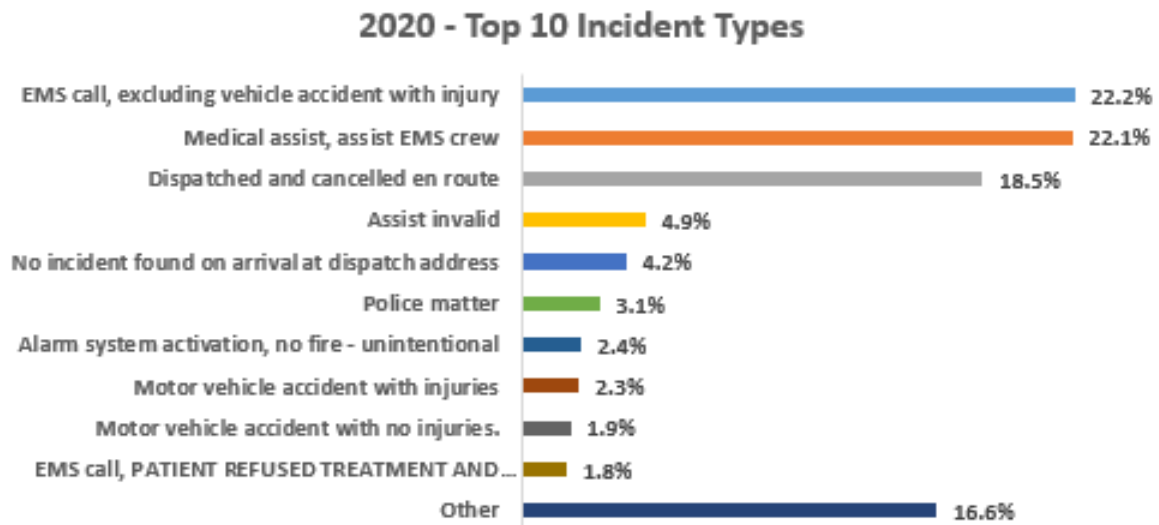
## INCIDENT COUNTS AND TOP TYPES



*\* Data prior to 1/22/2018 from Firehouse RMS and 1/22/2018 forward from ImageTrend RMS;  
All calls for service; initial/basic exposure*



Inherently some risks within the community can be identified by examining the various incidents responded to by the agency. In 2020 the following are the top 10 incident types responded to by CCFES. EMS related incidents consistently make up the largest portion of the top incident types.



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## FIRE RISK

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### WHAT ARE THE KNOWN FACTORS?

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#### VACANT HOUSING UNITS<sup>iv</sup>

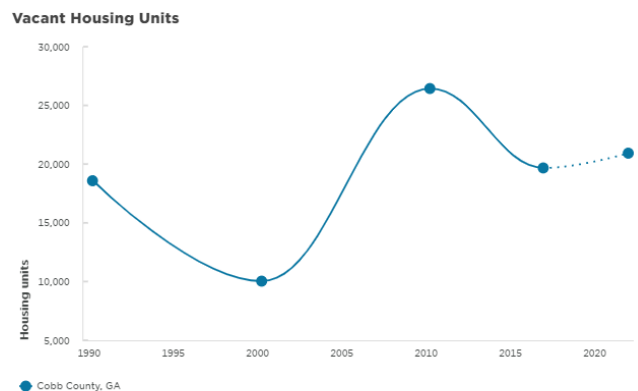
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Vacant buildings represent a fire hazard for several reasons. First, research shows they are more likely to experience severe fires than other buildings.

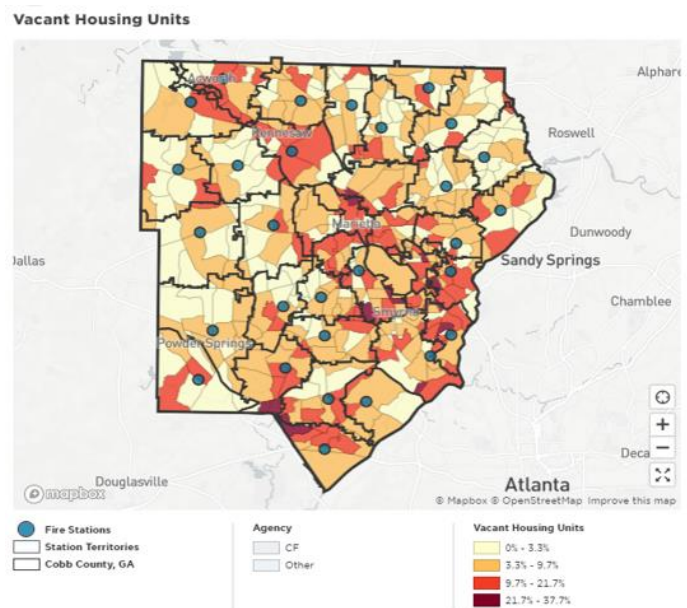
Second, homeless persons or others seeking secluded shelter may enter vacant buildings illegally. During the coldest months, those persons may light fires within the vacant building to keep warm.

Finally, nearby vacant buildings may discourage absentee landlords from investing in their buildings. When the landlord delays or ceases routine maintenance, the quality of the housing units (i.e., heating or electrical systems) decline and increase the risk of fire.

The data illustrates the number of and percent of housing units that are vacant, as identified by the US Census.



Sources: US Census 1990, 2000, 2010; US Census 2010; US Census ACS 5-year



## OLDER HOUSING UNITS <sup>iv</sup>

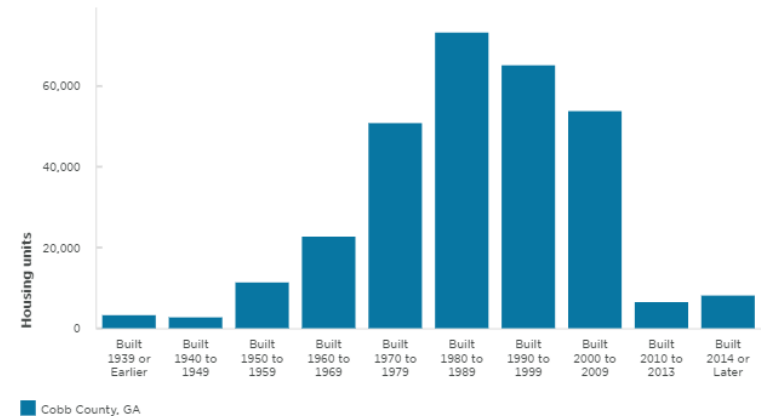
Households living in older, poorly maintained homes have a greater risk of experiencing a fire. Older heating, plumbing, and electrical systems need adequate maintenance to ensure their continued safe operation. Insufficient maintenance and age increase the risk of mechanical malfunction and the possibility of a fire. Additionally, the electrical wiring in many older homes poses a fire risk.

Older wiring was not designed to carry the electrical loads required by modern appliances and devices, resulting in greater risk for electrical shortages. Older homes are also less likely to have adequate central heating. As a result, households may turn to space heaters or other alternatives that have a greater fire risk when used carelessly or incorrectly.

The charts indicate the number and percent of housing units built prior to 1940, and a breakdown of the number of buildings by age. The US Census defines a building's age as the year the structure was built, irrelevant of if, or when, it was remodeled, added to, or converted.

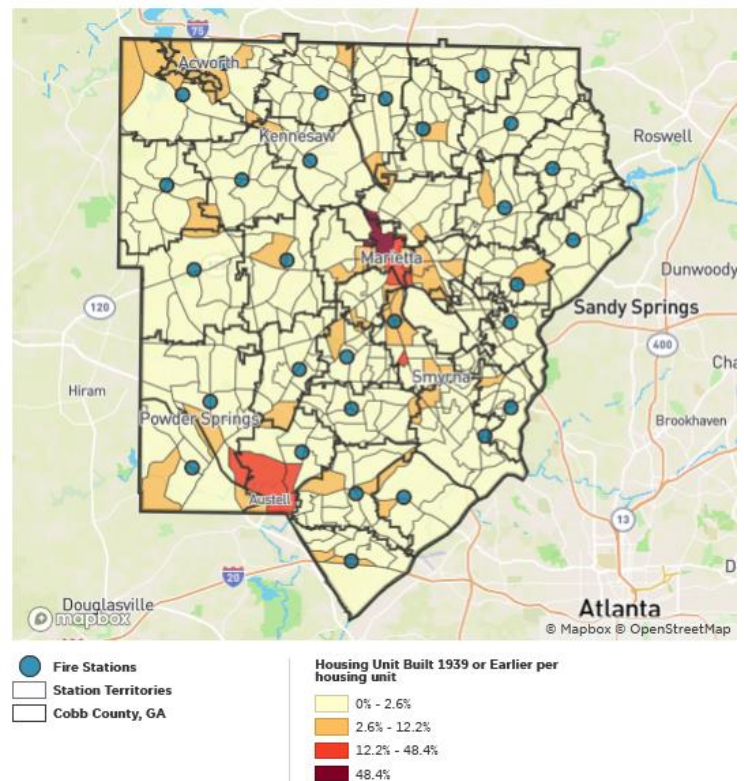


Building Age of Housing Units



Sources: US Census ACS 5-year

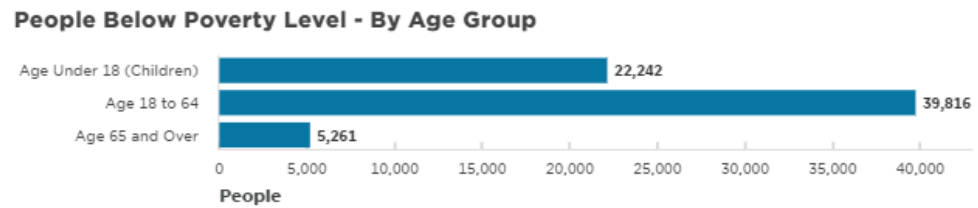
Cobb County - Housing Units Built Prior to 1940 (by Census Block)



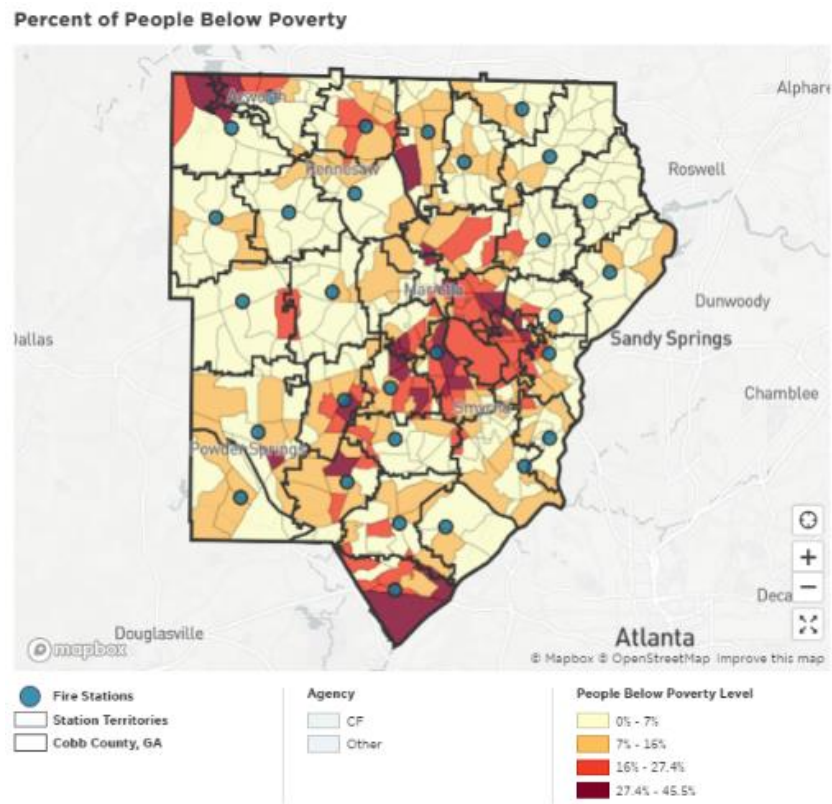
PEOPLE LIVING IN POVERTY <sup>iv</sup>

Poverty places a household at greater risk for experiencing a fire for a large, complex set of reasons. For one, in the U.S. housing quality and affordability are closely related so that low-income households are more likely to live in at-risk structures. Individuals in poverty are also more likely to live in deteriorated neighborhoods with increased vacancy and may experience periods of homelessness.

Moreover, the lack of disposable income that comes with poverty means that households are less likely to have the resources to invest in fire protection devices or batteries. Residents who cannot afford to make utility payments are also at risk. If one of a household’s utilities are shut off, the residents are likely to compensate with other, less fire-safe alternatives.



■ Cobb County, GA  
Sources: US Census ACS 5-year



Source: US Census ACS 5-year

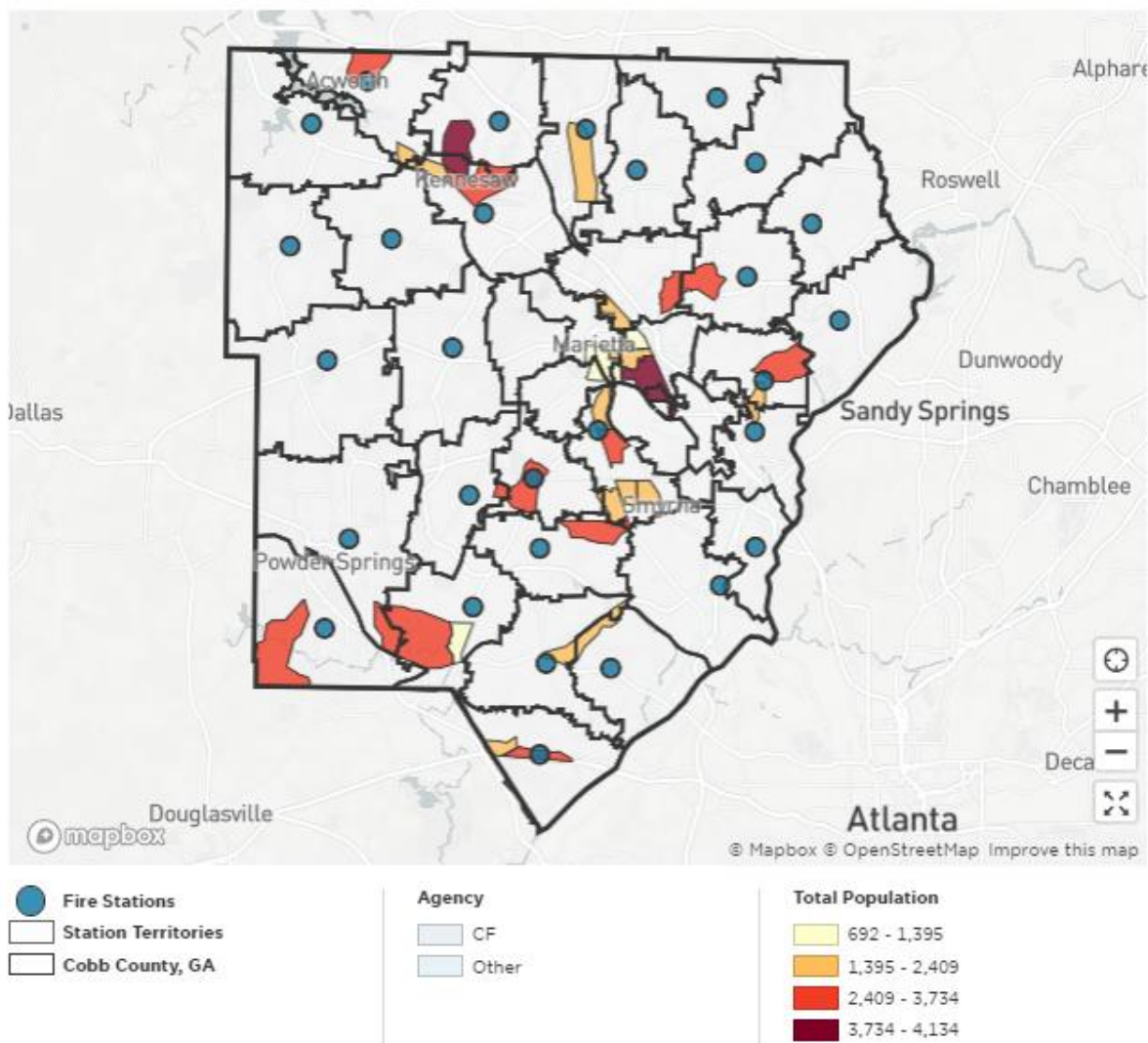
TARGETED FIRE PREVENTION: COBB COUNTY <sup>iv</sup>

This report identifies areas at greatest risk for fires based on research completed in the U.S. Fire Administration report: socioeconomic factors and the incidence of fire.

The US Fire Administration found that the following factors are the most strongly correlated with fires and fire fatalities:

- Vacant Housing Units
- Older Housing Units (built before 1940)
- People Living in Poverty (below the national poverty level)
- Adults with Less Than a 9th Grade Education

The map below combines the above key indicators for fire risk to identify areas in the community at elevated risk. The block groups shown in the map indicate where all the key indicators are in the top 50th percentile. The map is shaded by total population to help identify where the greatest number of residents may be at risk. This map can be used to geographically target fire prevention measures.





Elevated fire risks from Targeted Fire Prevention were identified as the following station territories based on the above four factors: Stations 3, 20, 22, 6, 9, 1, 27, 30, 2, 11, 26, 16, 8.

## WHAT ARE THE TOP FIRE INCIDENT TYPES?

In 2020 the number of fire related incidents constituted 1.5% of all incidents. Below represent the fire related incident types, the count and percentage out of the total fire related incidents.

<b>100 Series - Fire Related Incident Types</b>	<b>Count</b>	<b>Percent</b>
111 - Building fire	271	28.62%
112 - Fires in structure other than in a building	20	2.11%
113 - Cooking fire, confined to container	89	9.40%
114 - Chimney or flue fire, confined to chimney or flue	14	1.48%
115 - Incinerator overload or malfunction, fire confined	2	0.21%
116 - Fuel burner/boiler malfunction, fire confined	1	0.11%
117 - Commercial Compactor fire, confined to rubbish	1	0.11%
118 - Trash or rubbish fire, contained	25	2.64%
121 - Fire in mobile home used as fixed residence	1	0.11%
122 - Fire in motor home, camper, recreational vehicle	1	0.11%
131 - Passenger vehicle fire	186	19.64%
132 - Road freight or transport vehicle fire	28	2.96%
134 - Water vehicle fire	1	0.11%
137 - Camper or recreational vehicle (RV) fire	1	0.11%
138 - Off-road vehicle or heavy equipment fire	4	0.42%
141 - Forest, woods or wildland fire	12	1.27%
142 - Brush or brush-and-grass mixture fire	125	13.20%
143 - Grass fire	25	2.64%
151 - Outside rubbish, trash or waste fire	52	5.49%
152 - Garbage dump or sanitary landfill fire	2	0.21%
153 - Construction or demolition landfill fire	3	0.32%
154 - Dumpster or other outside trash receptacle fire	53	5.60%
155 - Outside stationary compactor/compacted trash fire	2	0.21%
160 - Special outside fire, other	2	0.21%
161 - Outside storage fire	6	0.63%
162 - Outside equipment fire	19	2.01%
163 - Outside gas or vapor combustion explosion	1	0.11%
<b>Grand Total</b>		<b>100.00%</b>

The following table shows all fire related incident types by associated property type. This also includes the primary incident and associated exposures. The intent of this table is to show fire incident types with the property type attribute to assist with focusing attention on all know aspects of risk.

<b>Incident Type by Property Type</b>	<b>Percent</b>	<b>Count</b>
<b>111 - Building fire</b>	<b>28.62%</b>	<b>271</b>
	<b>Subgroup %</b>	<b>Subgroup Count</b>
141 - Athletic/health club	0.11%	1
142 - Clubhouse	0.11%	1
161 - Restaurant or cafeteria	0.32%	3
311 - 24-hour care Nursing homes, 4 or more persons	0.21%	2
363 - Reformatory, juvenile detention center	0.21%	2
419 - 1 or 2 family dwelling	15.84%	150
429 - Multifamily dwelling	8.03%	76
464 - Barracks, dormitory	0.11%	1
519 - Food and beverage sales, grocery store	0.11%	1
529 - Textile, wearing apparel sales	0.11%	1
549 - Specialty shop	0.11%	1
564 - Laundry, dry cleaning	0.21%	2
571 - Service station, gas station	0.11%	1
579 - Motor vehicle or boat sales, services, repair	0.11%	1
599 - Business office	0.21%	2
808 - Outbuilding or shed	0.74%	7
839 - Refrigerated storage	0.11%	1
881 - Parking garage, (detached residential garage)	0.21%	2
891 - Warehouse	0.32%	3
899 - Residential or self-storage units	0.21%	2
961 - Highway or divided highway	0.11%	1
981 - Construction site	0.21%	2
NULL	0.84%	8
<b>Incident Type by Property Type</b>	<b>Percent</b>	<b>Count</b>
<b>112 - Fires in structure other than in a building</b>	<b>2.11%</b>	<b>20</b>
	<b>Subgroup %</b>	<b>Subgroup Count</b>
419 - 1 or 2 family dwelling	0.84%	8
429 - Multifamily dwelling	0.21%	2
564 - Laundry, dry cleaning	0.11%	1
599 - Business office	0.11%	1
615 - Electric-generating plant	0.11%	1
642 - Electrical distribution	0.11%	1
808 - Outbuilding or shed	0.21%	2
881 - Parking garage, (detached residential garage)	0.11%	1

921 - Bridge, trestle	0.11%	1
926 - Outbuilding, protective shelter	0.11%	1
936 - Vacant lot	0.11%	1
<b>Incident Type by Property Type</b>	<b>Percent</b>	<b>Count</b>
<b>113 - Cooking fire, confined to container</b>	<b>9.40%</b>	<b>89</b>
	Subgroup %	Subgroup Count
161 - Restaurant or cafeteria	0.63%	6
419 - 1 or 2 family dwelling	2.96%	28
429 - Multifamily dwelling	4.86%	46
439 - Boarding/rooming house, residential hotels	0.11%	1
449 - Hotel/motel, commercial	0.11%	1
464 - Barracks, dormitory	0.21%	2
931 - Open land or field	0.11%	1
936 - Vacant lot	0.11%	1
962 - Residential street, road or residential driveway	0.21%	2
NULL	0.11%	1
<b>Incident Type by Property Type</b>	<b>Percent</b>	<b>Count</b>
<b>114 - Chimney or flue fire, confined to chimney or flue</b>	<b>1.48%</b>	<b>14</b>
	Subgroup %	Subgroup Count
419 - 1 or 2 family dwelling	1.06%	10
429 - Multifamily dwelling	0.32%	3
549 - Specialty shop	0.11%	1
<b>Incident Type by Property Type</b>	<b>Percent</b>	<b>Count</b>
<b>115 - Incinerator overload or malfunction, fire confined</b>	<b>0.21%</b>	<b>2</b>
	Subgroup %	Subgroup Count
134 - Funeral parlor	0.11%	1
519 - Food and beverage sales, grocery store	0.11%	1
<b>Incident Type by Property Type</b>	<b>Percent</b>	<b>Count</b>
<b>116 - Fuel burner/boiler malfunction, fire confined</b>	<b>0.11%</b>	<b>1</b>
	Subgroup %	Subgroup Count
579 - Motor vehicle or boat sales, services, repair	0.11%	1
<b>Incident Type by Property Type</b>	<b>Percent</b>	<b>Count</b>
<b>117 - Commercial Compactor fire, confined to rubbish</b>	<b>0.11%</b>	<b>1</b>
	Subgroup %	Subgroup Count
429 - Multifamily dwelling	0.11%	1
<b>Incident Type by Property Type</b>	<b>Percent</b>	<b>Count</b>
<b>118 - Trash or rubbish fire, contained</b>	<b>2.64%</b>	<b>25</b>
	Subgroup %	Subgroup Count



419 - 1 or 2 family dwelling	0.63%	6
429 - Multifamily dwelling	0.32%	3
449 - Hotel/motel, commercial	0.21%	2
519 - Food and beverage sales, grocery store	0.11%	1
557 - Personal service, including barber & beauty shops	0.11%	1
559 - Recreational, hobby, home repair sales, pet store	0.11%	1
599 - Business office	0.11%	1
648 - Sanitation utility	0.11%	1
891 - Warehouse	0.11%	1
919 - Dump, sanitary landfill	0.11%	1
931 - Open land or field	0.11%	1
963 - Street or road in commercial area	0.11%	1
965 - Vehicle parking area	0.42%	4
NULL	0.11%	1
<b>Incident Type by Property Type</b>	<b>Percent</b>	<b>Count</b>
<b>121 - Fire in mobile home used as fixed residence</b>	<b>0.11%</b>	<b>1</b>
	Subgroup %	Subgroup Count
419 - 1 or 2 family dwelling	0.11%	1
<b>Incident Type by Property Type</b>	<b>Percent</b>	<b>Count</b>
<b>122 - Fire in motor home, camper, recreational vehicle</b>	<b>0.11%</b>	<b>1</b>
	Subgroup %	Subgroup Count
965 - Vehicle parking area	0.11%	1
<b>Incident Type by Property Type</b>	<b>Percent</b>	<b>Count</b>
<b>131 - Passenger vehicle fire</b>	<b>19.64%</b>	<b>186</b>
	Subgroup %	Subgroup Count
000 - Property Use, other	0.21%	2
161 - Restaurant or cafeteria	0.11%	1
215 - High school/junior high school/middle school	0.11%	1
342 - Doctor, dentist or oral surgeon office	0.11%	1
419 - 1 or 2 family dwelling	1.69%	16
429 - Multifamily dwelling	0.11%	1
511 - Convenience store	0.11%	1
519 - Food and beverage sales, grocery store	0.11%	1
549 - Specialty shop	0.11%	1
564 - Laundry, dry cleaning	0.11%	1
571 - Service station, gas station	1.06%	10
581 - Department or discount store	0.11%	1
592 - Bank	0.11%	1
808 - Outbuilding or shed	0.11%	1

881 - Parking garage, (detached residential garage)	0.11%	1
891 - Warehouse	0.21%	2
919 - Dump, sanitary landfill	0.11%	1
931 - Open land or field	0.21%	2
936 - Vacant lot	0.11%	1
961 - Highway or divided highway	3.38%	32
962 - Residential street, road or residential driveway	3.06%	29
963 - Street or road in commercial area	3.59%	34
965 - Vehicle parking area	4.44%	42
NNN - None	0.21%	2
UUU - Undetermined	0.11%	1
<b>Incident Type by Property Type</b>	<b>Percent</b>	<b>Count</b>
<b>132 - Road freight or transport vehicle fire</b>	<b>2.96%</b>	<b>28</b>
	Subgroup %	Subgroup Count
000 - Property Use, other	0.11%	1
648 - Sanitation utility	0.21%	2
891 - Warehouse	0.11%	1
961 - Highway or divided highway	1.06%	10
962 - Residential street, road or residential driveway	0.42%	4
963 - Street or road in commercial area	0.32%	3
965 - Vehicle parking area	0.74%	7
<b>Incident Type by Property Type</b>	<b>Percent</b>	<b>Count</b>
<b>134 - Water vehicle fire</b>	<b>0.11%</b>	<b>1</b>
	Subgroup %	Subgroup Count
965 - Vehicle parking area	0.11%	1
<b>Incident Type by Property Type</b>	<b>Percent</b>	<b>Count</b>
<b>137 - Camper or recreational vehicle (RV) fire</b>	<b>0.11%</b>	<b>1</b>
	Subgroup %	Subgroup Count
419 - 1 or 2 family dwelling	0.11%	1
<b>Incident Type by Property Type</b>	<b>Percent</b>	<b>Count</b>
<b>138 - Off-road vehicle or heavy equipment fire</b>	<b>0.42%</b>	<b>4</b>
	Subgroup %	Subgroup Count
116 - Swimming facility: indoor or outdoor	0.11%	1
962 - Residential street, road or residential driveway	0.11%	1
963 - Street or road in commercial area	0.11%	1
981 - Construction site	0.11%	1
<b>Incident Type by Property Type</b>	<b>Percent</b>	<b>Count</b>
<b>141 - Forest, woods or wildland fire</b>	<b>1.27%</b>	<b>12</b>
	Subgroup %	Subgroup Count
419 - 1 or 2 family dwelling	0.42%	4

669 - Forest, timberland, woodland	0.32%	3
931 - Open land or field	0.32%	3
936 - Vacant lot	0.11%	1
981 - Construction site	0.11%	1
<b>Incident Type by Property Type</b>	<b>Percent</b>	<b>Count</b>
<b>142 - Brush or brush-and-grass mixture fire</b>	<b>13.20%</b>	<b>125</b>
	<b>Subgroup %</b>	<b>Subgroup Count</b>
000 - Property Use, other	0.11%	1
131 - Church, mosque, synagogue, temple, chapel	0.32%	3
161 - Restaurant or cafeteria	0.11%	1
419 - 1 or 2 family dwelling	3.80%	36
429 - Multifamily dwelling	0.95%	9
439 - Boarding/rooming house, residential hotels	0.11%	1
449 - Hotel/motel, commercial	0.21%	2
571 - Service station, gas station	0.11%	1
599 - Business office	0.32%	3
669 - Forest, timberland, woodland	0.84%	8
891 - Warehouse	0.11%	1
921 - Bridge, trestle	0.21%	2
931 - Open land or field	2.22%	21
936 - Vacant lot	0.53%	5
938 - Graded and cared-for plots of land	0.53%	5
946 - Lake, river, stream	0.11%	1
951 - Railroad right-of-way	0.21%	2
961 - Highway or divided highway	0.53%	5
962 - Residential street, road or residential driveway	1.06%	10
963 - Street or road in commercial area	0.11%	1
965 - Vehicle parking area	0.42%	4
981 - Construction site	0.11%	1
NULL	0.21%	2
<b>Incident Type by Property Type</b>	<b>Percent</b>	<b>Count</b>
<b>143 - Grass fire</b>	<b>2.64%</b>	<b>25</b>
	<b>Subgroup %</b>	<b>Subgroup Count</b>
122 - Convention center, exhibition hall	0.11%	1
213 - Elementary school, including kindergarten	0.11%	1
419 - 1 or 2 family dwelling	0.74%	7
429 - Multifamily dwelling	0.11%	1
669 - Forest, timberland, woodland	0.11%	1
931 - Open land or field	0.63%	6
938 - Graded and cared-for plots of land	0.11%	1
961 - Highway or divided highway	0.11%	1

962 - Residential street, road or residential driveway	0.21%	2
963 - Street or road in commercial area	0.11%	1
965 - Vehicle parking area	0.11%	1
NULL	0.11%	1
UUU - Undetermined	0.11%	1
<b>Incident Type by Property Type</b>	<b>Percent</b>	<b>Count</b>
<b>151 - Outside rubbish, trash or waste fire</b>	<b>5.49%</b>	<b>52</b>
	Subgroup %	Subgroup Count
000 - Property Use, other	0.21%	2
131 - Church, mosque, synagogue, temple, chapel	0.11%	1
161 - Restaurant or cafeteria	0.11%	1
173 - Bus station	0.11%	1
419 - 1 or 2 family dwelling	1.16%	11
429 - Multifamily dwelling	0.63%	6
559 - Recreational, hobby, home repair sales, pet store	0.11%	1
564 - Laundry, dry cleaning	0.11%	1
599 - Business office	0.11%	1
669 - Forest, timberland, woodland	0.11%	1
919 - Dump, sanitary landfill	0.11%	1
931 - Open land or field	0.21%	2
935 - Campsite with utilities	0.11%	1
936 - Vacant lot	0.21%	2
938 - Graded and cared-for plots of land	0.11%	1
961 - Highway or divided highway	0.32%	3
962 - Residential street, road or residential driveway	0.63%	6
963 - Street or road in commercial area	0.11%	1
965 - Vehicle parking area	0.74%	7
983 - Pipeline, power line or other utility right-of-way	0.11%	1
NULL	0.11%	1
<b>Incident Type by Property Type</b>	<b>Percent</b>	<b>Count</b>
<b>152 - Garbage dump or sanitary landfill fire</b>	<b>0.21%</b>	<b>2</b>
	Subgroup %	Subgroup Count
648 - Sanitation utility	0.11%	1
919 - Dump, sanitary landfill	0.11%	1
<b>Incident Type by Property Type</b>	<b>Percent</b>	<b>Count</b>
<b>153 - Construction or demolition landfill fire</b>	<b>0.32%</b>	<b>3</b>
	Subgroup %	Subgroup Count
919 - Dump, sanitary landfill	0.32%	3
<b>Incident Type by Property Type</b>	<b>Percent</b>	<b>Count</b>
<b>154 - Dumpster or other outside trash receptacle fire</b>	<b>5.60%</b>	<b>53</b>

	Subgroup %	Subgroup Count
000 - Property Use, other	0.11%	1
161 - Restaurant or cafeteria	0.32%	3
183 - Movie theater	0.11%	1
342 - Doctor, dentist or oral surgeon office	0.11%	1
419 - 1 or 2 family dwelling	0.63%	6
429 - Multifamily dwelling	0.63%	6
519 - Food and beverage sales, grocery store	0.32%	3
529 - Textile, wearing apparel sales	0.21%	2
549 - Specialty shop	0.21%	2
579 - Motor vehicle or boat sales, services, repair	0.21%	2
581 - Department or discount store	0.11%	1
596 - Post office or mailing firms	0.11%	1
891 - Warehouse	0.21%	2
919 - Dump, sanitary landfill	0.11%	1
931 - Open land or field	0.11%	1
962 - Residential street, road or residential driveway	0.21%	2
965 - Vehicle parking area	1.90%	18
<b>Incident Type by Property Type</b>	<b>Percent</b>	<b>Count</b>
<b>155 - Outside stationary compactor/compacted trash fire</b>	<b>0.21%</b>	<b>2</b>
	Subgroup %	Subgroup Count
429 - Multifamily dwelling	0.11%	1
965 - Vehicle parking area	0.11%	1
<b>Incident Type by Property Type</b>	<b>Percent</b>	<b>Count</b>
<b>160 - Special outside fire, other</b>	<b>0.21%</b>	<b>2</b>
	Subgroup %	Subgroup Count
808 - Outbuilding or shed	0.11%	1
962 - Residential street, road or residential driveway	0.11%	1
<b>Incident Type by Property Type</b>	<b>Percent</b>	<b>Count</b>
<b>161 - Outside storage fire</b>	<b>0.63%</b>	<b>6</b>
	Subgroup %	Subgroup Count
529 - Textile, wearing apparel sales	0.11%	1
808 - Outbuilding or shed	0.53%	5
<b>Incident Type by Property Type</b>	<b>Percent</b>	<b>Count</b>
<b>162 - Outside equipment fire</b>	<b>2.01%</b>	<b>19</b>
	Subgroup %	Subgroup Count
129 - Amusement center: indoor/outdoor	0.11%	1
419 - 1 or 2 family dwelling	0.74%	7
429 - Multifamily dwelling	0.11%	1

519 - Food and beverage sales, grocery store	0.11%	1
891 - Warehouse	0.21%	2
931 - Open land or field	0.21%	2
938 - Graded and cared-for plots of land	0.21%	2
962 - Residential street, road or residential driveway	0.11%	1
963 - Street or road in commercial area	0.21%	2
<b>Incident Type by Property Type</b>	<b>Percent</b>	<b>Count</b>
<b>163 - Outside gas or vapor combustion explosion</b>	<b>0.11%</b>	<b>1</b>
	Subgroup %	Subgroup Count
962 - Residential street, road or residential driveway	0.11%	1
<b>Grand Total</b>	<b>100.00%</b>	<b>947</b>

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## WHAT ARE THE TRENDS WITH FIRE INCIDENTS?

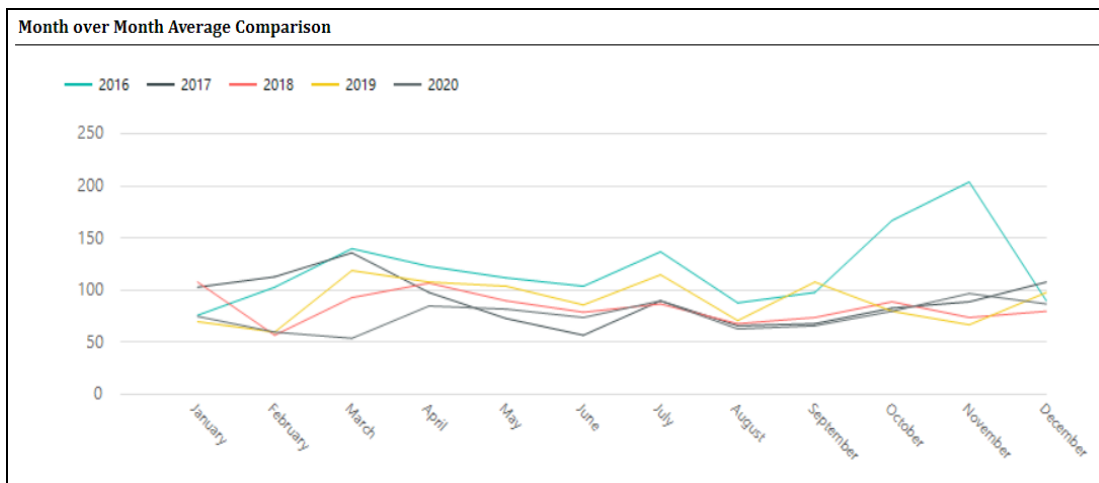
Overall fire related incidents had a 16% decrease during 2020 despite the fact that the number of structure fires have remained stable over the past 3 years. From 2016 to 2020 there has been a 23% decrease in structure fires.

## Fire Incidents – Percents in chart reflect change + or – as compared to the 5 year average.

### Incident Counts by Incident Type Category

\* All averages are calculated over displayed values within the defined date range.

Incident Type Category	2016	2017	2018	2019	2020	Category Average*
	Total Incidents 1442	Total Incidents 1084	Total Incidents 1006	Total Incidents 1086	Total Incidents 913	
1 - Fire	Count	Count	Count	Count	Count	1106.20
	1442 (+30%)	1084 (-2%)	1006 (-9%)	1086 (-2%)	913 (-17%)	
Incident Type	Count (% vs avg)	Count (% vs avg)	Count (% vs avg)	Count (% vs avg)	Count (% vs avg)	Incident Type Average*
100 - Fire, Other	0	0	55 (+382%)	2 (-82%)	0	11.40
111 - Building fire	335 (+20%)	286 (+2%)	255 (-9%)	263 (-6%)	258 (-8%)	279.40
112 - Fires in structure other	22 (+31%)	10 (-40%)	15 (-11%)	17 (+1%)	20 (+19%)	16.80
113 - Cooking fire, confined to	137 (+22%)	105 (-6%)	114 (+2%)	116 (+3%)	89 (-21%)	112.20
114 - Chimney or flue fire,	14 (0%)	17 (+21%)	13 (-7%)	12 (-14%)	14 (0%)	14.00
115 - Incinerator overload or	0	0	3 (+114%)	2 (+43%)	2 (+43%)	1.40
116 - Fuel burner/boiler	3 (0%)	4 (+33%)	5 (+67%)	2 (-33%)	1 (-67%)	3.00
117 - Commercial Compactor	2 (+25%)	1 (-38%)	3 (+88%)	1 (-38%)	1 (-38%)	1.60
118 - Trash or rubbish fire,	21 (-6%)	19 (-15%)	31 (+38%)	18 (-20%)	23 (+3%)	22.40
120 - Fire in mobile prop used	0	1 (+400%)	0	0	0	0.20
121 - Fire in mobile home	5 (+9%)	6 (+30%)	4 (-13%)	7 (+52%)	1 (-78%)	4.60
121A - Fire in a DOUBLE	2 (+100%)	3 (+200%)	0	0	0	1.00
122 - Fire in motor home,	2 (+43%)	1 (-29%)	0	3 (+114%)	1 (-29%)	1.40
123 - Fire in portable	3 (+150%)	0	1 (-17%)	2 (+67%)	0	1.20
130 - Mobile property	12 (-6%)	16 (+25%)	34 (+166%)	2 (-84%)	0	12.80
131 - Passenger vehicle fire	181 (+1%)	194 (+8%)	177 (-1%)	169 (-6%)	176 (-2%)	179.40
132 - Road freight or	27 (+11%)	21 (-14%)	20 (-18%)	28 (+15%)	26 (+7%)	24.40
133 - Rail vehicle fire	0	0	1 (+400%)	0	0	0.20
134 - Water vehicle fire	1 (+67%)	0	1 (+67%)	0	1 (+67%)	0.60
135 - Aircraft fire	1 (+67%)	2 (+233%)	0	0	0	0.60
136 - Self-propelled motor	1 (+400%)	0	0	0	0	0.20
137 - Camper or recreational	2 (+25%)	2 (+25%)	0	3 (+88%)	1 (-38%)	1.60
138 - Off-road vehicle or	12 (+100%)	6 (0%)	4 (-33%)	4 (-33%)	4 (-33%)	6.00
140 - Natural vegetation fire,	55 (+196%)	18 (-3%)	20 (+8%)	0	0	18.60
141 - Forest, woods or	39 (+81%)	25 (+16%)	7 (-68%)	25 (+16%)	12 (-44%)	21.60
142 - Brush or brush-and-	326 (+73%)	168 (-11%)	107 (-43%)	218 (+16%)	124 (-34%)	188.60
143 - Grass fire	82 (+51%)	66 (+21%)	39 (-28%)	62 (+14%)	23 (-58%)	54.40
150 - Outside rubbish fire,	27 (+181%)	11 (+15%)	10 (+4%)	0	0	9.60
151 - Outside rubbish, trash	50 (+21%)	21 (-49%)	23 (-44%)	62 (+50%)	51 (+23%)	41.40
152 - Garbage dump or	1 (-44%)	5 (+178%)	1 (-44%)	0	2 (+11%)	1.80
153 - Construction or	3 (+114%)	0	1 (-29%)	0	3 (+114%)	1.40
154 - Dumpster or other	46 (+3%)	39 (-13%)	42 (-6%)	44 (-1%)	52 (+17%)	44.60
155 - Outside stationary	4 (+100%)	1 (-50%)	2 (0%)	1 (-50%)	2 (0%)	2.00
160 - Special outside fire,	8 (+21%)	18 (+173%)	6 (-9%)	0	1 (-85%)	6.60
161 - Outside storage fire	5 (+19%)	3 (-29%)	1 (-76%)	6 (+43%)	6 (+43%)	4.20
162 - Outside equipment fire	11 (-17%)	12 (-9%)	10 (-24%)	15 (+14%)	18 (+36%)	13.20
163 - Outside gas or vapor	1 (-29%)	3 (+114%)	1 (-29%)	1 (-29%)	1 (-29%)	1.40
170 - Cultivated vegetation,	1 (+400%)	0	0	0	0	0.20
173 - Cultivated trees or	0	0	0	1 (+400%)	0	0.20



## WHY IS IT HAPPENING?

### STRUCTURE FIRES

Structure fires were the top reason for all fire related incidents. Structure fires in a building or fires in a structure other than a building occurred 291 times including exposure reports. This made up nearly 31% of the fire related incidents. The top documented reasons for heat source / cause in a structure fire were the following:

#### Heat Source by Factors

Basic\_Property\_Use\_Code\_And\_Description

Incident Type with Heat Source	Percent	Count
<b>111 - Building fire</b>	<b>95.76%</b>	<b>226</b>
11 - Spark, ember, or flame from operating equipment	10.17%	24
12 - Radiated or conducted heat from operating equipment	14.41%	34
13 - Electrical arcing	11.86%	28
42 - Molten, hot material	1.69%	4
43 - Hot ember or ash	4.66%	11
61 - Cigarette	4.24%	10
63 - Heat from undetermined smoking material	0.42%	1
65 - Lighter: cigarette, cigar	0.85%	2
66 - Candle	4.66%	11
69 - Flame/torch used for lighting	0.42%	1
72 - Spontaneous combustion, chemical reaction	2.97%	7
73 - Lightning discharge	3.81%	9
81 - Heat from direct flame, convection currents	7.63%	18



82 - Radiated heat from another fire	0.42%	1
84 - Conducted heat from another fire	0.42%	1
NULL	0.85%	2
UU - Undetermined	26.27%	62
112 - Fires in structure other than in a building	4.24%	10
Grand Total	100.00%	236

The following are the top factors documented for each of the heat source causes for structure fires during 2020. Of the top heat sources documented, all listed “Unattended or unsupervised” or “Asleep” as a contributing human factor. A large percent of incidents was documented with factors of none, undetermined, or other.

### Structure Fire - Heat Source by Related Factors

Basic_Property_Use_Code_And_Description		
Row Labels	Percent	Count
<b>111 - Building fire</b>	<b>95.76%</b>	<b>226</b>
<b>11 - Spark, ember, or flame from operating equipment</b>	<b>10.17%</b>	<b>24</b>
00 - Factors contributing to ignition, other	0.42%	1
12 - Heat source too close to combustibles.	2.97%	7
13 - Cutting, welding too close to combustible	0.42%	1
14 - Flammable liquid or gas spilled	0.42%	1
25 - Worn out	0.85%	2
34 - Unspecified short-circuit arc	0.42%	1
36 - Arc, spark from operating equipment	0.85%	2
52 - Accidentally turned on, not turned off	0.42%	1
58 - Equipment not operated properly	0.42%	1
71 - Exposure fire	1.27%	3
74 - Outside/open fire for warming or cooking	0.42%	1
NN - None	0.85%	2
UU - Undetermined	0.42%	1
<b>12 - Radiated or conducted heat from operating equipment</b>	<b>14.41%</b>	<b>34</b>
00 - Factors contributing to ignition, other	0.42%	1
11 - Abandoned or discarded materials or products	0.85%	2
12 - Heat source too close to combustibles.	2.54%	6
21 - Automatic control failure	0.42%	1
25 - Worn out	0.42%	1
33 - Short-circuit arc from defective, worn insulation	0.42%	1
34 - Unspecified short-circuit arc	0.42%	1
35 - Arc from faulty contact, broken conductor	0.42%	1
53 - Equipment unattended	1.69%	4

54 - Equipment overloaded	0.42%	1
55 - Failure to clean	1.27%	3
58 - Equipment not operated properly	0.42%	1
NN - None	2.54%	6
UU - Undetermined	2.12%	5
<b>13 - Electrical arcing</b>	<b>11.86%</b>	<b>28</b>
00 - Factors contributing to ignition, other	0.85%	2
25 - Worn out	0.42%	1
32 - Short-circuit arc from mechanical damage	0.42%	1
33 - Short-circuit arc from defective, worn insulation	0.85%	2
34 - Unspecified short-circuit arc	3.39%	8
35 - Arc from faulty contact, broken conductor	2.12%	5
52 - Accidentally turned on, not turned off	0.42%	1
58 - Equipment not operated properly	0.42%	1
61 - High wind	0.42%	1
NN - None	1.27%	3
UU - Undetermined	1.27%	3
<b>42 - Molten, hot material</b>	<b>1.69%</b>	<b>4</b>
12 - Heat source too close to combustibles.	0.42%	1
13 - Cutting, welding too close to combustible	0.42%	1
53 - Equipment unattended	0.42%	1
NN - None	0.42%	1
<b>43 - Hot ember or ash</b>	<b>4.66%</b>	<b>11</b>
00 - Factors contributing to ignition, other	0.85%	2
11 - Abandoned or discarded materials or products	1.27%	3
12 - Heat source too close to combustibles.	1.27%	3
72 - Rekindle	0.42%	1
NN - None	0.42%	1
UU - Undetermined	0.42%	1
<b>61 - Cigarette</b>	<b>4.24%</b>	<b>10</b>
11 - Abandoned or discarded materials or products	2.97%	7
12 - Heat source too close to combustibles.	0.85%	2
71 - Exposure fire	0.42%	1
<b>63 - Heat from undetermined smoking material</b>	<b>0.42%</b>	<b>1</b>
00 - Factors contributing to ignition, other	0.42%	1
<b>65 - Lighter: cigarette, cigar</b>	<b>0.85%</b>	<b>2</b>
00 - Factors contributing to ignition, other	0.42%	1
12 - Heat source too close to combustibles.	0.42%	1
<b>66 - Candle</b>	<b>4.66%</b>	<b>11</b>
12 - Heat source too close to combustibles.	3.81%	9
51 - Collision, knock down, run over, turn over	0.42%	1
53 - Equipment unattended	0.42%	1
<b>69 - Flame/torch used for lighting</b>	<b>0.42%</b>	<b>1</b>

00 - Factors contributing to ignition, other	0.42%	1
<b>72 - Spontaneous combustion, chemical reaction</b>	<b>2.97%</b>	<b>7</b>
00 - Factors contributing to ignition, other	0.85%	2
11 - Abandoned or discarded materials or products	0.42%	1
17 - Washing part, painting with flammable liquid	0.42%	1
<b>17 - Washing part, painting with flammable liquid</b>	<b>0.42%</b>	<b>1</b>
N - None	0.42%	1
18 - Improper container or storage procedure	0.42%	1
<b>18 - Improper container or storage procedure</b>	<b>0.42%</b>	<b>1</b>
N - None	0.42%	1
UU - Undetermined	0.85%	2
<b>73 - Lightning discharge</b>	<b>3.81%</b>	<b>9</b>
53 - Equipment unattended	0.42%	1
62 - Storm	1.69%	4
<b>62 - Storm</b>	<b>1.69%</b>	<b>4</b>
N - None	1.69%	4
NN - None	1.69%	4
<b>81 - Heat from direct flame, convection currents</b>	<b>7.63%</b>	<b>18</b>
00 - Factors contributing to ignition, other	1.69%	4
12 - Heat source too close to combustibles.	2.12%	5
14 - Flammable liquid or gas spilled	0.42%	1
22 - Manual control failure	0.42%	1
55 - Failure to clean	0.42%	1
71 - Exposure fire	0.42%	1
74 - Outside/open fire for warming or cooking	0.42%	1
NN - None	1.27%	3
UU - Undetermined	0.42%	1
<b>82 - Radiated heat from another fire</b>	<b>0.42%</b>	<b>1</b>
71 - Exposure fire	0.42%	1
<b>84 - Conducted heat from another fire</b>	<b>0.42%</b>	<b>1</b>
12 - Heat source too close to combustibles.	0.42%	1
<b>NULL</b>	<b>0.85%</b>	<b>2</b>
<b>UU - Undetermined</b>	<b>26.27%</b>	<b>62</b>
00 - Factors contributing to ignition, other	0.42%	1
14 - Flammable liquid or gas spilled	0.42%	1
34 - Unspecified short-circuit arc	0.42%	1
53 - Equipment unattended	0.42%	1
71 - Exposure fire	2.12%	5
NN - None	4.66%	11
UU - Undetermined	17.80%	42
<b>112 - Fires in structure other than in a building</b>	<b>4.24%</b>	<b>10</b>
<b>Grand Total</b>	<b>100.00%</b>	<b>236</b>

## SMOKE DETECTORS

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Smoke detectors or alarms can significantly improve the lives and property saved. During 2020, 66% of fires involved 1-2 family residential structures. Of these structure fires, 71% of the homes had a smoke detector present. When a smoke detector was not present, the impact on fire confinement was significant. The 43 structure fires documented as not having a smoke detector confined fire damage to the object or room of origin 51% of the time. When a smoke detector was present, confinement of the fire damage to object or room of origin jumped to 66.3%. Similar results were noted in multifamily dwellings when smoke detectors were present.

When a smoke detector was present the following chart identifies effectiveness to alert occupancies.

<b>111 - Building fire</b>	<b>100.00%</b>
<b>419 - 1 or 2 family dwelling</b>	<b>62.21%</b>
Detector alerted occupants, occupants responded	41.12%
Detector failed to alert occupants	0.93%
NULL	44.86%
There were no occupants	9.35%
Undetermined	3.74%
<b>429 - Multifamily dwelling</b>	<b>37.79%</b>
Detector alerted occupants, occupants failed to respond	1.54%
Detector alerted occupants, occupants responded	63.08%
NULL	33.85%
There were no occupants	1.54%

## SPRINKLERS

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Sprinklers have been known for years to effectively control fires in apartment buildings. Most apartment fires in Cobb County during 2020 occurred in apartment buildings without sprinklers.

<b>2020 Apartment Fires - Sprinklers</b>	
<b>111 - Building fire</b>	<b>Percent</b>
None Present	63.16%
Present	36.84%
Grand Total	100.00%

The chart below illustrates the effectiveness of controlling fire spread in the apartment fires that occurred in Cobb County during 2020. When sprinklers were present in a building, significant improvements were noted in confining fire to prevent spread to the entire building. Note confined to building of origin percentages below with and without sprinklers.

<b>SPRINKLERS PRESENT</b>		
<b>Apartments - Effectiveness to Control Fire Spread</b>		
	<b>Percent</b>	<b>Count</b>
<b>111 - Building fire</b>	<b>96.55%</b>	<b>28</b>
1 - Confined to object of origin	32.14%	9
2 - Confined to room of origin	46.43%	13
3 - Confined to floor of origin	10.71%	3
4 - Confined to building of origin	10.71%	3
<b>112 - Fires in structure other than in a building</b>	<b>3.45%</b>	<b>1</b>
NULL	100.00%	1
<b>Grand Total</b>	<b>100.00%</b>	<b>29</b>

<b>SPRINKLERS NOT PRESENT</b>		
<b>Apartments - Effectiveness to Control Fire Spread</b>		
<b>Row Labels</b>	<b>Percent</b>	<b>Count</b>
<b>111 - Building fire</b>	<b>97.96%</b>	<b>48</b>
1 - Confined to object of origin	36.73%	18
2 - Confined to room of origin	26.53%	13
3 - Confined to floor of origin	6.12%	3
4 - Confined to building of origin	<b>28.57%</b>	14
<b>112 - Fires in structure other than in a building</b>	<b>2.04%</b>	<b>1</b>
NULL	2.04%	1
<b>Grand Total</b>	<b>100.00%</b>	<b>49</b>

## COOKING FIRES

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Historically, cooking fires are thought to contribute to many residential structure fires. The inherent nature of the circumstances surrounding cooking inside of a structure lends itself to a higher risk of starting a fire. Factors include flammable liquids or materials, opens flames, improper maintenance of equipment, inexperience of the individual involved, and leaving items unattended while cooking.

Cooking fires occurred 74 times and constituted 9.5% of all fire related incidents that occurred in Cobb County. Of the cooking fires, the chart below shows the percent documented by heat source with the associated top factors. Most of the incidents involved the heat source being too close to combustibles with a human factor of unattended or unsupervised. A large percent of incidents was documented with factors of none, undetermined, or other.

# Cooking Fires

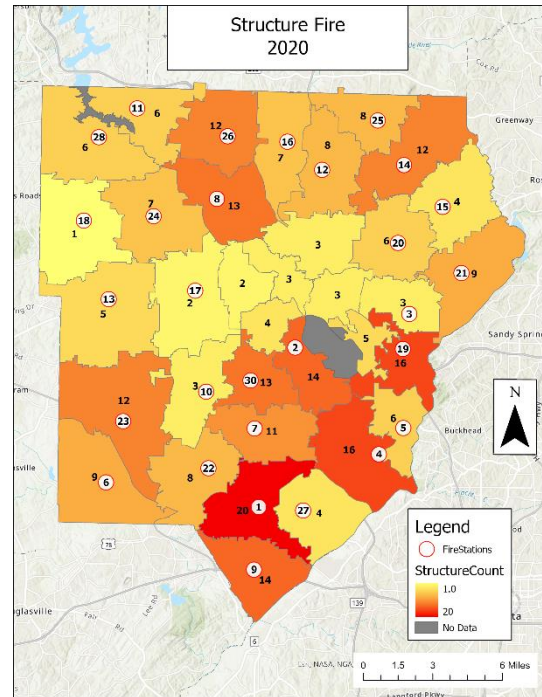
Heat Source	Percent	Count
11 - Spark, ember, or flame from operating equipment	16.22%	12
12 - Radiated or conducted heat from operating equipment	41.89%	31
13 - Electrical arcing	2.70%	2
41 - Heat, spark from friction	1.35%	1
42 - Molten, hot material	2.70%	2
81 - Heat from direct flame, convection currents	22.97%	17
82 - Radiated heat from another fire	1.35%	1
84 - Conducted heat from another fire	4.05%	3
NULL	1.35%	1
UU - Undetermined	5.41%	4
Grand Total	100.00%	74

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## WHERE IS IT HAPPENING?

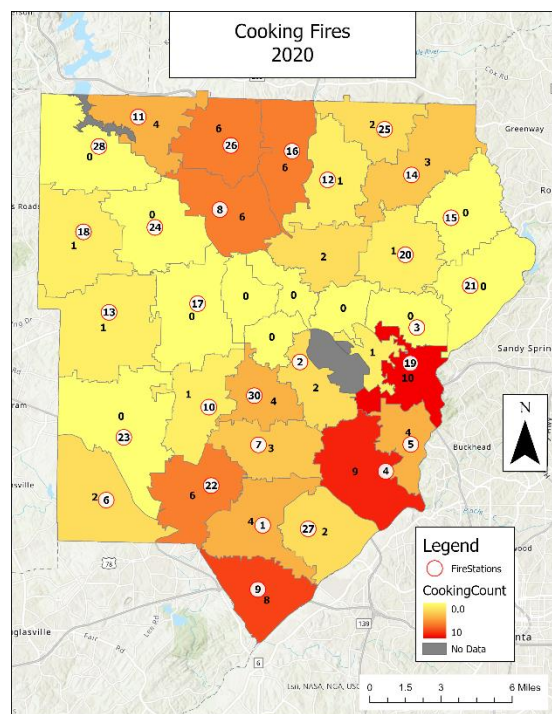
For Structure Fires during 2020, the following stations had the highest incident counts:

Stations 1, 4, 19, 2, 9, 8, 30.



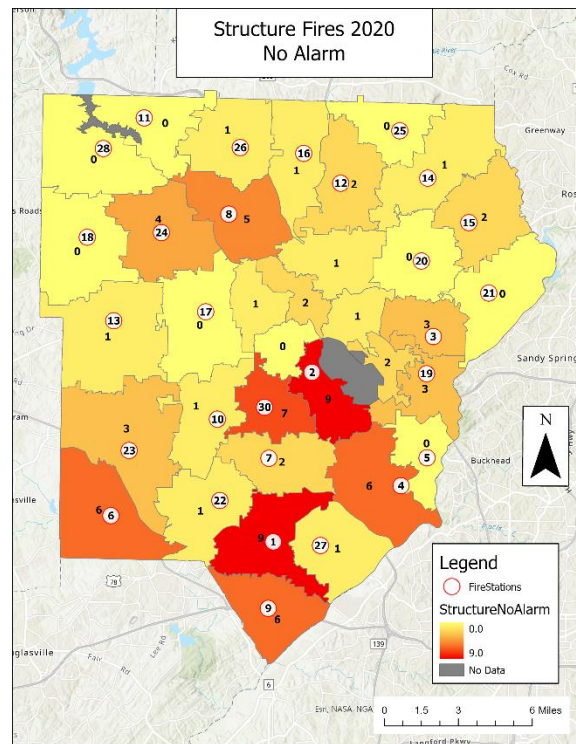
For Cooking Fires during 2020, the following stations had the highest incident counts:

Stations 19, 4, 9, 8, 16, 22, 26.

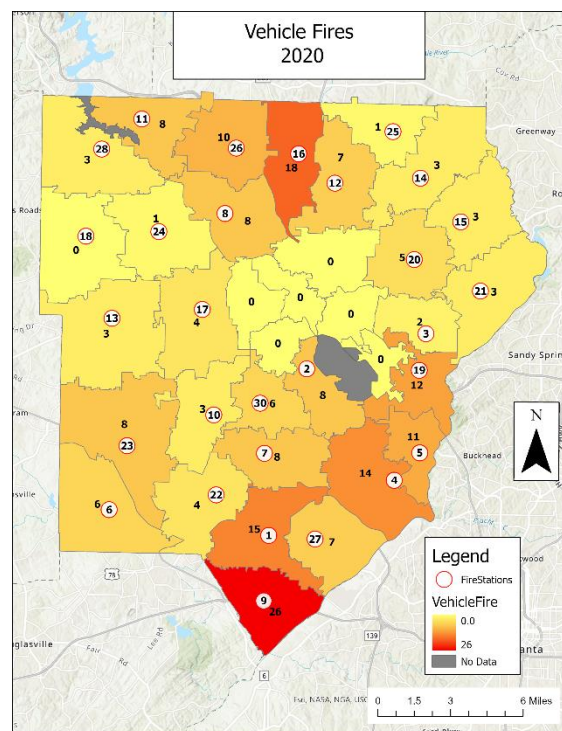




For Structure Fires without smoke alarms during 2020, the following stations had the highest incident counts: Stations 1, 2, 30, 4,6,9,8, 24.

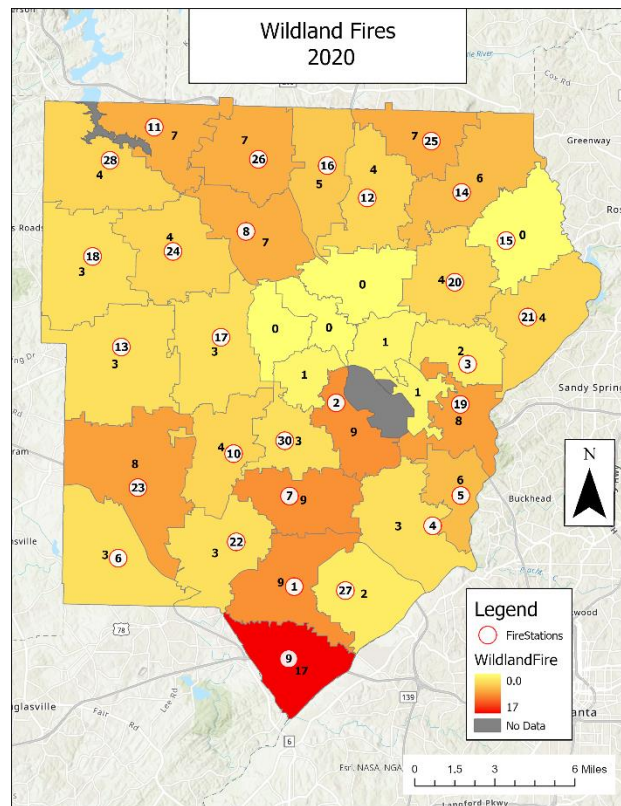


For Vehicle Fires during 2020, the following stations had the highest incident counts: Stations 9, 16, 1, 4, 19,5,26 (these stations are all near or containing major interstates).



For Brush Fires during 2020, the following stations had the highest incident counts:

Stations 9, 1, 2, 7, 19, 23, 8, 11, 25, 26.



## WHEN IS IT HAPPENING?

Structure fires by time of day, day of week, month of year.

Structure Fires 111/112\* 2020  
% of Calls by Hour of Day

Hour	% of Total	Hour	% of Total
00:00	4.68%	12:00	6.12%
01:00	3.96%	13:00	5.04%
02:00	0.36%	14:00	8.63%
03:00	0.72%	15:00	3.96%
04:00	1.08%	16:00	5.40%
05:00	4.68%	17:00	6.12%
06:00	2.52%	18:00	8.63%
07:00	1.80%	19:00	5.04%
08:00	2.52%	20:00	4.68%
09:00	4.32%	21:00	3.24%
10:00	2.16%	22:00	3.60%
11:00	3.96%	23:00	6.83%

Structure Fires 111/112\* 2020  
% of Calls by Day of Week

Hour	% of Total
Sun	13.7%
Mon	12.9%
Tue	14.7%
Wed	12.6%
Thu	15.1%
Fri	14.7%
Sat	16.2%

Structure Fires (111/112) by Month \* 2020

Month	% of Total	Total
Jan	8.3%	23
Feb	6.8%	19
Mar	4.0%	11
Apr	8.3%	23
May	8.3%	23
Jun	9.4%	26
Jul	10.1%	28
Aug	8.3%	23
Sep	6.5%	18
Oct	11.2%	31
Nov	9.0%	25
Dec	10.1%	28

278

\* Incident Type 111/112 only; Data from ImageTrend RMS; initial/basic exposure

All Fire related incident types (100 series) by time of day, day of week, month of year.

Fire(100 series)\* 2020  
% of Calls by Hour of Day

Hour	% of Total	Hour	% of Total
00:00	3.29%	12:00	5.70%
01:00	3.29%	13:00	5.48%
02:00	0.99%	14:00	7.34%
03:00	1.20%	15:00	5.37%
04:00	1.10%	16:00	7.23%
05:00	2.74%	17:00	7.23%
06:00	2.08%	18:00	8.00%
07:00	1.42%	19:00	6.46%
08:00	2.74%	20:00	6.02%
09:00	3.29%	21:00	5.37%
10:00	2.41%	22:00	3.72%
11:00	3.83%	23:00	3.72%

Fire(100 series)\* 2020  
% of Calls by Day of Week

Hour	% of Total
Sun	15.6%
Mon	13.9%
Tue	14.6%
Wed	13.1%
Thu	11.9%
Fri	13.6%
Sat	17.3%

Fires (100 series) by Month \* 2020

Month	% of Total	Total
Jan	8.2%	75
Feb	6.6%	60
Mar	5.9%	54
Apr	9.3%	85
May	9.0%	82
Jun	8.1%	74
Jul	9.9%	90
Aug	6.9%	63
Sep	7.2%	66
Oct	8.8%	80
Nov	10.6%	97
Dec	9.5%	87

913

\* Incident Type 100s only; Data from ImageTrend RMS; initial/basic exposure

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## EMS RISK

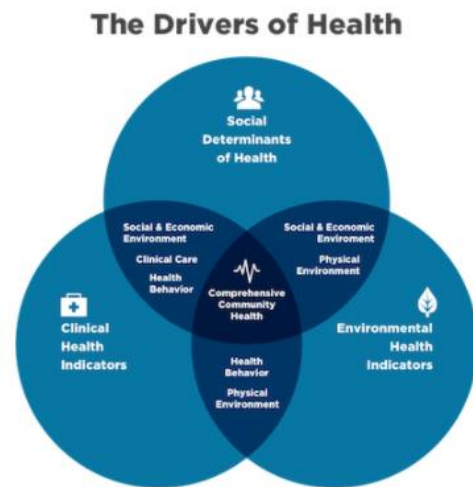
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### WHAT ARE THE KNOWN RISK FACTORS?

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#### THE DRIVERS OF HEALTH <sup>v</sup>

Public health professionals now know that the social and economic conditions where people live, and work affect individual and community health. These conditions range from access to healthcare to neighborhood safety and are closely connected to factors such as household income and educational attainment. These factors are known as [Social Determinants of Health](#).



Key indicators for social determinants of health in the community:

- Race-Related Barriers to Health
- Low Income Populations
- Access to Jobs
- Educational Attainment
- Additional Vulnerable Populations

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#### RACE-RELATED BARRIERS TO HEALTH <sup>v</sup>

In many communities, People of Color (POC) face greater barriers to opportunity. These barriers are due in part to historical policies and patterns of development that have marginalized many communities of color. People facing poverty and other socioeconomic challenges face barriers to health regardless of their race.

**361,270**

People

**POC Population - Total**

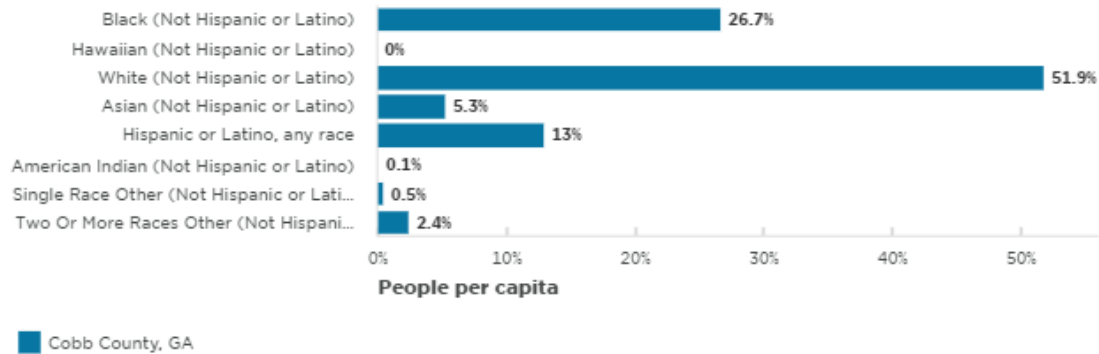
Cobb County, GA

**48.1%**

**POC Population - Percent**

Cobb County, GA

**Race/Ethnicity Totals**



Sources: US Census ACS 5-year

**LOW INCOME AND BARRIER TO HEALTH <sup>v</sup>**

The U.S. Census identifies individuals with a household income of up to 200% of the poverty level as low income. Low-income residents in communities with high income inequality face greater health risks. They are more likely to face barriers to healthy choices, such as longer distances to healthy food or affordable healthcare and are more likely to be exposed to environmental risks, such as low-quality housing.

**24.3%**

**Ratio of Income to Poverty Level: 200% and Under - Low Income Population**

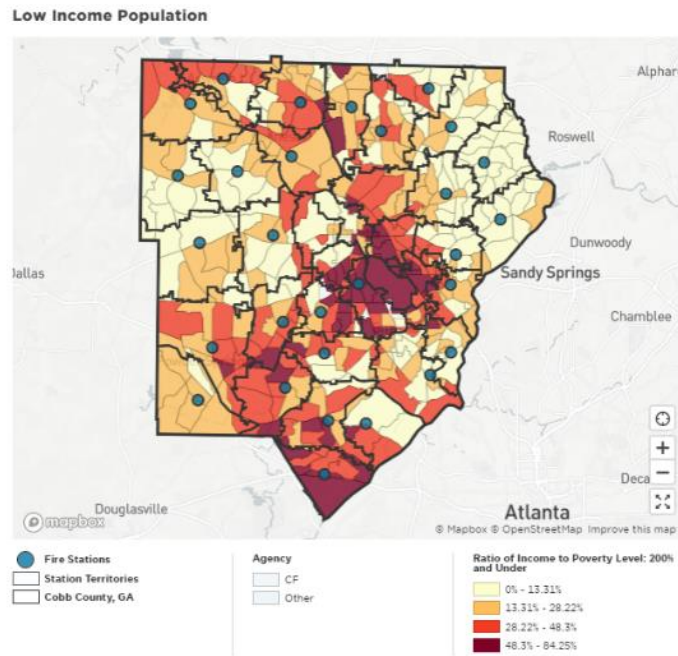
Cobb County, GA

**9.1%**

**Percent of Population Below Poverty Level**

Cobb County, GA

Sources: US Census ACS 5-year



## RESIDENTS WITH HEALTH VULNERABILITIES <sup>v</sup>

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Many factors besides income impact an individual's ability to live to a long, healthy life. Some groups face unique needs and challenges that make them particularly vulnerable to health risks or barriers. The chart below provides a breakdown of the vulnerable populations in our area.

Vulnerable populations include persons:

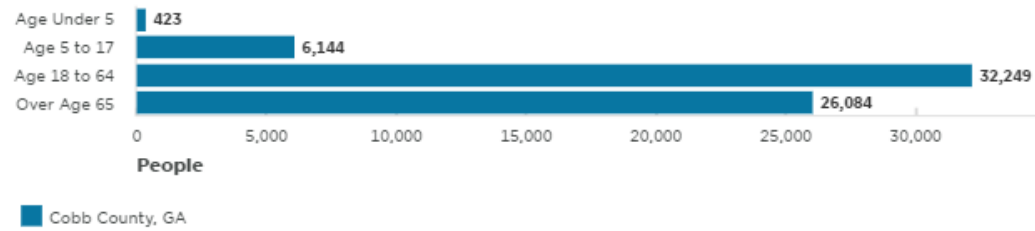
- under age 5
- over age 65
- persons with a disability
- persons with very low educational attainment
- very low-income persons living within 150% of the poverty level
- speak English less than very well (limited English proficiency)

## Vulnerable Populations

Cobb County, GA	People
Population Age Under 5	47,301
Population Age 65 and Over	89,040
Population Living with a Disability	64,900
Educational Attainment: Less than 9th Grade	20,773
Ratio of Income to Poverty Level: 150% and Under - Very Low Income Population	123,094
Ability to Speak English: Less Than Very Well	51,619

Sources: US Census ACS 5-year

## Disability by Age



Sources: US Census ACS 5-year



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### WHAT ARE THE TOP EMS INCIDENTS TYPES?

In 2020 the number of EMS related incidents constituted approximately 51% of all incidents. The total count of EMS related incidents (incident type series 300 to 324; 381) was 30342. Below represent the top EMS related incident types by provider impressions.

<b>2020 Top EMS Incidents by Provider Impression</b>			
	<b>Count</b>	<b>Ranking</b>	<b>Percent</b>
Cardiac Arrest	579	9	3.63%
Cardiac Chest Pain	1030	6	6.45%
CNS Altered mental status	1225	3	7.67%
CNS Seizures without status epilepticus	595	8	3.73%
CNS Syncope and collapse	676	7	4.23%
Injury, describe in narrative	2865	1	17.94%
Medical ABD Pain	430	10	2.69%
Pain Acute, describe in narrative	1110	5	6.95%
Respiratory distress, acute	1698	2	10.63%
Weakness	1154	4	7.23%

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### WHAT ARE THE TRENDS FOR EMS INCIDENTS?

Despite the 2020 pandemic, EMS incidents decreased during the months of March through June. This was attributed to changes in CCFES' response model to limit staff's exposure to Covid-19. Overall, there was an 8% decrease in EMS incidents during 2020.

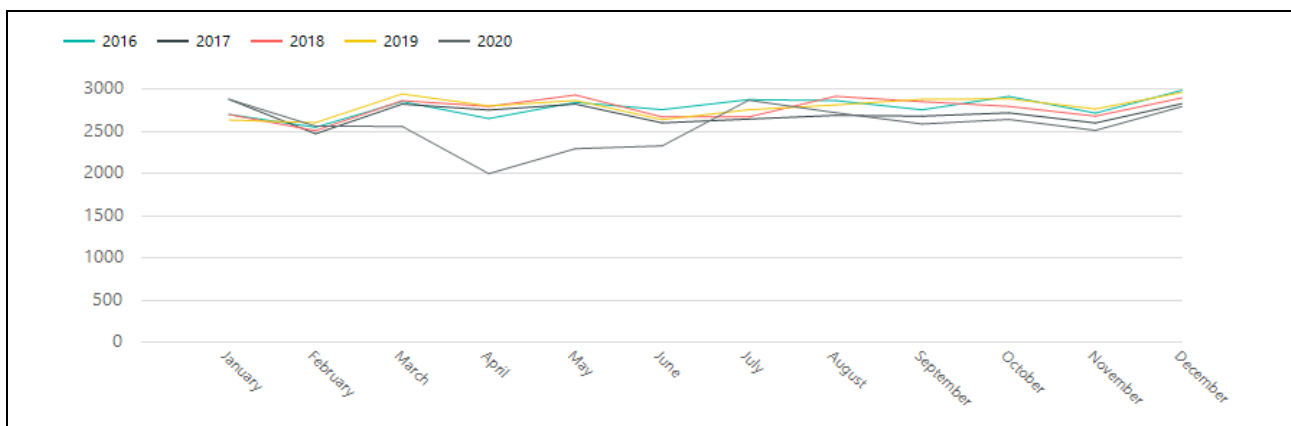
EMS Incidents – Percents in chart reflect change + or – as compared to the 5 year average.



## Incident Counts by Incident Type Category

\* All averages are calculated over displayed values within the defined date range.

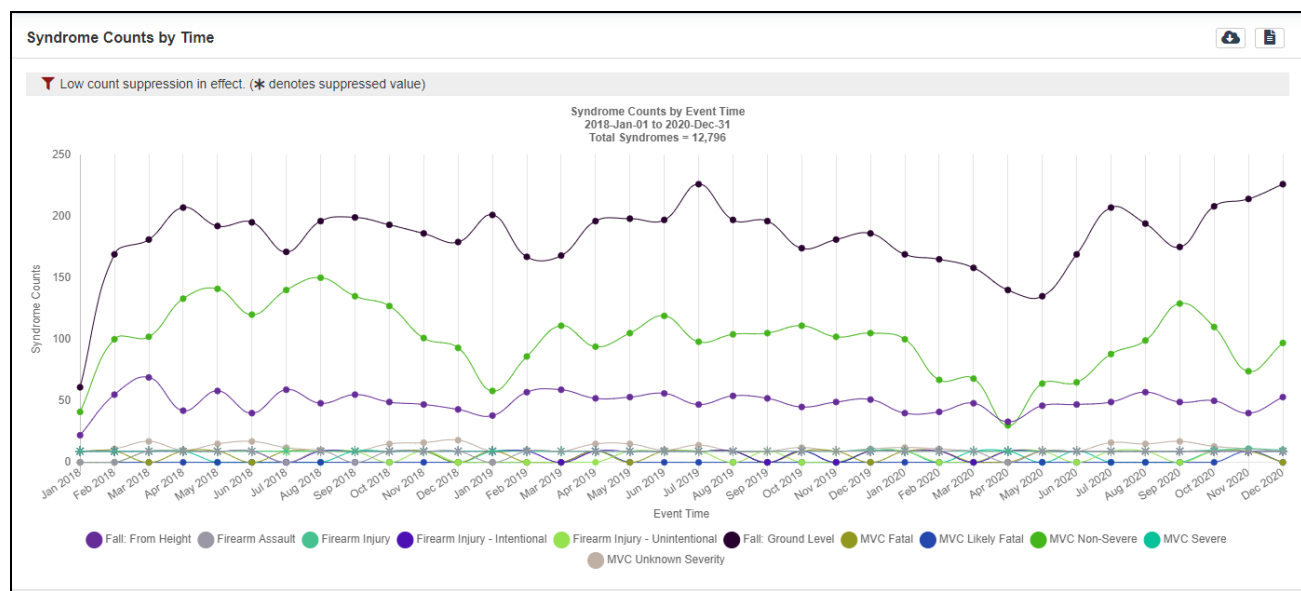
Incident Type Category	2016	2017	2018	2019	2020	Category Average*
	Total Incidents	Total Incidents	Total Incidents	Total Incidents	Total Incidents	
3 - Rescue & Emergency Medical Service Incident	33469	32517	33282	33551	30749	
	Count	Count	Count	Count	Count	
	33469 (+2%)	32517 (-1%)	33282 (+2%)	33551 (+3%)	30748 (-6%)	32718.52
Incident Type	Count (% vs avg)	Count (% vs avg)	Count (% vs avg)	Count (% vs avg)	Count (% vs avg)	Incident Type Average*
311 - Medical assist, assist	11268 (-13%)	11530 (-11%)	14163 (+10%)	14315 (+11%)	13225 (+3%)	12900.20
321 - EMS call, excluding	16368 (+11%)	15422 (+5%)	14188 (-4%)	14354 (-3%)	13272 (-10%)	14720.80
321R - EMS call, PATIENT	1561 (+137%)	1520 (+131%)	1297 (+97%)	1130 (+72%)	1076 (+63%)	658.50
322 - Motor vehicle accident	1913 (+14%)	1708 (+1%)	1755 (+4%)	1669 (-1%)	1371 (-19%)	1683.20
323 - Motor	98 (+8%)	77 (-15%)	103 (+13%)	96 (+6%)	80 (-12%)	90.80
324 - Motor Vehicle Accident	1869 (+46%)	1828 (+43%)	73 (-94%)			1282.33
324 - Motor vehicle accident			1325 (+3%)	1441 (+12%)	1158 (-10%)	1282.33
331 - Lock-in (if lock out, use	194 (+64%)	175 (+48%)	89 (-25%)	77 (-35%)	58 (-51%)	118.60
341 - Search for person on	59 (-39%)	68 (-29%)	61 (-37%)	162 (+68%)	131 (+36%)	96.20
342 - Search for person in	5 (-36%)	3 (-62%)	11 (+41%)	8 (+3%)	12 (+54%)	7.80
351 - Extrication of victim(s)	0	4 (+33%)	2 (-33%)	4 (+33%)	5 (+67%)	3.00
352 - Extrication of victim(s)	29 (-16%)	28 (-19%)	31 (-10%)	46 (+34%)	38 (+10%)	34.40
353 - Removal of victim(s)	72 (-39%)	119 (+1%)	114 (-3%)	161 (+37%)	122 (+4%)	117.60
354 - Trench/below-grade	0	0	0	2 (+233%)	1 (+67%)	0.60
355 - Confined space rescue	1 (+67%)	0	0	1 (+67%)	1 (+67%)	0.60
356 - High-angle rescue	1 (-38%)	1 (-38%)	2 (+25%)	2 (+25%)	2 (+25%)	1.60
357 - Extrication of victim(s)	4 (+18%)	0	5 (+47%)	2 (-41%)	6 (+76%)	3.40
361 - Swimming/recreational	2 (+11%)	0	3 (+67%)	2 (+11%)	2 (+11%)	1.80
363 - Swift water rescue	4 (-47%)	5 (-34%)	2 (-74%)	8 (+5%)	19 (+150%)	7.60
365 - Watercraft rescue	3 (+50%)	0	0	3 (+50%)	4 (+100%)	2.00
371 - Electrocutation or	1 (-64%)	3 (+7%)	0	5 (+79%)	5 (+79%)	2.80
372 - Trapped by power lines	1 (-62%)	3 (+15%)	3 (+15%)	3 (+15%)	3 (+15%)	2.60
381 - Rescue or EMS standby	16 (-74%)	23 (-63%)	55 (-12%)	60 (-4%)	157 (+152%)	62.20
5 - Service Call	Count	Count	Count	Count	Count	Category
	0 0	0 0	0 0	0 0	1 (+400%)	0.20
Incident Type	Count (% vs avg)	Count (% vs avg)	Count (% vs avg)	Count (% vs avg)	Count (% vs avg)	Incident Type
321R - EMS call, PATIENT	0	0	0	0	1 (-100%)	658.50



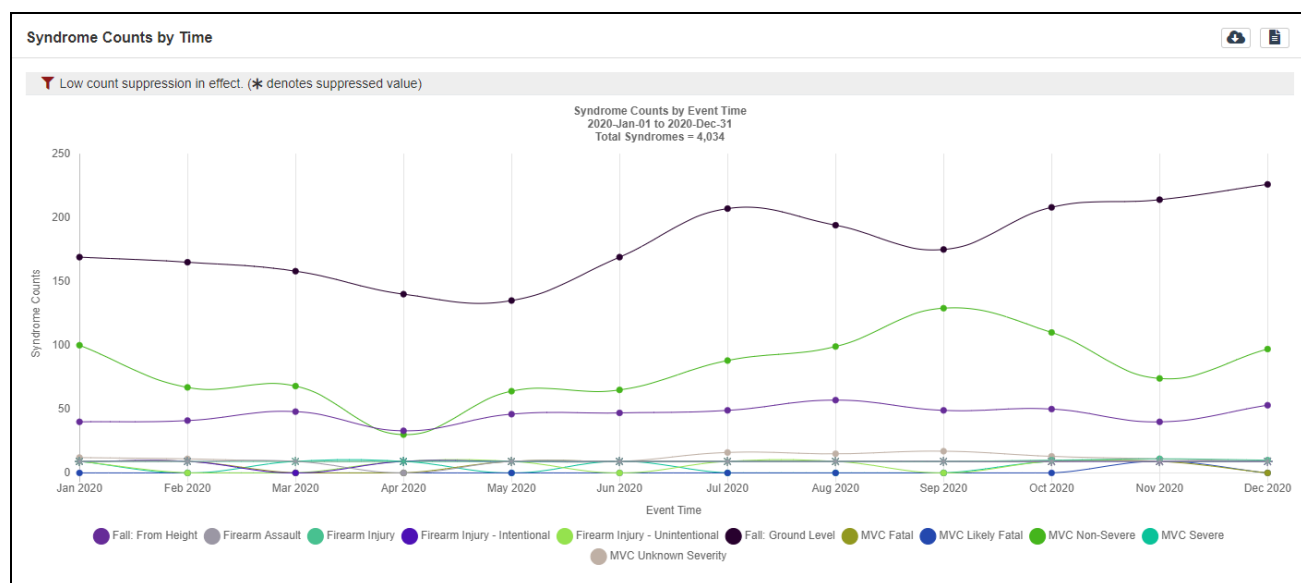
## Trends for All Injuries

1. Falls: Ground Level
2. MVC: Non-Severe
3. Falls: From Height

2018-2020

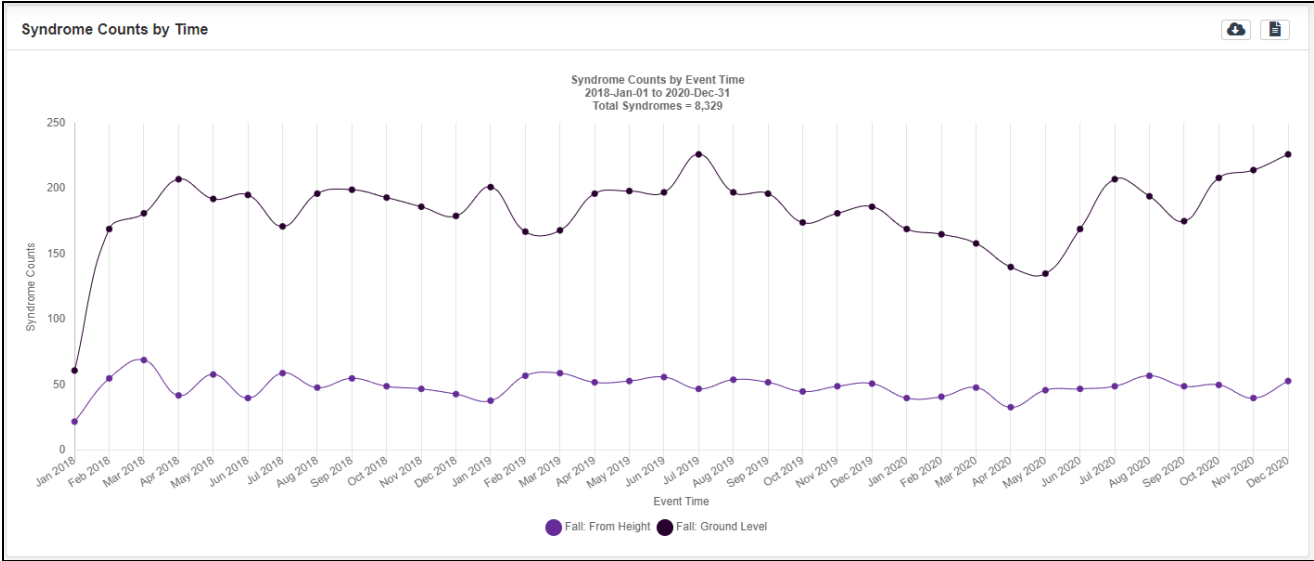


2020

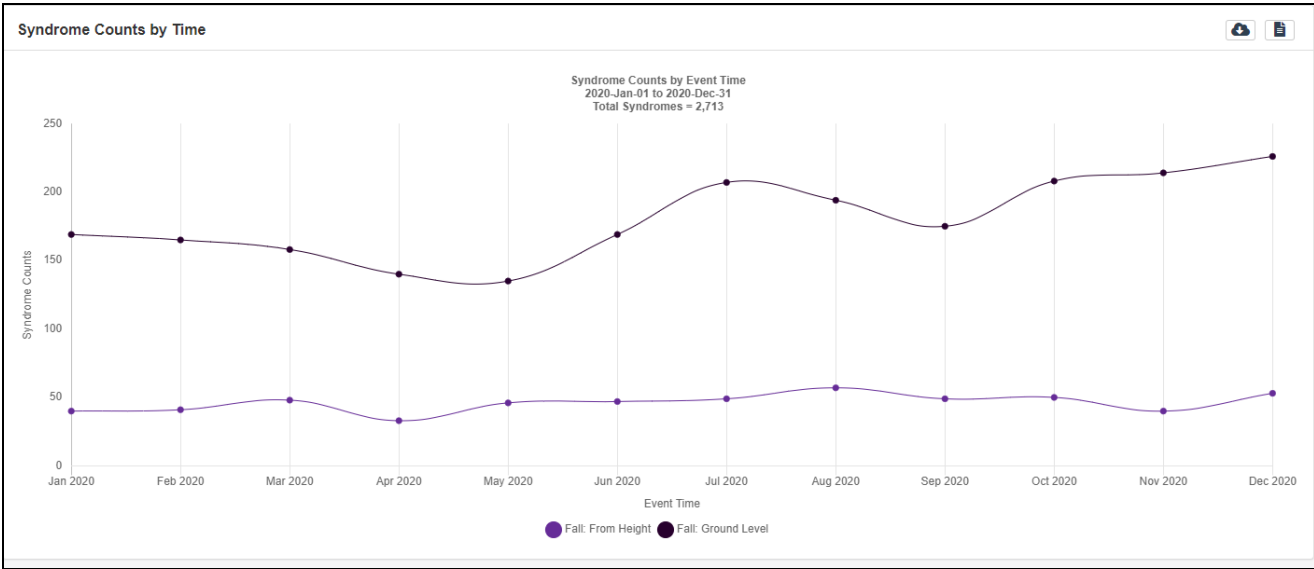


Data appears to be relatively consistent for falls from heights but shows a slight increase in falls at ground level. This data is based off the Syndrome field in the records management system.

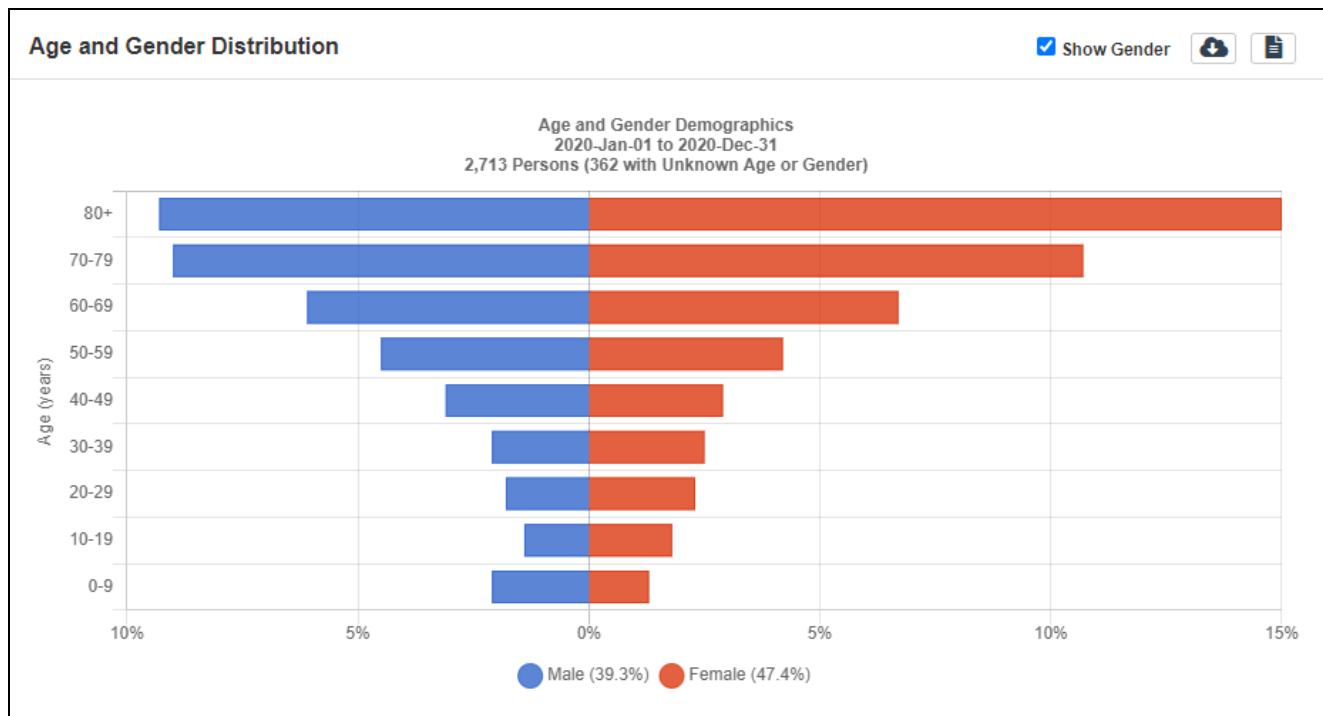
2018-2020



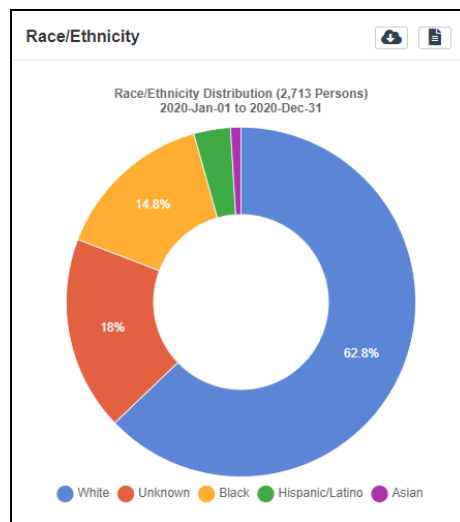
2020



## 2020 Falls by Age & Gender



## 2020 Falls by Race/Ethnicity



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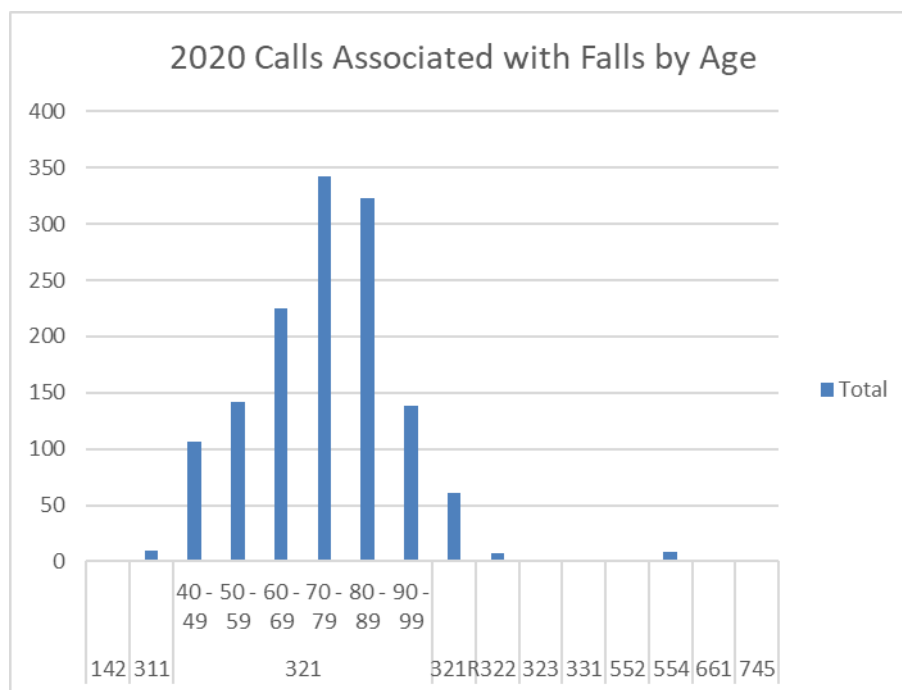
## WHY IS IT HAPPENING?

Injuries were determined by examining the Provider Impression field in the records management system. Falls were the greatest factor identified related to the cause of injuries followed by injuries due to MVCs.

2020 Injuries - Provider Impression Top Causes	
Causes	Count
MVC Injuries	569
Pedestrian Injuries	31
Falls	998
Assaults	135

An examination of fall incident data determined that most falls are occurring in the older population between 70 and 89-year-old patients.

### 2020 Incidents - Fall as Contributing Factor by Age Group



Below follow additional incidents that were examined due to their presence in the top EMS incident types. These are of interest because of their time sensitive nature.

## CARDIAC ARRESTS

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<b>2020 Nature or Cause of Cardiac Arrest</b>		
<b>NATURE / CAUSE</b>	<b>Count</b>	<b>Percent</b>
Cardiac (Presumed)	479	82.73%
Drug Overdose	29	5.01%
NULL	2	0.35%
Other	28	4.84%
Respiratory/Asphyxia	19	3.28%
Trauma	22	3.80%
<b>Grand Total</b>	<b>579</b>	<b>100.00%</b>

## 2020 Witnessed Cardiac Arrest

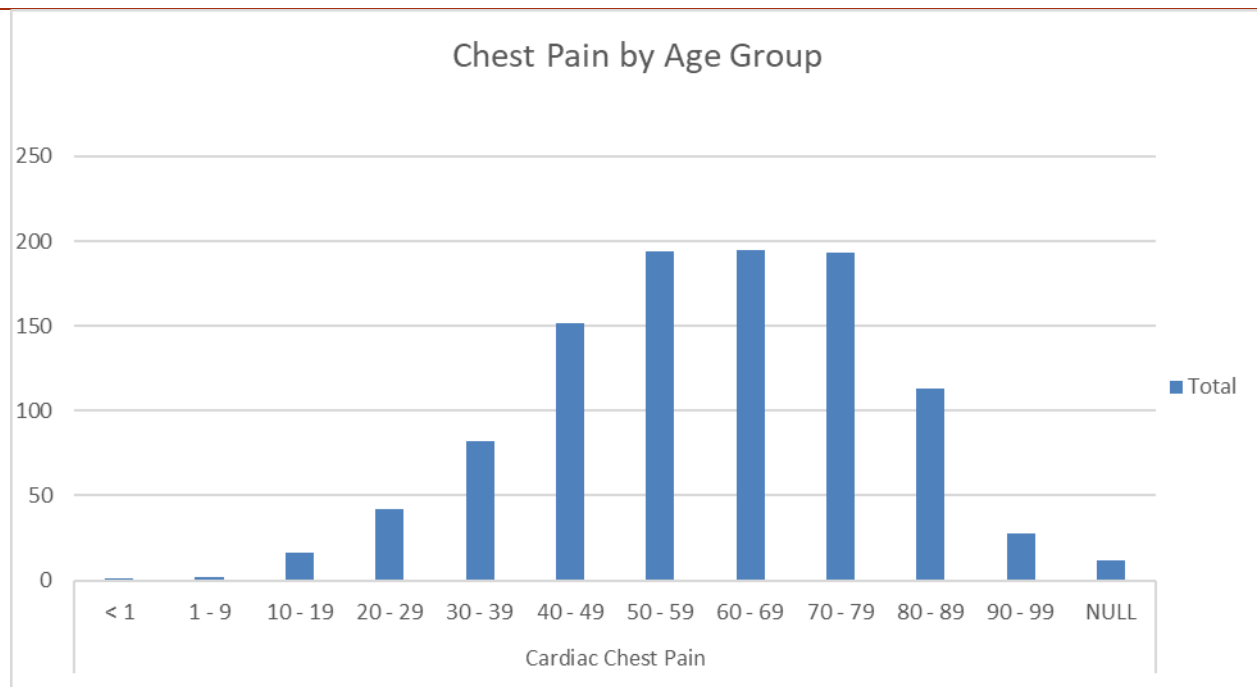
<b>Cardiac Arrest Witnessed By</b>	<b>Count</b>	<b>Percent</b>
Not Witnessed	335	58.67%
Not Witnessed, Witnessed by Healthcare Provider	1	0.18%
Witnessed By EMS	24	4.20%
Witnessed by Family Member	152	26.62%
Witnessed by Family Member, Witnessed by Healthcare Provider	1	0.18%
Witnessed by Healthcare Provider	28	4.90%
Witnessed by Healthcare Provider, Not Witnessed	1	0.18%
Witnessed by Healthcare Provider, Witnessed by Lay Person, Witnessed by Family Member	1	0.18%
Witnessed by Lay Person	26	4.55%
Witnessed by Lay Person, Witnessed by Family Member	2	0.35%
<b>Grand Total</b>	<b>571</b>	<b>100.00%</b>

## 2020 Witnessed Cardiac Arrest - Person

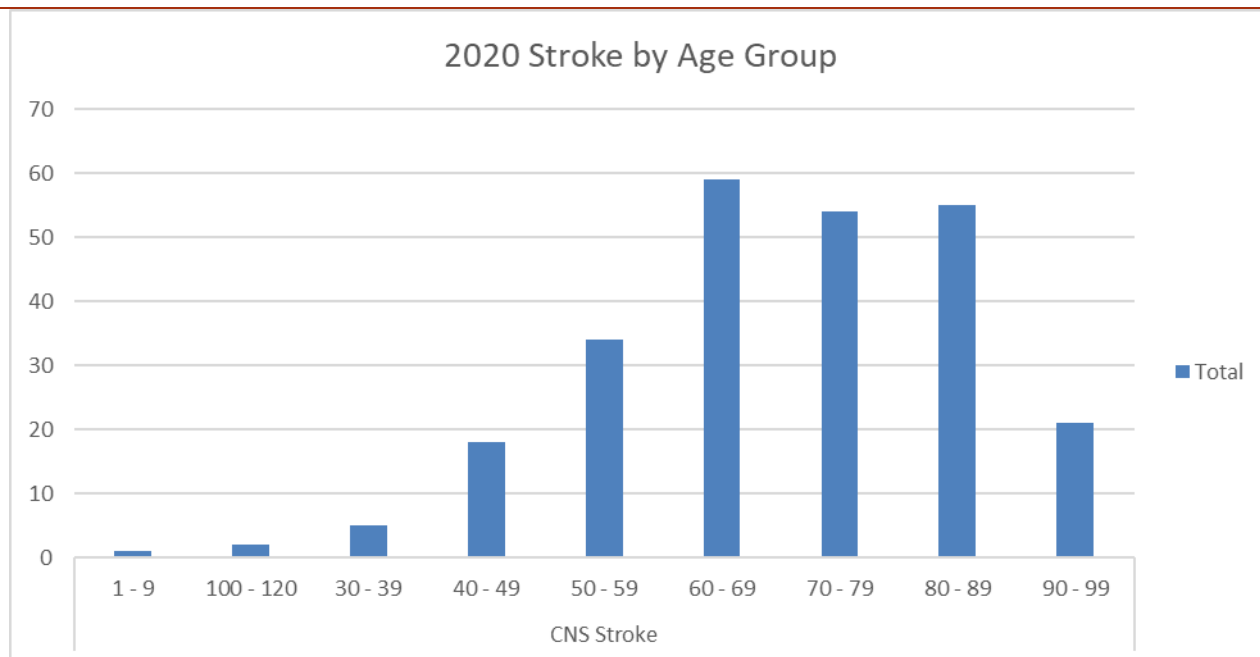
### Perform CPR

Prior to EMS - CPR Performed By	Count	Percent
Family Member	62	26.38%
Family Member, "First Responder (Fire, Law, EMS)"	6	2.55%
First Responder (Fire, Law, EMS)	16	6.81%
Healthcare Professional (Non-EMS)	25	10.64%
Healthcare Professional (Non-EMS),"Other EMS Professional (not part of dispatched response)"	1	0.43%
Lay Person (Non-Family)	17	7.23%
Lay Person (Non-Family),"Family Member"	1	0.43%
No CPR Provided Prior to EMS	104	44.26%
Other EMS Professional (not part of dispatched response)	3	1.28%
<b>Grand Total</b>	<b>235</b>	<b>100.00%</b>

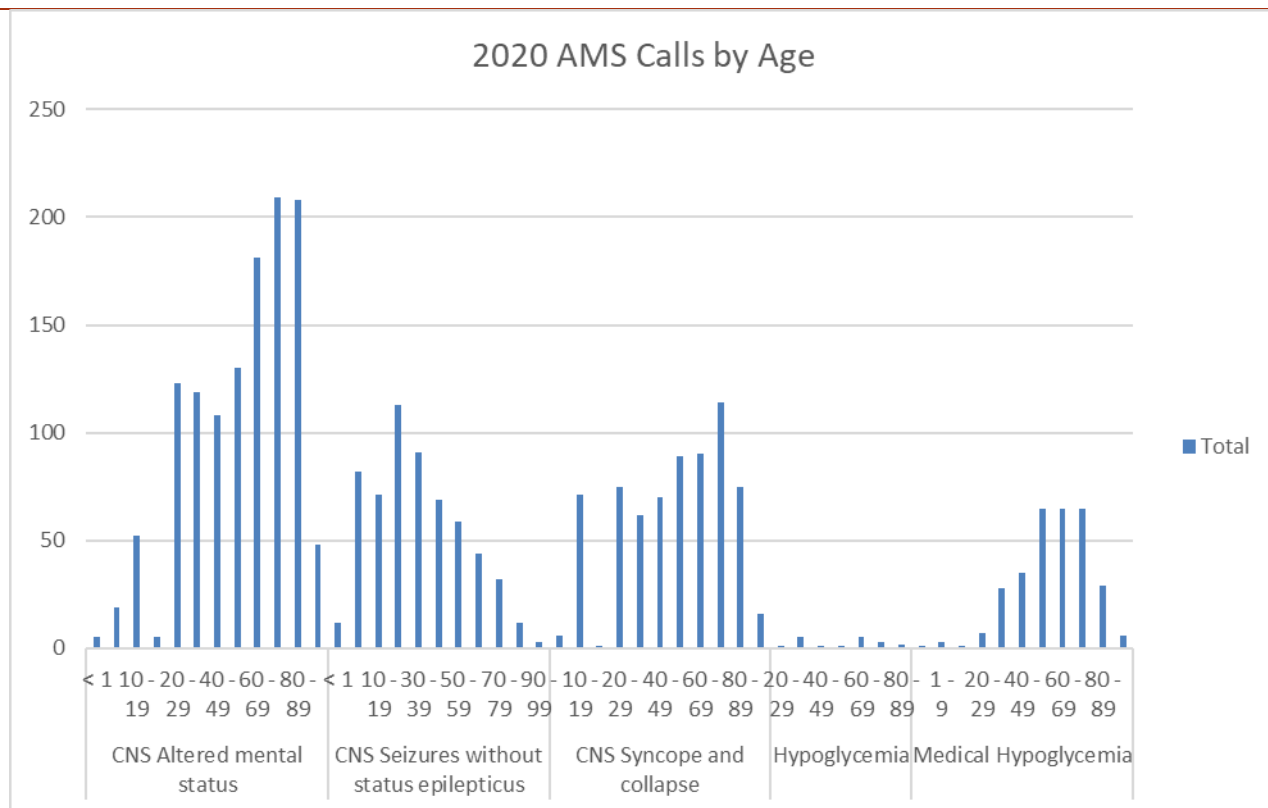
### CHEST PAIN BY AGE



## STROKE BY AGE

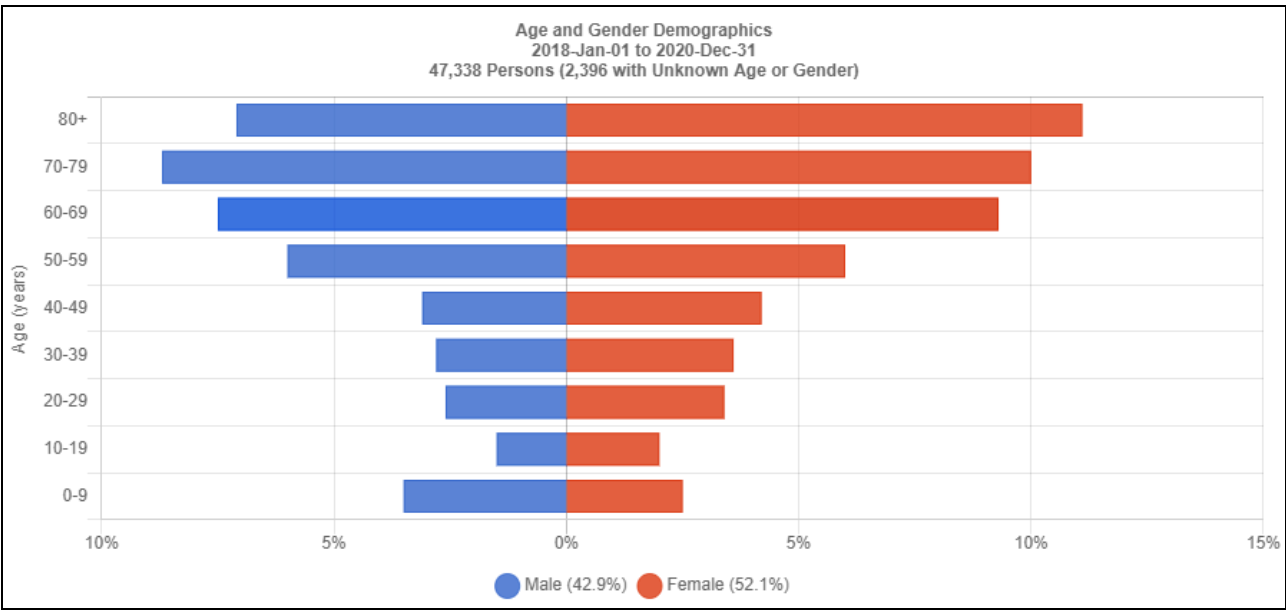
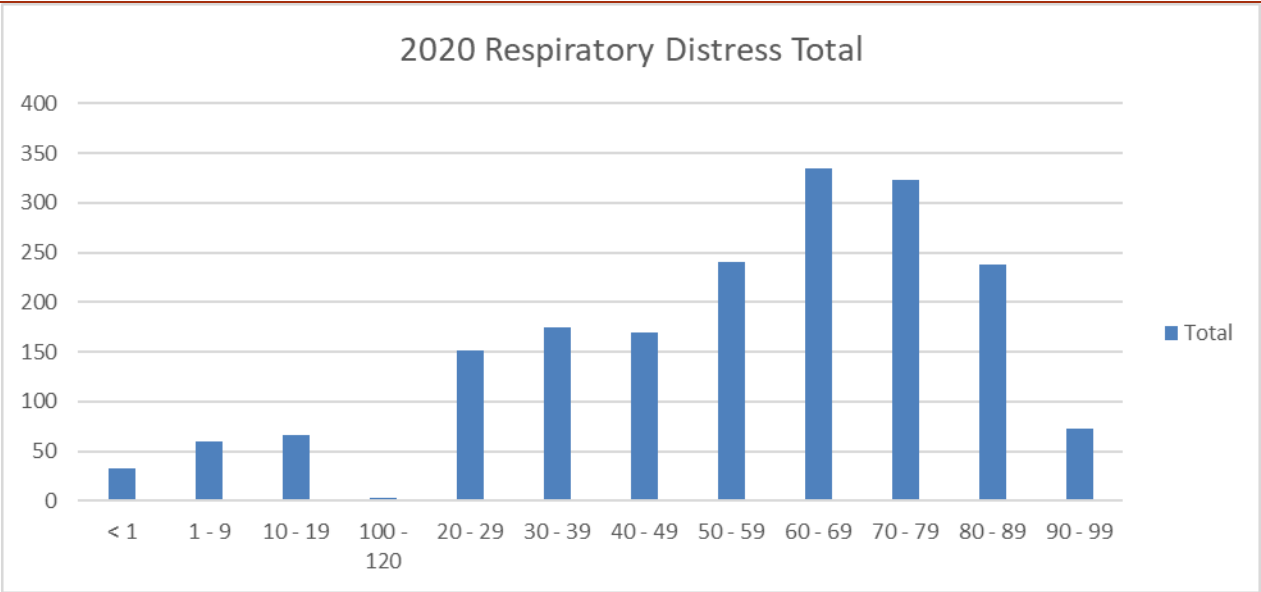


## ALTERED MENTAL STATUS BY AGE



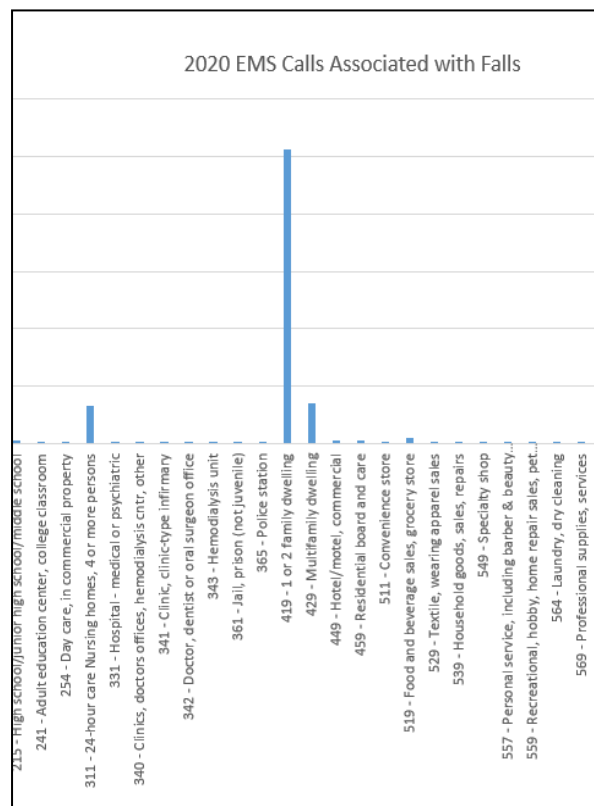
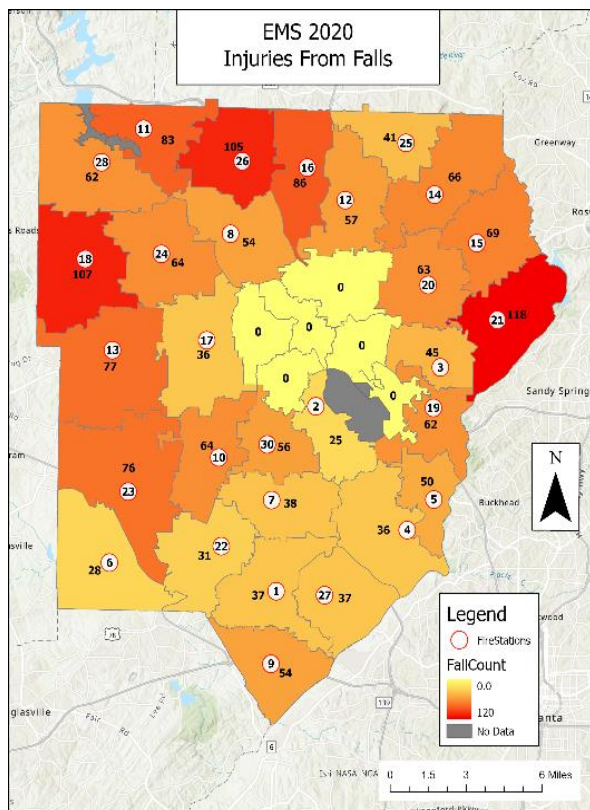


RESPIRATORY DISTRESS BY AGE

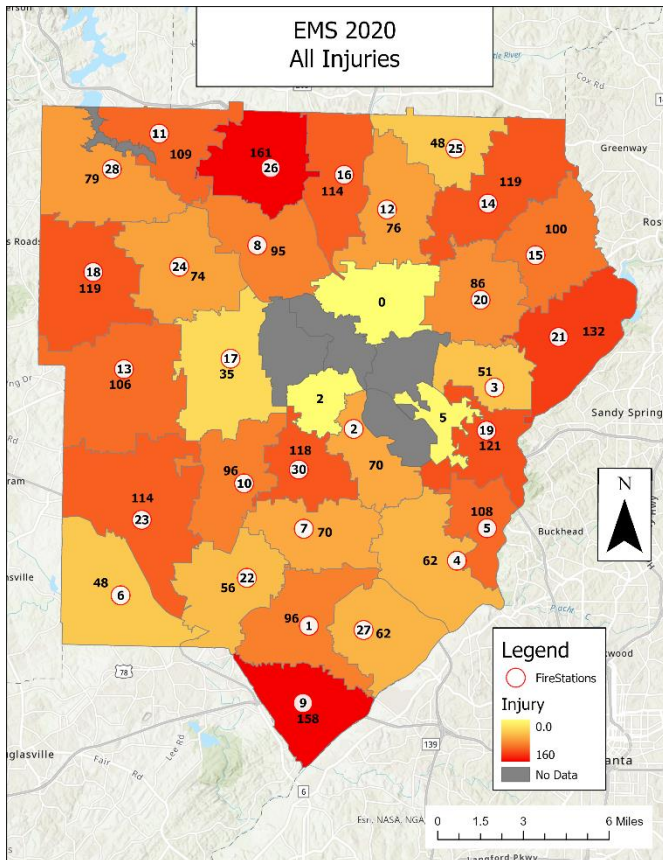


WHERE IS IT HAPPENING?

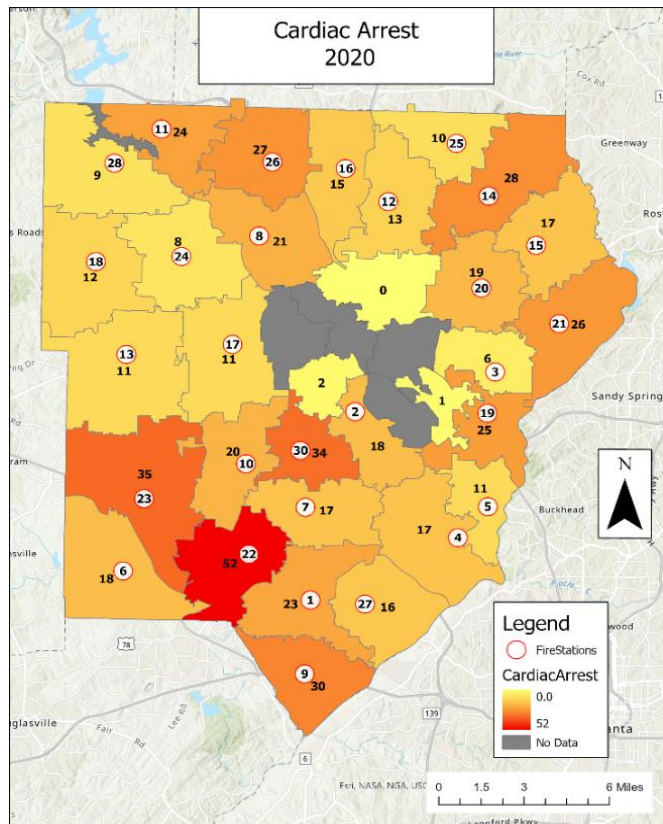
For incidents that were involving Injuries from falls during 2020, the following station territories had the highest counts: 21, 18, 26, 16, 11, 13, 23.



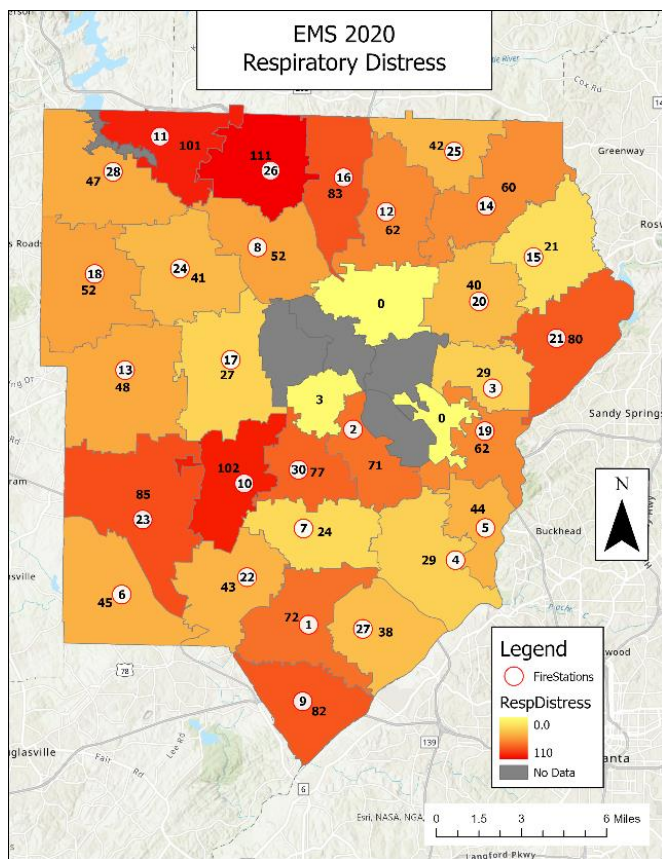
Injuries from falls occurred most often in 1-2 family dwellings and accounted for 1024 incidents during 2020. Nursing homes are in a distance second place for number of falls but still constituted a large number at 133 incidents for 2020.



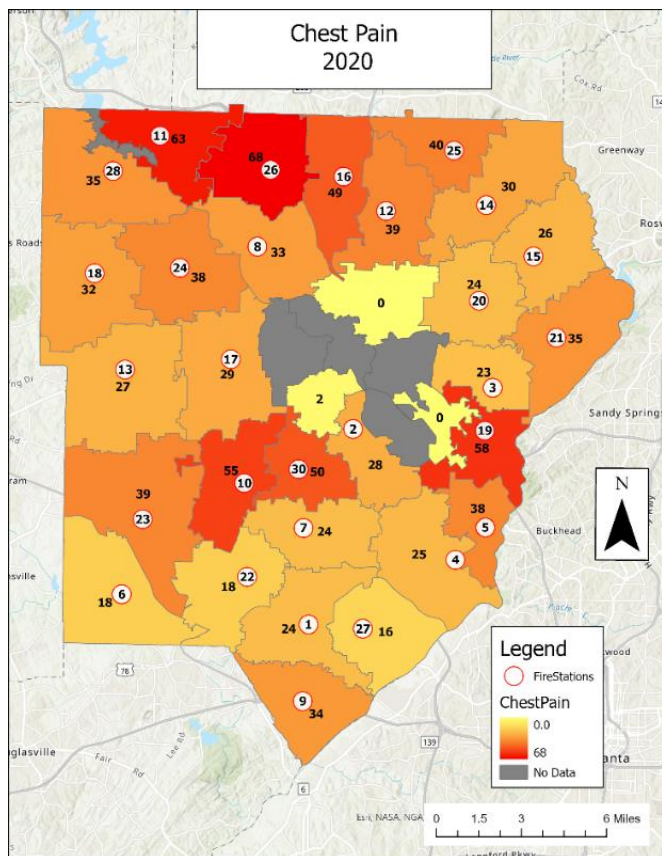
For incidents involving all types of injuries during 2020, the following station territories had the highest counts: 26, 9, 21, 19, 14, 16, 18, 30, 23, 08.



For Cardiac Arrest incidents during 2020, the following territories had the highest counts: Stations 22, 23, 30, 9, 14, 26, 21, 19, 11.



For Respiratory Distress incidents during 2020, the following territories had the highest counts:  
26, 10, 11, 23, 16, 9, 21.



For Chest Pain incidents during 2020, the following territories had the highest counts:  
26, 11, 19, 10, 30, 16.



Station	Percent
Station 01	3.79%
Station 02	3.34%
Station 03	1.61%
Station 04	2.06%
Station 05	3.48%
Station 06	2.48%
Station 07	2.55%
Station 08	3.55%
Station 09	4.98%
Station 10	4.12%
Station 11	5.24%
Station 12	3.46%
Station 13	3.43%
Station 14	3.91%
Station 15	2.54%
Station 16	4.42%
Station 17	1.81%
Station 18	3.53%
Station 19	4.50%
Station 20	2.46%
Station 21	4.33%
Station 22	2.36%
Station 23	4.33%
Station 24	2.74%
Station 25	2.21%
Station 26	6.41%
Station 27	2.20%
Station 28	3.10%
Station 30	5.04%
<b>Grand Total</b>	<b>100.00%</b>

Top Stations with highest EMS (300 series) incident types: 26, 11, 30, 9, 19, 16, 21, 23, 14, 8.

## WHEN IS IT HAPPENING?

Incident Type EMS 300 series (300 to 324; 381) by time of day, day of week, month of year

EMS (300 to 324; 381)\* 2020

% of Calls by Hour of Day

Hour	% of Total	Hour	% of Total
00:00	2.91%	12:00	5.68%
01:00	2.43%	13:00	5.68%
02:00	1.98%	14:00	5.52%
03:00	1.89%	15:00	5.59%
04:00	1.88%	16:00	5.78%
05:00	1.90%	17:00	5.64%
06:00	2.49%	18:00	5.69%
07:00	3.14%	19:00	5.47%
08:00	4.01%	20:00	5.05%
09:00	4.74%	21:00	4.68%
10:00	5.28%	22:00	3.84%
11:00	5.43%	23:00	3.31%

EMS (300 to 324; 381)\* 2020

% of Calls by Day of Week

Hour	% of Total
Sun	13.5%
Mon	14.8%
Tue	14.1%
Wed	14.4%
Thu	14.9%
Fri	14.5%
Sat	13.9%

EMS (300 to 324;381) by Month \* 2020

Month	% of Total	Total
Jan	9.3%	2833
Feb	8.4%	2538
Mar	8.3%	2533
Apr	6.5%	1970
May	7.4%	2258
Jun	7.6%	2296
Jul	9.3%	2821
Aug	8.8%	2679
Sep	8.4%	2549
Oct	8.6%	2609
Nov	8.2%	2485
Dec	9.1%	2771

30342

\* Incident Types 300 series (300 to 324; 381); Data from ImageTrend RMS; initial/basic exposure

## Injuries by time of day, day of week, month of year

### Injury\* 2020

#### % of Target Calls by Hour of Day

Hour	% of Total	Hour	% of Total
00:00	1.97%	12:00	5.31%
01:00	1.86%	13:00	6.09%
02:00	1.30%	14:00	5.95%
03:00	1.08%	15:00	6.35%
04:00	1.15%	16:00	7.69%
05:00	1.34%	17:00	8.29%
06:00	1.49%	18:00	7.58%
07:00	3.20%	19:00	6.61%
08:00	3.20%	20:00	4.87%
09:00	4.61%	21:00	5.54%
10:00	5.24%	22:00	2.71%
11:00	4.35%	23:00	2.23%

### Injury\* 2020

#### % of Target Calls by Month

Month	% of Total	Total
Jan	8.2%	221
Feb	7.4%	200
Mar	7.2%	195
Apr	5.0%	135
May	6.5%	176
Jun	7.4%	198
Jul	9.1%	245
Aug	10.1%	273
Sep	10.5%	282
Oct	10.7%	287
Nov	9.3%	249
Dec	8.5%	230

### Injury\* 2020

#### % of Target Calls by Day of Week

Hour	% of Total
Sun	13.1%
Mon	15.4%
Tue	13.8%
Wed	15.2%
Thu	14.1%
Fri	13.7%
Sat	14.7%

\* Data from ImageTrend RMS only; Target EMS Provider Impression = Injury, describe in narrative

## Cardiac Arrest by time of day, day of week, month of year

### Cardiac Arrest\* 2020

#### % of Target Calls by Hour of Day

Hour	% of Total	Hour	% of Total
00:00	3.47%	12:00	4.85%
01:00	2.08%	13:00	4.16%
02:00	0.69%	14:00	4.85%
03:00	2.08%	15:00	4.51%
04:00	3.64%	16:00	4.68%
05:00	3.12%	17:00	3.99%
06:00	5.72%	18:00	4.33%
07:00	3.99%	19:00	6.07%
08:00	6.07%	20:00	2.43%
09:00	7.11%	21:00	5.37%
10:00	4.85%	22:00	4.33%
11:00	4.51%	23:00	3.12%

### Cardiac Arrest\* 2020

#### % of Target Calls by Month

Month	% of Total	Total
Jan	8.1%	47
Feb	5.7%	33
Mar	8.7%	50
Apr	10.1%	58
May	9.0%	52
Jun	9.7%	56
Jul	8.3%	48
Aug	8.7%	50
Sep	6.8%	39
Oct	7.1%	41
Nov	8.0%	46
Dec	9.9%	57

### Cardiac Arrest\* 2020

#### % of Target Calls by Day of Week

Hour	% of Total
Sun	15.3%
Mon	12.8%
Tue	15.3%
Wed	12.1%
Thu	12.7%
Fri	16.6%
Sat	15.3%

\* Data from ImageTrend RMS only; Target EMS Provider Impression = Cardiac Arrest

## Respiratory Distress by time of day, day of week, month of year

Respiratory distress, acute\* 2020

% of Target Calls by Hour of Day

Hour	% of Total	Hour	% of Total
00:00	2.87%	12:00	5.80%
01:00	2.63%	13:00	5.20%
02:00	1.61%	14:00	4.72%
03:00	1.79%	15:00	5.38%
04:00	1.43%	16:00	6.22%
05:00	1.55%	17:00	4.18%
06:00	2.21%	18:00	4.60%
07:00	3.83%	19:00	5.38%
08:00	4.90%	20:00	4.66%
09:00	5.92%	21:00	6.04%
10:00	5.98%	22:00	4.12%
11:00	5.68%	23:00	3.29%

Respiratory distress, acute\* 2020

% of Target Calls by Day of Week

Hour	% of Total
Sun	15.1%
Mon	16.3%
Tue	14.0%
Wed	13.2%
Thu	16.4%
Fri	12.1%
Sat	12.9%

Respiratory distress, acute\* 2020

% of Target Calls by Month

Month	% of Total	Total
Jan	7.8%	130
Feb	7.5%	125
Mar	8.4%	141
Apr	5.9%	98
May	6.3%	105
Jun	7.1%	118
Jul	11.2%	187
Aug	7.8%	130
Sep	8.4%	141
Oct	9.3%	155
Nov	7.9%	133
Dec	12.6%	210

\* Data from ImageTrend RMS only; Target EMS Provider Impression = Respiratory distress, acute

## Chest Pain by time of day, day of week, month of year

Cardiac Chest Pain\* 2020

% of Target Calls by Hour of Day

Hour	% of Total	Hour	% of Total
00:00	3.33%	12:00	5.20%
01:00	2.35%	13:00	3.92%
02:00	2.06%	14:00	5.69%
03:00	1.18%	15:00	5.88%
04:00	1.57%	16:00	5.49%
05:00	2.65%	17:00	5.10%
06:00	3.82%	18:00	4.80%
07:00	2.94%	19:00	5.78%
08:00	4.71%	20:00	4.51%
09:00	4.41%	21:00	4.41%
10:00	5.88%	22:00	4.22%
11:00	5.98%	23:00	4.12%

Cardiac Chest Pain\* 2020

% of Target Calls by Day of Week

Hour	% of Total
Sun	15.5%
Mon	14.6%
Tue	13.1%
Wed	16.9%
Thu	13.6%
Fri	13.2%
Sat	13.0%

Cardiac Chest Pain\* 2020

% of Target Calls by Month

Month	% of Total	Total
Jan	8.7%	89
Feb	7.5%	77
Mar	8.1%	83
Apr	5.9%	60
May	7.5%	77
Jun	7.6%	78
Jul	7.8%	80
Aug	9.1%	93
Sep	8.7%	89
Oct	10.1%	103
Nov	9.4%	96
Dec	9.3%	95

\* Data from ImageTrend RMS only; Target EMS Provider Impression = Cardiac Chest Pain

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## TECHNICAL RESCUE RISK

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### WHAT ARE THE KNOWN RISK FACTORS?

Technical Rescue incidents include motor vehicle accidents requiring extrications, trench rescue, collapse rescue, animal rescue, equipment disentanglement, swift water rescue, and high angle rescue. These incident types can occur due to many factors. Contributing factors that increase the risk include but are not limited to the following:

- Lack of safety equipment use in the community
- Poorly designed intersections
- Interstates or high-speed roadways
- Commercial or industrial occupancies
- High risk behavior
- Rivers & lakes
- Recreational areas with terrain elevations or limited access
- Growth and development
- Population density



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### WHAT ARE THE TOP TRT INCIDENT TYPES?

For 2020 there were 1,489 TRT Incidents involving motor vehicle accidents with injuries, accounting for 2.5% of the total calls for service. These incidents were identified by using incident type codes of 322, 323, and 352.

All other TRT incident types accounted for 0.5% of total calls for service (324 incidents). These incidents were identified by using incident type codes of 340, 341, 342, 350, 351, 353, 354, 355, 356, 356S, 357, 360, 361, 362, 363, 365, and 542.

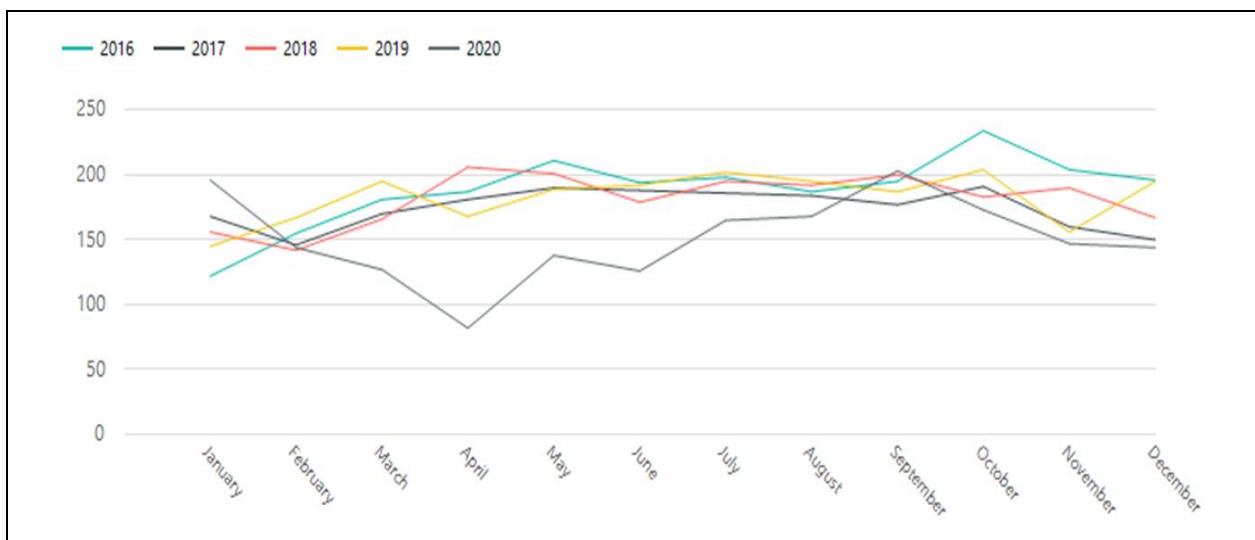
Below are the 2020 top 10 TRT incident types.



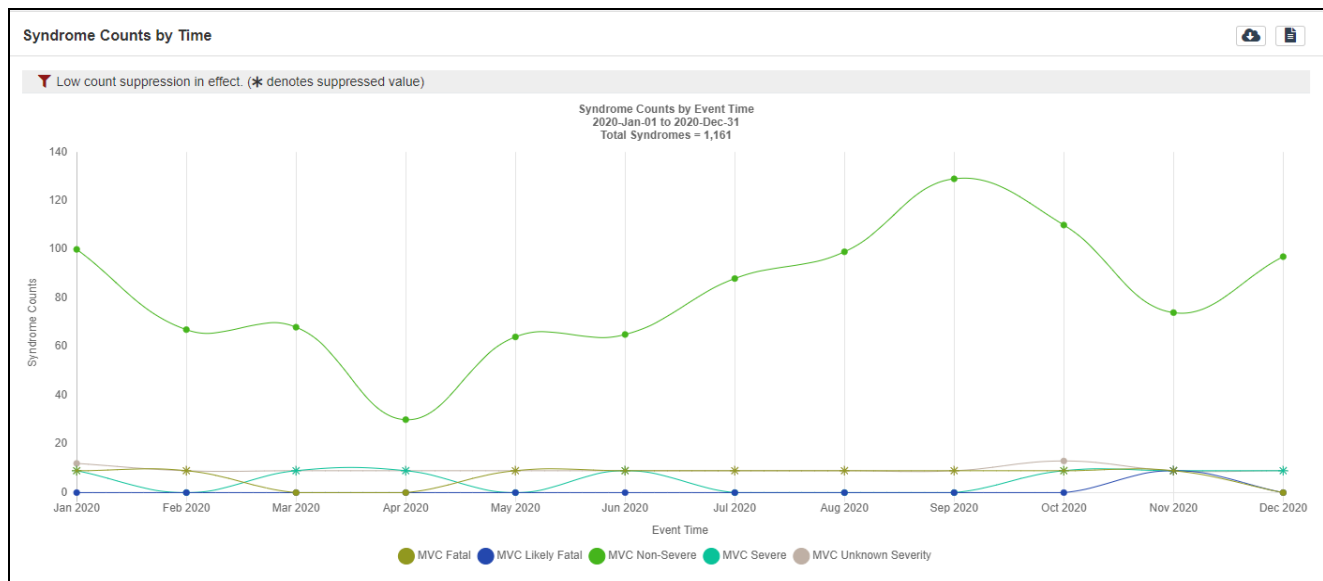
2020 Top 10 TRT Incident Types (including MVC)			
Incident Type Code	Incident Type	Count	% of Total TRT Calls
322	Motor vehicle accident with injuries	1371	75.6%
341	Search for person on land	131	7.2%
353	Removal of victim(s) from stalled elevator	122	6.7%
323	Motor vehicle/pedestrian accident (MV Ped)	80	4.4%
352	Extrication of victim(s) from vehicle	38	2.1%
363	Swift water rescue	19	1.0%
542	Animal rescue	19	1.0%
342	Search for person in water	12	0.7%
357	Extrication of victim(s) from machinery	6	0.3%
351	Extrication of victim(s) from building/structure	5	0.3%
Other	Other	10	0.6%
	Total TRT Incident Types (including MVC)	1813	

## WHAT ARE THE TRENDS FOR TRT INCIDENTS?

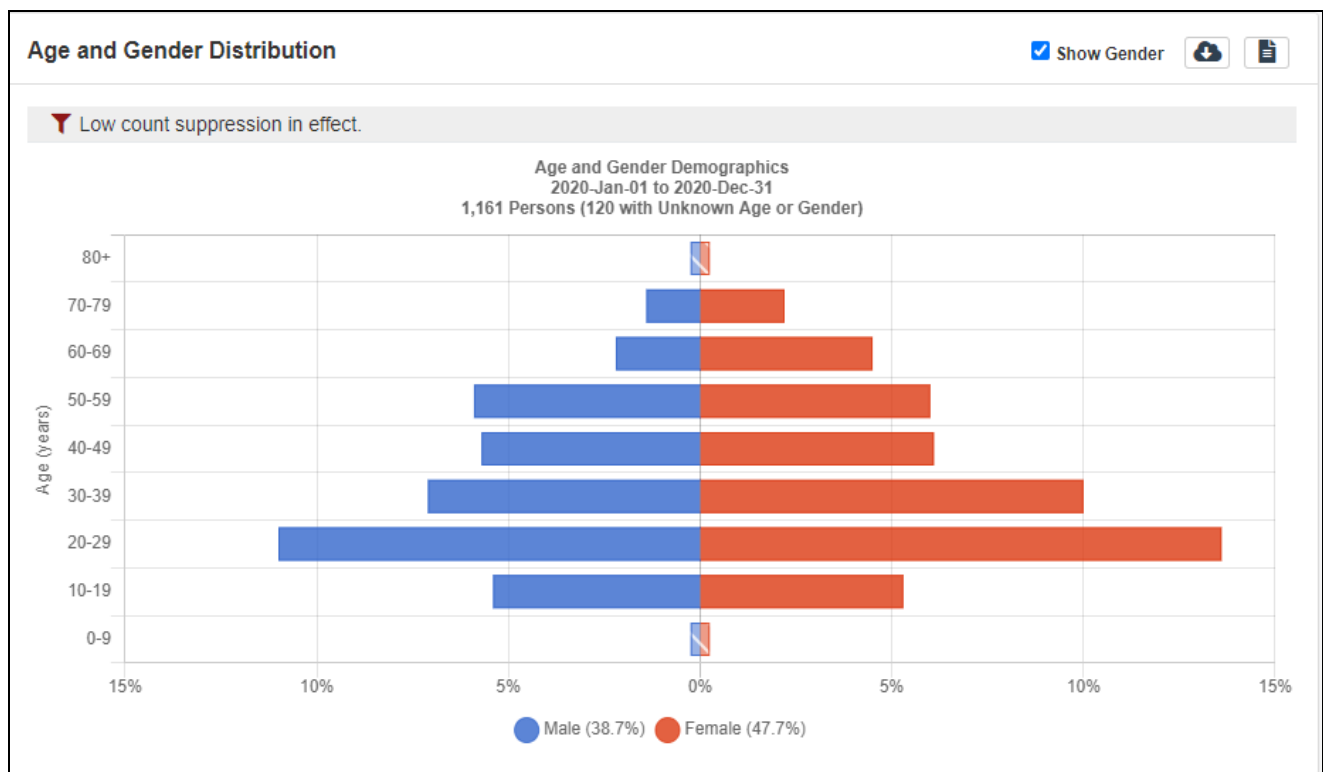
2020 saw an 18% decrease over 2019 in the number of TRT related incidents. This decrease can primarily be seen in the graph below during the months between March and August.



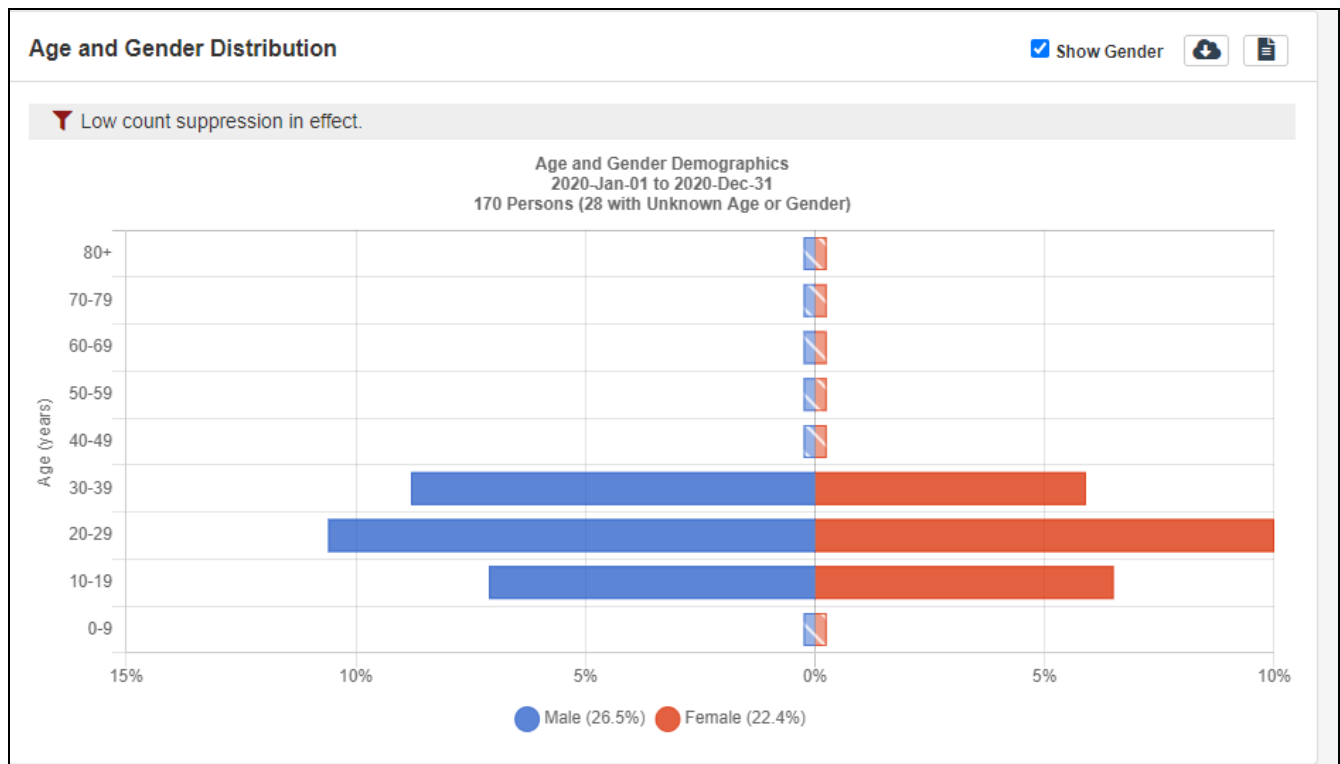
## 2020 MVC Injuries



## 2020 MVC by Age & Gender



## 2020 Severe MVC by Age



## Incident Counts by Incident Type Category

\* All averages are calculated over displayed values within the defined date range.

Incident Type Category	2016		2017		2018		2019		2020	
	Total Incidents		Total Incidents		Total Incidents		Total Incidents		Total Incidents	
	2264		2091		2177		2195		1813	
3 - Rescue & Emergency Medical Service Incident	Count		Count		Count		Count		Count	Category Average*
		2250 (+8%)	2073 (-1%)		2160 (+3%)		2175 (+4%)		1794 (-14%)	2090.40
Incident Type	Count (% vs avg)		Count (% vs avg)		Count (% vs avg)		Count (% vs avg)		Count (% vs avg)	Incident Type Average*
322 - Motor vehicle accident with injuries	1913 (+14%)		1708 (+1%)		1755 (+4%)		1669 (-1%)		1371 (-19%)	1683.20
323 - Motor vehicle/pedestrian accident	98 (+8%)		77 (-15%)		103 (+13%)		96 (+6%)		80 (-12%)	90.80
340 - Search for lost person, other	47 (+50%)		47 (+50%)		55 (+75%)		8 (-75%)		0	31.40
341 - Search for person on land	59 (-39%)		68 (-29%)		61 (-37%)		162 (+68%)		131 (+36%)	96.20
342 - Search for person in water	5 (-36%)		3 (-62%)		11 (+41%)		8 (+3%)		12 (+54%)	7.80
350 - Extrication, rescue, Other	9 (+29%)		12 (+71%)		13 (+86%)		1 (-86%)		0	7.00
351 - Extrication of victim(s) from building/structure	0		4 (+33%)		2 (-33%)		4 (+33%)		5 (+67%)	3.00
352 - Extrication of victim(s) from vehicle	29 (-16%)		28 (-19%)		31 (-10%)		46 (+34%)		38 (+10%)	34.40
353 - Removal of victim(s) from stalled elevator	72 (-39%)		119 (+1%)		114 (-3%)		161 (+37%)		122 (+4%)	117.60
354 - Trench/below-grade rescue	0		0		0		2 (+233%)		1 (+67%)	0.60
355 - Confined space rescue	1 (+67%)		0		0		1 (+67%)		1 (+67%)	0.60
356 - High-angle rescue	1 (-38%)		1 (-38%)		2 (+25%)		2 (+25%)		2 (+25%)	1.60
356S - Slope Evacuation (Excluding '356' High-Angle)	1 (+150%)		1 (+150%)		0		0		0	0.40
357 - Extrication of victim(s) from machinery	4 (+18%)		0		5 (+47%)		2 (-41%)		6 (+76%)	3.40
360 - Water & ice-related rescue, other	2 (+150%)		0		2 (+150%)		0		0	0.80
361 - Swimming/recreational water areas rescue	2 (+11%)		0		3 (+67%)		2 (+11%)		2 (+11%)	1.80
362 - Ice rescue	0		0		1 (+400%)		0		0	0.20
363 - Swift water rescue	4 (-47%)		5 (-34%)		2 (-74%)		8 (+5%)		19 (+150%)	7.60
365 - Watercraft rescue	3 (+50%)		0		0		3 (+50%)		4 (+100%)	2.00
5 - Service Call	Count		Count		Count		Count		Count	Category
		14 (-20%)	18 (+2%)		17 (-3%)		20 (+14%)		19 (+8%)	17.60
Incident Type	Count (% vs avg)		Count (% vs avg)		Count (% vs avg)		Count (% vs avg)		Count (% vs avg)	Incident Type
542 - Animal rescue	14 (-20%)		18 (+2%)		17 (-3%)		20 (+14%)		19 (+8%)	17.60

## WHY IS IT HAPPENING?

As an agency, CCFES has developed several hypotheses to explain why these incident types are occurring. The following are some of these hypotheses.

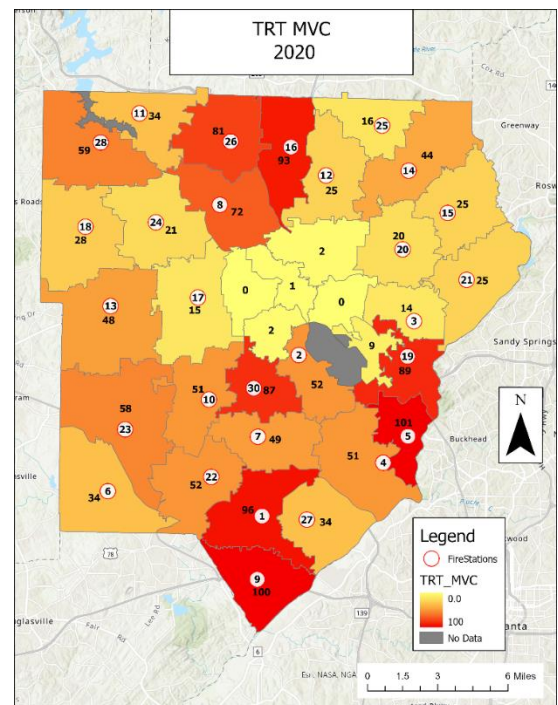
- Higher ratios of males which maybe more likely to engage in higher risk behavior
- High risk behavior such as speeding and reckless driving have contributed to serious motor vehicle accidents
- Lack of safety equipment use or availability
- Higher population density increases the risk of TRT incidents
- Distracted driving while operating a motor vehicle
- Substance abuse while operating equipment or motor vehicle
- Poorly designed intersections or traffic exchanges

We have identified gaps in our data collection for the contributing factors. It is recommended that improvements in documenting contributing factors should be addressed for all TRT incident types. This should include response factors, human factors, and contributing incident factors.

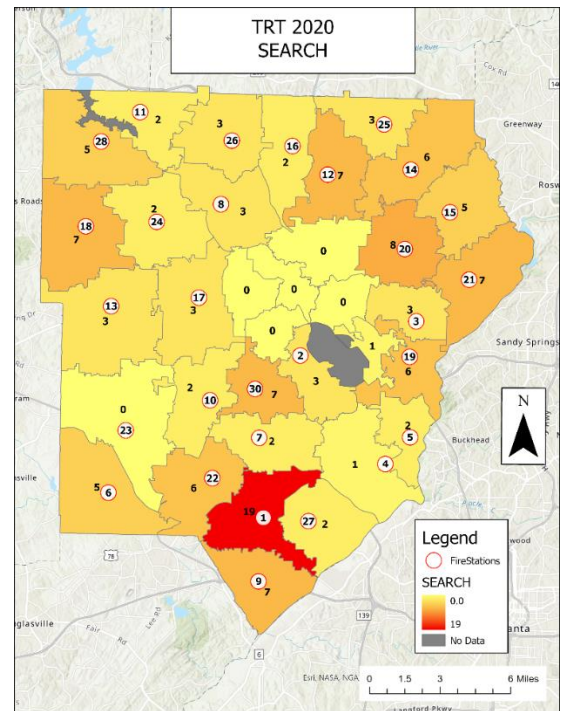
## WHERE IS IT HAPPENING?

For TRT MVC incidents during 2020, the following stations had the highest counts:

5, 9, 1, 16, 19, 30, 26, 8.



For TRT Search incidents during 2020, the following station had the highest count:  
Station 1 (containing Silver Comet Trail).



## WHEN IS IT HAPPENING?

Main TRT incident Types by time of day, day of week, month of year

MVC (322,323,352)\* 2020  
% of Calls by Hour of Day

Hour	% of Total	Hour	% of Total
00:00	1.54%	12:00	5.31%
01:00	0.94%	13:00	6.11%
02:00	0.81%	14:00	6.85%
03:00	0.74%	15:00	6.85%
04:00	0.87%	16:00	9.20%
05:00	1.61%	17:00	9.60%
06:00	1.75%	18:00	8.33%
07:00	4.16%	19:00	7.05%
08:00	3.09%	20:00	5.10%
09:00	3.29%	21:00	4.37%
10:00	3.43%	22:00	2.28%
11:00	4.77%	23:00	1.95%

MVC (322,323,352)\* 2020  
% of Calls by Day of Week

Hour	% of Total
Sun	11.3%
Mon	15.5%
Tue	14.9%
Wed	15.0%
Thu	13.6%
Fri	14.8%
Sat	14.8%

MVC (322,323,352) by Month \* 2020

Month	% of Total	Total
Jan	10.9%	163
Feb	8.1%	121
Mar	7.2%	107
Apr	4.1%	61
May	7.3%	109
Jun	6.8%	101
Jul	8.8%	131
Aug	8.9%	133
Sep	11.6%	172
Oct	9.5%	141
Nov	8.4%	125
Dec	8.4%	125
		1489

\* Incident Types MVC (322,323,352); Data from ImageTrend RMS; initial/basic exposure

TRT (excluding MVC) \* 2020  
% of Calls by Hour of Day

Hour	% of Total	Hour	% of Total
00:00	1.85%	12:00	4.01%
01:00	1.85%	13:00	5.56%
02:00	1.23%	14:00	4.63%
03:00	0.62%	15:00	4.32%
04:00	1.23%	16:00	7.10%
05:00	1.23%	17:00	9.26%
06:00	2.16%	18:00	8.33%
07:00	1.54%	19:00	8.95%
08:00	2.78%	20:00	6.48%
09:00	3.70%	21:00	7.72%
10:00	4.94%	22:00	3.40%
11:00	4.01%	23:00	3.09%

TRT (excluding MVC) \* 2020  
% of Calls by Day of Week

Hour	% of Total
Sun	16.0%
Mon	13.0%
Tue	13.9%
Wed	11.4%
Thu	17.3%
Fri	10.8%
Sat	17.6%

TRT (excluding MVC) by Month \* 2020

Month	% of Total	Total
Jan	10.2%	33
Feb	7.1%	23
Mar	6.2%	20
Apr	6.5%	21
May	9.0%	29
Jun	7.7%	25
Jul	10.5%	34
Aug	10.8%	35
Sep	9.6%	31
Oct	9.9%	32
Nov	6.8%	22
Dec	5.9%	19

324

\* Data from ImageTrend RMS; initial/basic exposure

\* TRT Incident Types (340,341,342,350,351,353,354,355,356,356S,357,360,361,362,363,365,542; excludes MVCs)

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## HAZARDOUS MATERIALS RISK

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### WHAT ARE THE KNOWN RISK FACTORS?

Hazardous Material incidents involve substance(s) that pose a threat to life, property, or the environment. These incidents include motor vehicle accidents, transportation incidents, chemical releases, flammable liquid spills, flammable gas releases, toxic gas or liquid releases, biological or radiological incidents. These incident types can occur due to many factors. Contributing factors that increase the risk include but are not limited to the following:

- Lack of safety equipment use or availability
- Interstates or higher speed roadways
- Commercial or Industrial Occupancies
- High risk behavior
- Transportation hubs (rail or air)
- Areas with rapid growth and development
- Population density



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### WHAT ARE THE TOP HAZMAT TYPE INCIDENTS?

#### Hazmat Incident Types

For 2020, there were 711 Hazmat Incidents accounting for 1.2% of total calls for service. The incident type codes of 400-439 and 451 were used to identify hazmat incident types.

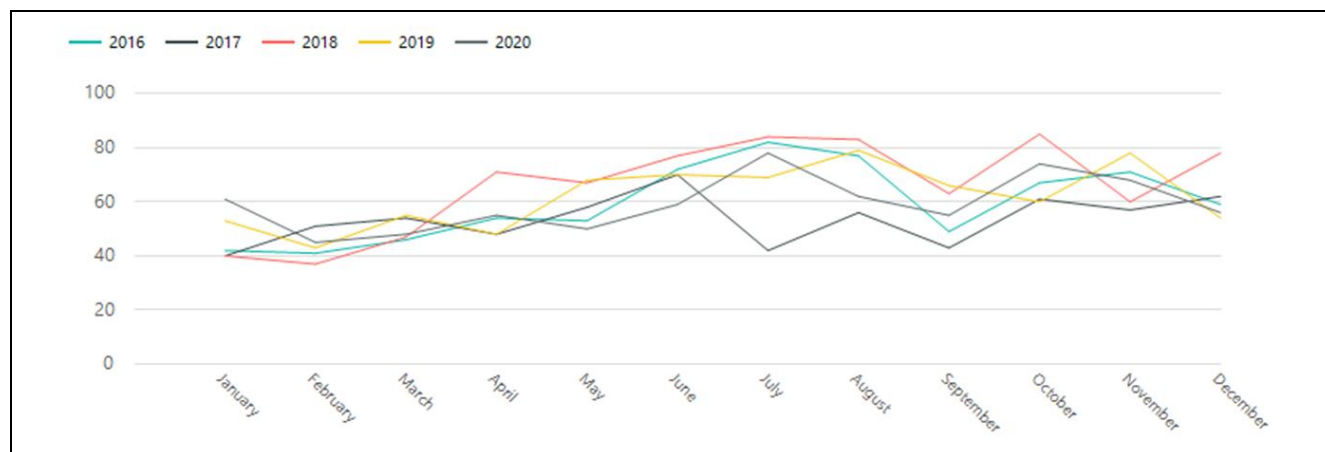
Below are the top 10 Hazmat incident types for 2020.

2020 Top 10 HZMT Incident Types			
Incident Type Code	Incident Type	Count	% of Total HZMT Calls
412	Gas leak (natural gas or LPG)	491	69.1%
424	Carbon monoxide incident*	146	20.5%
411	Gasoline or other flammable liquid spill	39	5.5%
413	Oil or other combustible liquid spill	16	2.3%
422	Chemical spill or leak	11	1.5%
421	Chemical hazard (no spill or leak)	5	0.7%
423	Refrigeration leak	2	0.3%
451	Biological hazard, confirmed or suspected	1	0.1%

\* Carbon Monoxide incidents are not normally considered hazmat incidents but have been left in the counts to reflect risk.



## WHAT ARE THE TRENDS FOR HAZMAT INCIDENTS?



### Incident Counts by Incident Type Category

\* All averages are calculated over displayed values within the defined date range.

Incident Type Category	2016		2017		2018		2019		2020	
	Total Incidents		Total Incidents		Total Incidents		Total Incidents		Total Incidents	
	713		642		792		743		711	
4 - Hazardous Condition (No Fire)	Count		Count		Count		Count		Count	Category Average*
	713 (-1%)		642 (-11%)		792 (+10%)		743 (+3%)		711 (-1%)	720.20
Incident Type	Count (% vs avg)		Count (% vs avg)		Count (% vs avg)		Count (% vs avg)		Count (% vs avg)	Incident Type Average*
400 - Hazardous condition, Other	0		0		160 (+379%)		7 (-79%)		0	33.40
410 - Combustible/flammable gas/liquid condition, other	6 (+67%)		8 (+122%)		4 (+11%)		0		0	3.60
411 - Gasoline or other flammable liquid spill	56 (+12%)		38 (-24%)		53 (+6%)		64 (+28%)		39 (-22%)	50.00
412 - Gas leak (natural gas or LPG)	560 (+10%)		479 (-5%)		468 (-8%)		536 (+6%)		491 (-3%)	506.80
413 - Oil or other combustible liquid spill	11 (-5%)		15 (+29%)		7 (-40%)		9 (-22%)		16 (+38%)	11.60
420 - Toxic condition, Other	4 (+122%)		3 (+67%)		2 (+11%)		0		0	1.80
421 - Chemical hazard (no spill or leak)	5 (+19%)		3 (-29%)		4 (-5%)		4 (-5%)		5 (+19%)	4.20
422 - Chemical spill or leak	7 (-17%)		8 (-5%)		8 (-5%)		8 (-5%)		11 (+31%)	8.40
423 - Refrigeration leak	1 (-17%)		2 (+67%)		0		1 (-17%)		2 (+67%)	1.20
424 - Carbon monoxide incident	62 (-37%)		86 (-12%)		81 (-17%)		114 (+17%)		146 (+49%)	97.80
431 - Radiation leak, radioactive material	0		0		1 (+400%)		0		0	0.20
451 - Biological hazard, confirmed or suspected	1 (-17%)		0		4 (+233%)		0		1 (-17%)	1.20

## WHY IS IT HAPPENING?

As an agency, CCFES has developed several hypotheses to explain why these incident types are occurring and what the associated significant factors are:

- Lack or improper use of safety equipment
- Equipment failure or misuse
- Lack of following the established rules or standards

- High risk behavior
- Higher population density increases the risk of hazmat incidents
- Substance abuse while operating equipment or motor vehicle
- Poorly designed intersections or traffic exchanges

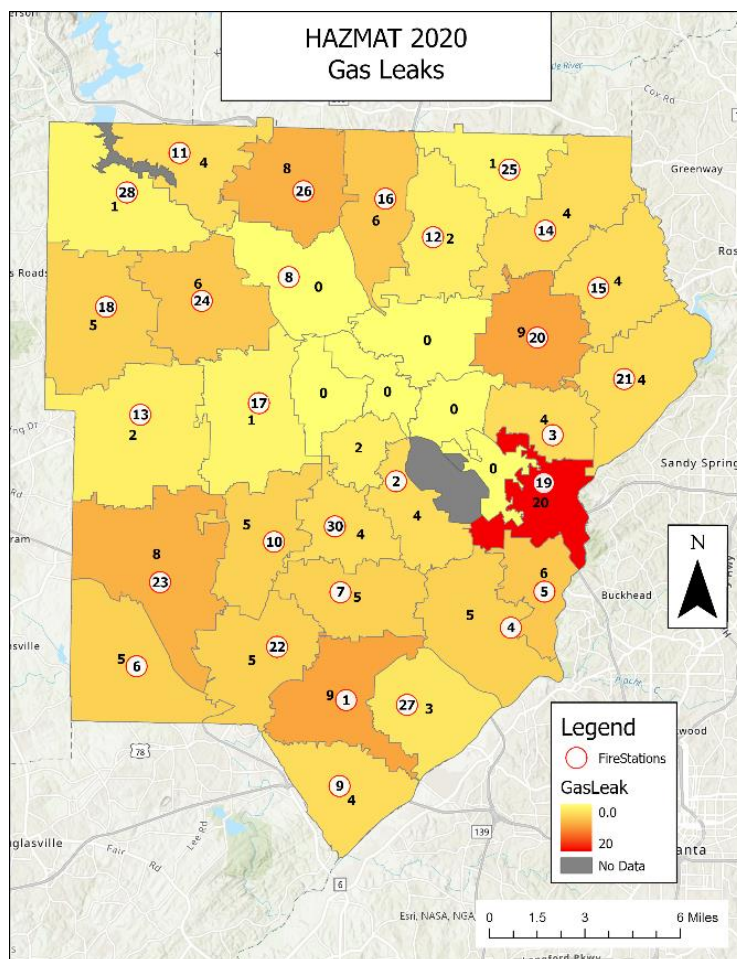
We have identified gaps in our data collection for contributing factors. It is recommended that improvements in documenting contributing factors be addressed for all Hazmat incident types. This should include response factors, human factors, and contributing incident factors. These fields already exist in the RMS database but have not been required fields. Moving forward these fields will be required on all hazmat incident types.

### WHERE IS IT HAPPENING?

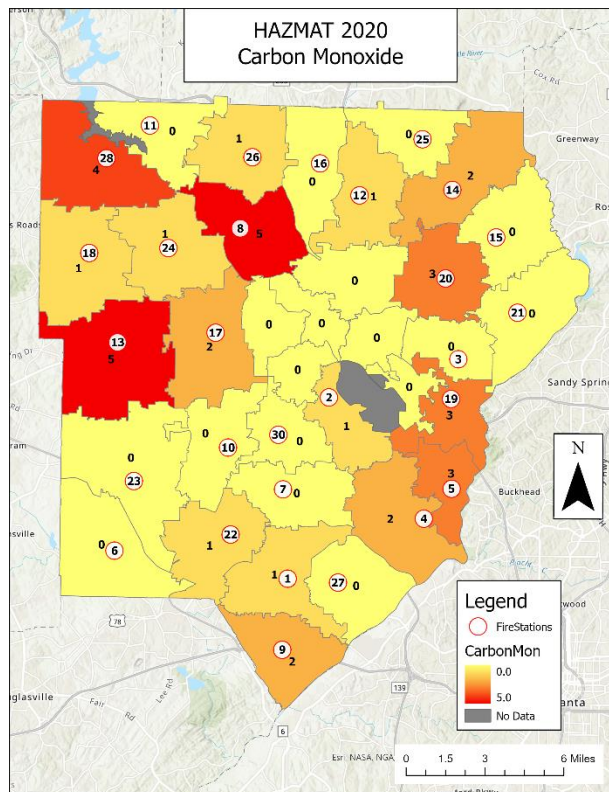
Top Two Hazmat Incidents: Gas Leak & Carbon Monoxide

For Natural Gas Leak incidents during 2020, the following stations had the highest counts:

stations 19, 1, 20, 23, 26.



For Carbon Monoxide incidents during 2020, the following stations had the highest counts:  
stations 8, 13, 28, 5, 19, 20.



\* Carbon Monoxide incidents are not normally considered hazmat incidents but have been left in the counts to reflect risk.

## WHEN IS IT HAPPENING?

Main Hazmat incident Types by time of day, day of week, month of year (Incident Types HZMT (400 to 439; 451);

HZMT (400 to 439; 451)\* 2020

% of Calls by Hour of Day

Hour	% of Total	Hour	% of Total
00:00	1.83%	12:00	6.75%
01:00	1.69%	13:00	7.17%
02:00	0.70%	14:00	7.45%
03:00	1.13%	15:00	6.19%
04:00	1.13%	16:00	4.36%
05:00	2.11%	17:00	4.92%
06:00	2.39%	18:00	6.19%
07:00	0.98%	19:00	4.64%
08:00	5.49%	20:00	5.49%
09:00	7.88%	21:00	2.67%
10:00	5.06%	22:00	2.81%
11:00	8.16%	23:00	2.81%

HZMT (400 to 439; 451)\* 2020

% of Calls by Day of Week

Hour	% of Total
Sun	8.7%
Mon	13.8%
Tue	16.0%
Wed	18.3%
Thu	17.6%
Fri	14.3%
Sat	11.3%

HZMT (400 to 439; 451) by Month \* 2020

Month	% of Total	Total
Jan	8.6%	61
Feb	6.3%	45
Mar	6.8%	48
Apr	7.7%	55
May	7.0%	50
Jun	8.3%	59
Jul	11.0%	78
Aug	8.7%	62
Sep	7.7%	55
Oct	10.4%	74
Nov	9.6%	68
Dec	7.9%	56

711

## RISK SUMMARY

In Order of Risk - Top Overall Risk Stations: 9, 8, 16, 26, 19, 11, 4, 5, 27, 30

STATION	FIRE RISK	EMS RISK	TRT RISK	HZMT RISK	TOTAL	STATION	% of Max
Station 01	8	8	5	7	28	Station 01	37.3%
Station 02	10	12	7	4	33	Station 02	44.0%
Station 03	8	11	10	8	37	Station 03	49.3%
Station 04	9	9	13	14	45	Station 04	60.0%
Station 05	6	8	14	13	41	Station 05	54.7%
Station 06	8	10	7	5	30	Station 06	40.0%
Station 07	9	10	4	4	27	Station 07	36.0%
Station 08	13	16	13	14	56	Station 08	74.7%
Station 09	13	18	14	14	59	Station 09	78.7%
Station 10	6	8	7	8	29	Station 10	38.7%
Station 11	9	16	13	10	48	Station 11	64.0%
Station 12	5	7	5	8	25	Station 12	33.3%
Station 13	2	6	4	5	17	Station 13	22.7%
Station 14	4	12	5	8	29	Station 14	38.7%
Station 15	6	8	6	4	24	Station 15	32.0%
Station 16	12	15	13	14	54	Station 16	72.0%
Station 17	3	4	6	2	15	Station 17	20.0%
Station 18	3	8	5	6	22	Station 18	29.3%
Station 19	10	13	15	11	49	Station 19	65.3%
Station 20	9	9	7	4	29	Station 20	38.7%
Station 21	3	10	8	6	27	Station 21	36.0%
Station 22	10	8	8	8	34	Station 22	45.3%
Station 23	10	12	7	6	35	Station 23	46.7%
Station 24	3	5	3	4	15	Station 24	20.0%
Station 25	5	7	3	7	22	Station 25	29.3%
Station 26	12	13	12	13	50	Station 26	66.7%
Station 27	9	12	8	12	41	Station 27	54.7%
Station 28	2	4	8	7	21	Station 28	28.0%
Station 30	10	13	8	7	38	Station 30	50.7%
Max per Station>>	15	20	22	18	75		

## FIRE RISK SCORE CARD

In Order of Risk - Top Fire Risk Stations: 9, 8, 16, 26, 2, 19, 22, 23, 30, 4, 7, 11, 20, 27

FIRE Factor # >>	1	2	3	4	5	6	7	8	9	Fire Risk Score by Station Territory		
Factor Desc>>	Avg distance from fire station*	Avg distance from fire hydrant*	Avg pre-fire plan review age*	J-Hat facilities (avg/sq mi)	Population density (per sq mi)	Age <5 (6.1%-msw national avg)	Age >= 65 (15.3%-msw national avg)	Targeted fire prevention (MSW Rpt.)	100 series calls (5 yr avg)			
Criteria>>	LT 1.5 miles = 0 GTE 1.5 miles = 1	LT 500 ft = 0 GTE 500 ft = 1	LT 1.5 yrs = 0 GTE 1.5 yrs = 1	LTE avg = 0 GT avg = 1	LT 2000 = 0 GTE 2000 = 1	LTE natl. avg = 0 GT natl. avg = 1	LTE natl. avg = 0 GT natl. avg = 1	LT 1K pop. = 0 GTE 1K pop. = 1	LTE 5 yr avg = 0 GT 5 yr avg = 1			
Multiplier>>	2	1	1	2	2	1	1	3	2	Total (15 max)	% of max	
Station 01	1	0	0	0	0	1	0	1	1	8	53.3%	ST01
Station 02	1	0	0	0	1	1	0	1	1	10	66.7%	ST02
Station 03	1	0	0	0	1	0	1	1	0	8	53.3%	ST03
Station 04	1	0	0	1	1	1	0	0	1	9	60.0%	ST04
Station 05	0	0	0	1	1	0	0	0	1	6	40.0%	ST05
Station 06	1	0	0	1	0	1	0	1	0	8	53.3%	ST06
Station 07	1	0	1	0	1	1	0	1	0	9	60.0%	ST07
Station 08	1	0	1	1	1	1	0	1	1	13	86.7%	ST08
Station 09	1	0	1	1	1	1	0	1	1	13	86.7%	ST09
Station 10	1	0	0	0	0	1	0	1	0	6	40.0%	ST10
Station 11	1	0	1	0	1	1	0	1	0	9	60.0%	ST11
Station 12	1	0	1	0	0	1	1	0	0	5	33.3%	ST12
Station 13	1	0	0	0	0	0	0	0	0	2	13.3%	ST13
Station 14	1	0	0	0	1	0	0	0	0	4	26.7%	ST14
Station 15	1	0	1	0	1	0	1	0	0	6	40.0%	ST15
Station 16	1	0	1	1	1	0	0	1	1	12	80.0%	ST16
Station 17	1	0	1	0	0	0	0	0	0	3	20.0%	ST17
Station 18	1	0	1	0	0	0	0	0	0	3	20.0%	ST18
Station 19	0	0	1	1	1	0	0	1	1	10	66.7%	ST19
Station 20	1	0	1	0	1	0	1	1	0	9	60.0%	ST20
Station 21	1	0	0	0	0	0	1	0	0	3	20.0%	ST21
Station 22	1	0	0	1	0	1	0	1	1	10	66.7%	ST22
Station 23	1	0	0	1	0	1	0	1	1	10	66.7%	ST23
Station 24	1	0	0	0	0	1	0	0	0	3	20.0%	ST24
Station 25	1	0	0	0	1	1	0	0	0	5	33.3%	ST25
Station 26	1	0	1	1	1	0	0	1	1	12	80.0%	ST26
Station 27	1	0	1	1	0	1	0	1	0	9	60.0%	ST27
Station 28	1	0	0	0	0	0	0	0	0	2	13.3%	ST28
Station 30	1	0	1	0	1	0	0	1	1	10	66.7%	ST30

## EMS RISK SCORE CARD

In Order of Risk - Top EMS Risk Stations: 9, 8, 11, 16, 19, 26, 30, 2, 14, 23, 27

EMS Factor # >>	1	2	3	4	5	6	7	8	9	10			
Factor Desc>>	Avg distance from fire station	Avg distance from hospital	Avg distance from ALS station	J-Hat facilities (avg/sq mi)	Population density (per sq mi)	Age <5 (6.1%-msw national avg)	Age >= 65 (15.3%-msw national avg)	Targeted fire prevention (MSW Rpt.)	Time sensitive emergency calls	All 300 series			
Criteria>>	LT 1.5 miles = 0 GTE 1.5 miles = 1	LT 10 miles = 0 GTE 10 miles = 1	LT 3 miles = 0 GTE 3 miles = 1	LTE avg = 0 GT avg = 1	LT 2000 = 0 GTE 2000 = 1	LTE natl. avg = 0 GT natl. avg = 1	LTE natl. avg = 0 GT natl. avg = 1	LT 1K pop. = 0 GTE 1K pop. = 1	LT 50% for 3 Yr Total = 0 GTE 50% for 3 Yr Total = 1	Top 10 Station Territories	EMS Risk Score by Station Territory		
Multiplier>>	2	2	2	2	2	1	2	3	2	2	Total (20 max)	% of max	
Station 01	1	0	0	0	0	1	0	1	1	0	8	40.0%	ST01
Station 02	1	0	1	0	1	1	0	1	1	0	12	60.0%	ST02
Station 03	1	0	1	0	1	0	1	1	0	0	11	55.0%	ST03
Station 04	1	0	1	1	1	1	0	0	0	0	9	45.0%	ST04
Station 05	0	1	0	1	1	0	0	0	1	0	8	40.0%	ST05
Station 06	1	1	0	1	0	1	0	1	0	0	10	50.0%	ST06
Station 07	1	0	1	0	1	1	0	1	0	0	10	50.0%	ST07
Station 08	1	0	1	1	1	1	0	1	1	1	16	80.0%	ST08
Station 09	1	1	1	1	1	1	0	1	1	1	18	90.0%	ST09
Station 10	1	0	0	0	0	1	0	1	1	0	8	40.0%	ST10
Station 11	1	1	1	0	1	1	0	1	1	1	16	80.0%	ST11
Station 12	1	0	1	0	0	1	1	0	0	0	7	35.0%	ST12
Station 13	1	1	0	0	0	0	0	0	1	0	6	30.0%	ST13
Station 14	1	1	1	0	1	0	0	0	1	1	12	60.0%	ST14
Station 15	1	1	0	0	1	0	1	0	0	0	8	40.0%	ST15
Station 16	1	0	1	1	1	0	0	1	1	1	15	75.0%	ST16
Station 17	1	0	1	0	0	0	0	0	0	0	4	20.0%	ST17
Station 18	1	1	1	0	0	0	0	0	1	0	8	40.0%	ST18
Station 19	0	0	1	1	1	0	0	1	1	1	13	65.0%	ST19
Station 20	1	0	0	0	1	0	1	1	0	0	9	45.0%	ST20
Station 21	1	0	1	0	0	0	1	0	1	1	10	50.0%	ST21
Station 22	1	0	0	1	0	1	0	1	0	0	8	40.0%	ST22
Station 23	1	0	1	1	0	1	0	1	0	1	12	60.0%	ST23
Station 24	1	1	0	0	0	1	0	0	0	0	5	25.0%	ST24
Station 25	1	1	0	0	1	1	0	0	0	0	7	35.0%	ST25
Station 26	1	0	0	1	1	0	0	1	1	1	13	65.0%	ST26
Station 27	1	1	1	1	0	1	0	1	0	0	12	60.0%	ST27
Station 28	1	1	0	0	0	0	0	0	0	0	4	20.0%	ST28
Station 30	1	0	1	0	1	0	0	1	1	1	13	65.0%	ST30

## TRT RISK SCORE CARD

In Order of Risk - Top TRT Risk Stations: 19, 5, 9, 4, 8, 11, 16, 26, 3

TRT Factor # >>	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	TRT Risk Score by Station Territory	
Factor Desc>>	Avg distance from fire station	Avg time from TRT station (St 4, St 16)	Avg distance from ALS station	J-Hat facilities (avg/sq mi)	Population density (per sq mi)	Age 15-24 (12.2%-msw national avg)	Age >= 65 (15.3%-msw national avg)	Targeted fire prevention (MSW Rpt.)	Avg MVC per road mile	Male pop. (49.2%-msw national avg)	Rivers & Lakes	Hazardous Terrain	Flooding Hazard	Major Roadways /Interstates	Managed Lanes		
Criteria>>	LT 1.5 miles = 0 GTE 1.5 miles = 1	LT 10 min = 0 GTE 10 min = 1	LT 3 miles = 0 GTE 3 miles = 1	LTE avg = 0 GT avg = 1	LT 2000 = 0 GTE 2000 = 1	LTE natl. avg = 0 GT natl. avg = 1	LTE natl. avg = 0 GT natl. avg = 1	LT 1K pop. = 0 GTE 1K pop. = 1	LTE 5 yr avg = 0 GT 5 yr avg = 1	LTE avg = 0 GT avg = 1	Does not contain = 0 Contains = 1	Does not contain = 0 Contains = 1	Does not contain = 0 Contains = 1	Does not contain = 0 Contains = 1	Does not contain = 0 Contains = 1	Total (22 max)	% of max
Multiplier>>	1	2	1	2	2	1	1	1	1	1	2	2	1	2	2		
Station 01	1	0	0	0	0	0	0	1	1	0	0	1	0	0	0	5	22.7%
Station 02	1	0	1	0	1	0	0	1	1	1	0	0	0	0	0	7	31.8%
Station 03	1	1	1	0	1	0	1	1	0	0	0	0	0	1	0	10	45.5%
Station 04	1	0	1	1	1	0	0	0	0	0	1	1	1	1	0	13	59.1%
Station 05	0	1	0	1	1	0	0	1	1	0	1	0	0	1	1	14	63.6%
Station 06	1	0	0	1	0	0	0	1	0	0	0	1	1	0	0	7	31.8%
Station 07	1	0	1	0	1	0	0	0	0	0	0	0	0	0	0	4	18.2%
Station 08	1	0	1	1	1	1	0	1	1	0	1	1	0	0	0	13	59.1%
Station 09	1	1	1	1	1	0	0	1	1	0	1	0	0	1	0	14	63.6%
Station 10	1	1	0	0	0	1	0	0	0	0	0	1	1	0	0	7	31.8%
Station 11	1	1	1	0	1	1	0	1	0	0	1	0	1	1	0	13	59.1%
Station 12	1	0	1	0	0	0	1	0	0	0	0	0	0	1	0	5	22.7%
Station 13	1	1	0	0	0	0	0	0	0	1	0	0	0	0	0	4	18.2%
Station 14	1	0	1	0	1	0	0	0	0	1	0	0	0	0	0	5	22.7%
Station 15	1	1	0	0	1	0	1	0	0	0	0	0	0	0	0	6	27.3%
Station 16	1	0	1	1	1	1	0	0	1	1	0	0	0	1	1	13	59.1%
Station 17	1	1	1	0	0	0	0	0	0	0	0	1	0	0	0	6	27.3%
Station 18	1	1	1	0	0	1	0	0	0	0	0	0	0	0	0	5	22.7%
Station 19	0	0	1	1	1	0	0	1	1	0	1	1	0	1	1	15	68.2%
Station 20	1	1	0	0	1	0	1	0	0	1	0	0	0	0	0	7	31.8%
Station 21	1	1	1	0	0	0	1	0	0	0	1	0	1	0	0	8	36.4%
Station 22	1	1	0	1	0	0	0	1	1	0	0	0	1	0	0	8	36.4%
Station 23	1	1	1	1	0	0	0	1	0	0	0	0	0	0	0	7	31.8%
Station 24	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	3	13.6%
Station 25	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	3	13.6%
Station 26	1	0	0	1	1	1	0	1	1	0	0	0	0	1	1	12	54.5%
Station 27	1	0	1	1	0	0	0	0	0	0	1	0	0	1	0	8	36.4%
Station 28	1	1	0	0	0	0	0	0	1	1	1	0	1	0	0	8	36.4%
Station 30	1	0	1	0	1	1	0	1	1	1	0	0	0	0	0	8	36.4%



## HAZMAT RISK SCORE CARD

In Order of Risk - Top Hazmat Risk Stations: 4, 8, 9, 16, 5, 26, 27, 19

HZMT Factor # >>	1	2	3	4	5	6	12	13	14	HZMT Risk Score by Station Territory		
Factor Desc>>	Avg distance from fire station	Avg time from HZMT station (St 8, St 22)	Avg distance from ALS station	J-Hat facilities (avg/sq mi)	Population density (per sq mi)	Airports	Industrial Facilities	Chemical Facilities	Major Roadways /Interstates			
Criteria>>	LT 1.5 miles = 0 GTE 1.5 miles = 1	LT 10 min = 0 GTE 10 min = 1	LT 3 miles = 0 GTE 3 miles = 1	LTE avg = 0 GT avg = 1	LT 2000 = 0 GTE 2000 = 1	Does not contain = 0 Contains = 1	Does not contain = 0 Contains = 1	Does not contain = 0 Contains = 1	Does not contain = 0 Contains = 1			
Multiplier>>	1	1	1	1	2	3	3	3	3	Total (18 max)	% of max	
Station 01	1	0	0	0	0	0	1	1	0	7	38.9%	ST01
Station 02	1	0	1	0	1	0	0	0	0	4	22.2%	ST02
Station 03	1	1	1	0	1	0	0	0	1	8	44.4%	ST03
Station 04	1	0	1	1	1	0	1	1	1	14	77.8%	ST04
Station 05	0	1	0	1	1	0	1	1	1	13	72.2%	ST05
Station 06	1	0	0	1	0	0	0	1	0	5	27.8%	ST06
Station 07	1	0	1	0	1	0	0	0	0	4	22.2%	ST07
Station 08	1	0	1	1	1	1	1	1	0	14	77.8%	ST08
Station 09	1	0	1	1	1	0	1	1	1	14	77.8%	ST09
Station 10	1	0	0	1	0	0	1	1	0	8	44.4%	ST10
Station 11	1	0	1	0	1	0	0	1	1	10	55.6%	ST11
Station 12	1	0	1	0	0	0	0	1	1	8	44.4%	ST12
Station 13	1	1	0	0	0	0	0	1	0	5	27.8%	ST13
Station 14	1	1	1	0	1	0	0	1	0	8	44.4%	ST14
Station 15	1	1	0	0	1	0	0	0	0	4	22.2%	ST15
Station 16	1	0	1	1	1	0	1	1	1	14	77.8%	ST16
Station 17	1	0	1	0	0	0	0	0	0	2	11.1%	ST17
Station 18	1	1	1	0	0	0	0	1	0	6	33.3%	ST18
Station 19	0	1	1	1	1	0	1	0	1	11	61.1%	ST19
Station 20	1	1	0	0	1	0	0	0	0	4	22.2%	ST20
Station 21	1	1	1	0	0	0	0	1	0	6	33.3%	ST21
Station 22	1	0	0	1	0	0	1	1	0	8	44.4%	ST22
Station 23	1	0	1	1	0	0	0	1	0	6	33.3%	ST23
Station 24	1	0	0	0	0	0	0	1	0	4	22.2%	ST24
Station 25	1	1	0	0	1	0	0	1	0	7	38.9%	ST25
Station 26	1	0	0	1	1	0	1	1	1	13	72.2%	ST26
Station 27	1	0	1	1	0	0	1	1	1	12	66.7%	ST27
Station 28	1	0	0	0	0	0	1	1	0	7	38.9%	ST28
Station 30	1	0	1	0	1	0	1	0	0	7	38.9%	ST30



## SECTION IV: DESCRIPTION OF AGENCY PROGRAMS AND SERVICES

### VISION

“To be a professional organization leading the way in setting a standard of excellence.”

### MISSION

“We exist to provide superior fire, rescue, and emergency services to the citizens and visitors of Cobb County in a proficient, professional, and compassionate manner. We continuously promote life safety within the county by practicing prevention, planning, education and training.”

### VALUES

Respect, Integrity, Commitment, Honor

### CULTURAL COMMITMENTS

Fitness, Unity through Diversity, Safety, Education

### CHIEF’S MOTTO

“Work hard, do the right thing, and be nice.”

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## ORGANIZATION AND STAFF

Cobb County Fire and Emergency Services is a fire suppression organization with a full-bodied multi-tiered EMS program. In addition to fire and EMS, CCFES supports several specialized teams, some of which are stand-alone, and some are multi-jurisdictional in nature. These teams include HAZMAT, TRT, building collapse rescue, rope rescue, and trench rescue.

The department receives dispatch instructions out of a county operated 911 center. CCFES shares the 911 center with Cobb County's Police, Animal Control, and Sheriff's Office, as well as with the City of Marietta's Police and Fire Department.

Falling under the umbrella of the Department of Public Safety, the Fire Department is governed by the Director of Public Safety. The Director oversees the Police Department, Animal Control, 911 Communications Bureau, and Fire and Emergency Services. The Fire Chief leads the department alongside three Deputy Chiefs who oversee daily operations as well as maintains oversight of Administrative Support, and Internal Affairs.

The Deputy Chiefs each oversee one of three divisions: Response, Preparedness and Community Risk Reduction. Frontline supervision is the responsibility of a Lieutenant or Captain whom reports to one of fifteen Battalion Chiefs. Battalion Chiefs, in turn, report to one of two District Chiefs operating under the authority of the Deputy Chief of Response. Training facilities, supply, and vehicle maintenance report to the Deputy Chief of Preparedness. Investigations, Fire Marshal's Office, Public Information Officers, and Public Education report to the Deputy Chief of Community Risk Reduction.

The department employs approximately 800 people. Fire suppression personnel fall into one of three shifts: A, B or C working 24 hours on-duty and 48 hours off-duty. On-duty staffing for each shift averages 199 people consisting of 5 battalion chiefs, 11 captains, 28 lieutenants, 49 fire engineers (drivers), and 109 firefighters.

Sworn personnel are trained to respond to fire-related incidents, medical emergencies, hazardous materials incidents (HAZMAT), technical rescues, mass casualty, and other emergencies. Additionally, all firefighters are required to be trained as Emergency Medical Technician – Intermediates (EMT-I) as a minimum, however, all new recruits are being hired and trained to the Advanced EMT level. While not

mandatory for all personnel, CCFES has the community expectation to provide Advanced Life Support (ALS). Therefore, some firefighters are trained paramedics. CCFES also requires ambulance zone providers to be equipped with advanced life support, with a minimum of one paramedic per ambulance. Thus, these private ambulance companies supplement CCFES' staffing and program service needs.

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## PREPAREDNESS DIVISION

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### FACILITIES

CCFES currently operates 29 fire stations. They also operate six facilities that provide a variety of services to the department including fire investigations, support services, apparatus maintenance, training, building maintenance, air-lab, Cobb Cares program, and the Cobb County Safety Village which houses the Education Division. Most of the Department's management and administrative functions are located at the Fire Headquarters building.

#### Recent Station Construction/Replacement:

Completed: Station 18 rebuild 2018, Station 1 rebuild 2019, Station 17 rebuild 2021.

Planned new station construction: Station 29 FY22, Station 31 FY23, Station 32 FY24

Planned station replacement: Station 7 rebuild FY21. Station 12 rebuild FY24. Station 2 rebuild FY25.

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### TRAINING

The Training Division is directed by the Division Chief of Training who coordinates the activities for the organization, provides technical and logistical support, and management of a staff of 17 full-time employees and a cadre of adjunct instructors from the Suppression Division. The Training Chief provides inspiration and creates an environment to train. The Captains set policy and procedures and manage the day-to-day activities within the Division (Compliance / Performance). The Lieutenants conducts the training and provide direct oversight of the Recruit Academies. The Engineers recommend and test new equipment, maintain props, and provide task specific training.

The CCFES Training Division continues to support the Mission, Vision, and Strategic Plan of Cobb County Fire and Emergency Services through the planning, development and implementation of appropriate programs and training opportunities to the members of the department. The Training Division will continue to provide the best initial and incumbent training that meets the needs of the department and complies with National Professional Qualifications (NPQ), Georgia Firefighter Standards and Training Council (GFSTC), and the State Office of Emergency Medical Services (SOEMS) and aligns with the mission of the organization.

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## HEALTH AND SAFETY

Keeping employees healthy and safe is a major priority for any organization. Having adequate programs and processes in place will help meet the goals of eliminating employee injuries and deaths, reducing liability to the organization and ultimately making the organization more effective and efficient.

The Safety Committee meets quarterly, and reviews redacted first reports of injury to look for patterns and if any are determined, are sent to the Command Staff for distribution department wide. Close Call Reports are submitted in a process that is in place for agency personnel to report close calls, near miss incidents or post incident reviews.

Several safety guidelines and procedures have been implemented to further protect member's health (cancer exposure reduction; post structure fire decontamination; live fire decontamination; particulate Nomex Hood exchange) and Infection Control Policy continues to be reviewed and submitted to the Georgia Department of Public Health for annual license renewal.

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## SUPPORT SERVICES AND VEHICLE MAINTENANCE

The Support Services Division is a supportive and logistical unit to support field units. This includes administrative support, budgetary and logistical support, and equipment repair processing. The Division serves as a supply and distribution point for fire equipment including rope, axes, pike poles, forcible entry, turnout gear, helmets, etc. Fire apparatus are specified, bid and purchased through this division as directed by Command Staff.

The Apparatus Maintenance Division cares for all preventative maintenance and operational repairs of response apparatus consisting of 29 engines, 8 rescues, 8 ladder trucks, and reserve fleet.

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## EXPLORER PROGRAM

CCFES has an Explorer program for teenagers in the community who wish to become a firefighter. The Explorer program introduces these children to the many facets of the fire service. The Explorer program is overseen by members of CCFES.

In 2010, firefighters began the explorer program with the approval of the Command Staff and approval from “Learning for Life”<sup>vi</sup> — the curriculum the program is based on. Cobb Fire Explorer Post #33 was official in mid-2010 when they hosted their first open house. The first official meeting was in October of 2010 and now occurs every Thursday night.



The mission of the Cobb Fire Explorer Post 33 is to provide the youth of Cobb County with an insight into the fire service and assist in the development of confidence and life skills. The explorer program has grown tremendously since its inception. Eight advisors from various ranks within CCFES assist with leadership and guidance of the program.

Throughout the year, there are three opportunities to join Post #33, providing young potential



firefighters multiple opportunities to get involved.

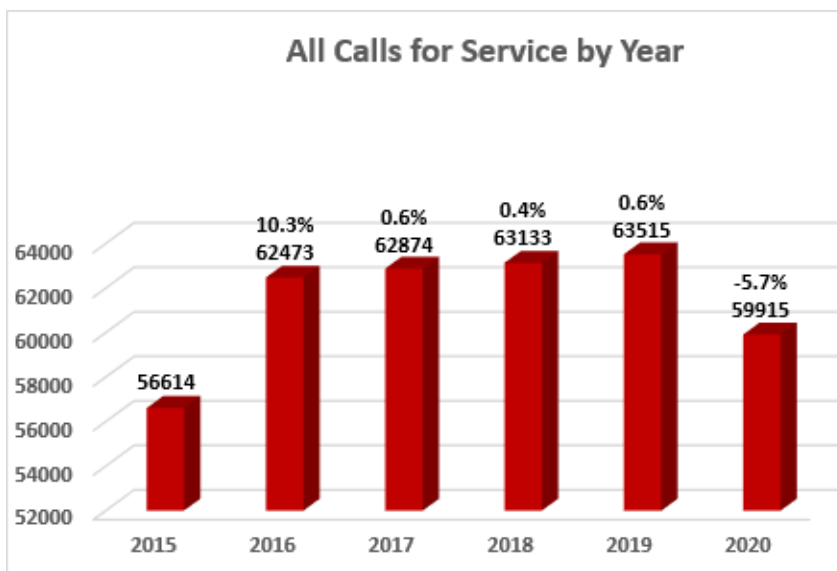
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## RESPONSE DIVISION

CCFES has twenty-nine strategically located fire stations equipped with twenty-nine engines, eight ladder trucks, ten Rescues, two heavy/technical rescue, one med-ops truck, one trench truck, and two hazardous materials units. Ten of the twenty-nine stations are equipped with an Advanced Life Support (ALS) unit called a Rescue. A Rescue company has one engineer and one firefighter assigned to the unit. At least one of the Rescue personnel is a state certified Paramedic. There are two technical rescue

units in the department called Squads. The Squads have either one lieutenant or a captain, one engineer, and two to three firefighters assigned to the unit.

In the past five years, CCFES responded to an average of 61,722 calls for service each year. During 2019, CCFES responded to 63,515 incidents which was a one percent increase over the previous year. This has been the trend for the past four years. For 2020 the number of incidents was reduced to approximately 60,000. This is due to



the safeguards put in place during the Covid19 pandemic and changes to the EMD process to reduce staff exposures – many of these calls were shifted to the Ambulance zone providers.

The Deputy Fire Chief of Response establishes minimum staffing. Current minimum staffing per apparatus type is illustrated opposite.

Apparatus and equipment are specified to be NFPA compliant prior to purchasing.

Daily and weekly apparatus inspections are primarily conducted digitally via check sheets on iPads in accordance with NFPA Standard 1911. Fire Vehicle Maintenance

Technicians conduct both preventative maintenance (PM) and minor repairs (excluding warranty and major motor/body repair) of the apparatus at the Apparatus Maintenance Facility.

Apparatus	Minimum	Assigned
Engine	3	5
Truck	3	5
Rescue	2	2
Chief	1	2
Squad	4	5
Air	1	1
Command	1	1

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## ENGINE AND RESCUE

All stations have one engine/pumper. All pumpers are NFPA designated 'triple combination' pumpers, equipped with a 1500 GPM fire pump, hose complement, and water tank. The engine crew 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.

Engines are the primary responders for basic life support (BLS) calls. When a call is identified as requiring advanced life support (ALS), a Rescue is also dispatched if the primary engine is not manned with a paramedic. At present, five of the pumpers are designated as an ALS pumper (one paramedic riding the engine). The ALS Resource Allocation Committee was tasked with evaluating the distribution of ALS vehicles.

Although CCFES provides ALS and BLS services, they do not provide EMS transport services. Private providers provide transport services to the community. CCFES has a contract with two private Ambulance Zone Providers: Metro Atlanta Ambulance and Puckett EMS. The ambulance providers are required to meet response time criteria of 12 minutes and 59 seconds from time of dispatch to on-scene for 90 percent of all dispatches.

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## LADDER TRUCK

There are eight ladder truck companies. The aerial ladders vary in length but range from 75-105 feet. Most frontline ladder trucks have the capacity to pump water with a 1500 GPM pump; trucks 4, 8, and 19 are tiller trucks and do not have a pump. Some ladder trucks carry a complete complement of first-line hydraulic extrication equipment, spreaders, cutters, forced entry tools, confined space equipment, etc., and are routinely dispatched to rescue calls. This unit and crew provide a variety of emergency medical services capabilities.

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## BATTALION CHIEF CAR

One battalion chief is assigned to each battalion. Each battalion chief operates out of a Ford F450 4x4 pickup. A Firefighter III often staffs the unit; his or her role is to assist the battalion chief with various functions in the field including accountability on emergency scenes.

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## COMMAND UNIT

CCFES operates two command units: 900 and 901. One is dispatched to incidents with the potential for an extended duration. The Command Unit has a variety of resources on-board such as air conditioning and heat, communication tools, restrooms, and space for the on-scene command staff to set up a command post. The unit is self-sustaining with a propane-powered generator for electrical power.

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## AIR TRUCK

CCFES currently staffs four air trucks. The duties of the air truck include providing full air bottles and refilling air bottles on a fire scene. Everyday maintenance of the self-contained breathing apparatus (SCBA), air bottles, and associated equipment is also performed.

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## MEDICAL OPERATIONS

The Medical Operations Team (MEDOPS) responds in a 39-foot Freightliner mobile medical command and operations center vehicle. The unit is kept in the fifth battalion at Station 13. The unit does not have a designated response zone. It supports many special teams: Cobb County PD's bomb squad, dive team, and Special Weapons and Tactics Team (SWAT); Cobb County Sheriff's Department SWAT; Marietta Cobb Smyrna Drug Task Force; federal agencies such as the FBI, DEA, and the US Marshals. The unit also serves as a medical monitoring and rehabilitation unit for large-scale incidents, hazardous materials calls, technical rescue calls, and is equipped to support the medical command function at a mass casualty incident (MCI). The mobile command center has equipment for communication on 800 MHz, UHF, and VHF frequencies; a computer network system for tracking and recording incident activities; and ALS supplies for patient care.

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## HAZARDOUS MATERIALS



The District I Chief directs the HAZMAT Response Team (HMRT) and provides technical support and leadership. The District I Chief also meets with the HAZMAT officers on a biannual basis or as needed to discuss issues involving training, personnel, policies, procedures, and equipment procurement.

Duties are divided among the three shifts through the captains. Individual officer duties include:

- Captains handle operating guidelines and procedures
- Lieutenants plan and implement training
- Engineers maintain equipment, perform suit testing, and monitor calibration.

CCFES has a close working relationship with Marietta Fire Department's HAZMAT team, Dobbins Air Reserve Base Fire Department's HAZMAT team, and the Fourth Civil Support Group (also based at Dobbins ARB). Each of these departments will respond with CCFES when requested.

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## TECHNICAL RESCUE

The Technical Rescue Team (TRT/SQUAD) is directed by the District II Chief who coordinates the activities of the crews and provides technical support and leadership. The District Chief also meets with the TRT officers on a biannual basis or as needed to discuss issues involving training, personnel, policies, procedures, and equipment procurement

The captains on the team are responsible for coordinating the compilation of operating guidelines for the team. These policies are referred to the District II Chief for formatting and approval. Lieutenants are responsible for the team's training requirements. This includes monitoring the training of new team members to ensure their core training requirements are met, scheduling bi-annual training dates and topics, acting as a liaison with the Division Chief of Training for specialized courses, and identifying future training needs for the team. These recommendations are forwarded to the District II Chief for approval of Training Action Plans (TAP) and funding. Engineers are responsible for receiving requests for new equipment for the team, facilitating the research and testing of prospective equipment, and working with the District II Chief in the procurement of new equipment.

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## COBB FIRE CARES

In 2016, Cobb County Fire & Emergency Services recognized a growing trend of calls from high 911 utilizers for non-emergent complaints. Research revealed that 42% of medical calls to 911 were for

non-emergent complaints. Furthermore, most of the non-emergent 911 calls were related to elderly population reporting falls, elderly population not receiving adequate in-home care, and citizens suffering from mental health or substance abuse issues. Research indicates this is a nation-wide issue and departments across the nation are looking for solutions.

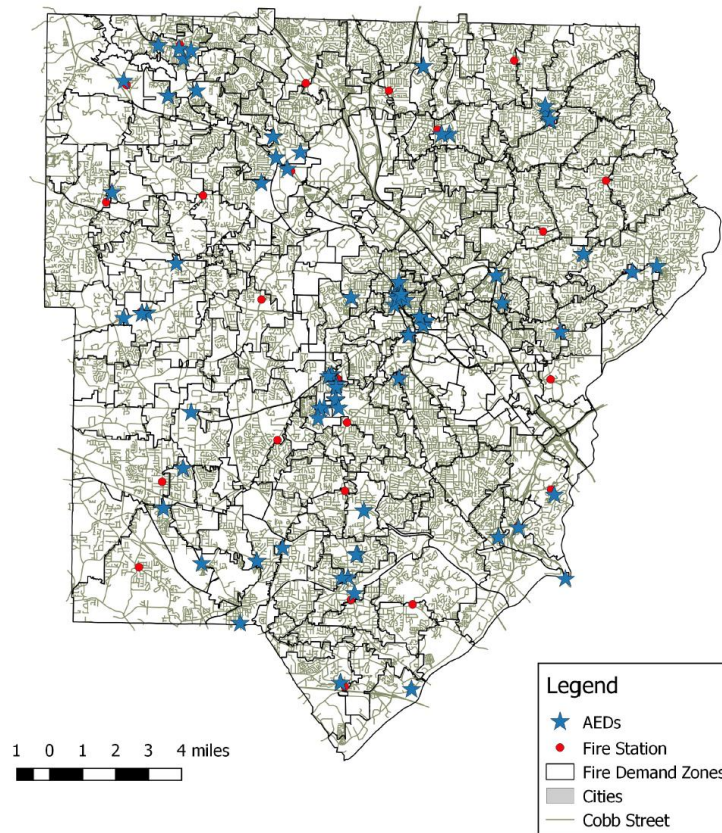
This prompted CCFES to launch the Cobb Fire CARES program. CARES is an acronym for Community Assistance, Referral & Education Services. Our team consists of an EMS Division Chief, an EMS Lieutenant, 6 firefighter/paramedics and a Licensed Professional Counselor (LPC). The team also works closely with a Cobb County Crisis Response Police Officer to form a Crisis Response team for active crisis situations. The CARES team receives referrals from fire crews and meets with citizens to help determine a more permanent solution for their needs. In 2020, the program received 531 referrals from fire crews and saw an average call reduction of 75% from the referrals that were made.

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## **PUBLIC ACCESS DEFIBRILLATION**

Effective bystander CPR, provided immediately after cardiac arrest, can double a victim's chance of survival. In 2001, CCFES began the Public Access Defibrillation (PAD) program, which places Automatic External Defibrillators (AED) available in public and/or private places where large numbers of people gather or where people who are at high risk for heart attacks live. An AED is a computerized medical device that can check a person's heart rhythm, recognize the rhythm, and advise when a shock is necessary. The AED uses voice prompts, lights and text messages to communicate with the user. Providing the public access to an AED should increase the likelihood of a victim surviving cardiac arrest. In addition to the AEDs at all County government buildings, there are 127+ AEDs distributed throughout the county. The AEDs are all Medtronic and are either the Lifepak 500 or CR+ model. CPR and AED classes offered to all county employees through the COBB Academy are free. In the 8 years of the program, there have been three successful resuscitations.

## Cobb County Fire & Emergency Services 2015 Public Access AED



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### DATA COLLECTION & ANALYSIS

CCFES policy 4-8 details the standard used for records management; all data is collected inside ImageTrend Elite RMS. (The department also has access to CAD data through the communications center.) CCFES's Planning Division employs a team of five data analysts with two supervisors managed by a Captain. The Planning Division utilizes a variety of analysis tools to evaluate incident data and identify trends, risks and future needs. Some analysis tools used:

- SQL Server Management Studio / SQL Server Reporting Services
- Excel Business Services
- ESRI ArcGIS
- JMP Statistical Discovery From SAS

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 their station has been thoroughly completed with accurate

information and includes all narrative information necessary to document specific details of the incident. The Report Authorization/Quality Control process is completed by an officer in charge (or acting officer) of the station with the “first-in” unit arriving on scene.

Once submitted, reports are reviewed by the Quality Assurance/CQI Group under the EMS Operations Division. The QA/CQI Group reviews incidents for quality control. The QA group reviews approximately 10% of all reports. The QA group also submits specific patient reports to the Department’s Medical Director monthly. The Medical Director reviews every full arrest, major trauma, air transport, critically ill or injured patients, all controlled substance use, protocol deviations, and any new protocol or procedure update as outlined in the Medical Director Agreement. The Medical Director and members of the EMS Operations Division meet with the Emergency Medical Dispatch (EMD) Trainer for 911 dispatches on a regular basis to review emergency medical dispatch calls.

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## COMMUNITY RISK REDUCTION DIVISION

CCFES is dedicated to reducing risk within the community. Several divisions support this mission: The Fire Marshals’ Office, Public Education, and Fire Investigations. Each year, the Department of Public Safety hosts many public events to promote fire safety and education. These events include safety blitzes, block Parties, Touch-a-Truck, and others.

The Fire Marshal’s Office (FMO) supports a robust prevention and inspection program (5A) with just over 28,000 commercial and multi-family residential occupancies.

The FMO reviews new business plans to ensure the plans meet the latest fire and safety codes. The FMO inspects new commercial occupancies are inspected to assure the construction meets the requirements set forth in the planning process; the highest risk factors are physically inspected annually by the FMO. In addition to the steps taken by the FMO, station personnel have created pre-plans for over 5,000 commercial occupancies to date. Per policy (6.22), field personnel are required to pre-plan commercial structures including: assembly, business, industrial, mercantile, and storage consisting of 3,500 square feet or greater under a single roof. Day care centers with more than 12 clients, all educational facilities, nursing homes, hospital facilities (including outpatient), boarding/care homes with 4 or more clients, motels/hotels, and mobile home parks. Not all properties require annual

pre-planning. The process of pre-planning is evolving and CCFES is actively updating the methods of updating pre-plan documents and how these are displayed to incident command on emergency incidents.

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## FIRE INVESTIGATIONS

The Cobb County Fire & Emergency Services Fire Investigation Unit was established in 1968. Currently, the Fire Investigations Unit consists of five full time On-Call investigators with one Canine Accelerant Detection Team. All Fire Investigations Unit personnel are dually certified through the State of Georgia Standards and Training Council as peace officers and as fire investigators. Per O. C. G. A. 25-2-9 Cobb Fire Investigators are responsible for investigating all cases of arson and other suspected incendiary fires within unincorporated Cobb County. Additionally, the Fire Investigations Unit has the authority to investigate the cause and origin of any fire occurring within its jurisdiction. In cooperation with the Cobb County Fire Marshal's Office, the Fire Investigations Unit personnel enforce O. C. G. A. 25-2-14 as it pertains to certificates of occupancy. Fire Investigations Unit personnel enforce the Official Code of Cobb County Section 54-54 for unauthorized burning to include issuance of applicable citations. The Fire Investigations Units has also been tasked with tracking loss/save property loss values for the department. The Unit provides monthly and annual reports to include but not limited to listed activities.

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## PUBLIC SAFETY EDUCATION

The Cobb County Public Fire and Life Safety Education program (5B) began in 1978. The division was started to support the agency's mission to promote safety within the county. In spring of 2009, CCFES completed building the Cobb County Safety Village. The Cobb County Safety Village consists of six classrooms, an interactive fire safety house, a permanent car seat inspection station, a multi-purpose room and storage. In early 2015, the police and fire education divisions were consolidated under the Department of Public Safety. Then in 2019, the Safety Village Education team was moved under Cobb County Fire.

The Cobb County Safety Village's primary focus is on school age children, specifically targeting programs to kindergarten, second, and fourth grade students. Other programs target senior citizens,

car seat inspections, fire warden, fire extinguisher, fire evacuation, and home inspections. Five full-time sworn personnel and 27 part-time sworn personnel comprise one of the largest public education staff in the nation. The programs provided are hands-on, interactive, and reach out to the entire community with an emphasis on at-risk populations.

Fireworks were legalized in Georgia in July 2015. The Cobb County Safety Village took a proactive stance and implemented a fireworks safety program to the fourth grade. Fireworks presentations are delivered to the community on an as needed basis.

In 2020, the Kindergarten, second and fourth grade programs were progressing well, but in April had to be closed with the Safety Village and were not able to finish out the school year. In May, the Education Team came back and started smoke alarm installs again for residents. In August, a few private school groups came through the Safety Village as well as a few programs for schools virtually.

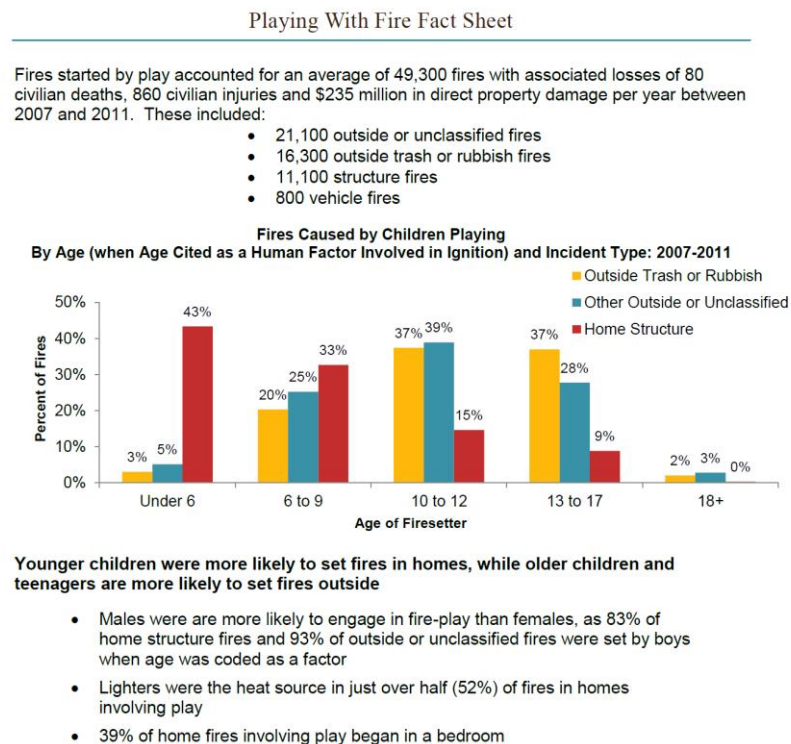
	2020	2020	2020	2020	2020	2020	2020	2020	2020	2020	2020	2020
Education Activity	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEPT	OCT	NOV	DEC
Kindergarten	1747	1253	445	0	0	0	0	0	56	54	31	0
Adults	174	104	35	0	0	0	0	0	7	5	6	0
2nd Grade Pre-Visits	0	0	0	0	0	0	0	0	0	0	0	0
Adults	0	0	0	0	0	0	0	0	0	0	0	0
4th Grade Pre-Visits	1097	618	929	0	0	0	0	0	0	0	0	0
Adults	56	34	50	0	0	0	0	0	0	0	0	0
Safety Village 2nd Grade	1113	454	427	0	0	0	0	0	0	0	0	13
Adults	93	44	30	0	0	0	0	0	0	0	0	3
Safety Village 4th Grade	1092	1220	437	0	0	0	0	0	0	30	12	12
Adults	78	95	43	0	0	0	0	0	0	2	2	2
Safety Village Special Needs	130	102	41	0	0	0	0	0	0	14	0	0
<b>Total Safety Village Students/Adults</b>	<b>5580</b>	<b>3924</b>	<b>2437</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>63</b>	<b>105</b>	<b>51</b>	<b>30</b>
Station Tour Requests Received	10	13	11	0	0	0	0	0	0	5	6	0
Corporate Cobb Event Hours	3	0	0	0	0	0	0	0	1	2	1	0
Participants	100	0	0	0	0	0	0	0	4	36	7	
Residential Safety Assessment	17	0	0	0	0	0	14	2	0	0	0	0
Smoke Alarms Installed/Distributed	64	29	11	0	3	1	2	18	8	17	17	18
Smoke Alarm Batteries	17	0	6	0	6	3	91	121	15	54	75	64
Smoke Alarms Appointments	20	12		0	2	0	21	0	0	15	25	20
CO Alarms Installed/Distributed	10	2	0	0	0	0	0	0	1	0	10	4
Evacuation Drill Attendees	60	0	0	0	0	0	0	0	90	186	125	0
Fire Extinguisher Training	0	26	0	0	0	0	0	0	58	36	33	0
Emergency Warden Class	0	0	0	0	0	0	0	0	119	19	0	0
Juvenile Firesetter Program	3	8	0	0	0	0	0	0	0	0	0	0
Police Presentation	5	0	0	0	0	0	0	0	0	0	0	0
CarSeat Installed	44	47	17	0	0	0	0	0	1	25	0	0
Senior Safety	50	0	0	0	0	0	15	0	0	6	0	0
Safety Village Tour Hours	4	7.5	3	0	0	3	1	0	2	1	1	1
Tour Participants	12	16	6	0	0	0	13	0	4	6	8	3
RadKids	0	0	0	0	0	0	0	0	0	0	0	0
Special Events Participants	0	0	0	0	200	834	900	8	673	795	826	294
UL XplorLabs	0	0	0	0	0	0	0	0	723	401	0	0

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## YOUTH FIRE SETTING PREVENTION AND INTERVENTION

The Safety Village has a Youth Fire Setting Prevention and Intervention Program, formerly JFS.

According to the Burn Institute in San Diego CA, “Juvenile fire setting has been identified as the fastest growing fire threat in the United States.” In 2020, three children were referred to this program. Of these, two children completed the program, and one child did not complete the program due to a lack of interest by the child’s parent. Participation in this program is voluntary.



**Figure 1 Playing with Fire Fact Sheet<sup>vii</sup>**

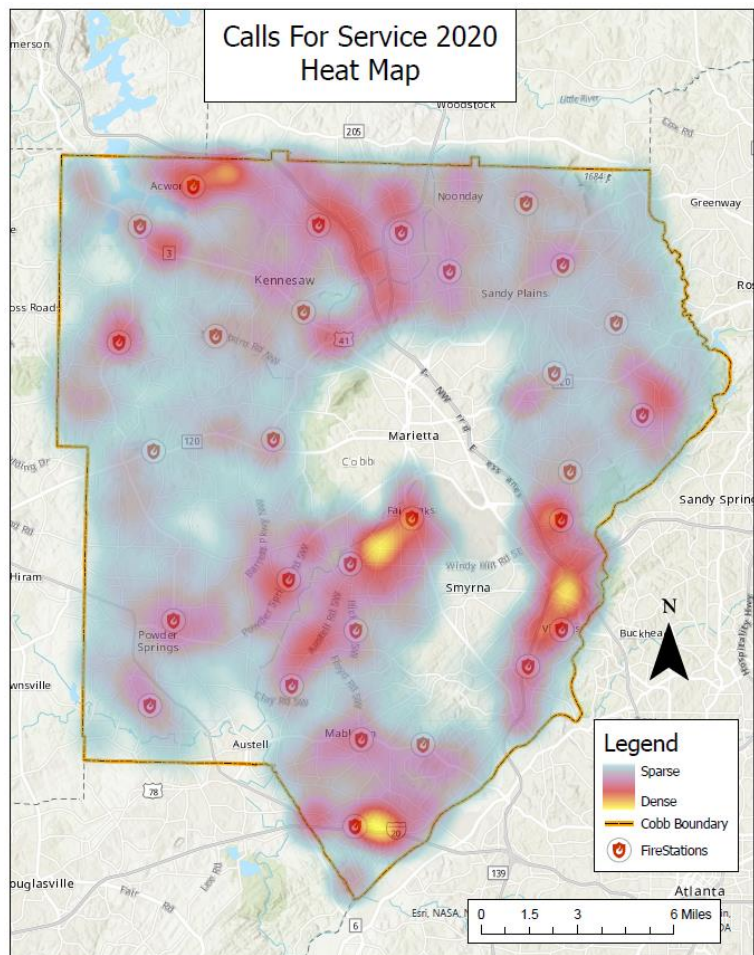


## SECTION V: DEPLOYMENT & EVALUATION OF PERFORMANCE

CCFES 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. A description of each dispatch configuration is in the Fire Cooperative Emergency Response System Communications Policy. CCFES attempts to provide consistent service levels based on the number of resources available within the county and the distance between these resources.

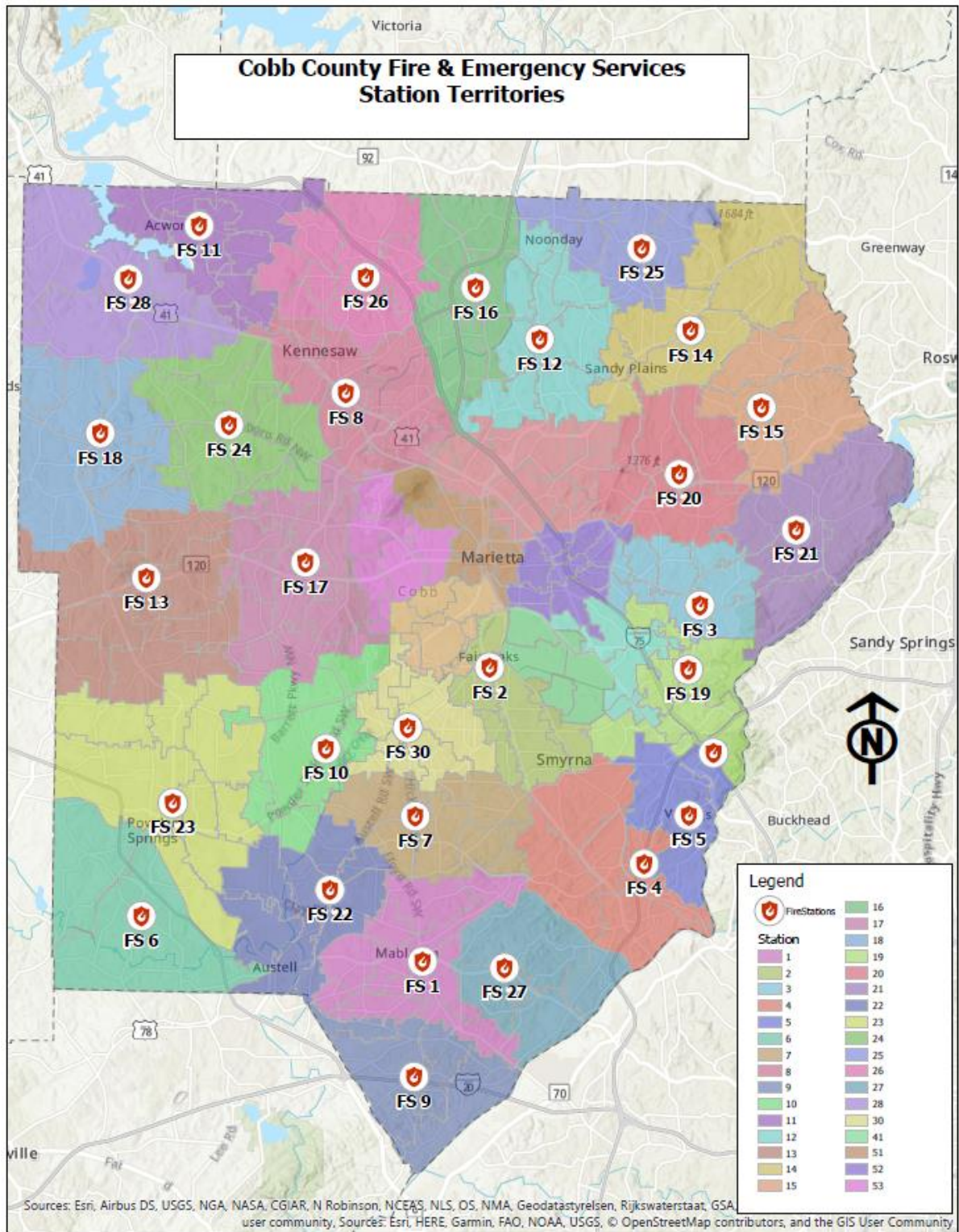
### DISTRIBUTION

CCFES fire stations are located to ensure rapid deployment of first-due resources (primarily pumpers) for the purpose of minimizing and terminating routine emergencies. 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. Resources should be spaced near one another to assemble the Effective Response Force (ERF) for the type and magnitude of incident.

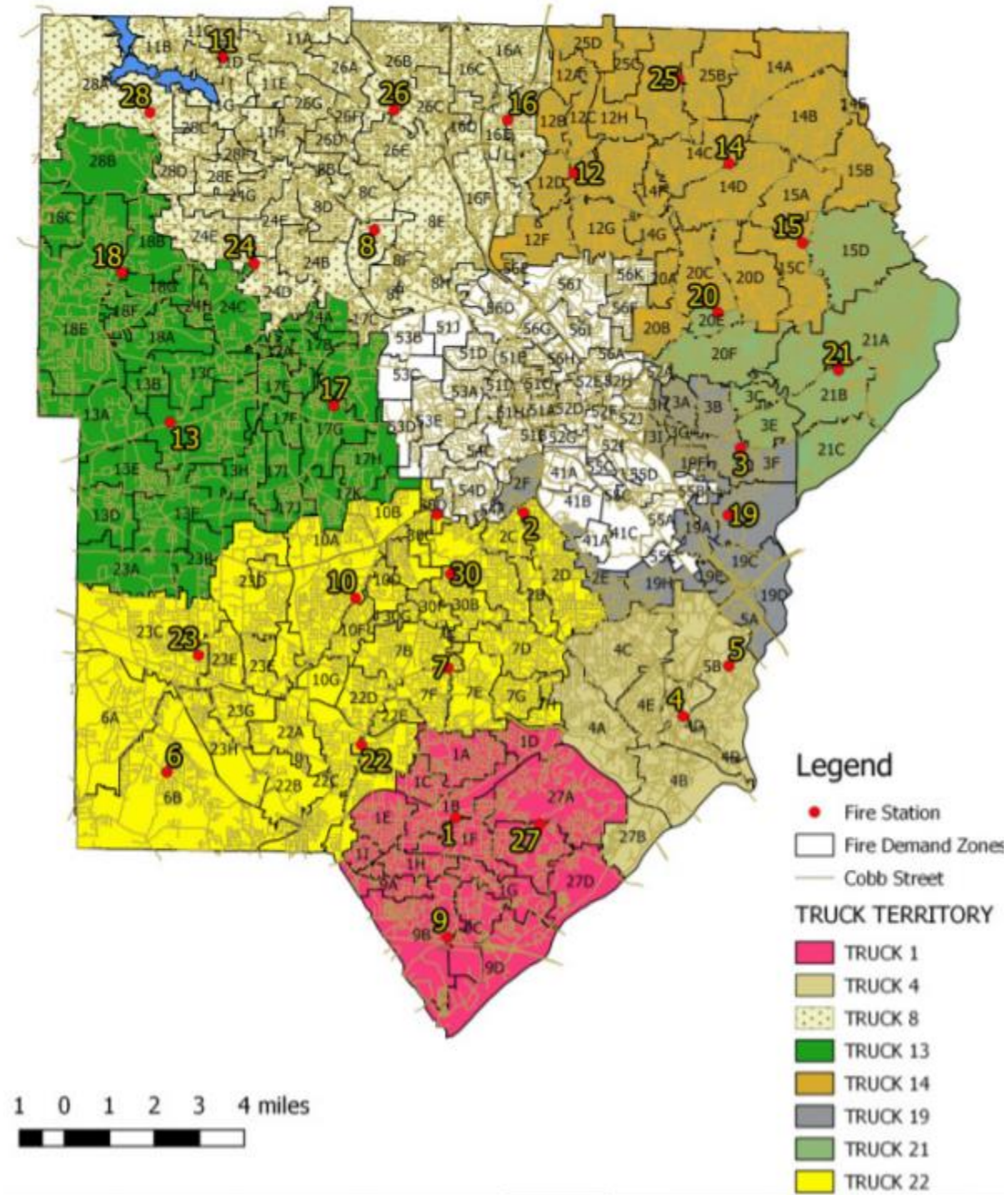




## Engine Coverage

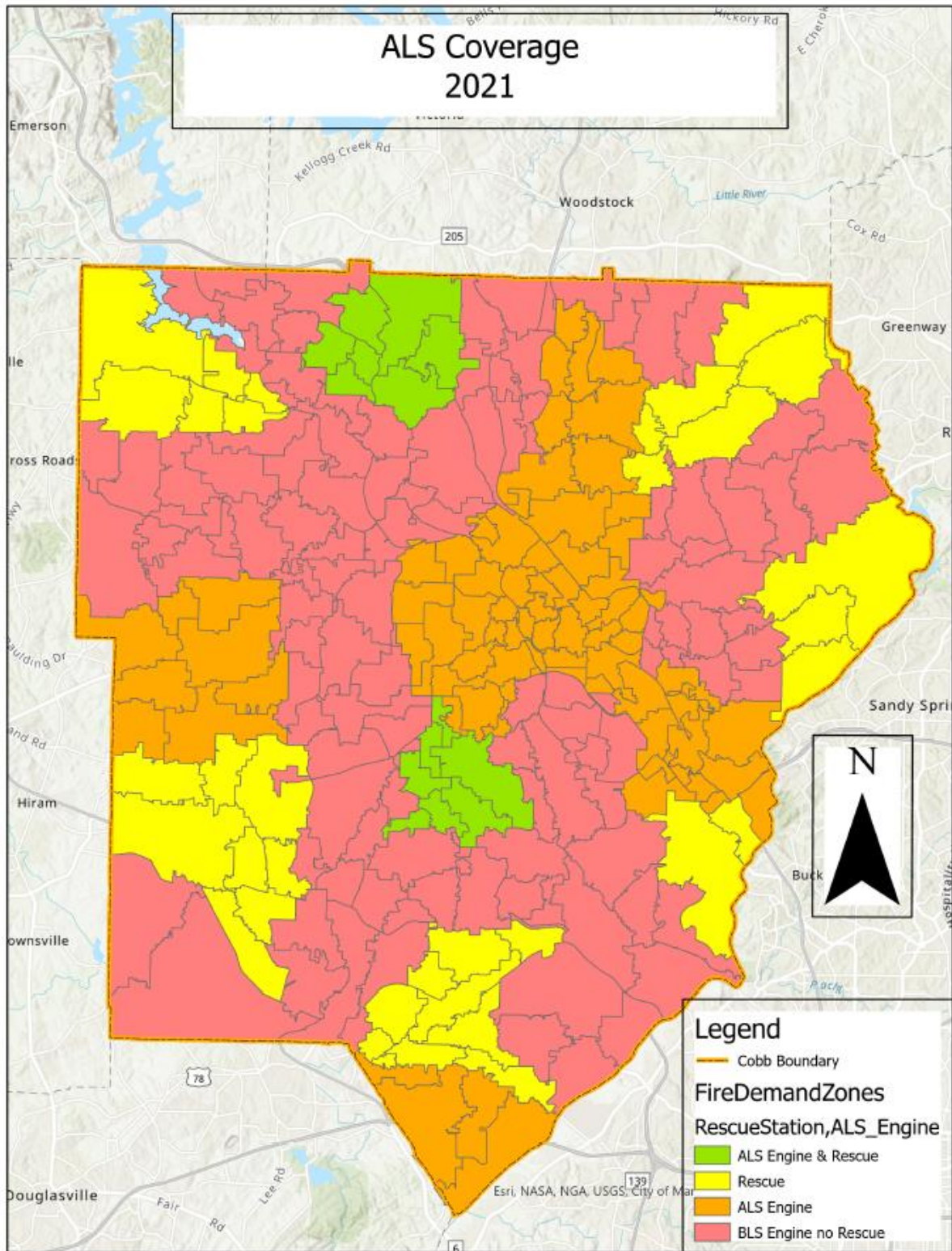


## Truck Coverage

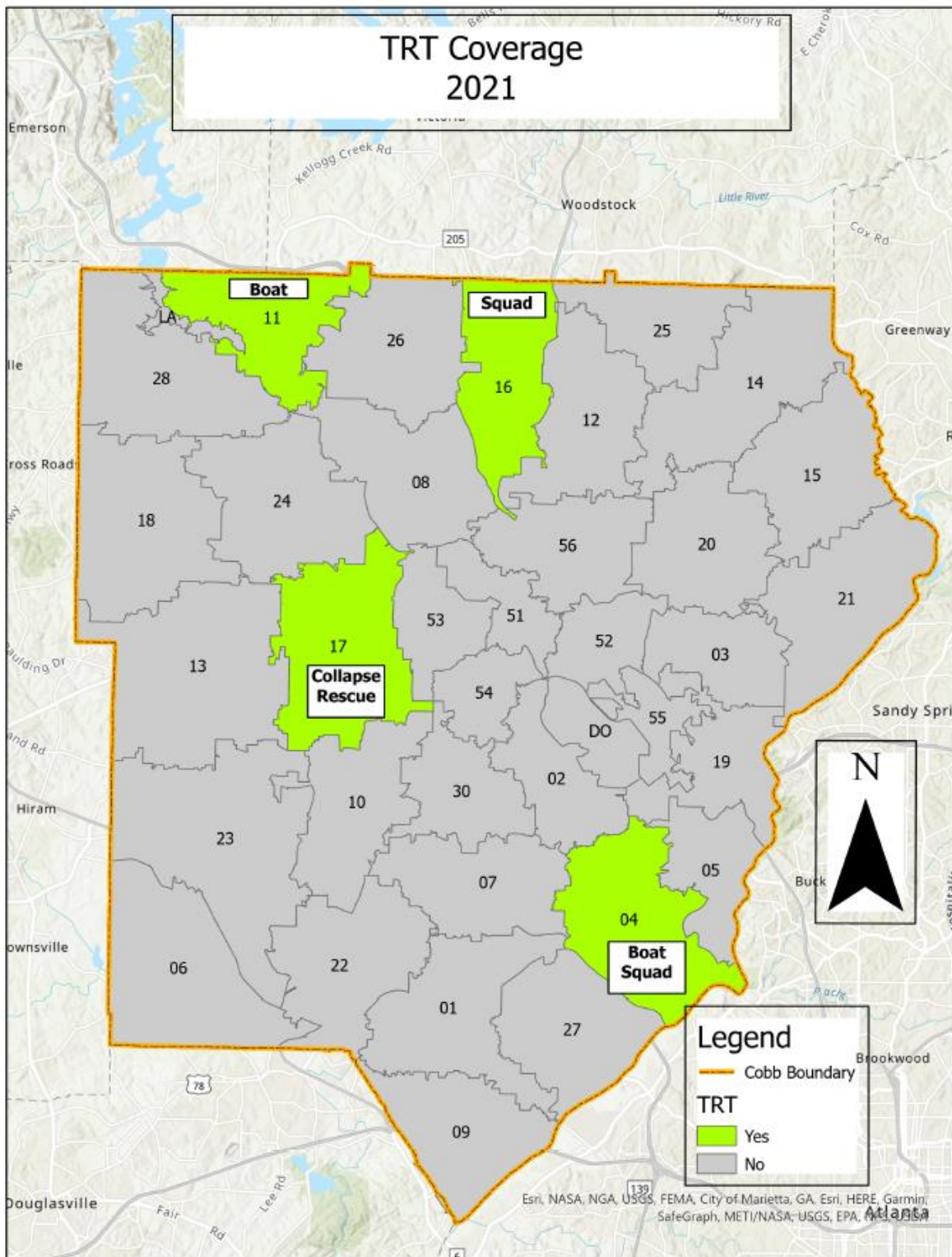




## ALS Coverage

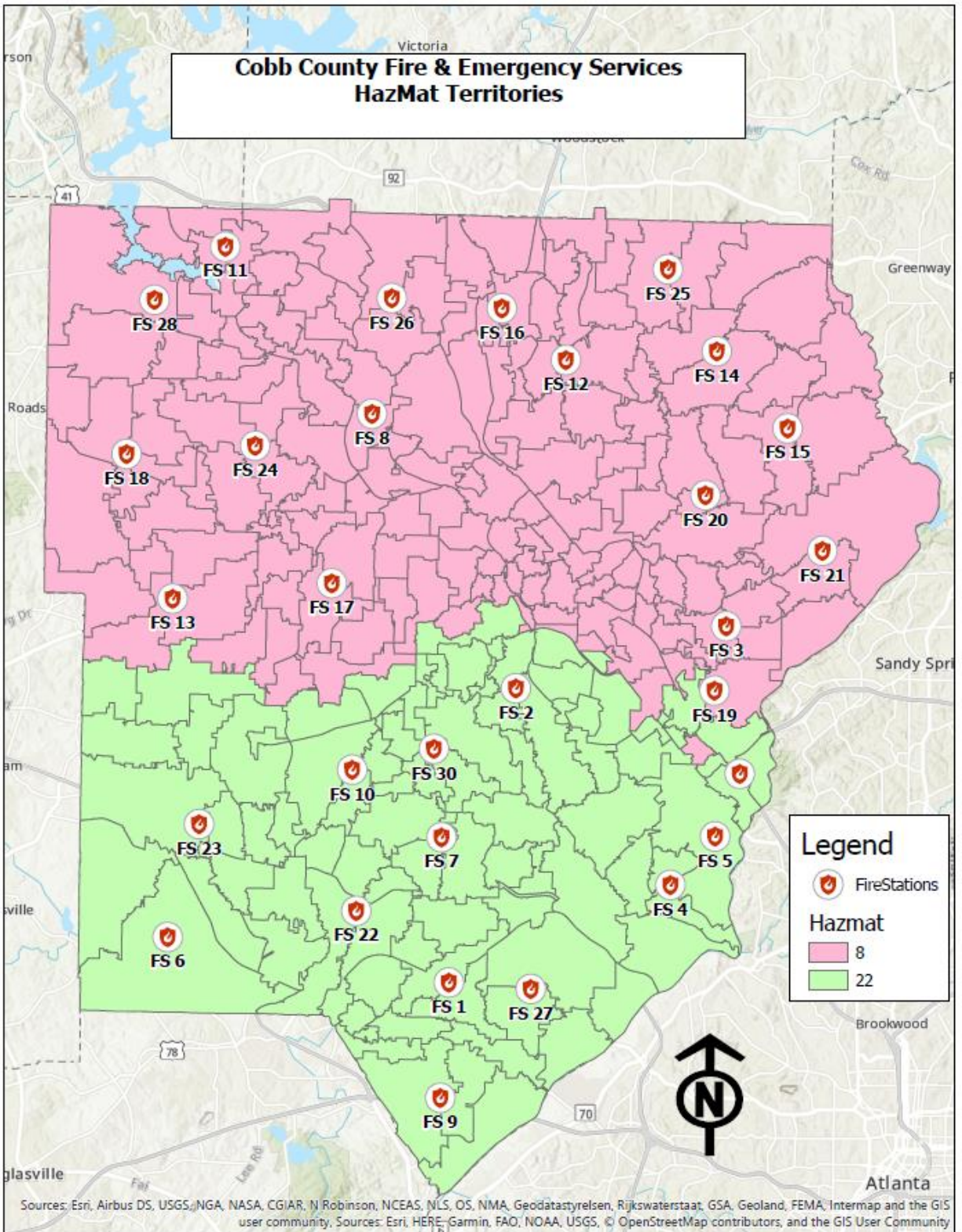


## TRT Coverage



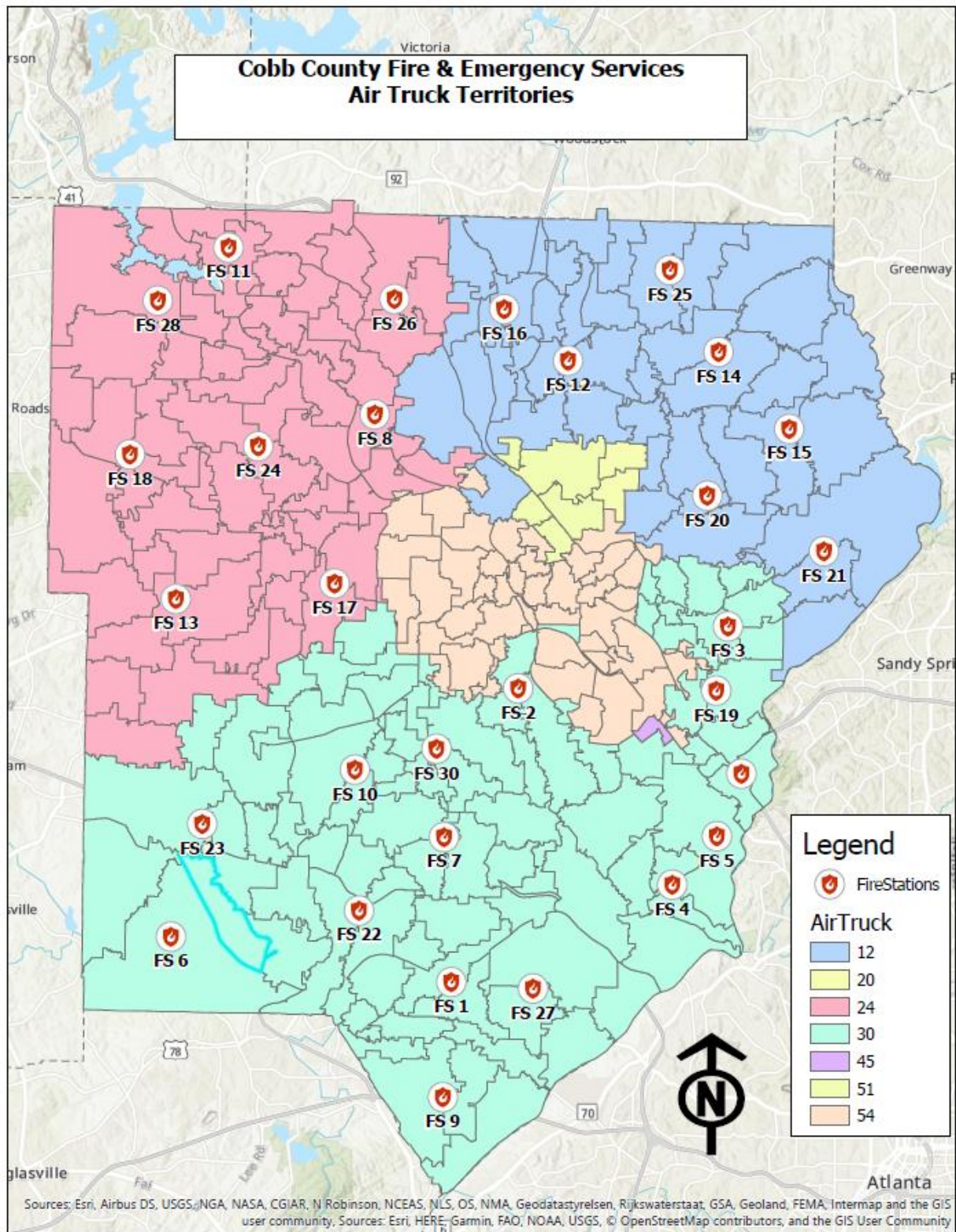


## Hazmat Territory





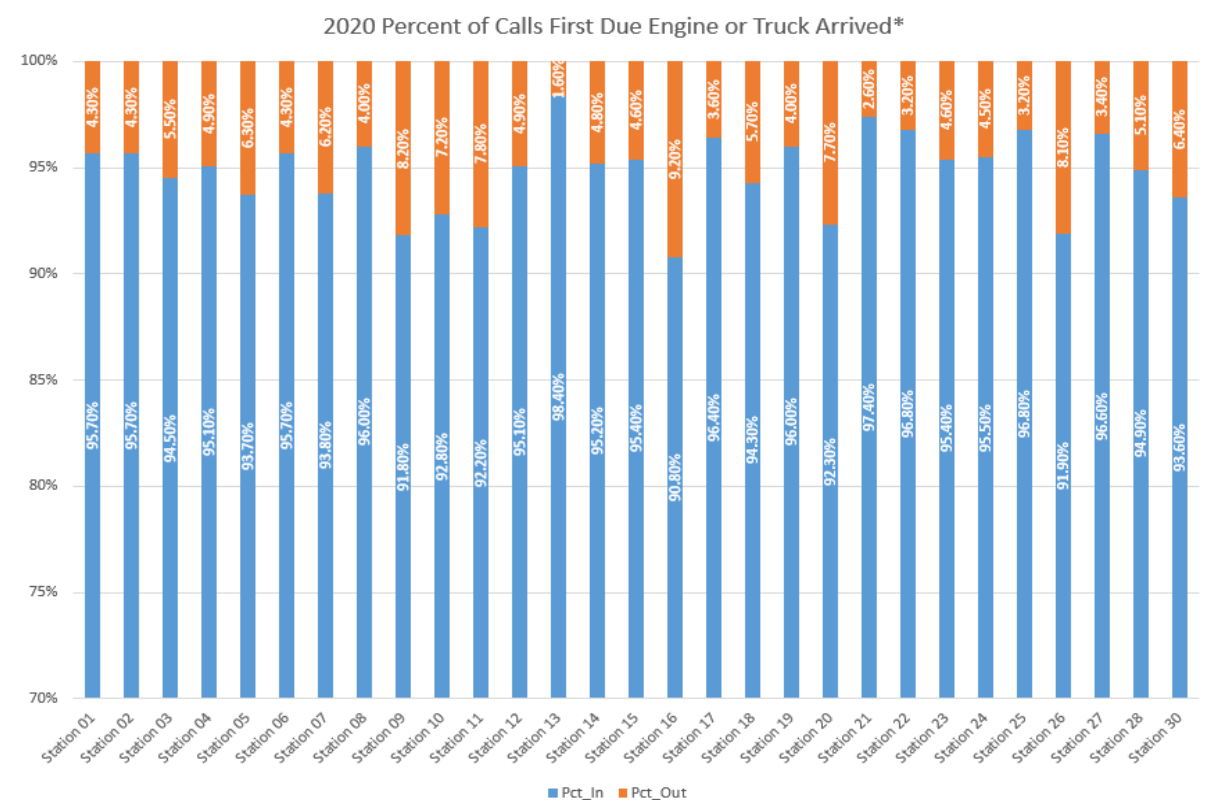
## Air Truck Territory



## RELIABILITY

Response reliability is the probability that the unit assigned to a territory will be available to respond in that territory. Response reliability is reflected as a percentage. In 2020, 95% of calls were responded to by the first-due company.

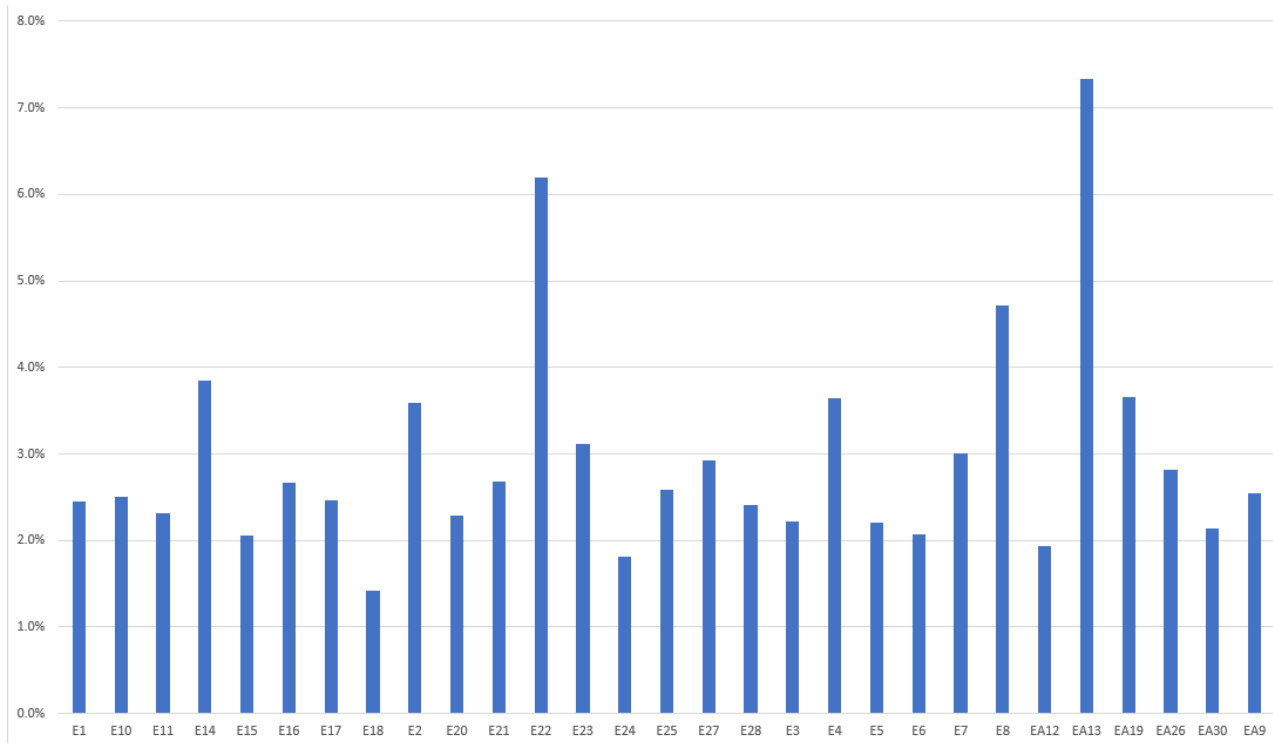
### 2020 Response Reliability: Percent of Calls Handled by First Due Engine or Truck



\* For all incidents in station's territory where an engine/truck arrived on-scene; emergency responses only; percentages reflect incidents where station's home engine/truck arrived.

Units that are out of service directly correlate to the unit's reliability.

### 2020 Daily Out of Service Report - Engines



When incoming calls for service exceed the Department’s capacity to handle them, several options are available for requesting assistance in responding to calls. The automatic aid agreement between CCFES and Marietta Fire Department allows either department to be dispatched on incidents in the other agency’s jurisdiction to provide resources. The agreement is based on the closest unit.

Another option available to Cobb County is mutual aid. The County has external agency agreements in place with all surrounding jurisdictions. These agreements stipulate how and when Cobb County will give or receive assistance from its neighbors. These additional resources help the Department to accomplish its stated mission.

The external agencies that have the most impact on operations are Marietta, Austell, Smyrna, Dobbins Air Reserve Base, departments from contiguous counties, the Georgia Mutual Aid Group, and the participants in the Cobb County Emergency Management Agency (EMA) Emergency Operations Plan (EOP), but other agencies have been identified that have the potential to provide resources if needed. Benefits include reduced costs, reduction in duplicate services, and increased customer service for citizens in participating jurisdictions. The Department’s relationships with external agencies and the resources they can provide are reviewed at least annually when preparing and updating the Department’s strategic planning worksheets.



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## RESILIENCY AND RESISTANCE

Resiliency is assessed when the need has been identified. During times of extreme weather or multiple major incidents, CCFES Chief Officers can implement the Simultaneous Incident Plan (SIP). When SIP is implemented, according to policy (6.4), the dispatch array for incidents is automatically adjusted.

If an incident (or multiple simultaneous incidents) exceeds the capabilities of CCFES even after utilizing automatic and mutual aid, then Georgia Mutual Aid Group (GMAG) deployment can be initiated through the Georgia Emergency Management Agency (GEMA). The GMAG plan is a statewide form of mutual aid. The agreement helps member jurisdictions when local resources are depleted. The purpose of the GMAG plan is to provide for the systematic mobilization, organization, and operation of fire/rescue resources from throughout the region to assist local agencies in mitigating the effect of disasters. Included in this group are representatives from Georgia Emergency Management Agency, Georgia Forestry Commission, Georgia Department of Human Resources, and the State Fire Marshal's Office.

Multiple calls for service in the jurisdiction are commonly seen due to the size of the jurisdiction. Most of the time, these do not affect operations. In the late 90's the department noticed that during thunderstorms, which occur frequently in the spring and summer, CCFES needed to alter dispatching procedures. During storms, or any other time there are multiple calls for service in one territory, dispatch may choose to go into Simultaneous Incident Plan (SIP) mode to reduce the rapid depletion of resources. This allows fewer units responding to incidents that may require extended response times or extended on-scene times. This plan allows both departments to arrive on-scene in a timely manner. The department began tracking SIP incidents on February 3, 2011. Since then, 246 incidents have been captured.

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## MOVE-UPS

During daily operations, CCFES and the City of Marietta use a move-up system to back-fill key stations, to stretch resources during multiple simultaneous events and request mutual aid response in the event of very large or extended incidents. Fourteen stations in Cobb and Marietta have been determined to be a staffing priority. If any of these 14 stations are on a call with an extended on-scene time, another

fire station's crew and apparatus will fill-in at that station and respond to calls in that area. On all major incidents, a second Battalion Chief is dispatched to handle move-ups. The Battalion Chief will notify dispatch operators which crews to move where, and when to do so. The chart containing this information is in every Battalion Chief's vehicle in the CCFES and the City of Marietta. When the original crew of one of the priority stations returns from their incident, the crew that was covering their territory will return to its station.

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## COMPARABILITY

Comparison to industry standards is important and gives the department something for which to strive. Below is a comparison of CCFES service delivery to ISO and NFPA 1710.

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### ISO

In April 2016, CCFES was awarded a Community Classification of "1" by the Insurance Services Office.

<b>FSRS Feature</b>	<b>Earned Credit</b>	<b>Credit Available</b>
<b>Emergency Communications</b>		
414. Credit for Emergency Reporting	<b>3.00</b>	<b>3</b>
422. Credit for Telecommunicators	<b>3.98</b>	<b>4</b>
432. Credit for Dispatch Circuits	<b>2.93</b>	<b>3</b>
<b>440. Credit for Emergency Communications</b>	<b>9.91</b>	<b>10</b>
<b>Fire Department</b>		
513. Credit for Engine Companies	<b>5.96</b>	<b>6</b>
523. Credit for Reserve Pumpers	<b>0.48</b>	<b>0.50</b>
532. Credit for Pump Capacity	<b>3.00</b>	<b>3</b>
549. Credit for Ladder Service	<b>3.86</b>	<b>4</b>
553. Credit for Reserve Ladder and Service Trucks	<b>0.41</b>	<b>0.50</b>
561. Credit for Deployment Analysis	<b>5.93</b>	<b>10</b>
571. Credit for Company Personnel	<b>11.64</b>	<b>15</b>
581. Credit for Training	<b>8.37</b>	<b>9</b>
730. Credit for Operational Considerations	<b>2.00</b>	<b>2</b>
<b>590. Credit for Fire Department</b>	<b>41.65</b>	<b>50</b>
<b>Water Supply</b>		
616. Credit for Supply System	<b>29.47</b>	<b>30</b>
621. Credit for Hydrants	<b>2.99</b>	<b>3</b>
631. Credit for Inspection and Flow Testing	<b>6.20</b>	<b>7</b>
<b>640. Credit for Water Supply</b>	<b>38.66</b>	<b>40</b>
<b>Divergence</b>	<b>-2.67</b>	<b>--</b>
<b>1050. Community Risk Reduction</b>	<b>4.95</b>	<b>5.50</b>
<b>Total Credit</b>	<b>92.50</b>	<b>105.50</b>

## NFPA 1710

<b>NFPA Standard</b>	<b>NFPA Time Standard</b>	<b>CCFES Time</b>
4.1.2.3.1 Alarm Handling Answer	15 Seconds or less (95 <sup>th</sup> Percentile)	Cobb 911 does not track this in the CAD database. It is separately tracked and reported on from phone database.
4.1.2.3.3 Alarm Handling Processing (Fire)	64 seconds or less (90 <sup>th</sup> percentile)	177 seconds
4.1.2.3.3.1 Alarm Handling Processing (EMS, Hazmat, TRT)	90 seconds or less (90 <sup>th</sup> percentile)	177, 182, 219 seconds
4.1.2.1 (2) Turn out time (fire, hazmat, TRT)	80 seconds or less	85, 83, 83 seconds
4.1.2.1 (2) Turn out time (EMS)	60 seconds or less	93 seconds
4.1.2.1 (3) Travel Time 1 <sup>st</sup> unit (fire)	240 seconds or less	452 seconds
4.1.2.1 (4) Travel Time initial full alarm assignment (ERF)	480 seconds or less	550 seconds
4.1.2.1 (6) Travel Time (BLS AED)	240 seconds or less	497 seconds
4.1.2.1 (7) Travel Time (ALS)	480 seconds or less	489 seconds

CCFES currently does not meet the NFPA 1710 standard. While obtaining 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 county department. The cost associated with station placement alone is prohibitive.

In 1971, when CCFES was formally established, the department provided fire coverage to 207,137 citizens across 345 square miles; the county was considered rural. At that time, in order to meet the needs of the community, stations were placed geographically throughout the county.

By 1991, the population in the county had doubled to 463,887. This increase required CCFES to plan and build new fire stations. The planning stages still did not consider data and as a result, when new stations were built, they were located, again, based mostly on geography.

Shortly before 2005, during the department's first accreditation process, CCFES 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 CCFES more in line with the NFPA standard. The department is currently delivering service with an asset deployment plan based largely on geographical considerations rather than 90<sup>th</sup> percentile times. Moving forward, these considerations will drive the location of future assets to reduce CCFES response times. Budgetary, political, and economic factors all regulate CCFES growth.

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## CRITICAL TASKS, BENCHMARKS, BASELINES

On-scene operations, critical tasking, and effective response force (ERF aid in determining appropriate staffing levels, number of units needed, deployment strategies, and duties to be performed at an

incident. The variables of the scene should be assessed upon arrival in order 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

CCFES defines critical tasks for fire, EMS, TRT, 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. CCFES 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. Critical tasking for suppression activities is outlined in CCFES Guidelines for Strategic Considerations for Structure Fires, Section 6-19.

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## **FIRE CRITICAL TASKS**

A critical task during a structure fire is one that must be conducted by firefighters in a timely manner in order 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 CCFES critical tasks. The OSHA 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. OSHA 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 an On-Deck crew that can serve as the IRIT. This crew will be positioned at the entry point of entry crews.

The tasks assigned to each unit are based on the priority presented when units arrive on scene. The first arriving officer or acting officer will take Command (IC#1). Depending on their size-up, they can choose to participate at the task level with their crew or maintained a fixed position Command. In either case, they will assign the next arriving Engine and Truck to the appropriate task. To minimize the

number of times Command is passed, the first arriving Battalion Chief will assume command from IC#1. If IC#1 is overwhelmed, the first arriving Captain has the option to assume Command until the Battalion Chief arrives. IC#1 will operate in one of the following modes:

1. Rescue Mode – victims are visible in immediate need of rescue.
2. Fast Attack Mode – actions of the first in engine can make a significant positive outcome on the incident (incipient stage fires or small single room fires).
3. Command mode – Immediate actions of one unit will not significantly affect the outcome of the incident and the critical tasks are assigned based on priority and unit arrival.

**Incident Command (IC) (1)** – Command is established by an officer or acting officer assigned to the first arriving unit. Primary factors include life hazards for occupants and firefighters, location of fire, construction, area and height, occupancy/contents, exposures, time of day, auxiliary appliances, weather, apparatus/personnel, water supply, and special matters. The IC will assign critical tasks based on seven common strategic goals; Rescue, exposure, confinement, extinguishment, ventilation, salvage and overhaul. IC can be transferred to the second arriving engine/truck if initial command was not established from a fixed position and until the arrival of the Battalion Chief.

### **Personnel Accountability Officer (1)**

CCFES utilizes two forms of accountability, Level I and Level II

#### **A. Level I Accountability:**

1. Personnel turn in their “PAS Tags” to their company officer at the start of their shift. The officer attaches the tags to the “Unit Passport board.”
2. Level I is in place when all present crew members’ “PAS Tags” are on the “Unit Passport board.”
3. Cobb County Fire and Emergency Services will maintain Level I Accountability at all times.

#### **B. Level II Accountability:**

1. Level II Accountability will be initiated on every multi-unit incident. The Unit Passport board will be brought to the Accountability Unit, usually near the entry point of the incident. A

Division Accountability Board is maintained on each apparatus and is the collection point for all Unit Passport boards until the Battalion Chief arrives or a Division is established. If the Battalion Chief (IC#2) does not establish a Division Supervisor, they will collect and maintain the Unit Passport boards already at the Accountability Engine. If IC#2 establishes a Division, the Division Supervisor will collect the Unit Passport boards for the units assigned to them from the Accountability Engine. The Division Supervisor will maintain an Accountability Board at their geographical location of the units assigned to their Division. This same process will occur for each subsequent Division that is assigned.

**Incident Safety Officer (ISO) (1)** – The designation of 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 Cobb County certification program. The ISO will follow the “Incident Safety Officer” policies as established by the CCFES Policy and Procedure Manual. ISO can be an independent assignment or be fulfilled by the Division Supervisor. This decision is the discretion of the Incident Commander. 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 1<sup>st</sup> 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 2<sup>nd</sup> 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, or a 2 ½” hose that produces up to 250 GPM handled by two or three firefighters. Each CCFES pumper carries attack lines pre-connected to the pump and a skid load carried on the hose bed. A skid load is designed for quick deployment and is comprised of two 1 ¾” lines connected to a supply line. 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" or 2 ½" hand line (the same size as the initial attack line or larger) 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 living 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/normal 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.

**On-Deck Crew (Rapid Intervention Team) (2)** – An On-deck crew 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 On-deck crew may be necessary for large incidents or large-scale training exercises.

## LOW RISK FIRE (EXCLUDING STRUCTURE FIRES)

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### BENCHMARK - LOW RISK FIRE

For 90 percent of all Low Risk fires (excluding structure fires), the total response time for the arrival of the first unit and effective response force (ERF), staffed with minimum of 3 fire personnel, shall be 10 minutes and 31 seconds. The first-due unit shall be capable of, but not required to simultaneously perform, the following tasks: providing 1,500 gpm and a static water source (tank water) 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 other tasks 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.

### **BASELINE LOW RISK FIRE (2020)**

For 90 percent of all Low Risk fires (excluding structure fires), the total response time for the arrival of the first unit and ERF, staffed with a minimum of 3 fire personnel, is **11 minutes and 04 seconds**. The first-due unit is capable of, but not required to simultaneously perform, the following tasks: providing 1,500 gpm and a static water source (tank water) 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 are done in accordance with departmental standard operating guidelines while providing for the safety of responders and the general public.

## **MODERATE RISK FIRE**

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### **BENCHMARK - MODERATE RISK FIRE**

For 90 percent of all Moderate Risk fires, the total response time for the arrival of the first unit, staffed with minimum of **3 fire personnel, shall be 9 minutes and 27 seconds**. The first-due unit shall be capable of, but not required to simultaneously perform, the following tasks: providing 1,500 gpm and a static water source (tank water) 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 other tasks 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 percent of all Moderate Risk fires, the total response time for the arrival of the effective response force (ERF), staffed with **13 personnel, shall be 15 minutes and 35 seconds** and capable of the following tasks: 13

ERF Moderate Risk – Fire Suppression (Single Family Residence < 2,500 sq. ft.)	
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)	2
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)	2
Accountability officer (Chief's aid)	1
Search and Rescue	2
On-deck crew (RIT)	2
Total	13

### **BASELINE MODERATE RISK FIRE (2020)**

For 90 percent of all Moderate Risk fires, the total response time for the arrival of the first unit, staffed with a minimum of **3 fire personnel, is 09 minutes and 57 seconds**. The first-due unit is capable of, but not required to simultaneously perform, the following tasks: providing 1,500 gpm and a static water source (tank water) 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 are done in accordance with departmental standard operating guidelines while providing for the safety of responders and the general public.

For 90 percent of all Moderate Risk fires, the total response time for the arrival of the ERF, staffed with **13 personnel, is 16 minutes and 24 seconds**. The ERF for Moderate Risk Fire is capable of providing the above listed critical tasks.

## HIGH RISK FIRE

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### BENCHMARK HIGH RISK FIRE

For 90 percent of all High-Risk fires, the total response time for the arrival of the first unit, staffed with a minimum of 3 fire personnel, shall be 9 minutes and 58 seconds. The first-due unit for all risk levels shall be 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 shall be done in accordance with departmental standard operating guidelines while providing for the safety of responders and the general public.

For 90 percent of all High-Risk fires, the total response time for the arrival of the ERF, staffed with 18 personnel, shall be 21 minutes and 42 seconds. The ERF for High Risk fires shall be capable of:

ERF High Risk – Fire Suppression (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)	2
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)	1
Safety officer (Lt. or higher certified incident safety officer)	1
Back up line (same size line or higher of initial attack line)	2
Accountability officer (Chief's aid)	1
Search and Rescue	2
On-deck crew (RIT)	2
Aerial Operations	3
Total	18

### BASELINE HIGH RISK FIRE

For 90 percent of all High-Risk fires in 2020, the total response time for the arrival of the first unit, staffed with a minimum of 3 fire personnel, is 10 minutes and 36 seconds. The first-due unit is capable of, but not required to simultaneously perform, the following tasks: providing 1,500 gpm and a static water source (tank water) 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 are done in accordance with departmental standard operating guidelines while providing for the safety of responders and the general public.

For 90 percent of all High-Risk fires, the total response time for the arrival of the ERF, staffed with 18 personnel, is 20 minutes and 02 seconds. The ERF for High-Risk fires is capable of providing the above listed critical tasks.

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### EMS CRITICAL TASKS

CCFES responds to a wide variety of EMS incidents including sick calls, motor vehicle accidents, childbirths, difficulty breathing, and cardiac arrests. In Cobb County, engine companies respond to all basic life support (BLS) calls; an engine and a rescue respond to requests for advanced life support (ALS); and a private ambulance company transports patients to the hospital.

**Low Risk (Tier I/BLS):** Critical tasks for 1<sup>st</sup> Unit and ERF for this category include the following: incident command, scene size-up and scene safety, safety officer and crew accountability, documentation; patient assessment; performing automatic external defibrillator (AED); initiating cardio-pulmonary resuscitation (CPR); and providing intravenous (IV) access-medication administration.

For a Low-Risk Incident (BLS), the total personnel needed is 3 personnel with BLS or better capability (1 BLS unit or higher).

Critical Task – EMS Low Risk 1 <sup>st</sup> Engine/Truck & ERF	Minimum Personnel
Command / Safety / Accountability*	1*
Triage / Basic Life Support BLS	2
Total	3
*Carried out simultaneously with other assignments as needed.	

**Moderate Risk (Tier II/ALS):** Critical tasks for 1<sup>st</sup> Unit for this category include the following: incident command, scene size-up and scene safety, act as incident safety officer and provide crew accountability, documentation; patient assessment; providing appropriate treatment; performing AED; initiating CPR if needed; and providing IV access medication administration.

For a Moderate Risk Incidents (ALS), the first Unit total personnel needed is 3 personnel.

<b>Critical Task – EMS Moderate Risk 1<sup>st</sup> Engine/Truck</b>	<b>Minimum Personnel</b>
Command / Safety / Accountability*	1*
Triage / Basic Life Support BLS /Advanced Life Support if equipped	2
Total	3
*Carried out simultaneously with other assignments as needed.	

The Moderate Risk ERF critical task include the following: incident command, scene size-up and scene safety, act as incident safety officer and provide crew accountability, documentation; patient assessment; BLS and ALS treatment; performing cardiac monitoring; and providing IV access and medication administration.

For a Moderate-Risk Incident (ALS), the total personnel needed for an effective response force (ERF) is 3 personnel with ALS capability (1 ALS Engine or Rescue).

<b>Critical Task – EMS Moderate Risk ERF</b>	<b>Minimum Personnel</b>
Command / Safety / Accountability*	1*
Advanced Life Support ALS*	2*
Total	3
*This may be handled by the first due unit if ALS equipped.	

High Risk (Tier III Multiple Casualty Incidents MCI – Large Transportation Accidents, MCI  $\geq 5$  victims, Active Shooters): The critical tasks for the 1<sup>st</sup> Unit to this category include the following: incident command, scene size-up and scene safety to include areas of safety if needed, incident safety officer and crew accountability, documentation; patient triage; first aid to include airway opening and control external bleeding; assess and request additional resources as needed.

For a High-Risk Incidents (MCI), the 1<sup>st</sup> Unit total personnel needed is 3 personnel.

<b>Critical Task – MCI High Risk 1<sup>st</sup> Engine/Truck</b>	<b>Minimum Personnel</b>
Command / Safety / Accountability*	1*
Triage/First Aid	2*
Total	3
*Maybe carried out simultaneously with other assignments as needed.	

High-Risk (Tier III Multiple Casualty Incidents MCI – Large Transportation Accidents, MCI 5-10 victims, Active Shooters): The critical tasks for the ERF to this category include the following: incident command, scene size-up and scene safety to include areas of safety if needed, establishing an incident safety officer and accountability officer, documentation; patient triage; staging sector; treatment sector to provide BLS and ALS care as needed; transportation sector supervisor; assess and request additional resources as needed.

For a High-Risk Incidents (MCI), the ERF total personnel needed is 13 personnel.

Critical Task – MCI High Risk ERF	Minimum Personnel
Command*	1*
Safety*	1
Accountability*	1
Triage/Reassigned to Treatment once Triage completed	3
Staging	1
Treatment Sector	5
Transport Supervisor	1
Total	13
*Maybe carried out simultaneously with other assignments as needed.	

## LOW RISK EMS – BLS BENCHMARK & BASELINE

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### BENCHMARK EMS – Low Risk

For 90 percent of all BLS responses, the total response time for the arrival of the first unit and ERF, staffed with a minimum of 3 members, shall be 9 minutes and 58 seconds. The first-due unit shall be capable of providing incident command, scene size-up and scene safety, act as incident safety officer and provide crew accountability, and producing related documentation; completing patient assessment; providing appropriate treatment; performing automatic external defibrillator (AED); initiating cardio-pulmonary resuscitation (CPR); and providing intravenous (IV) access-medication administration. For BLS incidents, the first due unit also serves as the ERF.

### BASELINE EMS - Low Risk

For 90 percent of all BLS EMS responses, the total response time for the arrival of the first unit and ERF, **staffed with 3 members, is 10 minutes and 29 seconds**. The first unit is capable of: rapidly evaluating a patient's airway, breathing and circulation; applying automated external defibrillator; controlling external bleeding; preventing shock; and preventing further injury or disability by immobilizing fractures.

## MODERATE RISK EMS – ALS BENCHMARK & BASELINE

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### **BENCHMARK EMS – Moderate**

For 90 percent of all ALS EMS responses, the total response time for the arrival of the first unit, staffed with a minimum of **3 members, shall be 9 minutes and 50 seconds**. The first-due unit shall be capable of: rapidly evaluating a patient's airway, breathing and circulation; applying automated external defibrillator; controlling external bleeding; preventing shock; and preventing further injury or disability by immobilizing fractures.

For 90 percent of all ALS EMS responses, the total response time for the arrival of the effective response force (ERF), staffed with a minimum of **3 members, shall be 10 minutes and 56 seconds**. The ERF shall be capable of providing advanced care that includes advanced airway management, advanced cardiac monitoring, defibrillation, establishment and maintenance of intravenous access, and drug therapy.

### **BASELINE EMS - Moderate Risk**

For 90 percent of all ALS EMS responses, the total response time for the arrival of the first unit, staffed with **3 members, is 10 minutes and 21 seconds**. The first unit is capable of: rapidly evaluating a patient's airway, breathing and circulation; applying automated external defibrillator; controlling external bleeding; preventing shock; and preventing further injury or disability by immobilizing fractures.

For 90 percent of all ALS EMS responses, the total response time for the arrival of the effective response force (ERF), staffed with a minimum of **3 members, is 11 minutes and 31 seconds**. The ERF shall be capable of providing advanced care that includes advanced airway management, advanced



cardiac monitoring, defibrillation, establishment and maintenance of intravenous access, and drug therapy.

## HIGH RISK EMS – MCI BENCHMARK & BASELINE

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### **BENCHMARK EMS – High Risk MCI**

For 90 percent of all MCI responses, the total response time for the arrival of the first unit, staffed with a minimum of **3 members, shall be 10 minutes and 23 seconds**. The first-due unit shall be capable of: providing incident command, scene size-up and scene safety to include areas of safety if needed, act as incident safety officer and provide crew accountability, and produce related documentation; provide patient triage; provide first aid to include airway opening and control external bleeding; request additional resources as needed.

For 90 percent of all ALS EMS responses, the total response time for the arrival of the effective response force (ERF), staffed with a minimum of **13 members, shall be 21 minutes and 18 seconds**. The ERF shall be capable of shall be capable of providing incident command, scene size-up and scene safety to include areas of safety if needed, establishing an incident safety officer and provide crew accountability, and producing related documentation; provide patient triage; establishing a staging sector and direct incoming equipment and personnel to stage; establishing a treatment sector to provide BLS and ALS care as needed; providing a transportation sector supervisor; requesting additional resources as needed.

### **BASELINE EMS – High Risk MCI**

For 90 percent of all MCI responses, the total response time for the arrival of the first unit, staffed with a minimum of **3 members, is 10 minutes and 23 seconds**. The first-due unit shall be capable of: providing incident command, scene size-up and scene safety to include areas of safety if needed, act as incident safety officer and provide crew accountability, and produce related documentation; provide patient triage; provide first aid to include airway opening and control external bleeding; request additional resources as needed. For 90 percent of all ALS EMS responses, the total response time for the arrival of the effective response force (ERF), staffed with a minimum of **13 members, is 22 minutes and 25 seconds**. The ERF shall be capable of shall be capable of providing incident command, scene

size-up and scene safety to include areas of safety if needed, establishing an incident safety officer and provide crew accountability, and producing related documentation; provide patient triage; establishing a staging sector and direct incoming equipment and personnel to stage; establishing a treatment sector to provide BLS and ALS care as needed; providing a transportation sector supervisor; requesting additional resources as needed.

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## HAZMAT CRITICAL TASKS

Depending on the incident, assets may be sent non-emergency, requested from other mutual aid partners, or not requested at all. Activities in hazardous materials incident include:

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

**Low Risk** – One operational level trained response vehicle (either an engine, truck, or rescue). First apparatus (engines, trucks, and rescues) that are equipped with hand-tools and trained to arrive on-scene and take appropriate initial actions to mitigate small isolated incidents or until the HMRT arrives. Initial alarm equipment can be on the scene in a timely manner and begin incident stabilization.

For a Low-Risk Incident, the total personnel needed for an effective response force (ERF) is 3 personnel arriving in an Engine or Truck.

**Low risk hazmat incidents are considered to be incident types involving minor flammable liquid spills of 5 gallons or less, residential natural/liquid petroleum gas leaks, and carbon monoxide accumulation that can be handled by one engine or truck company.**

**Moderate Risk** – One Hazmat unit. HMRT can assess safety entry routes to the incident, identifying a defensive perimeter and an operational area and staging area, directing defensive operations, and initiating a site-specific written action plan. They shall be capable of preparing for and initiating offensive HazMat operations, decontamination operations, and property conservation operations.

For a Moderate-Risk Incident, the total personnel needed for an effective response force (ERF) is 16 personnel with at least one HAZMAT unit arriving on scene.

**Moderate risk hazmat incidents are considered to be incident types involving large flammable liquid spills of greater than 5 gallons, commercial natural/liquid petroleum gas leaks, chemical spills or**

**releases, and motor vehicle accidents involving hazardous materials that require the response of at least one hazardous materials unit.**

**High Risk** – Both Hazmat stations must respond. Same capabilities as Moderate-Risk.

For a High-Risk Incident, the total personnel needed for an effective response force (ERF) is 19 personnel arriving in at least two HAZMAT units.

**Moderate risk hazmat incidents are considered to be incident types involving large commercial natural/liquid petroleum gas leaks, large chemical spills or releases as determined by the first due hazmat team, fires involving hazardous materials, and motor vehicle accidents involving hazardous materials, mass casualty and decontamination that require the response of both hazardous materials units.**

## **LOW RISK HAZMAT**

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### **BENCHMARK - LOW RISK HAZMAT**

For 90 percent of responses to Low Risk hazmat incidents, the total response time for the first unit and effective response force (ERF), staffed with a minimum of 3 personnel, shall be 13 minutes and 01 seconds. The first arriving unit/ERF is capable of but not required to simultaneously perform the following tasks: initiating command and crew accountability; scene size-up and requesting additional resources as needed; identification of minor flammable liquid spill of 5 gallons or less, identifications of residential natural/LP gas leak, or Carbon Monoxide (CO) cumulation in a structures through monitoring; provide for safe operations and assume responsibilities as incident safety officer, establish pump and foam operations as needed for small flammable liquid spills; accomplish control measures or cleanup operations such as apply absorption material and ensure proper disposal, control utilities to include natural/LP gas and electricity, identify and control causes of CO accumulation, removal of gas hazards by providing ventilations of the area or structure, provide basic life support as need for those impacted. .

<b>Critical Task – Low Risk Hazmat 1<sup>st</sup> Unit &amp; ERF</b>	<b>Minimum Personnel</b>
Command / Safety / Accountability*	1*
Pump operator/ Foam Operations	1
Hazmat Identification/monitoring*	1*
BLS First Aid / Control Measures / Cleanup Operations	1
Total	3
*Carried out simultaneously with other assignments as needed.	

### **BASELINE LOW RISK HAZMAT**

For 90 percent of responses to Low Risk hazmat incidents in 2020, the total response time for the first unit and ERF, staffed with a minimum of **3 personnel, is 13 minutes and 42 seconds**. The first arriving hazmat unit shall be capable of appropriate actions to mitigate small isolated incidents or until the HMRT arrives.

### **MODERATE RISK HAZMAT**

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### **BENCHMARK MODERATE RISK HAZMAT**

For 90 percent of responses to moderate risk hazmat incidents, the total response time for the first unit staffed with a minimum of **3 personnel, shall be 17 minutes and 59 seconds**. The first arriving unit shall be capable of but not required to simultaneously perform the following tasks: initiating command and crew accountability; scene size-up and requesting additional resources as needed; hazmat operations level defensive operations; provide safe operations and assume responsibilities as incident safety officer until arrival of chief officer or designated safety officer, control utilities to include natural/LP gas and electricity, provide basic life support as need for those impacted; gather incident information that impacts response such as hazardous material involved, area involved, and number people involved; isolate, evacuate, and emergency decontaminate as needed.

<b>Critical Task – Moderate Risk Hazmat 1<sup>st</sup> Unit</b>	<b>Minimum</b>
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	<b>Personnel</b>
Command / Safety / Accountability*	1
Isolation/Protect in Place/Evacuation	1*
Defensive Operations	1*
Emergency Decon as needed	1*
Total	3
*Carried out simultaneously with other assignments as needed.	

For 90 percent of responses to moderate risk hazmat incidents, the total response time for the ERF staffed with a minimum of **19 personnel, shall be 1 hour 4 minutes and 44 seconds**. The ERF shall be capable of performing the following tasks: maintaining command and crew accountability; scene size-up and request additional resources as needed; hazmat technical level offensive operations; provide safe operations through use of assigned incident safety officer and PAS officer, control utilities to include natural/LP gas and electricity, provide advanced life support as need for those impacted; gather incident information that impacts response and document hazardous material involved as well as all mitigation efforts and personnel actions; isolate, protect in place, evacuate, and emergency decontaminate as needed, identify and control hazardous materials by plugging, diking, damming, or other appropriate offensive procedures; safely enter IDLH atmosphere with a primary entry team, establishment of a back-up entry team before the primary team attempts entry; monitor atmospheric conditions; provide medical monitoring and rehab for personnel as needed.

<b>Critical Task – Moderate Risk Hazmat ERF</b>	<b>Minimum Personnel</b>
IC or Hazmat Branch Director**	1
Hazmat Safety Officer**	1
Hazmat PAS Officer**	1
Hazmat Operations Supervisor**	1
Hazmat Entry Team(s) Leader**	1
Entry Team(s) I**	2

Back-up Entry Team(s)**	2
Hazmat Decontamination Leader**	1
Decon Team**	2
Hazmat Medical Leader**	1
Hazmat Planning Supervisor**	As needed
Hazmat Research Leader**	1
Hazmat Documentation Leader**	1
Hazmat Logistics Supervisor**	As needed
Hazmat Equipment Leader**	1
Hazmat Finance Officer**	As needed
ALS Patient Care	2
EMS Standby Medical Monitoring	1
Total	19
**Critical Tasking Outlined in Hazmat SOGs	
***Incidents involving Fires Only	

### **BASELINE MODERATE RISK HAZMAT**

For 90 percent of responses to Moderate Risk hazmat incidents, the total response time for the first unit, staffed with a minimum of 3 personnel, is 18 minutes and 56 seconds. The first arriving hazmat unit shall be capable of assessing safety entry routes to the incident, identifying a defensive perimeter and an operational area and staging area, and directing defensive operations.

For 90 percent of responses to Moderate Risk hazmat incidents in 2020, the total response time for the effective response force (ERF), staffed with a minimum of 19 personnel, is 1 hour, 08 minutes and 45 seconds. The hazmat effective response force (ERF) shall be capable of assessing safety entry routes to



the incident, identifying a defensive perimeter and an operational area and staging area, incident setup, and directing defensive and offensive operations.

## HIGH RISK HAZMAT

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### BENCHMARK HIGH RISK HAZMAT

For 90 percent of responses to high risk hazmat incidents, the total response time for the first unit staffed with a minimum of **3 personnel, shall be 27 minutes and 35 seconds**. The first arriving unit shall be capable of but not required to simultaneously perform the following tasks: initiating command and crew accountability; scene size-up and requesting additional resources as needed; hazmat operations level defensive operations; provide safe operations and assume responsibilities as incident safety officer until arrival of chief officer or designated safety officer, control utilities to include natural/LP gas and electricity, provide basic life support as need for those impacted; gather incident information that impacts response such as hazardous material involved, area involved, and number people involved; isolate, evacuate, and emergency decontaminate as needed.

Critical Task – High Risk Hazmat 1 <sup>st</sup> Unit	Minimum Personnel
Command / Safety / Accountability*	1
Isolation/Protect in Place/Evacuation	1 *
Defensive Operations	1 *
Emergency Decon as needed	1 *
Total	3
*Carried out simultaneously with other assignments as needed.	

For 90 percent of responses to moderate risk hazmat incidents, the total response time for the ERF staffed with a minimum of **26 personnel, shall be 1 hour 20 minutes and 48 seconds**. The ERF shall be capable of performing the following tasks: maintaining command and crew accountability; scene size-up and request additional resources as needed; hazmat technical level offensive operations; provide safe operations through use of assigned incident safety officer and PAS officer, control utilities to include natural/LP gas and electricity, provide advanced life support as need for those impacted; gather incident information that impacts response and document hazardous material involved as well as all mitigation efforts and personnel actions; fire suppression tasks to include pump and foam operations, initial fire

attack with a minimum 1 ¾” handline with 150 GPM capacity, backup fire attack with a minimum 1 ¾” handline with 150 GPM capacity, RIT team, ventilation operations to include positive pressure or vertical ventilation as need; isolate, protect in place, evacuate, and emergency decontaminate as needed, identify and control hazardous materials by plugging, diking, damming, or other appropriate offensive procedures; safely enter IDLH atmosphere with a primary entry team, establishment of a back-up team before primary team entry; monitor atmospheric conditions; provide medical monitoring and rehab for personnel as needed.

<b>Critical Task – High Risk Hazmat ERF</b>	<b>Minimum Personnel</b>
IC or Hazmat Branch Director**	1
Hazmat Safety Officer**	1
Hazmat PAS Officer**	1
Hazmat Operations Supervisor**	1
Hazmat Entry Team(s) Leader**	1
Entry Team(s) I**	2
Back-up Entry Team(s)**	2
Hazmat Decontamination Leader**	1
Decon Team**	2
Hazmat Medical Leader**	1
Hazmat Planning Supervisor**	As needed
Hazmat Research Leader**	1
Hazmat Documentation Leader**	1
Hazmat Logistics Supervisor**	As needed
Hazmat Equipment Leader**	1
Hazmat Finance Officer**	As needed
Pump operator/foam operations	1
Ventilation	1

***Initial attack line (1 ¾ line minimum with 150 GPM capabilities)	2
***Backup attack line (1 ¾ line minimum with 150 GPM capabilities)	2
***On-deck crew (RIT)	2
ALS Patient Care	2
EMS Standby Medical Monitoring/ALS Patient Care	1
Total	26
**Critical Tasking Outlined in Hazmat SOGs	
***Incidents involving Fires Only	

### **BASELINE HIGH RISK HAZMAT**

For 90 percent of responses to High Risk hazmat incidents, the total response time for the first unit, staffed with a minimum of 3 personnel, is 29 minutes and 02 seconds. The first arriving hazmat unit shall be capable of assessing safety entry routes to the incident, identifying a defensive perimeter and an operational area and staging area, and directing defensive operations.

For 90 percent of responses to High Risk hazmat incidents, the total response time for the effective response force (ERF), staffed with a minimum of 26 personnel, is 1 hour, 25 minutes and 03 seconds. The hazmat effective response force (ERF) shall be capable of assessing safety entry routes to the incident, identifying a defensive perimeter and an operational area and staging area, incident setup, and directing defensive and offensive operations.

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## TRT CRITICAL TASKS

The goal of the TRT is to recognize and identify the need for technical rescue services involving incidents such as structural collapse, trench collapse, complicated or advanced vehicle 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 outside resources arrive to assist.

## LOW RISK TRT

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First apparatus (engines, trucks, and rescues) are equipped with hand tools, some water rescue equipment, and are trained to arrive on the scene and take appropriate initial actions for technical rescue incidents requiring minimal intervention or until the TRT or an Extrication Unit arrives if needed. For a Low-Risk Incident, the total personnel needed for an effective response force (ERF) is 3 personnel arriving in an Engine or Truck.

**Low risk TRT incidents are considered to be incident types involving motor vehicle accidents that may require gaining access to patients, patient extrication or removal using simple hand tools or other manual means, and providing patient care that can be handled by one engine or truck company.**

## BENCHMARK LOW RISK TRT

For 90 percent of responses to Low Risk TRT incidents, the total response time for the first unit and ERF, staffed with a minimum of 3 personnel, shall be 10 minutes and 33 seconds. The first due unit/ERF shall be capable of establishing command, performing scene size up, provide triage and basic life support (BLS), , ensure safe operations and assume the role of incident safety officer and PAS officer, perform vehicle stabilization using cribbing or similar techniques as well as control any minor hazards, gain access to the patient involved in a motor vehicle accident utilizing hand tools and manual force, and safe removal of the patient from a vehicle.

<b>Critical Task – TRT Low Risk 1<sup>st</sup> Unit &amp; ERF</b>	<b>Minimum Personnel</b>
Command / Scene Size-Up / Safety / Accountability*	1*
Triage / BLS Patient Care	1
Vehicle Stabilization / Extrication using Hand Tools (patient removal)/ Control Minor Hazards	1
Total	3
*Carried out simultaneously with other assignments as needed.	

### **BASELINE LOW RISK TRT**

For 90 percent of responses to Low Risk TRT incidents, the total response time for the first unit and ERF, staffed with a minimum of **3 personnel, is 11 minutes and 06 seconds**. The first due unit/ERF shall be capable of establishing command, performing scene size up, provide triage and basic life support (BLS), ensure safe operations and assume the role of incident safety officer and PAS officer, perform vehicle stabilization using cribbing or similar techniques as well as control any minor hazards, gain access to the patient involved in a motor vehicle accident utilizing hand tools and manual force, and safe removal of the patient from a vehicle.

### **MODERATE RISK TRT**

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**Moderate risk TRT incidents are considered to be incident types involving motor vehicle accidents that require gaining access to patients, patient extrication or removal using hydraulic tools, advanced extrication techniques, and the ability to provide patient care that requires one TRT unit with hydraulic tools and skills as well as the balance of the alarm to provide all critical tasks.** Moderate risk TRT incidents require additional resources beyond that of the initial responding unit such as hydraulic rescue tools that are carried on all trucks, specific engine companies, or TRT Squad units and require specialized technical rescue equipment/knowledge. The effective response force ERF shall be capable of establishing command, performing scene size up, provide triage and basic or advanced life support (BLS/ALS), ensure safe operations and assume the role of incident safety officer and PAS officer, perform vehicle stabilization using cribbing or other techniques as well as control hazards to include fire suppression which would include pump and/or foam operations, 1 ¾” handline rated at 150 GPM capacity from tank water, gain access to patients involved in motor vehicle accidents utilizing

hand tools and manual force, hydraulic extrication tools and advanced techniques, and safe removal of the patient from a vehicle.

#### **BENCHMARK MODERATE RISK TRT**

For 90 percent of responses to Moderate TRT rescue incidents, the total response time for the arrival of the first unit, staffed with a minimum of **3 members, shall be 10 minutes and 49 seconds**. The first due unit shall be capable of establishing command, performing scene size up, provide triage and basic life support (BLS), ensure safe operations and assume the role of incident safety officer and PAS officer, perform vehicle stabilization using cribbing or similar techniques as well as control any minor hazards, gain access to the patient involved in a motor vehicle accident utilizing hand tools and manual force, and safe removal of the patient from a vehicle as possible.

<b>Critical Task – TRT Moderate Risk 1<sup>st</sup> Unit</b>	<b>Minimum Personnel</b>
Command / Scene Size-up / Safety / Accountability*	1*
Triage / BLS Patient Care	1
Vehicle Stabilization / Extrication using Hand Tools (patient removal)	1
Total	3
*Carried out simultaneously with other assignments as needed.	

For 90 percent of responses to Moderate TRT rescue incidents, the total response time for the arrival of the ERF, staffed with a minimum of **11 members, shall be 22 minutes and 47 seconds**. The effective response force ERF shall be capable of establishing command, performing scene size up, provide triage and basic or advanced life support (BLS/ALS), ensure safe operations and assume the role of incident safety officer and PAS officer, perform vehicle stabilization using cribbing or other techniques as well as control hazards to include fire suppression which would include pump and/or foam operations, 1 ¾" handline rated at 150 GPM capacity from tank water, gain access to patients involved in motor vehicle accidents utilizing hand tools and manual force, hydraulic extrication tools and advanced techniques, and safe removal of the patient from a vehicle.

<b>Critical Task – TRT Moderate Risk ERF</b>	<b>Minimum Personnel</b>
Command	1
Scene Size-up	1
Safety	1
Accountability	1
Triage / ALS Patient Care	2
Extrication/disentanglement (hydraulic tools)	2
Vehicle Stabilization	1
Pump Operator	1
Attack line (1 ¾ line minimum with 150 GPM capabilities off tank water)	1
Total	11

### **BASELINE MODERATE RISK TRT**

For 90 percent of responses to Moderate TRT rescue incidents, the total response time for the arrival of the first unit, staffed with a minimum of **3 members, is 11 minutes and 23 seconds.** The first due unit shall be capable of establishing command, performing scene size up, provide triage and basic life support (BLS), ensure safe operations and assume the role of incident safety officer and PAS officer, perform vehicle stabilization using cribbing or similar techniques as well as control any minor hazards, gain access to the patient involved in a motor vehicle accident utilizing hand tools and manual force, and safe removal of the patient from a vehicle as possible

For 90 percent of responses to Moderate TRT rescue incidents, the total response time for the arrival of the ERF, staffed with a minimum of **11 members, is 23 minutes and 59 seconds.** The effective response force ERF shall be capable of establishing command, performing scene size up, provide triage and basic or advanced life support (BLS/ALS), ensure safe operations and assume the role of incident safety officer and PAS officer, perform vehicle stabilization using cribbing or other techniques as well as control hazards to include fire suppression which would include pump and/or foam operations, 1 ¾” handline rated at 150 GPM capacity from tank water, gain access to patients involved in motor vehicle accidents utilizing hand tools and manual force, hydraulic extrication tools and advanced techniques, and safe removal of the patient from a vehicle.

**High risk TRT incidents are considered to be incident types involving High-Angle Rescue, Building & Trench Collapse, Water Rescue, Machinery Extrication, and Confined Space Rescue. These incident types and associated critical tasks are in part governed by policy as outlined in CCFES Policy & Procedure Manual Chapter 6 Field Operations.**

High risk TRT incidents require the tools, training, and personnel of a formal TRT team. The effective response force (ERF) shall be capable of establishing command, performing scene size up, provide triage and basic or advanced life support (BLS/ALS), ensure safe operations and assume the role of incident safety officer and PAS officer, perform scene stabilization using cribbing, rigging, ropes, hydraulic tools, cutting or prying tools, tools for shoring and stabilization; control hazards to include fire suppression which would include pump and/or foam operations, 1 ¾" handline rated at 150 GPM capacity, establish a water supply as needed, and perform rescues from water, trench, structural collapse, high-angle, vehicle or machinery, and confined space requiring specialized training, equipment, and techniques as outlined in the corresponding policy. For a High-Risk incident, the total personnel needed for an ERF is 26 personnel arriving in at least two TRT units.

### **BENCHMARK HIGH RISK TRT**

For 90 percent of responses to Moderate TRT rescue incidents, the total response time for the arrival of the first unit, staffed with a minimum of **3 members, is 10 minutes and 12 seconds**. The first due unit shall be capable of establishing command, performing scene size up, provide triage and basic life support (BLS), ensure safe operations and assume the role of incident safety officer and PAS officer, and perform area stabilization and initial operations as outlined in the corresponding policy.

<b>Critical Task – TRT High Risk 1<sup>st</sup> Unit</b>	<b>Minimum Personnel</b>
Command / Scene Size-up / Safety / Accountability*	1 *
Triage / BLS Patient Care (if safe access)	1
Area Stabilization / Initial Operations as Outlined in	1



Policy	
See Water Rescue Policy	
See Collapse & Trench Policy	
See High-Angle Rescue Policy	
See Machinery Extrication Policy	
See Confined Space Policy	
Total	3
*Carried out simultaneously with other assignments as needed.	

For 90 percent of responses to High Risk TRT rescue incidents, the total response time for the arrival of the effective response force (ERF), staffed with up to 27 members, is 44 minutes and 30 seconds. The effective response force (ERF) shall be capable of establishing command, performing scene size up, provide triage and basic or advanced life support (BLS/ALS), ensure safe operations and assume the role of incident safety officer and PAS officer, perform scene stabilization using cribbing, rigging, ropes, hydraulic tools, cutting or prying tools, tools for shoring and stabilization; control hazards to include fire suppression which would include pump and/or foam operations, 1 ¾” handline rated at 150 GPM capacity, establish a water supply as needed, and perform rescues from water, trench, structural collapse, high-angle, vehicle or machinery, and confined space requiring specialized training, equipment, and techniques as outlined in the corresponding policy. For a High-Risk incident, the total personnel needed for an ERF is up to 27 personnel as outlined in the chart below to include the arrival of two TRT units and the balance of the alarm.

Critical Task – TRT High Risk ERF	Minimum Personnel
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Command	1*
Scene Size-up	1*
Safety	1
Accountability	1
Triage / BLS Patient Care / Medical Monitoring	2
High-Angle Rescue (High-Angle Policy 6-13)	
Pre-Rescue Operations (Area Safety & Pre-Rescue/Recovery)	3
Rescue Group	6
Collapse Rescue (Structural Collapse Policy 6-18)	
Staging	1
Traffic Control	1
Extinguishment (Attack lines, pump operator & water supply)	6
Search Teams	4
Area Stabilization	6
Machinery Extrication Policy 6-15	
Electrical Lockout & Tagout	1
Device Lockout	1
Machinery Extrication Group	6
Group Supervisor	1
ALS Patient Care	2
Extinguishment Standby	1
Confined Space Policy 6-17	
Communications	1
Atmospheric Monitoring	1
Rescue Attendant	1
Rescue Team Lead	1
IDLH Entry Team	1

IDLH Standby Team	1
Lockout & Tagout	1
Ventilation	1
ALS Patient Care	2
Trench Rescue Policy 6-2	
Staging Area & Officer	1
Control Traffic & Surrounding Activities	1
Establish Safety Zone Around Trench	1
Gather Information from Site Supervisor	1
Dress Trench Lip & Clear Hazards	4
Rescue Leader	1
Rescue Group – IDLH Entry Team	2
Rescue Group – IDLH Standby Team	2
Ventilation	1
Atmospheric Monitoring	1
ALS Patient Care	2
Swift Water Rescue Policy 6-29	
Staging Area & Officer	1
Secure General Area	1
Upstream Safety	1
Non-Entry Rescues	2
Hasty/Search Team	2
River Left Rescue Group	3
River Right Rescue Group	3
Down Stream Safety	3
Live-Bait or Go In-Water Rescuer or Team	3
Boat Rescue Team	3
Medical Monitoring Officer	1

ERF TOTALS	
High-Angle Rescue ERF Total	13
Collapse Rescue Total	22
Machinery Extrication ERF Total	16
Confined Space ERF Total	14
Trench Rescue ERF Total	21
Swift Water Rescue ERF Total	27

### **BASELINE HIGH RISK TRT**

For 90 percent of responses to High TRT rescue incidents, the total response time for the arrival of the first-due unit, staffed with a minimum of 3 members, is 10 minutes and 44 seconds. The first due unit shall be capable of establishing command, performing scene size up, provide triage and basic life support (BLS), ensure safe operations and assume the role of incident safety officer and PAS officer, and perform area stabilization and initial operations as outlined in the corresponding policy.

For 90 percent of responses to High TRT rescue incidents, the total response time for the arrival of the effective response force (ERF), staffed with up to 27 members, is 46 minutes and 51 seconds. The effective response force (ERF) shall be capable of establishing command, performing scene size up, provide triage and basic or advanced life support (BLS/ALS), ensure safe operations and assume the role of incident safety officer and PAS officer, perform scene stabilization using cribbing, rigging, ropes, hydraulic tools, cutting or prying tools, tools for shoring and stabilization; control hazards to include fire suppression which would include pump and/or foam operations, 1 ¾" handline rated at 150 GPM capacity, establish a water supply as needed, and perform rescues from water, trench, structural collapse, high-angle, vehicle or machinery, and confined space requiring specialized training, equipment, and techniques as outlined in the corresponding policy. For a High-Risk incident, the total personnel needed for an ERF is 13-27 personnel as outlined in the chart below to include the arrival of two TRT units and the balance of the alarm.

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## RESPONSE TIME PERFORMANCE

Cobb County is an urban county with regards to population density. CCFES provides a tiered response within each service area. Each tier is outlined below. CCFES' current benchmarks represent 5% improvement of the five year baseline performance.

Prior to establishing baseline performance, the data needs to be cleaned to remove statistical outliers. CCFES defines a statistical outlier as data which has a z-score greater than 3 or less than -3 ( $|zscore|$ ). CCFES removes non-emergency responses, exposures, mutual-aid responses, and response times with a NULL value. CCFES does not rely on mutual aid to complete the ERF.

Several factors affect response times that are beyond the control of responders and dispatchers. When responding to reported structure fires, unless valid information exists confirming a working fire, only the first-in unit responds in an emergency mode; all other dispatched equipment responds with the flow of traffic unless further information dictates otherwise. This proactive response to risk management has worked very well in keeping our response related accidents to a minimum.

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## TIME COMPONENTS

In Cobb County, all calls originate from the Cobb County 911 Center, which serves as the public safety answering point (PSAP) for unincorporated Cobb County and the city of Marietta. The cities of Kennesaw, Acworth, Austell, and Smyrna have their own 911 center. All calls for Fire or EMS service handled by CCFES are forwarded to Cobb 911.

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

- Alarm handling/processing - begins after the dispatcher has received the call and ends when they begin 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).

- 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 time elapsed between the call-answer-time and first arrival

The target 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 fire department management with the full support of the County Manager and Board of Commissioners.

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## BASELINE VS BENCHMARK

Before measuring baseline emergency responses, statistical outliers were removed, as well as all non-emergency responses, mutual aid assistance, exposures, and NULL time values. Per policy, not all units respond emergency to all calls; for structure fires, only the first unit responds emergency unless there are multiple callers, or the battalion chief tells them to.

Upgrades and downgrades 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 CCFES 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. For example, if a unit were cancelled, the arrival time would be equal to NULL because it never happened.

Below is a summary of the performance of all categories as compared to their respective benchmarks. The number of incidents can be found at the top of each category along with each individual time component breakdown and the over/under against the benchmark. Some included categories do not have enough incidents to be statistically significant and are denoted with a “^” symbol. They are included for completeness only.

Detailed performance charts follow the summary. They show 90<sup>th</sup> percentile times for all time components with a five-year historical reference. Some categories do not have enough incidents for statistical relevance/analysis.

Following the detailed performance charts are heat maps indicating where calls are concentrated that exceed the benchmarks for first due unit and ERF response time and may represent areas that need attention.

### Response Performance Charts: Benchmark\* vs Baseline 2020\*\*

<b>EMS/Low</b> N (First Unit Arrivals)= 7587				<b>EMS/Mod</b> N (First Unit Arrivals)= 2707				<b>FIRE/High</b> N (First Unit Arrivals)= 64			
	Benchmark*	2020 Baseline**	Over/Under		Benchmark*	2020 Baseline**	Over/Under		Benchmark*	2020 Baseline**	Over/Under
Alarm Handling	0:02:00	0:02:53	0:00:53	Alarm Handling	0:02:00	0:02:51	0:00:51	Alarm Handling	0:02:00	0:03:13	0:01:13
First TurnOut	0:02:00	0:01:25	0:00:35	First TurnOut	0:02:00	0:01:24	0:00:36	First TurnOut	0:02:00	0:01:33	0:00:27
First Travel	0:07:35	0:08:17	0:00:42	First Travel	0:07:29	0:08:09	0:00:40	First Travel	0:07:17	0:06:43	0:00:34
First Total	0:09:53	0:11:11	0:01:18	First Total	0:09:46	0:11:03	0:01:17	First Total	0:09:58	0:10:34	0:00:36
ERF Travel	0:07:35	0:08:17	0:00:42	ERF Travel	0:08:01	0:08:37	0:00:36	ERF Travel	0:14:54	0:12:48	0:02:06
ERF Total	0:09:53	0:11:11	0:01:18	ERF Total	0:10:51	0:11:49	0:00:58	ERF Total	0:21:42	0:15:56	0:05:46
<b>FIRE/Low</b> N (First Unit Arrivals)= 516				<b>FIRE/Mod</b> N (First Unit Arrivals)= 118							
	Benchmark*	2020 Baseline**	Over/Under		Benchmark*	2020 Baseline**	Over/Under		Benchmark*	2020 Baseline**	Over/Under
Alarm Handling	0:02:00	0:03:02	0:01:02	Alarm Handling	0:02:00	0:02:28	0:00:28	Alarm Handling	0:02:00	0:01:14	0:00:46
First TurnOut	0:02:00	0:01:21	0:00:39	First TurnOut	0:02:00	0:01:29	0:00:31	First TurnOut	0:02:00	0:01:32	0:00:28
First Travel	0:07:38	0:07:49	0:00:11	First Travel	0:07:31	0:07:54	0:00:23	First Travel	0:07:43	0:06:44	0:00:59
First Total	0:10:54	0:11:11	0:00:17	First Total	0:09:20	0:10:04	0:00:44	First Total	0:12:39	0:09:30	0:03:09
ERF Travel	0:07:38	0:07:49	0:00:11	ERF Travel	0:11:54	0:12:24	0:00:30	ERF Travel	0:31:26	0:20:10	0:11:16
ERF Total	0:10:54	0:11:11	0:00:17	ERF Total	0:15:02	0:15:29	0:00:27	ERF Total	0:59:27	0:49:43	0:09:44
<b>HZMT/Low</b> N (First Unit Arrivals)= 305				<b>HZMT/Mod^</b> N (First Unit Arrivals)= 7				<b>HZMT/High^</b> N (First Unit Arrivals)= 1			
	Benchmark*	2020 Baseline**	Over/Under		Benchmark*	2020 Baseline**	Over/Under		Benchmark*	2020 Baseline**	Over/Under
Alarm Handling	0:02:00	0:03:00	0:01:00	Alarm Handling	0:02:00	0:03:38	0:01:38	Alarm Handling	0:02:00	0:01:14	0:00:46
First TurnOut	0:02:00	0:01:24	0:00:36	First TurnOut	0:02:00	0:01:40	0:00:20	First TurnOut	0:02:00	0:01:32	0:00:28
First Travel	0:09:26	0:11:20	0:01:54	First Travel	0:07:43	0:14:07	0:06:24	First Travel	0:07:43	0:06:44	0:00:59
First Total	0:12:39	0:14:13	0:01:34	First Total	0:12:39	0:17:32	0:04:53	First Total	0:12:39	0:09:30	0:03:09
ERF Travel	0:09:26	0:11:20	0:01:54	ERF Travel	0:31:26	0:28:00	0:03:26	ERF Travel	0:31:26	0:20:10	0:11:16
ERF Total	0:12:39	0:14:13	0:01:34	ERF Total	0:59:27	1:08:45	0:09:18	ERF Total	0:59:27	0:49:43	0:09:44
<b>TRT/Low</b> N (First Unit Arrivals)= 1085				<b>TRT/Mod</b> N (First Unit Arrivals)= 73				<b>TRT/High^</b> N (First Unit Arrivals)= 1			
	Benchmark*	2020 Baseline**	Over/Under		Benchmark*	2020 Baseline**	Over/Under		Benchmark*	2020 Baseline**	Over/Under
Alarm Handling	0:02:00	0:03:32	0:01:32	Alarm Handling	0:02:00	0:03:27	0:01:27	Alarm Handling	0:02:00	0:02:10	0:00:10
First TurnOut	0:02:00	0:01:20	0:00:40	First TurnOut	0:02:00	0:01:26	0:00:34	First TurnOut	0:02:00	0:00:46	0:01:14
First Travel	0:07:57	0:07:56	0:00:01	First Travel	0:08:54	0:08:24	0:00:30	First Travel	0:04:59	0:04:46	0:00:13
First Total	0:11:00	0:11:24	0:00:24	First Total	0:11:56	0:12:15	0:00:19	First Total	0:09:15	0:07:42	0:01:33
ERF Travel	0:07:57	0:07:56	0:00:01	ERF Travel	0:18:12	0:14:37	0:03:35	ERF Travel	0:21:17	0:28:07	0:06:50
ERF Total	0:11:00	0:11:24	0:00:24	ERF Total	0:23:20	0:22:47	0:00:33	ERF Total	0:26:24	0:40:20	0:13:56

\* 95% of 2019 Baseline values ( target 5% improvement); AH/Turnout currently 2 min

\*\* 2020 Baseline per RPC (Response Performance Charts) process

^Not enough data to be statistically valid

Hzmt High currently set same bench as Hzmt/Mod

## FIRE PERFORMANCE

### Low Risk Performance

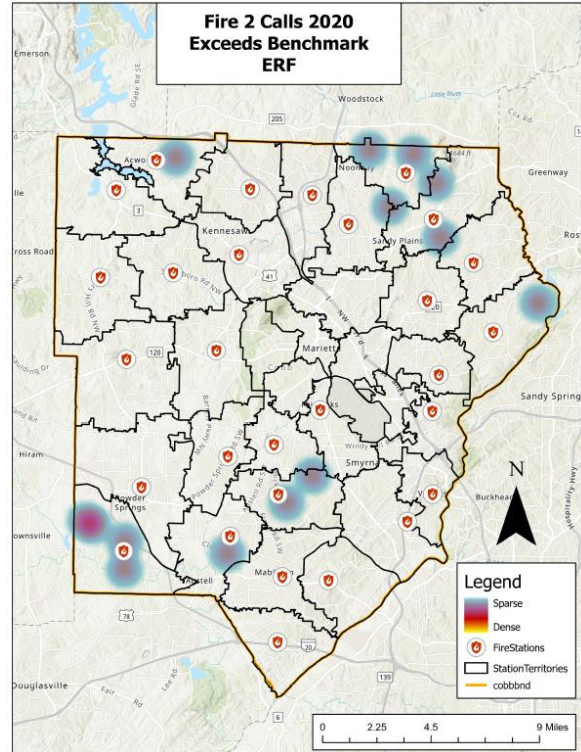
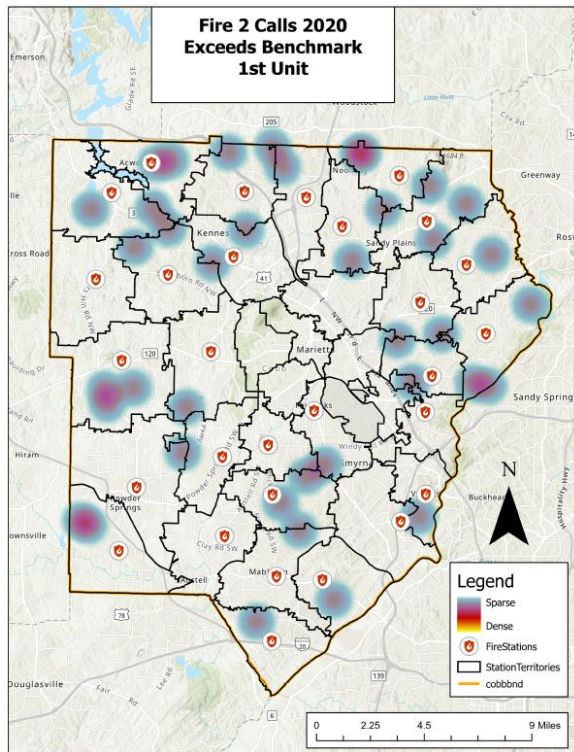
(Low Risk) Fire Suppression - 90th Percentile Times - Baseline Performance			2016- 2020	2020	2019	2018	2017	2016
<b>Alarm Handling</b>	Pick-up to Dispatch	Urban	02:40	03:02	03:02	02:51	02:07	02:22
		Rural	N/A	N/A	N/A	N/A	N/A	N/A
<b>Turnout Time</b>	Turnout Time 1st Unit	Urban	01:28	01:21	01:19	01:26	01:30	01:37
		Rural	N/A	N/A	N/A	N/A	N/A	N/A
<b>Travel Time</b>	Travel Time 1st Unit <b>Distribution</b>	Urban	08:01	07:49	08:02	08:46	08:09	07:49
		Rural	N/A	N/A	N/A	N/A	N/A	N/A
	Travel Time ERF <b>Concentration</b>	Urban	08:01	07:49	08:02	08:46	08:09	07:49
		Rural	N/A	N/A	N/A	N/A	N/A	N/A
<b>Total Response Time</b>	Total Response Time 1st Unit on Scene <b>Distribution</b>	Urban	11:04	11:11	11:28	11:22	10:50	10:35
			N=2885	N=516	N=659	N=154	N=657	N=899
		Rural	N/A	N/A	N/A	N/A	N/A	N/A
			N/A	N/A	N/A	N/A	N/A	N/A
	Total Response Time ERF <b>Concentration</b>	Urban	11:04	11:11	11:28	11:22	10:50	10:35
			N=2885	N=516	N=659	N=154	N=657	N=899
		Rural	N/A	N/A	N/A	N/A	N/A	N/A
			N/A	N/A	N/A	N/A	N/A	N/A



## Moderate Risk Performance

(Moderate Risk) Fire Suppression - 90th Percentile Times - Baseline Performance			2016-2020	2020	2019	2018	2017	2016
<b>Alarm Handling</b>	Pick-up to Dispatch	Urban	02:08	02:28	02:20	02:17	01:53	01:54
		Rural	N/A	N/A	N/A	N/A	N/A	N/A
<b>Turnout Time</b>	Turnout Time 1st Unit	Urban	01:31	01:29	01:34	01:32	01:20	01:37
		Rural	N/A	N/A	N/A	N/A	N/A	N/A
<b>Travel Time</b>	Travel Time 1st Unit Distribution	Urban	07:41	07:54	07:55	08:23	07:33	07:17
		Rural	N/A	N/A	N/A	N/A	N/A	N/A
	Travel Time ERF Concentration	Urban	13:26	12:24	12:32	13:32	13:46	13:42
		Rural	N/A	N/A	N/A	N/A	N/A	N/A
<b>Total Response Time</b>	Total Response Time 1st Unit on Scene Distribution	Urban	09:57	10:04	09:49	10:24	09:37	09:29
			N=639	N=118	n=122	n=67	n=153	n=179
		Rural	N/A	N/A	N/A	N/A	N/A	N/A
			N/A	N/A	N/A	N/A	N/A	N/A
	Total Response Time ERF Concentration	Urban	16:24	15:29	15:49	17:01	16:23	18:37
			N=401	N=74	n=82	n=35	n=96	n=114
		Rural	N/A	N/A	N/A	N/A	N/A	N/A
			N/A	N/A	N/A	N/A	N/A	N/A

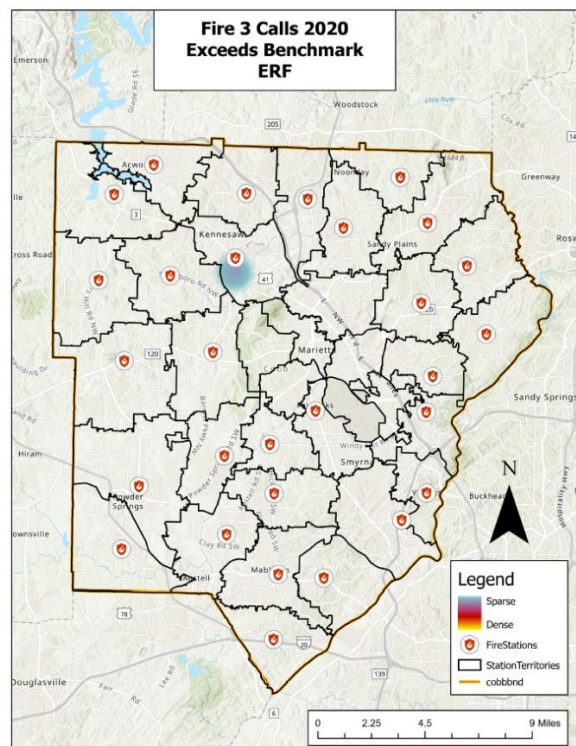
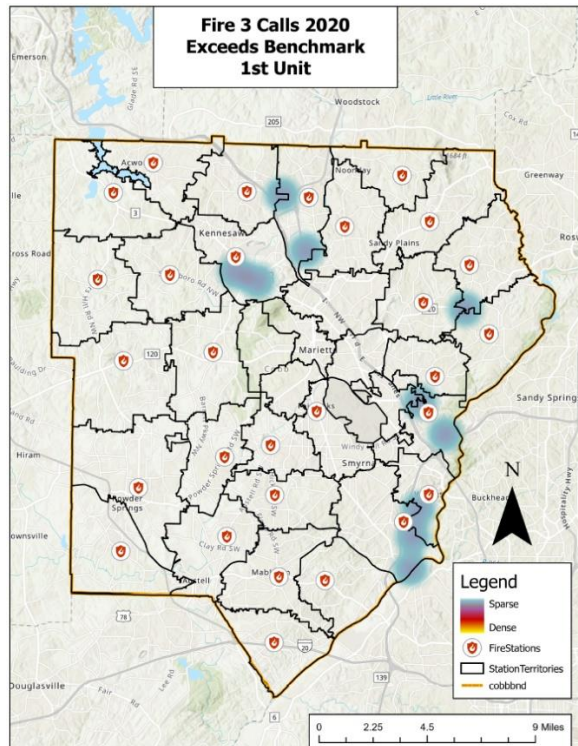
## Service Gaps – Heat Map



## High Risk Performance

(High Risk) Fire Suppression - 90th Percentile Times - Baseline Performance			2016-2020	2020	2019	2018	2017	2016
Alarm Handling	Pick-up to Dispatch	Urban	02:39	03:13	02:59	02:57	02:15	02:03
		Rural	N/A	N/A	N/A	N/A	N/A	N/A
Turnout Time	Turnout Time 1st Unit	Urban	01:34	01:33	01:29	01:46	01:32	01:33
		Rural	N/A	N/A	N/A	N/A	N/A	N/A
Travel Time	Travel Time 1st Unit Distribution	Urban	07:57	06:43	07:40	09:20	07:27	07:28
		Rural	N/A	N/A	N/A	N/A	N/A	N/A
	Travel Time ERF Concentration	Urban	15:16	12:48	15:41	16:32	16:07	15:03
		Rural	N/A	N/A	N/A	N/A	N/A	N/A
Total Response Time	Total Response Time 1st Unit on Scene Distribution	Urban	10:36	10:34	10:29	11:36	10:09	09:43
			N=297	N=64	n=63	n=40	n=55	n=75
		Rural	N/A	N/A	N/A	N/A	N/A	N/A
			N/A	N/A	N/A	N/A	N/A	N/A
	Total Response Time ERF Concentration	Urban	20:02	15:56	22:50	21:26	24:20	18:26
			N=125	N=26	n=28	n=19	n=23	n=29
		Rural	N/A	N/A	N/A	N/A	N/A	N/A
			N/A	N/A	N/A	N/A	N/A	N/A

## Service Gaps – Heat Maps

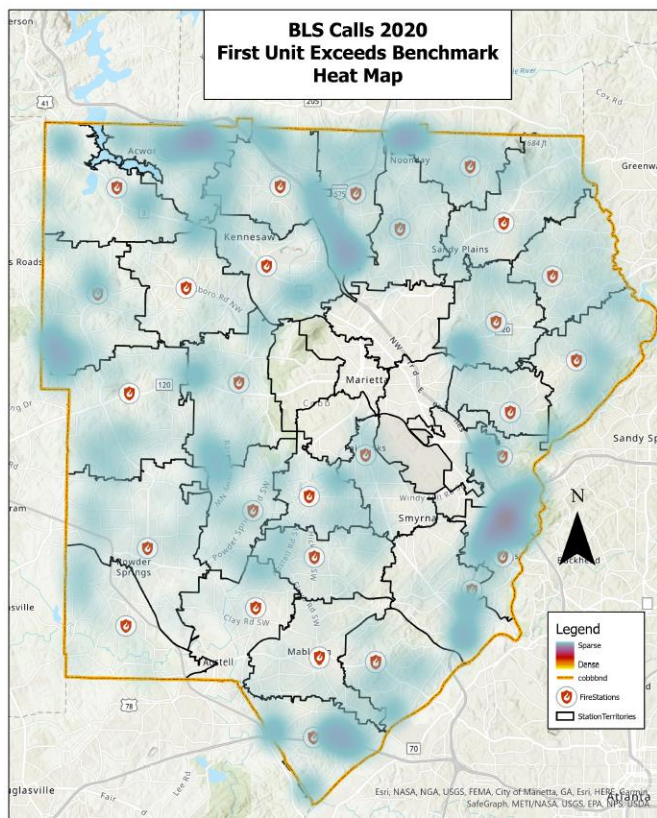


## EMS PERFORMANCE

### Low Risk BLS

(Low Risk - BLS) EMS - 90 <sup>th</sup> Percentile Times - Baseline Performance			2016-2020	2020	2019	2018	2017	2016
<b>Alarm Handling</b>	Pick-up to Dispatch	Urban	02:11	02:53	02:00	01:59	01:58	02:00
		Rural	N/A	N/A	N/A	N/A	N/A	N/A
<b>Turnout Time</b>	Turnout Time 1st Unit	Urban	01:29	01:25	01:27	01:28	01:27	01:33
		Rural	N/A	N/A	N/A	N/A	N/A	N/A
<b>Travel Time</b>	Travel Time 1st Unit <b>Distribution</b>	Urban	07:57	08:17	07:59	08:04	07:50	07:43
		Rural	N/A	N/A	N/A	N/A	N/A	N/A
	Travel Time ERF <b>Concentration</b>	Urban	07:57	08:17	07:59	08:04	07:50	07:43
		Rural	N/A	N/A	N/A	N/A	N/A	N/A
<b>Total Response Time</b>	Total Response Time 1st Unit on Scene <b>Distribution</b>	Urban	10:29	11:11	10:24	10:29	10:15	10:14
			N=40884	N=7589	N=9212	N=2273	N=10229	N=11581
		Rural	N/A	N/A	N/A	N/A	N/A	N/A
			N/A	N/A	N/A	N/A	N/A	N/A
	Total Response Time ERF <b>Concentration</b>	Urban	10:29	11:11	10:24	10:29	10:15	10:14
			N=40884	N=7589	N=9212	N=2273	N=10229	N=11581
		Rural	N/A	N/A	N/A	N/A	N/A	N/A
			N/A	N/A	N/A	N/A	N/A	N/A

## BLS Service Gaps – Heat Map

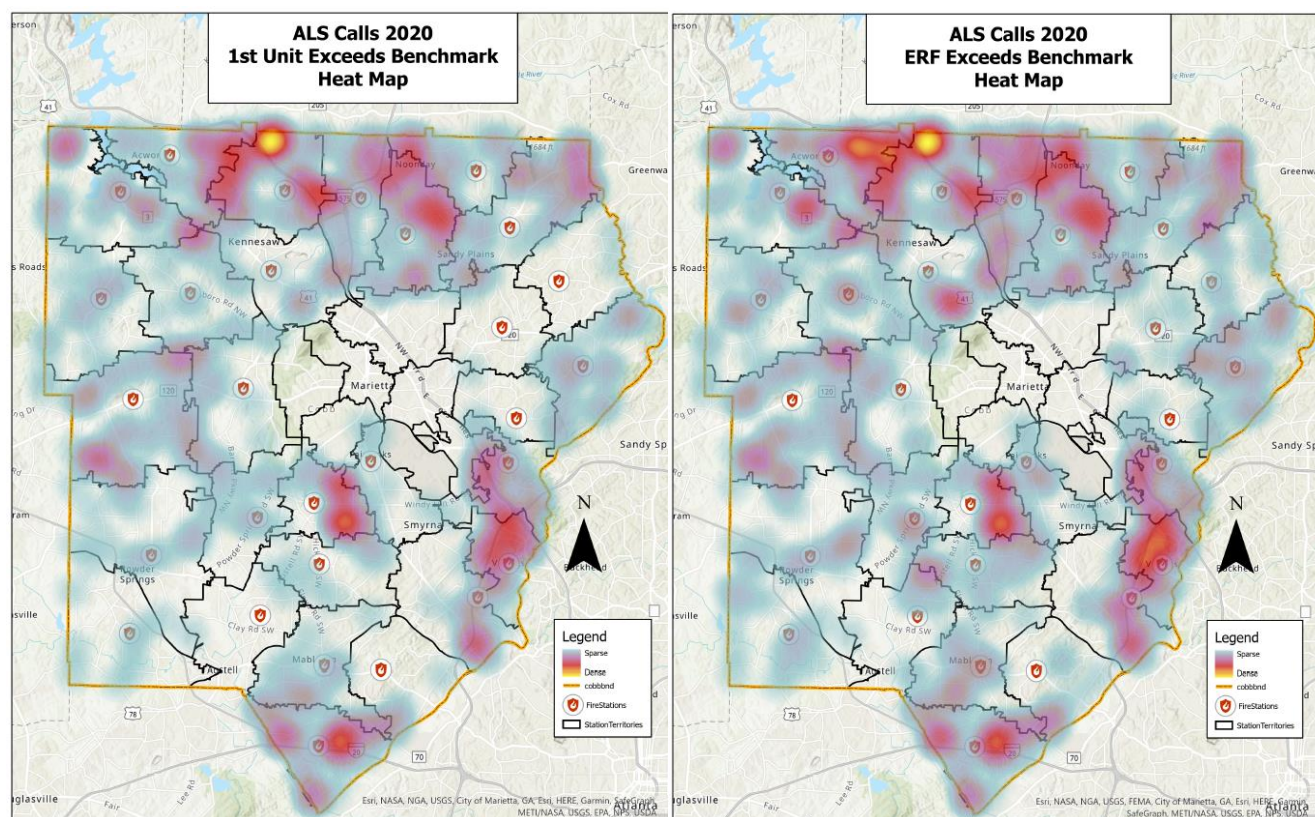


## Moderate Risk

(Moderate Risk - ALS) EMS - 90 <sup>th</sup> Percentile Times - Baseline Performance			2016-2020	2020	2019	2018	2017	2016
<b>Alarm Handling</b>	Pick-up to Dispatch	Urban	02:03	02:51	01:49	01:52	01:50	01:50
		Rural	N/A	N/A	N/A	N/A	N/A	N/A
<b>Turnout Time</b>	Turnout Time 1st Unit	Urban	01:24	01:24	01:24	01:24	01:19	01:28
		Rural	N/A	N/A	N/A	N/A	N/A	N/A
<b>Travel Time</b>	Travel Time 1st Unit <b>Distribution</b>	Urban	07:49	08:09	07:53	07:57	07:42	07:31
		Rural	N/A	N/A	N/A	N/A	N/A	N/A
	Travel Time ERF <b>Concentration</b>	Urban	08:23	08:37	08:26	08:29	08:21	08:05
		Rural	N/A	N/A	N/A	N/A	N/A	N/A
<b>Total Response Time</b>	Total Response Time 1st Unit on Scene <b>Distribution</b>	Urban	10:21	11:03	10:17	10:25	10:10	10:01
			N=13312	N=2707	N=2944	N=831	N=3478	N=3352
		Rural	N/A	N/A	N/A	N/A	N/A	N/A
			N/A	N/A	N/A	N/A	N/A	N/A
	Total Response Time ERF <b>Concentration</b>	Urban	11:31	11:49	11:25	11:22	11:30	11:20
			N=12258	N=2522	N=2686	N=749	N=3220	N=3081
		Rural	02:03	02:51	01:49	01:52	01:50	01:50
			N/A	N/A	N/A	N/A	N/A	N/A



## Service Gaps – Heat Map





## High Risk EMS MCI

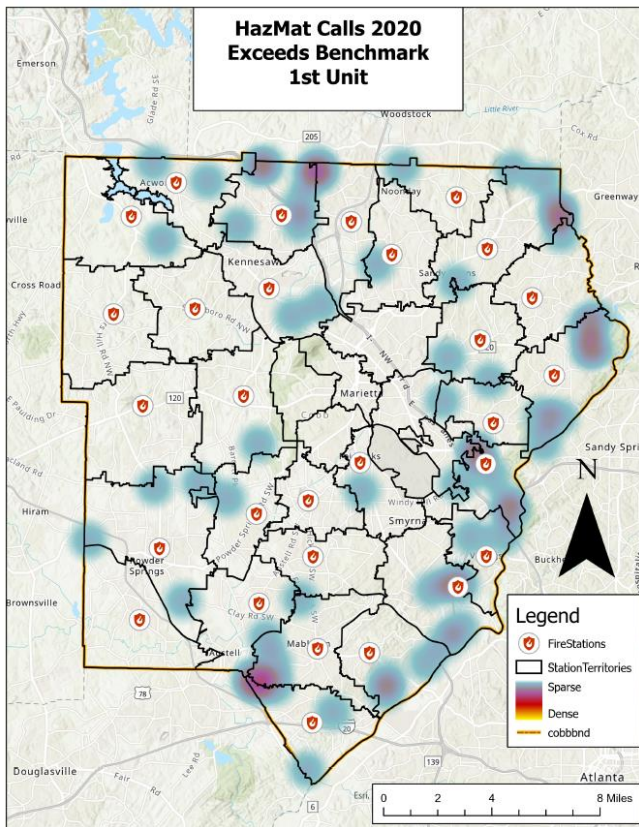
(High Risk - MCI) 90 <sup>th</sup> Percentile Times - Baseline Performance			2016-2020	2020	2019	2018	2017	2016
<b>Alarm Handling</b>	Pick-up to Dispatch	Urban	0:04:38	0:02:49	0:01:15	0:05:54	0:03:54	0:01:32
		Rural	N/A	N/A	N/A	N/A	N/A	N/A
<b>Turnout Time</b>	Turnout Time 1st Unit	Urban	0:01:03	0:00:27	0:01:13	0:00:59	0:00:11	0:00:47
		Rural	N/A	N/A	N/A	N/A	N/A	N/A
<b>Travel Time</b>	Travel Time 1st Unit <b>Distribution</b>	Urban	0:07:53	0:06:42	0:07:16	0:07:29	0:01:50	0:05:27
		Rural	N/A	N/A	N/A	N/A	N/A	N/A
	Travel Time ERF <b>Concentration</b>	Urban	0:21:50	0:13:44	0:32:41	0:17:42		0:09:22
		Rural	N/A	N/A	N/A	N/A	N/A	N/A
<b>Total Response Time</b>	Total Response Time 1st Unit on Scene <b>Distribution</b>	Urban	0:10:55	0:09:33	0:08:23	0:12:45	0:05:55	0:07:47
			21	6	6	7	1	1
		Rural	N/A	N/A	N/A	N/A	N/A	N/A
			N/A	N/A	N/A	N/A	N/A	N/A
	Total Response Time ERF <b>Concentration</b>	Urban	0:22:25	0:16:47	0:33:12	0:20:47		0:10:54
			11	3	4	3	0	1
		Rural	N/A	N/A	N/A	N/A	N/A	N/A
			N/A	N/A	N/A	N/A	N/A	N/A

## HAZMAT PERFORMANCE

### Hazmat - Low Risk

(Low Risk - Hazmat) 90 <sup>th</sup> Percentile Times - Baseline Performance			2016-2020	2020	2019	2018	2017	2016
Alarm Handling	Pick-up to Dispatch	Urban	03:00	03:00	03:05	03:06	02:59	02:52
		Rural	N/A	N/A	N/A	N/A	N/A	N/A
Turnout Time	Turnout Time 1st Unit	Urban	01:23	01:24	01:24	01:13	01:16	01:24
		Rural	N/A	N/A	N/A	N/A	N/A	N/A
Travel Time	Travel Time 1st Unit Distribution	Urban	10:18	11:20	09:56	10:12	10:41	09:58
		Rural	N/A	N/A	N/A	N/A	N/A	N/A
	Travel Time ERF Concentration	Urban	10:18	11:20	09:56	10:12	10:41	09:58
		Rural	N/A	N/A	N/A	N/A	N/A	N/A
Total Response Time	Total Response Time 1st Unit on Scene Distribution	Urban	13:42	14:13	13:19	13:29	13:55	12:46
			N=1339	N=305	N=340	N=74	N=266	N=354
		Rural	N/A	N/A	N/A	N/A	N/A	N/A
			N/A	N/A	N/A	N/A	N/A	N/A
	Total Response Time ERF Concentration	Urban	13:42	14:13	13:19	13:29	13:55	12:46
			N=1339	N=305	N=340	N=74	N=266	N=354
		Rural	N/A	N/A	N/A	N/A	N/A	N/A
			N/A	N/A	N/A	N/A	N/A	N/A

## Service Gaps – Heat Maps



There are not enough Moderate/High Risk Hazmat incidents for response performance to be statistically valid (N<10).

### Hazmat - Moderate Risk

(Moderate Risk - Hazmat) 90 <sup>th</sup> Percentile Times - Baseline Performance			2016-2020	2020	2019	2018	2017	2016
<b>Alarm Handling</b>	Pick-up to Dispatch	Urban	04:19	03:38	05:25	03:43	09:30	03:51
		Rural	N/A	N/A	N/A	N/A	N/A	N/A
<b>Turnout Time</b>	Turnout Time 1st Unit	Urban	01:50	01:40	01:50	00:39	01:17	01:42
		Rural	N/A	N/A	N/A	N/A	N/A	N/A
<b>Travel Time</b>	Travel Time 1st Unit <b>Distribution</b>	Urban	10:05	14:07	08:07	09:06	11:45	07:34
		Rural	N/A	N/A	N/A	N/A	N/A	N/A
	Travel Time ERF <b>Concentration</b>	Urban	33:47	28:00	33:05	46:45	34:50	27:06
		Rural	N/A	N/A	N/A	N/A	N/A	N/A
<b>Total Response Time</b>	Total Response Time 1st Unit on Scene <b>Distribution</b>	Urban	18:56	17:32	18:49	11:11	20:35	13:06
			N=30	N=7	N=11	N=3	N=7	N=2
		Rural	N/A	N/A	N/A	N/A	N/A	N/A
			N/A	N/A	N/A	N/A	N/A	N/A
	Total Response Time ERF <b>Concentration</b>	Urban	1:08:08	1:08:45	1:02:35	1:13:43	57:14	38:08
			N=30	N=7	N=11	N=3	N=7	N=2
		Rural	N/A	N/A	N/A	N/A	N/A	N/A
			N/A	N/A	N/A	N/A	N/A	N/A

## Hazmat - High Risk

(High Risk - Hazmat) 90 <sup>th</sup> Percentile Times - Baseline Performance			2016-2020	2020	2019	2018	2017	2016
Alarm Handling	Pick-up to Dispatch	Urban	01:37	01:14		01:38	01:34	
		Rural	N/A	N/A	N/A	N/A	N/A	N/A
Turnout Time	Turnout Time 1st Unit	Urban	01:30	01:32		00:14	01:21	
		Rural	N/A	N/A	N/A	N/A	N/A	N/A
Travel Time	Travel Time 1st Unit Distribution	Urban	08:54	06:44		09:26	04:40	
		Rural	N/A	N/A	N/A	N/A	N/A	N/A
	Travel Time ERF Concentration	Urban	29:10	20:10		30:21	24:25	
		Rural	N/A	N/A	N/A	N/A	N/A	N/A
Total Response Time	Total Response Time 1st Unit on Scene Distribution	Urban	10:27	09:30		10:41	07:35	
			N=3	N=1	N=0	N=1	N=1	N=0
		Rural	N/A	N/A	N/A	N/A	N/A	N/A
			N/A	N/A	N/A	N/A	N/A	N/A
	Total Response Time ERF Concentration	Urban	1:25:03	49:43		44:35	1:33:53	
			N=3	N=1	N=0	N=1	N=1	N=0
		Rural	N/A	N/A	N/A	N/A	N/A	N/A
			N/A	N/A	N/A	N/A	N/A	N/A

## TRT PERFORMANCE

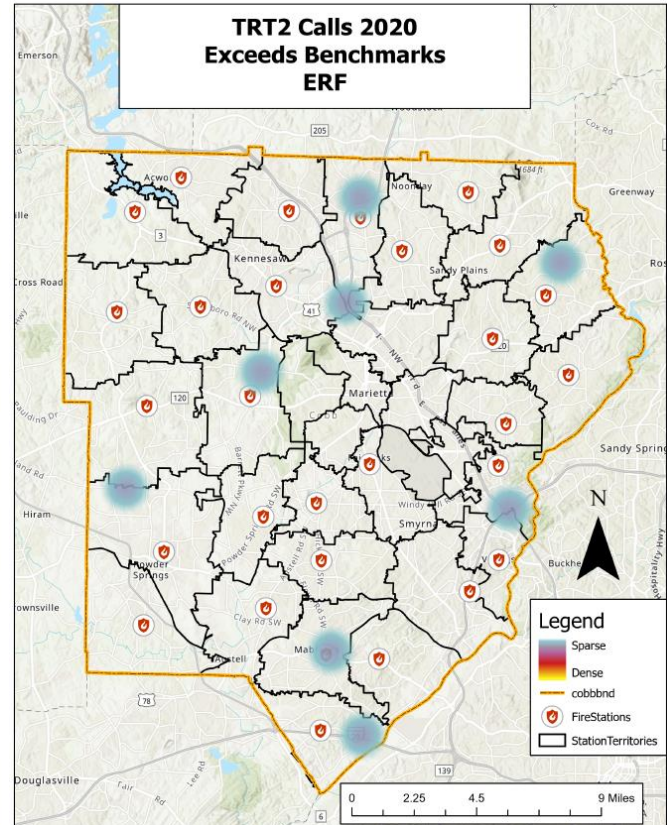
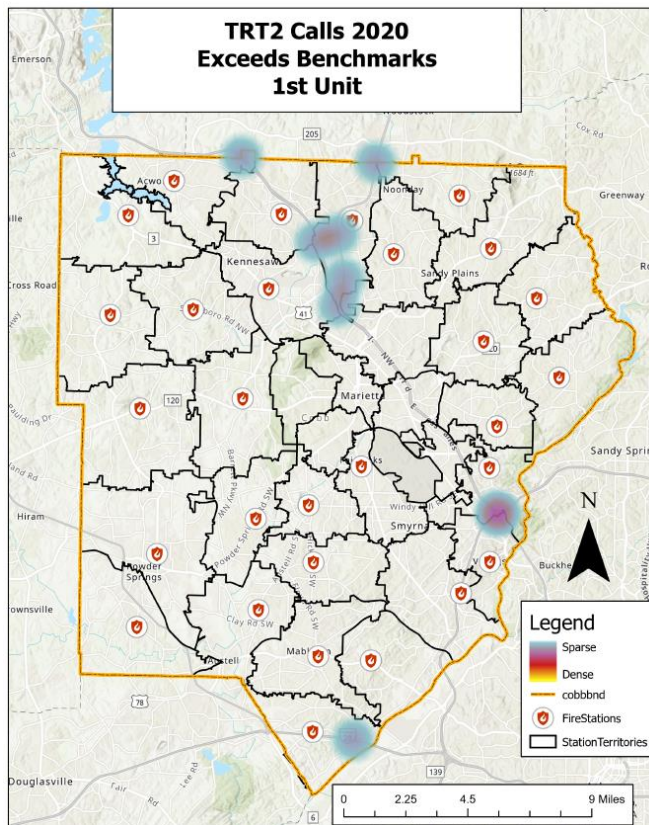
### Technical Rescue - Low Risk

(Moderate Risk) Technical Rescue - 90th Percentile Times - Baseline Performance			2016-2020	2020	2019	2018	2017	2016
Alarm Handling	Pick-up to Dispatch	Urban	03:32	03:14	03:18	02:37	02:32	03:32
		Rural	N/A	N/A	N/A	N/A	N/A	N/A
Turnout Time	Turnout Time 1st Unit	Urban	01:20	01:20	01:22	01:20	01:27	01:20
		Rural	N/A	N/A	N/A	N/A	N/A	N/A
Travel Time	Travel Time 1st Unit Distribution	Urban	07:56	08:22	07:46	08:17	07:37	07:56
		Rural	N/A	N/A	N/A	N/A	N/A	N/A
	Travel Time ERF Concentration	Urban	08:05	07:56	08:22	07:46	08:17	07:37
		Rural	N/A	N/A	N/A	N/A	N/A	N/A
Total Response Time	Total Response Time 1st Unit on Scene Distribution	Urban	11:06	11:24	11:35	11:00	10:58	10:27
			N=5999	N=1086	N=1360	N=373	N=1480	N=1700
		Rural	N/A	N/A	N/A	N/A	N/A	N/A
			N/A	N/A	N/A	N/A	N/A	N/A
	Total Response Time ERF Concentration	Urban	11:06	11:24	11:35	11:00	10:58	10:27
			N=5999	N=1086	N=1360	N=373	N=1480	N=1700
		Rural	N/A	N/A	N/A	N/A	N/A	N/A
			N/A	N/A	N/A	N/A	N/A	N/A

## Technical Rescue – Moderate Risk

(Moderate Risk) Technical Rescue - 90th Percentile Times - Baseline Performance			2016-2020	2020	2019	2018	2017	2016
<b>Alarm Handling</b>	Pick-up to Dispatch	Urban	03:01	03:27	02:37	03:21	02:14	02:10
		Rural	N/A	N/A	N/A	N/A	N/A	N/A
<b>Turnout Time</b>	Turnout Time 1st Unit	Urban	01:28	01:26	01:28	01:35	01:18	01:37
		Rural	N/A	N/A	N/A	N/A	N/A	N/A
<b>Travel Time</b>	Travel Time 1st Unit Distribution	Urban	08:10	08:24	09:22	07:21	07:30	06:36
		Rural	N/A	N/A	N/A	N/A	N/A	N/A
	Travel Time ERF Concentration	Urban	15:50	14:37	19:10	15:31	16:59	14:03
		Rural	N/A	N/A	N/A	N/A	N/A	N/A
<b>Total Response Time</b>	Total Response Time 1st Unit on Scene Distribution	Urban	11:23	12:15	12:34	10:31	09:52	09:53
			N=301	N=73	N=71	N=26	N=63	N=68
		Rural	N/A	N/A	N/A	N/A	N/A	N/A
			N/A	N/A	N/A	N/A	N/A	N/A
	Total Response Time ERF Concentration	Urban	23:59	22:47	24:35	25:56	25:33	20:04
			N=275	N=72	N=70	N=26	N=51	N=56
		Rural	N/A	N/A	N/A	N/A	N/A	N/A
			N/A	N/A	N/A	N/A	N/A	N/A

## Service Gaps – Heat Maps





There are not enough High Risk TRT incidents for response performance to be statistically valid (N<10).

### Technical Rescue – High Risk

(High Risk) Technical Rescue - 90th Percentile Times - Baseline Performance			2016- 2020	2020	2019	2018	2017	2016
Alarm Handling	Pick-up to Dispatch	Urban	02:49	02:10	03:20	00:52	02:10	02:01
		Rural	N/A	N/A	N/A	N/A	N/A	N/A
Turnout Time	Turnout Time 1st Unit	Urban	01:24	00:46	00:11	00:14	01:11	01:49
		Rural	N/A	N/A	N/A	N/A	N/A	N/A
Travel Time	Travel Time 1st Unit Distribution	Urban	08:18	04:46	05:15	05:17	08:44	08:10
		Rural	N/A	N/A	N/A	N/A	N/A	N/A
	Travel Time ERF Concentration	Urban	27:45	28:07	22:24	13:41	27:52	20:36
		Rural	N/A	N/A	N/A	N/A	N/A	N/A
Total Response Time	Total Response Time 1st Unit on Scene Distribution	Urban	10:44	07:42	09:44	06:23	10:33	10:53
			N=18	N=1	N=3	N=1	N=10	N=3
		Rural	N/A	N/A	N/A	N/A	N/A	N/A
			N/A	N/A	N/A	N/A	N/A	N/A
	Total Response Time ERF Concentration	Urban	46:51	40:20	27:47	21:51	1:02:16	35:50
			N=18	N=1	N=3	N=1	N=10	N=3
		Rural	N/A	N/A	N/A	N/A	N/A	N/A
			N/A	N/A	N/A	N/A	N/A	N/A

## SECTION VI: PLAN FOR MAINTAINING AND IMPROVING RESPONSE

CCFES embraces a culture of continuous improvement toward the services it provides to the Cobb County community. The agency uses the CPSE/CFAI accreditation model<sup>viii</sup> of Strategic Planning, Community Risk Analysis, and Self-Assessment as a guide for maintaining and improving response capabilities and for determining how performance will be assessed and monitored. Plans are derived from various processes supported by data-driven reporting, feedback, and agency assessment of key findings.

The agency's Community Risk Analysis-Standard of Cover (CRA-SOC) process, the 2020 results of which are documented in the above sections, is one method used to review and monitor for areas of improvement. In addition to the CRA-SOC process, one of the core processes used for improvement is the agency's strategic planning. Within established parameters set forth by the Board of Commissioners (BOC)<sup>ix</sup>, the Strategic Plan<sup>x</sup> outlines the five-year plan for identifying the future needs of the community and the direction of the department. The plan is driven by the input of program managers to the self-assessment process (Fire Emergency Services Self-Assessment Model) along with a SWOT (strengths, weaknesses, opportunities, and threats) analysis. CCFES will continue the Self-Assessment process and Command Staff will continue to work closely with Division Managers and the Planning Division to monitor, evaluate, and update the agency's goals as detailed by the strategic plan.

Key points of the Strategic Plan include:

- Define service area boundaries (automatic/mutual aid; contract areas)
- Re-assess fire demand zones
  - Population density
  - Critical infrastructure
  - Risk assessment
- Documentation of safety and remediation programs
- Assessment of historical service demands
- Continuous monitoring of delivery systems compared to expectations
- Continuous improvement through annual review of
  - Growth and development trends
  - New and changing risk factors
  - Service program effectiveness
  - Incident mitigation program efforts

- Performance gap assessment
- Notification to the Board of Commissioners of existing service gaps
- Interaction with external stakeholders to determine expectations

Other examples of processes and sources which CCFES utilizes to plan for maintenance and improvement of response capabilities include but are not limited to the following:

- Internal Forums: Command Staff Meetings, Battalion/Station Shift Huddles, Policy Committee, Safety Review Board, Resource Allocation Committee, Health and Safety Committee, Officers Forum
- QA process for RMS incident reporting
- Program Appraisal process and reporting
- Training, continuing education, and wellness initiatives
- Various automated or self-service data reports
- Ad-hoc requests for data or GIS analysis
- Agency Annual Reports
- Annual Compliance Reports for accreditation
- Reporting provided by Command Staff to DPS Director, County Manager and BOC
- Feedback from internal and external stakeholders
- Industry research

## ENDNOTES

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<sup>i</sup> <https://www.weather.gov/ffc/clisumlst>

<sup>ii</sup> [mySidewalk.com](https://www.mysidewalk.com) used to generate US Census ACS 5-year charts

<sup>iii</sup> <https://www.census.gov/quickfacts/fact/table/cobbcountygeorgia/PST045219>

<sup>iv</sup> [mySidewalk.com](https://www.mysidewalk.com) customized report template “Targeted Fire Prevention”

<sup>v</sup> [mySidewalk.com](https://www.mysidewalk.com) customized report template “Social Determinants of Health”

<sup>vi</sup> <http://www.exploring.org/>

<sup>vii</sup> <http://www.nfpa.org/news-and-research/fire-statistics-and-reports/fire-statistics/fire-causes/arson-and-juvenile-firesetting/children-playing-with-fire>

<sup>viii</sup> <https://www.cpse.org/>

<sup>ix</sup> Cobb County Board of Commissioners

<sup>x</sup> [CCFES Strategic Plan](#)