SHELBY
FIRE-RESCUE DEPARTMENT

Integrated Risk Management Plan
Community Risk Analysis & Standards of Cover




City of Shelby Fire & Rescue

William P. Hunt MPA, EFO, CFO
Fire Chief

S. Todd McMurry, Fire Division Chief
David R. Vanhoy, Fire Division Chief
Phillip K. Lane, Fire Marshal
Jimmy K. Wellmon, Training & Emergency Management Officer
Quentin A. Cash, Operations Battalion Chief- A Platoon
Matthew L. Williams, Operations Battalion Chief- B Platoon
D. Clint Beam, Operations Battalion Chief- C Platoon

Eric Snyder, GIS Coordinator- City of Shelby

The staff of the City of Shelby Fire & Rescue

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Introduction

The following report serves as the Shelby Fire & Rescue Department's *Integrated Risk Management Plan: Community Risk Assessment & Standards of Cover* document. The Commission on Fire Accreditation International defines the process, known as *deployment analysis* as a written procedure which determines the distribution and concentration of fixed and mobile resources in an organization. The purpose of completing such a document is to assist the agency in ensuring a safe and effective response force for fire suppression, emergency medical services and specialty response situations in addition to homeland security issues.

Creating an *Integrated Risk Management Plan: Standards of Cover and Risk Hazard Analysis* require that a number of areas be researched, studied and evaluated. The following report will begin with an overview of both the community and the agency. Following the overview, the agency will discuss areas such as risk assessment, critical task analysis, agency service level objectives and distribution and concentration measures. The agency will provide documentation of reliability studies and historical performance through charts and graphs. The report will conclude with policy recommendations.

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Executive Summary

The *Shelby Fire & Rescue Department Integrated Risk Management Plan; Community Risk Analysis & Standard of Cover (CRA&SOC)* document is a comprehensive assessment examining the deployment the resources in the City of Shelby Fire & Rescue, hereafter referred to as the Fire & Rescue Department or the agency, in context with the profile of risks to public safety, service expectations of the community, and financial abilities of the governing authority. The document examines the accreditation period spanning 2014 to 2019 and factors the distribution and concentration of the existing resources of the agency, level of risk in the community by service provided, stakeholder feedback, and historical call volume. The *SOC* is one of three reference documents related to the agency's maintenance of its *accredited agency* status through the *Center for Public Safety Excellence (CPSE)* and is compiled according the *CFAI Standards of Cover 6th Edition.* The agency has embraced the *CPSE* model of continuous improvement and sees the accreditation model as the primary means of organizational evaluation, improvement, and accountability.

The City of Shelby is a vibrant southern town nestled in the foothills of the Blue Ridge Mountains in North Carolina. The city's permanent population of over 20,000 residents enjoys a small town atmosphere, a variety of cultural and recreational outlets, local employment opportunities, and easy access to three metropolitan regions. Originally chartered in 1843, Shelby is an established municipality under the authority of the *North Carolina General Assembly* according to guidelines set forth in the General Statutes. Throughout the city's history there has always been some form of protection against the threat of fire. In the 1920's fire protection services came under city oversight when it formed a volunteer fire department under the direction of a fire chief. As the city grew and developed over time, the fire department grew to meet the needs of the community. Today, the Fire & Rescue Department provides an array of public safety services and is the largest; and only, all career member staffed fire department in Cleveland County. The Fire & Rescue Department's sixty-three full and part-time staff members represent the City of Shelby's third largest department by employment.

The Fire & Rescue Department is a multi-discipline public safety agency that provides the following programs:

- Structural fire suppression.
- Technical rescue operations.
- Pre-hospital emergency medical care.
- Hazardous materials mitigation.
- Urban-rural interface firefighting.
- Aircraft crash fire and rescue operations.
- Disaster response.

The agency delivers its services from three firehouses located throughout the city and operates two (2) engine companies, one (1) squad company (a quint apparatus deployed primarily as an engine), one (1) ladder company, and a battalion chief. The typical staffing in the Operations Division provides for between fourteen (14) and sixteen (16) actual on-duty staff members on a given day.

As part of the accreditation process, the Fire & Rescue Department underwent an extensive strategic planning process. The agency utilized the services of the *CPSE Technical Advisor Program (TAP)* to develop its *community driven strategic plan*. The goals and recommendations developed have been used specifically to guide the agency towards self-improvement. The document serves as a companion to the *CRA&SOC*.

The agency has used the *standards of cover (SOC)* process as the methodology to complete a comprehensive assessment of risks to public safety in the community that are specifically delegated to the Fire & Rescue Department. The agency subdivided the city into smaller planning zones and assessed risk from the perspective of the services provided and categorized according to minimal risk, moderate risk, significant risk, and maximum risk in relation to their affect toward individuals, property, planning area, and the community. For each core service delivery function, the agency has developed a list of essential tasks that must be completed in order to bring an emergency incident to a successful conclusion.

A comprehensive assessment of system performance is conducted. Using data from fiscal years 2014-15 through 2018-19, coinciding with the accreditation cycle; the agency assessed its actual performance in delivering services where it evaluated call processing, turnout time, and travel time in responding to emergency calls for service relative to stated benchmarks and established baselines. The Fire & Rescue Department reported its performance in rural and urban classifications consistent with best industry practice.

As a part of the continuous self-improvement process the agency has developed a compliance methodology plan to monitor ongoing performance and measure progress toward achieving stated benchmarks. The plan establishes a compliance team, performance evaluation strategies and a system of verification.

The SOC concludes with an evaluation of the research methods and evaluation determinations with respect to the risk in the community and the ability of the Fire & Rescue Department to successfully provide services. The conclusions and recommendations made as a result of the findings are targeted toward the continuous improvement of the agency and improving the quality of life in the community.

A. Documentation of Area Characteristics

The City of Shelby is situated along the southwestern foothills of the Blue Ridge Mountains in the piedmont region of North Carolina. Strategically located within an hour driving distance of the metropolitan regions of Charlotte (NC), Asheville (NC), and Greenville-Spartanburg (SC); Shelby is a dynamic community with a small town atmosphere. Chartered in 1843 on land donated by *James E. Love* for the establishment of a seat of government for Cleveland County; the city is named for Revolutionary War hero *Colonel Isaac Shelby.* His command, the *Over-mountain Men*, defeated the much larger *British Southern Army* at nearby Kings Mountain in a battle that is credited with turning the tide of the war which lead to the subsequent surrender of Lord Cornwallis at Yorktown and the defeat of England.

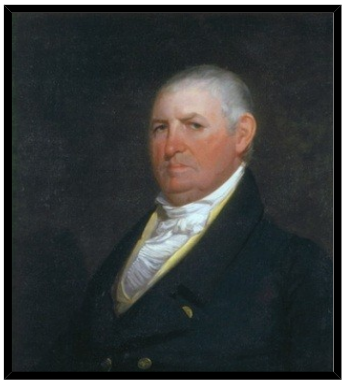


Figure 1; Col. Isaac Shelby

In the ensuing years as the town grew from its simple beginnings as a community crossroads; Shelby, and its residents have contributed to the development and the cultural fabric of the region, the state, and the nation. Two North Carolina Governors have called Shelby home, and the community is the birthplace of bluegrass legend Earl Scruggs, and country music singer-songwriter Don Gibson. The city laid the first sanitary sewer lines in Cleveland County in 1909, and Shelby began offering reliable electric service in 1914. During initiatives in the 1950's to attract new industry, the city established a piped natural gas utility to serve the city and the surrounding areas of Cleveland County. In 1970, Shelby was selected as an *All-America City;* and in 1980, was among the first twenty-five towns nationwide to be selected to participate in the inaugural *National Main Street Program.*

Figure 2; Shelby-Today

Today, Shelby embodies its motto as "*the city of pleasant living"* by being a place for people to live, work and relax. Known for its award winning uptown, architecturally significant landmarks, historic neighborhood districts, and a variety of recreation and entertainment amenities; Shelby has become a destination in the region. The city hosts a variety of festivals and cultural events throughout the year and is the permanent host site of the American Legion's World Series. Shelby is home to a vibrant small business community, a cluster of national and international corporations, and a regional medical center.

Legal Basis

The State of North Carolina governs under the principle of *Dillon's Rule;* where the primacy of government retained by the state. The State Legislature enjoys almost unlimited control of the affairs of all local governing bodies as it is constitutionally empowered to create, abolish, and govern local entities as it sees fit. Counties and municipalities in North Carolina govern under delegated powers and thus do not have authority to act unless specifically permitted by the Legislature under general statute, or through a special state legislative action.

The City of Shelby is a legally chartered municipality as afforded in *Article II* of the *North Carolina State Constitution* under provisions set forth by the General Assembly in General Statute *160A: Cities and Towns*. The city's charter is contained its *Code of Ordinances; Part 1, Charter and Related Laws*. The city operates under the *council-manager* form of government as provided in North Carolina General Statute. The council is the policy-making and legislative body of city government and includes a mayor and six council members. The manager provides professional oversight of all city services and operations serving at the pleasure of the Council. The fire chief is one of eleven (11) department directors reporting to the manager.

The city provides fire protection services as afforded in General Statute *160A: Cities and Towns; Article 14, Fire Protection.* The agency is legally established in the city's Charter and is referenced in the City of Shelby *Code of Ordinances; Chapter 18, Fire Prevention and Protection.*

Financial Basis

The City of Shelby operates its financial systems in accordance with North Carolina General Statues, under the *Local Government Budget and Fiscal Control Act (LGBFCA)* which provides extensive budgetary oversight and control. The object of supervision at the state level is to ensure compliance with legal provisions embodied in the annual appropriated budget as approved by the city council. The level of budgetary control is at the agency level within each fund. The city also maintains an encumbrance accounting system as one method of maintaining budgetary control. Encumbrance amounts lapse at year-end but are re-appropriated as part of the following year's budget.

In accordance with the *LGBFCA*, the city's budget is prepared and financial accounting is maintained using the modified accrual basis. Under this method, accounting revenues are recorded when they are both measurable and available. Expenditures are recorded as liabilities within each fund area where and when they occur.

History of the Agency

Local history reveals little of fire protection measures in the earliest days of Shelby. Customarily residents kept buckets available to extinguish fires when they erupted, and came to the aid of their neighbor with buckets in hand in the case of a larger fire. But without organized fire protection, response to fires was haphazard at best, most often the structure simply burned to the ground. The city began to organize fire protection in Shelby around the turn of the twentieth

Figure 3; Fire engine c. 1925

Figure 4; Fire Department c. 1972

century when it purchased horses, hay and firefighting equipment for use by volunteers in the community.

Motorized fire apparatus began to appear in the 1920's as the city purchased three *American LaFrance* pumpers, housing them in a dedicated quarters at the city hall building on Marion Street. In 1927, city leaders hired a fire chief to lead the volunteer fire department at a salary of $115.00 per month. In 1939 the Fire Department moved into quarters at the [new] City Hall complex on South Washington Street where it would remain until the Fire Department's current Headquarters was constructed in 1975. During the 1960's, the agency began transitioning to a career department, adopting a rotating twenty four hour platoon system and hiring full-time firefighters. In 1979, the city constructed a second firehouse to serve the west side of town. The fire department's darkest day occurred on May 25, 1979 when a fire erupted in a in an uptown clothing shop. As firefighters fought to contain the blaze and prevent it from consuming the entire city block, a broken natural gas line fed an explosion that caused the collapse of the building, killing four Shelby firefighters, a city gas worker, and destroying several pieces of fire apparatus. The May 25th Uptown Fire represents the largest single incident loss of life of firefighters in North Carolina.

Through the remainder of the twentieth century the Fire Department grew as the needs of the community changed. The agency began providing hazardous material responder services in the mid-eighties and helped to form the technician level *Cleveland County Hazardous Material Response Team (CCHMRT)* in 1991. In 1998 the agency began non-transport emergency medical service response to support the county run EMS system.

Service Milestones

Since the turn of this century, the agency has refined its services and capabilities to become an *all-hazards public safety provider.* In 2000, as the city grew toward the east, an additional firehouse was opened and staffed. In 2002 the agency again partnered with county for the formation of the *Cleveland County Urban Search and Rescue (CCUSAR)* Team; a regional Type II team capable of urban search, confined space, structural collapse, trench collapse and water rescue operations. As a result the agency adopted the *City of Shelby Fire & Rescue* as its official name. In 2007, the agency began staffing its ladder truck as a dedicated company, and began to include a third engine company on first alarm assignments. In 2008 the Fire & Rescue Department retained its ISO Protection Class 4 rating upon a favorable rating inspection by the North Carolina Department of Insurance. In 2009 part-time firefighters were added to the staffing to supplement the existing compliment of full-time firefighters for the purpose of managing daily operational staffing requirements. In 2014, the department was awarded accredited status for the first time by the *Commission on Fire Accreditation International* through the *Center for Public Safety Excellence*. In 2015, the department significantly restructured its chief officer staff by creating an additional division chief position and establishing a new training and emergency management chief officer position. In 2016, the Fire Marshal position was reclassified as chief level officer position, and three existing staff members were permanently assigned to the office and working a twenty-four hour (24hr) shift to provide for code enforcement and fire investigation services at the operational level.

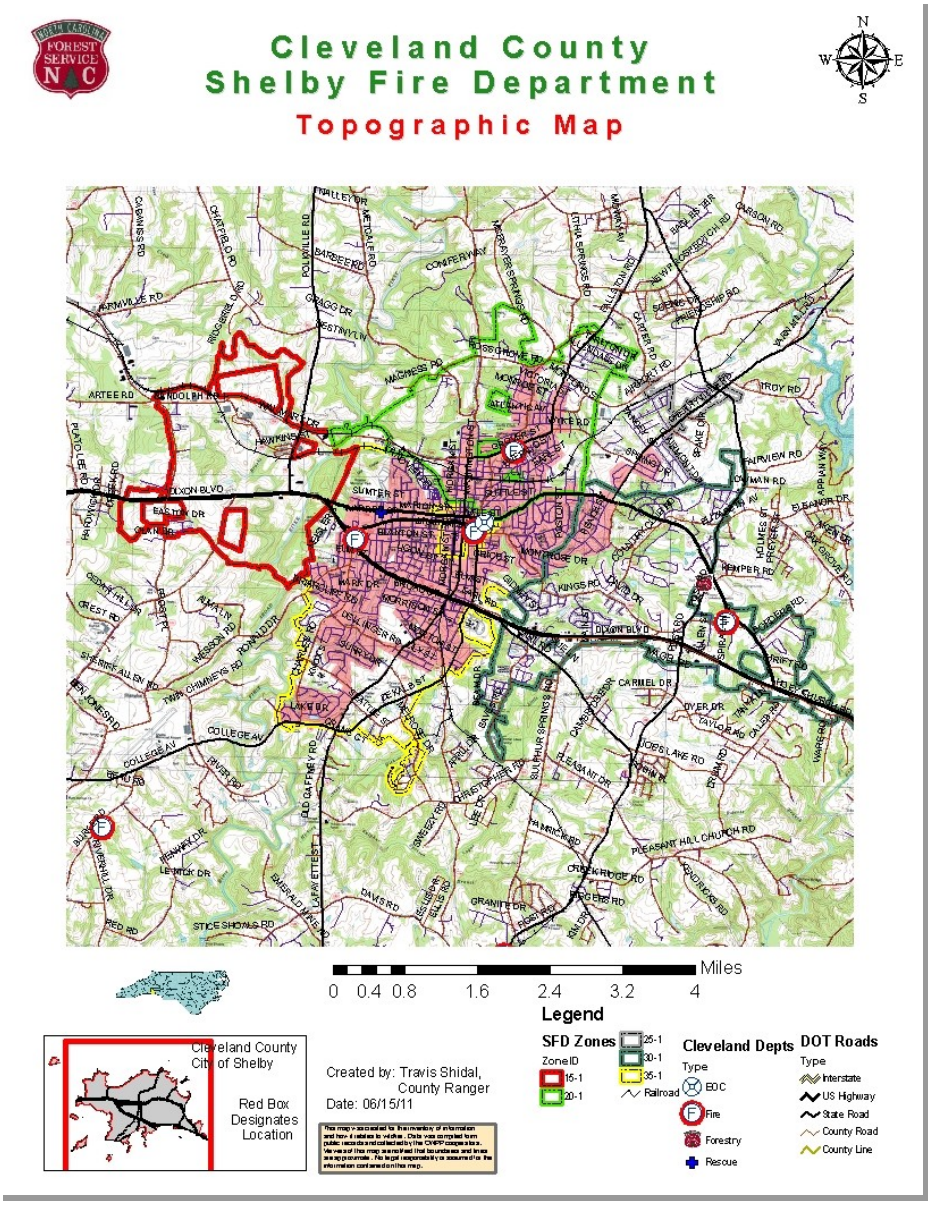
Figure 5; Fire & Rescue Apparatus-Today

Area Description

Topography

The City of Shelby is situated 917 feet above sea level. The topography of the area is rolling hills with no extreme changes in elevation. Notable bodies of water in the community include the First Broad River along the city's West side, which serves as the city's water supply, and the Buffalo Creek to the East. Other small streams and creeks are a part of the overall topographical footprint. The presence of these waterways pose no significant barriers to emergency response. Vegetation in the area is comparable to the rest of the piedmont foothills of the state to include a variety of species of evergreen and coniferous trees, brush and grasses. Several large tracts on Shelby's West side are made up of farmland. The city does not have a significant wild land interface.

Table 1: NC Forest Service Topography Map- Shelby NC



Climate

Shelby's location in the foothills of the Blue Ridge Mountains offers a fairly temperate climate for a Southern city. City residents enjoy four distinct climatic seasons. The climate indicators summarized in the following table.

Table 2: Shelby-Cleveland County Region Climate Summary

Climate Indicator	Shelby NC	United States
Rainfall (in./yr)	48.4	36.5
Snowfall (in./yr)	6.1	25
Precipitation Days	105	100
Sunny Days	218	205
July High (avg.)	89	86.5
January Low (avg.)	29	20.5
Comfort Index (higher = better)	36	44
UV Index	4.6	4.3
Elevation (ft. above sea level)	917	1,060

Disaster Potentials

Shelby is situated in Area E of the North Carolina Emergency Management Division (NCEM) and in FEMA Region IV. The city is vulnerable to a number of natural, technological and national security hazards of which can be classified as disasters. The city has a published *Multi-hazard Plan* and has adopted by reference the *Cleveland County Emergency Operations Multi-Hazard Plan.*

The potential natural and manmade disasters to affect Shelby and Cleveland County include:

- Aircraft Crashes; commercial aircraft routinely fly over the city to and from the Charlotte-Douglas International Airport, and corporate and private general aviation aircraft fly over the Shelby on approach and departure from the Shelby Cleveland County Regional Airport. The *Atrium Health-Cleveland* medical center operates an aero-medical heliport on its campus. The combined factors contribute to the potential of an aircraft crash related disaster.
- Nuclear Industrial Accident; Duke Energy operates two nuclear power stations in the region. The *Maguire Power Facility* located in Mecklenburg County outside of Charlotte, and the *Catawba Nuclear Station* located in York County (SC). Because of Shelby's relative location to both facilities, there exists the potential of exposure to radioactive fallout from an industrial accident involving the release of radioactive material.
- Military Invasion, Terrorism, Civil Disorder; no community is insulated from the effects that invasion, terrorism, or civil disorder can bring to bear. Shelby's proximity to Charlotte and the presence of two significant defense contractors in the city make it vulnerable to military attack, terrorist action, or violent mass protest.
- Drought; all communities are susceptible to conditions of insufficient precipitation which affect water supplies, vegetation, livestock and increase fire risk. Historically, Shelby has been susceptible to sporadic drought conditions through its history. However, the city was significantly affected by the drought

conditions from 2005-08 that affected the Southeastern United States. The city temporarily lost its supply of water from the First Broad River for a period of time in 2006.

- Flood; Shelby's location in the foothills of North Carolina make is susceptible to flooding in areas. Runoff from the Blue Ridge Mountains or heavy prolonged rain locally can trigger general flooding and localized flash flooding in low lying areas and in the vicinity of the First Broad River, Brushy Creek, and Buffalo Creek.
- Hazardous Material Release; a wide variety of chemicals and substances are transported through the city by road and rail, and numerous local firms consume and/ or produce hazardous compounds in their operations. These factors make Shelby susceptible to disasters related to the release of hazardous materials.
- Severe Storms; the city is periodically affected by severe storms. Shelby has experienced wind and rain from hurricanes and tornados. Historically, the most damaging severe storm was 1989's Hurricane Hugo.
- Winter Storm; Shelby's proximity to the Blue Ridge Mountains contributes to its susceptibility to effects of winter storms, primarily from ice precipitation, which has the potential to cause widespread interruptions to utilities and transportation.
- Natural Gas Pipeline Emergency; the City of Shelby operates a Natural Gas utility and maintains over six-hundred (600) miles of pipeline in and around the city. The risk to the community lies in the accidental or intentional release of natural gas from pipes or stations.

An analysis of the local disaster potentials is performed and is presented in *Section C: All Hazard Risk Assessment of the Community.*

Area Development

Shelby is a significantly developed city for its size and is a regional destination for employment, shopping, and entertainment which draws people from greater Cleveland County, the nearby counties of Rutherford, Lincoln, and Gaston, along with portions of the upstate of South Carolina. Shelby's economy has been primarily based in manufacturing, historically in the heavy textile industry. However, as the local textile mills shuttered in the wake of the NAFTA agreements of the 1990's and two subsequent economic recessions, the local economy was severely crippled. The city struggled under the weight of chronic high unemployment, economic disinvestment and a rising crime rate. In efforts to reinvent Shelby and retool its economy, city leaders formed strategic partnerships with Cleveland County government, non-profit agencies and the private sector. Over ten years Shelby aggressively annexed urbanizing unincorporated areas surrounding the city adding to the economic base and increasing the population. In 2004 city leaders commissioned the City of Shelby *Strategic Economic Development Plan* outlining a comprehensive and coordinated long-term approach to reinvigorating Shelby's economy and; in 2007, commissioned the *Center City Master Plan* focusing on specialized economic initiatives in Uptown Shelby. City leaders continue to use updated versions of the documents to guide local economic development.

The city has made significant strides in diversifying its economic base. Advanced manufacturing, health care, education, and logistics are the chief employment sectors in Shelby. Commercial growth is primarily centered along the main transportation corridors. Dixon Boulevard (US Highway Route 74) in particular has experienced significant growth over the last two decades in the form of retail centers, big box stores, restaurants, and hotels. The *Cleveland Community College* campus, located in the eastern part of the city experienced rapid growth over the last ten years, most notably with its completion of the *LeGrand Conference Center* in 2012. The *Atrium Health System's* investment in the local medical center campus makes it one of the largest and most comprehensive medical and trauma centers in Western North Carolina.

Rank	City of Shelby Employers	Industry Sector	Emp. Range
1	Cleveland County School System	Education & Health	1,000>
2	Atrium Health System- Cleveland	Education & Health	1,000>
3	Wal-Mart Associates Inc.	Trade, Transport & Utilities	1,000>
4	Cleveland County	Pubic Administration	500-999
5	Ingle's Markets	Trade	500-999
6	Cleveland Community College	Education & Health	250-499
7	NEG Electric Glass	Manufacturing	250-499
8	ABB Electric	Manufacturing	250-499
9	City of Shelby	Public Administration	250-499
10	Greenheck Fan Corporation	Manufacturing	250-499
11	Curtiss Wright Flight Systems	Manufacturing	250-499
12	White Oak Management	Education & Health	250-499

Table 3: City of Shelby Largest Employers

Uptown Shelby is a jewel of the city and continues to be a major contributor in the community's revival. The *center city*'s business model has transitioned to one based on small business merchants, service providers, and tourism; and boasts a high occupancy rate consisting of a mix of retail shops, dining establishments, and professional offices. Many buildings in uptown have been rehabilitated for mixed occupancy use which feature storefronts on the street level, and office and residential space on the upper floors. Uptown's thriving residential community boasts over one-hundred housing units. The Farmers Market is a regular presence during the growing season and efforts are underway to convert an abandoned rail-road line that comes through the uptown district into a regional pedestrian/cycling trail. The *Don Gibson Theater*; and the *Earl Scruggs Center* continue to serve as cultural anchors, and recent infrastructure investments such as; *New Grass Brewing Company,* the *City Pavilion,* and the *Campbell Building* have brought a new vibrancy to Uptown and solidified Shelby as a destination in the region.

Figure 6: Don Gibson Theatre & Earl Scruggs Center Logo

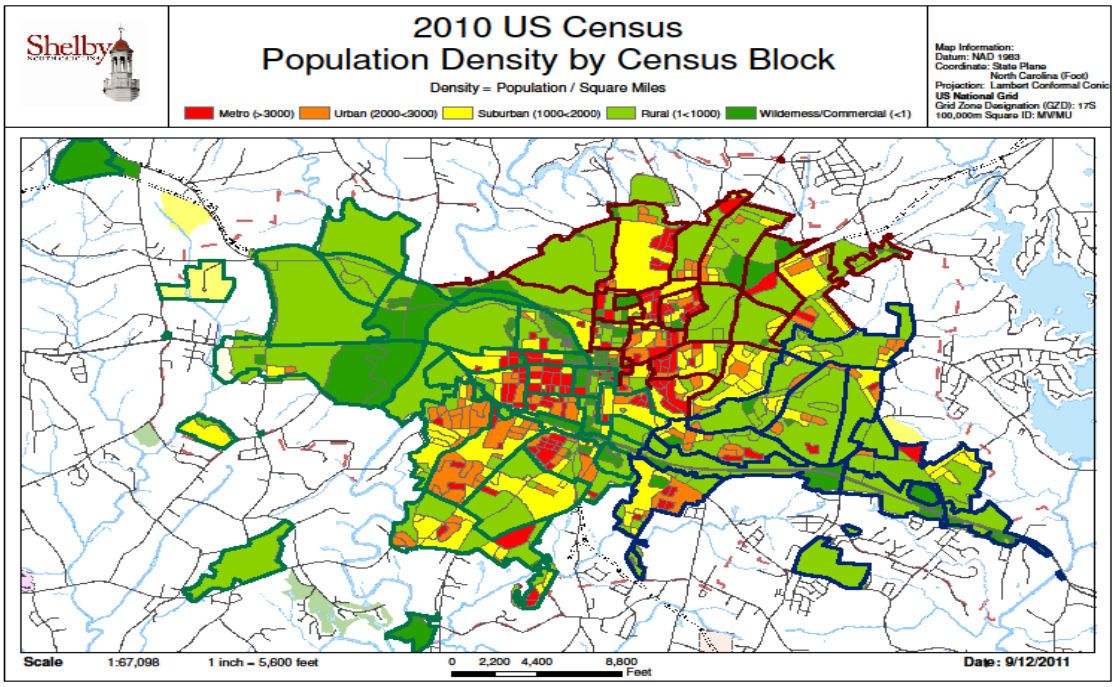
Through coordinated efforts in economic development, Shelby and Cleveland County is positioned as a great place to do business. The *Shelby/Cleveland County Micropolitan Statistical Area (MSA)* consistently ranks among the top regions nationally for industry recruitment and retention. In Shelby, the majority of the industry

growth has occurred within its western industrial development zone. *Nippon Electric Glass (*formerly PPG)*, Curtiss-Wright Flight Systems, Ultra Machine- Fabrication & Armoring*, and the *Wal-Mart Distribution & Logistics Center* are anchors in an area that has seen significant growth during the last decade. In 2007, the city expanded its natural gas service, extended sewer lines, and improved water capacity in the area along Washburn-Switch Road specifically to make the land viable for industrial development. The City of Shelby and Cleveland County co-developed the *Foothills Commerce Center*; a 550 acre site certified Business Park as a tool for industrial recruitment. *Schletter North America Incorporated, Greenheck Fan Corporation, and Ivar's Custom Displays* have since located within the center, and there are four additional pad graded lots available. In 2011 *Clearwater Paper Corporation* located its east coast manufacturing and distribution complex along Washburn-Switch Road. In 2017, Clearwater became the first tenant in the nearby *Washburn-Switch Industrial Park* upon the groundbreaking of an additional manufacturing and distribution facility which more than doubled the company's local presence. In 2014 *KSM Castings* located its advanced automotive components manufacturing facility along Plato-Lee Road and then completed a major expansion project two (2) years later. Finally, in 2017 the City of Shelby purchased a sixty (60) acre tract of property nearby along Randolph Road to reserve for future industrial development.

While the city's traditional center city neighborhoods have experienced decline, residential development still figures prominently in Shelby. Numerous mid and upper scale residential developments are located throughout the city including; *Stone Gate, Grey Fox Forest, The Columns, Magnolia Plantation,* and *Johnsfield*. An emphasis on affordable housing has given rise to construction of multiple multi-family residential housing units in Shelby.

Population

The *2010 US Census Population Density by Census Block* offers an insight regarding population trends in the city. The map, representing population density in Shelby using the *Center for Public Safety Excellence's* population density per square mile classification draws attention to a significantly urbanized city core and pockets of high density development in areas that are otherwise rural in character. The city's population is clustered in dense single family, multi-family and mixed use occupancy housing in the city's central core with scattered traditional single family residential settings more prevalent in less urban and rural portions of Shelby. 2010 census data shows that while Shelby increased in actual land mass by 4.8% between 2000 and 2010, the population density actually decreased by just under 11% during the same time. This is attributed in part many of the parcels and tracts of land annexed into the city during the period were predominately classified zero-population areas; in that the areas are commercial/industrial sites which do not have permanent populations that are counted by the census. The areas include land areas containing *Nippon Electric Glass (NEG)*, the *Walmart Distribution & Logistics Center*, the former *Hallelujah Acres* development site, the *Foothills Commerce Center*, the *Pebble Creek* sub-division, along with other various parcels. Other census data revealed that of the housing units in Shelby (9,919), the majority are occupied (8,570, 86.4%) with over half of the total housing classified as owner occupied (4,531, 52.9%). The remainder of the housing consists of renter occupied (4,039, 47.1%), vacant: for sale (244, 18.1%), vacant: for rent (721, 53.4%) or seasonal/occasional use (50, 3.7%). The city maintains a fairly aggressive policy with respect to abandoned or neglected properties. During 2014-19, The Building and Planning Services Department executed the demolition of seventy five (75) dilapidated or non-habitable structures under the authority of the minimum housing code. These numbers do not include



where the property owners took action on such properties. The 2013-17 US Census *ACS Demographic and Housing Estimates* for Shelby, NC shows population groups identifying as one race (19,805, 98%) with the overall population representation breakdown by race and ethnicity as White (11,227, 56%), and Black (8,012, 39.9%). The Hispanic-Latino population (987, 4.9%) represents a small but growing segment of the local demographic. The population by age group finds the population segments 25 to 34 years (2,721, 13.6%), 45 to 54 years (2,694, 13.4%), and 35 to 44 (2,089, 10.4%) as the largest age segments of the population respectively. Children ages 5 to 9 represent 5.6% of the population (1,121), and seniors 62 years and older comprise 20.6% of the city's residents (4,128). The population by sex breaks down the female population at 54.6% (10,946) and the male population at 45.4% (9,112).

Demographic Features

A number of demographic features of the city affect the delivery of protective services to the community. Transit nodes including highway, railroad, and air; architecturally and historically significant landmarks; and underdeveloped and rural areas of Shelby are factors in the development and delivery of protective services.

Figure 7, City of Shelby entry

The main transportation corridors in Shelby include US Highway Route 74, NC Highway Route 18, NC Highway Route 150, and NC Highway Route 180. US Highway 74, designated as *Dixon Boulevard* in the city limits, is the main East-West transportation corridor through the city. The US Highway 74 corridor is unique in that it serves as a connector route between Interstate 85 and Interstate 26 to access the Charlotte and Asheville metropolitan regions, Western North Carolina, and Eastern Tennessee. As the thoroughfare runs through the city there are numerous at-grade interchanges and access cuts that contribute to increased traffic congestion and a significant number of motor vehicle collisions in the city. Outside of Shelby, US Highway 74 is built as a limited access divided highway. Construction is currently underway on a new limited access

highway segment for US Highway 74 that will route through traffic off of the existing Dixon Boulevard and by-pass around the city to relieve the congestion and improve travel time for the through traffic. The segment is scheduled for completion by 2023. On completion of the new bypass segment, US Highway 74 will then be designated an interstate highway spur starting at the Interstate 85 interchange near Kings Mountain (NC), and ending at the Interstate 26 interchange near Columbus (NC). NC Highway 18 is a two lane highway and is the primary transportation corridor to Shelby from the upstate region of South Carolina and is a heavily travelled truck route. NC Highway 150 is a two lane highway that runs North-South through the city that connects Shelby with parts of Gaston County, Lincoln County, and the Lake Norman area. NC Highway 180, designated as *Post Road* as it comes through Shelby, is a significantly travelled corridor and is routed along one of Shelby's commercial corridors. Traffic lane and interchange improvements have been made to account for the increased local vehicle count. Outside the city limits NC Highway 180 is a two lane highway that connects Shelby to Hickory (NC), Morganton (NC), and points beyond in western North Carolina.

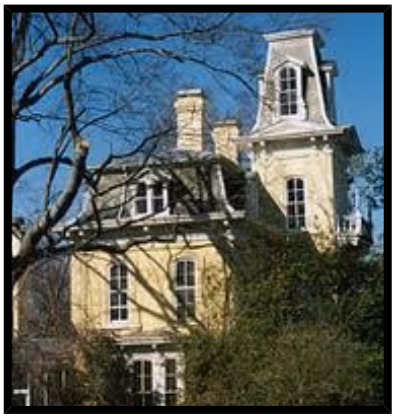
Two railroad lines traverse the city. A line operated by CSX runs an East-West path through town serving industrial customers along the line such as Nippon Electric Glass Industries, Clearwater Paper Corp. and Duke Energy's Cliffside Power Station. A service rail line operated by Southern Railway runs a North-South route through the center of town is in the process of being abandoned. These two rail lines converge along the Northwest part of the city. The community is not served with passenger rail service.

Figure 8; Shelby-Cleveland County Regional Airport .

The city owns and operates the Shelby-Cleveland County Regional Airport. Located in the city's satellite boundaries at 830 College Avenue, the airport accommodates corporate and general aviation traffic via a 5002 foot by 100 foot wide fully lighted runway with a full parallel taxiway. Flight facilities include a non-directional beacon, *all weather operating system (AWOS)*, and a weather station. Airport services include; flight line, tie down service, aircraft maintenance, self-serve AV gas and full service jet fuel and AV gas. The *Atrium Health System* operates a heliport for air medical critical care transport from its *Atrium-Cleveland* medical center campus at 201 East Grover Street.

Figure 9; The Banker's House

Shelby's architectural and historically significant landmarks and neighborhood historic districts are positive contributors to the distinctive community fabric. The inventory of sites in the city consists of private residences, civic and government facilities, and commercial buildings; many of which are included on state and national historic registers. Sites include; the 1907 Cleveland County Court House & court square, First Baptist Church, the (former) Masonic Temple, and the Bankers House. Shelby has three neighborhood historic districts designated by the National Register of Historic Places. They include; The Central Shelby District, The Belvedere Neighborhood District, and, the West Warren Neighborhood District.



The City of Shelby operates a park system consisting of three park complexes along with smaller neighborhood parks. City Park located on Sumter Street is the city's flagship facility and features a gymnasium, Olympic size outdoor pool, a nine-hole golf course, baseball and softball fields, and tennis courts. Additional amenities include an antique carousal, a narrow gauge amusement railway and playground areas. Holly Oak Park located off of Earl Road features a gymnasium, a multi-purpose building, softball fields, and playground areas. Finally, the recently completed Hannah Park features a soccer-football field complex, outdoor gathering amenities, and a woodland nature trail.

Figure 10, Shelby City Park Carousal

The city does not have navigable waterways within its limits. However, several, streams, creeks and rivers cut through and nearby the community. The Buffalo Creek runs alongside the city's Eastern edge and serves as a marker for the city limits. Shelby's primary water source, the First Broad River runs through the city along its western side and has become a local recreational amenity since the recent opening of a trail segment alongside the river that provides access for hiking, canoeing, and kayaking. The current one and a half (1.5) mile segment will eventually be extended to connect to the regional Carolina Thread Trail, and with a future twenty-two (22) mile *rail trail* currently under preliminary development. The river eventually drains south of the city into the Broad River which serves as city's secondary (emergency) water source. Other small streams that cross through community which include Brushy Creek and Hickory Creek do not serve any specific or organized recreational purpose.

While the city is significantly developed in terms of urbanization, large areas of the city are rural in character or undeveloped. The most significant is an area is in the city's west side known as the *Blanton Farm.* This private property managed under a family trust consists of several large tracts of land are primarily leased to the NC Forest Service for tree harvesting operations with remaining portions used for crops, or remain as idle farmland. US Highway Route 74 runs through the property.

B Description of Agency Programs & Services

Service Delivery Programs

The delivery of services by the Fire & Rescue Department is accomplished using a consistently staffed battalion of resources to quickly mitigate the variety of emergencies that may occur in the jurisdiction at any given time. Forty-eight (48) full-time firefighters are assigned to one of the three rotating platoons within Battalion One. Minimum staffing requirements for full-time staff members ensures a compliment of at least fourteen (14) firefighters are actually on-duty on a given day. Part-time staff members, a total of nine (9) personnel, fill routine position vacancies occurring on any particular day. These provisions provides for up to sixteen (16) firefighters

actually on duty. This staffing pattern provides the agency the capacity to service up to four (4) single company type incidents, or one full alarm assignment with a deployment of two (2) engine companies, one (1) squad company, one (1) ladder company, and the battalion chief. An additional chief officer and/or a safety officer respond to significant incidents. The Fire & Rescue Department utilizes automatic aid and mutual aid to fulfill resource needs for incidents that may potentially or actually exceed the capability of the existing compliment of resources. The Fire & Rescue Department provides a full range of protective services.

Fire Suppression

The Fire & Rescue Department is the principal provider of structural fire suppression services in the city. The agency uses a traditional engine company-ladder company method to deliver service and the resources are dispersed throughout the city. Through an automatic aid agreement, an additional engine company is routinely dispatched to confirmed fire incidents involving multi-family residences and commercial occupancies. All staff members must be competent to NFPA 1403 requirements at the time of hire and must attain North Carolina Firefighter Certification-Level II within thirty six (36) months of employment.

Rescue

The Fire & Rescue Department is the primary provider of technical rescue services in the city. The Ladder Company is specifically tasked with deploying resources to rescue emergencies when they occur. Staff members from the Ladder Company along with those from the engine companies are utilized to provide initial responder services in the city. The agency has capability in the following rescue disciplines:

- Vehicle, machinery and industrial (VMI) extrication.
- Rope and high angle.
- Land search.
- Trench and structural collapse.
- Confined Space.
- Surface and swift water.

The majority of the agency technical rescue resources are concentrated on its heavy rescue and ladder apparatus. Additionally, each engine apparatus carry a compliment of basic rescue equipment along with a hydraulic rescue tool. The agency is a member of the *Cleveland County Urban Search and Rescue Team (CCUSAR)*, a county wide cooperative Type II rescue team that is managed by the Cleveland County Emergency Medical Services. Two USAR trailers dedicated to structural collapse and confined space operations and are located at the *Brown Emergency Training Center* on the campus of Cleveland Community College in Shelby. Additional resources are dispersed at locations throughout the county. The Fire & Rescue Department has ready access to the resources located at the training center and typically deploys those resources throughout the county as requested. The agency maintains a compliment of water rescue resources at its Charles Road Firehouse. The closest Type I USAR team is located in Charlotte, NC at the Charlotte Fire Department. In the event the team was needed in Shelby, a response time in excess of one hour is expected. All staff members must attain North Carolina Rescue Responder certification within thirty-six (36) months of employment, and then most hold

one or more specialty certifications in the various rescue disciplines. The specialty certified staff are distributed throughout the battalion.

Medical

The Fire & Rescue Department provides non-transport first responder pre-hospital emergency medical services in Shelby. The agency provides medical support for the county run ALS Ambulance Service and the non-profit BLS transport provider Shelby Rescue Squad. The agency responds to all calls for service that are classified as *delta response* or higher. All staff-members must attain North Carolina EMT-Basic within thirty-six (36) months of employment.

Hazardous Materials

The Fire & Rescue Department is the provider of hazardous material mitigation services in the City of Shelby and is the primary responder for incidents in the jurisdiction. The agency is a member of the *Cleveland County Hazardous Material Response Team (CCHMRT)*, a county wide cooperative hazardous material response team. The CCHMRT functions up to the technician level and operates a hazardous material response and decontamination units. Staffing comes in the form of trained personnel from the various public safety agencies in the county including the Fire & Rescue Department. CCHMRT is managed by the Cleveland County Fire Marshal's Office and resources are staged at the Cleveland County Law Enforcement Center in Shelby. The Fire & Rescue Department provides initial response services at the hazardous material operations level, and once co-joined with the resources of the CCHMRT; the agency can provide services up to the technician level. Additional resources are available from the *North Carolina Regional Response Team 7 (NCRRT-7)* located in Charlotte, NC at the Charlotte Fire Department. In the event of an incident requiring the response of NCRRT-7, a response time in excess of one (1) hour is expected. Additionally, NCRRT-6 is based out of Asheville, NC at the Asheville Fire & Rescue Department and has an expected response time to Shelby of over two (2) hours. All staff members must attain North Carolina Hazardous Material Responder within thirty-six (36) months of employment; a number of staff members are specialty certified to technician level and serve on the CCHMRT, the specialty trained staff members are distributed throughout the battalion.

Specialized Services

Urban-Rural Interface Fire (URI)

The Fire & Rescue Department provides responder services to a variety of urban and rural land interface fire incidents to include grass, brush, rubbish, and woodland fires in Shelby. This category also includes fires involving motor vehicles and small accessory structures. The agency provides services using a specialty brush truck and standard firefighting resources. The agency relies on automatic aid and mutual aid from nearby rural community fire departments for resource support for larger scale urban-rural interface fire incidents. North Carolina does not offer a certification program in wild-land fire suppression; however, many staff members hold specialized credentialing from the North Carolina Forest Service. These personnel are distributed among the three platoons in the battalion.

Aircraft Crash Fire& Rescue (ARFF)

The Fire & Rescue Department is the provider of protective services at the *Shelby-Cleveland County Regional Airport*. The facility accommodates private and corporate general aviation

traffic. The agency also serves an aero-medical heliport transport facility located at the *Atrium Health Systems-Cleveland* medical center campus. The agency approaches service delivery from the perspective of structural fire and technical rescue operations utilizing standard firefighting technical rescue resources. The agency maintains automatic aid agreements with nearby rural community fire departments to supplement resources for ARFF incidents. Beginning in 2011, staff members were certified to North Carolina Aircraft Crash, Fire & Rescue. New staff-members are required to attain certification after completing core service certifications.

Disaster Response

The Fire & Rescue Department is one of the many local first responder resources that are called upon during a significant crisis or disaster. Disaster incidents will vary in complexity and duration taking many forms ranging from severe storms to acts of terrorism. The Fire & Rescue Departments role is typically to provide the services and support that are in line with fire suppression, technical rescue, pre-hospital medical care and hazardous material mitigation as a direct result of the disaster event; and with assisting citizens with immediate short term recovery efforts.

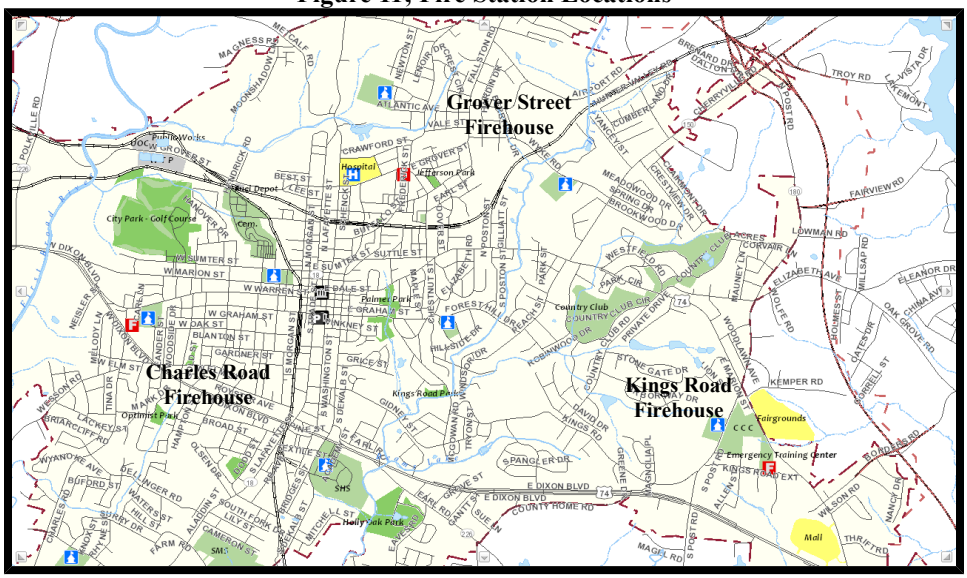
Current Deployment

Points of Service Delivery

The points of service delivery for the Fire & Rescue Department consist of three (3) firehouses located throughout the city which serve the contiguous and satellite boundaries of the city. They are located as follows:

- Grover Street Firehouse Station 1- 506 East Grover Street.
- Charles Road Firehouse Station 2- 303 Charles Road.
- Kings Road Firehouse Station 3- 2425 Kings Road Extension.

Figure 11; Fire Station Locations



The *Grover Street Firehouse Station 1* was constructed in 1975 and serves as the agency's headquarters and battalion house. The Administration, the Fire Marshal's Office, Battalion One, along with an engine company and the Ladder Company are based out of this facility. Cleveland County EMS maintains an ALS ambulance in a separate building on the property.

The *Charles Road Firehouse Station 2* was built in 1979 and houses an engine company. Cleveland County EMS co-habits the facility with an ALS ambulance based within. The agency's swift water rescue resources are also based at this location due to the proximity to the First Broad and Broad Rivers.

The *Kings Road Firehouse Station 3* was completed in 2000 and is adjacent to the Cleveland Community College's Brown Emergency Training Center. The building serves as the quarters for the inspector-firefighters, and the Cleveland County EMS co-habits the facility with an ALS ambulance. The Fire & Rescue Department's Squad Company (a quint apparatus primarily deployed as an engine) is based at this facility.

Resources

The Fire & Rescue Department's fleet and personnel are distributed and concentrated among the city's three firehouses. Fleet resources include all apparatus (including associated tools and equipment), vehicles and mechanized equipment. *In-service fleet resources* are generally classified as follows:

- Online; available for emergency response along with an assigned crew of personnel.
- Standby; readily available for emergency response with no dedicated personnel assigned.
- Utility; emergency and non-emergency support.
- Reserve; a deployable resource as operational needs dictate.

The following charts outline the distribution and concentration of resources at each firehouse.

Table 4: Grover Street Resources

	Fleet Resource Allocation-Grover Street		
Resource ID	**Make Model**	**Description**	**Status**
Engine 31	2010 Pierce Arrow XT	Pumper 1500gpm	Online
Ladder 25	1999 E-One Cyclone II	Aerial,95ft,1500gpm	Online
Rescue 28	2018 Pierce Enforcer	Heavy Rescue	Standby
Battalion 1	2018 Ford F-250	Truck, Command	Online
Truck 37	2013 Ford F-450	Truck, Skid, 150gpm	Standby

	Personnel Distribution-Grover Street				
Assignment	**Officer**	**Engineer**	**Firefighter**	**Assigned**	**Minimum**

Engine 31	1	1	1 or 2	3 or 4	3
Ladder 25	1	1	2	4	4
Battalion 1	1			1	1
Total	**3**	**2**	**3 or 4**	**8 or 9**	**8**

Table 5: Charles Road Resources

	Fleet Resource Allocation-Charles Road		
Resource ID	**Make Model**	**Description**	**Status**
Engine 32	2004 E-One Cyclone II	Pumper, 1500gpm	Online
Engine 33	2000 E-One Cyclone II	Quint, 75ft, 1500gpm	Reserve
Truck 35	1994 Dodge 3500	Truck-	Utility
Zodiac	Zodiac Boat	Rescue Boat & Trailer	Standby

	Personnel Distribution-Charles Road				
Assignment	**Officer**	**Engineer**	**Firefighter**	**Assigned**	**Minimum**
Engine 32	1	1	2	4	3
Total	**1**	**1**	**2**	**4**	**3**

Table 6: Kings Road Resources

	Fleet Resource Allocation-Kings Road		
Resource ID	**Make Model**	**Description**	**Status**
Squad 26	2016 Pierce Velocity	Quint, 75ft, 1500gpm	Online
Engine 27	1989 E-One Hush	Pumper, 1500gpm	Reserve
Truck 36	2013 Ford F-350	Truck, flat bed	Utility
Light Unit	Wacker	Lighting, generator	Utility

	Personnel Distribution-Kings Road				
Assignment	**Officer**	**Engineer**	**Firefighter**	**Assigned**	**Minimum**
Squad 26	1	1	2	4	3
Total	**1**	**1**	**2**	**4**	**3**

Table 7: Headquarters & Fire Marshal's Office Resources

	Fleet Resource Allocation-Hqtrs .& Fire Marshal		
Resource ID	**Make Model**	**Description**	**Status**
Chief 1	2018 Ford Interceptor	SUV	Online
Chief 2	2017 Ford Interceptor	SUV	Online
Chief 3	2017 Ford Interceptor	SUV	Online
Chief 4	2008 Dodge Charger	Sedan	Online
Chief 5	2013 Dodge Charger	Sedan	Online
Inspector 1	2004 Ford F-350	Truck	Online

	Personnel Distribution-Hqtrs. & Fire Marshal				
Assignment	**Officer**	**Engineer**	**Inspector**	**Assigned**	**Minimum**
Chief 1	1			1	1
Chief 2	1			1	1
Chief 3	1			1	1
Chief 4	1			1	1
Chief 5	1			1	1
Inspector 1			1	1	1

Community Response Territory

Overall Response Area

Figure 12; City Limits & Extra-territorial Jurisdiction

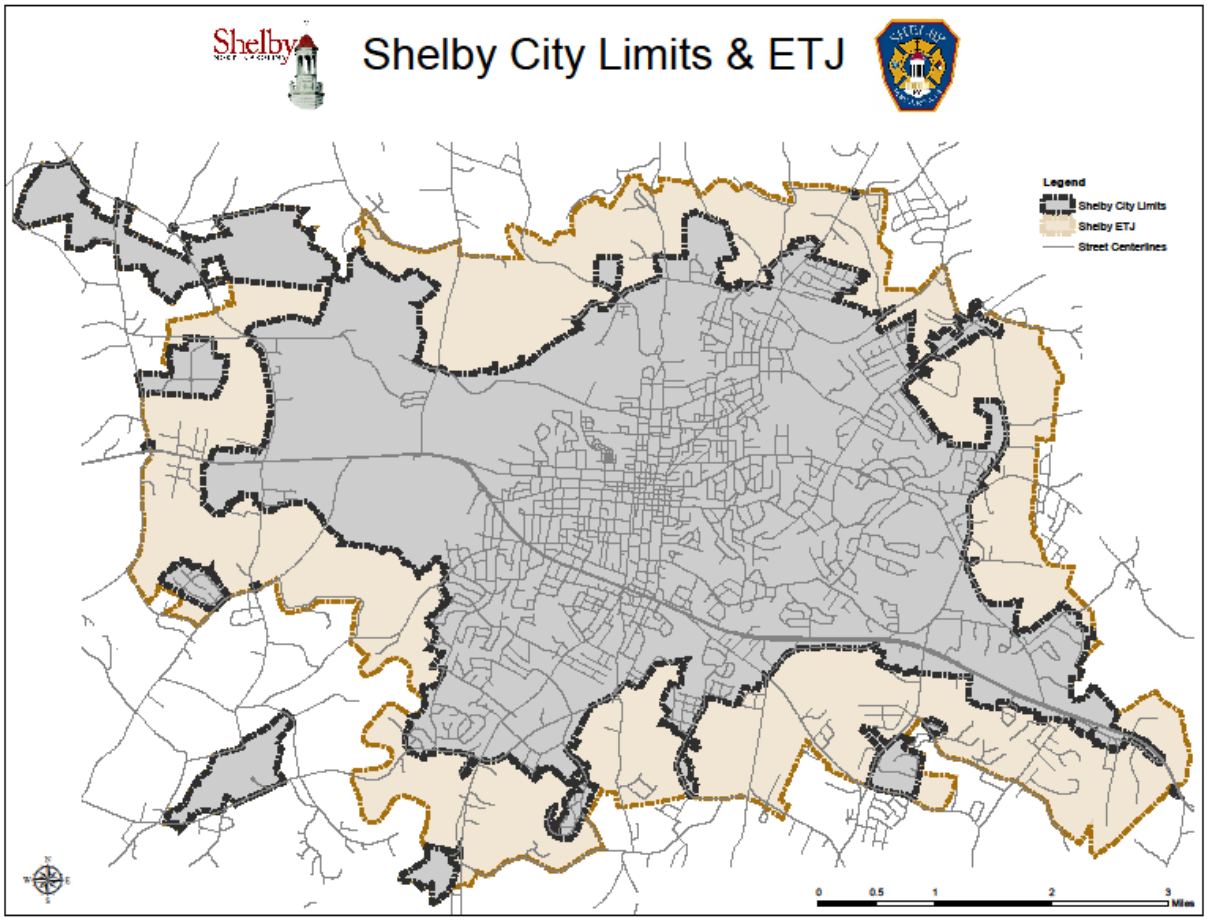
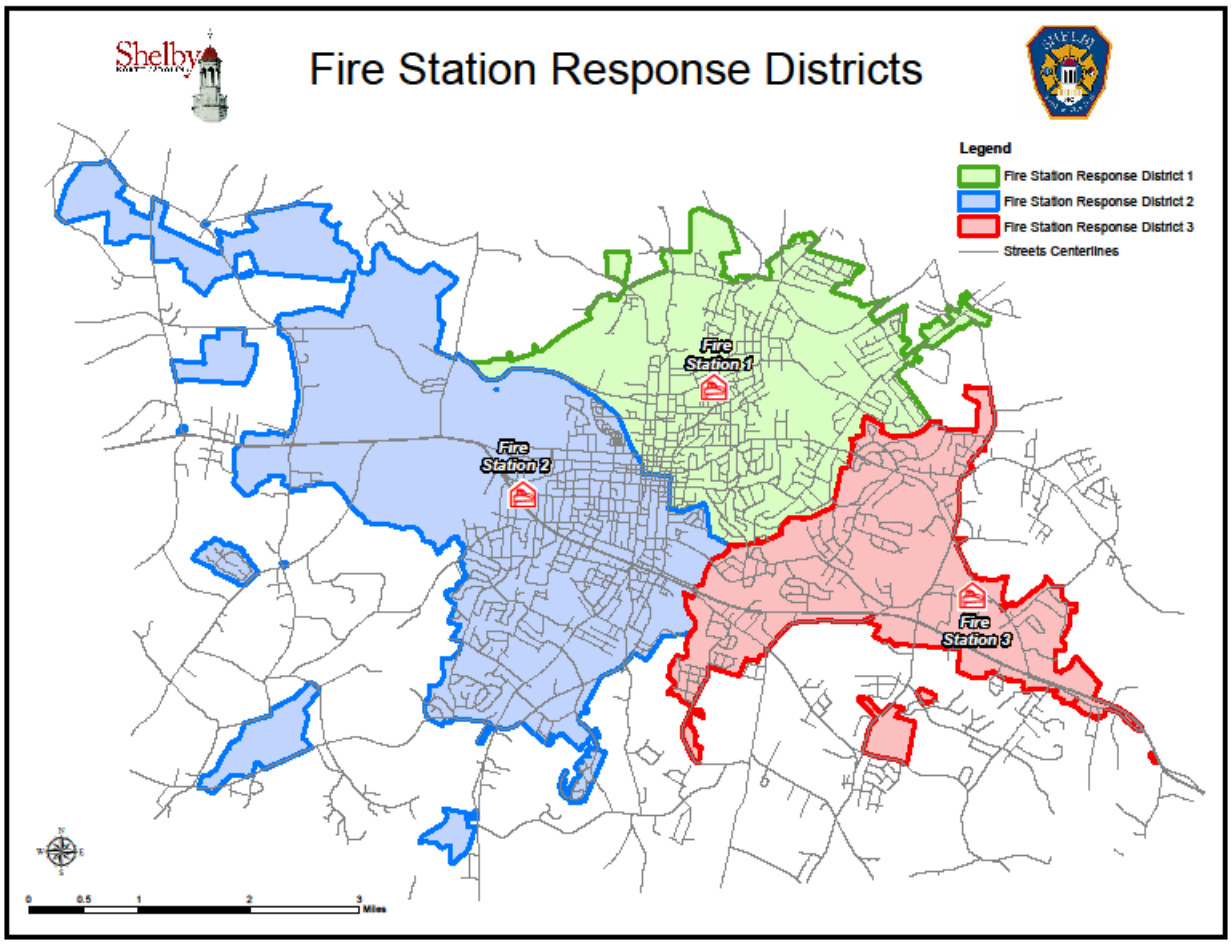


Figure 13; Fire Station Response Districts



Fire Station Response Districts

District 1 comprises the North-Northeastern portions of the city and is the first-due service area for the Grover Street Firehouse Station 1. Development in this part of the city consists of portions of Uptown Shelby, the Atrium Health System-Cleveland campus, surrounding medical offices and the city's water treatment facility and utilities operations center. A large senior living complex, three (3) nursing homes are located throughout, and two (2) elementary schools and are within the district. Residential and commercial development is primarily one and two family dwellings, and single occupancy business establishments and strip-center shopping development.

District 2 comprises the South-Southwestern portions of the city and is the first-due service area for the Charles Road Firehouse Station 2. Development in this part of the city consists of the remainder of Uptown Shelby and the surrounding residential neighborhoods. The high school, the middle school, two elementary schools, a special needs high school, and two nursing homes are located in the district. This area of the city is home to many large commercial and industrial occupancies. The west Shelby industrial corridor lies within District 2 and includes; the NEG complex, Clearwater Paper, the Foothills Commerce Center, Walmart Distribution Center, and the Dover Mill redevelopment site. The district also covers non-contiguous areas previously annexed into the city including the Pebble Creek subdivision, the city's wastewater treatment plant, and the Shelby-Cleveland County Regional Airport.

District 3 comprises the Eastern portion of the city and is the first-due service area for the Kings Road Firehouse Station 3. Development in this part of the city consists of the Cleveland Community College campus, the Cleveland Mall, six (6) hotel lodging facilities, retail and restaurant development, and automotive dealerships. The district contains an elementary school, a K-8 grade charter school, and two nursing homes. Residential development is varied consisting of single family and multi-family occupancies. Additionally, the district covers a non-contiguous area originally slated for development as a master planned mixed use subdivision. While the property has been sub-divided into parcels and the street and utility infrastructure has been installed, it remains largely undeveloped.

Other Response Areas

The City of Shelby maintains a one mile extra territorial jurisdiction (ETJ) around the city limits as permitted in North Carolina general statues for planning purposes (Figure 12). The Fire & Rescue Department provides fire code enforcement services consistent with Volume 5 of the State Building Code within the ETJ, and the surrounding rural community fire departments provide the protective services inclusive of the ETJ. The agency will respond into the ETJ area on a mutual aid basis when specifically requested by the appropriate rural fire department.

C. All Hazard Risk Assessment of the Community

Community Expectations

In continuing its efforts toward self-improvement, the Fire & Rescue Department utilized the services of *CPSE's Technical Advisor Program* to facilitate the agency's strategic planning process to assist the community and the agency with envisioning the organizations path into the future. The tangible result of the process is the *2016-20 Community-Driven Strategic Plan.* The plan has been implemented by the agency and formally adopted by the city Council. The plan is written in accordance with the guideline set forth in the CFAI *Fire & Emergency Service Self-Assessment Manual* 9th ed., and is intended to guide the agency within established parameters set forth by the authority having jurisdiction. The following sections provide highlights from the work completed during community driven strategic plan process, the full document is provided for reference.

Service Delivery Program Transitions

The role of the agency in providing protective services to the citizens and the community has evolved over time as the city has grown and the demographics of the community have changed. From providing fire suppression prevention as originally outlined, the Fire & Rescue Department has developed into a *multi-disciple* public safety service provider. Highlights of service delivery transitions include:

- 1975: construction of a new headquarters firehouse on the northeast side of the city.
- 1976: agency hires fire prevention officer into the Fire Marshal's Office to coordinate public fire education programs.
- 1979; city constructs a second firehouse on the western side of the city.
- 1985; begins providing hazardous material response services as a result of the adoption of SARA title III.

- 1991; hazardous material response resources consolidated with Cleveland County to form a technician capable response team.
- 1998; begins providing non-transport BLS medical services. The local EMS agency embeds ALS medical units in city firehouses.
- 2000; agency partners with Cleveland County Safe Kids-Safe Communities coalition in public safety education. Agency begins installing child safety seats as a life safety and education program. A new fire station is constructed on the east side of Shelby.
- 2002: begins offering specialty technical rescue services as part of a joint USAR team with Cleveland County.
- 2007; agency changes name to City of Shelby Fire & Rescue to better reflect the scope of services provided by the agency.
- 2008; agency begins staffing its aerial truck as a ladder company.
- 2014; agency receives accreditation through the Center for Public Safety Excellence.
- 2015; agency conducts reorganization of its administrative chief officers and the Fire Marshal's Office.
- 2018; receives credentialing from the North Carolina Rescue Squad Association as a rescue service provider and takes delivery of a new heavy rescue apparatus.

Performance Expectation Goals

During planning process, external stakeholder participants identified a timely emergency response to incidents as the top community expectation of the Fire & Rescue Department. Working with this information, the facilitators guided internal stakeholders in developing organizational goals(s) with supporting objectives and tasks around this priority. Strategic Plan Goal 6 sets in motion the development of overall performance goals for the Fire & Rescue Department.

Goal 5	Create programs and systems to identify and reduce the overall risk in our community through education.

Using the strategic plan as the basis for action, the agency reviewed and revised its benchmark performance measures based on recommendations for best industry practices. The Fire & Rescue Departments performance goals are guided by the 9th Edition of the Fire & Emergency Service Self-Assessment Manual (FESSAM) and the distribution and concentration of the population and an assessment of overall risk in Shelby. Performance goals are determined according to the following criteria:

- Urban: A density classification for an area with a population of 1,000[i] persons per square mile or more. The population density is derived by utilizing the 2010 Census and the SF&R Fire Management Zone layers.
- Non-urban Rural: A density classification for an area with a population of 0-999 persons per square mile. The population density is derived by utilizing the 2010 US Census and the SF&R Fire Management Zone layers.

Mission Statement

Staff members of the Fire & Rescue Department participated in a three-day *internal stakeholders* workshop. The facilitators guided the participants assessing and revising the existing mission statement and organizational values.

Table 8: Purpose & Mission Statements

Purpose   ***We exist to protect the quality of life in the "City of Pleasant Living".***   ***Mission***   ***To be the guardians of life and property through the mitigation of calls for service, public education, and prevention programs in the City of Shelby.***

Table 9: Core Values

Unity
We pursue unity by; keeping open lines of communication in the organization and in the community, recognizing the values and concerns of our members and citizens, and by preserving the best of our fire service heritage.
Integrity
We uphold public and corporate trust and respect by committing ourselves to the highest ethical and moral codes of human behavior; and being responsible stewards of the resources entrusted to us.
Quality
We embrace emerging technology and techniques; and creative problem solving as ways to better serve our community.
Duty
We strive to enhance the quality of life in our community through relevant value-added services and by being an "outward faced" organization.
Professionalism
We seek consistent individual and organizational improvement through education and training and by adhering to high professional standards.

Performance Goals

The Fire & Rescue Department has established the following benchmarks for performance for portions of the city classified as *Urban;*

- Maintain a call processing time of ninety seconds or less (=/<90), ninety percent (90%) of the time for all emergent calls for service to the 911 center.
- Maintain a turnout time for personnel of sixty seconds or less (=/<60), ninety percent (90%) of the time for all emergent EMS related calls for service.
- Maintain a turnout time for personnel of eighty seconds or less (=/<80), ninety percent (90%) of the time for non-EMS related emergent calls for service.
- Maintain a travel time of five minutes or less (=/<5:00), ninety percent (90%) of the time for the first arriving unit for all emergent calls for service.
- Maintain travel time of eight minutes or less (=/< 8:00) ninety percent (90%) of the time for the second arriving unit to emergent calls for service requiring resources beyond the first arriving unit.
- Maintain travel time of ten minutes or less (=/< 10:00) ninety percent (90%) of the time to achieve an *effective fire force* to emergent calls for service requiring resources beyond the first arriving unit.
- Maintain a *total response time (TRT)* of seven minutes and fifty seconds or less (=/<7:50) for the first arriving unit.
- Maintain a *total response time (TRT* of twelve minutes and fifty seconds or less (=/< 12:50) to achieve an effective response force.

The Fire & Rescue Department establishes the following benchmarks for performance for portions of the city classified as *Rural-non urban;*

- Maintain a call processing time of ninety seconds or less (=/<90), ninety percent (90%) of the time for all emergent calls for service to the 911 center.
- Maintain a turnout time for personnel of sixty seconds or less (=/<60), ninety percent (90%) of the time for all emergent EMS related calls for service.
- Maintain a turnout time for personnel of eighty seconds or less (=/<80), ninety percent (90%) of the time for non-EMS related emergent calls for service.
- Maintain a travel time of five minutes or less (=/<5:00), ninety percent (90%) of the time for the first arriving unit for all emergent calls for service.
- Maintain travel time of eight minutes or less (=/< 8:00) ninety percent (90%) of the time for the second arriving unit to emergent calls for service requiring resources beyond the first arriving unit.
- Maintain travel time of ten minutes or less (=/< 10:00) ninety percent (90%) of the time to achieve an *effective fire force* to emergent calls for service requiring resources beyond the first arriving unit.
- Maintain a *total response time (TRT)* of seven minutes and fifty seconds or less (=/<7:50) for the first arriving unit.
- Maintain a *total response time (TRT* of twelve minutes and fifty seconds or less (=/< 12:50) to achieve an effective response force.

Community Service Expectations

Part of the strategic planning process included a one-day *external stakeholders workshop* hosted by the facilitators for the expressed purpose of gathering insight from the community on the perceptions of the organization, expectations for protective services, and any specific concerns with the Fire & Rescue Department. Participants identified thirty-four expectations of the Fire & Rescue Department. The following table lists the top ten (in order of priority) of community expectations of the Fire & Rescue Department.

Table 10: Strategic Plan External Stakeholders Workshop- Top Expectations

1. Response time. Quick response time. Arrive fast - very fast.
2. To train their men/women in safety so that our firefighters can do their job with the best training possible they are kept safe. Training.
3. Communicate with the community with modern methods. Billboard signs on need, displays at public events, ball games, fences, webpage, etc. To community clearly and respectfully with citizens.
4. Reduce risk of fires or emergencies by training, audits, etc. To help educate the public about fire safety. Education of the public about codes and restrictions.
5. To provide our firefighters with the best equipment possible so they can do their jobs and remain safe. Modern equipment.
6. Investigative work. Apply the most up-to-date science when investigating fires.
7. Understand the community needs by way of community engagement. Public/community involvement through attendance at large/public events.
8. Positive attitude and courtesy towards the public/victims.
9. To staff our department with the best possible people in enough numbers of people so that they can depend on their fellow members and that they have enough to perform their jobs. Maintain staff sufficient to respond to emergencies.
10. Offer me guidance (as a business owner) on keeping my building and space safe for my customers/clients with updated codes and regulations and to confirm my fire extinguisher is up-to-date.

Community Service Priorities

Participants in the *external stake-holders* workshop completed a direct comparison survey of the services offered by the Fire & Rescue Department and rate them in terms of individual priority. The results are shown in Table 11.

Table 11: Community Program Priorities

Program	Ranking	Score
Fire Suppression	1	155
Emergency Medical Services	2	139
Technical Rescue	3	115
Hazardous Materials Mitigation	4	73
Community Risk Reduction	5	70
Domestic Preparedness Planning and Response	6	62
Fire Investigation	7	47
Public Fire and Life Safety Education	8	39

Risk Assessment Methodology

A key to successful delivery of emergency services begins with identifying why the organization is needed in the first place. A thorough understanding of the risks and hazards facing the community tied to the citizen's tolerance of risk exposure is critical in planning and implementing emergency services. The Fire & Rescue Department undertook this aspect of the accreditation process in a systematic fashion utilizing GIS tools, various data bases and models, live scenario time trials, site surveys, and its strategic plan.

Methodology

A descriptive research method is employed for the analysis and answers the questions who, what, where, when and how in exploring relationships between data, conditions, and characteristics and is consistent with the CFAI risk assessment model. There are seven exposures of risk in Shelby that the community has specifically delegated to the Fire & Rescue Department to provide protection for citizens. These risk exposures correlate with the major services provided by the agency and are analyzed as follows:

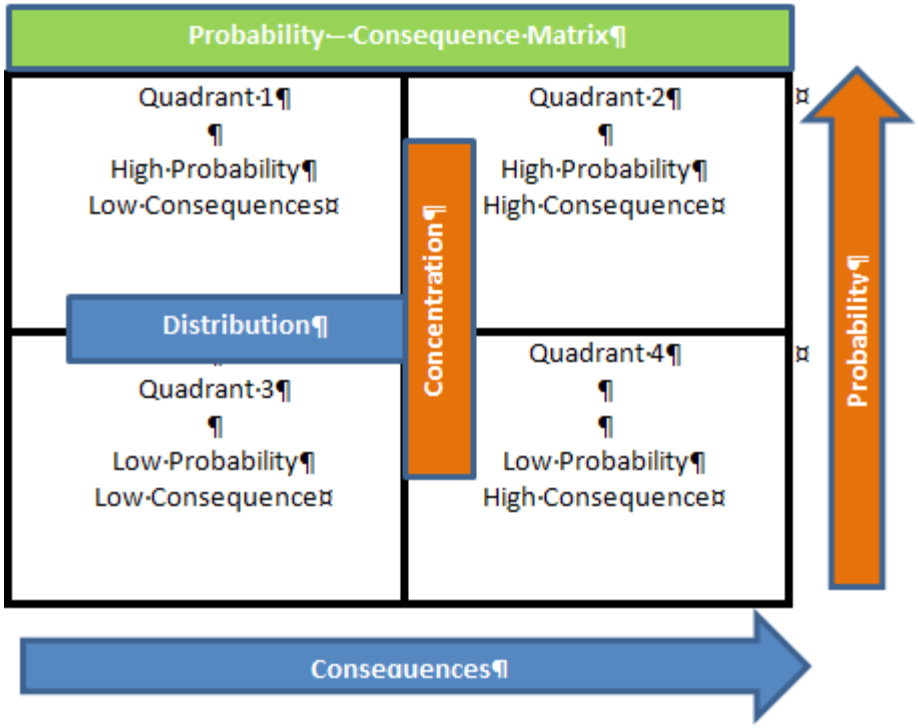
- The risk of fire in a structure (Fire Suppression Services).
- The risk of entanglement, entrapment, or disorientation that would require technical rescue assistance (Rescue Services).
- The risk of experiencing a medical emergency outside of a hospital (Emergency Medical Services).
- The risk of an accidental or intentional release of a hazardous material (Hazardous Material Services).
- The risk of open land, vehicle, or accessory structure fires (Urban-Rural Interface Fire Services).
- The risk of an aviation emergency. (Aircraft, Crash, Fire & Rescue Services)
- The risk posed from a variety of natural and/or manmade disasters (Disaster Services).

To begin, risk can be examined from the perspective of the likelihood that an event occurring in in conjunction with its relative overall effect on the community. A matrix can be used to plot the probability of an event occurring along with the associated consequence of its actual occurrence. This presents four possible outcomes-where; quadrant 1 plots a high probability of occurrence with little to no negative effect on the community, quadrant 2 plots a high probability of occurrence and a high negative effect on the community, quadrant 3 plots a low probability of occurrence or effect on the community and quadrant 4 plots a low probability of occurrence with a high negative effect on the community.
From this point risk can then be classified according to the frequency of events, life and property hazard, economic and environmental effect, and the capacity of the available protective resources.

However, the author contends that drawing a simple direct relationship between the matrix and level of risk is not practical and does not accurately factor the complexities of risk. To present a clearer picture of the community's risk sequence should be analyzed separately and then aggregated. For this analysis risk is classified in the City of Shelby as follows:

Figure 14, Probability, Consequence Matrix

- Minimal risk, are those events that occur infrequently and/or pose an insignificant risk to life, property, the environment or the economy, and may be controlled with a limited deployment of available resources.
- Moderate risk, are those events that occur with regularity, but are limited in scope with regard to risk to life, property, the environment or the economy; and are typically



controlled with the normal assignment of resources.

- Significant risk; are those events that may occur with some regularity, but pose a higher risk to life, property, the environment, or the economy; and typically require some additional resources beyond the normal assignment to control.
- Maximum risk; are those events that regardless of their frequency of occurrence, pose a major or widespread risk to life, property, the environment or the economy; and will generally exceed the capacity of immediately available resources.

To gain a thorough perspective of risk in the city, the assessment is performed at four levels. First, the *incident level* looks at risk from the perspective of the event itself. Secondly the *property level* examines the relative risk to life and property in specific occupancies. Next, risk is examined at the level of a *planning area* or *zone,* where the jurisdiction is divided into smaller defined areas. Finally, it is examined holistically at the *community level* where property and planning areas are aggregated. The following factors are considered for the analysis:

- Population demographic data.
- OVAP scoring of target occupancies.
- North Carolina Forest Service Wild Fire Protection Plan
- Risks by typification.
- Historical incident mapping.
- North Carolina Flood Mapping Program.

Planning Areas/Zones

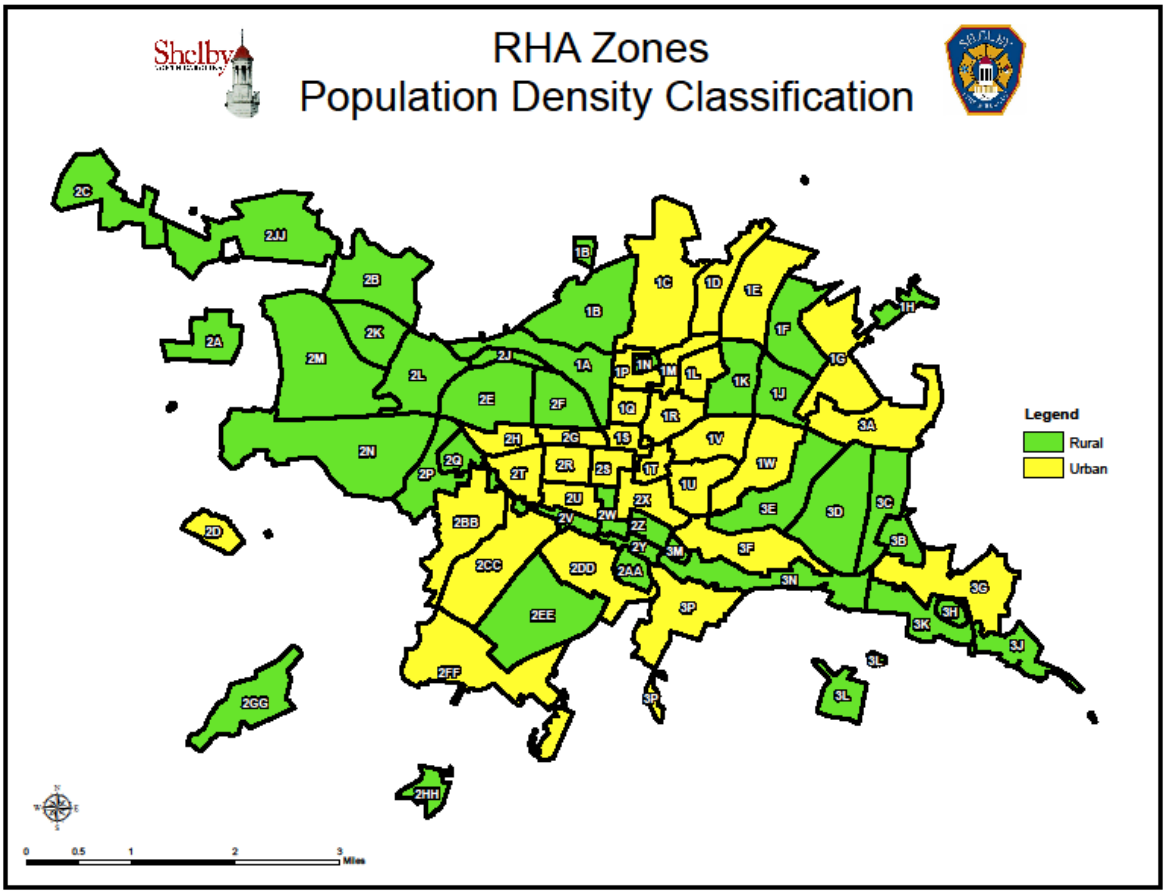
To facilitate the assessment process the city is sub-divided into sixty-eight (68) statistically homogenous geographical zones called *risk hazard area zones (RHA)*. Determining the size and number of RHA's for the analysis is based on the following criteria;

- City limits and extraterritorial jurisdiction.
- Fire & Rescue response district.
- Zoning designation.
- Census data tract.

Community Risk Analysis

The City of Shelby consists of a total land mass of 22 square miles and a permanent of population 21,800 residents which defines the community overall as Rural in character. However when breaking down the community (and the response district) into smaller planning areas (risk hazard areas RHA) for analysis; the city's community demographics and risk are more complex. Using a modified version of *CFAI's* standard for community classification based on the 9th edition FESSAM, the demographics break down overall as fifty-six percent (56%) rural in character, and forty-four percent (44%) urbanized in character (Figure 16). However, it is important to note many areas of the city that are classified as rural according to classification by population are actually significantly developed. In particular the Dixon Blvd- US Highway 74 corridor (RHA's 2V, 2Y, 3H, 3M, 3N, 3K, 3J) is a heavily developed area with commercial, retail, and lodging establishments; while along the Washburn-Switch Rd. corridor (RHA's, 2A, 2B, 2C, 2JJ, 2K) contain large industrial sites. In the agency's previous SOC document, *CFAI's* previous classification criteria from the 8th edition FESSAM was used and highlighted a mixture of demographic classifications in the city to include; rural 42%, commercial/undeveloped 12%, Suburban 22%, Urban 19%, and Metropolitan 5% (Figure 15).

Figure 15: Population Density by RHA Area & Population Density by US Census 2010.



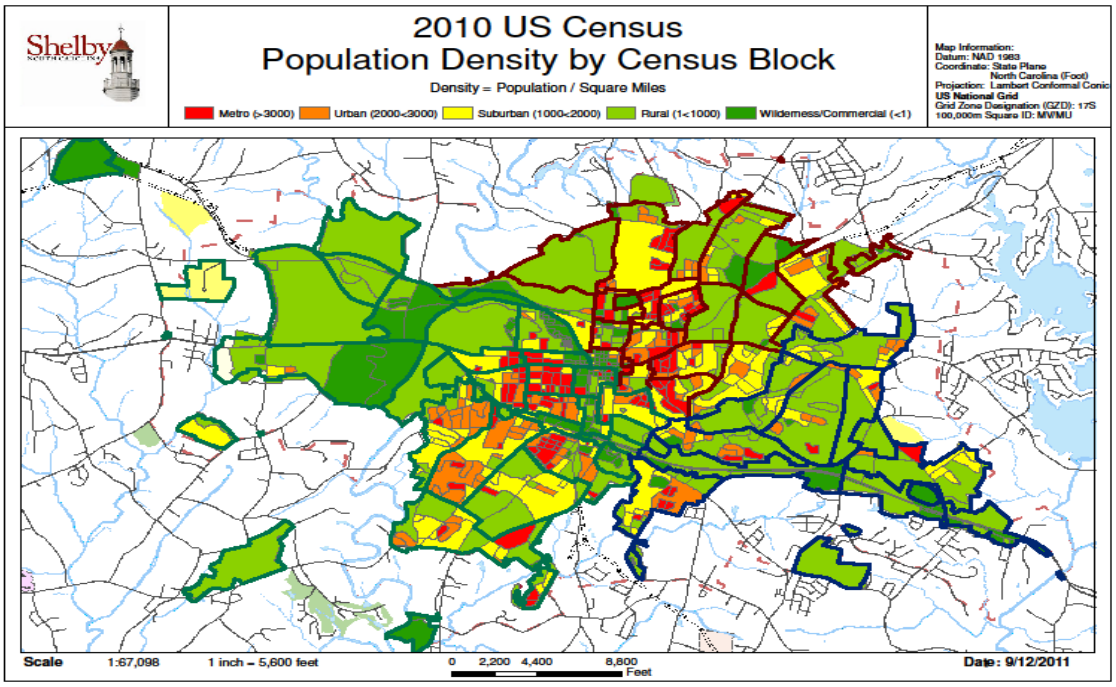
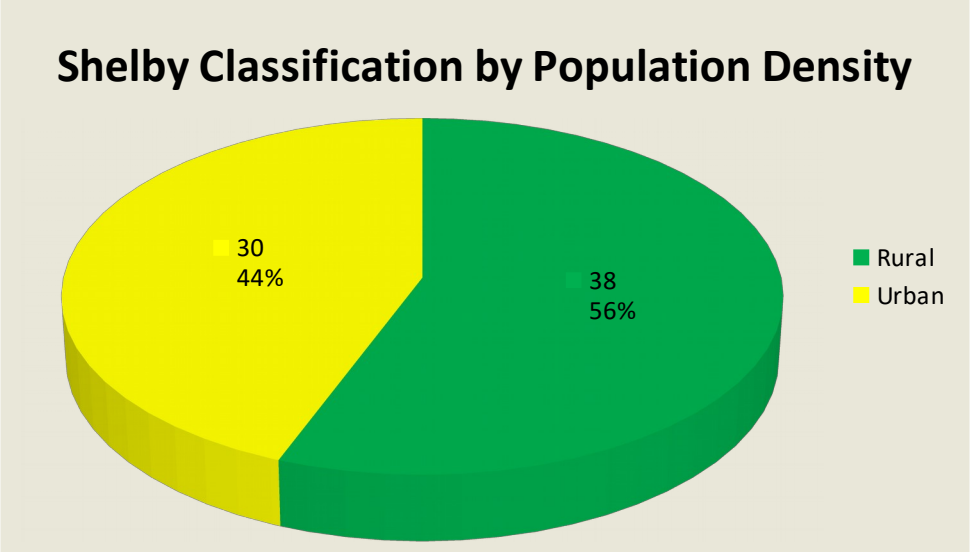
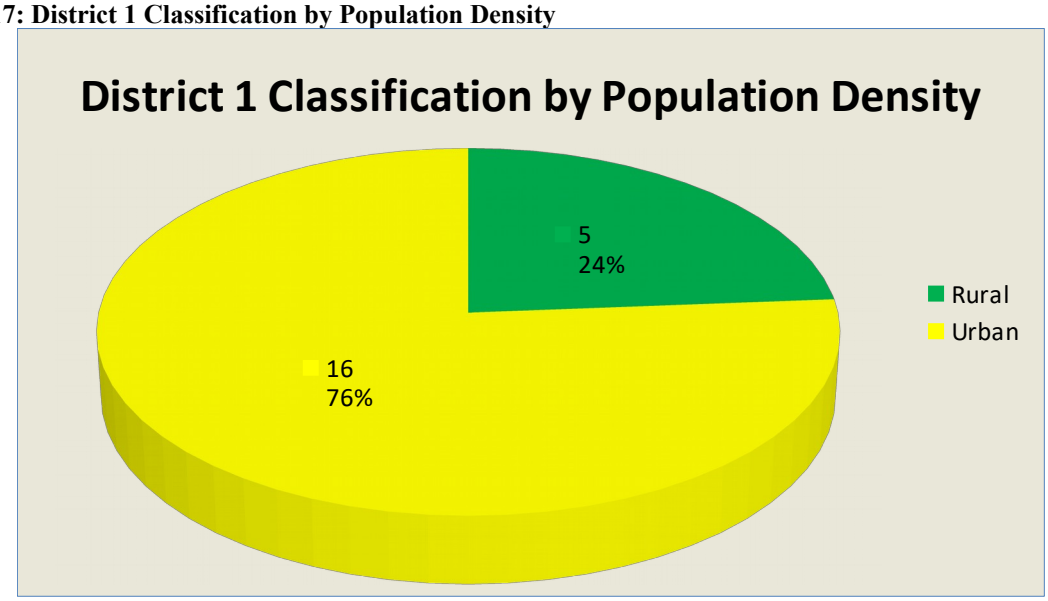


Figure 16: Shelby Classification by Population Density



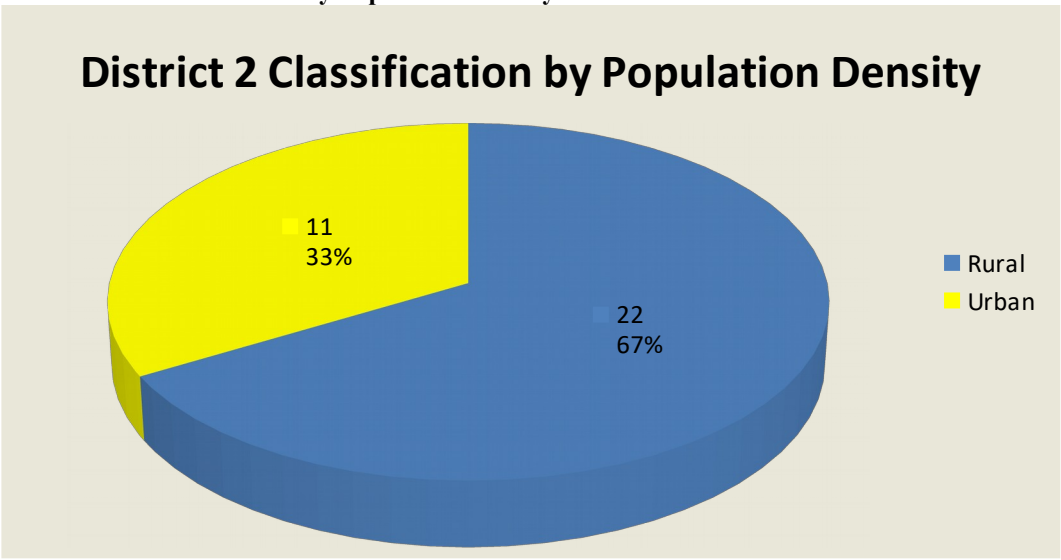
In District 1, served by the *Grover Street Firehouse,* the classification by population density is; twenty-four percent (24%) rural, and seventy-six percent (76%) urban in character. It is notable that the urbanized areas can be sub-classified into commercial development (5%), suburban (33%), urban (29%), and dense urban (5%) categories.

Figure 17: District 1 Classification by Population Density



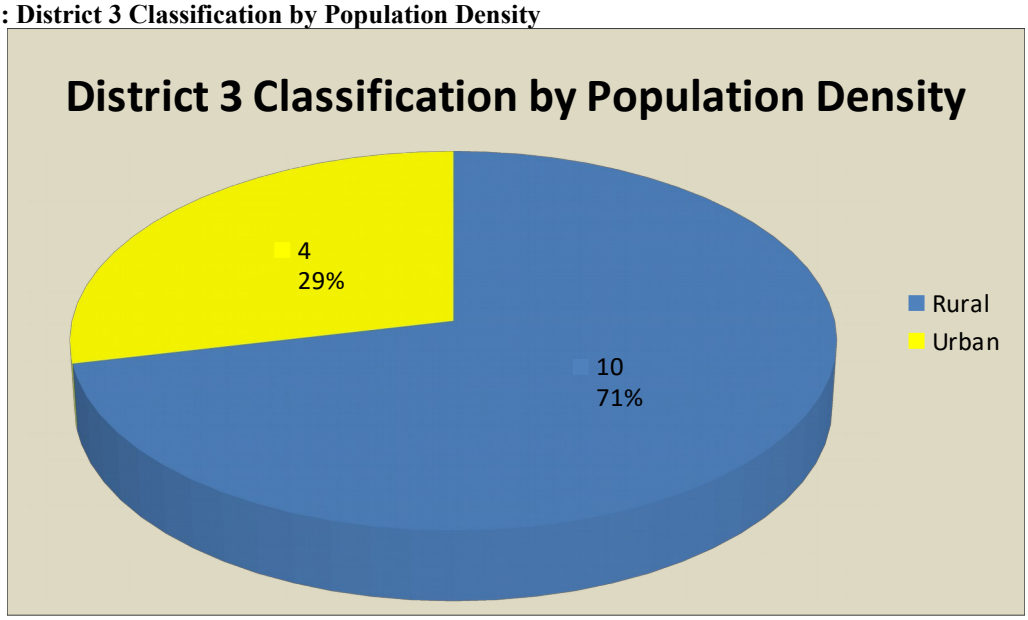
In District 2, served by the *Charles Road Firehouse,* the classification by population density is; sixty-seven percent (67%) rural, and thirty-three percent (33%) urban in character. It is notable that the urbanized areas can be sub-classified into commercial development (16%), suburban (12%), urban (22%), and dense urban (6%) categories.

Figure 18: District 2 Classification by Population Density



In District 3, served by the *Kings Road Firehouse,* the classification by population density is; seventy-one percent (71%) rural, and twenty-nine percent (29%) urban in character. It is notable that the urbanized areas can be sub-classified into commercial development (14%), and suburban (15%) categories.

Figure 19: District 3 Classification by Population Density



The *concentration of risk by RHA and program* illustrates the level of risk within a risk hazard area (RHA) by service provided by the Fire & Rescue Department. The analysis provides insight at the jurisdiction, district and *RHA level.* For instance, Figure 19 shows the concentration of risk in all RHA's in the city. In the *fire service delivery* column the level of risk in each RHA is as follows; minimal risk zero (0); moderate risk twenty nine (29), significant risk thirty (30), maximum risk nine (9) for a total of sixty eight (68) considered RHA's. The same format is carried out across the remaining service areas. Figures 20 through 22 summarize the findings by district. Appendix A highlights the data by RHA.

Figure 20: Shelby Risk Typification by RHA Zone

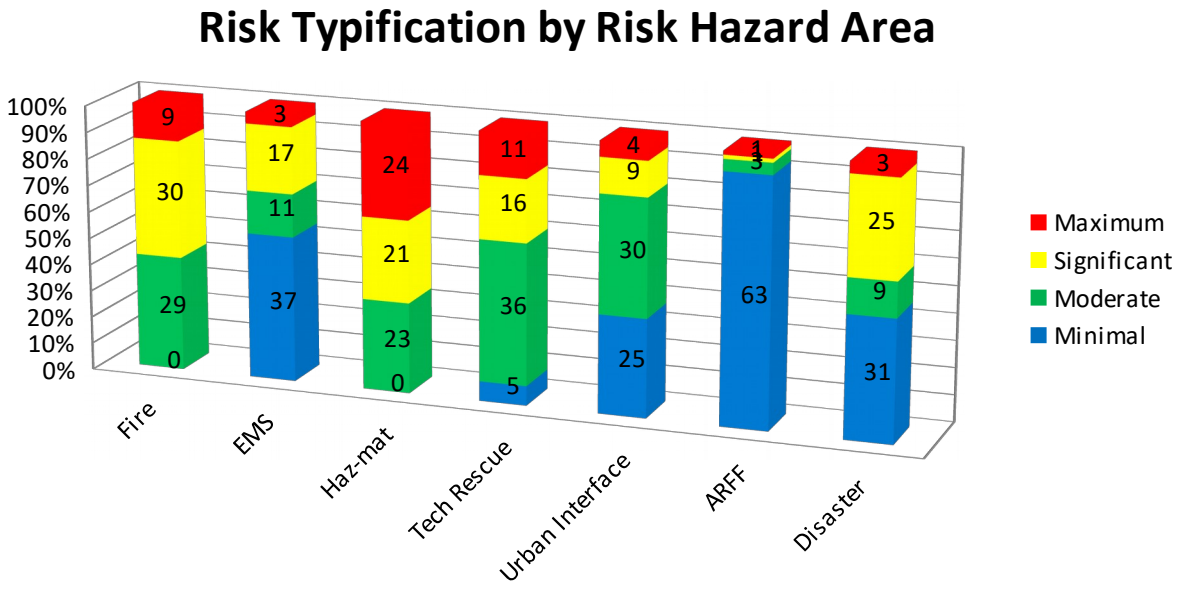


Figure 21: District 1 Risk Typification by RHA Zone

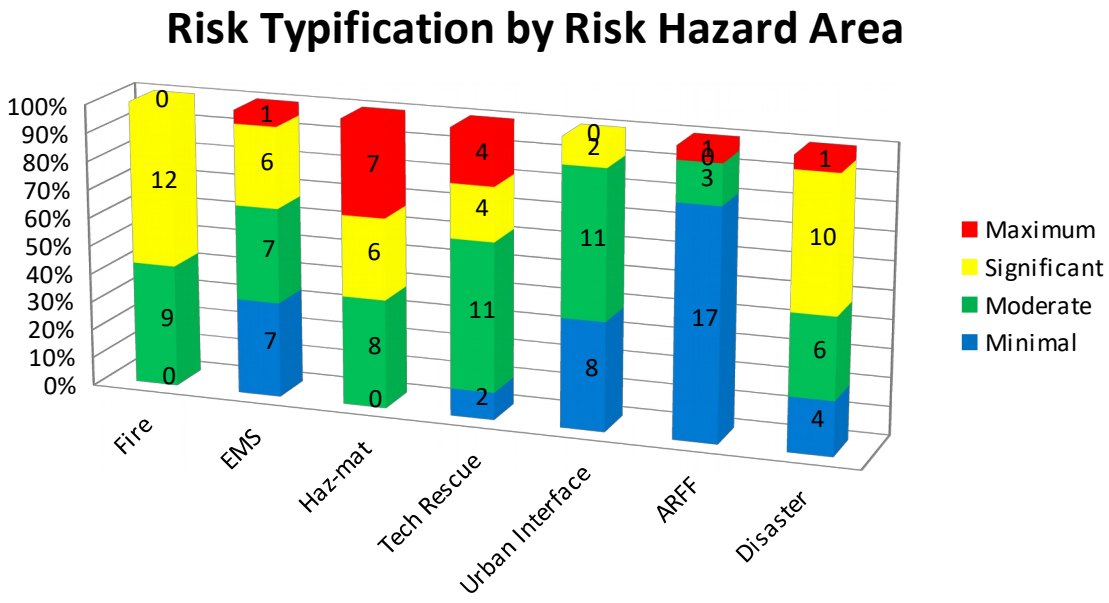
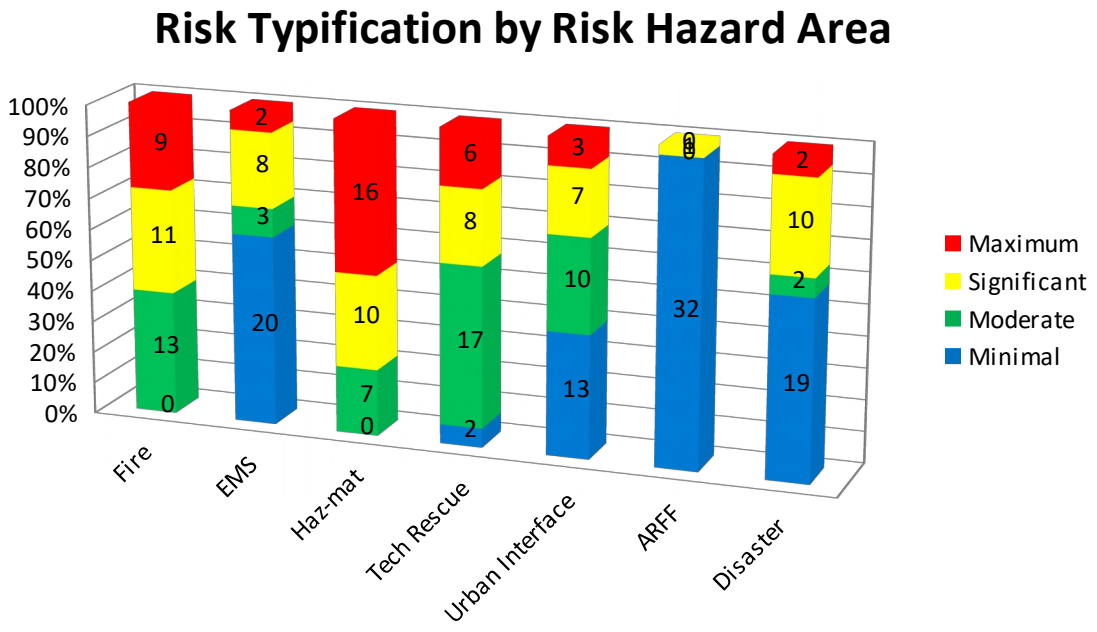
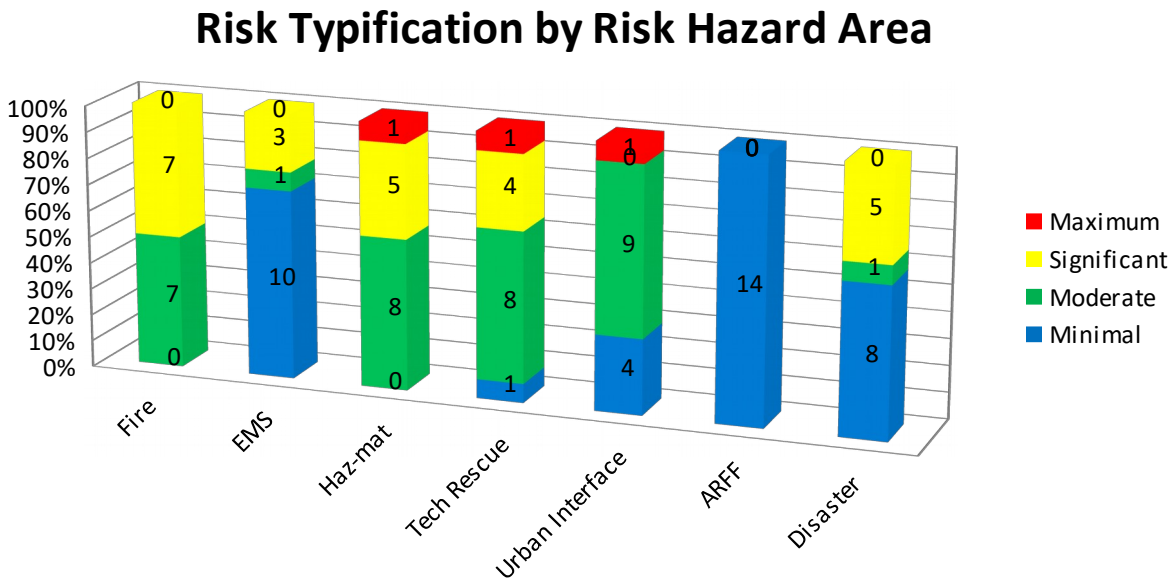


Figure 22: District 2 Risk Typification by RHA Zone



District 1
RHA Zones= 21

Figure 23: District 3 Risk Typification by RHA Zone



Critical Infrastructure

The agency identifies the systems and structures that necessary to sustain the city and facilitate the continuity of government as critical infrastructure. City and county government buildings, major medical facilities, transportation network, and the public utility systems (electric, water-sewer, and natural gas) are required to maintain the general well-being safety, security of the public and are shown in Figures 23 through 27.

Figure 24: Critical Infrastructure- Public Buildings & Street Network

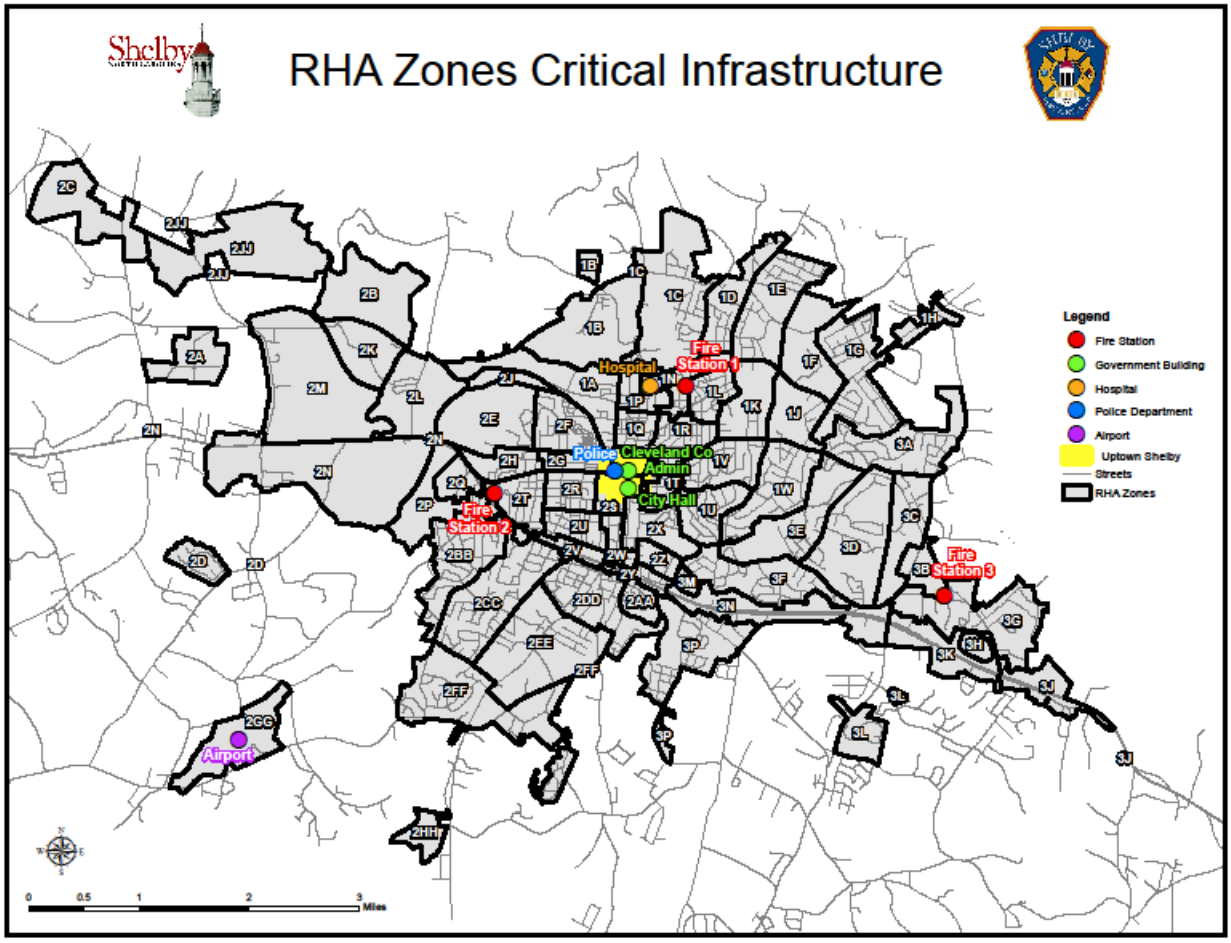


Figure 25: Critical Infrastructure- Electric Service Network

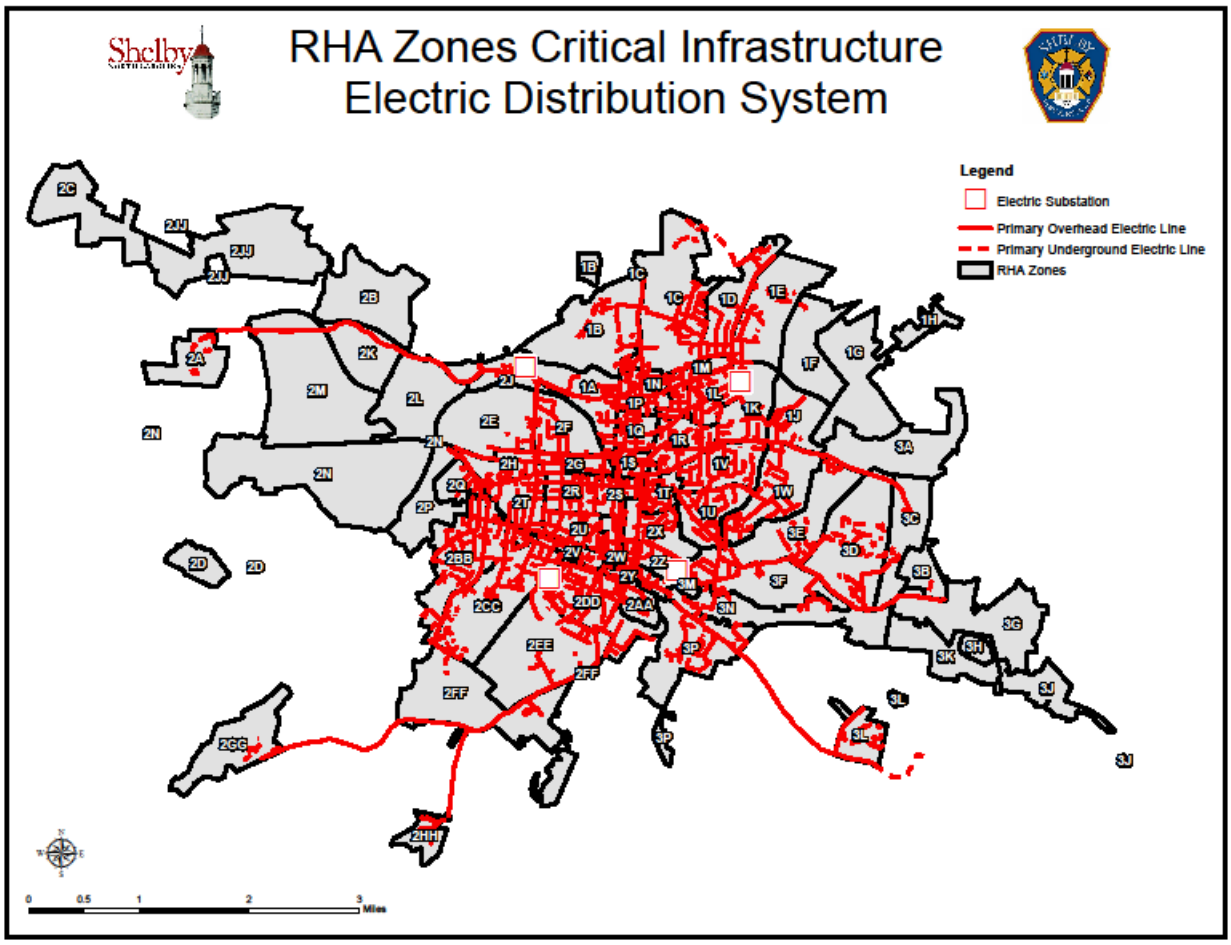


Figure 26: Critical Infrastructure- Natural Gas Service Distribution

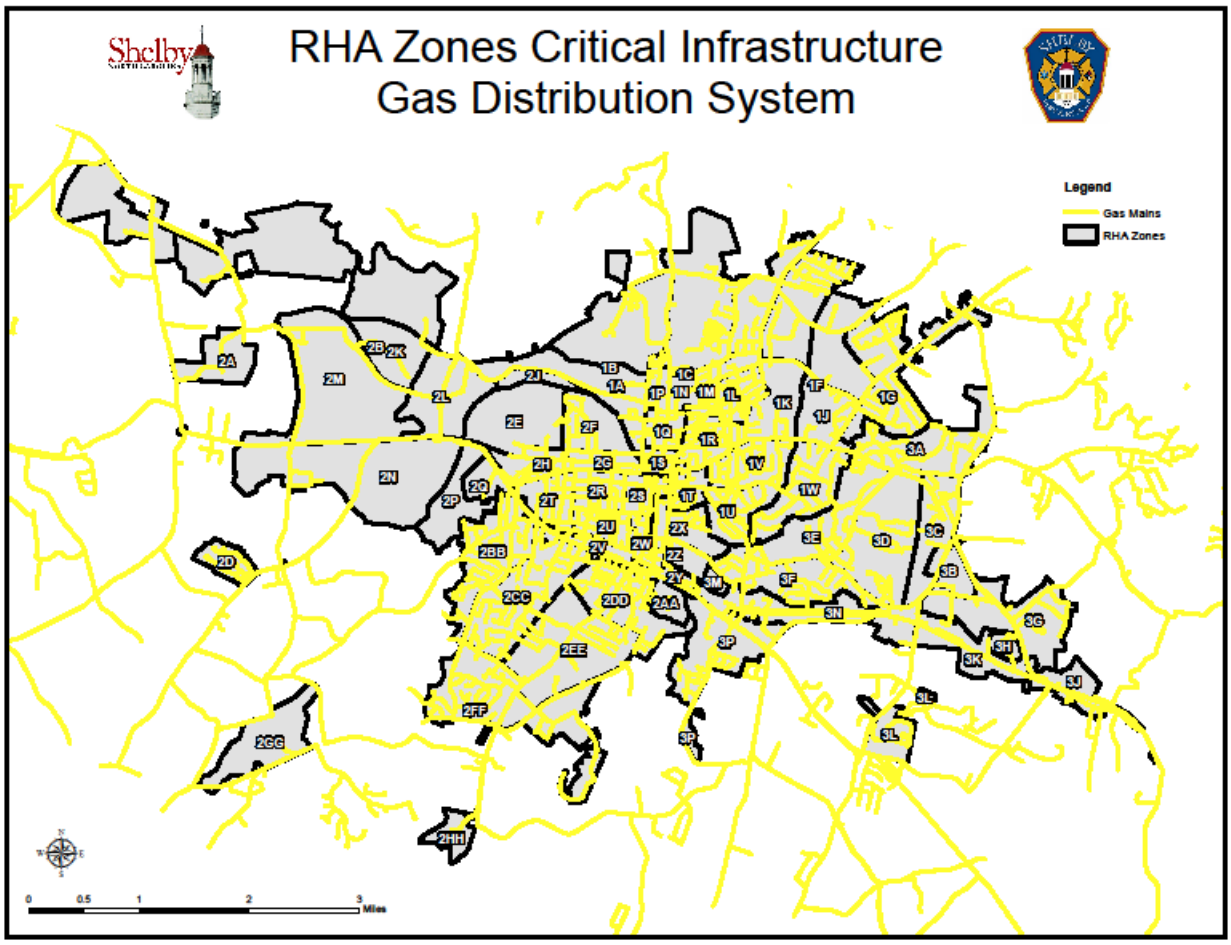


Figure 27: Critical Infrastructure- Wastewater Collection System

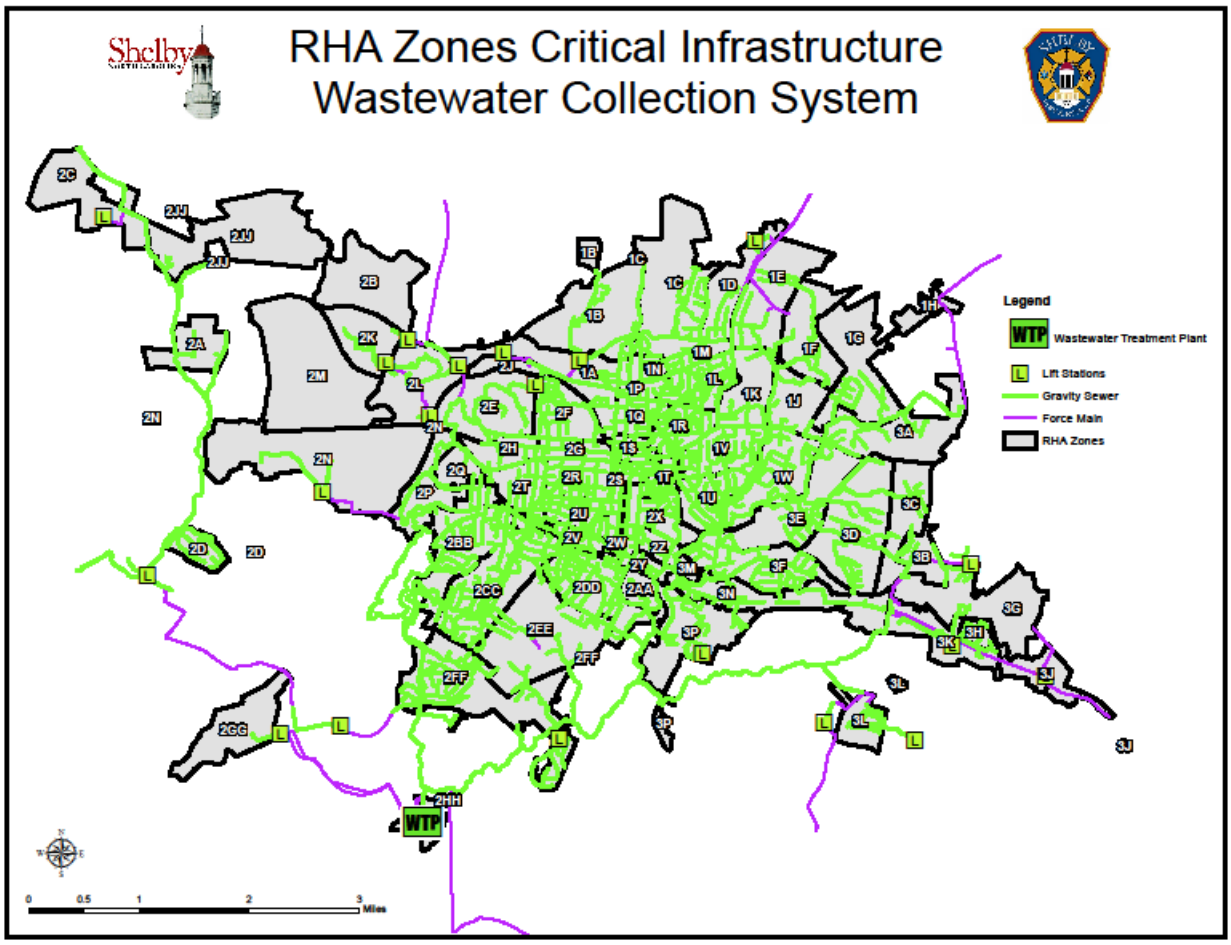
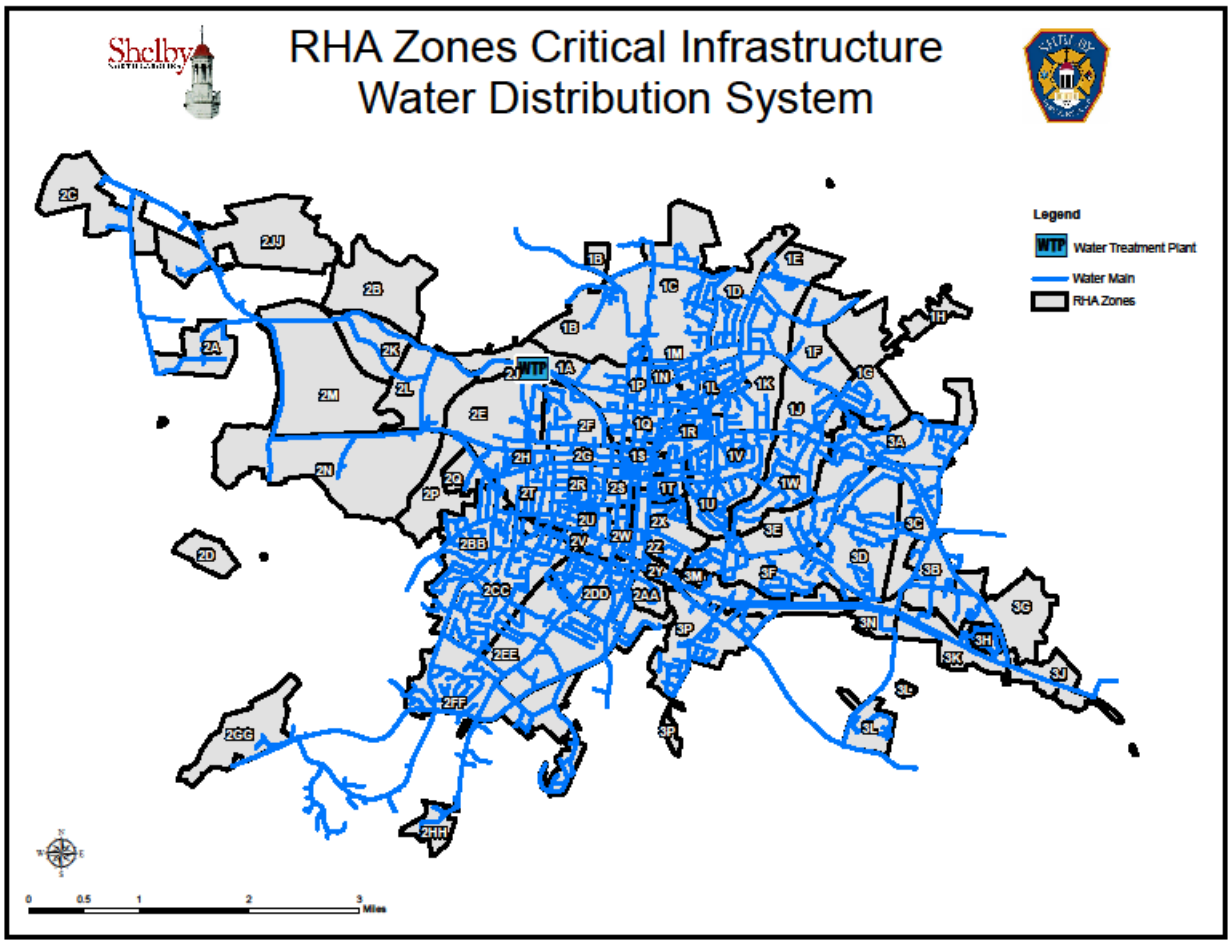


Figure 28: Critical Infrastructure- Water Distribution System



Program Risk Analysis

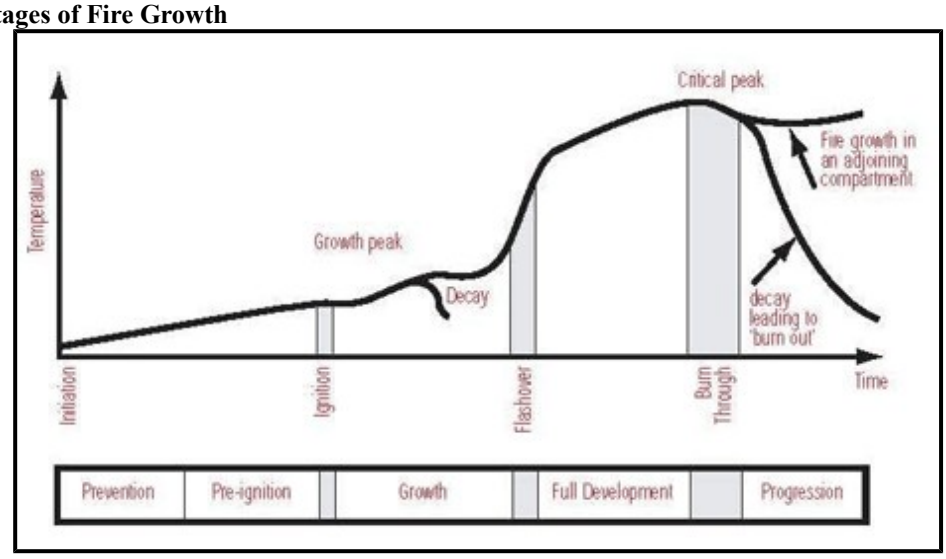
Fire Suppression Services

A structure fire can be defined as a fire occurring in any type of building used for the purposes of habitation, manufacture or sale of goods, storage, or entertainment and can range in scale from a storage outbuilding, a residential home, a store, or a factory. The principle threat to people and property from structure fires comes from the heat, smoke, toxic gases and pressure produced as the fire burns. Additional threats come from the potential for collapse of the structure as the components holding a building together weakens and give way as the fire progresses.

Table 12: Fire Risk Matrix

Moderate Risk	Significant Risk
OVAP Score: 15-39 **Group B, Group R (one to three units)** **Zone R20, Zone R10, Zone R8, Zone RR, Zone NB.** **Fire Alarm Activation, Fire Investigation**	**OVAP Score: 40-59** **Group A, Group M, Group R (four or more units), Group S, mixed occupancy use.** **Zone R6, Zone, Zone RO, Zone CB, Zone GB, Zone GB2, Zone CPD**
Minimal Risk	**Maximum Risk**
OVAP Score: 14 or Less **Transportation, accessory structures.** **Non-emergency citizen assistance**	**OVAP Score: 60>** **Group F, Group H, Group I** **Zone LI, Zone GI**

Figure 29; Stages of Fire Growth



The critical tasks that are necessary to control a structure fire include the following:

- Fire Control; Water must be applied to the fire to stop the progression of the fire and bring about extinguishment. NCOSHA law requires this be accomplished by a minimum of two firefighters.
- Back-up Fire Control; A team of firefighters with a hose line must be in place to assist with fire control and to protect the fire control team. NCOSHA law requires this to be accomplished by a minimum of two firefighters.
- Exposure Protection; Water must be applied to prevent the continued spread of the fire to adjacent areas or structures. NCOSHA law requires this to be accomplished by a minimum of two firefighters.
- Ventilation; Smoke, heat and toxic gases must be ventilated from the structure and replaced by fresh air. NCOSHA law requires this to be accomplished by a minimum of two firefighters.
- Search; the structure must be searched to determine the presence of trapped occupants. NCOSHA law requires this to be accomplished by a minimum of two firefighters.
- Rescue; when trapped occupants are located, they must be quickly removed from the structure. NCOSHA law requires this to be accomplished by a minimum of two firefighters.
- Rapid Intervention Crew; A team of properly equipped firefighters must be held in reserve for the purpose of rescuing firefighters operating inside the structure if such a need arises. NCOSHA law requires this to be accomplished by a minimum of two firefighters.
- Salvage; The structure and its contents must be protected from further damage from the fire and the extinguishment activities. The application of tarps, covering openings and removing water must be completed. This task requires a minimum of two firefighters to complete.
- Water Supply; A stable water supply must be established. This is accomplished by connecting the fire engine to the nearest hydrant. This task requires a minimum of one firefighter to complete.
- Pump Operator; Water must be delivered at safe pressures through the hose lines and appliances to effect the extinguishment of the fire. The pressure levels and the supply must be constantly monitored and adjusted as the incident progresses. This task requires one firefighter for each fire pump in use at an incident.
- Command; The tactics, personnel, and resources needed to bring a structure fire under control must be coordinated and monitored throughout the duration of the incident. This task requires a minimum of one firefighter to complete.
- Safety; A structure fire incident must be constantly monitored for unsafe activities and/or dangerous situation and conditions. This task requires a minimum of one firefighter to complete.

Table 13 highlights the minimum number of firefighters required to accomplish the critical tasks for a first arriving unit at a pre-flashover fire and an effective response force at a post flashover structure fire. An initial arriving unit with four firefighters can be expected to initiate initial tactical operations in an offensive posture, while a company with three firefighters can be

expected to conduct operations in a defensive posture. Critical tasks which can be performed concurrently by the same crew of firefighters are listed together.

Table 13: Fire Critical Task

Critical Task- First Arriving Company/Pre-flashover	Number of Firefighters
Fire Control/Search/Rescue/Ventilation/Salvage	2
Pump Operator/RIC/Water Supply/Command	1-2
Total	**3-4 Firefighters**

Critical Task- First Alarm Assignment/Post flashover	Number of Firefighters
Search and Rescue	2
Rapid Intervention Crew	2
Fire Pump Operator	1
Back-up Fire Control/Exposure Protection	2
Ventilation/Salvage Operations	2
Fire Control	2
Water Supply	1
Command/Safety	1
Total	**13 Firefighters**

Table 14 highlights the time analysis for the completion of the required tasks in a moderate risk structure fire one or two family dwelling structure fire. The analysis factors only those resources from the Fire & Rescue Department. The resources of a single company have the capability to control minimal risk incidents and to begin interventions in moderate, significant and maximum risk incidents in advance of the arrival of the effective force. The first alarm assignment of resources has the capability to service minimal and moderate risk structure fires. An additional company of resources is required to service significant risk structure fires and maximum risk structure fires can be expected to require a second alarm or greater of mutual aid resources to control.

Table 14; Fire Suppression Critical Task Completion

Task Completion	Average	2018	2017	2016	2015
Command-Safety	00:23	00:27	00:15	00:21	00:23
Two in-Two Out	02:38	01:29	00:51	02:32	02:33
Fire Control Deployed	01:25	01:23	01:16	01:31	01:31
Water Delivered	2:29	02:04	01:54	02:10	01:51
Back up Line	02:48	03:30	02:33	02:13	02:16
Search and Rescue	03:11	03:18	02:18	03:49	03:58
Water Supply Est.	04:25	03:39	03:58	04:30	04:15
RIC Established	03:51	03:31	02:35	04:30	04:10
Safety	02:20	02:47	02:19	01:46	01:48
Ventilation Complete	08:34	06:32	06:33	09:56	09:58
Total	**08:20**	**06:35**	**6:43**	**10:00**	**10:00**

Rescue Services

There is a wide array of situations in which people may require rescue. This includes people trapped in vehicles or machinery, the collapse of structures, confined spaces, trench collapse or incidents in water. Rescue also pertains to people being lost in open areas or in situations where a person is unable to affect their own rescue. This condition exposes the person(s) to injury, and to further injury, if prompt rescue efforts are not carried out. Rescue incidents typically involve a medical aspect to the incident, and the longer the delay in rescue operations; the less likely a positive outcome for the person will result.

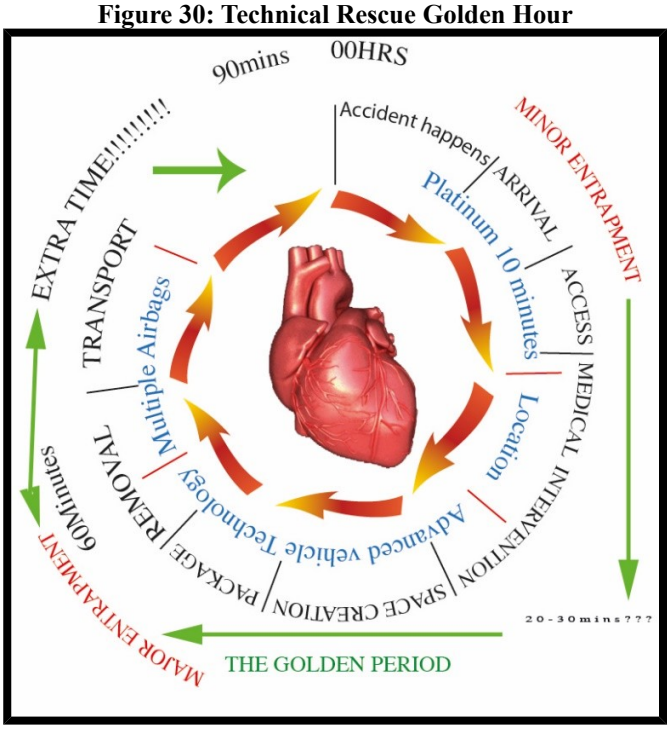
In order to remove a person from harm in shortest amount of time, it is important that an effective response force arrive at the scene quickly to begin rescue interventions. The dangers for the victim include exposure to the elements and delay in proper medical care.

The types of rescue situations that can be encountered are extensive. For the purpose of this document, a person trapped in a vehicle is used to provide the baseline for the number of firefighters needed for a typical rescue incident. Vehicle extrications are the most common rescue incidents faced by the Fire & Rescue Department and are comparable to the personnel and resource needs for other types of rescue services.

Table 15: Technical Rescue Matrix

Moderate Risk	Significant Risk
MVA w/ entrapment-pin in, single **Still Water** **Low angle rope** **High angle rope up to 25ft.** **Speed zones up to 35mph**	**MVA w/ entrapment-pin in, multiple** **Swift moving water** **Structure collapse** **High angle rope up to 50ft** **Speed zones up to 55mph**
Minimal Risk	**Maximum Risk**
Land Search **MVA with injury** **Vehicle lock-out** **Speed zones up to 25mph**	**High angle rope > 50ft** **Trench collapse** **Confined Space**

Figure 30: Technical Rescue Golden Hour



Critical tasks that are necessary for a vehicle extrication rescue operation include:

- Stabilization; the vehicle must be stabilized so that the vehicle does not move and further injure the patient or the rescuers. This task must be performed by a minimum of two firefighters.
- Fire Control; the use of rescue tools on a vehicle produces the opportunity for ignition of spilled fuels. It is important to have a team of firefighters standing by to extinguish any fire that may erupt. This task must be performed by a minimum of two firefighters.

- Extrication; the victim must be disentangled and removed from the wreckage using specialized rescue tools and equipment. This task must be performed by a minimum of two firefighters.
- Patient Care; immediate assessment and medical interventions must take place as the rescue is taking place. This task must be performed by a minimum of one firefighter.
- Command; The direction and coordination of vehicle extrication must be performed. Evaluation of operational conditions, personnel and tactical progress must be monitored and the analysis of for the need of additional specialized resources must be factored. This task must be performed by a minimum of one firefighter.
- Safety; Safety; A vehicle extrication incident must be constantly monitored for unsafe activities and/or dangerous situation and conditions. This task requires a minimum of one firefighter to complete.

Table 16 shows the number of firefighters necessary to perform the critical tasks outlined for a basic vehicle extrication as an initial arriving unit. The second portion list the total number of firefighters required to perform critical tasks for more complex rescue events such as; vehicle extrication, confined spaces, structural collapse, trench, high angle or water rescue events. Extracting a person from these situations is technically daunting and labor intensive event and too broad in scope to list each situation separately. The tasks that can be performed concurrently by the same personnel are listed together.

Table 16: Technical Rescue Critical Tasks

Critical Task- First Arriving Company	Number of Firefighters
Stabilization/Fire Control/Command/Safety	2
Patient Care	1
Total	**3 Firefighters**

Critical Task-First Alarm Assignment	Number of Firefighters
Command	1
Safety Officer	1
Rescue Operations- vary by type	11
Total	**13 Firefighters**

Table 17 highlights the time analysis for the completion of the required tasks in a technical rescue incident involving heavy hydraulic vehicle extrication. The analysis factors only those resources from the Fire & Rescue Department. A first alarm assignment of resources has the capacity to service all minimal, moderate calls for service and begin intervention in significant and maximum technical rescue incidents in advance of the arrival of the *Cleveland County Urban Search & Rescue Team.* Incidents classified as significant or maximum will require mutual aid resources of the technical rescue team.

Table 17; Technical Rescue Critical Task Completion

Task Completion	Average	2018	2017	2016	2015
Command-Safety Est.	00:29	00:20	00:43	00:31	00:20
Incident Size up	00:51	00:49	00:51	00:57	00:47
Fire Control Deployed	02:11	02:01	02:33	02:03	02:05
Water Delivered	03:16	03:04	03:59	03:19	02:41
Stabilization	03:13	03:04	03:01	03:12	03:25
Patient Care Start	03:02	02:31	03:28	02:55	03:19
Rescue Start	05:11	05:31	05:12	04:43	05:16
Rescue Complete	18:58	18:48	19:24	18:40	18:58
Total	**19:07**	**18:58**	**19:34**	**18:50**	**19:08**

Emergency Medical Services

A medical emergency typically involves a single patient that is sick or injured. Other types of incidents can create medical emergencies that involve multiple patients. These types of events include multi-vehicle accidents, carbon monoxide exposures and trauma incidents. The human brain will suffer irreversible damage if an adequate supply of oxygen is not maintained. Sudden cardiac arrest of the heart cannot be reversed unless specialized equipment is used within a short time. A persons injuries become more difficult to treat with time, therefore it is essential that an effective response force of trained personnel arrive on the scene of a medical emergency quickly so that a more favorable outcome for the patient(s) may occur.

Table 18: EMS Risk Matrix

Moderate Risk	Significant Risk
Bravo and Charlie Classification Incidents Up to 4 Patient Count Population 1000-2000/sq. mi	**Delta Classification Incidents Up to 6 Patient Count Population > 2,000/sq. mi**
Minimal Risk	**Maximum Risk**
Alpha Classification Incidents Up to 2 Patient Count Population <1000/sq. mi.	**Echo Classification Incidents Mass Casualty Medical Population > 3,000/sq. mi.**

The critical tasks that are necessary to mitigate an emergency medical incident include the following:

- Cardiopulmonary resuscitation (CPR); CPR must be performed on a patient who is not breathing and has no heartbeat. This circulates oxygenated blood through

the body and keep vital organs, especially the brain, functioning. This must be performed by a minimum of one firefighter.

- Defibrillation; the most common abnormal heart rhythm suffered by adults in sudden cardiac arrest is *ventricular fibrillation.* This life threatening rhythm can only be reversed by defibrillation with electrical therapy. This must be performed by a minimum of one firefighter.
- Airway insertion; maintaining an open airway is important for the patient in sudden cardiac arrest. Insertion of a tube into the patient's airway ensures an open route to administer oxygen and helps to prevent irreversible heart and brain damage. This must be performed by a minimum of one firefighter.
- Trauma patients must be immobilized to prevent injuries from worsening, or incurring further injury. This must be performed by a minimum of two firefighters.
- Command; The direction and coordination of the response must be performed. Evaluation of patient condition, personnel and progress of care must be monitored. Analyzing and requesting needed resources are also functions of command. This must be performed by a minimum of one firefighter.
- Safety; A medical emergency must be constantly monitored for unsafe activities and/or dangerous situation and conditions for the patient and the responders. This task requires a minimum of one firefighter to complete.

Table 19 highlights the minimum number of firefighters required to accomplish the critical tasks for a first arriving unit at a single patient medical emergency and for a multiple patient medical emergency. It is important to note here that a typical medical emergency response will include up to four additional personnel and resources from the *Cleveland Emergency Medical Services* and the *Shelby Rescue Squad*, however, those resources are not considered in this analysis. Critical tasks which can be performed concurrently by the same crew of firefighters are listed together.

Table 19: EMS Critical Tasks

Critical Task- First Arriving Company/Single Patient	Number of Firefighters
Command/Safety Officer	1
CPR/Defibrillation	1
Airway Management	1
Total	**3 Firefighters**

Critical Task- First Alarm Assignment/Multi-Patient	Number of Firefighters
Command	1
Safety Officer	1
Patient Interventions & Immobilization (3 FF/Patient)	6 +
Total	**8+ Firefighters**

Table 20 highlights the time analysis of typical tasks in a single patient medical emergency incident. The analysis factors only those resources from the Fire & Rescue Department. A single company has the capacity to service all minimal, moderate, significant and maximum level single patient calls for service. In situations where there is more than one advanced life support patient, multiple basic life support patients, or a mass casualty incident; additional resources or mutual-aid must be summoned.

Table 20; Medical Critical Task Completion

Task Completion	Average	2018	2017	2016	2015
Patient Assessment, Command Safety	00:04	00:06	00:04	00:03	00:02
Start Compressions	00:11	00:15	00:14	00:06	00:07
Airway Insertion	00:34	00:33	00:34	00:35	00:32
Airway Management	00:49	00:45	00:48	00:50	00:51
Apply AED	00:51	00:31	00:31	00:39	01:01
Shock Administered	02:03	01:35	02:12	02:20	02:43
Total	**02:03**	**01:35**	**02:12**	**02:20**	**02:43**

Hazardous Materials Services

A release of a hazardous material is an extremely dangerous event to life, property and for the environment. A material classified as a hazardous material is not dangerous until it is released in some fashion from its container. The City of Shelby contains numerous settings where hazardous materials are used, stored and transported in which a material could be released. The settings include industrial processes, health care, and highway, rail or air transportation. A release of a hazardous material exposes people, animals, property and environment to a myriad of hazards and dangers. This arises from the effects of the release that can cause short and long term injury, damage and pollution; and include; mechanical means, respiratory effects, carcinogenic effects, toxic effects and teratogenic effects to people and animals. The danger for property and the environment can have far reaching long term effects if the release involves the air, water system, or economically important transportation routes. The evacuation and decontamination of victims from the scene of a hazardous material release is the main priority for emergency responders. Stabilization of the incident is the next most important function which must be accomplished. The longer a victim is exposed to a hazardous environment, the greater the effects the exposure may have on the victim. The more of a product that is allowed to leak or spill out of its container, the greater the threat it is to property and the environment. To minimize the effects on life, property and the environment, it is imperative that an effective response force arrive at the scene of a hazardous material release quickly to mitigate the incident. The amount and properties of the material play a large part in determining if the effective response force will arrive in time to substantially minimize the effects.

Table 21: Hazardous Materials Risk Matrix

Moderate Risk	Significant Risk
NG Feeder Pipe (</=25psi) **Class 3 liquid spills >5 gal. < 10gal**	**NG Distribution Pipe (150psi)** **DOT Class 3, Class 4.1-4.3, Class 5.1-5.2, Class 6.1-6.2, Class 8** **Highway Transportation Corridors**
Minimal Risk	**Maximum Risk**
Class 3 liquid spills < 5 gal.	**NG Main Distribution Pipe (400psi)** **DOT Class 1.1-1.6, Class 2.1-2.3, Class 7** **Rail Transportation Corridors**

Critical tasks that are necessary to successfully mitigate a hazardous material release include:

- Identification; the product involved in the release must be identified through the use of monitors, instruments and signage. This is accomplished by a reconnaissance team. This must be accomplished by a minimum of two firefighters.
- Entry; victims in need of rescue or evacuation from the immediate area require rescuers in an appropriate level protection so that the rescuers do not become incapacitated and become additional victims. NCOSHA law requires this task to be completed by a minimum of two firefighters.
- Safety; A hazardous material incident must be constantly monitored for unsafe activities and/or dangerous situations and conditions. This task requires a minimum of one firefighter to complete.
- Back-up Team; a team must be assembled and held in reserve to rescue the entry team in the event a rescue is necessary. NCOSHA law requires this task to be completed by a minimum of two firefighters.
- Evacuation; alerting persons in the immediate vicinity of the danger of a hazardous material release and assisting them with evacuation from potential harm must be performed. This task must be performed by a minimum of one firefighter.
- Mitigation; preventing a hazardous material spill or leak from increasing in size and volume requires efforts to protect areas that are in immediate danger of becoming contaminated. This includes placing dikes in waterways and drainage areas, and sealing off buildings. This task requires a minimum of two firefighters to complete.
- Water Supply; A water source for decontamination operations must be secured. This task requires at least one firefighter to accomplish.
- Rehabilitation; rehab of firefighters working in and in the immediate vicinity of the hazard area must be performed frequently. This included monitoring vital signs, protecting from exposure and providing rehydration. This task must be performed by a minimum of one firefighter.

- Decontamination; victims and rescuers must be decontaminated from any direct product exposure or atmospheric exposure as they leave the immediate area to prevent the spread of contaminants and to contain adverse human reactions to exposure. This task must be performed by a minimum of two firefighters.
- Command; The direction and coordination of a hazardous material event must be performed. Evaluation of operational conditions, personnel and tactical progress must be monitored and the analysis of for the need of additional specialized resources must be factored. This task must be performed by a minimum of one firefighter.
- Research; the properties of a hazardous material must be researched to identify its characteristics. The volatility and effects that the product may have on people, animals and the environment must be thoroughly analyzed. The proper protective equipment needed by responders and the appropriate tactics to employ to reduce and mitigate the incident must be identified prior to taking action. This task must be accomplished by a minimum of one firefighter.

Table 22 show the number of firefighters required to complete critical tasks at a hazardous material incident for an initial arriving unit and for a first alarm assignment. An initial arriving unit with three or four firefighters can be expected to conduct operations in a defensive posture. Tasks that can be performed concurrently by the same team are listed together.

Table 22; Hazardous Materials Critical Tasks

Critical Task- First Arriving Company	Number of Firefighters
Identification/Mitigation	2
Command/Safety/Water Supply/Evacuation	1
Total	**3 Firefighters**

Critical Task- First Alarm Assignment	Number of Firefighters
Identification	2
Entry	2
Mitigation	1
Back-up Team	2
Decontamination	2
Command	1
Safety/Product Research	1
Water Supply/Evacuation	1
Rehabilitation/Staging	1
Total	**13 Firefighters**

Table 23 highlights the time analysis for the completion of the required tasks of an operations level hazardous materials incident involving DOT Class 3 products. The analysis factors only those resources from the Fire & Rescue Department. A first alarm assignment of resources has the capacity to service all minimal, moderate calls for service and begin intervention in significant and maximum hazardous material incidents in advance of the arrival of the *Cleveland*

Count Hazardous Materials Response Team. Incidents classified as significant or maximum will require mutual aid of the hazardous materials team.

Table 23; Hazardous Materials Critical Task Completion

Task Completion	Average	2018	2017	2016	2015
Command-Safety	01:28	01:22	02:05	00:54	01:31
Incident Size up	04:19	01:39	07:51	01:59	06:25
Product Identification	08:29	01:50	29:39	02:03	06:25
Product Research	11:20	01:51	31:02	04:34	10:24
Entry Team	16:20	02:12	28:15	04:31	30:20
Back up Team	16:51	01:59	28:15	06:11	30:20
Water Supply/Evac	06:37	01:20	12:00	06:04	06:25
Mitigation Started	18:03	01:59	30:00	05:28	36:26
Decontamination	29:42	03:19	45:00	06:30	63:21
Rehab/Staging	31:42	03:30	47:00	05:24	70:16
Total	**36:08**	**03:30**	**53:25**	**06:40**	**70:16**

Special Services

Urban-Rural Land Interface Services

An urban-rural interface fire can range from a fire involving brush or rubbish confined to a single parcel lot to a widespread woodland fire covering many acres and threatening life, property and the environment. Structures located within interface zones are at risk for a fire loss. Structures, property, and occupants in the path of a growing and advancing urban-rural interface fire are in significant danger. The danger arises out of the potential for rapid spread over a large area in a short period of time where the fuel load, prevailing weather conditions and the general topography of the area factor into the severity of an urban land fire.

Table 24: Urban-Rural Interface Risk Matrix

Moderate Risk	Significant Risk
Grass, woods brush and rubbish up to three acres	**Grass, woods, brush and rubbish covering an area more than three acres and exposure or involvement of rural areas and/or undeveloped areas**
Minimal Risk	**Maximum Risk**
Yard waste **Grass, brush and woods up to 200'X200"**	**Grass, woods, brush and rubbish covering more than three acres and involving exposure or involvement of urbanized areas.**

The critical tasks necessary to mitigate an urban-rural interface fire include:

- Command; the direction and coordination of the response must be performed. Evaluation if conditions, personnel, and progress must be monitored. Analyzing the need for additional resources and coordinating operations is a function of command. This must be performed by one firefighter.
- Safety; An urban-rural fire incident must be constantly monitored for unsafe activities and/or dangerous situation and conditions. This task requires a minimum of one firefighter to complete.
- Fire line; fuel for advancing fire must be removed by raking, cutting and blowing the material in a complete circle around the fire. This activity works to prevent the fire from perpetuating itself and slow and/or stop its advancement. This activity must be performed by a minimum of two firefighters.
- Extinguishment; water must be applied to the fire to extinguish it. This must be accomplished by a minimum of two firefighters.
- Structure protection; a structure threatened by an advancing fire must be prepared to withstand the encroachment by the fire. This activity includes pre-wetting the structure, clearing fuel and vegetation from the around the structure, and creating a defensible space. This must be performed by a minimum of three firefighters per structure.

Table 25 show the number of firefighters required to complete critical tasks at an urban land fire interface type incident for an initial arriving unit and for a first alarm assignment. An initial arriving unit with three firefighters can be expected to control small brush type fires and take a defensive posture at a larger incident while an effective fire force of firefighters is needed to control larger scale incidents. Tasks that can be performed concurrently by the same team are listed together

Table 25: Urban-Rural Land Interface Critical Tasks

Critical Task- First Arriving Company	Number of Firefighters
Command/Safety Officer	1
Fire line/Extinguishment	2
Total	**3 Firefighters**

Critical Task- First Alarm Assignment/	Number of Firefighters
Command	1
Safety Officer	1
Fire Line	2
Extinguishment	2
Structure Protection	3
Total	**9 Firefighters**

Table 26 highlights the time analysis for the completion of required tasks for an urban land fire up to three acres. The analysis factors only those resources from the Fire & Rescue Department. A single company has the capability to arrive at the scene and control minimal urban land fires and begin intervention in a moderate incident. The first alarm assignment of resources has the capability to service minimal and moderate risk urban land fires. A second alarm or greater of mutual aid resources are required to service significant risk and maximum risk urban-rural interface fires.

Table 26; Urban-Rural Land Interface Critical Task Completion

Task Completion	Average	2018	2017	2016	2015
Command-Safety	00:28	00:53	00:13	00:24	00:25
Incident Size up	01:25	00:53	00:17	01:38	01:35
Fire Control Deployed	02:08	01:19	00:56	02:46	02:38
Water Supplied	02:25	01:30	01:11	03:27	03:39
Fire line Established	04:06	02:29	02:37	06:08	05:53
Structure Protection in Place	03:26	02:36	02:52	03:50	03:49
Total	**04:42**	**02:46**	**03:02**	**06:18**	**06:02**

Aircraft Crash Fire & Rescue Services

Aircraft, crash fire & rescue (ARFF) encompass a spectrum of emergencies involving aircraft. Fires involving aircraft, crashes and collisions, in flight emergencies and structural fires in aircraft facilities are examples of ARFF incidents. General aviation emergencies are approached similarly to structure fires. A first arriving company with three firefighters can be expected to establish command, begin fire control and basic search and rescue. An effective force is needed for more complex incidents. Tasks that can be performed concurrently by the same personnel are listed together.

Table 27: Aircraft Crash Fire & Rescue Risk Matrix

Moderate Risk	Significant Risk
Business-corporate aviation aircraft • **In-flight emergency** • **Crash** **Airport glide path routes**	**Commuter, regional and aero-medical aviation aircraft** • **In-flight emergency** • **Crash** **Airport runway facilities**
Minimal Risk	**Maximum Risk**
General aviation aircraft. • **In-flight emergency** • **Crash** **Aircraft fly over**	**Commercial, cargo and military aviation aircraft** • **In-flight emergency** • **Crash** **Aero-medical landing facilities**

The critical tasks necessary to mitigate an ARFF incident include:

- Stabilization; the aircraft must be stabilized so that the vehicle does not move and further injure the patient or the rescuers. This task must be performed by a minimum of two firefighters.
- Fire Control; the crash of an aircraft provides for the opportunity for ignition of spilled fuels. Firefighters must move in to extinguish a fire or standing by to extinguish any fire that may erupt. This task must be performed by a minimum of two firefighters.
- Extrication; the victim must be disentangled and removed from the wreckage using specialized rescue tools and equipment. This task must be performed by a minimum of two firefighters.
- Patient Care; immediate assessment and medical interventions must take place as the rescue is taking place. This task must be performed by a minimum of one firefighter.
- Command; The direction and coordination an ARFF emergency must be performed. Evaluation of operational conditions, personnel and tactical progress must be monitored and the analysis of for the need of additional specialized resources must be factored. This task must be performed by a minimum of one firefighter.
- Safety; An ARFF incident must be constantly monitored for unsafe activities and/or dangerous situation and conditions. This task requires a minimum of one firefighter to complete.

Table 28 shows the number of firefighters necessary to perform the critical tasks outlined to control an aircraft crash on airport property involving a twin engine business/commuter class

aircraft. A single company can be expected to begin fire control measures, establish an initial command and begin rescue, ventilation and salvage interventions. The second portion lists the total number of firefighters required to perform a variety of fire and rescue critical tasks necessary to bring the event to conclusion. The tasks that can be performed concurrently by the same personnel are listed together.

Table 28: Aircraft Crash Fire & Rescue Critical Tasks

Critical Task- First Arriving Company	Number of Firefighters
Fire Control/Search/Rescue/Ventilation/Salvage	2
Pump Operator/RIC/Water Supply/Command	1-2
Total	**3-4 Firefighters**

Critical Task- First Alarm Assignment	Number of Firefighters
Search and Rescue	2
Rapid Intervention Crew	2
Fire Pump Operator	1
Back-up Fire Control/Exposure Protection	2
Ventilation/Salvage Operations	2
Fire Control	2
Water Supply	1
Command/Safety	1
Total	**13 Firefighters**

Table 29 highlights the time analysis for the completion of the required tasks in an aircraft crash fire and rescue incident on airport property involving a twin engine business/commuter type aircraft. The analysis factors only those resources from the Fire & Rescue Department. A first alarm assignment of resources has the capacity to service all minimal, moderate calls for service and begin intervention in significant and maximum incidents in advance of the arrival of automatic aid and mutual aid resources.

Table 29; Aircraft Crash Fire & Rescue Critical Task Completion

Task Completion	Average	2018	2017	2016	2015
Command-Safety	01:04	01:03	01:13	01:09	00:52
Incident Size up	01:05	01:09	00:52	00:53	00:49
Fire Control Deployed	01:14	01:24	01:16	01:13	01:03
Water Delivered	01:35	01:40	01:39	01:24	01:35
Aircraft Stabilized	04:10	04:20	04:31	03:58	03:51
Patient Care Start	04:41	04:36	04:37	04:49	04:41
Rescue Started	03:28	03:34	03:36	03:26	03:14
Rescue Complete	06:58	07:16	07:07	06:45	06:41
Total	**07:07**	**07:26**	**07:17**	**06:55**	**06:51**

Disaster Services

A disaster is typically a wide spread event affecting many citizens, requiring a large contingent of responders, and leaving an aftermath of short and long term consequences on the community. Fire & Rescue Department response within the scope of these events are to the many incidents that require fire suppression, technical rescue, urban search or hazardous material mitigation.

The scope and complexity of disaster incidents having the capacity to affect Shelby are fairly extensive, thus it is not feasible to analyze the complexities of each. For the purpose of this document, it is assumed that the cascade of events surrounding a disaster event will quickly overwhelm the resources of the Fire & Rescue Department as it unfolds. Overall, the city has a medium profile for risk from disaster events (Appendix D). Table 25 categorizes disaster in the context of occurrence, factoring the capability of the agency to provide sustained services.

Table 30: Disaster Services Matrix

Moderate Risk	Significant Risk
Long term drought **Flooding- Flood way zone** **Population 1000-2000/sq. mi**	**Severe wind storm** **Severe winter storm** **Group E, Group I** **Flooding- 100 year flood zone** **Population > 2000/sq. mi**
Minimal Risk	**Maximum Risk**
Localized flash flooding **Population < 1000/sq. mi.**	**Military invasion** **Terrorist/Violent Protest** **Nuclear Emergency** **Flooding- 500 year flood zone** **Population > 3000/sq. mi.**

Table 31 shows the number of firefighters necessary to perform the critical tasks outlined for a variety of disaster service related incidents. A single company can be expected to begin

stabilization or fire control, establish command and-or begin patient care in advance of the first alarm assignment of resources. The second portion list the total number of firefighters required in order complete critical tasks for more complex fire or rescue related events such as; fires, confined spaces, structural collapse, trench, high angle or water rescue events. Providing fire and rescue services during times of disaster can be technically daunting and labor intensive given the additional strategic considerations of various situations and thus too broad in scope to list each situation separately. The tasks that can be performed concurrently by the same personnel are listed together. The critical task analysis of operations during a disaster will mirror that of services areas already discussed, thus critical task analysis is not performed in this service area.

Table 31; Disaster Service Critical Tasks

Critical Task- First Arriving Company	Number of Firefighters
Stabilization/Fire Control/Command/Safety	2
Patient Care	1
Total	**3 Firefighters**

Critical Task-First Alarm Assignment	Number of Firefighters
Command	1
Safety Officer	1
Rescue & Hazard Mitigation Operations- vary by type	11
Total	**13 Firefighters**

D. Current Deployment and Performance

Distribution Factors

The *distribution factors* highlight the performance of the initial compliment of resources. Table 32 shows the actual performance of the agency over the period of 2019-2024 and considers travel time of the first due unit, second due unit and the chief officer The analysis shows that the agency is well within stated baseline performance across all service delivery functions, and in some cases meets or exceeds stated benchmark performance goals. It is important to note here that the performance is based on actual emergency responses and does not indicate that the agency is capable of serving all areas of the city within the same parameters.

Table 32; 2014-19 Performance-Distribution

Performance	Response Class	Fire	Rescue	Haz-mat	EMS	Urban Interface	ARFF	Disaster
1st due Unit	Urban	05:02	04:55	05:45	05:47	05:37	0:00	0:00
	Rural	05:32	05:38	07:07	06:00	06:20	05:22	0:00
2nd due Unit	Urban	05:23	07:40	07:39	07:03	08:05	0:00	0:00
	Rural	06:22	07:07	08:05	05:49	09:19	08:56	0:00
Chief Officer	Urban	04:55	00:00	06:15	03:40	04:29	0:00	0:00
	Rural	06:25	05:55	04:34	00:00	07:05	05:22	0:00
TRT 1stdue	Urban	08:23	07:15	08:46	09:30	08:29	0:00	0:00
	Rural	08:47	08:25	10:08	09:50	09:35	11:23	0:00

The following series of maps illustrates the capability of the agency to serve the city to benchmark urban and rural time distribution criteria and factor first due and second due travel time using the existing configuration of resources.

Distribution-Response District

In District 1 the *Urban Distribution* shows the engine company based from within the *Grover Street Firehouse* is capable of serving the area within a five minute travel time with the exception of portions of RHA's 1A, 1B and 1W. The map shows a capability of reaching portions of District 2 and District 3 within eight minutes. The *Rural Distribution* shows a capability of reaching all areas of the district and large portions of District 2 and District 3 within ten minutes.

Figure 31; District 1 Travel Distribution-Urban

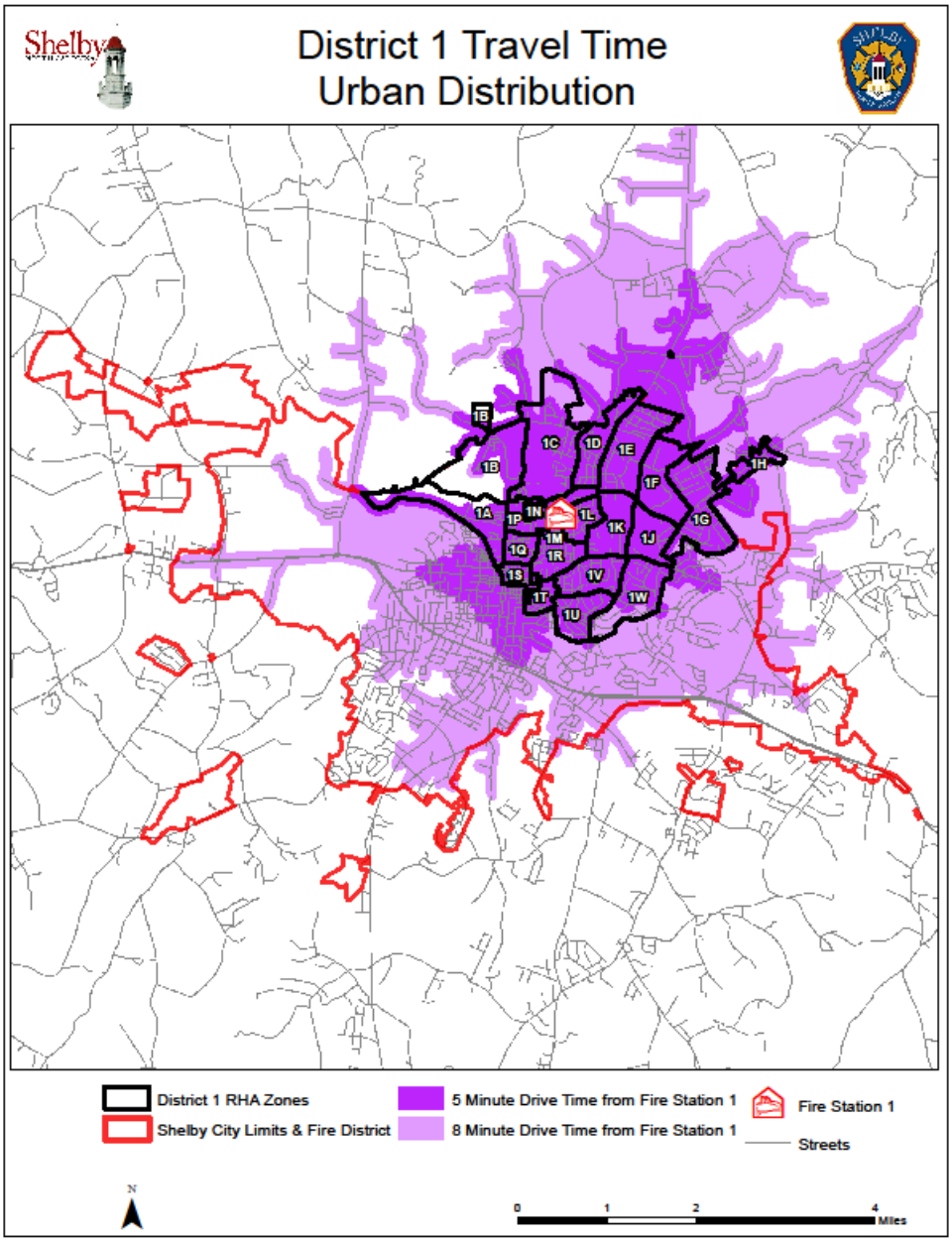
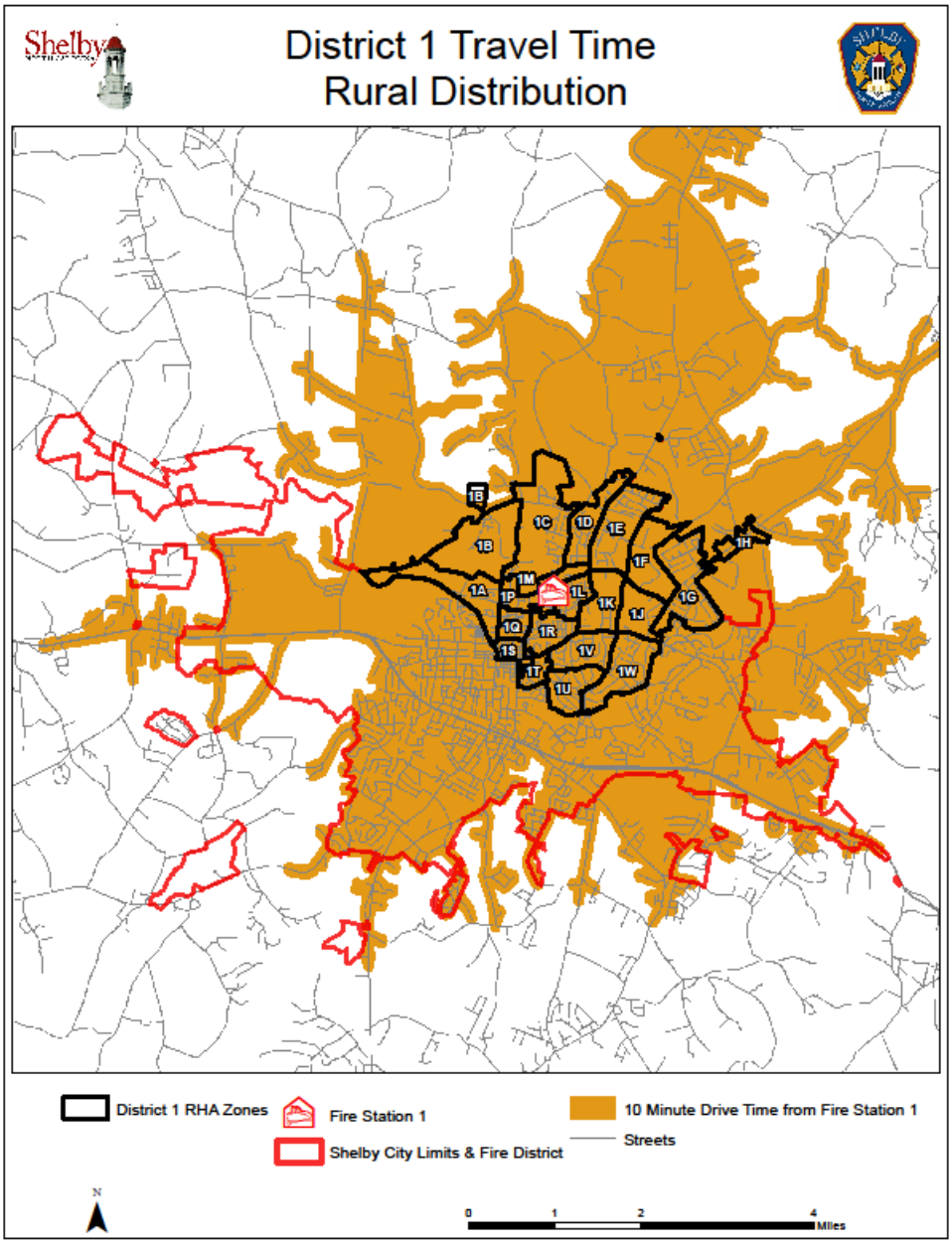


Figure 32; District 1 Travel Distribution-Rural



In District 2 the *Urban Distribution* shows the engine company based from within the *Charles Road Firehouse* is capable of serving the more urban RHA's within a five minute travel. However, the more south and western portions of the district (2M, 2N, 2P, 2FF) exceed the five minute mark. In the satellite portions of the city, travel time is within eight minute travel time (2A, 2D, 2GG, 2HH) or outside the travel time parameter (2C, 2JJ). The map shows a capability of reaching portions of District 1 and District 3 within eight minutes. The *Rural Distribution* shows a capability of reaching all areas of the district and portions of District 1 and District 3 within ten minutes.

Figure 33; District 2 Travel Distribution-Urban

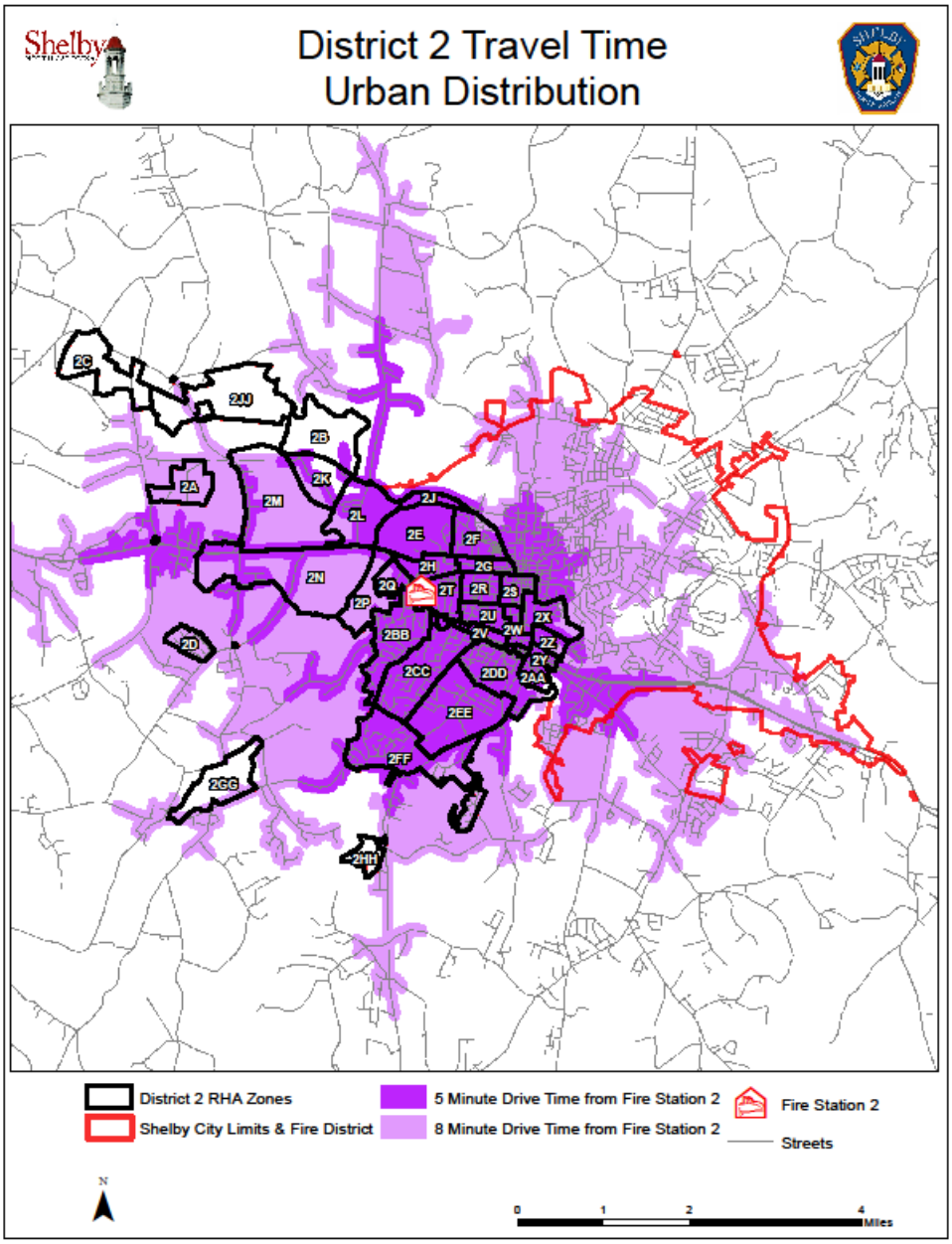
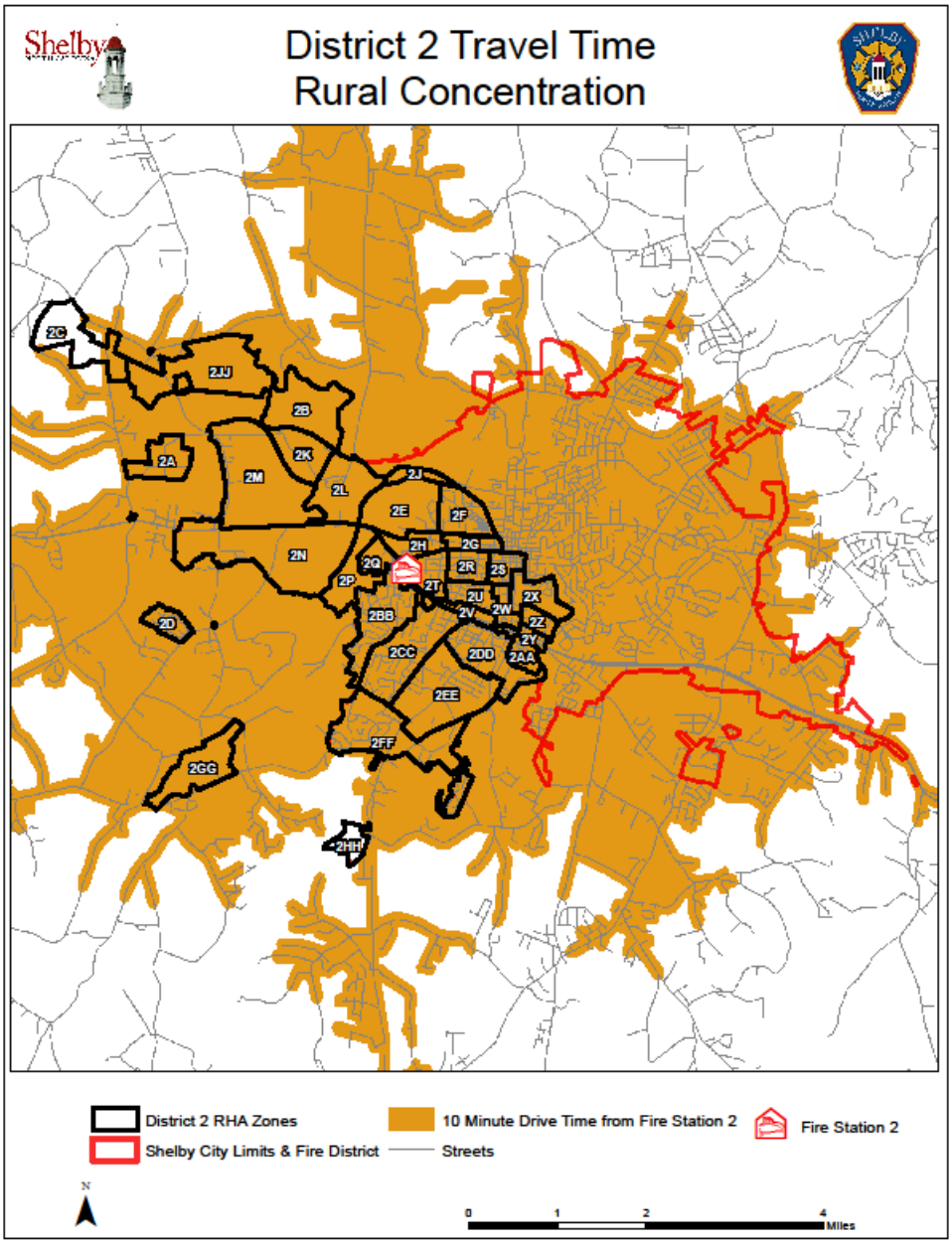


Figure 34; District 2 Travel Distribution-Rural



In District 3 the *Suburban Distribution* shows the engine company based from within the *Kings Road Firehouse* is capable of serving the majority of the area within a five minute travel time except in portions of RHA's 3A, 3E, 3L, 3M and 3P. The map shows a capability of reaching portions of District 1 and District 2 within eight minutes. The *Rural Distribution* shows a capability of reaching all areas of the district and large portions of District 1 and District 2 within ten minutes.

Figure 35; District 3 Travel Distribution-Urban

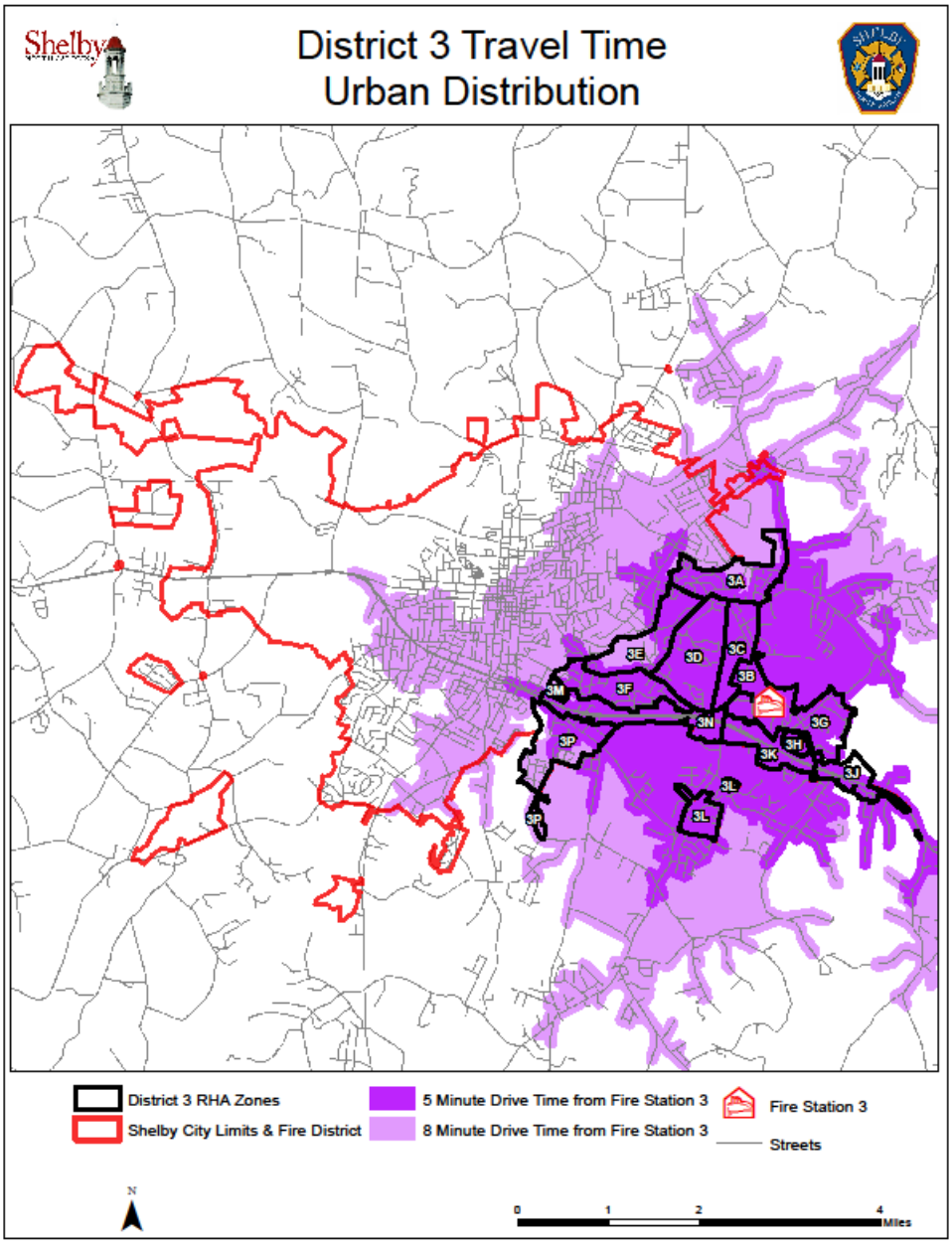
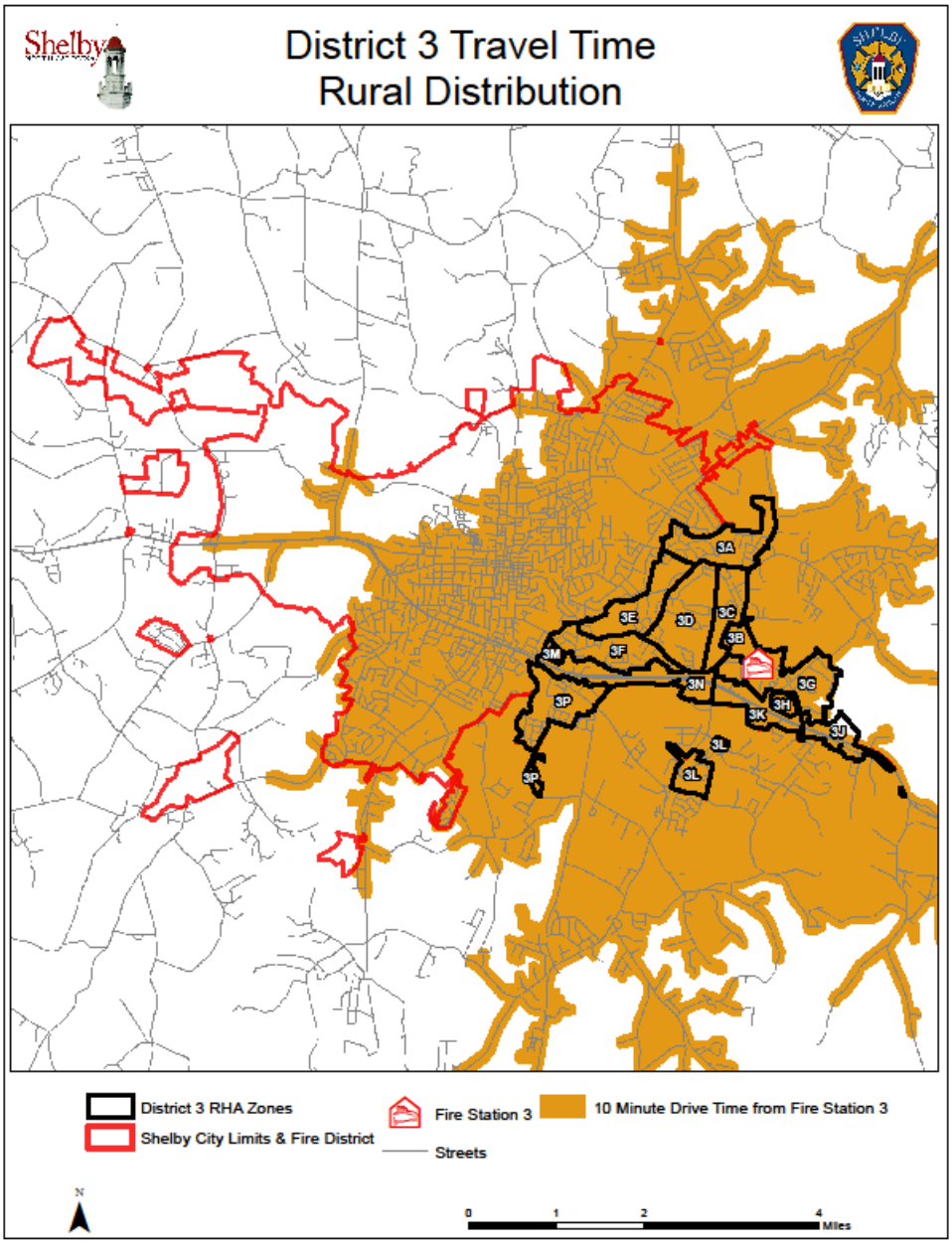


Figure 36; District 3 Travel Distribution-Rural



Distribution-Program

The following charts highlight actual initial or first-due unit travel to RHA by program area over the period of 2014 to 2019. The travel time used is the ninetieth fractal of the total number of incidents occurring within a specific RHA during the accreditation period. Where data is not provided for a particular RHA; that indicates an initial response of emergency resources for the particular program was either not assembled, or no services related to the program were provided in the RHA during the cycle.

Fire Suppression

Table 33;Fire First Due Travel by RHA

Fire; First Due Travel by Risk Hazard Zone (RHA) Area					
RHA	Count	Time	**RHA**	Count	Time
1-A	42	03:28	**2-GG**		00:00
1-B	9	06:22	**2-H**	14	05:07
1-C	39	04:12	**2-HH**		00:00
1-D	13	04:53	**2-J**		00:00
1-E	44	03:33	**2-JJ**	1	06:55
1-F	13	03:27	**2-K**	14	06:14
1-G	9	05:14	**2-L**	7	07:57
1-H		00:00	**2-M**	10	08:03
1-J	14	04:16	**2-N**	26	06:12
1-K	15	05:21	**2-P**	2	02:50
1-L	23	02:53	**2-Q**	7	05:52
1-M	8	02:28	**2-R**	16	04:09
1-N	8	02:32	**2-S**	25	04:12
1-P	17	03:13	**2-T**	15	05:14
1-Q	25	03:28	**2-U**	8	04:12
1-R	17	03:23	**2-V**	3	02:24
1-S	39	04:01	**2-W**	11	04:58
1-T	10	03:54	**2-X**	12	04:27
1-U	11	04:48	**2-Y**	11	04:16
1-V	17	04:22	**2-Z**	4	05:12
1-W	11	04:32	**3-A**	25	05:20
2-A	2	07:28	**3-B**	14	03:24
2-AA	2	03:30	**3-C**	7	04:43
2-B	8	08:10	**3-D**	19	07:27
2-BB	25	05:39	**3-E**	7	07:09
2-C	14	10:32	**3-F**	8	10:47
2-CC	32	05:12	**3-G**	5	06:42
2-D	3	07:15	**3-H**	19	07:11
2-DD	21	05:20	**3-J**	5	05:12
2-E	7	05:16	**3-K**	18	06:47
2-EE	19	08:14	**3-L**		00:00
2F	3	03:29	**3-M**	3	05:15
2-FF	18	07:31	**3-N**	55	06:07
2-G	16	04:27	**3-P**	17	06:35

Rescue

Table 34; Rescue First Due Travel by RHA

Rescue First Due Travel by Risk Hazard Zone (RHA) Area					
RHA	Count	Time	**RHA**	Count	Time
1-A	3	02:51	**2-GG**	1	05:03
1-B	3	06:49	**2-H**	6	04:09
1-C	3	04:01	**2-HH**		00:00
1-D	6	03:52	**2-J**	2	04:11
1-E	6	05:29	**2-JJ**		00:00
1-F	3	04:08	**2-K**	1	05:00
1-G		00:00	**2-L**	12	03:57
1-H	16	05:46	**2-M**	5	05:16
1-J	5	05:11	**2-N**	10	05:38
1-K	3	03:36	**2-P**	1	02:06
1-L	7	02:22	**2-Q**	7	05:03
1-M	4	04:54	**2-R**	2	03:45
1-N	2	02:23	**2-S**	11	05:16
1-P	13	03:08	**2-T**	1	00:51
1-Q	11	03:10	**2-U**	6	03:17
1-R	11	03:39	**2-V**	11	03:39
1-S	15	03:57	**2-W**	8	05:09
1-T	4	03:10	**2-X**	5	04:55
1-U		00:00	**2-Y**	26	05:49
1-V	3	03:35	**2-Z**	1	05:18
1-W	2	03:35	**3-A**	5	05:33
2-A	2	04:52	**3-B**	6	03:31
2-AA	2	05:14	**3-C**	11	05:42
2-B		00:00	**3-D**	4	05:21
2-BB	3	02:32	**3-E**	1	05:40
2-C	1	06:38	**3-F**	5	04:38
2-CC	4	04:00	**3-G**	9	09:01
2-D		00:00	**3-H**	2	03:15
2-DD	3	05:05	**3-J**	13	08:19
2-E	5	06:30	**3-K**	36	05:38
2-EE	9	04:45	**3-L**		00:00
2F		00:00	**3-M**	1	06:10
2-FF	8	08:20	**3-N**	35	05:55
2-G	7	03:14	**3-P**	11	05:33

Medical

Table 35; Medical First Due Travel by RHA

Medical First Due Travel by Risk Hazard Zone (RHA) Area					
RHA	Count	Time	**RHA**	Count	Time
1-A	29	03:50	**2-GG**		00:00
1-B	21	05:32	**2-H**	62	04:47
1-C	92	04:47	**2-HH**		00:00
1-D	34)	03:42	**2-J**	1	05:49
1-E	76	05:00	**2-JJ**		00:00
1-F	17	06:58	**2-K**	5	06:00
1-G	31	06:03	**2-L**	13	03:39
1-H	3	05:21	**2-M**	11	07:16
1-J	20	04:24	**2-N**	22	07:10
1-K	14	04:32	**2-P**	2	02:07
1-L	169	03:54	**2-Q**	3	03:12
1-M	64	03:42	**2-R**	67	05:14
1-N	12	02:44	**2-S**	40	04:48
1-P	38	04:13	**2-T**	66	06:07
1-Q	69	04:27	**2-U**	115	05:17
1-R	128	04:31	**2-V**	33	06:31
1-S	57	04:11	**2-W**	40	04:48
1-T	35	04:18	**2-X**	53	05:31
1-U	34	05:01	**2-Y**	18	04:39
1-V	77	05:30	**2-Z**	4	04:39
1-W	29	05:26	**3-A**	25	05:54
2-A	5	07:32	**3-B**	32	06:11
2-AA	20	06:28	**3-C**	22	05:53
2-B	2	04:38	**3-D**	31	05:56
2-BB	71	05:22	**3-E**	17	06:17
2-C	6	09:13	**3-F**	39	06:08
2-CC	91	05:56	**3-G**	34	07:06
2-D	3	08:25	**3-H**	17	07:44
2-DD	181	05:52	**3-J**	15	07:21
2-E	5	04:44	**3-K**	23	04:40
2-EE	59	06:17	**3-L**		00:00
2F	14	06:08	**3-M**	22	05:35
2-FF	75	08:00	**3-N**	100	05:16
2-G	37	04:45	**3-P**	95	07:24

Hazardous Materials

Table 36; Haz-mat First Due Travel by RHA

Hazardous Materials First Due Travel by Risk Hazard Zone (RHA) Area					
RHA	Count	Time	**RHA**	Count	Time
1-A	11	04:00	**2-GG**		00:00
1-B	7	05:28	**2-H**	17	05:17
1-C	15	04:35	**2-HH**		00:00
1-D	6	04:09	**2-J**	3	04:22
1-E	20	04:05	**2-JJ**		00:00
1-F	6	05:10	**2-K**	1	05:14
1-G	5	07:34	**2-L**	4	06:33
1-H	3	05:10	**2-M**	3	07:16
1-J	4	05:03	**2-N**	1	05:10
1-K	13	04:45	**2-P**	2	05:38
1-L	19	05:35	**2-Q**	5	03:10
1-M	15	03:16	**2-R**	21	05:43
1-N	9	03:19	**2-S**	16	04:45
1-P	10	03:39	**2-T**	20	05:00
1-Q	5	05:24	**2-U**	13	04:47
1-R	22	03:35	**2-V**	8	04:38
1-S	22	03:36	**2-W**	7	09:42
1-T	3	04:06	**2-X**	8	05:41
1-U	22	07:38	**2-Y**	8	07:07
1-V	19	04:39	**2-Z**		00:00
1-W	12	05:31	**3-A**	5	06:02
2-A	1	07:54	**3-B**	4	06:50
2-AA	1	02:49	**3-C**	1	04:57
2-B		00:00	**3-D**	16	07:54
2-BB	17	05:22	**3-E**	5	05:15
2-C		00:00	**3-F**	14	05:51
2-CC	30	06:57	**3-G**	10	06:38
2-D	5	08:57	**3-H**	3	07:28
2-DD	20	06:18	**3-J**	7	12:18
2-E	3	04:00	**3-K**	11	04:00
2-EE	15	09:31	**3-L**		05:20
2F	2	04:24	**3-M**	2	05:44
2-FF	7	08:56	**3-N**	7	08:15
2-G	16	04:53	**3-P**	9	08:50

Specialized Services

Urban-Rural Land Interface

Table 37; Urban-Rural Land First Due Travel by RHA

Urban-Rural Interface First Due Travel by Risk Hazard Zone (RHA) Area					
RHA	Count	Time	RHA	Count	Time
1-A	2	03:22	**2-GG**		00:00
1-B	1	09:37	**2-H**		00:00
1-C	3	02:24	**2-HH**	1	04:16
1-D	3	04:38	**2-J**	2	03:41
1-E		00:00	**2-JJ**		00:00
1-F	2	03:21	**2-K**		00:00
1-G	1	05:14	**2-L**	3	03:42
1-H		00:00	**2-M**	1	10:40
1-J	1	03:46	**2-N**	5	07:19
1-K	2	02:25	**2-P**		00:00
1-L	1	01:24	**2-Q**		00:00
1-M	2	02:00	**2-R**	4	03:24
1-N		00:00	**2-S**		00:00
1-P	1	01:50	**2-T**	5	09:04
1-Q	3	06:07	**2-U**	4	03:31
1-R	5	03:11	**2-V**	4	02:49
1-S	1	01:11	**2-W**	2	05:20
1-T	2	02:53	**2-X**	1	05:27
1-U	4	04:39	**2-Y**	7	06:20
1-V	2	05:02	**2-Z**		00:00
1-W	4	05:44	**3-A**	2	05:50
2-A		00:00	**3-B**	2	03:13
2-AA		00:00	**3-C**	2	04:15
2-B		00:00	**3-D**	2	03:42
2-BB	1	03:27	**3-E**	1	05:28
2-C		00:00	**3-F**	2	04:52
2-CC	4	06:00	**3-G**	5	03:19
2-D		00:00	**3-H**	3	08:54
2-DD		05:16	**3-J**	6	04:09
2-E		00:00	**3-K**	2	03:10
2-EE	4	06:29	**3-L**		00:00
2F	1	03:48	**3-M**	1	04:50
2-FF	1	05:59	**3-N**	9	05:19
2-G	1	02:03	**3-P**	1	05:37

Aircraft Crash Fire & Rescue

Table 38; ARFF First Due Travel by RHA

ARFF First Due Travel by Risk Hazard Zone (RHA) Area					
RHA	Count	Time	**RHA**	Count	Time
1-A			**2-GG**	2	4:10
1-B			**2-H**		
1-C			**2-HH**		
1-D			**2-J**		
1-E			**2-JJ**		
1-F			**2-K**		
1-G			**2-L**		
1-H			**2-M**		
1-J			**2-N**		
1-K			**2-P**		
1-L			**2-Q**		
1-M			**2-R**		
1-N			**2-S**		
1-P			**2-T**		
1-Q			**2-U**		
1-R			**2-V**		
1-S			**2-W**		
1-T			**2-X**		
1-U			**2-Y**		
1-V			**2-Z**		
1-W			**3-A**		
2-A			**3-B**		
2-AA			**3-C**		
2-B			**3-D**		
2-BB			**3-E**		
2-C			**3-F**		
2-CC			**3-G**		
2-D			**3-H**		
2-DD			**3-J**		
2-E			**3-K**		
2-EE			**3-L**		
2F			**3-M**		
2-FF			**3-N**		
2-G			**3-P**		

Concentration Factors

The *concentration factors* highlight the performance of the effective response force of resources. Table 28 shows the actual performance of the agency over the period of 2014-19 and considers travel time of the last arriving unit required to achieve an effective force of resources. For the Fire & Rescue Department this is the third- due engine-company on a first alarm assignment.

The analysis shows that the agency is well within stated baseline performance across all service delivery programs. Additionally, the data shows the actual performance meet or exceed stated benchmark performance goals in some cases. Again it is important to note that the performance is based on actual emergency responses and does not indicate that the agency is capable of serving all areas of the city within the same parameters.

Table 39; 2014-2019 Performance-Concentration

Performance	Response Class	Fire	Rescue	Haz-mat	EMS	Urban Interface	ARFF	Disaster
ERF	**Urban**	09:20	10:02	05:45	05:49	05:50	00:00	00:00
	Rural	11:21	07:40	07:07	06:00	06:29	05:22	00:00
TRT	**Urban**	12:14	12:31	08:54	09:50	09:04	00:00	00:00
	Rural	13:45	09:56	10:15	10:06	10:28	11:23	00:00

Concentration- Response District

The following series of maps illustrates the capability of the agency to serve the city to benchmark urban and rural time concentration criteria and factors effective response force (ERF) travel time using the existing configuration of resources.

In District 1 the *Urban Concentration* shows the engine company based from within the *Grover Street Firehouse* is capable of completing an ERF response of resources within a ten minute travel time in the contiguous borders of the city. The satellite boundaries of the city are outside of the time parameters. In the *Rural Concentration,* resources based in District 1 have the capability of reaching all areas of the contiguous boundaries and most of the satellite boundaries of the city within a fourteen minute time parameter.

Figure 37; District 1 Travel Concentration-Urban

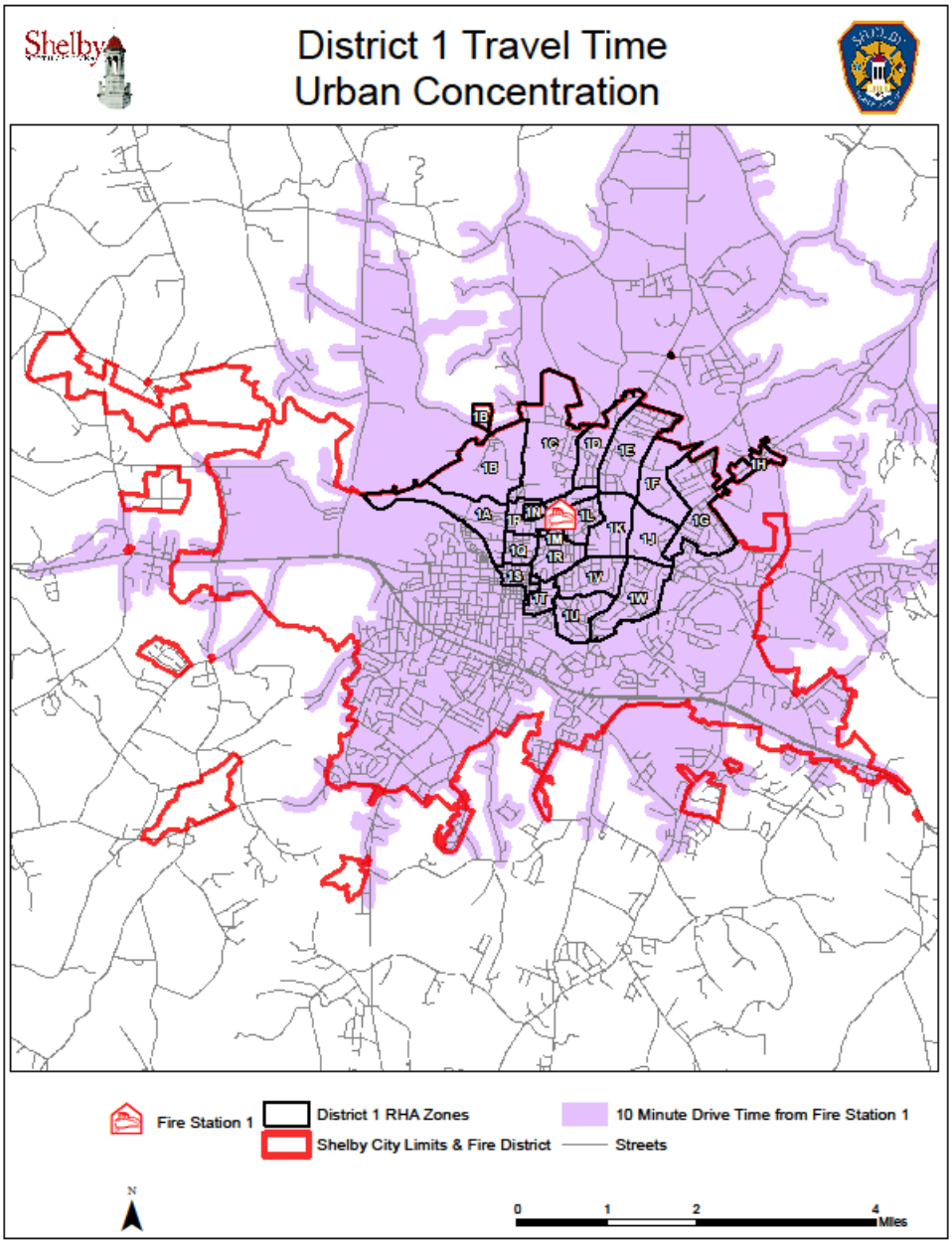
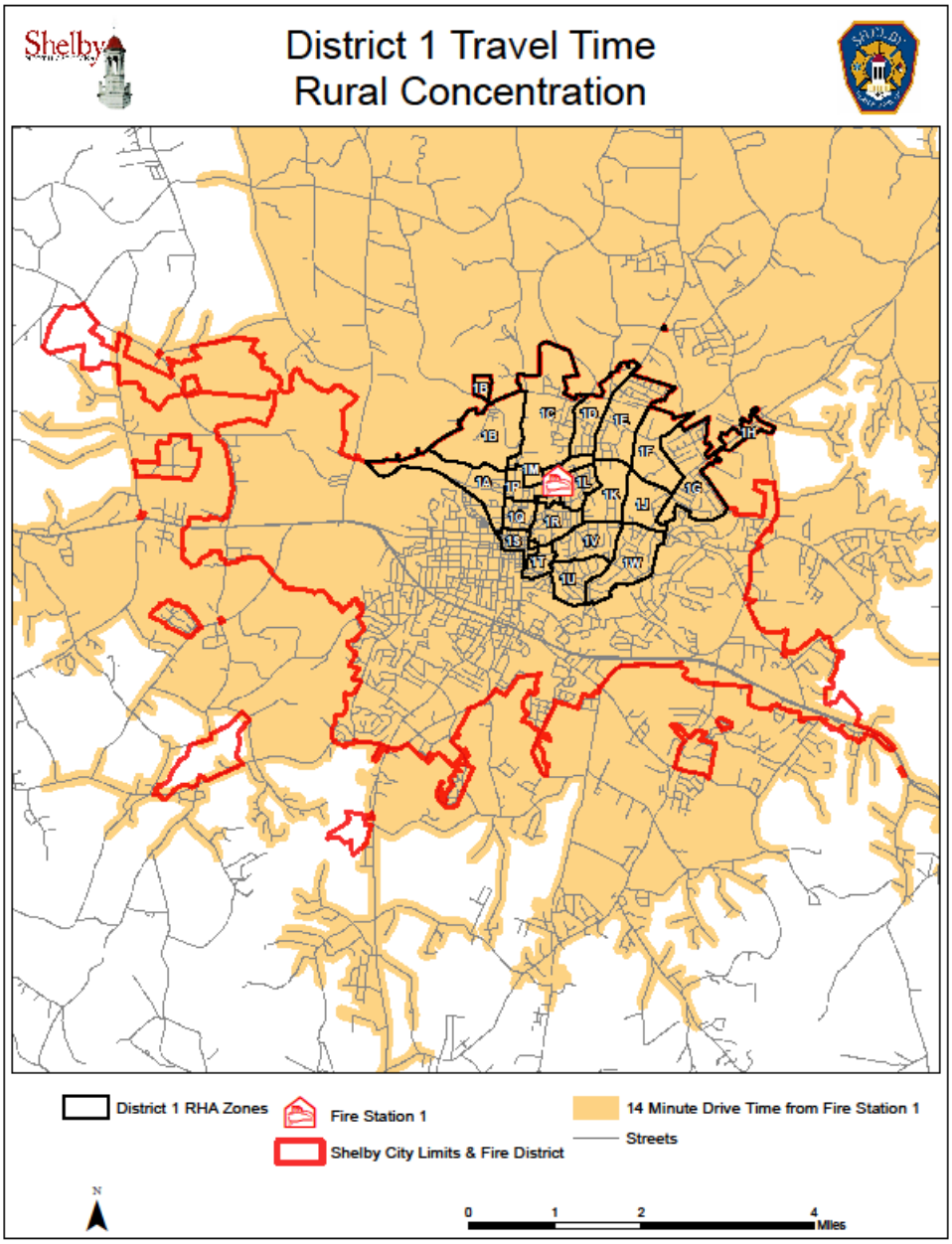


Figure 38; District 1 Travel Conentration- Rural



In District 2 the *Urban Concentration* shows the engine company based from within the *Charles Road Firehouse* is capable of completing an ERF response of resources within a ten (10) minute travel time in the contiguous borders of the city and the satellite boundaries, except portions of RHA 2C and RHA 2HH. In the *Rural Concentration,* resources based in District 2 have the capability to reach all areas of the contiguous and satellite boundaries within the fourteen (14) minute time parameter.

Figure 39; District 2 Travel Concentration-Urban

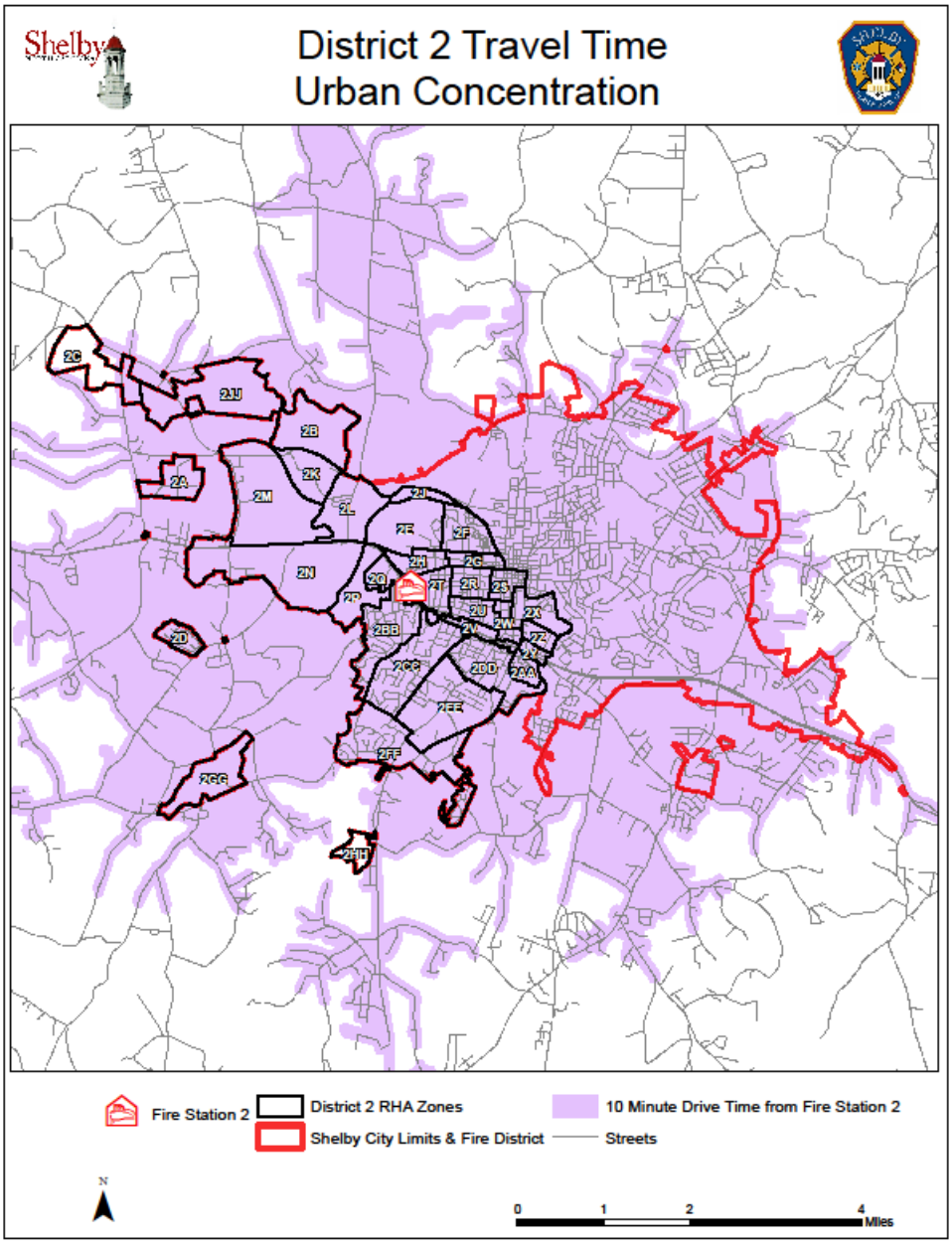
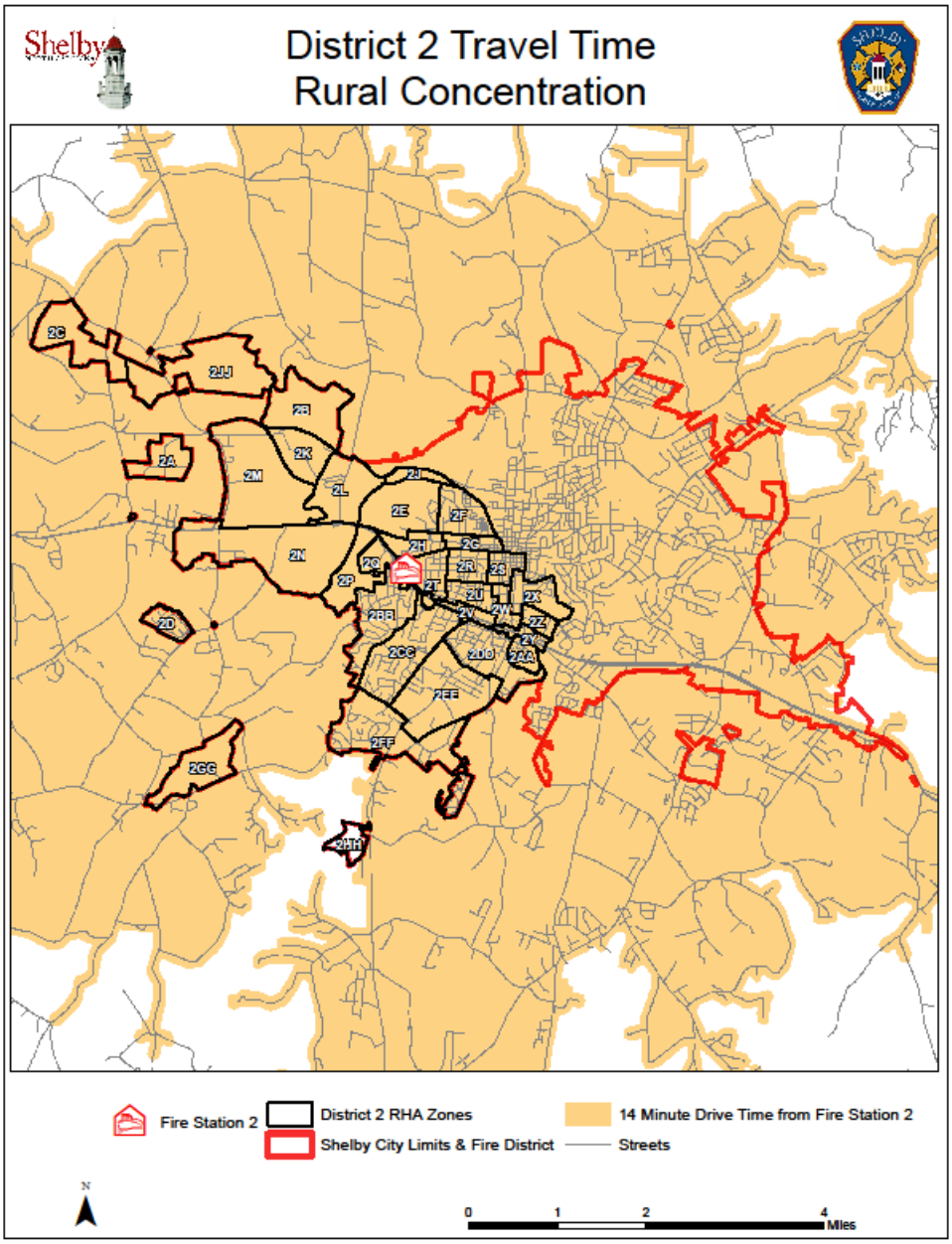


Figure 40; District 2 Travel Concentration- Rural



In District 3 the *Urban Concentration* shows the engine company based from within the *Kings Road Firehouse* is capable of completing an ERF response of resources within a ten (10) minute travel time to large portions of the contiguous borders of the city. However, most of the western side of Shelby including the satellite boundaries of the city in District 2 are outside the time parameters. The *Rural Concentration* shows a capability of reaching all areas of the contiguous boundaries and most of the satellite boundaries within the fourteen (14) minute time parameter.

Figure 41; District 3 Travel Concentration- Urban

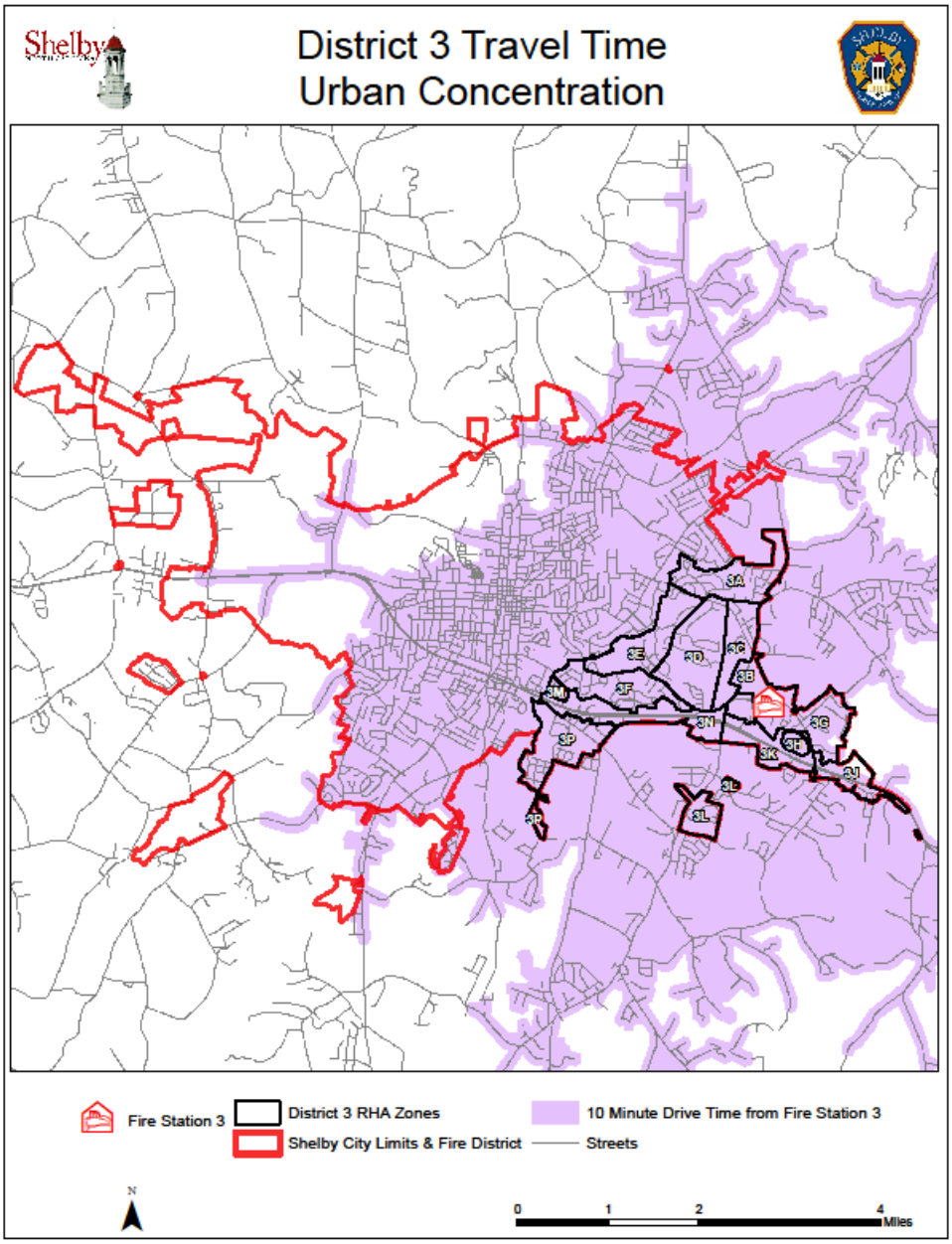
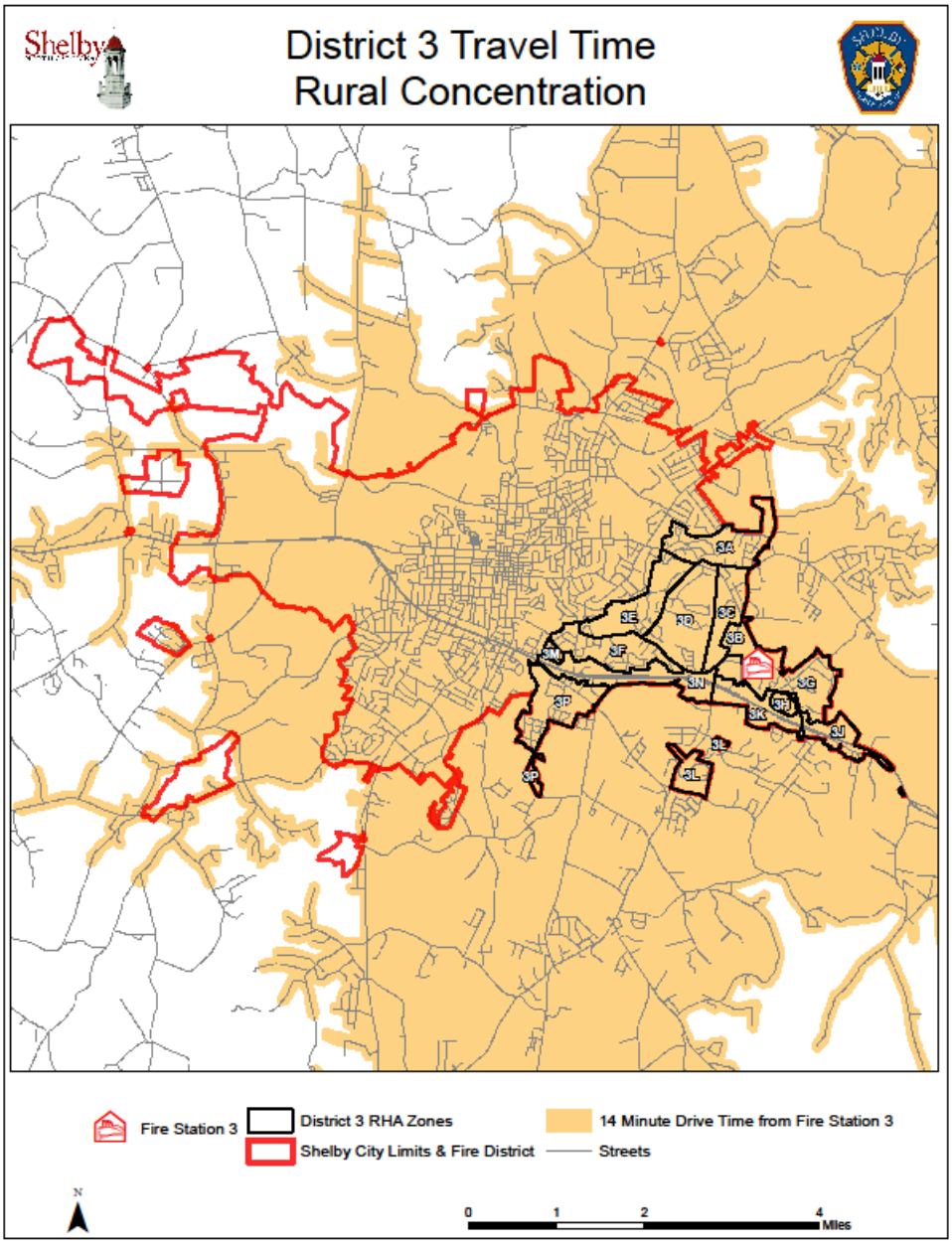


Figure 42; District 3 Travel Concentration-Rural



Concentration- Program

The following charts highlight actual ERF travel to RHA by program area over the period of 2014 to 2019. The travel time used is the ninetieth fractal of the total number of incidents occurring within a specific RHA during the accreditation period. Where data is not provided for a particular RHA; that indicates an effective response force of emergency resources for the particular program was either not assembled, or no services related to the program were provided in the RHA during the time period.

Fire Suppression

Table 40; Fire ERF Travel by RHA

Fire ERF Travel by Risk Hazard Zone (RHA) Area					
RHA	Count	Time	**RHA**	Count	Time
1-A	20	08:50	**2-GG**	2	10:42
1-B	4	11:32	**2-H**	1	11:27
1-C	13	08:49	**2-HH**	10	12:25
1-D	7	12:12	**2-J**		00:00
1-E	13	07:37	**2-JJ**	5	22:04
1-F	8	07:14	**2-K**	8	11:21
1-G	5	09:16	**2-L**		00:00
1-H		00:00	**2-M**	3	08:59
1-J	9	08:41	**2-N**	14	04:17
1-K	13	11:11	**2-P**	22	11:01
1-L	9	14:54	**2-Q**	4	07:05
1-M	3	09:55	**2-R**	7	08:11
1-N	6	09:39	**2-S**	1	05:27
1-P	5	09:20	**2-T**	7	10:06
1-Q	12	08:48	**2-U**	10	07:43
1-R	11	10:53	**2-V**	5	08:38
1-S	17	07:53	**2-W**	3	06:45
1-T	6	07:10	**2-X**	11	08:32
1-U	5	07:42	**2-Y**	12	08:41
1-V	8	17:50	**2-Z**	3	10:11
1-W	7	06:05	**3-A**	7	07:52
2-A		00:00	**3-B**	3	11:09
2-AA	3	06:43	**3-C**	1	07:56
2-B	1	08:15	**3-D**	3	07:00
2-BB	9	12:38	**3-E**	6	16:00
2-C	8	13:04	**3-F**	1	03:44
2-CC	8	18:08	**3-G**	6	09:01
2-D	1	10:09	**3-H**		00:00
2-DD	9	07:03	**3-J**	3	05:15
2-E	3	06:23	**3-K**	26	08:30
2-EE	10	09:58	**3-L**	10	07:28
2F	2	08:21	**3-M**		00:00
2-FF	6	09:53	**3-N**		00:00

2-G	6	07:32	**3-P**		00:00

Rescue

Table 41; Rescue ERF Travel by RHA

Travel by Risk Hazard Zone (RHA) Area					
RHA	Count	Time	**RHA**	Count	Time
1-A	2	02:46	**2-GG**		00:00
1-B	2	06:49	**2-H**		00:00
1-C	0	00:00	**2-HH**		00:00
1-D	1	02:33	**2-J**	2	04:11
1-E	2	04:23	**2-JJ**		00:00
1-F	2	03:26	**2-K**		00:00
1-G	0	00:00	**2-L**	5	07:10
1-H	1	02:47	**2-M**	1	11:30
1-J		00:00	**2-N**	4	08:27
1-K	1	03:03	**2-P**		00:00
1-L	6	04:12	**2-Q**	1	07:00
1-M		00:00	**2-R**		00:00
1-N	3	02:37	**2-S**	4	10:02
1-P		00:00	**2-T**	1	05:44
1-Q	3	09:26	**2-U**	1	07:04
1-R	2	03:42	**2-V**	8	08:14
1-S	5	10:37	**2-W**	1	06:11
1-T	1	06:52	**2-X**		00:00
1-U		00:00	**2-Y**	13	07:15
1-V	1	02:12	**2-Z**		00:00
1-W	1	04:23	**3-A**	2	19:42
2-A	2	04:52	**3-B**	2	05:39
2-AA		00:00	**3-C**	1	05:33
2-B		00:00	**3-D**	1	03:05
2-BB	1	08:13	**3-E**		00:00
2-C		00:00	**3-F**	1	04:42
2-CC	1	04:00	**3-G**	2	10:18
2-D		00:00	**3-H**	1	09:24
2-DD	1	05:05	**3-J**	3	08:54
2-E	1	03:02	**3-K**	11	07:27
2-EE	3	05:22	**3-L**		00:00
2F		00:00	**3-M**	2	06:10
2-FF	2	04:00	**3-N**	12	08:54
2-G	1	05:10	**3-P**		00:00

Medical

Table 42; Medical ERF Travel by RHA

Medical ERF Travel by Risk Hazard Zone (RHA) Area					
RHA	Count	Time	**RHA**	Count	Time
1-A	29	03:50	**2-GG**	62	04:47
1-B	21	05:32	**2-H**	1	05:49
1-C	91	04:40	**2-HH**	5	06:00
1-D	34	03:42	**2-J**	13	03:39
1-E	75	04:47	**2-JJ**	11	07:16
1-F	16	06:58	**2-K**	22	07:10
1-G	31	06:03	**2-L**	2	02:07
1-H	3	05:21	**2-M**	3	03:12
1-J	20	04:24	**2-N**	24	04:25
1-K	14	04:32	**2-P**	40	04:48
1-L	16	03:54	**2-Q**	66	06:07
1-M	64	03:42	**2-R**	115	05:17
1-N	12	02:44	**2-S**	33	06:31
1-P	38	04:13	**2-T**	40	04:48
1-Q	68	04:27	**2-U**	52	05:12
1-R	127	04:31	**2-V**	18	04:39
1-S	57	04:11	**2-W**	4	04:39
1-T	34	04:18	**2-X**	25	05:54
1-U	34	05:01	**2-Y**	31	06:11
1-V	78	05:37	**2-Z**	22	05:53
1-W	29	05:26	**3-A**	30	05:56
2-A	5	07:32	**3-B**	17	06:17
2-AA	20	06:28	**3-C**	39	06:08
2-B	2	04:38	**3-D**	34	07:06
2-BB	71	05:22	**3-E**	17	07:44
2-C	6	09:13	**3-F**	15	07:21
2-CC	91	05:56	**3-G**	23	04:40
2-D	3	08:25	**3-H**	13	05:57
2-DD	180	05:52	**3-J**	100	05:16
2-E	5	04:44	**3-K**	95	07:24
2-EE	60	06:17	**3-L**		
2F	14	06:08	**3-M**		
2-FF	75	08:00	**3-N**		
2-G	37	04:45	**3-P**		

Hazardous Materials

Table 43; Haz-mat ERF Travel by RHA

Haz-mat ERF Travel by Risk Hazard Zone (RHA) Area					
RHA	Count	Time	**RHA**	Count	Time
1-A	12	04:00	**2-GG**	0	00:00
1-B	7	05:28	**2-H**	17	05:17
1-C	16	04:35	**2-HH**	0	00:00
1-D	7	04:09	**2-J**	2	05:19
1-E	20	04:05	**2-JJ**	0	00:00
1-F	6	05:10	**2-K**	1	05:14
1-G	5	07:34	**2-L**	4	06:33
1-H	3	05:10	**2-M**	3	07:16
1-J	4	05:03	**2-N**	1	05:10
1-K	13	04:45	**2-P**	2	05:38
1-L	19	05:35	**2-Q**	5	03;10
1-M	16	03:21	**2-R**	16	06:14
1-N	8	03:19	**2-S**	17	04:45
1-P	11	03:50	**2-T**	20	05:00
1-Q	5	05:24	**2-U**	13	04:59
1-R	22	03:35	**2-V**	8	04:38
1-S	22	03:36	**2-W**	7	09:42
1-T	3	04:06	**2-X**	8	05:41
1-U	22	08:56	**2-Y**	8	07:07
1-V	19	04:39	**2-Z**		00:00
1-W	12	05:31	**3-A**	5	06:02
2-A	1	07:54	**3-B**	4	06:50
2-AA	2	17:49	**3-C**	1	04:57
2-B	0	00:00	**3-D**	15	07:54
2-BB	17	05:22	**3-E**	5	05:15
2-C	0	00:00	**3-F**	14	05:51
2-CC	30	06:57	**3-G**	10	06:38
2-D	5	08:57	**3-H**	3	07:28
2-DD	20	06:18	**3-J**	7	12:18
2-E	3	04:00	**3-K**	11	04:00
2-EE	15	09:31	**3-L**	2	05:20
2F	2	04:24	**3-M**	1	03:38
2-FF	7	08:56	**3-N**	7	08:15
2-G	16	04:53	**3-P**	9	08:50

Specialized Services

Urban-rural interface

Table 44; Urban Land ERF Travel by RHA

Urban Rural Land ERF Travel by Risk Hazard Zone (RHA) Area					
RHA	Count	Time	**RHA**	Count	Time
1-A	2	03:22	**2-GG**		00:00
1-B	1	09:37	**2-H**		00:00
1-C	3	02:24	**2-HH**	1	04:16
1-D	3	04:38	**2-J**	2	03:41
1-E		00:00	**2-JJ**		00:00
1-F	2	03:21	**2-K**		00:00
1-G	1	05:14	**2-L**	3	03:42
1-H	0	00:00	**2-M**	1	10:40
1-J	1	03:48	**2-N**	5	07:19
1-K	2	02:25	**2-P**		00:00
1-L	1	01:24	**2-Q**		00:00
1-M	3	02:00	**2-R**	5	03:24
1-N	0	00:00	**2-S**		00:00
1-P	1	09:52	**2-T**	5	09:04
1-Q	2	02:46	**2-U**	4	03:31
1-R	5	03:11	**2-V**	4	02:49
1-S	1	01:11	**2-W**	2	05:20
1-T	2	02:53	**2-X**	1	05:27
1-U	4	04:39	**2-Y**	7	06:20
1-V	2	05:02	**2-Z**		00:00
1-W	4	05:44	**3-A**	2	05:50
2-A		00:00	**3-B**	2	03:13
2-AA		00:00	**3-C**	2	05:14
2-B		00:00	**3-D**	2	03:42
2-BB	1	03:27	**3-E**	1	05:28
2-C		00:00	**3-F**	2	04:52
2-CC	4	06:00	**3-G**	5	12:00
2-D		00:00	**3-H**	4	18:50
2-DD	11	07:08	**3-J**	6	04:09
2-E		00:00	**3-K**	2	03:10
2-EE	4	06:29	**3-L**		00:00
2F	1	03:48	**3-M**		00:00
2-FF	1	08:14	**3-N**	9	05:19
2-G	1	02:03	**3-P**	1	05:37

Aircraft Crash Fire & Rescue

Table 45; ARFF ERF Travel by RHA

ARFF ERF Travel by Risk Hazard Zone (RHA) Area					
RHA	Count	Time	**RHA**	Count	Time
1-A			**2-GG**		
1-B			**2-H**		
1-C			**2-HH**		
1-D			**2-J**		
1-E			**2-JJ**		
1-F			**2-K**		
1-G			**2-L**		
1-H			**2-M**		
1-J			**2-N**		
1-K			**2-P**		
1-L			**2-Q**		
1-M			**2-R**		
1-N			**2-S**		
1-P			**2-T**		
1-Q			**2-U**		
1-R			**2-V**		
1-S			**2-W**		
1-T			**2-X**		
1-U			**2-Y**		
1-V			**2-Z**		
1-W			**3-A**		
2-A			**3-B**		
2-AA			**3-C**		
2-B			**3-D**		
2-BB			**3-E**		
2-C			**3-F**		
2-CC			**3-G**		
2-D			**3-H**		
2-DD			**3-J**		
2-E			**3-K**		
2-EE			**3-L**		
2F			**3-M**		
2-FF			**3-N**		
2-G			**3-P**		

Reliability Factors

Reliability refers to the ability of the agency to deliver its services within stated objectives with the given compliment of resources. The analysis uses emergency response data during the fiscal years occurring during the accreditation cycle (2014-15 through 2018-19) to determine the reliability of the first due engine-company by district. Where the assigned engine company to the district arrives as the first-due unit, a return of Yes generated, and where another engine arrives first a return of No is generated. District 1 reliability is eighty (80%) percent, District 2 reliability is eighty-two (82%) percent and District 3 reliability eighty-one (81%) percent. The following charts represent the data graphically.

Figure 43; District 1 First-due Reliability

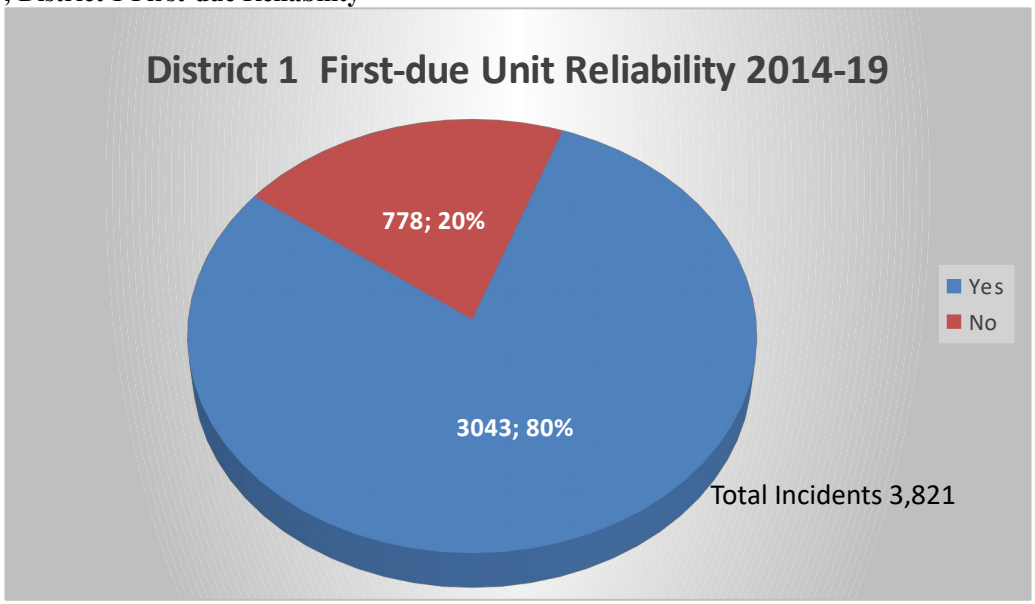


Figure 44; District 2 First-due Reliability

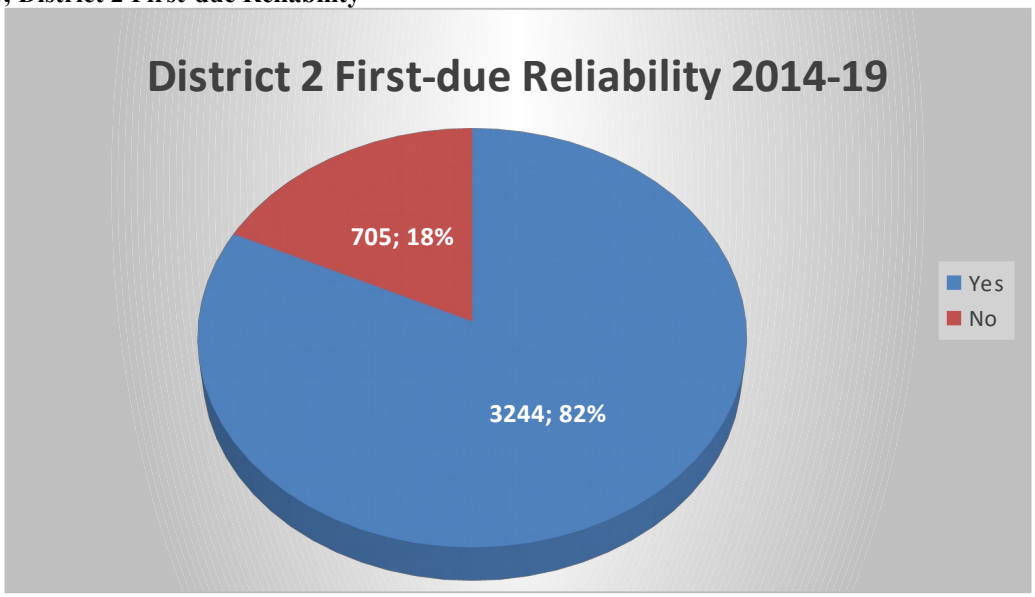
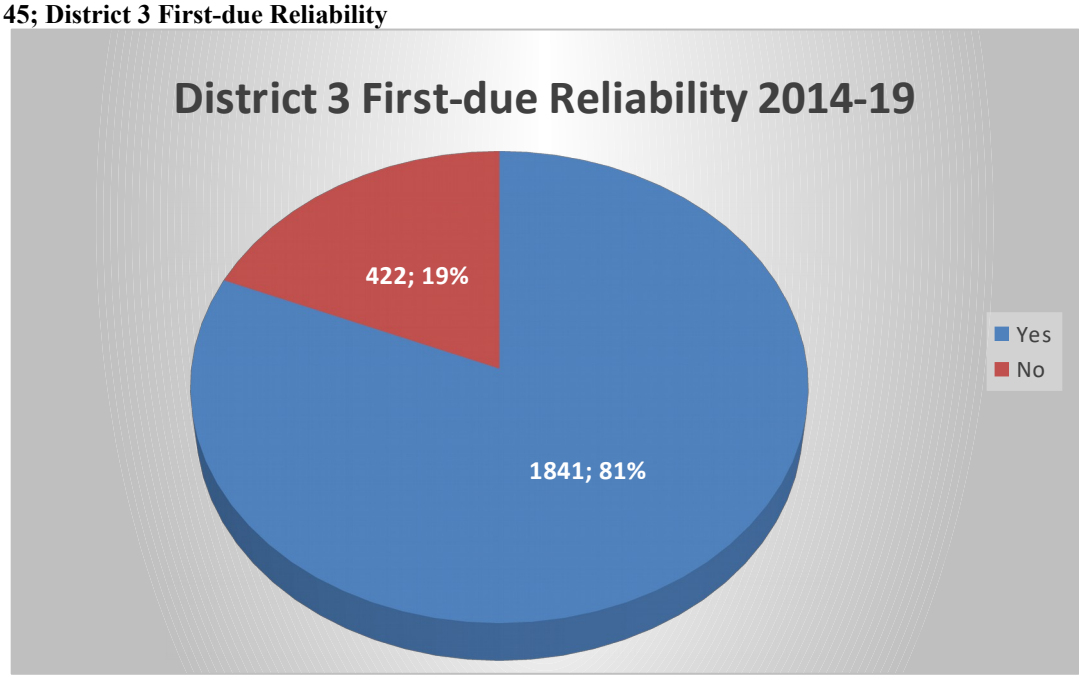


Figure 45; District 3 First-due Reliability



Comparability Factors

To analyze comparability factors, the agency evaluated against accredited agency's within the Carolina's. In North Carolina there are nineteen accredited agencies consisting of fourteen (14) municipal agencies, four (4) agencies within the Department of Defense, and one (1) volunteer agency. In South Carolina there are ten (10) accredited agencies with six (6) career agencies and four (4) Department of Defense agencies. Eleven municipal agencies of similar size and scope of services were surveyed with five (5) submitting completed data. The following table provides summary of findings from the survey.

Table 46; Comparability Analysis with Compatible Agencies

	Shelby	Rocky Mt.	Monroe	Mt. Pleasant	Spartan-burg	States-ville
Accredited	2014	2018	2017	2016	2015	2014
Community	Urban/Rural	Urban	Urban/ Rural	Urban	Urban	Urban Rural
Sq. miles	22.0	45	30.3	52	18.5	25
Population	20,871	55,456	35,034	84,170	38,000	26,000
Stations	3	7	5	7	5	4
Companies	4	11	6	8	6	4
Min. Staff	14	39	20	29	17	19
Min Co Staff	3/4	3/2	3	3	2	4
Processing	02:54 02:53	01:57	01:06	01:07	01:30	01:53
Turn-out	02:18 02:19	01:27	01:15 M 01:28 F	00:34	02:00	02:22
1st unit arrive	R-06:09 U-04:30	05:35	07:18 M 06:49 F	06:58	10:00	06:59
2nd unit arrive	R-08:03 U-06:30	NA	08:59	10:28	NA	NA
Chief officer	R-08:22 U-07:04	06:29	NA	10:17	NA	NA
TRT 1st	R-09:29 U-09:09	NA	NA	09:46	NA	NA
ERF total	R-14:37 U-12:49	10:07	09:32 L 14:22 H	16:31	16:00	11:22

Each of the participating agencies received accreditation under the 9th edition FESSAM. The demographics of the communities represented were significantly urbanized in character, ranging in total population from 16,000 to over 57,000. The composition of the agencies ranged from three (3) to seven (7) fire stations and from three (3) to eleven (11) staffed companies. The response data was reported from each agency's most prior year baseline, or actual level of performance. The findings show that the overall performance of the City of Shelby Fire &

Rescue is comparable to that of the other similar accredited municipal fire departments in North Carolina.

E. Evaluation of Current Deployment and Performance

Performance Objectives – Benchmarks

As a part of the accreditation process, the Fire & Rescue Department has developed a standard of response. The standard communicates the agency's response coverage goals and objectives. Each goal and response objective is based on the population density of the Risk Hazard Area Zone(s)

- *Urbanized:* A density classification for an area with a population of 1,000 or more people per square mile. The population density is derived by utilizing the 2010 US Census Data and the SF&R risk hazard zones.
- *Rural-non urban:* A density classification for an area with a population of 0 to 999 people per square mile. The population density is derived by utilizing the 2010 US Census Data and the SF&R risk hazard zones.

Fire Suppression Services Program

For *fire suppression services* the agency has established the following benchmark for service delivery in areas of the city classified as *urbanized;*

- A travel time not to exceed five minutes (5:00) for the first due unit.
- A travel time not to exceed eight minutes (8:00) for the second due unit and/or the ladder company.
- A travel time not to exceed eight minutes (8:00) for a chief officer.
- A total travel time not to exceed ten minutes (10:00) to achieve an effective response force

For *fire suppression services* the agency has established the following benchmark for service delivery for areas in the city classified as *Rural-non urban;*

- A travel time not to exceed ten minutes (10:00) for the first due unit.
- A travel time minute not to exceed fourteen minutes (14:00) for the second due unit and/or the ladder company.
- A travel time not to exceed fourteen minutes (14:00) for a chief officer.
- A total travel time not to exceed fourteen minutes (14:00) to achieve an effective response force

The criteria shall be met to a ninetieth percentile (90%) of all applicable *fire suppression* responses.

Rescue Services Program

For *rescue services* the agency has established the following benchmark for service delivery in areas of the city classified as *urbanized;*

I

- A travel time not to exceed five minutes (5:00) for the first due unit.
- A travel time not to exceed eight minutes (8:00) for the second due unit and/or the ladder company.
- A travel time not to exceed eight minutes (8:00) for a chief officer.
- A total travel time not to exceed ten minutes (10:00) to achieve an effective response force

For *recue services* the agency has established the following benchmark for service delivery for areas in the city classified as *Rural-non urban;*

- A travel time not to exceed ten minutes (10:00) for the first due unit.
- A travel time minute not to exceed fourteen minutes (14:00) for the second due unit and/or the ladder company.
- A travel time not to exceed fourteen minutes (14:00) for a chief officer.
- A total travel time not to exceed fourteen minutes (14:00) to achieve an effective response force

The criteria shall be met to a ninetieth percentile of all applicable *rescue service* responses.

Emergency Medical Services Program

For *emergency medical services* the agency has established the following benchmark for service delivery in areas of the city classified as *urbanized;*

- A travel time not to exceed five minutes (5:00) for the first due unit.
- A travel time not to exceed eight minutes (8:00) for the second due unit and/or the ladder company.
- A travel time not to exceed eight minutes (8:00) for a chief officer.
- A total travel time not to exceed ten minutes (10:00) to achieve an effective response force

For *emergency medical services* the agency has established the following benchmark for service delivery for areas in the city classified as *Rural-non urban;*

- A travel time not to exceed ten minutes (10:00) for the first due unit.
- A travel time minute not to exceed fourteen (14:00) minutes for the second due unit and/or the ladder company.
- A travel time not to exceed fourteen minutes (14:00) for a chief officer.
- A total travel time not to exceed fourteen minutes (14:00) to achieve an effective response force

The criteria shall be met to a ninetieth percentile (90%) of all applicable *emergency medical service* responses.

Hazardous Materials Services Program

For *hazardous materials services* the agency has established the following benchmark for service delivery in areas of the city classified as *urbanized;*
I

- A travel time not to exceed five minutes (5:00) for the first due unit.
- A travel time not to exceed eight minutes (8:00) for the second due unit and/or the ladder company.
- A travel time not to exceed eight minutes (8:00) for a chief officer.
- A total travel time not to exceed ten minutes (10:00) to achieve an effective response force

For *hazardous materials services* the agency has established the following benchmark for service delivery for areas in the city classified as *rural;*

- A travel time not to exceed ten minutes (10:00) for the first due unit.
- A travel time minute not to exceed fourteen minutes (14:00) for the second due unit and/or the ladder company.
- A travel time not to exceed fourteen minutes (14:00) for a chief officer.
- A total travel time not to exceed fourteen minutes (14:00) to achieve an effective response force

The criteria shall be met to a ninetieth percentile (90%) of all applicable *hazardous materials service* responses.

Aircraft Crash Fire & Rescue Program

For *aircraft crash, fire-rescue services* the agency has established the following benchmark for service delivery in areas of the city classified as *urbanized;*
I

- A travel time not to exceed five minutes (5:00) for the first due unit.
- A travel time not to exceed eight minutes (8:00) for the second due unit and/or the ladder company.
- A travel time not to exceed eight minutes (8:00) for a chief officer.
- A total travel time not to exceed ten minutes (10:00) to achieve an effective response force

For *aircraft crash, fire-rescue services* the agency has established the following benchmark for service delivery for areas in the city classified as *Rural-non urban;*

- A travel time not to exceed ten minutes (10:00) for the first due unit.
- A travel time minute not to exceed fourteen minutes (14:00) for the second due unit and/or the ladder company.
- A travel time not to exceed fourteen minutes (14:00) for a chief officer.
- A total travel time not to exceed fourteen minutes (14:00) to achieve an effective response force

The criteria shall be met to a ninetieth percentile of all applicable *aircraft crash, fire & rescue service* responses.

Urban-Rural Interface Firefighting Program

For *urban rural interface fire services* the agency has established the following benchmark for service delivery in areas of the city classified as *urbanized;*
I

- A travel time not to exceed five minutes (5:00) for the first due unit.
- A travel time not to exceed eight minutes (8:00) for the second due unit and/or the ladder company.
- A travel time not to exceed eight minutes (8:00) for a chief officer.
- A total travel time not to exceed ten minutes (10:00) to achieve an effective response force

For *urban-rural interface fire services* the agency has established the following benchmark for service delivery for areas in the city classified as *Rural-non urban;*

- A travel time not to exceed ten minutes (10:00) for the first due unit.
- A travel time minute not to exceed fourteen (14:00) minutes for the second due unit and/or the ladder company.
- A travel time not to exceed fourteen minutes (14:00) for a chief officer.
- A total travel time not to exceed fourteen minutes (14:00) to achieve an effective response force

The criteria shall be met to a ninetieth percentile (90%) of all applicable *urban-rural interface fire services* responses.

Performance Objectives – Baselines

As a part of the accreditation process, the Fire & Rescue Department formulated its baseline standard of response. The standard communicates the agency's current state of readiness for response coverage. The objectives are based on the population density of the Risk Hazard Area Zone(s)

- *Urbanized:* A density classification for an area with a population of 1,000 to 1,999 people per square mile. The population density is derived by utilizing the 2010 US Census Data and the SF&R risk hazard zones.
- *Non-Urbanized-Rural:* A density classification for an area with a population of 0 to 999 people per square mile. The population density is derived by utilizing the 2010 US Census Data and the SF&R risk hazard zones.

Fire Suppression Services Program

For *fire suppression services* the agency has established the following as the baseline for service delivery in areas of the city classified as *urbanized;*
I

- A travel time not to exceed six minutes thirty seconds (6:30) for the first due unit.
- A travel time not to exceed ten minutes twenty-four seconds (10:24) -for the second due unit and/or the ladder company.

- A travel time not to exceed ten minutes twenty-four seconds (10:24) for a chief officer.
- A total travel time not to exceed thirteen (13:00) to achieve an effective response force

For *fire suppression* the agency has established the following baseline for service delivery for areas in the city classified as *Rural-non urban;*

- A travel time not to exceed thirteen minutes (13:00) for the first due unit.
- A travel time not to exceed eighteen minutes twelve seconds (18:12) for the second due unit and/or the ladder company.
- A travel time not to exceed eighteen minutes twelve seconds (18:12) for a chief officer.
- A total travel time not to exceed eighteen minutes twelve seconds (18:12) to achieve an effective response force

The criteria shall be met to a ninetieth percentile (90%) of all applicable *fire suppression service* responses.

Rescue Services Program

For *rescue services* the agency has established the following as the baseline for service delivery in areas of the city classified as *urbanized;*
I

- A travel time not to exceed six minutes thirty seconds (6:30) for the first due unit.
- A travel time not to exceed ten minutes twenty-four seconds (10:24) for the second due unit and/or the ladder company.
- A travel time not to exceed ten minutes twenty-four seconds (10:24) for a chief officer.
- A total travel time not to exceed thirteen minutes (13:00) to achieve an effective response force

For *recue services* the agency has established the following baseline for service delivery for areas in the city classified as *Rural-non urban;*

- A travel time not to exceed thirteen minutes (13:00) for the first due unit.
- A travel time not to exceed eighteen minutes twelve seconds (18:12) for the second due unit and/or the ladder company.
- A travel time not to exceed eighteen minutes twelve seconds (18:12) for a chief officer.
- A total travel time not to exceed eighteen minutes twelve seconds (18:12) to achieve an effective response force

The criteria shall be met to a ninetieth percentile (90%) of all applicable *rescue service* responses.

Emergency Medical Services Program

For *emergency medical services* the agency has established the following as the baseline for service delivery in areas of the city classified as *urbanized;*
I

- A travel time not to exceed six minutes thirty seconds (6:30) for the first due unit.
- A travel time not to exceed ten minutes twenty-four seconds (10:24) for the second due unit and/or the ladder company.
- A travel time not to exceed ten minutes twenty-four seconds (10:24) for a chief officer.
- A total travel time not to exceed thirteen minutes (13:00) to achieve an effective response force

For *emergency medical services* the agency has established the following baseline for service delivery for areas in the city classified as *Rural-non urban;*

- A travel time not to exceed thirteen minutes (13:00) for the first due unit.
- A travel time not to exceed eighteen minutes twelve seconds (18:12) for the second due unit and/or the ladder company.
- A travel time not to exceed eighteen minutes twelve seconds (18:12) for a chief officer.
- A total travel time not to exceed eighteen minutes twelve seconds (18:12) to achieve an effective response force

The criteria shall be met to a ninetieth percentile (90%) of all applicable *emergency medical service* responses.

Hazardous Materials Services Program

For *hazardous materials services* the agency has established the following as the baseline for service delivery in areas of the city classified as *urbanized;*
I

- A travel time not to exceed six minutes thirty seconds (6:30) for the first due unit.
- A travel time not to exceed ten minutes twenty-four seconds (10:24) for the second due unit and/or the ladder company.
- A travel time not to exceed ten minutes twenty-four seconds (10:24) for a chief officer.
- A total travel time not to exceed thirteen minutes (13:00) to achieve an effective response force

For *hazardous materials* the agency has established the following baseline for service delivery for areas in the city classified as *Rural-non urban;*

- A travel time not to exceed thirteen minutes (13:00) for the first due unit.
- A travel time minute not to exceed eighteen minutes twelve seconds (18:12) for the second due unit and/or the ladder company.

- A travel time not to exceed eighteen minutes twelve seconds (18:12) for a chief officer.
- A total travel time not to exceed eighteen minutes twelve seconds (18:12) to achieve an effective response force

The criteria shall be met to a ninetieth percentile (90%) of all applicable *hazardous materials service* responses.

Aircraft Crash Fire & Rescue Program

For *aircraft crash fire rescue services* the agency has established the following as the baseline for service delivery in areas of the city classified as *urbanized;*
I

- A travel time not to exceed six minutes thirty seconds (6:30) for the first due unit.
- A travel time not to exceed ten minutes twenty-four seconds (10:24) for the second due unit and/or the ladder company.
- A travel time not to exceed ten minutes twenty-four seconds (10:24) for a chief officer.
- A total travel time not to exceed thirteen minutes (13:00) to achieve an effective response force

For *aircraft crash fire rescue* the agency has established the following baseline for service delivery for areas in the city classified as *Rural-non urban;*

- A travel time not to exceed thirteen minutes (13:00) for the first due unit.
- A travel time not to exceed eighteen minutes twelve seconds (18:12) for the second due unit and/or the ladder company.
- A travel time not to exceed eighteen minutes twelve seconds (18:12) for a chief officer.
- A total travel time not to exceed eighteen minutes twelve seconds (18:12) to achieve an effective response force

The criteria shall be met to a ninetieth percentile (90%) of all applicable *aircraft crash fire rescue service* responses.

Urban-Rural Interface Firefighting Program

For *urban rural interface fire services* the agency has established the following as the baseline for service delivery in areas of the city classified as *urbanized;*
I

- A travel time not to exceed six minutes thirty seconds (6:30) for the first due unit.
- A travel time not to exceed ten minutes twenty-four seconds (10:24) for the second due unit and/or the ladder company.
- A travel time not to exceed ten minutes twenty-four seconds (10:24) for a chief officer.
- A total travel time not to exceed thirteen minutes (13:00) to achieve an effective response force

For *urban rural interface fire services* the agency has established the following baseline for service delivery for areas in the city classified as *Rural-non urban;*

- A travel time not to exceed thirteen minutes (13:00) for the first due unit.
- A travel time not to exceed eighteen minutes twelve seconds (18:12) for the second due unit and/or the ladder company.
- A travel time not to exceed eighteen minutes twelve seconds (18:12) for a chief officer.
- A total travel time not to exceed eighteen minutes twelve seconds (18:12) to achieve an effective response force

Historical Performance by Program Area

Fire Suppression Services Program

Table 47: Fire Suppression Services- Minimal Risk Performance

(Minimal Risk) Fire Suppression - 90th Percentile Times - Baseline Performance			2014-15 2018-19	2018 2019	2017 2018	2016 2017	2015 2016	2014 2015
Alarm Handling	Pick-up to Dispatch	Urban	02:26	02:25	02:23	03:26	02:24	01:59
		Rural	02:25	01:57	01:54	01:51	01:33	02:04
Turnout Time	Turnout Time 1st Unit	Urban	02:35	01:39	02:14	01:57	02:49	02:26
		Rural	02:04	01:24	01:51	01:33	02:02	02:46
Travel Time	Travel Time 1st Unit **Distribution**	Urban	05:50	06:59	03:31	05:14	04:28	05:49
		Rural	06:22	04:40	06:35	06:47	04:47	04:36
	Travel Time ERF **Concentration**	Urban	05:20	05:20	03:31	05:13	04:28	06:25
		Rural	06:22	04:40	06:35	06:47	05:33	04:36
Total Response Time	Total Response Time 1st Unit on Scene **Distribution**	Urban	09:19	09:19	08:08	11:09	08:28	08:48
			n=87	n=09	n=08	n=20	n=27	n=32
		Rural	09:34	08:05	08:49	09:23	09:10	07:12
			n=56	n=07	n=03	n=10	n=17	n=22
	Total Response Time ERF **Concentration**	Urban	09:34	09:19	16:45	11:09	08:28	08:25
			n=68	n=08	n=08	n=20	n=22	n=19
		Rural	09:34	08:05	08:49	09:23	10:12	07:11
			n=39	n=06	n=03	n=09	n=13S	n=11

Table 48: Fire Suppression Services- Moderate Risk Performance

(Moderate Risk) Fire Suppression - 90th Percentile Times - Baseline Performance			2014-15 2018-19	2018 2019	2017 2018	2016 2017	2015 2016	2014 2015
Alarm Handling	Pick-up to Dispatch	Urban	02:14	02:26	02:14	02:08	02:18	02:12
		Rural	02:09	02:11	01:46	02:12	02:04	02:04
Turnout Time	Turnout Time 1st Unit	Urban	02:16	02:06	02:08	02:12	02:28	02:14
		Rural	02:11	02:00	02:03	02:04	02:19	02:34
Travel Time	Travel Time 1st Unit **Distribution**	Urban	05:01	05:04	05:07	04:48	05:20	04:57
		Rural	06:18	06:09	06:35	07:09	05:16	05:52
	Travel Time ERF **Concentration**	Urban	08:56	08:11	08:26	08:56	09:53	09:14
		Rural	11:21	12:12	13:12	11:21	10:11	10:11
Total Response Time	Total Response Time 1st Unit on Scene **Distribution**	Urban	08:20	08:08	08:31	08:18	08:43	08:08
			n=606	n=85	n=110	n=141	n=140	n=130
		Rural	09:10	08:56	09:16	09:44	08:27	08:29
			n=472	n=58	n=78	n=105	n=107	n=124
	Total Response Time ERF **Concentration**	Urban	12:14	10:56	11:32	11:50	12:38	12:35
			n=225	n=25	n=43	n=50	n=65	n=42
		Rural	14:37	15:02	15:03	15:05	12:28	13:08
			n=203	n=22	n=36	n=56	n=47	n=42

Table 49: Fire Suppression Services- Significant Risk Performance

(Significant Risk) Fire Suppression - 90th Percentile Times - Baseline Performance			2014-15 2018-19	2018 2019	2017 2018	2016 2017	2015 2016	2014 2015
Alarm Handling	Pick-up to Dispatch	Urban	02:19	02:19	02:44	01:47	01:31	03:07
		Rural	03:01	03:18	01:55	02:38	01:41	02:03
Turnout Time	Turnout Time 1st Unit	Urban	02:46	01:58	02:25	02:46	02:48	02:21
		Rural	02:21	02:24	02:02	01:54	01:20	01:47
Travel Time	Travel Time 1st Unit **Distribution**	Urban	04:12	03:34	04:01	02:32	04:12	04:10
		Rural	07:01	07:10	06:13	04:12	05:02	05:52
	Travel Time ERF **Concentration**	Urban	14:54	12:33	17:52	09:36	08:10	10:42
		Rural	12:33	12:33	17:52	09:36	06:56	09:11
Total Response Time	Total Response Time 1st Unit on Scene **Distribution**	Urban	06:53	06:23	08:31	06:38	06:53	06:40
			n=40	n=04	n=08	n=05	n=11	n=12
		Rural	09:42	10:28	08:49	07:53	07:49	09:34
			n=39	n=16	n=06	n=04	n=07	n=06
	Total Response Time ERF **Concentration**	Urban	16:48	15:45	n/a	16:21	17:14	12:07
			n=14	n=01	n=0	n=02	n=05	n=06
		Rural	14:08	14:08	21:50	13:22	13:53	09:21
			n=10	n=02	n=02	n=03	n=02	n=01

Table 50: Fire Suppression Services- Maximum Risk Performance

(Maximum Risk) Fire Suppression - 90th Percentile Times - Baseline Performance			2014-15 2018-19	2018 2019	2017 2018	2016 2017	2015 2016	2014 2015
Alarm Handling	Pick-up to Dispatch	Urban	00:00	00:00				
		Rural	02:33	02:33				
Turnout Time	Turnout Time 1st Unit	Urban	00:00	00:00				
		Rural	01:57	01:57				
Travel Time	Travel Time 1st Unit **Distribution**	Urban	00:00	00:00				
		Rural	07:10	07:10				
	Travel Time ERF **Concentration**	Urban	00:00	00:00				
		Rural	09:58	09:58				
Total Response Time	Total Response Time 1st Unit on Scene **Distribution**	Urban	00:00	00:00				
			n=00	n=00	n=00	n=00	n=00	n=00
		Rural	11:40	11:40				
			n=01	n=01	n=00	n=00	n=00	n=00
	Total Response Time ERF **Concentration**	Urban	00:00	00:00				
			n=00	n=00	n=00	n=00	n=00	n=00
		Rural	26:28	26:28				
			n=01	n=01	n=00	n=00	n=00	n=00

Rescue Services Program

Table 51: Rescue Services- Minimal Risk Performance

(Minimal Risk) Rescue Services - 90th Percentile Times - Baseline Performance			2014-15 2018-19	2018 2019	2017 2018	2016 2017	2015 2016	2014 2015
Alarm Handling	Pick-up to Dispatch	Urban	01:58	02:04	02:16	01:56	01:52	01:46
		Rural	01:54	01:55	02:26	01:41	02:34	02:19
Turnout Time	Turnout Time 1st Unit	Urban	02:23	02:13	02:03	02:15	02:22	02:47
		Rural	02:23	02:15	02:05	02:13	02:27	02:29
Travel Time	Travel Time 1st Unit **Distribution**	Urban	04:55	05:05	04:26	04:14	05:33	04:09
		Rural	05:18	05:49	05:26	05:00	05:21	4:51
	Travel Time ERF **Concentration**	Urban	05:04	05:05	04:26	04:55	04:53	04:38
		Rural	05:49	05:49	05:26	05:27	06:20	04:51
Total Response Time	Total Response Time 1st Unit on Scene **Distribution**	Urban	07:16	07:10	07:19	07:31	08:49	06:42
			n=196	n=47	n=86	n=48	n=41	n=64
		Rural	08:30	08:35	08:13	08:30	09:09	07:10
			n=252	n=63	n=87	n=94	n=51	n=44
	Total Response Time ERF **Concentration**	Urban	07:31	07:10	07:20	08:29	08:49	06:32
			n=162	n=44	n=83	n=46	n=37	n=42
		Rural	08:57	08:35	08:13	08:45	08:40	07:20
			n=177	n=61s	n=87	n=90	n=42	n=29

Table 52: Rescue Services- Moderate Risk Performance

(Moderate Risk) Rescue Services - 90th Percentile Times - Baseline Performance			2014-15 2018-19	2018 2019	2017 2018	2016 2017	2015 2016	2014 2015
Alarm Handling	Pick-up to Dispatch	Urban	01:50	01:27	02:36	01:33	01:52	01:14
		Rural	01:45	01:59	01:40	01:08	01:48	01:45
Turnout Time	Turnout Time 1st Unit	Urban	02:30	02:23	02:03	03:52	02:22	02:35
		Rural	02:27	02:34	02:09	02:10	02:23	02:46
Travel Time	Travel Time 1st Unit **Distribution**	Urban	04:25	04:37	04:26	03:39	05:12	03:39
		Rural	05:16	05:49	05:28	04:58	06:20	04:46
	Travel Time ERF **Concentration**	Urban	10:18	07:10	07:34	08:13	10:18	10:37
		Rural	08:06	07:40	09:09	07:27	07:39	08:06
Total Response Time	Total Response Time 1st Unit on Scene **Distribution**	Urban	06:53	07:10	07:33	06:33	06:59	05:01
			n=89	n=13	n=25	n=15	n=17	n=19
		Rural	08:29	08:21	09:09	07:46	09:09	06:48
			n=194	n=37	n=55	n=52	n=31	n=19
	Total Response Time ERF **Concentration**	Urban	12:31	09:23	09:36	10:15	12:42	07:58
			n=66	n=09	n=18	n=12	n=14	n=13
		Rural	10:28	09:56	11:38	10:24	09:09	09:34
			n=111	n=23	n=33	n=29	n=15	n=11

Table 53: Rescue Services- Significant Risk Performance

(Significant Risk) Rescue Services - 90th Percentile Times - Baseline Performance			2014-15 2018-19	2018 2019	2017 2018	2016 2017	2015 2016	2014 2015
Alarm Handling	Pick-up to Dispatch	Urban	00:00	00:00	00:00	00:00	00:00	00:00
		Rural	01:42	01:38	01:36	01:07	01:48	01:45
Turnout Time	Turnout Time 1st Unit	Urban	00:00	00:00	00:00	00:00	00:00	00:00
		Rural	02:17	02:27	02:09	02:30	02:01	02:16
Travel Time	Travel Time 1st Unit **Distribution**	Urban	00:00	00:00	00:00	00:00	00:00	00:00
		Rural	05:29	05:49	05:11	04:58	06:20	04:46
	Travel Time ERF **Concentration**	Urban	00:00	00:00	00:00	00:00	00:00	00:00
		Rural	08:00	07:40	07:08	07:27	07:39	08:06
Total Response Time	Total Response Time 1st Unit on Scene **Distribution**	Urban	00:00	00:00	00:00	00:00	00:00	00:00
			n=00	n=00	n=00	n=00	n=00	n=00
		Rural	08:08	08:21	09:09	07:43	08:08	07:10
			n=149	n=25	n=47	n=43	n=21	n=13
	Total Response Time ERF **Concentration**	Urban	00:00	00:00	00:00	00:00	00:00	00:00
			n=00	n=00	n=00	n=00	n=00	n=00
		Rural	12:22	09:36	12:22	08:52	17:56	11:10
			n=8	n=2	n=2	n=1	n=01	n=01

Table 54: Rescue Services- Maximum Risk Performance

(Maximum Risk) Rescue Services - 90th Percentile Times - Baseline Performance			2014-15 2018-19	2018 2019	2017 2018	2016 2017	2015 2016	2014 2015
Alarm Handling	Pick-up to Dispatch	Urban						
		Rural						
Turnout Time	Turnout Time 1st Unit	Urban						
		Rural						
Travel Time	Travel Time 1st Unit **Distribution**	Urban						
		Rural						
	Travel Time ERF **Concentration**	Urban						
		Rural						
Total Response Time	Total Response Time 1st Unit on Scene **Distribution**	Urban						
		Rural						
			n=00	n=00	n=00	n=00	n=00	n=00
	Total Response Time ERF **Concentration**	Urban						
			n=00	n=00	n=00	n=00	n=00	n=00
		Rural						
			n=00	n=00	n=00	n=00	n=00	n=00

Emergency Medical Services Program

Table 55: Medical Services- Minimal Risk Performance

(Minimal Risk) Medical Services - 90th Percentile Times - Baseline Performance			2014-15 2018-19	2018 2019	2017 2018	2016 2017	2015 2016	2014 2015
Alarm Handling	Pick-up to Dispatch	Urban						
		Rural						
Turnout Time	Turnout Time 1st Unit	Urban						
		Rural						
Travel Time	Travel Time 1st Unit **Distribution**	Urban						
		Rural						
	Travel Time ERF **Concentration**	Urban						
		Rural						
Total Response Time	Total Response Time 1st Unit on Scene **Distribution**	Urban						
			n=00	n=00	n=00	n=00	n=00	n=00
		Rural						
			n=00	n=00	n=00	n=00	n=00	n=00
	Total Response Time ERF **Concentration**	Urban						
			n=00	n=00	n=00	n=00	n=00	n=00
		Rural						
			n=00	n=00	n=00	n=00	n=00	n=00

Table 56: Medical Services- Moderate Risk Performance

(Moderate Risk) Medical Services - 90th Percentile Times - Baseline Performance			2014-15 2018-19	2018 2019	2017 2018	2016 2017	2015 2016	2014 2015
Alarm Handling	Pick-up to Dispatch	Urban						
		Rural						
Turnout Time	Turnout Time 1st Unit	Urban						
		Rural						
Travel Time	Travel Time 1st Unit **Distribution**	Urban						
		Rural						
	Travel Time ERF **Concentration**	Urban						
		Rural						
Total Response Time	Total Response Time 1st Unit on Scene **Distribution**	Urban						
			n=00	n=00	n=00	n=00	n=00	n=00
		Rural						
			n=00	n=00	n=00	n=00	n=00	n=00
	Total Response Time ERF **Concentration**	Urban						
			n=00	n=00	n=00	n=00	n=00	n=00
		Rural						
			n=00	n=00	n=00	n=00	n=00	n=00

Table 57: Medical Services- Significant Risk Performance

(Significant Risk) Medical Services - 90th Percentile Times - Baseline Performance			2014-15 2018-19	2018 2019	2017 2018	2016 2017	2015 2016	2014 2015
Alarm Handling	Pick-up to Dispatch	Urban	03:04	03:03	03:05	03:04	03:01	03:07
		Rural	03:11	03:16	03:07	03:02	03:05	03:24
Turnout Time	Turnout Time 1st Unit	Urban	02:16	02:15	02:09	02:13	02:26	02:14
		Rural	02:11	02:10	02:09	02:10	02:19	02:07
Travel Time	Travel Time 1st Unit **Distribution**	Urban	05:47	06:04	05:53	05:41	05:41	05:06
		Rural	06:10	05:48	06:20	06:00	06:49	05:25
	Travel Time ERF **Concentration**	Urban	00:00	00:00	00:00	00:00	00:00	00:00
		Rural	00:00	00:00	00:00	00:00	00:00	00:00
Total Response Time	Total Response Time 1st Unit on Scene **Distribution**	Urban	09:39	10:16	10:01	09:50	09:27	08:12
			n=3,032	n=395	n=772	n=780	n=594	n=491
		Rural	10:05	09:31	10:35	09:46	10:28	08:56
			n=940	n=139	n=237	n=262	n=158	n=144
	Total Response Time ERF **Concentration**	Urban	00:00	00:00	00:00	00:00	00:00	00:00
			n=00	n=00	n=00	n=00	n=00	n=00
		Rural	00:00	00:00	00:00	00:00	00:00	00:00
			n=00	n=00	n=00	n=00	n=00	n=00

Table 58: Medical Services- Maximum Risk Performance

(Maximum Risk) Medical Services - 90th Percentile Times - Baseline Performance			2014-15 2018-19	2018 2019	2017 2018	2016 2017	2015 2016	2014 2015
Alarm Handling	Pick-up to Dispatch	Urban						
		Rural						
Turnout Time	Turnout Time 1st Unit	Urban						
		Rural						
Travel Time	Travel Time 1st Unit **Distribution**	Urban						
		Rural						
	Travel Time ERF **Concentration**	Urban						
		Rural						
Total Response Time	Total Response Time 1st Unit on Scene **Distribution**	Urban						
			n=00	n=00	n=00	n=00	n=00	n=00
		Rural						
			n=00	n=00	n=00	n=00	n=00	n=00
	Total Response Time ERF **Concentration**	Urban						
			n=00	n=00	n=00	n=00	n=00	n=00
		Rural						
			n=00	n=00	n=00	n=00	n=00	n=00

Hazardous Materials Services Program

Table 59: Hazardous Materials Services- Minimal Risk Performance

(Minimal Risk) Hazardous Materials - 90th Percentile Times - Baseline Performance			2014-15 2018-19	2018 2019	2017 2018	2016 2017	2015 2016	2014 2015
Alarm Handling	Pick-up to Dispatch	Urban	02:37	02:11	02:54	02:35	02:37	03:06
		Rural	02:43	03:06	02:16	02:33	02:12	02:01
Turnout Time	Turnout Time 1st Unit	Urban	02:16	02:01	01:59	02:23	02:12	02:17
		Rural	02:07	01:56	01:38	01:51	02:13	02:01
Travel Time	Travel Time 1st Unit **Distribution**	Urban	06:12	08:50	05:38	05:56	05:10	05:40
		Rural	07:16	07:23	07:34	05:20	07:28	05:23
	Travel Time ERF **Concentration**	Urban	06:18	08:19	05:38	06:18	05:17	05:40
		Rural	07:21	07:23	07:34	05:34	07:32	05:23
Total Response Time	Total Response Time 1st Unit on Scene **Distribution**	Urban	09:13	10:18	09:07	08:50	09:05	08:46
			n=255	n=37	n=55	n=70	n=81	n=67
		Rural	10:16	11:24	10:38	10:01	10:16	08:31
			n=114	n=15	n=22	n=21	n=40	n=41
	Total Response Time ERF **Concentration**	Urban	09:29	10:30	09:07	09:05	09:12	09:47
			n=217	n=36	n=53	n=70	n=73	n=43
		Rural	10:44	11:24	10:38	10:01	12:15	09:19
			n=85	n=14	n=22	n=20	n=31	n=20

Table 60: Hazardous Materials Services- Moderate Risk Performance

(Moderate Risk) Hazardous Materials - 90th Percentile Times - Baseline Performance			2014-15 2018-19	2018 2019	2017 2018	2016 2017	2015 2016	2014 2015
Alarm Handling	Pick-up to Dispatch	Urban	02:02	01:43	02:01	01:57	02:05	02:48
		Rural	02:22	02:10	01:48	02:33	02:22	02:02
Turnout Time	Turnout Time 1st Unit	Urban	02:16	02:03	02:35	02:08	02:15	02:21
		Rural	02:23	02:18	02:00	01:53	02:23	02:11
Travel Time	Travel Time 1st Unit **Distribution**	Urban	05:24	04:28	05:53	05:36	05:18	05:05
		Rural	05:47	06:17	04:41	05:54	04:56	05:38
	Travel Time ERF **Concentration**	Urban	08:51	10:39	08:51	09:06	07:54	07:33
		Rural	12:43	09:41	09:36	08:11	12:34	10:34
Total Response Time	Total Response Time 1st Unit on Scene **Distribution**	Urban	08:06	07:06	08:14	08:06	08:15	07:46
			n=262	n=29	n=39	n=55	n=68	n=71
		Rural	08:32	08:25	07:28	08:47	08:45	07:41
			n=115	n=07	n=19	n=22	n=32	n=35
	Total Response Time ERF **Concentration**	Urban	12:09	13:27	11:51	12:27	10:39	09:07
			n=187	n=22	n=29	n=46	n=51	N=39
		Rural	13:01	17:03	11:48	11:48	10:49	15:20
			n=65	n=05	n=13	n=17	n=17	n=13

Table 61: Hazardous Materials Services- Significant Risk Performance

(Significant Risk) Hazardous Materials - 90th Percentile Times - Baseline Performance			2014-15 2018-19	2018 2019	2017 2018	2016 2017	2015 2016	2014 2015
Alarm Handling	Pick-up to Dispatch	Urban	00:00		00:00			
		Rural	00:21		00:21			
Turnout Time	Turnout Time 1st Unit	Urban	00:00		00:00			
		Rural	02:18		02:18			
Travel Time	Travel Time 1st Unit **Distribution**	Urban	00:00		00:00			
		Rural	06:24		06:24			
	Travel Time ERF **Concentration**	Urban	00:00		00:00			
		Rural	09:03		09:03			
Total Response Time	Total Response Time 1st Unit on Scene **Distribution**	Urban	00:00		00:00			
			n=00	n=00	n=00	n=00	n=00	n=00
		Rural	11:00		11:00			
			n=01	n=00	n=01	n=00	n=00	n=00
	Total Response Time ERF **Concentration**	Urban	00:00		00:00			
			n=00	n=00	n=00	n=00	n=00	n=00
		Rural	13:39		13:39			
			n=01	n=00	n=01	n=00	n=00	n=00

Table 62: Hazardous Materials Services- Maximum Risk Performance

(Maximum Risk) Hazardous Materials - 90th Percentile Times - Baseline Performance			2014-15 2018-19	2018 2019	2017 2018	2016 2017	2015 2016	2014 2015
Alarm Handling	Pick-up to Dispatch	Urban	00:00		00:00			
		Rural	000:21		000:21			
Turnout Time	Turnout Time 1st Unit	Urban	00:00		00:00			
		Rural	02:18		02:18			
Travel Time	Travel Time 1st Unit **Distribution**	Urban	00:00		00:00			
		Rural	06:24		06:24			
	Travel Time ERF **Concentration**	Urban	00:00		00:00			
		Rural	11:00		11:00			
Total Response Time	Total Response Time 1st Unit on Scene **Distribution**	Urban	00:00		00:00			
			n=00	n=00	n=00	n=00	n=00	n=00
		Rural	09:03		09:03			
			n=01	n=00	n=01	n=00	n=00	n=00
	Total Response Time ERF **Concentration**	Urban	00:00		00:00			
			n=00	n=00	n=00	n=00	n=00	n=00
		Rural	13:39		13:39			
			n=01	n=00	n=00	n=00	n=00	n=00

Special Services

Urban-Rural Fire Services Program

Table 63: Urban-Rural Fire Services- Minimal Risk Performance

(Minimal Risk) Urban Rural Fire - 90th Percentile Times - Baseline Performance			2014-15 2018-19	2018 2019	2017 2018	2016 2017	2015 2016	2014 2015
Alarm Handling	Pick-up to Dispatch	Urban	02:00	01:54	01:37	02:56	02:28	01:40
		Rural	02:10	02:45	03:13	02:55	02:07	01:14
Turnout Time	Turnout Time 1st Unit	Urban	02:13	02:33	02:08	01:37	02:11	01:43
		Rural	02:06	01:16	02:09	01:39	02:13	02:06
Travel Time	Travel Time 1st Unit **Distribution**	Urban	05:27	04:53	04:53	04:59	05:44	04:38
		Rural	06:05	03:58	06:28	04:47	07:19	05:20
	Travel Time ERF **Concentration**	Urban	06:00	04:53	04:53	06:00	05:44	05:14
		Rural	06:20	03:58	06:28	04:47	08:54	05:20
Total Response Time	Total Response Time 1st Unit on Scene **Distribution**	Urban	08:52	07:57	10:17	08:30	08:01	07:50
			n=65	n=07	n=21	n=17	n=17	n=27
		Rural	08:34	06:54	08:55	07:10	09:31	08:11
			n=52	n=04	n=13	n=17	n=19	n=14
	Total Response Time ERF **Concentration**	Urban	09:24	07:56	08:55	08:38	09:04	07:54
			n=53	n=07	n=13	n=17	n=12	n=17
		Rural	08:51	06:54	10:17	07:45	11:04	07:30
			n=48	n=03	n=21	n=17	n=19	n=09

Table 64: Urban-Rural Fire Services- Moderate Risk Performance

(Moderate Risk) Urban-Rural Fire - 90th Percentile Times - Baseline Performance			2014-15 2018-19	2018 2019	2017 2018	2016 2017	2015 2016	2014 2015
Alarm Handling	Pick-up to Dispatch	Urban	02:48	01:54	02:48	02:56	01:15	02:34
		Rural	02:15	02:02	01:26	02:55	02:10	01:14
Turnout Time	Turnout Time 1st Unit	Urban	02:30	01:53	01:46	01:27	02:30	02:47
		Rural	02:09	01:25	03:49	01:28	02:35	02:09
Travel Time	Travel Time 1st Unit **Distribution**	Urban	05:14	02:47	04:03	04:55	05:37	04:44
		Rural	04:54	04:54	04:20	04:05	07:19	05:28
	Travel Time ERF **Concentration**	Urban	10:10	00:00	11:12	09:16	08:14	12:00
		Rural	10:40	13:32	05:30	09:18	10:40	07:20
Total Response Time	Total Response Time 1st Unit on Scene **Distribution**	Urban	07:51	06:34	07:43	07:18	06:54	08:12
			n=40	n=01	n=05	n=09	n=10	n=15
		Rural	08:21	08:21	06:52	07:06	09:35	06:58
			n=32	n=03	n=04	n=07	n=10	n=08
	Total Response Time ERF **Concentration**	Urban	12:36	00:00	12:43	11:16	11:04	12:47
			n=37	n=00	n=05	n=08	n=09	n=15
		Rural	14:46	14:46	10:32	17:59	13:25	08:46
			n=18	n=01	n=03	n=06	n=04	n=04

Table 65: Urban-Rural Fire Services- Significant Risk Performance

(Significant Risk) Urban-Rural Fire - 90th Percentile Times - Baseline Performance			2014-15 2018-19	2018 2019	2017 2018	2016 2017	2015 2016	2014 2015
Alarm Handling	Pick-up to Dispatch	Urban	00:00		00:00			
		Rural	01:26		01:26			
Turnout Time	Turnout Time 1st Unit	Urban	00:00		00:00			
		Rural	02:06		02:06			
Travel Time	Travel Time 1st Unit **Distribution**	Urban	00:00		00:00			
		Rural	03:46		03:46			
	Travel Time ERF **Concentration**	Urban	00:00		00:00			
		Rural	03:48		03:48			
Total Response Time	Total Response Time 1st Unit on Scene **Distribution**	Urban	00:00		00:00			
			n=00	n=00	n=00	n=00	n=00	n=00
		Rural	05:52		05:52			
			n=01	n=00	n=01	n=00	n=00	n=00
	Total Response Time ERF **Concentration**	Urban	00:00		00:00			
			n=00	n=00	n=00	n=00	n=00	n=00
		Rural	05:54		05:54			
			n=01	n=00	n=01	n=00	n=00	n=00

Table 66: Urban-Rural Fire Services- Maximum Risk Performance

(Maximum) Urban-Rural Fire - 90th Percentile Times - Baseline Performance			2014-15 2018-19	2018 2019	2017 2018	2016 2017	2015 2016	2014 2015
Alarm Handling	Pick-up to Dispatch	Urban						
		Rural						
Turnout Time	Turnout Time 1st Unit	Urban						
		Rural						
Travel Time	Travel Time 1st Unit **Distribution**	Urban						
		Rural						
	Travel Time ERF **Concentration**	Urban						
		Rural						
Total Response Time	Total Response Time 1st Unit on Scene **Distribution**	Urban						
			n=00	n=00	n=00	n=00	n=00	n=00
		Rural						
			n=00	n=00	n=00	n=00	n=00	n=00
	Total Response Time ERF **Concentration**	Urban						
			n=00	n=00	n=00	n=00	n=00	n=00
		Rural						
			n=00	n=00	n=00	n=00	n=00	n=00

Table 67: ARFF Services- Minimal Risk Performance

(Minimal) ARFF - 90th Percentile Times - Baseline Performance			2014-15 2018-19	2018 2019	2017 2018	2016 2017	2015 2016	2014 2015
Alarm Handling	Pick-up to Dispatch	Urban				00:00		00:00
		Rural						
Turnout Time	Turnout Time 1st Unit	Urban						
		Rural						
Travel Time	Travel Time 1st Unit **Distribution**	Urban						
		Rural						
	Travel Time ERF **Concentration**	Urban						
		Rural						
Total Response Time	Total Response Time 1st Unit on Scene **Distribution**	Urban						
			n=00	n=00	n=00	n=00	n=00	n=00
		Rural						
			n=00	n=00	n=00	n=00	n=00	n=00
	Total Response Time ERF **Concentration**	Urban						
			n=00	n=00	n=00	n=00	n=00	n=00
		Rural						
			n=00	n=00	n=00	n=00	n=00	n=00

Table 68: ARFF Services- Moderate Risk Performance

(Moderate) ARFF - 90th Percentile Times - Baseline Performance			2014-15 2018-19	2018 2019	2017 2018	2016 2017	2015 2016	2014 2015
Alarm Handling	Pick-up to Dispatch	Urban	00:00			00:00		
		Rural	03:08			03:08		
Turnout Time	Turnout Time 1st Unit	Urban	00:00			00:00		
		Rural	02:53			02:53		
Travel Time	Travel Time 1st Unit **Distribution**	Urban	00:00			00:00		
		Rural	05:22			05:22		
	Travel Time ERF **Concentration**	Urban	00:00			00:00		
		Rural				05:22		
Total Response Time	Total Response Time 1st Unit on Scene **Distribution**	Urban	00:00			00:00		
			n=00	n=00	n=00	n=00	n=00	n=00
		Rural	11:23			11:23		
			n=01	n=00	n=00	n=01	n=00	n=00
	Total Response Time ERF **Concentration**	Urban	00:00			00:00		
			n=00	n=00	n=00	n=00	n=00	n=00
		Rural	11:23			11:23		
			n=01	n=00	n=00	n=01	n=00	n=00

Table 69: ARFF Services- Significant Risk Performance

(Significant) ARFF - 90th Percentile Times - Baseline Performance			2014-15 2018-19	2018 2019	2017 2018	2016 2017	2015 2016	2014 2015
Alarm Handling	Pick-up to Dispatch	Urban						
		Rural						
Turnout Time	Turnout Time 1st Unit	Urban						
		Rural						
Travel Time	Travel Time 1st Unit **Distribution**	Urban						
		Rural						
	Travel Time ERF **Concentration**	Urban						
		Rural						
Total Response Time	Total Response Time 1st Unit on Scene **Distribution**	Urban						
			n=00	n=00	n=00	n=00	n=00	n=00
		Rural						
			n=00	n=00	n=00	n=00	n=00	n=00
	Total Response Time ERF **Concentration**	Urban						
			n=00	n=00	n=00	n=00	n=00	n=00
		Rural						
			n=00	n=00	n=00	n=00	n=00	n=00

Table 70: ARFF Services- Maximum Risk Performance

(Maximum) ARFF - 90th Percentile Times - Baseline Performance			2014-15 2018-19	2018 2019	2017 2018	2016 2017	2015 2016	2014 2015
Alarm Handling	Pick-up to Dispatch	Urban						
		Rural						
Turnout Time	Turnout Time 1st Unit	Urban						
		Rural						
Travel Time	Travel Time 1st Unit **Distribution**	Urban						
		Rural						
	Travel Time ERF **Concentration**	Urban						
		Rural						
Total Response Time	Total Response Time 1st Unit on Scene **Distribution**	Urban						
			n=00	n=00	n=00	n=00	n=00	n=00
		Rural						
			n=00	n=00	n=00	n=00	n=00	n=00
	Total Response Time ERF **Concentration**	Urban						
			n=00	n=00	n=00	n=00	n=00	n=00
		Rural						
			n=00	n=00	n=00	n=00	n=00	n=00

F. Plan for Maintaining and Improving Response Capabilities

With the adoption of the standard of cover document, the Fire & Rescue Department will continue to monitor its operational effectiveness and measure the agency's progress toward constant improvement. This process will provide the agency the capability to constantly analyze data to ensure that the service delivery methods employed by the Fire & Rescue Department adequately meet the risk profile of Shelby and remain consistent with the service expectations of the community. Data collection methods will include the agency's records management system, supporting data mining software programs, and the data import from the CAD dispatch system.

Compliance Team / Responsibility

The chief officers of the Fire & Rescue Department shall continue to constitute the compliance team and consist of; the chief, the division chiefs, the fire marshal, the training-emergency management chief, and the battalion chiefs. The agency's designated accreditation manager shall also be included if the incumbent is not already included as one of the chief officers. The general responsibilities of the compliance team will include ongoing critical analysis, compiling data and reports, and communicating progress on stated goals. The accreditation manager will function as the team coordinator and report to the chief. The compliance team members will function and assume responsibility consistent with their job function, delegated program responsibility, and relative expertise. The compliance team will meet on a consistent basis to evaluate the effectiveness of the agency with respect to service delivery baselines and benchmarks and progress toward stated strategic goals.

Performance Evaluation and Compliance Strategy

The Fire & Rescue Department's evaluation and compliance strategy will entail a constant process that evaluates critical data to ensure compliance with current performance objectives and analyze progress toward the accomplishment of improvement goals. Specifically, the agency will evaluate its response data to ensure it maintains compliance with baseline performance standards while evaluating progress being made toward benchmark performance. Critical task analysis will be performed through recurring, timed company drills and the data obtained will be used to evaluate crew efficiency and continued operational effectiveness. Finally, the agency will track, analyze and monitor progress toward the accomplishment of stated goals in the strategic plan, the recommendations made in this document, and the strategic recommendations made by the peer team site visit report.

Compliance Verification Reporting

The agency's compliance verification and reporting will utilize a consistent and ongoing approach. An operational compliance report highlighting call processing, turnout, first due travel and effective response force will be automatically generated in the records management system and will be reviewed by the *executive chief officers* on a weekly basis. The *compliance team* will meet on a monthly basis to analyze the gathered data to ensure compliance and measure organization improvement. The agency will continue to utilize its quarterly *fire-stat meetings* to present the combined findings of the preceding quarter and analyze accomplishments and shortcomings of agency's delivery of services. The participants in this meeting will at least include the staff of the *Fire & Rescue Department*, and will be open to other department directors, external public safety agencies, and members of the community. The compilation of

quarterly data will be used to complete the *annual compliance report (ACR)* for CPSE and fulfill the agency's internal annual reporting process. The accreditation manager will coordinate compliance reporting with assistance from the compliance team.

Constant Improvement Strategy

With the approval and implementation of the agency's standard of cover document by the governing body, the Fire & Rescue Department will implement the elements of CPSE's cyclical six phase assessment process to evaluate the agency's actual performance and its progress toward accomplishing stated goals where the agency:

- Establishes or reviews performance measures, where the underlying assumptions of the initial SOC process is evaluated to ensure continued relevance.
- Evaluates performance, where actual performance is measured against stated objectives throughout the delivery system.
- Develops compliance strategies, where methodologies are developed to close service gaps where they may exist.
- Communicates expectations to the organization, where expectations for service improvement are adequately communicated to the agency and the community.
- Validates the performance, where ongoing compliance is verified and progress toward constant improvement is monitored.
- Makes adjustments and repeats the process, where adjustments to performance measures or processes are made and then the assessment process is repeated.

The strategy will be used in conjunction with the methods outlined in compliance verification reporting.

Figure 46: Compliance Verification Cycle

G. Overall Evaluation and Conclusion Recommendations

Evaluation Methodology and Determinations

Evaluation Methodology

The descriptive research method was used to conduct the analysis for the standard of cover document. The analysis identified seven risks to public safety within the sphere of influence of the Fire & Rescue Department. To facilitate the process, the agency sub-divided the jurisdiction by district into sixty-eight (68) statistically homogenous planning or *risk hazard area (RHA) zones* to analyze similar data points within each area. A risk profile was developed using the *probability vs consequence* matrix. The matrix profile identified minimal, moderate, significant and maximum risks and was developed across each service area to consider the built-up infrastructure, population density, zoning patterns, building types, and classifications. An analysis of each *RHA zone* was completed which summarized risk by service provided and factored zoning classifications, actual incidents occurred, property risk, wildfire risk, and the risk of flooding (Appendix A).

The agency completed an analysis of the critical tasks and the needed number of firefighters to service common emergency incidents the agency encounters across all service delivery functions. Once the tasks were identified, the agency conducted a series of timed drills aimed at determining a timeline of completion of the critical tasks needed to support program delivery.

Finally, the agency analyzed its response to emergency incidents during the time period 2014 to 2019. First, agency evaluated the metrics of call processing, turn-out and travel time for an initial unit, second unit, chief officer and an *effective response force (ERF)* to reach the scene of an emergency throughout the time period. Secondly, a time analysis by risk level and program area was conducted factoring call processing, turn-out time, first due arrival, ERF arrival, and *total response time (TRT)* metrics. Lastly, the agency evaluated first due travel and ERF arrival by RHA zone within each program delivery area. In all scenarios the performance data collected was reported to the 90th percentile.

Evaluation Determinations

The determination of the analysis found that overall the City of Shelby can be classified as rural type community. However, analysis of the individual *RHA's* paints a picture of a more diverse demographic with the city being a combination of rural and urbanized density with fifty-six percent (56%) of the city classified as rural in character and forty-four percent (44%) of the city urbanized in character (Figure 16). The concentration of risk by service delivery program analyzed the potential of risk in each *RHA* and is as follows:

- The risk of fire; split essentially even between moderate and significant risk categories.
- The risk of medical emergency; majority risk potential is minimal, with significant risk reporting next highest.
- The risk of hazardous materials event; the risk is distributed among moderate, significant and maximum risk potentials.

- The risk of technical rescue incident; majority of the risk potential in the city is classified as moderate.
- The risk of urban interface fire; the potential of risk in the city is mostly moderate.
- The risk of aircraft crash and rescue; the risk potential in the city is overwhelmingly minimal.
- The risk of disaster; the potential of risk is split between minimal and significant categories.

Figures 20-23 provide highlights of the data and Appendix A provides a detailed analysis by *risk hazard area* zone.

Reliability – Planning Areas

The analysis of the first due unit based in each district shows a high level of reliability. The resources in *district 1* reported a reliability of eighty percent (80%), *district 2* reported a reliability rate of eighty-two percent (82%), and *district 3* reported a reliability rate of eighty-one percent (81%) (Figures 42-44). Overall the Fire & Rescue Department' reliability is over eighty percent (80%) for arrival of a first-due unit. The data was compiled from all emergency response incidents occurring between the years 2014-2019.

The agency did not collect data on reliability of the last due unit, or the *effective response force.* However, a review of travel time concentration reveals an inability of resources from district 3 to respond within urban benchmark time travel parameters in portions of the western side of Shelby and the all of the satellite boundaries. Using rural benchmark travel time, district 3 resources have the capability to cover more of the contiguous city boundaries, but still cannot serve the satellite boundary areas of the city. (Figures 40-41).

Performance Determinations

The analysis of the agency's actual (baseline) call processing time relative to the stated benchmark shows agency performs significantly outside of benchmark expectations across all program areas (Tables 47-70, pp 98-121). However, the agency has experienced a notable improvement in reported baseline call processing since the implementation of the one button 911 call transfer in 2013. In collecting data in advance of its initial accreditation site visit in 2014, the agency at the time was reporting call processing times in excess of three-minutes.

The analysis of the agency's actual performance relative to baseline standards and stated benchmarks show that the agency is performing near stated benchmarks for first due unit, second due unit and chief officer across all service delivery programs (Table 32) . This is highlighted in the urban and rural travel time distribution maps which show benchmark capability of resources by district (Figures 30-35). With regard to establishing an *effective response force* the agency's actual performance relative to baseline standards and stated benchmarks shows the agency is exceeding benchmark travel time standards across all service delivery programs (Table 40) which is also graphically represented in the urban and rural travel time concentration maps which show benchmark capability of resources by district (Figures 36-41). All data is reported to a ninetieth percentile (90%). It is important to note that the performance only factors *actual*

incident history and does not indicate the agency can sustain similar performance in all areas of the city.

The following tables illustrate the patterns of incident activity from 2014 to 2019 across the agency's service delivery programs. Aircraft Crash Fire & Rescue (ARFF) and Disaster Services are not factored as there was not enough incident activity in those program areas to represent to a ninetieth percentile (90%). The program activity maps show a trend across the service delivery programs of emergency incident activity concentrated in the more urbanized core of the city and along the major commercial corridors of Shelby, particularly along US Highway Route 74. Pockets of activity are seen occurring on the west side of the city concentrated developing industrial corridor along Washburn-Switch Road.

Figure 47; Fire Suppression Program Activity

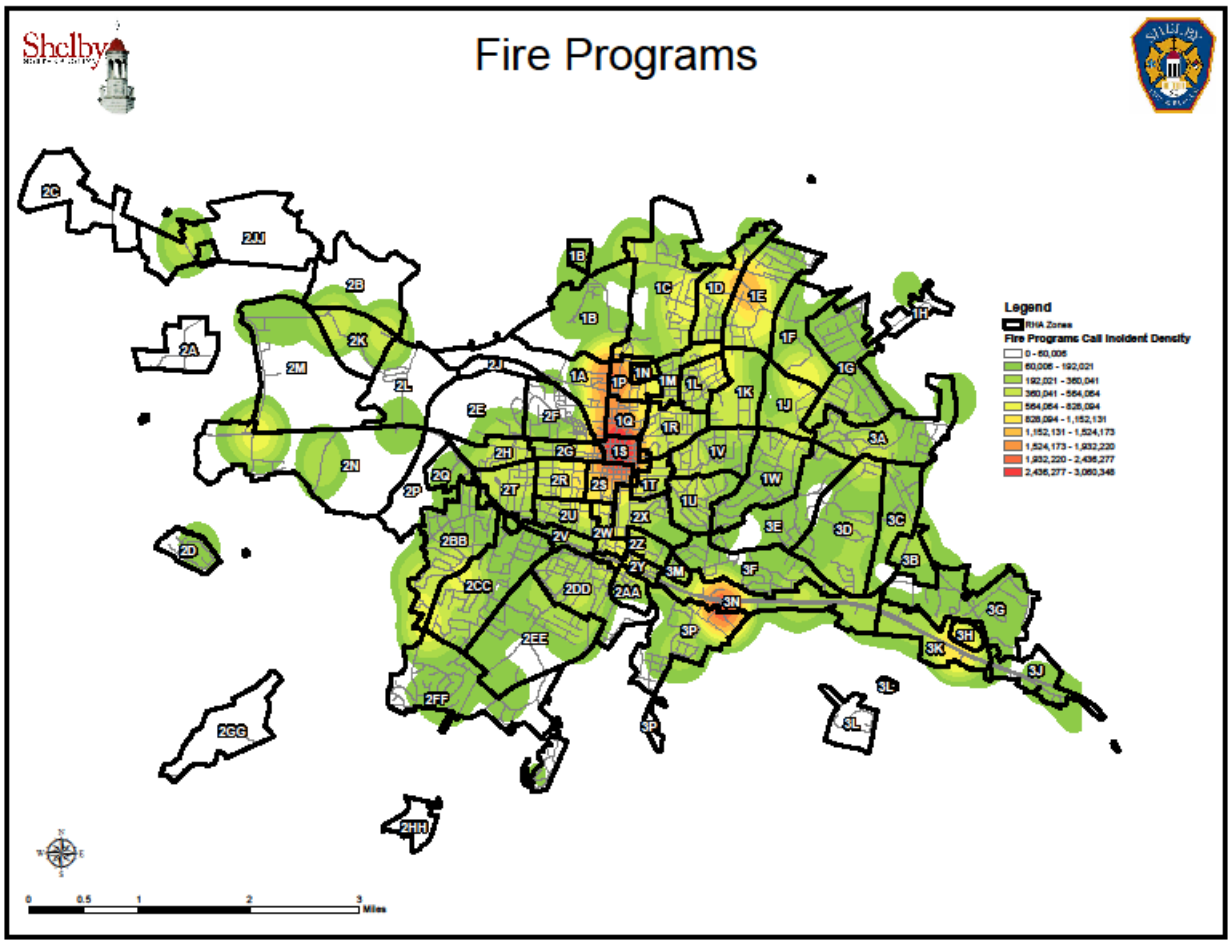


Figure 48; Technical Rescue Program Activity

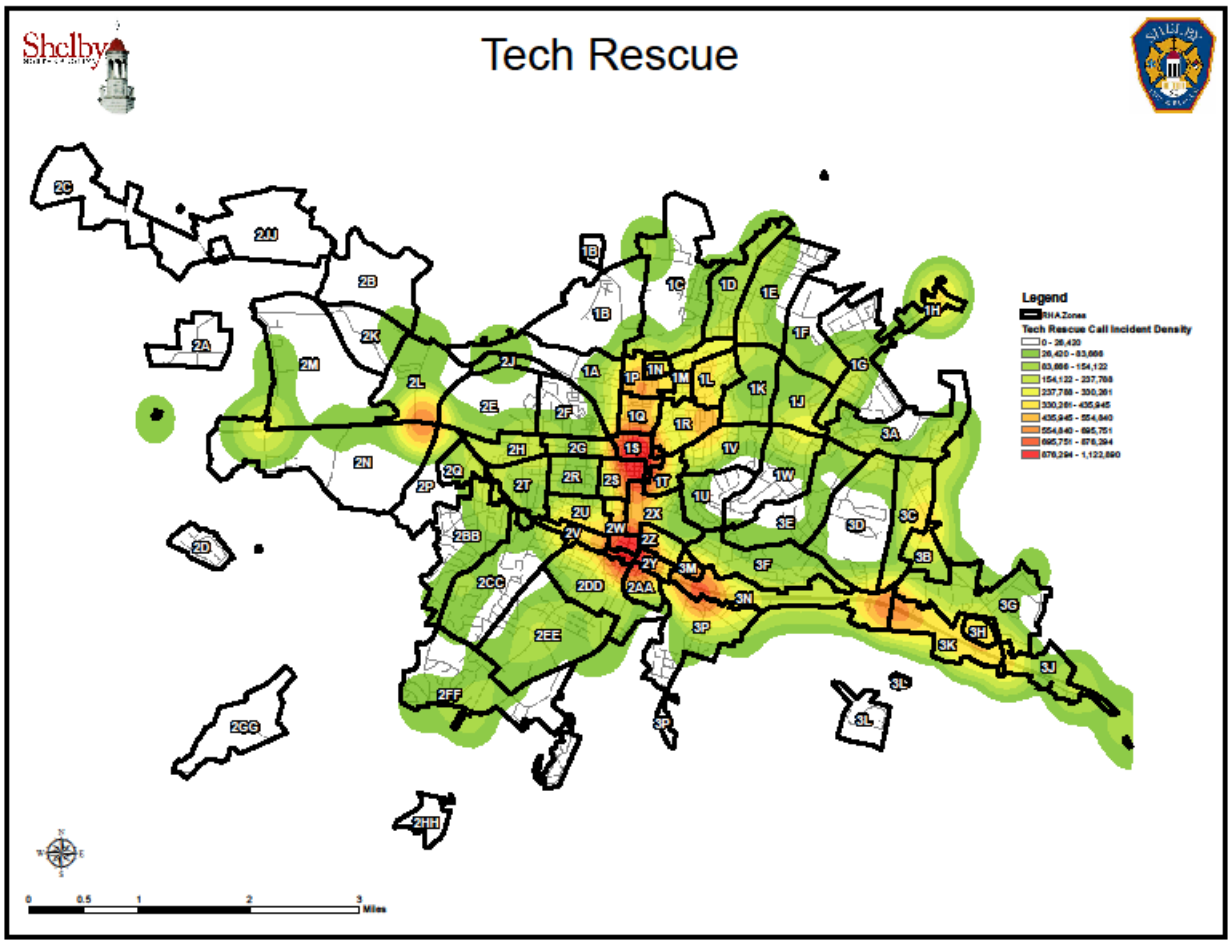


Figure 49; Medical Services Program Activity

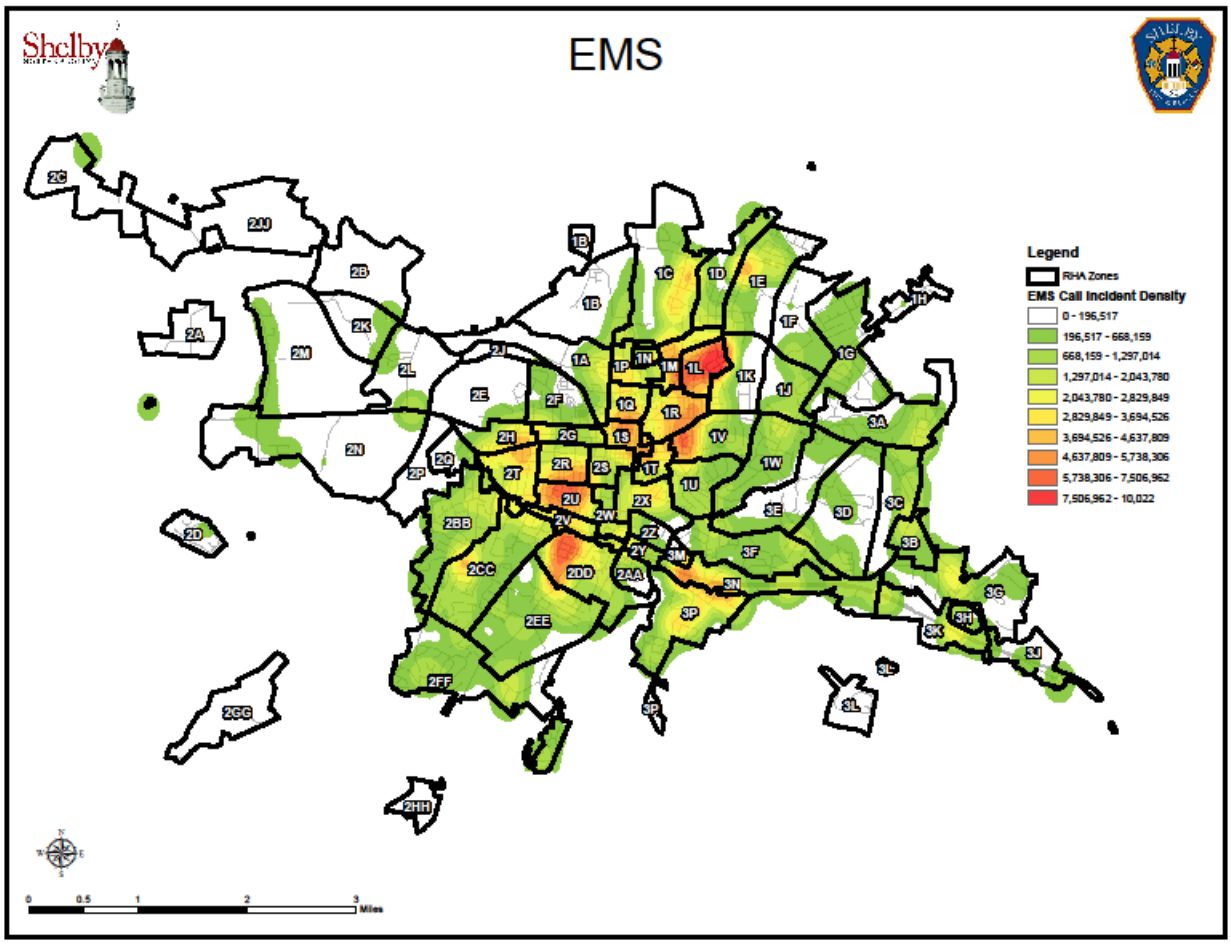


Figure 50; Hazardous Materials Program Activity

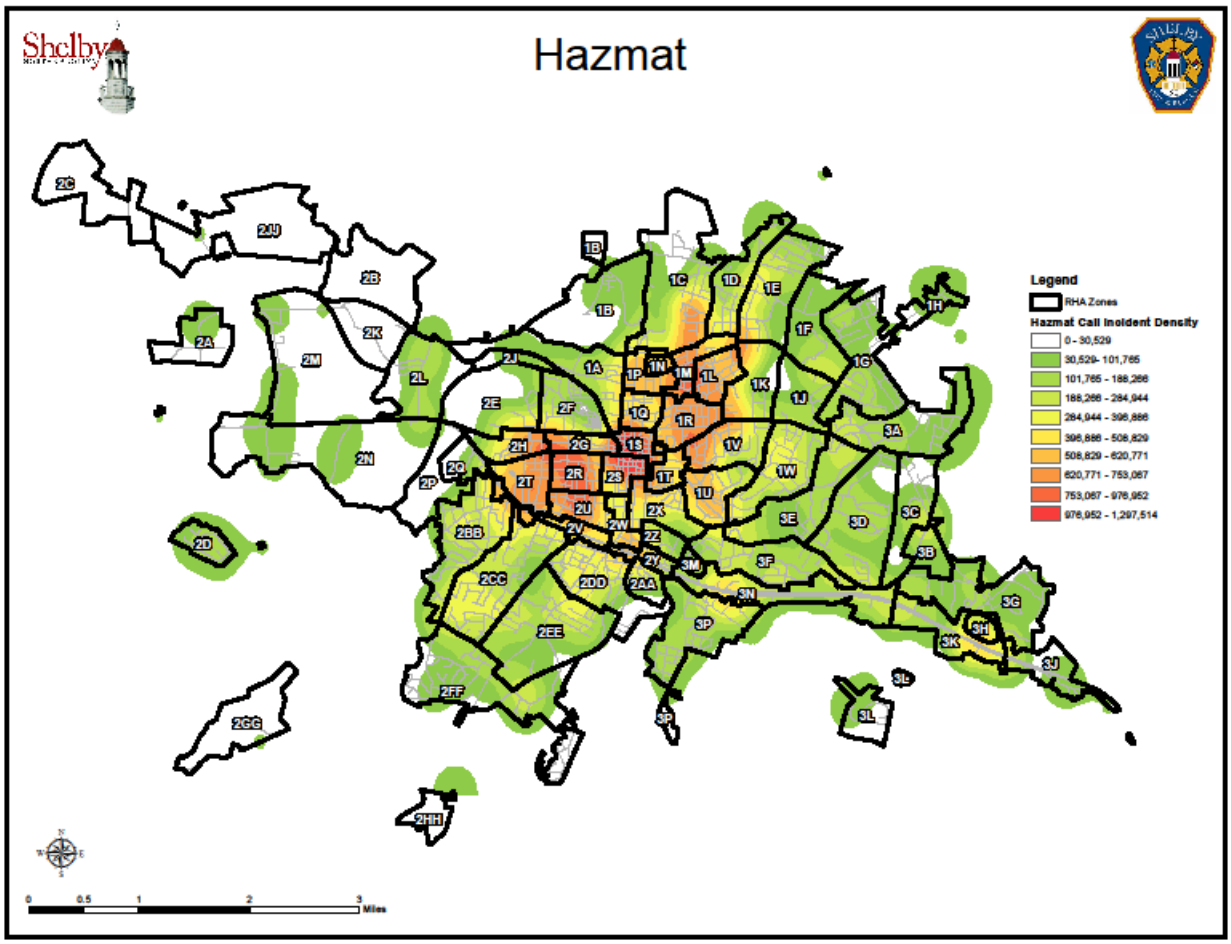
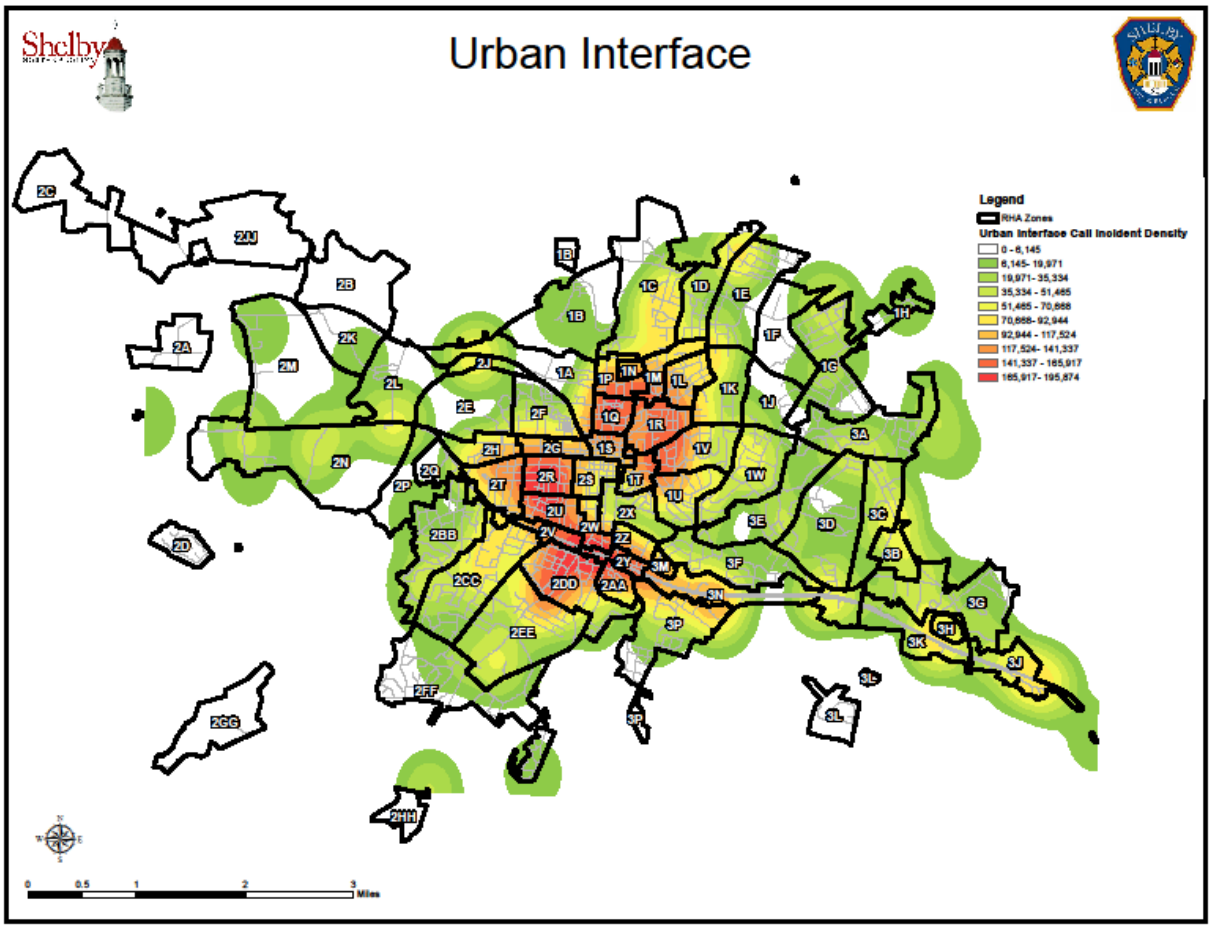


Figure 51; Urban-Rural Interface Firefighting Program Activity



Conclusions

The overall conclusions of the *Fire & Rescue Department Integrated Risk Management Plan; Community Risk Analysis and Standards of Cover (SOC)* finds that the overall quality of life in Shelby is considered with community risk reduction initiatives in the development of public safety services. The community's risk to structural fires, medical emergencies, hazardous materials releases, technical rescue incidents, aircraft crashes, urban-rural interface fires, or from a combination of risks in a disaster situation are being adequately addressed through a robust service delivery model delivered by the City of Shelby's Fire & Rescue Department. The analysis of historical call volume finds that the agency is well suited to delivering services in the more urbanized portions of the city where the highest concentration of emergency incident activity is found. This is largely attributed to the existing concentration of the agency's firehouses and resources. The combination of these factors provides the agency an excellent actual performance in travel time to emergency incidents. The analysis shows that the existing distribution and concentration of resources supports a travel time that overall meets industry standards across the service delivery programs. The agency consistently outperforms baseline travel time standards, and in some cases, meets or exceeds benchmarks travel time objectives in urban and rural classification in the specific *RHA* zones where the agency provides the majority of its emergency response activity.

However, the analysis shows the agency is ill suited to serving much of the less urbanized western areas of the city (which coincidently have lower emergency incident activity) consistently at the same level of service. While this is not a significant issue in spotty or undeveloped areas, it is of particular concern in developing areas of west Shelby such as the Pebble Creek residential subdivision and the rapidly urbanizing industrial corridor on *Washburn Switch Road*. This factor is directly associated with an excessive travel time to the west side of the city by the engine company based out of the Kings Road Firehouse. The distance the company has to travel to respond to an emergency incident does not provide for establishing an *effective response force (ERF)* in a time consistent with similarly urbanized areas of the city. It is evident that as the actual emergency incident activity increases as a result of continued urbanization in the western portions of Shelby, the actual performance by the agency will be negatively affected given the existing service delivery model of the *Fire & Rescue Department*.

The report concludes that the agency has performance gaps in the areas of call processing and turnout time. The analysis found that while the baseline call processing time is within an acceptable measure and has seen improvement; it is still well below benchmark statements. This is largely attributed to the process by which the agency is dispatched where a split *public safety answering point (PSAP)* is used to route Fire & Rescue Department calls for service for dispatch. The same can be said for turnout time. The baseline time is within an acceptable measure but well outside of benchmark statements. It is important to note that it is in turnout time where the agency can have the most direct effect on its *total response time (TRT).*

Recommendations

The *Fire & Rescue Department Integrated Risk Management Plan; Community Risk Analysis and Standards of Cover (SOC)* makes the following recommendations based upon the research, analysis and conclusions contained in the report.

- The agency should implement policies, strategies and technologies that lend toward reducing the turnout time for firefighters preparing to respond to emergency incidents and then monitor ongoing progress within the compliance verification process.
- The Fire & Rescue Department should continue to analyze its existing 911 call processing methodology and implement policies, processes, and technology that will leverage the capacity of the county-wide integrated digital 800 MHz digital communications system and provide capability for the agency to improve its service delivery to benchmark statements and best industry practices. The agency will monitor ongoing progress within the compliance verification process.
- The agency should conduct a revised needs assessment of its facilities to include an evaluation of need for additional, and/or the relocation and reconfiguration of existing facilities.
- The Fire & Rescue Department should begin a process of redesigning its service delivery model to better serve the urbanizing *RHA zones* in the western part of Shelby. This process should be heavily factored in the agency's next strategic plan period (2016-2021).

- The agency should establish a set of goals, objectives and tasks that will facilitate the Fire & Rescue Department to report its travel time performance in all *RHA* zones using urban criteria statements by its next accreditation site visit in 2024.

H. Correlation of CRA-SOC Document to the Accreditation Model

The *Community Risk Reduction-Standard of Cover (CRA-SOC)* is the foundational document in the accreditation process and there exists an intentional connection between the CRA-SOC, Category II, and across CFAI's entire accreditation model. The correlation matrix below provides linkage between the CRA-SOC and the CFAI 9th edition self-assessment manual. Where reference is not provided the performance indicator is generally not covered in the document.[ii]

PI/CC	PI/CC Text	CRA-SPC
Category I- Governance and Administration		
1A.4	The governing body periodically reviews and approves services and programs.	
1A.7	The governing body approves the organizational structure of the agency.	4
1A.9	A communication process is in place between governing body and administration.	
1B.2	Financial, equipment and personnel resources reflect mission, goals and objectives.	

PI/CC	PI/CC Text	CRA-SPC
Category II- Assessment and Planning		
2A.1	Service area boundaries are identified, documented and adopted.	21
2A.2	Boundaries for other service responsibility areas are identified and adopted.	21,22
2A.3	Agency has adopted methodology for organization of area into planning zones.	30,31
2A.4	Agency assesses the community by planning zone to develop total response time.	68-73,81-86
2A.5	Property, life, injury & environmental data is retained.	
2A.6	Agency uses planning zone methodology to identify response area characteristics.	135-209
2A.7	Significant socio-economic and demographic factors are identified.	6-15
2A.8	Agency identifies and documents safety remediation programs.	
2A.9	Agency identifies critical infrastructure.	37-41
2B.1	Agency has methodology assessment and classification of risk in the community.	28-31
2B.2	Historical emergent and non-emergent service demands are documented.	
2B.3	Event consequence loss and save data is identified by planning zone.	
2B.4	Agency risk assessment model is used to determine category and classification of risk.	29-36
2B.5	Fire protection and detection systems are incorporated into risk analysis.	135-209
2B.6	Agency assesses critical infrastructure within planning zones.	135-209
2C.1	Agency provides a consistent level of service in all program areas.	60-88
2C.2	Has a methodology for monitoring quality of response performance by service type.	
2C.3	Fire protection and detection systems are considered in response strategy development.	
2C.4	A critical task analysis for each risk category and class has been performed.	45-58
2C.5	Agency has determined total response time components for each program area.	60-89
2C.6	Agency has identified total response time components in each program area of service.	60-89
2C.7	Agency has identified efforts to improve its performance in service delivery.	122
2C.8	The agency's resiliency has been assessed.	87
2D.1	Has a methodology to identify and assess performance inadequacies.	121
2D.2	The agency continuously monitors effectiveness of existing delivery system.	98-121
2D.3	Performance monitoring identifies influences or conditions affecting service delivery.	
2D.4	Monitoring methodology factors altering conditions, growth, development…	
2D.5	Impacts of mitigation efforts are considered.	

2D.6	Performance gaps are determined.	
2D.7	Agency has a performance improvement plan.	122
2D.8	Performance gaps in the response area are determined.	
2D.9	Agency formally notifies AHJ of gaps in capability in the delivery system.	
2D.10	Agency interacts with external stakeholders at least every three years.	

PI/CC	PI/CC Text	CRA-SPC
Category III- Goals and Objectives		
3A.1	Agency publishes a strategic plan.	23
3A.2	Strategic plan is approved and submitted to governing body.	23
3B.1	Organizational goals to accomplish long range plans.	
3B.2	Agency assesses its current status when establishing goals and objectives.	24-27
3B.3	Agency invites internal and external stakeholders to participate in process.	23
3B.4	Published materials accurately portray goals and objectives.	23
3B.5	Governing body reviews goals and objectives.	
3C.1	Process to track progress and results of agency goals and objectives.	
3C.3	Members receive information explaining goals and objectives.	
3D.2	Agency evaluates for improvements in executing around goals and objectives.	
3D.3	Agency provides updates on goals and objectives to governing body.	

PI/CC	PI/CC Text	CRA-SPC
Category IV- Financial Resources		
4A.5	Budget, financial planning and capital expenditures are consistent with priorities.	4
4C.1	Given revenues, agency can maintain adopted level of service.	4
4C.5	Agency projects future asset maintenance cost with funding plans.	

PI/CC	PI/CC Text	CRA-SPC
Category V- Programs		
5A.1	Agency has an adopted fire code.	
5A.7	Agency sets targeted and achievable loss reduction benchmarks.	
5A.5	Agency conducts a formal appraisal at least annually.	
5B.1	Public education program targets specific risks, behaviors and audiences.	
5B.3	Agency conducts a formal appraisal at least annually.	
5B.4	Programs in place to identify large loss or risk potential.	
5C.5	Agency conducts a formal appraisal at least annually.	
5D.1	The agency publishes and an all hazard risk plan.	1-2
5D.6	The agency conducts a vulnerability assessment.	211
5D.7	Agency has a continuity of operations plan.	
5E.1	The agency meets its staffing, response time, and service delivery capacity.	98-101
5E.3	Agency conducts a formal appraisal at least annually.	
5F.1	The agency meets its staffing, response time, and service delivery capacity.	106-109
5F.6	The agency has a quality improvement/assurance program in place.	
5F.7	Agency conducts a formal appraisal at least annually.	
5F.8	Agency has plan or program for CPR and public assess defibrillation.	
5G.1	The agency meets its staffing, response time, and service delivery capacity.	102-107
5G.2	Agency establishes minimum training standards for technical rescue providers.	15-16
5G.3	Agency conducts a formal appraisal at least annually.	
5H.1	The agency meets its staffing, response time, and service delivery capacity.	110-113
5H.2	Agency establishes minimum training standards for haz-mat providers.	16
5H.3	Agency conducts a formal appraisal at least annually.	
5I.1	The agency meets its staffing, response time, and service delivery capacity.	118-121
5I.2	Agency conducts a formal appraisal at least annually	
5J.1	The agency meets its staffing, response time, and service delivery capacity.	N/A
5J.2	Agency conducts a formal appraisal at least annually	N/A
5K.1	The agency meets its staffing, response time, and service delivery capacity.	N/A
5K.2	Agency conducts a formal appraisal at least annually	N/A

5K.4	The agency participates in wildland fire training and qualification programs.	N/A
5L.1	The agency meets its staffing, response time, and service delivery capacity.	114-117
5L.2	Agency conducts a formal appraisal at least annually	

PI/CC	PI/CC Text	CRA-SPC
Category VI- Physical Resources		
6A.1	Purchase and construction of physical resources is consistent with goals and plans.	15-24
6A.2	Governing body, administration, staff are involved in facility planning.	
6B.1	Programs have adequate facilities and storage space.	18-19
6C.1	Apparatus types are appropriate for function served.	19-21
6C.2	A current replacement schedule exists for apparatus and support vehicles.	
6E.1	Tools and equipment are distributed appropriately and in sufficient quantities.	
6E.2	Tools and equipment replacement is scheduled and adequate for agency needs.	
6E.5	Supplies and materials allocation is based on established objectives to meet needs.	
6F.1	Safety equipment is identified and distributed to personnel.	

PI/CC	PI/CC Text	CRA-SPC
Category VII- Human Resources		
7A.1	A human resource manager is designated.	
7B.10	Agency conducts workforce assessments and has plan to address personnel needs.	

PI/CC	PI/CC Text	CRA-SPC
Category VIII- Training and Competency		
8A.1	The agency has a process in place to identify training needs.	
8A.2	The agency's training program is consistent with mission and objectives.	
8A.4	The agency identifies minimum levels of training for all positions.	43-60
8B.1	Process in place to ensure personnel are adequately trained.	43-60
8B.3	The agency evaluates individual and crew performance using validated methods.	
8B.4	Agency evaluates student evaluations to determine reliability.	
8C.8	Training materials are evaluated at least annually.	

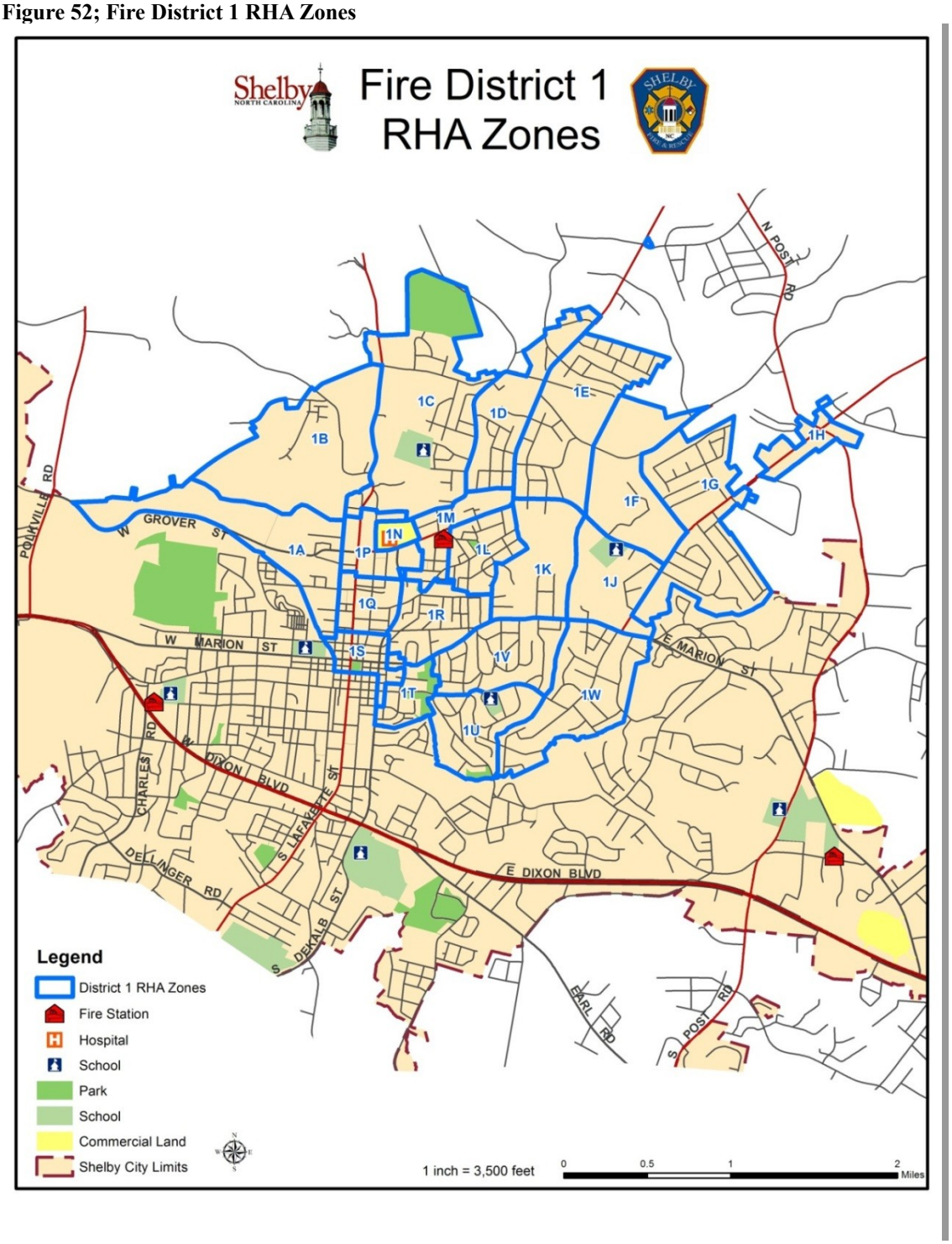
PI/CC	PI/CC Text	CRA-SPC
Category IX- Essential Resources		
9A.1	Agency establishes minimum fire flow requirements to national standards.	
9A.2	Adequate and reliable water supply is available for firefighting purposes.	42
9A.4	Agency maintains water supply and hydrant maps.	42
9A.5	Fire hydrant placement reflects known hazards and agency needs.	
9A.7	Public fire hydrants are inspected, tested and maintained.	
9A.8	Agency identifies and plans for alternate sources of water supply where insufficient.	
9A.9	Agency has operational procedures outlining available water supply.	
9B.1	System is in place to ensure communications in the field.	
9B.3	The agency's communication center is adequately equipped and designed.	
9B.5	There are adequate fire dispatchers and supervisors on duty for the call volume.	
9B.7	The agency has time based performance objectives for alarm handling.	90-121
9B.9	Interoperability of the communications system is evaluated.	
9B.10	Agency conducts a formal appraisal at least annually of the communication system.	
9B.11	The dispatch process utilizes a formal EMD system for triage of medical calls.	
9B.12	The agency has a system of recall of off-duty personnel.	
9C.1	Administrative support services are adequate for agency size.	
9C.3	Technological and information management systems are appropriate for agency.	

PI/CC	PI/CC Text	CRA-SPC
Category X- External System Relationships		
10A.1	Agency develops and maintains outside relationships that supports its mission.	15-17
10A.2	Strategic plan identifies relationships with external agencies.	
10B.1	External agency agreements are reviewed on an annual basis.	
10 B.2	Agency has process which agreements are managed, reviewed and revised.	

I. Appendices, Exhibits, and Attachments

Appendix A; Community Risk Analysis by Risk Hazard Area (RHA) Zone

Figure 52; Fire District 1 RHA Zones



RHA: 1-A

Summary of Overall Risk:

Risk Type	Fire	EMS	Hazardous Materials	Tech Rescue	Urban Interface	ARFF	Disaster
Risk Level	**Significant**	**Minimal**	**Maximum**	**Moderate**	**Moderate**	**Minimal**	**Significant**

Zoning Classification(s):

City of Shelby Zoning Classification
GB, GI, LI, RO, R-6

Demographics by Risk Hazard Zone:

Demographic	Indicator
Square Miles	**0.4280**
Total Population	**410**
Population Density (per square mile)	**958**
CFAI Density Classification	**Rural**
Land Use; Residential, Institution, Education	**22.85%**
Land Use; Commercial, Industrial	**65.84%**

Risk Typification & Historical Incident Data 2014-2019:

Risk Type	Total	Minimal	Moderate	Significant	Maximum
Fire	**50**	**3**	**47**	**0**	**0**
EMS	**0**	**0**	**0**	**42**	**0**
Hazardous Materials	**13**	**9**	**3**	**1**	**0**
Tech Rescue	**7**	**3**	**2**	**2**	**0**
Urban Interface	**3**	**2**	**1**	**0**	**0**
ARFF	**0**	**0**	**0**	**0**	**0**
Disaster	**0**	**0**	**0**	**0**	**0**
Total	**73**	**17**	**53**	**45**	**0**

Property Risk

Target Occupancy Count	Overall OVAP Risk
16	**Significant**

Land Area	Flood way Zone	100yr Flood Zone	500yr Flood Zone
Percentage	**1.95%**	**11.48%**	**0.35%**

NC Flood Map Risk Assessment

Mutual Aid Zone	Overall Risk
20-1	**Moderate**

RHA 1-B

Summary of Overall Risk:

Risk Type	Fire	EMS	Hazardous Materials	Tech Rescue	Urban Interface	ARFF	Disaster
Risk Level	**Moderate**	**Minimal**	**Moderate**	**Moderate**	**Moderate**	**Minimal**	**Minimal ;**

Zoning Classification(s):

City of Shelby Zoning Classification
R-6, R-10, R-20, RO,

Demographics by Risk Hazard Zone:

Demographic	Indicator
Square Miles	**0.5968**
Total Population	**360**
Population Density (per square mile)	**603.23**
CFAI Density Classification	**Rural**
Land Use; Residential, Institution, Education	**74.75%**
Land Use; Commercial, Industrial	**19.90%**

Risk Typification & Historical Incident Data 2014-2019:

Risk Type	Total	Minimal	Moderate	Significant	Maximum
Fire	**8**	**1**	**7**	**0**	**0**
EMS	**26**	**0**	**0**	**26**	**0**
Hazardous Materials	**8**	**3**	**5**	**0**	**0**
Tech Rescue	**7**	**3**	**2**	**2**	**0**
Urban Interface	**0**	**0**	**0**	**0**	**0**
ARFF	**0**	**0**	**0**	**0**	**0**
Disaster	**0**	**0**	**0**	**0**	**0**
Total	**0**	**0**	**0**	**0**	**0**

Property Risk

Target Occupancy's	Overall OVAP Risk
2	**Significant**

NC Flood Map Risk Assessment

Land Area	Flood way Zone	100yr Flood Zone	500yr Flood Zone
Percentage	**0.87%**	**4.49%**	**0.73%**

NC Forest Service Wildfire Risk Assessment

Mutual Aid Zone	Overall Risk
20-1	**Moderate**

RHA 1-C

Summary of Overall Risk:

Risk Type	Fire	EMS	Hazardous Materials	Tech Rescue	Urban Interface	ARFF	Disaster
Risk Level	**Moderate**	**Moderate**	**Moderate**	**Moderate**	**Moderate**	**Moderate**	**Moderate**

Zoning Classification(s):

City of Shelby Zoning Classification
R-6, R-8, R-10, R-20, RO, LI

Demographics by Risk Hazard Zone:

Demographic	Indicator
Square Miles	**0.7647**
Total Population	**1097**
Population Density (per square mile)	**1434.58**
CFAI Density Classification	**Urban**
Land Use; Residential, Institution, Education	**73.92%**
Land Use; Commercial, Industrial	**1.30%**

Risk Typification & Historical Incident Data 2014-2019:

Risk Type	Total	Minimal	Moderate	Significant	Maximum
Fire	**37**	**5**	**31**	**1**	**0**
EMS	**105**	**0**	**0**	**105**	**0**
Hazardous Materials	**20**	**10**	**9**	**1**	**0**
Tech Rescue	**3**	**3**	**0**	**0**	**0**
Urban Interface	**4**	**3**	**1**	**0**	**0**
ARFF	**0**	**0**	**0**	**0**	**0**
Disaster	**0**	**0**	**0**	**0**	**0**
Total	**169**	**21**	**41**	**107**	**0**
	0	**0**	**0**	**0**	**0**

Property Risk

Target Occupancy's	Overall OVAP Risk
5	**Maximum**

NC Forest Service Wildfire Risk Assessment

Mutual Aid Zone	Overall Risk
20-1	**Moderate**

NC Flood Map Risk Assessment

Land Area	Flood way Zone	100yr Flood Zone	500yr Flood Zone
Percentage	**0.98%**	**2.01**	**0.71**

RHA: 1-D

Summary of Overall Risk:

Risk Type	Fire	EMS	Hazardous Materials	Tech Rescue	Urban Interface	ARFF	Disaster
Risk Level	**Significant**	**Moderate**	**Significant**	**Significant**	**Moderate**	**Minimal**	**Significant**

Zoning Classification(s):

City of Shelby Zoning Classification
GB-2, RO, R-10, R-20, CPD

Demographics by Risk Hazard Zone:

Demographic	Indicator
Square Miles	**0.2913**
Total Population	**427**
Population Density (per square mile)	**1465.79**
CFAI Density Classification	**Urban**
Land Use; Residential, Institution, Education	**61.25%**
Land Use; Commercial, Industrial	**24.79%**

Risk Typification & Historical Incident Data 2014-2019:

Risk Type	Total	Minimal	Moderate	Significant	Maximum
Fire	**15**	**1**	**12**	**2**	**0**
EMS	**42**	**0**	**0**	**42**	**0**
Hazardous Materials	**9**	**5**	**4**	**0**	**0**
Tech Rescue	**9**	**7**	**1**	**1**	**0**
Urban Interface	**3**	**3**	**0**	**0**	**0**
ARFF	**0**	**0**	**0**	**0**	**0**
Disaster	**0**	**0**	**0**	**0**	**0**
Total	**78**	**16**	**17**	**45**	**0**
	15	**1**	**12**	**2**	**0**

Property Risk

Target Occupancy's	Overall OVAP Risk
3	**Moderate**

NC Forest Service Wildfire Risk Assessment

Mutual Aid Zone	Overall Risk
20-1	**Moderate**

NC Flood Map Risk Assessment

Land Area	Flood way Zone	100yr Flood Zone	500yr Flood Zone
Percentage	**0.96%**	**2.21%**	**0.91%**

RHA: 1-E

Summary of Overall Risk:

Risk Type	Fire	EMS	Hazardous Materials	Tech Rescue	Urban Interface	ARFF	Disaster
Risk Level	**Moderate**	**Moderate**	**Significant**	**Significant**	**Moderate**	**Minimal**	**Moderate**

Zoning Classification(s):

City of Shelby Zoning Classification
RO, R-6, R-8, R-10 R-20

Demographics by Risk Hazard Zone:

Demographic	Indicator
Square Miles	**0.4751**
Total Population	**492**
Population Density (per square mile)	**1035.70**
CFAI Density Classification	**Urban**
Land Use; Residential, Institution, Education	**75.31%**
Land Use; Commercial, Industrial	**1.64%**

Risk Typification & Historical Incident Data 2014-2019:

Risk Type	Total	Minimal	Moderate	Significant	Maximum
Fire	**53**	**3**	**50**	**0**	**0**
EMS	**93**	**0**	**0**	**93**	**0**
Hazardous Materials	**24**	**16**	**7**	**1**	**0**
Tech Rescue	**11**	**7**	**2**	**2**	**0**
Urban Interface	**1**	**1**	**0**	**0**	**0**
ARFF	**0**	**0**	**0**	**0**	**0**
Disaster	**0**	**0**	**0**	**0**	**0**
Total	**182**	**27**	**59**	**96**	**0**
0	**0**	**0**	**0**	**0**	**0**

Property Risk

Target Occupancy's	Risk Classification
3	**Significant**

NC Forest Service Wildfire Risk Assessment

Mutual Aid Zone	Overall Risk
20-1	**Moderate**

NC Flood Map Risk Assessment

Land Area	Flood way Zone	100yr Flood Zone	500yr Flood Zone
Percentage	**0.40%**	**0.98%**	**0.41%**

RHA 1-F

Summary of Overall Risk:

Risk Type	Fire	EMS	Hazardous Materials	Tech Rescue	Urban Interface	ARFF	Disaster
Risk Level	**Significant**	**Minimal**	**Maximum**	**Moderate**	**Significant**	**Minimal**	**Minimal**

Zoning Classification(s):

City of Shelby Zoning Classification
LI, RO, R-10, R-20

Demographics by Risk Hazard Zone:

Demographic	Indicator
Square Miles	**0.3764**
Total Population	**286**
Population Density (per square mile)	**778.45**
CFAI Density Classification	**Rural**
Land Use; Residential, Institution, Education	**43.33%**
Land Use; Commercial, Industrial	**49.81%**

Risk Typification & Historical Incident Data 2014-2019:

Risk Type	Total	Minimal	Moderate	Significant	Maximum
Fire	**10**	**1**	**9**	**0**	**0**
EMS	**18**	**0**	**0**	**18**	**0**
Hazardous Materials	**5**	**3**	**1**	**1**	**0**
Tech Rescue	**6**	**4**	**1**	**1**	**0**
Urban Interface	**4**	**2**	**2**	**0**	**0**
ARFF	**0**	**0**	**0**	**0**	**0**
Disaster	**0**	**0**	**0**	**0**	**0**
Total	**43**	**10**	**13**	**20**	**0**

Property Risk

Target Occupancy Count	Overall OVAP Risk
3	**Significant**

NC Flood Map Risk Assessment

Land Area	Flood way Zone	100yr Flood Zone	500yr Flood Zone
Percentage	**0.000%**	**11.33%**	**0.000%**

NC Forest Service Wildfire Risk Assessment

Mutual Aid Zone	Overall Risk
25-1	**Moderate**

RHA 1-G

Summary of Overall Risk:

Risk Type	Fire	EMS	Hazardous Materials	Tech Rescue	Urban Interface	ARFF	Disaster
Risk Level	**Moderate**	**Moderate**	**Maximum**	**Minimal**	**Minimal**	**Minimal**	**Moderate**

Zoning Classification(s):

City of Shelby Zoning Classification
R-10, R-20, RO

Demographics by Risk Hazard Zone:

Demographic	Indicator
Square Miles	**0.5298**
Total Population	**700**
Population Density (per square mile)	**1321.33**
CFAI Density Classification	**Urban**
Land Use; Residential, Institution, Education	**81.02%**
Land Use; Commercial, Industrial	**2.90%**

Risk Typification & Historical Incident Data 2014-2019:

Risk Type	Total	Minimal	Moderate	Significant	Maximum
Fire	**13**	**3**	**10**	**0**	**0**
EMS	**35**	**0**	**0**	**35**	**0**
Hazardous Materials	**6**	**4**	**2**	**0**	**0**
Tech Rescue	**1**	**1**	**0**	**0**	**0**
Urban Interface	**3**	**2**	**1**	**0**	**0**
ARFF	**0**	**0**	**0**	**0**	**0**
Disaster	**0**	**0**	**0**	**0**	**0**
Total	**58**	**10**	**13**	**35**	**0**
	0	**0**	**0**	**0**	**0**

Property Risk

Target Occupancy Count	Overall OVAP Risk
0	**Minimal**

NC Flood Map Risk Assessment

Land Area	Flood way Zone	100yr Flood Zone	500yr Flood Zone
Percentage	**0.00%**	**0.72**	**0.00%**

NC Forest Service Wildfire Risk Assessment

Mutual Aid Zone	Overall Risk
25-1	**Moderate**

RHA: 1-H

Summary of Overall Risk:

Risk Type	Fire	EMS	Hazardous Materials	Tech Rescue	Urban Interface	ARFF	Disaster
Risk Level	**Moderate**	**Minimal**	**Moderate**	**Significant**	**Moderate**	**Minimal**	**Minimal**

Zoning Classification(s):

City of Shelby Zoning Classification
R-20, CPD, GB, GB-2

Demographics by Risk Hazard Zone:

Demographic	Indicator
Square Miles	**0.1007**
Total Population	**23**
Population Density (per square mile)	**228.75**
CFAI Density Classification	**Rural**
Land Use; Residential, Institution, Education	**37.74%**
Land Use; Commercial, Industrial	**53.67%**

Risk Typification & Historical Incident Data 2014-2019:

Risk Type	Total	Minimal	Moderate	Significant	Maximum
Fire	**0**	**0**	**0**	**0**	**0**
EMS	**3**	**0**	**0**	**3**	**0**
Hazardous Materials	**4**	**3**	**1**	**0**	**0**
Tech Rescue	**18**	**16**	**1**	**1**	**0**
Urban Interface	**0**	**0**	**0**	**0**	**0**
ARFF	**0**	**0**	**0**	**0**	**0**
Disaster	**0**	**0**	**0**	**0**	**0**
Total	**25**	**19**	**2**	**4**	**0**

Property Risk

Target Occupancy Count	Overall OVAP Risk
0	**Minimal**

NC Flood Map Risk Assessment

Land Area	Flood way Zone	100yr Flood Zone	500yr Flood Zone
Percentage	**0.00%**	**0.00%**	**0.00%**

NC Forest Service Wildfire Risk Assessment

Mutual Aid Zone	Overall Risk
25-1	**Moderate**

RHA: 1-J

Summary of Overall Risk:

Risk Type	Fire	EMS	Hazardous Materials	Tech Rescue	Urban Interface	ARFF	Disaster
Risk Level	**Moderate**	**Minimal**	**Moderate**	**Minimal**	**Moderate**	**Minimal**	**Significant**

Zoning Classification(s):

City of Shelby Zoning Classification
R-6, R-8, R-10, RO, LI, GB

Demographics by Risk Hazard Zone:

Demographic	Indicator
Square Miles	**0.2542**
Total Population	**141**
Population Density (per square mile)	**554.65**
CFAI Density Classification	**Rural**
Land Use; Residential, Institution, Education	**73.64%**
Land Use; Commercial, Industrial	**19.86%**

Risk Typification & Historical Incident Data 2014-2019:

Risk Type	Total	Minimal	Moderate	Significant	Maximum
Fire	**24**	**3**	**19**	**2**	**0**
EMS	**26**	**0**	**0**	**26**	**0**
Hazardous Materials	**7**	**3**	**4**	**0**	**0**
Tech Rescue	**7**	**7**	**0**	**0**	**0**
Urban Interface	**2**	**1**	**1**	**0**	**0**
ARFF	**0**	**0**	**0**	**0**	**0**
Disaster	**0**	**0**	**0**	**0**	**0**
Total	**66**	**14**	**24**	**28**	**0**

Property Risk

Target Occupancy Count	Overall OVAP Risk
8	**Moderate**

NC Forest Service Wildfire Risk Assessment

Mutual Aid Zone	Overall Risk
25-1	**Moderate**

NC Flood Map Risk Assessment

Land Area	Flood way Zone	100yr Flood Zone	500yr Flood Zone
Percentage	**0.86%**	**4.43%**	**1.73%**

RHA 1-K

Summary of Overall Risk:

Risk Type	Fire	EMS	Hazardous Materials	Tech Rescue	Urban Interface	ARFF	Disaster
Risk Level	**Significant**	**Minimal**	**Maximum**	**Moderate**	**Significant**	**Minimal**	**Minimal**

Zoning Classification(s):

City of Shelby Zoning Classification
R-6, NB, GB, GB-2, LI

Demographics by Risk Hazard Zone:

Demographic	Indicator
Square Miles	**0.2921**
Total Population	**215**
Population Density (per square mile)	**736.09**
CFAI Density Classification	**Rural**
Land Use; Residential, Institution, Education	**52.0%**
Land Use; Commercial, Industrial	**36.84%**

Risk Typification & Historical Incident Data 2014-2019:

Risk Type	Total	Minimal	Moderate	Significant	Maximum
Fire	**16**	**0**	**16**	**0**	**0**
EMS	**18**	**0**	**0**	**18**	**0**
Hazardous Materials	**16**	**9**	**7**	**0**	**0**
Tech Rescue	**3**	**3**	**0**	**0**	**0**
Urban Interface	**1**	**0**	**1**	**0**	**0**
ARFF	**0**	**0**	**0**	**0**	**0**
Disaster	**0**	**0**	**0**	**0**	**0**
Total	**54**	**12**	**24**	**18**	**0**

Property Risk

Target Occupancy Count	Overall OVAP Risk
5	**Significant**

NC Flood Map Risk Assessment

Land Area	Flood way Zone	100yr Flood Zone	500yr Flood Zone
Percentage	**2.20%**	**7.36%**	**1.44%**

NC Forest Service Wildfire Risk Assessment

Mutual Aid Zone	Overall Risk
20-01	**Moderate**

RHA 1-L

Summary of Overall Risk:

Risk Type	Fire	EMS	Hazardous Materials	Tech Rescue	Urban Interface	ARFF	Disaster
Risk Level	**Significant**	**Significant**	**Moderate**	**Moderate**	**Moderate**	**Minimal**	**Significant**

Zoning Classification(s):

City of Shelby Zoning Classification
R-6, R-10, RO, GB, LI

Demographics by Risk Hazard Zone:

Demographic	Indicator
Square Miles	**0.1639**
Total Population	**443**
Population Density (per square mile)	**2702.53**
CFAI Density Classification	**Urban**
Land Use; Residential, Institution, Education	**50.19%**
Land Use; Commercial, Industrial	**32.05%**

Risk Typification & Historical Incident Data 2014-2019:

Risk Type	Total	Minimal	Moderate	Significant	Maximum
Fire	**27**	**7**	**19**	**1**	**0**
EMS	**200**	**0**	**0**	**200**	**0**
Hazardous Materials	**21**	**11**	**10**	**0**	**0**
Tech Rescue	**21**	**11**	**5**	**5**	**0**
Urban Interface	**2**	**2**	**0**	**0**	**0**
ARFF	**0**	**0**	**0**	**0**	**0**
Disaster	**0**	**0**	**0**	**0**	**0**
Total	**271**	**31**	**34**	**206**	**0**

Property Risk

Target Occupancy Count	Overall OVAP Risk
8	**Significant**

NC Flood Map Risk Assessment

Land Area	Flood way Zone	100yr Flood Zone	500yr Flood Zone
Percentage	**0.00%**	**0.00%**	**0.00%**

NC Forest Service Wildfire Risk Assessment

Mutual Aid Zone	Overall Risk
20-1	**Moderate**

RHA 1-M

Summary of Overall Risk:

Risk Type	Fire	EMS	Hazardous Materials	Tech Rescue	Urban Interface	ARFF	Disaster
Risk Level	**Significant**	**Maximum**	**Significant**	**Moderate**	**Minimal**	**Moderate**	**Maximum**

Zoning Classification(s):

City of Shelby Zoning Classification
R-6, R-8, RO, GB-2, NB, GB

Demographics by Risk Hazard Zone:

Demographic	Indicator
Square Miles	**0.1399**
Total Population	**422**
Population Density (per square mile)	**3017.41**
CFAI Density Classification	**Urban**
Land Use; Residential, Institution, Education	**56.73%**
Land Use; Commercial, Industrial	**29.08%**

Risk Typification & Historical Incident Data 2014-2019:

Risk Type	Total	Minimal	Moderate	Significant	Maximum
Fire	**9**	**3**	**6**	**0**	**0**
EMS	**83**	**0**	**0**	**83**	**0**
Hazardous Materials	**18**	**7**	**10**	**1**	**0**
Tech Rescue	**7**	**7**	**0**	**0**	**0**
Urban Interface	**5**	**3**	**2**	**0**	**0**
ARFF	**0**	**0**	**0**	**0**	**0**
Disaster	**0**	**0**	**0**	**0**	**0**
Total	**122**	**20**	**18**	**84**	**0**

Property Risk

Target Occupancy Count	Overall OVAP Risk
7	**Moderate**

NC Flood Map Risk Assessment

Land Area	Flood way Zone	100yr Flood Zone	500yr Flood Zone
Percentage	**0.57%**	**1.25%**	**0.21%**

NC Forest Service Wildfire Risk Assessment

Mutual Aid Zone	Overall Risk
20-1	**Moderate**

RHA 1-N

Summary of Overall Risk:

Risk Type	Fire	EMS	Hazardous Materials	Tech Rescue	Urban Interface	ARFF	Disaster
Risk Level	**Significant**	**Minimal**	**Significant**	**Maximum**	**Minimal**	**Maximum**	**Significant**

Zoning Classification(s):

City of Shelby Zoning Classification
RO

Demographics by Risk Hazard Zone:

Demographic	Indicator
Square Miles	**0.0382**
Total Population	**0**
Population Density (per square mile)	**0**
CFAI Density Classification	**Rural**
Land Use; Residential, Institution, Education	**96.69%**
Land Use; Commercial, Industrial	**0.00%**

Risk Typification & Historical Incident Data 2014-2019:

Risk Type	Total	Minimal	Moderate	Significant	Maximum
Fire	**13**	**0**	**13**	**0**	**0**
EMS	**20**	**0**	**0**	**20**	**0**
Hazardous Materials	**10**	**5**	**5**	**0**	**0**
Tech Rescue	**8**	**2**	**3**	**3**	**0**
Urban Interface	**1**	**1**	**0**	**0**	**0**
ARFF	**0**	**0**	**0**	**0**	**0**
Disaster	**0**	**0**	**0**	**0**	**0**
Total	**52**	**8**	**21**	**23**	**0**

Property Risk

Target Occupancy Count	Overall OVAP Risk
0	**Minimum**

NC Forest Service Wildfire Risk Assessment

Mutual Aid Zone	Overall Risk
20-1	**Moderate**

NC Flood Map Risk Assessment

Land Area	Floodway Zone	100yr Flood Zone	500yr Flood Zone
Percentage	**0.00%**	**0.00%**	**0.00%**

RHA 1-P

Summary of Overall Risk:

Risk Type	Fire	EMS	Hazardous Materials	Tech Rescue	Urban Interface	ARFF	Disaster
Risk Level	**Significant**	**Moderate**	**Significant**	**Moderate**	**Minimal**	**Moderate**	**Moderate**

Zoning Classification(s):

City of Shelby Zoning Classification
R-6, R-8, R-10, RO

Demographics by Risk Hazard Zone:

Demographic	Indicator
Square Miles	**0.1288**
Total Population	**245**
Population Density (per square mile)	**1901.48**
CFAI Density Classification	**Urban**
Land Use; Residential, Institution, Education	**77.32%**
Land Use; Commercial, Industrial	**6.64%**

Risk Typification & Historical Incident Data 2014-2019:

Risk Type	Total	Minimal	Moderate	Significant	Maximum
Fire	**18**	**2**	**16**	**0**	**0**
EMS	**43**	**0**	**0**	**43**	**0**
Hazardous Materials	**17**	**7**	**8**	**2**	**0**
Tech Rescue	**14**	**14**	**0**	**0**	**0**
Urban Interface	**1**	**1**	**0**	**0**	**0**
ARFF	**0**	**0**	**0**	**0**	**0**
Disaster	**0**	**0**	**0**	**0**	**0**
Total	**93**	**24**	**24**	**45**	**0**

Property Risk

Target Occupancy Count	Overall OVAP Risk
23	**Moderate**

NC Flood Map Risk Assessment

Land Area	Flood way Zone	100yr Flood Zone	500yr Flood Zone
Percentage	**0.93%**	**3.19%**	**0.83%**

NC Forest Service Wildfire Risk Assessment

Mutual Aid Zone	Overall Risk
20-1	**Moderate**

RHA 1-Q

Summary of Overall Risk:

Risk Type	Fire	EMS	Hazardous Materials	Tech Rescue	Urban Interface	ARFF	Disaster
Risk Level	**Significant**	**Moderate**	**Maximum**	**Maximum**	**Minimal**	**Minimal**	**Moderate**

Zoning Classification(s):

City of Shelby Zoning Classification
R-10, R-20, RO, GB

Demographics by Risk Hazard Zone:

Demographic	Indicator
Square Miles	**0.1217**
Total Population	**123**
Population Density (per square mile)	**1010.41**
CFAI Density Classification	**Urban**
Land Use; Residential, Institution, Education	**18.57%**
Land Use; Commercial, Industrial	**58.39%**

Risk Typification & Historical Incident Data 2014-2019:

Risk Type	Total	Minimal	Moderate	Significant	Maximum
Fire	**32**	**7**	**25**	**0**	**0**
EMS	**87**	**0**	**0**	**87**	**0**
Hazardous Materials	**7**	**6**	**1**	**0**	**0**
Tech Rescue	**14**	**12**	**1**	**1**	**0**
Urban Interface	**5**	**4**	**1**	**0**	**0**
ARFF	**0**	**0**	**0**	**0**	**0**
Disaster	**0**	**0**	**0**	**0**	**0**
Total	**145**	**29**	**28**	**88**	**0**

Property Risk

Target Occupancy Count	Overall OVAP Risk
18	**Significant**

NC Flood Map Risk Assessment

Land Area	Flood way Zone	100yr Flood Zone	500yr Flood Zone
Percentage	**1.73%**	**4.84%**	**2.76%**

NC Forest Service Wildfire Risk Assessment

Mutual Aid Zone	Overall Risk
20-1	**Moderate**

RHA 1-R

Summary of Overall Risk:

Risk Type	Fire	EMS	Hazardous Materials	Tech Rescue	Urban Interface	ARFF	Disaster
Risk Level	**Significant**	**Significant**	**Maximum**	**Significant**	**Minimal**	**Minimal**	**Significant**

Zoning Classification(s):

City of Shelby Zoning Classification
R-6, RO, NB, GB-2 GI,

Demographics by Risk Hazard Zone:

Demographic	Indicator
Square Miles	**0.2124**
Total Population	**548**
Population Density (per square mile)	**2580.64**
CFAI Density Classification	**Urban**
Land Use; Residential, Institution, Education	**58.64%**
Land Use; Commercial, Industrial	**21.30%**

Risk Typification & Historical Incident Data 2014-2019:

Risk Type	Total	Minimal	Moderate	Significant	Maximum
Fire	**13**	**1**	**11**	**1**	**0**
EMS	**151**	**0**	**0**	**151**	**0**
Hazardous Materials	**28**	**15**	**13**	**0**	**0**
Tech Rescue	**16**	**14**	**1**	**1**	**0**
Urban Interface	**6**	**5**	**1**	**0**	**0**
ARFF	**0**	**0**	**0**	**0**	**0**
Disaster	**0**	**0**	**0**	**0**	**0**
Total	**214**	**35**	**26**	**153**	**0**

Property Risk

Target Occupancy Count	Overall OVAP Risk
18	**Significant**

NC Flood Map Risk Assessment

Land Area	Flood way Zone	100yr Flood Zone	500yr Flood Zone
Percentage	**1.88%**	**5.75%**	**2.96%**

NC Forest Service Wildfire Risk Assessment

Mutual Aid Zone	Overall Risk
20-1	**Moderate**

RHA 1-S

Summary of Overall Risk:

Risk Type	Fire	EMS	Hazardous Materials	Tech Rescue	Urban Interface	ARFF	Disaster
Risk Level	**Significant**	**Significant**	**Maximum**	**Maximum**	**Minimal**	**Minimal**	**Significant**

Zoning Classification(s):

City of Shelby Zoning Classification
R-20, CB, GB

Demographics by Risk Hazard Zone:

Demographic	Indicator
Square Miles	**0.0994**
Total Population	**203**
Population Density (per square mile)	**2042.35**
CFAI Density Classification	**Urban**
Land Use; Residential, Institution, Education	**0.00%**
Land Use; Commercial, Industrial	**65.27%**

Risk Typification & Historical Incident Data 2014-2019:

Risk Type	Total	Minimal	Moderate	Significant	Maximum
Fire	**48**	**4**	**43**	**1**	**0**
EMS	**72**	**0**	**0**	**72**	**0**
Hazardous Materials	**25**	**14**	**10**	**1**	**0**
Tech Rescue	**25**	**15**	**5**	**5**	**0**
Urban Interface	**1**	**1**	**0**	**0**	**0**
ARFF	**0**	**0**	**0**	**0**	**0**
Disaster	**0**	**0**	**0**	**0**	**0**
Total	**171**	**34**	**58**	**79**	**0**

Property Risk

Target Occupancy Count	Overall OVAP Risk
46	**Significant**

NC Flood Map Risk Assessment

Land Area	Flood way Zone	100yr Flood Zone	500yr Flood Zone
Percentage	**0.00%**	**0.00%**	**0.00%**

NC Forest Service Wildfire Risk Assessment

Mutual Aid Zone	Overall Risk
10-1	**Minimal**

RHA 1-T

Summary of Overall Risk:

Risk Type	Fire	EMS	Hazardous Materials	Tech Rescue	Urban Interface	ARFF	Disaster
Risk Level	**Significant**	**Significant**	**Moderate**	**Maximum**	**Minimal**	**Minimal**	**Significant**

Zoning Classification(s):

City of Shelby Zoning Classification
R8, RO, GB, GB-2, CB

Demographics by Risk Hazard Zone:

Demographic	Indicator
Square Miles	**0.1067**
Total Population	**244**
Population Density (per square mile)	**2287.54**
CFAI Density Classification	**Urban**
Land Use; Residential, Institution, Education	**66.16%**
Land Use; Commercial, Industrial	**17.41%**

Risk Typification & Historical Incident Data 2014-2019:

Risk Type	Total	Minimal	Moderate	Significant	Maximum
Fire	**12**	**2**	**10**	**0**	**0**
EMS	**43**	**0**	**0**	**43**	**0**
Hazardous Materials	**3**	**1**	**2**	**0**	**0**
Tech Rescue	**12**	**6**	**3**	**3**	**0**
Urban Interface	**3**	**2**	**1**	**0**	**0**
ARFF	**0**	**0**	**0**	**0**	**0**
Disaster	**0**	**0**	**0**	**0**	**0**
Total	**73**	**11**	**16**	**46**	**0**

Property Risk

Target Occupancy Count	Overall OVAP Risk
17	**Moderate**

NC Forest Service Wildfire Risk Assessment

Mutual Aid Zone	Overall Risk
35-1	**Moderate**

NC Flood Map Risk Assessment

Land Area	Floodway Zone	100yr Flood Zone	500yr Flood Zone
Percentage	**3.26%**	**7.19%**	**3.24%**

RHA 1-U

Summary of Overall Risk:

Risk Type	Fire	EMS	Hazardous Materials	Tech Rescue	Urban Interface	ARFF	Disaster
Risk Level	**Moderate**	**Significant**	**Moderate**	**Moderate**	**Moderate**	**Minimal**	**Significant**

Zoning Classification(s):

City of Shelby Zoning Classification
R-8, R-10, R-20

Demographics by Risk Hazard Zone:

Demographic	Indicator
Square Miles	**0.2438**
Total Population	**566**
Population Density (per square mile)	**2321.46**
CFAI Density Classification	**Urban**
Land Use; Residential, Institution, Education	**86.09%**
Land Use; Commercial, Industrial	**0.00%**

Risk Typification & Historical Incident Data 2014-2019:

Risk Type	Total	Minimal	Moderate	Significant	Maximum
Fire	**10**	**4**	**5**	**1**	**0**
EMS	**43**	**0**	**0**	**43**	**0**
Hazardous Materials	**26**	**17**	**9**	**0**	**0**
Tech Rescue	**1**	**1**	**0**	**0**	**0**
Urban Interface	**4**	**3**	**1**	**0**	**0**
ARFF	**0**	**0**	**0**	**0**	**0**
Disaster	**0**	**0**	**0**	**0**	**0**
Total	**84**	**25**	**15**	**44**	**0**

Property Risk

Target Occupancy Count	Overall OVAP Risk
1	**Moderate**

NC Flood Map Risk Assessment

Land Area	Flood way Zone	100yr Flood Zone	500yr Flood Zone
Percentage	**4.49%**	**8.98%**	**2.78%**

NC Forest Service Wildfire Risk Assessment

Mutual Aid Zone	Overall Risk
25-1	**Moderate**

RHA 1-V

Summary of Overall Risk:

Risk Type	Fire	EMS	Hazardous Materials	Tech Rescue	Urban Interface	ARFF	Disaster
Risk Level	**Moderate**	**Significant**	**Moderate**	**Moderate**	**Moderate**	**Minimal**	**Significant**

Zoning Classification(s):

City of Shelby Zoning Classification
RO, R-6, R-8, R-10, GB

Demographics by Risk Hazard Zone:

Demographic	Indicator
Square Miles	**0.2792**
Total Population	**630**
Population Density (per square mile)	**2256.81**
CFAI Density Classification	**Urban**
Land Use; Residential, Institution, Education	**76.90%**
Land Use; Commercial, Industrial	**6.68%**

Risk Typification & Historical Incident Data 2014-2019:

Risk Type	Total	Minimal	Moderate	Significant	Maximum
Fire	**14**	**0**	**13**	**1**	**0**
EMS	**100**	**0**	**0**	**100**	**0**
Hazardous Materials	**23**	**14**	**8**	**1**	**0**
Tech Rescue	**4**	**3**	**0**	**1**	**0**
Urban Interface	**2**	**2**	**0**	**0**	**0**
ARFF	**0**	**0**	**0**	**0**	**0**
Disaster	**0**	**0**	**0**	**0**	**0**
Total	**143**	**19**	**21**	**103**	**0**

Property Risk

Target Occupancy Count	Overall OVAP Risk
1	**Moderate**

NC Flood Map Risk Assessment

Land Area	Flood way Zone	100yr Flood Zone	500yr Flood Zone
Percentage	**0.97%**	**3.10%**	**1.33%**

NC Forest Service Wildfire Risk Assessment

Mutual Aid Zone	Overall Risk
35-1	**Moderate**

RHA 1-W

Summary of Overall Risk:

Risk Type	Fire	EMS	Hazardous Materials	Tech Rescue	Urban Interface	ARFF	Disaster
Risk Level	**Moderate**	**Moderate**	**Significant**	**Moderate**	**Moderate**	**Minimal**	**Moderate**

Zoning Classification(s):

City of Shelby Zoning Classification
R-10, GB

Demographics by Risk Hazard Zone:

Demographic	Indicator
Square Miles	**0.4065**
Total Population	**560**
Population Density (per square mile)	**1377.52**
CFAI Density Classification	**Urban**
Land Use; Residential, Institution, Education	**81.39%**
Land Use; Commercial, Industrial	**6.41%**

Risk Typification & Historical Incident Data 2014-2019:

Risk Type	Total	Minimal	Moderate	Significant	Maximum
Fire	**13**	**1**	**11**	**1**	**0**
EMS	**39**	**0**	**0**	**39**	**0**
Hazardous Materials	**15**	**7**	**8**	**0**	**0**
Tech Rescue	**4**	**2**	**1**	**1**	**0**
Urban Interface	**6**	**4**	**2**	**0**	**0**
ARFF	**0**	**0**	**0**	**0**	**0**
Disaster	**0**	**0**	**0**	**0**	**0**
Total	**77**	**14**	**22**	**41**	**0**

Property Risk

Target Occupancy Count	Overall OVAP Risk
3	**Moderate**

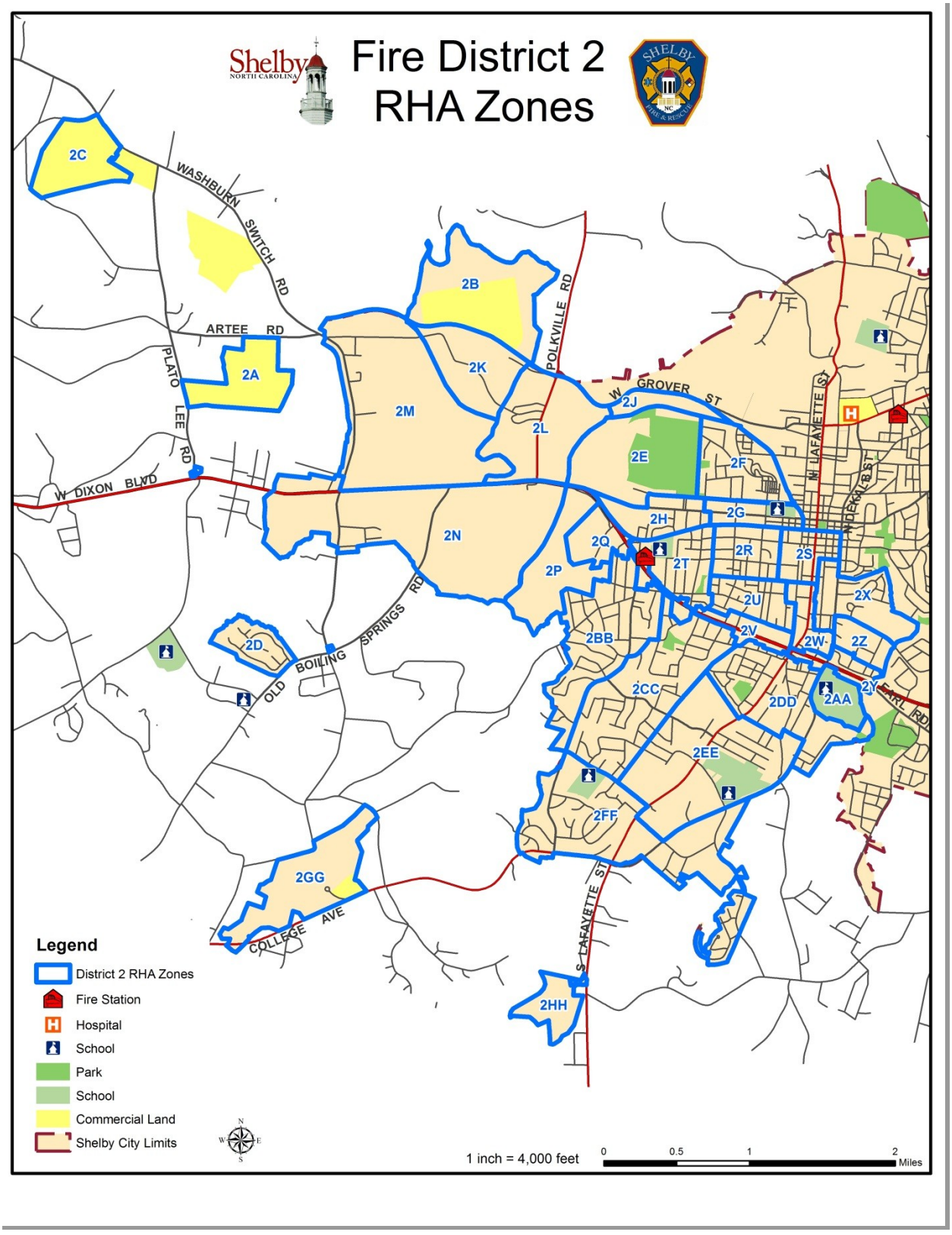
NC Flood Map Risk Assessment

Land Area	Flood way Zone	100yr Flood Zone	500yr Flood Zone
Percentage	**4.85%**	**11.44%**	**4.11%**

NC Forest Service Wildfire Risk Assessment

Mutual Aid Zone	Overall Risk
35-1	**Moderate**

Figure 53; Fire District 2 RHA Zones



RHA 2-A

Summary of Overall Risk:

Risk Type	Fire	EMS	Hazardous Materials	Tech Rescue	Urban Interface	ARFF	Disaster
Risk Level	**Maximum**	**Minimal**	**Significant**	**Moderate**	**Significant**	**Minimal**	**Minimal**

Zoning Classification(s):

City of Shelby Zoning Classification
LI, GI

Demographics by Risk Hazard Zone:

Demographic	Indicator
Square Miles	**0.2382**
Total Population	**0**
Population Density (per square mile)	**0**
CFAI Density Classification	**Rural**
Land Use; Residential, Institution, Education	**0.00%**
Land Use; Commercial, Industrial	**99.17%**

Risk Typification & Historical Incident Data 2014-2019:

Risk Type	Total	Minimal	Moderate	Significant	Maximum
Fire	**3**	**0**	**3**	**0**	**0**
EMS	**5**	**0**	**0**	**5**	**0**
Hazardous Materials	**1**	**0**	**1**	**0**	**0**
Tech Rescue	**6**	**2**	**2**	**2**	**0**
Urban Interface	**0**	**0**	**0**	**0**	**0**
ARFF	**0**	**0**	**0**	**0**	**0**
Disaster	**0**	**0**	**0**	**0**	**0**
Total	**15**	**2**	**6**	**7**	**0**

Property Risk

Target Occupancy Count	Overall OVAP Risk
1	**Significant**

NC Forest Service Wildfire Risk Assessment

Mutual Aid Zone	Overall Risk
15-1	**Moderate**

NC Flood Map Risk Assessment

Land Area	Floodway Zone	100yr Flood Zone	500yr Flood Zone
Percentage	**0.00%**	**0.00%**	**0.00%**

RHA 2-AA

Summary of Overall Risk:

Risk Type	Fire	EMS	Hazardous Materials	Tech Rescue	Urban Interface	ARFF	Disaster
Risk Level	**Moderate**	**Minimal**	**Maximum**	**Moderate**	**Moderate**	**Minimal**	**Significant**

Zoning Classification(s):

City of Shelby Zoning Classification
R-8, R-10

Demographics by Risk Hazard Zone:

Demographic	Indicator
Square Miles	**0.1043**
Total Population	**62**
Population Density (per square mile)	**594.65**
CFAI Density Classification	**Rural**
Land Use; Residential, Institution, Education	**98.29%**
Land Use; Commercial, Industrial	**0.01%**

Risk Typification & Historical Incident Data 2014-2019:

Risk Type	Total	Minimal	Moderate	Significant	Maximum
Fire	**3**	**0**	**3**	**0**	**0**
EMS	**21**	**0**	**0**	**21**	**0**
Hazardous Materials	**2**	**2**	**0**	**0**	**0**
Tech Rescue	**2**	**2**	**0**	**0**	**0**
Urban Interface	**2**	**1**	**1**	**0**	**0**
ARFF	**0**	**0**	**0**	**0**	**0**
Disaster	**0**	**0**	**0**	**0**	**0**
Total	**30**	**5**	**4**	**21**	**0**

Property Risk

Target Occupancy Count	Overall OVAP Risk
0	**Minimal**

NC Flood Map Risk Assessment

Land Area	Flood way Zone	100yr Flood Zone	500yr Flood Zone
Percentage	**0.38%**	**0.86%**	**0.37%**

NC Forest Service Wildfire Risk Assessment

Mutual Aid Zone	Overall Risk
35-1	**Moderate**

RHA 2-B

Summary of Overall Risk:

Risk Type	Fire	EMS	Hazardous Materials	Tech Rescue	Urban Interface	ARFF	Disaster
Risk Level	**Maximum**	**Minimal**	**Significant**	**Maximum**	**Significant**	**Minimal**	**Minimal**

Zoning Classification(s):

City of Shelby Zoning Classification
LI

Demographics by Risk Hazard Zone:

Demographic	Indicator
Square Miles	**0.4990**
Total Population	**1**
Population Density (per square mile)	**2.004**
CFAI Density Classification	**Rural**
Land Use; Residential, Institution, Education	**0.00%**
Land Use; Commercial, Industrial	**99.00%**

Risk Typification & Historical Incident Data 2014-2019:

Risk Type	Total	Minimal	Moderate	Significant	Maximum
Fire	**9**	**0**	**9**	**0**	**0**
EMS	**3**	**0**	**0**	**3**	**0**
Hazardous Materials	**0**	**0**	**0**	**0**	**0**
Tech Rescue	**1**	**1**	**0**	**0**	**0**
Urban Interface	**0**	**0**	**0**	**0**	**0**
ARFF	**0**	**0**	**0**	**0**	**0**
Disaster	**0**	**0**	**0**	**0**	**0**
Total	**13**	**1**	**9**	**3**	**0**

Property Risk

Target Occupancy Count	Overall OVAP Risk
1	**Significant**

NC Forest Service Wildfire Risk Assessment

Mutual Aid Zone	Overall Risk
15-1	**Moderate**

NC Flood Map Risk Assessment

Land Area	Floodway Zone	100yr Flood Zone	500yr Flood Zone
Percentage	**0.00%**	**16.82%**	**0.00%**

RHA 2-BB

Summary of Overall Risk:

Risk Type	Fire	EMS	Hazardous Materials	Tech Rescue	Urban Interface	ARFF	Disaster
Risk Level	**Moderate**	**Significant**	**Moderate**	**Moderate**	**Minimal**	**Minimal**	**Moderate**

Zoning Classification(s):

City of Shelby Zoning Classification
R-8, R-10

Demographics by Risk Hazard Zone:

Demographic	Indicator
Square Miles	**0.4866**
Total Population	**863**
Population Density (per square mile)	**1773.68**
CFAI Density Classification	**Urban**
Land Use; Residential, Institution, Education	**84.56%**
Land Use; Commercial, Industrial	**0.00%**

Risk Typification & Historical Incident Data 2014-2019:

Risk Type	Total	Minimal	Moderate	Significant	Maximum
Fire	**26**	**1**	**25**	**0**	**0**
EMS	**81**	**0**	**0**	**81**	**0**
Hazardous Materials	**25**	**10**	**15**	**0**	**0**
Tech Rescue	**8**	**4**	**2**	**2**	**0**
Urban Interface	**4**	**2**	**2**	**0**	**0**
ARFF	**0**	**0**	**0**	**0**	**0**
Disaster	**0**	**0**	**0**	**0**	**0**
Total	**144**	**17**	**44**	**83**	**0**

Property Risk

Target Occupancy Count	Overall OVAP Risk
0	**Minimal**

NC Forest Service Wildfire Risk Assessment

Mutual Aid Zone	Overall Risk
35-1	**Moderate**

NC Flood Map Risk Assessment

Land Area	Flood way Zone	100yr Flood Zone	500yr Flood Zone
Percentage	**0.53%**	**1.31%**	**0.33%**

RHA 2-C

Summary of Overall Risk:

Risk Type	Fire	EMS	Hazardous Materials	Tech Rescue	Urban Interface	ARFF	Disaster
Risk Level	**Maximum**	**Minimal**	**Maximum**	**Maximum**	**Moderate**	**Minimal**	**Minimal**

Zoning Classification(s):

City of Shelby Zoning Classification
GI

Demographics by Risk Hazard Zone:

Demographic	Indicator
Square Miles	**0.2398**
Total Population	**0**
Population Density (per square mile)	**0**
CFAI Density Classification	**Rural**
Land Use; Residential, Institution, Education	**0.00%**
Land Use; Commercial, Industrial	**96.63%**

Risk Typification & Historical Incident Data 2014-2019:

Risk Type	Total	Minimal	Moderate	Significant	Maximum
Fire	**9**	**0**	**8**	**1**	**0**
EMS	**8**	**0**	**0**	**8**	**0**
Hazardous Materials	**0**	**0**	**0**	**0**	**0**
Tech Rescue	**5**	**3**	**1**	**1**	**0**
Urban Interface	**0**	**0**	**0**	**0**	**0**
ARFF	**0**	**0**	**0**	**0**	**0**
Disaster	**0**	**0**	**0**	**0**	**0**
Total	**22**	**3**	**9**	**10**	**0**

Property Risk

Target Occupancy Count	Overall OVAP Risk
1	**Maximum**

NC Flood Map Risk Assessment

Land Area	Flood way Zone	100yr Flood Zone	500yr Flood Zone
Percentage	**0.00%**	**0.00%**	**0.00%**

NC Forest Service Wildfire Risk Assessment

Mutual Aid Zone	Overall Risk
60.1	**Moderate**

RHA 2-CC

Summary of Overall Risk:

Risk Type	Fire	EMS	Hazardous Materials	Tech Rescue	Urban Interface	ARFF	Disaster
Risk Level	**Moderate**	**Significant**	**Moderate**	**Moderate**	**Minimal**	**Minimal**	**Significant**

Zoning Classification(s):

City of Shelby Zoning Classification
R-6, R-8, R-10

Demographics by Risk Hazard Zone:

Demographic	Indicator
Square Miles	**0.6030**
Total Population	**1342**
Population Density (per square mile)	**2225.62**
CFAI Density Classification	**Urban**
Land Use; Residential, Institution, Education	**83.80%**
Land Use; Commercial, Industrial	**2.03%**

Risk Typification & Historical Incident Data 2014-2019:

Risk Type	Total	Minimal	Moderate	Significant	Maximum
Fire	**37**	**3**	**34**	**0**	**0**
EMS	**108**	**0**	**0**	**108**	**0**
Hazardous Materials	**32**	**15**	**17**	**0**	**0**
Tech Rescue	**6**	**4**	**1**	**1**	**0**
Urban Interface	**6**	**3**	**3**	**0**	**0**
ARFF	**0**	**0**	**0**	**0**	**0**
Disaster	**0**	**0**	**0**	**0**	**0**
Total	**189**	**25**	**55**	**109**	**0**

Property Risk

Target Occupancy Count	Overall OVAP Risk
1	**Moderate**

NC Forest Service Wildfire Risk Assessment

Mutual Aid Zone	Overall Risk
35-1	**Moderate**

NC Flood Map Risk Assessment

Land Area	Flood way Zone	100yr Flood Zone	500yr Flood Zone
Percentage	**3.67%**	**8.89%**	**2.17%**

RHA 2-D

Summary of Overall Risk:

Risk Type	Fire	EMS	Hazardous Materials	Tech Rescue	Urban Interface	ARFF	Disaster
Risk Level	**Moderate**	**Moderate**	**Moderate**	**Minimal**	**Maximum**	**Minimal**	**Moderate**

Zoning Classification(s):

City of Shelby Zoning Classification
R-10

Demographics by Risk Hazard Zone:

Demographic	Indicator
Square Miles	**0.1319**
Total Population	**208**
Population Density (per square mile)	**1577.23**
CFAI Density Classification	**Urban**
Land Use; Residential, Institution, Education	**88.55%**
Land Use; Commercial, Industrial	**0.92%**

Risk Typification & Historical Incident Data 2014-2019:

Risk Type	Total	Minimal	Moderate	Significant	Maximum
Fire	**3**	**0**	**3**	**0**	**0**
EMS	**3**	**0**	**0**	**3**	**0**
Hazardous Materials	**5**	**3**	**2**	**0**	**0**
Tech Rescue	**0**	**0**	**0**	**0**	**0**
Urban Interface	**0**	**0**	**0**	**0**	**0**
ARFF	**0**	**0**	**0**	**0**	**0**
Disaster	**0**	**0**	**0**	**0**	**0**
Total	**11**	**3**	**5**	**3**	**0**

Property Risk

Target Occupancy Count	Overall OVAP Risk
0	**Minimal**

NC Forest Service Wildfire Risk Assessment

Mutual Aid Zone	Overall Risk
55-1	**Moderate**

NC Flood Map Risk Assessment

Land Area	Flood way Zone	100yr Flood Zone	500yr Flood Zone
Percentage	**0.00%**	**2.63%**	**0.00%**

RHA 2-DD

Summary of Overall Risk:

Risk Type	Fire	EMS	Hazardous Materials	Tech Rescue	Urban Interface	ARFF	Disaster
Risk Level	**Significant**	**Significant**	**Maximum**	**Moderate**	**Minimal**	**Minimal**	**Significant**

Zoning Classification(s):

City of Shelby Zoning Classification
R-6, R-8, LI

Demographics by Risk Hazard Zone:

Demographic	Indicator
Square Miles	**0.4321**
Total Population	**879**
Population Density (per square mile)	**2034.35**
CFAI Density Classification	**Urban**
Land Use; Residential, Institution, Education	**76.46**
Land Use; Commercial, Industrial	**9.18**

Risk Typification & Historical Incident Data 2014-2019:

Risk Type	Total	Minimal	Moderate	Significant	Maximum
Fire	**21**	**2**	**17**	**2**	**0**
EMS	**201**	**0**	**0**	**201**	**0**
Hazardous Materials	**25**	**10**	**14**	**1**	**0**
Tech Rescue	**8**	**4**	**2**	**2**	**0**
Urban Interface	**11**	**7**	**4**	**0**	**0**
ARFF	**0**	**0**	**0**	**0**	**0**
Disaster	**0**	**0**	**0**	**0**	**0**
Total	**266**	**23**	**37**	**206**	**0**

Property Risk

Target Occupancy Count	Overall OVAP Risk
7	**Moderate**

NC Forest Service Wildfire Risk Assessment

Mutual Aid Zone	Overall Risk
35-1	**Moderate**

NC Flood Map Risk Assessment

Land Area	Flood way Zone	100yr Flood Zone	500yr Flood Zone
Percentage	**0.62%**	**1.60%**	**0.62%**

RHA 2-E

Summary of Overall Risk:

Risk Type	Fire	EMS	Hazardous Materials	Tech Rescue	Urban Interface	ARFF	Disaster
Risk Level	**Moderate**	**Minimal**	**Maximum**	**Moderate**	**Maximum**	**Minimal**	**Minimal**

Zoning Classification(s):

City of Shelby Zoning Classification
R-10, R-6

Demographics by Risk Hazard Zone:

Demographic	Indicator
Square Miles	**0.4803**
Total Population	**186**
Population Density (per square mile)	**387.28**
CFAI Density Classification	**Rural**
Land Use; Residential, Institution, Education	**95.79%**
Land Use; Commercial, Industrial	**1.07%**

Risk Typification & Historical Incident Data 2014-2019:

Risk Type	Total	Minimal	Moderate	Significant	Maximum
Fire	**8**	**3**	**5**	**0**	**0**
EMS	**7**	**0**	**0**	**7**	**0**
Hazardous Materials	**3**	**1**	**2**	**0**	**0**
Tech Rescue	**12**	**6**	**3**	**3**	**0**
Urban Interface	**0**	**0**	**0**	**0**	**0**
ARFF	**0**	**0**	**0**	**0**	**0**
Disaster	**0**	**0**	**0**	**0**	**0**
Total	**30**	**10**	**10**	**10**	**0**

Property Risk

Target Occupancy Count	Overall OVAP Risk
4	**Significant**

NC Flood Map Risk Assessment

Land Area	Flood way Zone	100yr Flood Zone	500yr Flood Zone
Percentage	**1.56%**	**8.87%**	**0.82%**

NC Forest Service Wildfire Risk Assessment

Mutual Aid Zone	Overall Risk
25-1	**Moderate**

RHA 2-EE

Summary of Overall Risk:

Risk Type	Fire	EMS	Hazardous Materials	Tech Rescue	Urban Interface	ARFF	Disaster
Risk Level	**Significant**	**Minimal**	**Maximum**	**Moderate**	**Moderate**	**Minimal**	**Significant**

Zoning Classification(s):

City of Shelby Zoning Classification
R-10, R-20, GB, GB-2, CPD, LI, GI

Demographics by Risk Hazard Zone:

Demographic	Indicator
Square Miles	**0.7821**
Total Population	**549**
Population Density (per square mile)	**754.03**
CFAI Density Classification	**Rural**
Land Use; Residential, Institution, Education	**45.48%**
Land Use; Commercial, Industrial	**43.39%**

Risk Typification & Historical Incident Data 2014-2019:

Risk Type	Total	Minimal	Moderate	Significant	Maximum
Fire	**18**	**0**	**17**	**1**	**0**
EMS	**64**	**0**	**0**	**64**	**0**
Hazardous Materials	**17**	**8**	**8**	**1**	**0**
Tech Rescue	**18**	**10**	**4**	**4**	**0**
Urban Interface	**6**	**3**	**3**	**0**	**0**
ARFF	**0**	**0**	**0**	**0**	**0**
Disaster	**0**	**0**	**0**	**0**	**0**
Total	**123**	**21**	**32**	**70**	**0**

Property Risk

Target Occupancy Count	Overall OVAP Risk
21	**Moderate**

NC Flood Map Risk Assessment

Land Area	Flood way Zone	100yr Flood Zone	500yr Flood Zone
Percentage	**0.00%**	**0.00%**	**0.00%**

NC Forest Service Wildfire Risk Assessment

Mutual Aid Zone	Overall Risk
35-1	**Moderate**

RHA 2-F

Summary of Overall Risk:

Risk Type	Fire	EMS	Hazardous Materials	Tech Rescue	Urban Interface	ARFF	Disaster
Risk Level	**Moderate**	**Minimal**	**Maximum**	**Moderate**	**Moderate**	**Minimal**	**Minimal**

Zoning Classification(s):

City of Shelby Zoning Classification
R-10

Demographics by Risk Hazard Zone:

Demographic	Indicator
Square Miles	**0.2710**
Total Population	**191**
Population Density (per square mile)	**704.87**
CFAI Density Classification	**Rural**
Land Use; Residential, Institution, Education	**91.33%**
Land Use; Commercial, Industrial	**0.14%**

Risk Typification & Historical Incident Data 2014-2019:

Risk Type	Total	Minimal	Moderate	Significant	Maximum
Fire	**4**	**0**	**4**	**0**	**0**
EMS	**17**	**0**	**0**	**17**	**0**
Hazardous Materials	**3**	**1**	**2**	**0**	**0**
Tech Rescue	**1**	**1**	**0**	**0**	**0**
Urban Interface	**1**	**1**	**0**	**0**	**0**
ARFF	**0**	**0**	**0**	**0**	**0**
Disaster	**0**	**0**	**0**	**0**	**0**
Total	**26**	**3**	**6**	**17**	**0**

Property Risk

Target Occupancy Count	Overall OVAP Risk
3	**Maximum**

NC Flood Map Risk Assessment

Land Area	Flood way Zone	100yr Flood Zone	500yr Flood Zone
Percentage	**0.92%**	**2.23%**	**0.58%**

NC Forest Service Wildfire Risk Assessment

Mutual Aid Zone	Overall Risk
35-1	**Moderate**

RHA 2-FF

Summary of Overall Risk:

Risk Type	Fire	EMS	Hazardous Materials	Tech Rescue	Urban Interface	ARFF	Disaster
Risk Level	**Moderate**	**Moderate**	**Significant**	**Moderate**	**Minimal**	**Minimal**	**Significant**

Zoning Classification(s):

City of Shelby Zoning Classification
R-10, R-20, RO, CPD,

Demographics by Risk Hazard Zone:

Demographic	Indicator
Square Miles	**0.7882**
Total Population	**1239**
Population Density (per square mile)	**1571.96**
CFAI Density Classification	**Urban**
Land Use; Residential, Institution, Education	**73.91%**
Land Use; Commercial, Industrial	**11.49%**

Risk Typification & Historical Incident Data 2014-2019:

Risk Type	Total	Minimal	Moderate	Significant	Maximum
Fire	**17**	**1**	**15**	**1**	**0**
EMS	**82**	**0**	**0**	**82**	**0**
Hazardous Materials	**8**	**4**	**4**	**0**	**0**
Tech Rescue	**8**	**7**	**0**	**1**	**0**
Urban Interface	**2**	**0**	**2**	**0**	**0**
ARFF	**0**	**0**	**0**	**0**	**0**
Disaster	**0**	**0**	**0**	**0**	**0**
Total	**117**	**12**	**21**	**84**	**0**

Property Risk

Target Occupancy Count	Overall OVAP Risk
4	**Moderate**

NC Forest Service Wildfire Risk Assessment

Mutual Aid Zone	Overall Risk
35-1	**Moderate**

NC Flood Map Risk Assessment

Land Area	Flood way Zone	100yr Flood Zone	500yr Flood Zone
Percentage	**0.30%**	**1.07%**	**0.64%**

RHA 2-G

Summary of Overall Risk:

Risk Type	Fire	EMS	Hazardous Materials	Tech Rescue	Urban Interface	ARFF	Disaster
Risk Level	**Significant**	**Significant**	**Maximum**	**Moderate**	**Minimal**	**Minimal**	**Significant**

Zoning Classification(s):

City of Shelby Zoning Classification
R-6, R-10, RO, GB, CB

Demographics by Risk Hazard Zone:

Demographic	Indicator
Square Miles	**0.1098**
Total Population	**238**
Population Density (per square mile)	**2167.05**
CFAI Density Classification	**Urban**
Land Use; Residential, Institution, Education	**72.45%**
Land Use; Commercial, Industrial	**7.29%**

Risk Typification & Historical Incident Data 2014-2019:

Risk Type	Total	Minimal	Moderate	Significant	Maximum
Fire	**18**	**0**	**18**	**0**	**0**
EMS	**44**	**0**	**0**	**44**	**0**
Hazardous Materials	**19**	**13**	**5**	**1**	**0**
Tech Rescue	**11**	**7**	**2**	**2**	**0**
Urban Interface	**1**	**0**	**1**	**0**	**0**
ARFF	**0**	**0**	**0**	**0**	**0**
Disaster	**0**	**0**	**0**	**0**	**0**
Total	**93**	**20**	**26**	**47**	**0**

Property Risk

Target Occupancy Count	Overall OVAP Risk
7	**39**

NC Flood Map Risk Assessment

Land Area	Flood way Zone	100yr Flood Zone	500yr Flood Zone
Percentage	**0.00%**	**0.00%**	**0.00%**

NC Forest Service Wildfire Risk Assessment

Mutual Aid Zone	Overall Risk
35-1	**Moderate**

RHA 2-GG

Summary of Overall Risk:

Risk Type	Fire	EMS	Hazardous Materials	Tech Rescue	Urban Interface	ARFF	Disaster
Risk Level	**Maximum**	**Minimal**	**Significant**	**Significant**	**Significant**	**Significant**	**Minimal**

Zoning Classification(s):

City of Shelby Zoning Classification
LI

Demographics by Risk Hazard Zone:

Demographic	Indicator
Square Miles	**0.3768**
Total Population	**0**
Population Density (per square mile)	**0**
CFAI Density Classification	**Rural**
Land Use; Residential, Institution, Education	**0.00%**
Land Use; Commercial, Industrial	**99.34%**

Risk Typification & Historical Incident Data 2014-2019:

Risk Type	Total	Minimal	Moderate	Significant	Maximum
Fire	**0**	**0**	**0**	**0**	**0**
EMS	**0**	**0**	**0**	**0**	**0**
Hazardous Materials	**1**	**1**	**0**	**0**	**0**
Tech Rescue	**1**	**1**	**0**	**0**	**0**
Urban Interface	**0**	**0**	**0**	**0**	**0**
ARFF	**0**	**0**	**0**	**0**	**0**
Disaster	**0**	**0**	**0**	**0**	**0**
Total	**2**	**2**	**0**	**0**	**0**

Property Risk

Target Occupancy Count	Overall OVAP Risk
1	**Moderate**

NC Forest Service Wildfire Risk Assessment

Mutual Aid Zone	Overall Risk
50-1	**Minimal**

NC Flood Map Risk Assessment

Land Area	Floodway Zone	100yr Flood Zone	500yr Flood Zone
Percentage	**0.00%**	**0.00%**	**0.00%**

RHA 2-H

Summary of Overall Risk:

Risk Type	Fire	EMS	Hazardous Materials	Tech Rescue	Urban Interface	ARFF	Disaster
Risk Level	**Significant**	**Significant**	**Significant**	**Moderate**	**Moderate**	**Minimal**	**Significant**

Zoning Classification(s):

City of Shelby Zoning Classification
R-6, R-8, NB, R-10, GI

Demographics by Risk Hazard Zone:

Demographic	Indicator
Square Miles	**0.1618**
Total Population	**354**
Population Density (per square mile)	**2187.89**
CFAI Density Classification	**Urban**
Land Use; Residential, Institution, Education	**79.45%**
Land Use; Commercial, Industrial	**7.81%**

Risk Typification & Historical Incident Data 2014-2019:

Risk Type	Total	Minimal	Moderate	Significant	Maximum
Fire	**11**	**4**	**5**	**2**	**0**
EMS	**73**	**0**	**0**	**73**	**0**
Hazardous Materials	**18**	**9**	**9**	**0**	**0**
Tech Rescue	**6**	**6**	**0**	**0**	**0**
Urban Interface	**1**	**0**	**1**	**0**	**0**
ARFF	**0**	**0**	**0**	**0**	**0**
Disaster	**0**	**0**	**0**	**0**	**0**
Total	**109**	**19**	**15**	**75**	**0**

Property Risk

Target Occupancy Count	Overall OVAP Risk
7	**Significant**

NC Forest Service Wildfire Risk Assessment

Mutual Aid Zone	Overall Risk
35-1	**Moderate**

NC Flood Map Risk Assessment

Land Area	Flood way Zone	100yr Flood Zone	500yr Flood Zone
Percentage	**0.00%**	**0.00%**	**0.00%**

RHA 2-HH

Summary of Overall Risk:

Risk Type	Fire	EMS	Hazardous Materials	Tech Rescue	Urban Interface	ARFF	Disaster
Risk Level	**Moderate**	**Minimal**	**Maximum**	**Maximum**	**Moderate**	**Minimal**	**Minimal**

Zoning Classification(s):

City of Shelby Zoning Classification
R-20

Demographics by Risk Hazard Zone:

Demographic	Indicator
Square Miles	**0.1213**
Total Population	**0**
Population Density (per square mile)	**0**
CFAI Density Classification	**Rural**
Land Use; Residential, Institution, Education	**0.00%**
Land Use; Commercial, Industrial	**99.60%**

Risk Typification & Historical Incident Data 2014-2019:

Risk Type	Total	Minimal	Moderate	Significant	Maximum
Fire	**0**	**0**	**0**	**0**	**0**
EMS	**0**	**0**	**0**	**0**	**0**
Hazardous Materials	**1**	**1**	**0**	**0**	**0**
Tech Rescue	**0**	**0**	**0**	**0**	**0**
Urban Interface	**1**	**1**	**0**	**0**	**0**
ARFF	**0**	**0**	**0**	**0**	**0**
Disaster	**0**	**0**	**0**	**0**	**0**
Total	**2**	**2**	**0**	**0**	**0**

Property Risk

Target Occupancy Count	Overall OVAP Risk
0	**Minimal**

NC Flood Map Risk Assessment

Land Area	Flood way Zone	100yr Flood Zone	500yr Flood Zone
Percentage	**9.59%**	**26.05%**	**0.00%**

NC Forest Service Wildfire Risk Assessment

Mutual Aid Zone	Overall Risk
45-1	

RHA 2-J

Summary of Overall Risk:

Risk Type	Fire	EMS	Hazardous Materials	Tech Rescue	Urban Interface	ARFF	Disaster
Risk Level	**Maximum**	**Minimal**	**Maximum**	**Moderate**	**Moderate**	**Minimal**	**Minimal**

Zoning Classification(s):

City of Shelby Zoning Classification
GI

Demographics by Risk Hazard Zone:

Demographic	Indicator
Square Miles	**0.0838**
Total Population	**0**
Population Density (per square mile)	**0**
CFAI Density Classification	**Rural**
Land Use; Residential, Institution, Education	**0.00%**
Land Use; Commercial, Industrial	**85.20%**

Risk Typification & Historical Incident Data 2014-2019:

Risk Type	Total	Minimal	Moderate	Significant	Maximum
Fire	**0**	**0**	**0**	**0**	**0**
EMS	**1**	**0**	**0**	**1**	**0**
Hazardous Materials	**3**	**1**	**2**	**0**	**0**
Tech Rescue	**4**	**2**	**1**	**1**	**0**
Urban Interface	**4**	**3**	**1**	**0**	**0**
ARFF	**0**	**0**	**0**	**0**	**0**
Disaster	**0**	**0**	**0**	**0**	**0**
Total	**12**	**6**	**4**	**2**	**0**

Property Risk

Target Occupancy Count	Overall OVAP Risk
1	**Moderate**

NC Forest Service Wildfire Risk Assessment

Mutual Aid Zone	Overall Risk
35-1	**Moderate**

NC Flood Map Risk Assessment

Land Area	Flood way Zone	100yr Flood Zone	500yr Flood Zone
Percentage	**0.00%**	**2.98%**	**0.00**

RHA 2-JJ

Summary of Overall Risk:

Risk Type	Fire	EMS	Hazardous Materials	Tech Rescue	Urban Interface	ARFF	Disaster
Risk Level	**Maximum**	**Minimal**	**Maximum**	**Maximum**	**Moderate**	**Minimal**	**Minimal**

Zoning Classification(s):

City of Shelby Zoning Classification
GI

Demographics by Risk Hazard Zone:

Demographic	Indicator
Square Miles	**0.2398**
Total Population	**0**
Population Density (per square mile)	**0**
CFAI Density Classification	**Rural**
Land Use; Residential, Institution, Education	**0.00%**
Land Use; Commercial, Industrial	**96.63%**

Risk Typification & Historical Incident Data 2014-2019:

Risk Type	Total	Minimal	Moderate	Significant	Maximum
Fire	**0**	**0**	**0**	**0**	**0**
EMS	**0**	**0**	**0**	**0**	**0**
Hazardous Materials	**0**	**0**	**0**	**0**	**0**
Tech Rescue	**0**	**0**	**0**	**0**	**0**
Urban Interface	**0**	**0**	**0**	**0**	**0**
ARFF	**0**	**0**	**0**	**0**	**0**
Disaster	**0**	**0**	**0**	**0**	**0**
Total	**0**	**0**	**0**	**0**	**0**

Property Risk

Target Occupancy Count	Overall OVAP Risk
2	**Maximum**

NC Forest Service Wildfire Risk Assessment

Mutual Aid Zone	Overall Risk
60.1	**Moderate**

NC Flood Map Risk Assessment

Land Area	Floodway Zone	100yr Flood Zone	500yr Flood Zone
Percentage	**0.00%**	**0.00%**	**0.00%**

RHA 2-K

Summary of Overall Risk:

Risk Type	Fire	EMS	Hazardous Materials	Tech Rescue	Urban Interface	ARFF	Disaster
Risk Level	**Maximum**	**Minimal**	**Maximum**	**Significant**	**Significant**	**Minimal**	**Minimal**

Zoning Classification(s):

City of Shelby Zoning Classification
R-10, LI

Demographics by Risk Hazard Zone:

Demographic	Indicator
Square Miles	**0.2874**
Total Population	**49**
Population Density (per square mile)	**170.51**
CFAI Density Classification	**Rural**
Land Use; Residential, Institution, Education	**38.47%**
Land Use; Commercial, Industrial	**50.59%**

Risk Typification & Historical Incident Data 2014-2019:

Risk Type	Total	Minimal	Moderate	Significant	Maximum
Fire	**15**	**0**	**15**	**0**	**0**
EMS	**6**	**0**	**0**	**6**	**0**
Hazardous Materials	**1**	**0**	**1**	**0**	**0**
Tech Rescue	**1**	**1**	**0**	**0**	**0**
Urban Interface	**0**	**0**	**0**	**0**	**0**
ARFF	**0**	**0**	**0**	**0**	**0**
Disaster	**0**	**0**	**0**	**0**	**0**
Total	**23**	**1**	**16**	**6**	**0**

Property Risk

Target Occupancy Count	Overall OVAP Risk
2	**Moderate**

NC Flood Map Risk Assessment

Land Area	Flood way Zone	100yr Flood Zone	500yr Flood Zone
Percentage	**0.00%**	**9.05%**	**0.00%**

NC Forest Service Wildfire Risk Assessment

Mutual Aid Zone	Overall Risk
15-1	**Moderate**

RHA 2-L

Summary of Overall Risk:

Risk Type	Fire	EMS	Hazardous Materials	Tech Rescue	Urban Interface	ARFF	Disaster
Risk Level	**Moderate**	**Minimum**	**Maximum**	**Significant**	**Significant**	**Minimal**	**Minimum**

Zoning Classification(s):

City of Shelby Zoning Classification
R-10, R-20, NB, LI,

Demographics by Risk Hazard Zone:

Demographic	Indicator
Square Miles	**0.4309**
Total Population	**2646**
Population Density (per square mile)	**614.14**
CFAI Density Classification	**Rural**
Land Use; Residential, Institution, Education	**63.82%**
Land Use; Commercial, Industrial	**24.79%**

Risk Typification & Historical Incident Data 2014-2019:

Risk Type	Total	Minimal	Moderate	Significant	Maximum
Fire	**2**	**0**	**2**	**0**	**0**
EMS	**15**	**0**	**0**	**15**	**0**
Hazardous Materials	**5**	**3**	**1**	**1**	**0**
Tech Rescue	**24**	**11**	**06**	**7**	**0**
Urban Interface	**2**	**2**	**0**	**0**	**0**
ARFF	**0**	**0**	**0**	**0**	**0**
Disaster	**0**	**0**	**0**	**0**	**0**
Total	**48**	**16**	**9**	**23**	**0**

Property Risk

Target Occupancy Count	Overall OVAP Risk
3	**Moderate**

NC Flood Map Risk Assessment

Land Area	Flood way Zone	100yr Flood Zone	500yr Flood Zone
Percentage	**0.00%**	**16.14%**	**0.00%**

NC Forest Service Wildfire Risk Assessment

Mutual Aid Zone	Overall Risk
15-1	**Moderate**

RHA 2-M

Summary of Overall Risk:

Risk Type	Fire	EMS	Hazardous Materials	Tech Rescue	Urban Interface	ARFF	Disaster
Risk Level	**Moderate**	**Minimal**	**Maximum**	**Significant**	**Significant**	**Minimal**	**Minimal**

Zoning Classification(s):

City of Shelby Zoning Classification
R-20, GB-2 LI

Demographics by Risk Hazard Zone:

Demographic	Indicator
Square Miles	**0.9862**
Total Population	**119**
Population Density (per square mile)	**120.67**
CFAI Density Classification	**Rural**
Land Use; Residential, Institution, Education	**88.20%**
Land Use; Commercial, Industrial	**6.04%**

Risk Typification & Historical Incident Data 2014-2019:

Risk Type	Total	Minimal	Moderate	Significant	Maximum
Fire	**11**	**0**	**11**	**0**	**0**
EMS	**12**	**0**	**0**	**12**	**0**
Hazardous Materials	**4**	**4**	**0**	**0**	**0**
Tech Rescue	**15**	**7**	**4**	**4**	**0**
Urban Interface	**2**	**1**	**1**	**0**	**0**
ARFF	**0**	**0**	**0**	**0**	**0**
Disaster	**0**	**0**	**0**	**0**	**0**
Total	**44**	**12**	**16**	**16**	**0**

Property Risk

Target Occupancy Count	Overall OVAP Risk
2	**Moderate**

NC Forest Service Wildfire Risk Assessment

Mutual Aid Zone	Overall Risk
15-1	**Moderate**

NC Flood Map Risk Assessment

Land Area	Flood way Zone	100yr Flood Zone	500yr Flood Zone
Percentage	**0.00%**	**1.68%**	**0.00%**

RHA 2-N

Summary of Overall Risk:

Risk Type	Fire	EMS	Hazardous Materials	Tech Rescue	Urban Interface	ARFF	Disaster
Risk Level	**Maximum**	**Minimal**	**Significant**	**Significant**	**Significant**	**Minimal**	**Minimal**

Zoning Classification(s):

City of Shelby Zoning Classification
R-10, R-20, GB-2, LI, GI,

Demographics by Risk Hazard Zone:

Demographic	Indicator
Square Miles	**1.1073**
Total Population	**90**
Population Density (per square mile)	**81.28**
CFAI Density Classification	**Rural**
Land Use; Residential, Institution, Education	**45.10%**
Land Use; Commercial, Industrial	**48.19%**

Risk Typification & Historical Incident Data 2014-2019:

Risk Type	Total	Minimal	Moderate	Significant	Maximum
Fire	**27**	**0**	**27**	**0**	**0**
EMS	**22**	**0**	**0**	**22**	**0**
Hazardous Materials	**3**	**2**	**1**	**0**	**0**
Tech Rescue	**38**	**8**	**10**	**10**	**10**
Urban Interface	**6**	**3**	**3**	**0**	**0**
ARFF	**0**	**0**	**0**	**0**	**0**
Disaster	**0**	**0**	**0**	**0**	**0**
Total	**96**	**13**	**41**	**32**	**10**

Property Risk

Target Occupancy Count	Overall OVAP Risk
2	**Moderate**

NC Flood Map Risk Assessment

Land Area	Flood way Zone	100yr Flood Zone	500yr Flood Zone
Percentage	**0.00%**	**9.53%**	**0.00%**

NC Forest Service Wildfire Risk Assessment

Mutual Aid Zone	Overall Risk
15-1	**Moderate**

RHA 2-P

Summary of Overall Risk:

Risk Type	Fire	EMS	Hazardous Materials	Tech Rescue	Urban Interface	ARFF	Disaster
Risk Level	**Moderate**	**Minimal**	**Significant**	**Minimal**	**Maximum**	**Minimal**	**Minimal**

Zoning Classification(s):

City of Shelby Zoning Classification
R-8, R-20, GB,

Demographics by Risk Hazard Zone:

Demographic	Indicator
Square Miles	**0.2849**
Total Population	**68**
Population Density (per square mile)	**238.71**
CFAI Density Classification	**Rural**
Land Use; Residential, Institution, Education	**87.77%**
Land Use; Commercial, Industrial	**9.41%**

Risk Typification & Historical Incident Data 2014-2019:

Risk Type	Total	Minimal	Moderate	Significant	Maximum
Fire	**2**	**0**	**2**	**0**	**0**
EMS	**2**	**0**	**0**	**2**	**0**
Hazardous Materials	**2**	**0**	**2**	**0**	**0**
Tech Rescue	**4**	**2**	**1**	**1**	**0**
Urban Interface	**0**	**0**	**0**	**0**	**0**
ARFF	**0**	**0**	**0**	**0**	**0**
Disaster	**0**	**0**	**0**	**0**	**0**
Total	**10**	**2**	**5**	**3**	**0**

Property Risk

Target Occupancy Count	Overall OVAP Risk
0	**Minimal**

NC Flood Map Risk Assessment

Land Area	Flood way Zone	100yr Flood Zone	500yr Flood Zone
Percentage	**0.00%**	**18.14%**	**0.00%**

NC Forest Service Wildfire Risk Assessment

Mutual Aid Zone	Overall Risk
15-1	**Moderate**

RHA 2-Q

Summary of Overall Risk:

Risk Type	Fire	EMS	Hazardous Materials	Tech Rescue	Urban Interface	ARFF	Disaster
Risk Level	**Maximum**	**Minimal**	**Significant**	**Moderate**	**Moderate**	**Minimal**	**Minimal**

Zoning Classification(s):

City of Shelby Zoning Classification
GB, RO, GI

Demographics by Risk Hazard Zone:

Demographic	Indicator
Square Miles	**0.1439**
Total Population	**81**
Population Density (per square mile)	**562.71**
CFAI Density Classification	**Rural**
Land Use; Residential, Institution, Education	**17.69%**
Land Use; Commercial, Industrial	**62.38**

Risk Typification & Historical Incident Data 2014-2019:

Risk Type	Total	Minimal	Moderate	Significant	Maximum
Fire	**7**	**2**	**5**	**0**	**0**
EMS	**4**	**0**	**0**	**4**	**0**
Hazardous Materials	**6**	**3**	**3**	**0**	**0**
Tech Rescue	**19**	**7**	**4**	**4**	**4**
Urban Interface	**0**	**0**	**0**	**0**	**0**
ARFF	**0**	**0**	**0**	**0**	**0**
Disaster	**0**	**0**	**0**	**0**	**0**
Total	**36**	**12**	**12**	**8**	**4**

Property Risk

Target Occupancy Count	Overall OVAP Risk
8	**Moderate**

NC Forest Service Wildfire Risk Assessment

Mutual Aid Zone	Overall Risk
35-1	**Moderate**

NC Flood Map Risk Assessment

Land Area	Floodway Zone	100yr Flood Zone	500yr Flood Zone
Percentage	**0.00%**	**0.00%**	**0.00%**

RHA 2-R

Summary of Overall Risk:

Risk Type	Fire	EMS	Hazardous Materials	Tech Rescue	Urban Interface	ARFF	Disaster
Risk Level	**Significant**	**Maximum**	**Moderate**	**Moderate**	**Minimal**	**Minimal**	**Maximum**

Zoning Classification(s):

City of Shelby Zoning Classification
R-6, R-8, R-10, RO

Demographics by Risk Hazard Zone:

Demographic	Indicator
Square Miles	**0.1648**
Total Population	**680**
Population Density (per square mile)	**4127.46**
CFAI Density Classification	**Urban**
Land Use; Residential, Institution, Education	**83.44%**
Land Use; Commercial, Industrial	**1.18%**

Risk Typification & Historical Incident Data 2014-2019:

Risk Type	Total	Minimal	Moderate	Significant	Maximum
Fire	**20**	**2**	**17**	**1**	**0**
EMS	**82**	**0**	**0**	**82**	**0**
Hazardous Materials	**24**	**12**	**12**	**0**	**0**
Tech Rescue	**2**	**2**	**0**	**0**	**0**
Urban Interface	**7**	**4**	**3**	**0**	**0**
ARFF	**0**	**0**	**0**	**0**	**0**
Disaster	**0**	**0**	**0**	**0**	**0**
Total	**135**	**20**	**32**	**83**	**0**

Property Risk

Target Occupancy Count	Overall OVAP Risk
2	**Moderate**

NC Flood Map Risk Assessment

Land Area	Flood way Zone	100yr Flood Zone	500yr Flood Zone
Percentage	**0.00%**	**0.00%**	**0.00%**

NC Forest Service Wildfire Risk Assessment

Mutual Aid Zone	Overall Risk
35-1	**Moderate**

RHA 2-S

Summary of Overall Risk:

Risk Type	Fire	EMS	Hazardous Materials	Tech Rescue	Urban Interface	ARFF	Disaster
Risk Level	**Significant**	**Moderate**	**Maximum**	**Maximum**	**Minimal**	**Minimal**	**Significant**

Zoning Classification(s):

City of Shelby Zoning Classification
RO, CB, GB, GI

Demographics by Risk Hazard Zone:

Demographic	Indicator
Square Miles	**0.1253**
Total Population	**237**
Population Density (per square mile)	**1892.07**
CFAI Density Classification	**Urban**
Land Use; Residential, Institution, Education	**2.03%**
Land Use; Commercial, Industrial	**71.87%**

Risk Typification & Historical Incident Data 2014-2019:

Risk Type	Total	Minimal	Moderate	Significant	Maximum
Fire	**27**	**0**	**26**	**1**	**0**
EMS	**51**	**0**	**0**	**51**	**0**
Hazardous Materials	**19**	**8**	**11**	**0**	**0**
Tech Rescue	**20**	**12**	**4**	**4**	**0**
Urban Interface	**0**	**0**	**0**	**0**	**0**
ARFF	**0**	**0**	**0**	**0**	**0**
Disaster	**0**	**0**	**0**	**0**	**0**
Total	**117**	**20**	**41**	**56**	**0**

Property Risk

Target Occupancy Count	Overall OVAP Risk
57	**Significant**

NC Flood Map Risk Assessment

Land Area	Flood way Zone	100yr Flood Zone	500yr Flood Zone
Percentage	**0.15%**	**0.38%**	**0.24%**

NC Forest Service Wildfire Risk Assessment

Mutual Aid Zone	Overall Risk
10-1	**Minimal**

RHA 2-T

Summary of Overall Risk:

Risk Type	Fire	EMS	Hazardous Materials	Tech Rescue	Urban Interface	ARFF	Disaster
Risk Level	**Moderate**	**Significant**	**Moderate**	**Significant**	**Minimal**	**Minimal**	**Significant**

Zoning Classification(s):

City of Shelby Zoning Classification
R-8, R-10, RO

Demographics by Risk Hazard Zone:

Demographic	Indicator
Square Miles	**0.2069**
Total Population	**496**
Population Density (per square mile)	**2397.10**
CFAI Density Classification	**Urban**
Land Use; Residential, Institution, Education	**82.16%**
Land Use; Commercial, Industrial	**2.66%**

Risk Typification & Historical Incident Data 2014-2019:

Risk Type	Total	Minimal	Moderate	Significant	Maximum
Fire	**13**	**3**	**10**	**0**	**0**
EMS	**75**	**0**	**0**	**75**	**0**
Hazardous Materials	**22**	**9**	**13**	**0**	**0**
Tech Rescue	**3**	**1**	**1**	**1**	**0**
Urban Interface	**8**	**4**	**4**	**0**	**0**
ARFF	**0**	**0**	**0**	**0**	**0**
Disaster	**0**	**0**	**0**	**0**	**0**
Total	**121**	**17**	**28**	**76**	**0**

Property Risk

Target Occupancy Count	Overall OVAP Risk
1	**Significant**

NC Flood Map Risk Assessment

Land Area	Flood way Zone	100yr Flood Zone	500yr Flood Zone
Percentage	**0.00%**	**0.00%**	**0.00%**

NC Forest Service Wildfire Risk Assessment

Mutual Aid Zone	Overall Risk
35-1	**Moderate**

RHA 2-U

Summary of Overall Risk:

Risk Type	Fire	EMS	Hazardous Materials	Tech Rescue	Urban Interface	ARFF	Disaster
Risk Level	**Moderate**	**Significant**	**Moderate**	**Moderate**	**Minimal**	**Minimal**	**Significant**

Zoning Classification(s):

City of Shelby Zoning Classification
R-6, R-8, GB

Demographics by Risk Hazard Zone:

Demographic	Indicator
Square Miles	**0.1544**
Total Population	**443**
Population Density (per square mile)	**2868.50**
CFAI Density Classification	**Urban**
Land Use; Residential, Institution, Education	**76.10%**
Land Use; Commercial, Industrial	**9.49%**

Risk Typification & Historical Incident Data 2014-2019:

Risk Type	Total	Minimal	Moderate	Significant	Maximum
Fire	**1**	**0**	**1**	**0**	**0**
EMS	**132**	**0**	**0**	**132**	**0**
Hazardous Materials	**19**	**8**	**9**	**2**	**0**
Tech Rescue	**10**	**6**	**2**	**2**	**0**
Urban Interface	**5**	**4**	**1**	**0**	**0**
ARFF	**0**	**0**	**0**	**0**	**0**
Disaster	**0**	**0**	**0**	**0**	**0**
Total	**167**	**18**	**13**	**136**	**0**

Property Risk

Target Occupancy Count	Overall OVAP Risk
2	**Moderate**

NC Flood Map Risk Assessment

Land Area	Flood way Zone	100yr Flood Zone	500yr Flood Zone
Percentage	**4.19%**	**9.47%**	**1.37%**

NC Forest Service Wildfire Risk Assessment

Mutual Aid Zone	Overall Risk
35-1	**Moderate**

RHA 2-V

Summary of Overall Risk:

Risk Type	Fire	EMS	Hazardous Materials	Tech Rescue	Urban Interface	ARFF	Disaster
Risk Level	**Significant**	**Minimal**	**Maximum**	**Maximum**	**Minimal**	**Minimal**	**Minimal**

Zoning Classification(s):

City of Shelby Zoning Classification
GB

Demographics by Risk Hazard Zone:

Demographic	Indicator
Square Miles	**0.1103**
Total Population	**98**
Population Density (per square mile)	**888.39**
CFAI Density Classification	**Rural**
Land Use; Residential, Institution, Education	**7.86%**
Land Use; Commercial, Industrial	**59.40%**

Risk Typification & Historical Incident Data 2014-2019:

Risk Type	Total	Minimal	Moderate	Significant	Maximum
Fire	**3**	**0**	**2**	**1**	**0**
EMS	**136**	**0**	**0**	**136**	**0**
Hazardous Materials	**10**	**5**	**5**	**0**	**0**
Tech Rescue	**46**	**13**	**11**	**11**	**11**
Urban Interface	**6**	**4**	**2**	**0**	**0**
ARFF	**0**	**0**	**0**	**0**	**0**
Disaster	**0**	**0**	**0**	**0**	**0**
Total	**201**	**22**	**20**	**148**	**11**

Property Risk

Target Occupancy Count	Overall OVAP Risk
26	**Maximum**

NC Flood Map Risk Assessment

Land Area	Flood way Zone	100yr Flood Zone	500yr Flood Zone
Percentage	**0.23%**	**0.52%**	**0.69%**

NC Forest Service Wildfire Risk Assessment

Mutual Aid Zone	Overall Risk
35-1	**Moderate**

RHA 2-W

Summary of Overall Risk:

Risk Type	Fire	EMS	Hazardous Materials	Tech Rescue	Urban Interface	ARFF	Disaster
Risk Level	**Significant**	**Minimal**	**Maximum**	**Moderate**	**Minimal**	**Minimal**	**Minimal**

Zoning Classification(s):

City of Shelby Zoning Classification
R-6, R-10, GB, GI,

Demographics by Risk Hazard Zone:

Demographic	Indicator
Square Miles	**0.0955**
Total Population	**65**
Population Density (per square mile)	**680.48**
CFAI Density Classification	**Rural**
Land Use; Residential, Institution, Education	**5.03%**
Land Use; Commercial, Industrial	**76.00%**

Risk Typification & Historical Incident Data 2014-2019:

Risk Type	Total	Minimal	Moderate	Significant	Maximum
Fire	**13**	**0**	**13**	**0**	**0**
EMS	**43**	**0**	**0**	**43**	**0**
Hazardous Materials	**9**	**6**	**3**	**0**	**0**
Tech Rescue	**12**	**9**	**1**	**1**	**1**
Urban Interface	**2**	**2**	**0**	**0**	**0**
ARFF	**0**	**0**	**0**	**0**	**0**
Disaster	**0**	**0**	**0**	**0**	**0**
Total	**79**	**17**	**17**	**44**	**1**

Property Risk

Target Occupancy Count	Overall OVAP Risk
25	**Moderate**

NC Flood Map Risk Assessment

Land Area	Flood way Zone	100yr Flood Zone	500yr Flood Zone
Percentage	**0.00%**	**0.00%**	**0.02%**

NC Forest Service Wildfire Risk Assessment

Mutual Aid Zone	Overall Risk
35-1	**Moderate**

RHA 2-X

Summary of Overall Risk:

Risk Type	Fire	EMS	Hazardous Materials	Tech Rescue	Urban Interface	ARFF	Disaster
Risk Level	**Significant**	**Significant**	**Moderate**	**Moderate**	**Moderate**	**Minimal**	**Minimal**

Zoning Classification(s):

City of Shelby Zoning Classification
R-6-R-8, GB

Demographics by Risk Hazard Zone:

Demographic	Indicator
Square Miles	**0.2272**
Total Population	**505**
Population Density (per square mile)	**2222.70**
CFAI Density Classification	**Urban**
Land Use; Residential, Institution, Education	**86.69%**
Land Use; Commercial, Industrial	**1.54%**

Risk Typification & Historical Incident Data 2014-2019:

Risk Type	Total	Minimal	Moderate	Significant	Maximum
Fire	**11**	**1**	**9**	**1**	**0**
EMS	**61**	**0**	**0**	**61**	**0**
Hazardous Materials	**10**	**6**	**4**	**0**	**0**
Tech Rescue	**5**	**5**	**0**	**0**	**0**
Urban Interface	**1**	**1**	**0**	**0**	**0**
ARFF	**0**	**0**	**0**	**0**	**0**
Disaster	**0**	**0**	**0**	**0**	**0**
Total	**88**	**13**	**13**	**62**	**0**

Property Risk

Target Occupancy Count	Overall OVAP Risk
6	**Moderate**

NC Forest Service Wildfire Risk Assessment

Mutual Aid Zone	Overall Risk
35-1	**Moderate**

NC Flood Map Risk Assessment

Land Area	Flood way Zone	100yr Flood Zone	500yr Flood Zone
Percentage	**2.67%**	**5.89%**	**2.17%**

RHA 2-Y

Summary of Overall Risk:

Risk Type	Fire	EMS	Hazardous Materials	Tech Rescue	Urban Interface	ARFF	Disaster
Risk Level	**Significant**	**Minimal**	**Significant**	**Significant**	**Minimal**	**Minimal**	**Minimal**

Zoning Classification(s):

City of Shelby Zoning Classification
GB. LI

Demographics by Risk Hazard Zone:

Demographic	Indicator
Square Miles	**0.0819**
Total Population	**47**
Population Density (per square mile)	**573.93**
CFAI Density Classification	**Rural**
Land Use; Residential, Institution, Education	**2.09%**
Land Use; Commercial, Industrial	**58.99%**

Risk Typification & Historical Incident Data 2014-2019:

Risk Type	Total	Minimal	Moderate	Significant	Maximum
Fire	**12**	**2**	**9**	**1**	**0**
EMS	**18**	**0**	**0**	**18**	**0**
Hazardous Materials	**18**	**12**	**6**	**0**	**0**
Tech Rescue	**84**	**28**	**18**	**19**	**19**
Urban Interface	**11**	**8**	**3**	**0**	**0**
ARFF	**0**	**0**	**0**	**0**	**0**
Disaster	**0**	**0**	**0**	**0**	**0**
Total	**143**	**50**	**36**	**38**	**19**

Property Risk

Target Occupancy Count	Overall OVAP Risk
12	**Moderate**

NC Forest Service Wildfire Risk Assessment

Mutual Aid Zone	Overall Risk
35-1	**Moderate**

NC Flood Map Risk Assessment

Land Area	Flood way Zone	100yr Flood Zone	500yr Flood Zone
Percentage	**0.31%**	**0.71%**	**0.93%**

RHA 2-Z

Summary of Overall Risk:

Risk Type	Fire	EMS	Hazardous Materials	Tech Rescue	Urban Interface	ARFF	Disaster
Risk Level	**Significant**	**Minimal**	**Significant**	**Significant**	**Minimal**	**Minimal**	**Minimal**

Zoning Classification(s):

City of Shelby Zoning Classification
GB, GB-2, LI

Demographics by Risk Hazard Zone:

Demographic	Indicator
Square Miles	**0.0921**
Total Population	**36**
Population Density (per square mile)	**390.80**
CFAI Density Classification	**Rural**
Land Use; Residential, Institution, Education	**10.91%**
Land Use; Commercial, Industrial	**85.13%**

Risk Typification & Historical Incident Data 2014-2019:

Risk Type	Total	Minimal	Moderate	Significant	Maximum
Fire	**4**	**0**	**4**	**0**	**0**
EMS	**4**	**0**	**0**	**4**	**0**
Hazardous Materials	**2**	**1**	**1**	**0**	**0**
Tech Rescue	**1**	**1**	**0**	**0**	**0**
Urban Interface	**0**	**0**	**0**	**0**	**0**
ARFF	**0**	**0**	**0**	**0**	**0**
Disaster	**0**	**0**	**0**	**0**	**0**
Total	**11**	**2**	**5**	**4**	**0**

Property Risk

Target Occupancy Count	Overall OVAP Risk
4	**Maximum**

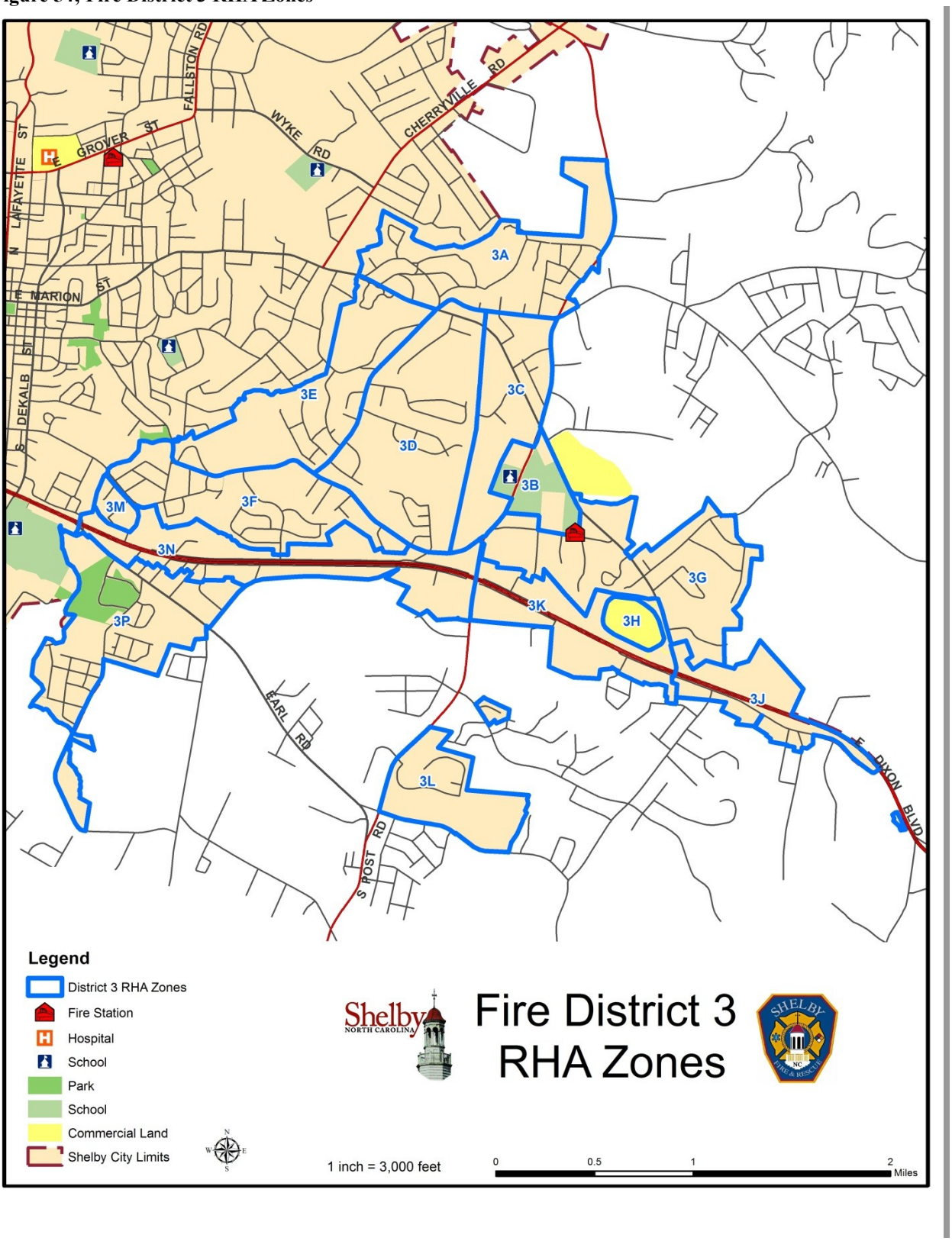
NC Forest Service Wildfire Risk Assessment

Mutual Aid Zone	Overall Risk
35-1	**Moderate**

NC Flood Map Risk Assessment

Land Area	Flood way Zone	100yr Flood Zone	500yr Flood Zone
Percentage	**3.83%**	**8.50%**	**3.11%**

Figure 54; Fire District 3 RHA Zones



RHA 3-A

Summary of Overall Risk:

Risk Type	Fire	EMS	Hazardous Materials	Tech Rescue	Urban Interface	ARFF	Disaster
Risk Level	**Moderate**	**Moderate**	**Moderate**	**Significant**	**Maximum**	**Minimal**	**Moderate**

Zoning Classification(s):

City of Shelby Zoning Classification
R-10, GB, LI

Demographics by Risk Hazard Zone:

Demographic	Indicator
Square Miles	**0.4806**
Total Population	**593**
Population Density (per square mile)	**1233.83**
CFAI Density Classification	**Urban**
Land Use; Residential, Institution, Education	**77.27%**
Land Use; Commercial, Industrial	**10.34**

Risk Typification & Historical Incident Data 2014-2019:

Risk Type	Total	Minimal	Moderate	Significant	Maximum
Fire	**27**	**2**	**25**	**0**	**0**
EMS	**32**	**0**	**0**	**32**	**0**
Hazardous Materials	**10**	**2**	**8**	**0**	**0**
Tech Rescue	**11**	**7**	**2**	**2**	**0**
Urban Interface	**2**	**1**	**1**	**0**	**0**
ARFF	**0**	**0**	**0**	**0**	**0**
Disaster	**0**	**0**	**0**	**0**	**0**
Total	**82**	**12**	**36**	**34**	**0**

Property Risk

Target Occupancy Count	Overall OVAP Risk
4	**Moderate**

NC Forest Service Wildfire Risk Assessment

Mutual Aid Zone	Overall Risk
30-1	**Moderate**

NC Flood Map Risk Assessment

Land Area	Flood way Zone	100yr Flood Zone	500yr Flood Zone
Percentage	**0.00%**	**0.00%**	**0.00%**

RHA 3-B

Summary of Overall Risk:

Risk Type	Fire	EMS	Hazardous Materials	Tech Rescue	Urban Interface	ARFF	Disaster
Risk Level	**Significant**	**Minimal**	**Moderate**	**Maximum**	**Moderate**	**Minimal**	**Significant**

Zoning Classification(s):

City of Shelby Zoning Classification
RO, R-10, GB-2

Demographics by Risk Hazard Zone:

Demographic	Indicator
Square Miles	**0.1373**
Total Population	**8**
Population Density (per square mile)	**58.26**
CFAI Density Classification	**Rural**
Land Use; Residential, Institution, Education	**76.28%**
Land Use; Commercial, Industrial	**15.44%**

Risk Typification & Historical Incident Data 2014-2019:

Risk Type	Total	Minimal	Moderate	Significant	Maximum
Fire	**19**	**0**	**19**	**0**	**0**
EMS	**39**	**0**	**0**	**39**	**0**
Hazardous Materials	**4**	**4**	**0**	**0**	**0**
Tech Rescue	**12**	**8**	**2**	**2**	**0**
Urban Interface	**1**	**1**	**0**	**0**	**0**
ARFF	**0**	**0**	**0**	**0**	**0**
Disaster	**0**	**0**	**0**	**0**	**0**
Total	**75**	**13**	**21**	**41**	**0**

Property Risk

Target Occupancy Count	Overall OVAP Risk
6	**Significant**

NC Flood Map Risk Assessment

Land Area	Flood way Zone	100yr Flood Zone	500yr Flood Zone
Percentage	**0.00%**	**0.00%**	**0.00%**

NC Forest Service Wildfire Risk Assessment

Mutual Aid Zone	Overall Risk
30-1	**Moderate**

RHA 3-C

Summary of Overall Risk:

Risk Type	Fire	EMS	Hazardous Materials	Tech Rescue	Urban Interface	ARFF	Disaster
Risk Level	**Moderate**	**Minimal**	**Significant**	**Moderate**	**Moderate**	**Minimal**	**Minimal**

Zoning Classification(s):

City of Shelby Zoning Classification
R-10, RO, GB, LI

Demographics by Risk Hazard Zone:

Demographic	Indicator
Square Miles	**0.3219**
Total Population	**314**
Population Density (per square mile)	**975.58**
CFAI Density Classification	**Rural**
Land Use; Residential, Institution, Education	**64.75%**
Land Use; Commercial, Industrial	**25.87%**

Risk Typification & Historical Incident Data 2014-2019:

Risk Type	Total	Minimal	Moderate	Significant	Maximum
Fire	**7**	**2**	**5**	**0**	**0**
EMS	**24**	**0**	**0**	**24**	**0**
Hazardous Materials	**2**	**1**	**1**	**0**	**0**
Tech Rescue	**16**	**14**	**1**	**1**	**0**
Urban Interface	**0**	**0**	**0**	**0**	**0**
ARFF	**0**	**0**	**0**	**0**	**0**
Disaster	**0**	**0**	**0**	**0**	**0**
Total	**49**	**17**	**7**	**25**	**0**

Property Risk

Target Occupancy Count	Overall OVAP Risk
16	**Significant**

NC Flood Map Risk Assessment

Land Area	Flood way Zone	100yr Flood Zone	500yr Flood Zone
Percentage	**0.00%**	**0.00%**	**0.00%**

NC Forest Service Wildfire Risk Assessment

Mutual Aid Zone	Overall Risk
30-1	**Moderate**

RHA 3-D

Summary of Overall Risk:

Risk Type	Fire	EMS	Hazardous Materials	Tech Rescue	Urban Interface	ARFF	Disaster
Risk Level	**Moderate**	**Minimal**	**Moderate**	**Moderate**	**Moderate**	**Minimal**	**Significant**

Zoning Classification(s):

City of Shelby Zoning Classification
R-8, R-10, GB

Demographics by Risk Hazard Zone:

Demographic	Indicator
Square Miles	**0.6328**
Total Population	**431**
Population Density (per square mile)	**681.08**
CFAI Density Classification	**Rural**
Land Use; Residential, Institution, Education	**89.66%**
Land Use; Commercial, Industrial	**2.42%**

Risk Typification & Historical Incident Data 2014-2019:

Risk Type	Total	Minimal	Moderate	Significant	Maximum
Fire	**21**	**3**	**18**	**0**	**0**
EMS	**32**	**0**	**0**	**32**	**0**
Hazardous Materials	**18**	**6**	**10**	**2**	**0**
Tech Rescue	**6**	**4**	**1**	**1**	**0**
Urban Interface	**2**	**1**	**1**	**0**	**0**
ARFF	**0**	**0**	**0**	**0**	**0**
Disaster	**0**	**0**	**0**	**0**	**0**
Total	**79**	**14**	**30**	**35**	**0**

Property Risk

Target Occupancy Count	Overall OVAP Risk
5	**Significant**

NC Flood Map Risk Assessment

Land Area	Flood way Zone	100yr Flood Zone	500yr Flood Zone
Percentage	**0.00%**	**0.00%**	**0.00%**

NC Forest Service Wildfire Risk Assessment

Mutual Aid Zone	Overall Risk
30.1	**Moderate**

RHA 3-E

Summary of Overall Risk:

Risk Type	Fire	EMS	Hazardous Materials	Tech Rescue	Urban Interface	ARFF	Disaster
Risk Level	**Moderate**	**Minimal**	**Moderate**	**Moderate**	**Moderate**	**Minimal**	**Minimal**

Zoning Classification(s):

City of Shelby Zoning Classification
R-6, R-10

Demographics by Risk Hazard Zone:

Demographic	Indicator
Square Miles	**0.4655**
Total Population	**318**
Population Density (per square mile)	**681.68**
CFAI Density Classification	**Rural**
Land Use; Residential, Institution, Education	**91.43%**
Land Use; Commercial, Industrial	**0.00%**

Risk Typification & Historical Incident Data 2014-2019:

Risk Type	Total	Minimal	Moderate	Significant	Maximum
Fire	**8**	**3**	**5**	**0**	**0**
EMS	**21**	**0**	**0**	**21**	**0**
Hazardous Materials	**4**	**1**	**3**	**0**	**0**
Tech Rescue	**1**	**1**	**0**	**0**	**0**
Urban Interface	**2**	**1**	**1**	**0**	**0**
ARFF	**0**	**0**	**0**	**0**	**0**
Disaster	**0**	**0**	**0**	**0**	**0**
Total	**36**	**6**	**9**	**21**	**0**

Property Risk

Target Occupancy Count	Overall OVAP Risk
0	**Minimal**

NC Flood Map Risk Assessment

Land Area	Flood way Zone	100yr Flood Zone	500yr Flood Zone
Percentage	**0.80%**	**4.60%**	**1.25%**

NC Forest Service Wildfire Risk Assessment

Mutual Aid Zone	Overall Risk
30-1	**Moderate**

RHA 3-F

Summary of Overall Risk:

Risk Type	Fire	EMS	Hazardous Materials	Tech Rescue	Urban Interface	ARFF	Disaster
Risk Level	**Moderate**	**Significant**	**Moderate**	**Moderate**	**Moderate**	**Minimal**	**Significant**

Zoning Classification(s):

City of Shelby Zoning Classification
R-10

Demographics by Risk Hazard Zone:

Demographic	Indicator
Square Miles	**0.4279**
Total Population	**500**
Population Density (per square mile)	**1168.42**
CFAI Density Classification	**Urban**
Land Use; Residential, Institution, Education	**84.12%**
Land Use; Commercial, Industrial	**0.99%**

Risk Typification & Historical Incident Data 2014-2019:

Risk Type	Total	Minimal	Moderate	Significant	Maximum
Fire	**9**	**1**	**8**	**0**	**0**
EMS	**47**	**0**	**0**	**47**	**0**
Hazardous Materials	**16**	**11**	**5**	**0**	**0**
Tech Rescue	**9**	**5**	**2**	**2**	**0**
Urban Interface	**3**	**2**	**1**	**0**	**0**
ARFF	**0**	**0**	**0**	**0**	**0**
Disaster	**0**	**0**	**0**	**0**	**0**
Total	**84**	**19**	**16**	**49**	**0**

Property Risk

Target Occupancy Count	Overall OVAP Risk
1	**Moderate**

NC Forest Service Wildfire Risk Assessment

Mutual Aid Zone	Overall Risk
30-1	**Moderate**

NC Flood Map Risk Assessment

Land Area	Flood way Zone	100yr Flood Zone	500yr Flood Zone
Percentage	**1.52%**	**3.16%**	**1.08%**

RHA 3-G

Summary of Overall Risk:

Risk Type	Fire	EMS	Hazardous Materials	Tech Rescue	Urban Interface	ARFF	Disaster
Risk Level	**Moderate**	**Significant**	**Moderate**	**Moderate**	**Moderate**	**Minimal**	**Significant**

Zoning Classification(s):

City of Shelby Zoning Classification
R-10, R-20, GB-2

Demographics by Risk Hazard Zone:

Demographic	Indicator
Square Miles	**0.5693**
Total Population	**684**
Population Density (per square mile)	**1201.48**
CFAI Density Classification	**Urban**
Land Use; Residential, Institution, Education	**83.46%**
Land Use; Commercial, Industrial	**8.10%**

Risk Typification & Historical Incident Data 2014-2019:

Risk Type	Total	Minimal	Moderate	Significant	Maximum
Fire	**6**	**1**	**5**	**0**	**0**
EMS	**44**	**0**	**0**	**44**	**0**
Hazardous Materials	**9**	**6**	**3**	**0**	**0**
Tech Rescue	**14**	**10**	**2**	**2**	**0**
Urban Interface	**8**	**4**	**4**	**0**	**0**
ARFF	**0**	**0**	**0**	**0**	**0**
Disaster	**0**	**0**	**0**	**0**	**0**
Total	**81**	**21**	**14**	**46**	**0**

Property Risk

Target Occupancy Count	Overall OVAP Risk
3	**Significant**

NC Flood Map Risk Assessment

Land Area	Flood way Zone	100yr Flood Zone	500yr Flood Zone
Percentage	**0.00%**	**0.00%**	**0.00%**

NC Forest Service Wildfire Risk Assessment

Mutual Aid Zone	Overall Risk
30-1	**Moderate**

RHA 3-H

Summary of Overall Risk:

Risk Type	Fire	EMS	Hazardous Materials	Tech Rescue	Urban Interface	ARFF	Disaster
Risk Level	**Significant**	**Minimal**	**Moderate**	**Moderate**	**Minimal**	**Minimal**	**Minimal**

Zoning Classification(s):

City of Shelby Zoning Classification
GB

Demographics by Risk Hazard Zone:

Demographic	Indicator
Square Miles	**0.0571**
Total Population	**0**
Population Density (per square mile)	**0**
CFAI Density Classification	**Rural**
Land Use; Residential, Institution, Education	**0.00%**
Land Use; Commercial, Industrial	**100.00%**

Risk Typification & Historical Incident Data 2014-2019:

Risk Type	Total	Minimal	Moderate	Significant	Maximum
Fire	**21**	**3**	**18**	**0**	**0**
EMS	**22**	**0**	**0**	**22**	**0**
Hazardous Materials	**6**	**4**	**2**	**0**	**0**
Tech Rescue	**6**	**2**	**2**	**2**	**0**
Urban Interface	**4**	**4**	**0**	**0**	**0**
ARFF	**0**	**0**	**0**	**0**	**0**
Disaster	**0**	**0**	**0**	**0**	**0**
Total	**59**	**13**	**22**	**24**	**0**

Property Risk

Target Occupancy Count	Overall OVAP Risk
4	**Significant**

NC Flood Map Risk Assessment

Land Area	Flood way Zone	100yr Flood Zone	500yr Flood Zone
Percentage			

NC Forest Service Wildfire Risk Assessment

Mutual Aid Zone	Rating
30-1	**Moderate**

RHA 3-J

Summary of Overall Risk:

Risk Type	Fire	EMS	Hazardous Materials	Tech Rescue	Urban Interface	ARFF	Disaster
Risk Level	**Significant**	**Minimal**	**Significant**	**Significant**	**Moderate**	**Minimal**	**Minimal**

Zoning Classification(s):

City of Shelby Zoning Classification
R-20, GB, LI

Demographics by Risk Hazard Zone:

Demographic	Indicator
Square Miles	**0.2212**
Total Population	**31**
Population Density (per square mile)	**140.15**
CFAI Density Classification	**Rural**
Land Use; Residential, Institution, Education	**6.10%**
Land Use; Commercial, Industrial	**72.17%**

Risk Typification & Historical Incident Data 2014-2019:

Risk Type	Total	Minimal	Moderate	Significant	Maximum
Fire	**5**	**2**	**3**	**0**	**0**
EMS	**16**	**0**	**0**	**16**	**0**
Hazardous Materials	**8**	**4**	**4**	**0**	**0**
Tech Rescue	**46**	**13**	**11**	**11**	**11**
Urban Interface	**7**	**5**	**2**	**0**	**0**
ARFF	**0**	**0**	**0**	**0**	**0**
Disaster	**0**	**0**	**0**	**0**	**0**
Total	**82**	**24**	**20**	**27**	**11**

Property Risk

Target Occupancy Count	Overall OVAP Risk
4	**Significant**

NC Flood Map Risk Assessment

Land Area	Flood way Zone	100yr Flood Zone	500yr Flood Zone
Percentage	**0.10%**	**0.34%**	**0.08%**

NC Forest Service Wildfire Risk Assessment

Mutual Aid Zone	Rating
30-1	**Moderate**

RHA 3-K

Summary of Overall Risk:

Risk Type	Fire	EMS	Hazardous Materials	Tech Rescue	Urban Interface	ARFF	Disaster
Risk Level	**Significant**	**Minimal**	**Significant**	**Significant**	**Minimal**	**Minimal**	**Minimal**

Zoning Classification(s):

City of Shelby Zoning Classification
R-20, GB, GI

Demographics by Risk Hazard Zone:

Demographic	Indicator
Square Miles	**0.3024**
Total Population	**56**
Population Density (per square mile)	**185.21**
CFAI Density Classification	**Rural**
Land Use; Residential, Institution, Education	**21.45%**
Land Use; Commercial, Industrial	**60.72%**

Risk Typification & Historical Incident Data 2014-2019:

Risk Type	Total	Minimal	Moderate	Significant	Maximum
Fire	**19**	**2**	**16**	**1**	**0**
EMS	**29**	**0**	**0**	**29**	**0**
Hazardous Materials	**14**	**3**	**9**	**2**	**0**
Tech Rescue	**94**	**31**	**21**	**21**	**21**
Urban Interface	**3**	**2**	**1**	**0**	**0**
ARFF	**0**	**0**	**0**	**0**	**0**
Disaster	**0**	**0**	**0**	**0**	**0**
Total	**159**	**38**	**47**	**53**	**21**

Property Risk

Target Occupancy Count	Overall OVAP Risk
20	**Maximum**

NC Flood Map Risk Assessment

Land Area	Flood way Zone	100yr Flood Zone	500yr Flood Zone
Percentage	**0.00%**	**0.00%**	**0.00%**

NC Forest Service Wildfire Risk Assessment

Mutual Aid Zone	Rating
30-1	**Moderate**

RHA 3-L

Summary of Overall Risk:

Risk Type	Fire	EMS	Hazardous Materials	Tech Rescue	Urban Interface	ARFF	Disaster
Risk Level	**Significant**	**Minimal**	**Moderate**	**Moderate**	**Moderate**	**Minimal**	**Minimal**

Zoning Classification(s):

City of Shelby Zoning Classification
GB, RO

Demographics by Risk Hazard Zone:

Demographic	Indicator
Square Miles	**0.2608**
Total Population	**10**
Population Density (per square mile)	**38.35**
CFAI Density Classification	**Rural**
Land Use; Residential, Institution, Education	**74.98%**
Land Use; Commercial, Industrial	**19.14%**

Risk Typification & Historical Incident Data 2014-2019:

Risk Type	Total	Minimal	Moderate	Significant	Maximum
Fire	**2**	**0**	**2**	**0**	**0**
EMS	**0**	**0**	**0**	**0**	**0**
Hazardous Materials	**2**	**2**	**0**	**0**	**0**
Tech Rescue	**0**	**0**	**0**	**0**	**0**
Urban Interface	**0**	**0**	**0**	**0**	**0**
ARFF	**0**	**0**	**0**	**0**	**0**
Disaster	**0**	**0**	**0**	**0**	**0**
Total	**4**	**2**	**2**	**0**	**0**

Property Risk

Target Occupancy Count	Overall OVAP Risk
0	**Minimal**

NC Flood Map Risk Assessment

Land Area	Flood way Zone	100yr Flood Zone	500yr Flood Zone
Percentage	**0.00%**	**0.00%**	**0.00%**

NC Forest Service Wildfire Risk Assessment

Mutual Aid Zone	Rating
40-1	**Minimal**

RHA 3-M

Summary of Overall Risk:

Risk Type	Fire	EMS	Hazardous Materials	Tech Rescue	Urban Interface	ARFF	Disaster
Risk Level	**Significant**	**Minimal**	**Significant**	**Minimal**	**Minimal**	**Minimal**	**Minimal**

Zoning Classification(s):

City of Shelby Zoning Classification
GB

Demographics by Risk Hazard Zone:

Demographic	Indicator
Square Miles	**0.0369**
Total Population	**0**
Population Density (per square mile)	**0**
CFAI Density Classification	**Rural**
Land Use; Residential, Institution, Education	**0.00%**
Land Use; Commercial, Industrial	**100%**

Risk Typification & Historical Incident Data 2014-2019:

Risk Type	Total	Minimal	Moderate	Significant	Maximum
Fire	**4**	**2**	**2**	**0**	**0**
EMS	**27**	**0**	**0**	**27**	**0**
Hazardous Materials	**2**	**1**	**1**	**0**	**0**
Tech Rescue	**7**	**3**	**2**	**2**	**0**
Urban Interface	**1**	**0**	**1**	**0**	**0**
ARFF	**0**	**0**	**0**	**0**	**0**
Disaster	**0**	**0**	**0**	**0**	**0**
Total	**41**	**6**	**6**	**29**	**0**

Property Risk

Target Occupancy Count	Overall OVAP Risk
0	**Minimal**

NC Forest Service Wildfire Risk Assessment

Mutual Aid Zone	Rating
30-1	**Moderate**

NC Flood Map Risk Assessment

Land Area	Flood way Zone	100yr Flood Zone	500yr Flood Zone
Percentage	**0.00%**	**0.00%**	**0.19%**

RHA 3-N

Summary of Overall Risk:

Risk Type	Fire	EMS	Hazardous Materials	Tech Rescue	Urban Interface	ARFF	Disaster
Risk Level	**Significant**	**Minimal**	**Significant**	**Significant**	**Minimal**	**Minimal**	**Minimal**

Zoning Classification(s):

City of Shelby Zoning Classification
R-10, GB

Demographics by Risk Hazard Zone:

Demographic	Indicator
Square Miles	**0.4487**
Total Population	**54**
Population Density (per square mile)	**120.34**
CFAI Density Classification	**Rural**
Land Use; Residential, Institution, Education	**1.62%**
Land Use; Commercial, Industrial	**77.68%**

Risk Typification & Historical Incident Data 2014-2019:

Risk Type	Total	Minimal	Moderate	Significant	Maximum
Fire	**70**	**8**	**62**	**0**	**0**
EMS	**122**	**0**	**0**	**122**	**0**
Hazardous Materials	**11**	**6**	**4**	**1**	**0**
Tech Rescue	**109**	**37**	**24**	**24**	**24**
Urban Interface	**12**	**7**	**5**	**0**	**0**
ARFF	**0**	**0**	**0**	**0**	**0**
Disaster	**0**	**0**	**0**	**0**	**0**
Total	**324**	**58**	**95**	**147**	**24**

Property Risk

Target Occupancy Count	Overall OVAP Risk
50	**Maximum**

NC Flood Map Risk Assessment

Land Area	Flood way Zone	100yr Flood Zone	500yr Flood Zone
Percentage	**1.09%**	**2.33%**	**0.95%**

NC Forest Service Wildfire Risk Assessment

Mutual Aid Zone	Rating
30-1	**Moderate**

RHA 3-P

Summary of Overall Risk:

Risk Type	Fire	EMS	Hazardous Materials	Tech Rescue	Urban Interface	ARFF	Disaster
Risk Level	**Moderate**	**Significant**	**Maximum**	**Moderate**	**Moderate**	**Minimal**	**Significant**

Zoning Classification(s):

City of Shelby Zoning Classification
R-6, R-10, R-20, RO, NB, GB-2

Demographics by Risk Hazard Zone:

Demographic	Indicator
Square Miles	**0.5167**
Total Population	**635**
Population Density (per square mile)	**1228.87**
CFAI Density Classification	**Urban**
Land Use; Residential, Institution, Education	**71.91%**
Land Use; Commercial, Industrial	**17.46%**

Risk Typification & Historical Incident Data 2014-2019:

Risk Type	Total	Minimal	Moderate	Significant	Maximum
Fire	**21**	**2**	**18**	**1**	**0**
EMS		**0**		**117**	**0**
Hazardous Materials	**10**	**4**	**4**	**2**	**0**
Tech Rescue	**21**	**11**	**3**	**3**	**4**
Urban Interface	**4**	**2**	**2**	**0**	**0**
ARFF	**0**	**0**	**0**	**0**	**0**
Disaster	**0**	**0**	**0**	**0**	**0**
Total	**35**	**19**	**18**	**123**	**4**

Property Risk

Target Occupancy Count	Overall OVAP Risk
0	

NC Flood Map Risk Assessment

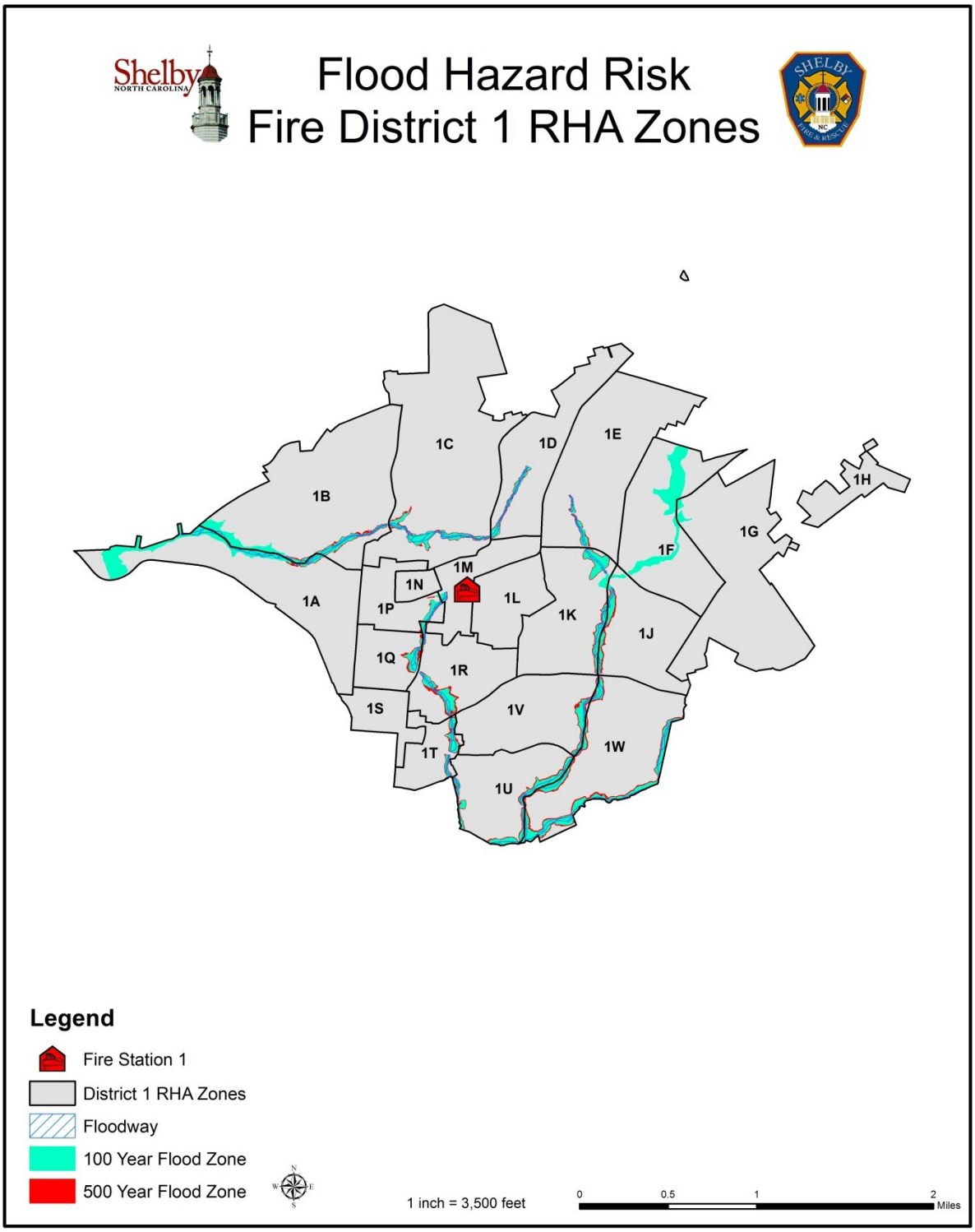
Land Area	Flood way Zone	100yr Flood Zone	500yr Flood Zone
Percentage	**3.62%**	**7.51%**	**2.02%**

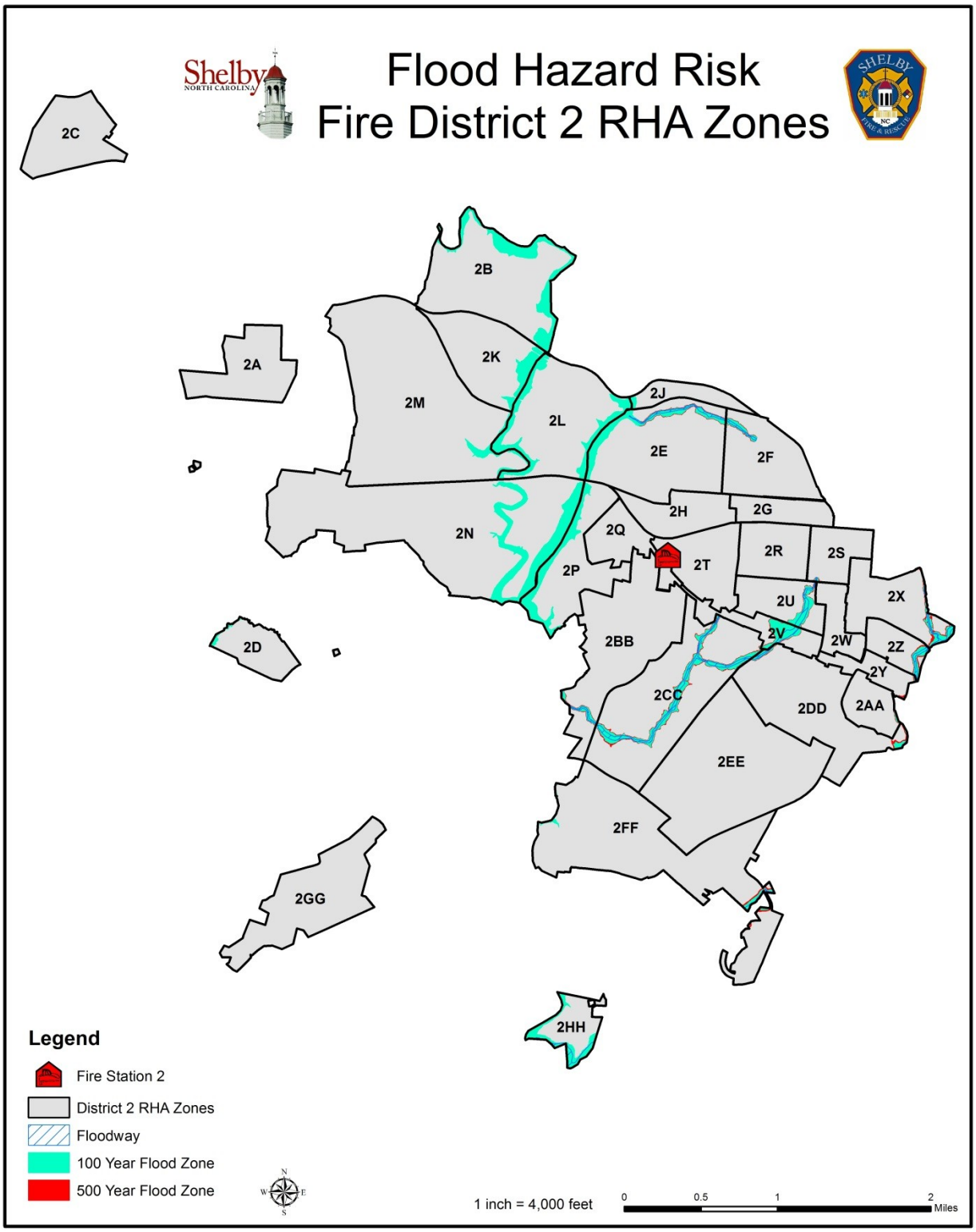
NC Forest Service Wildfire Risk Assessment

Mutual Aid Zone	Rating
30-1	**Moderate**

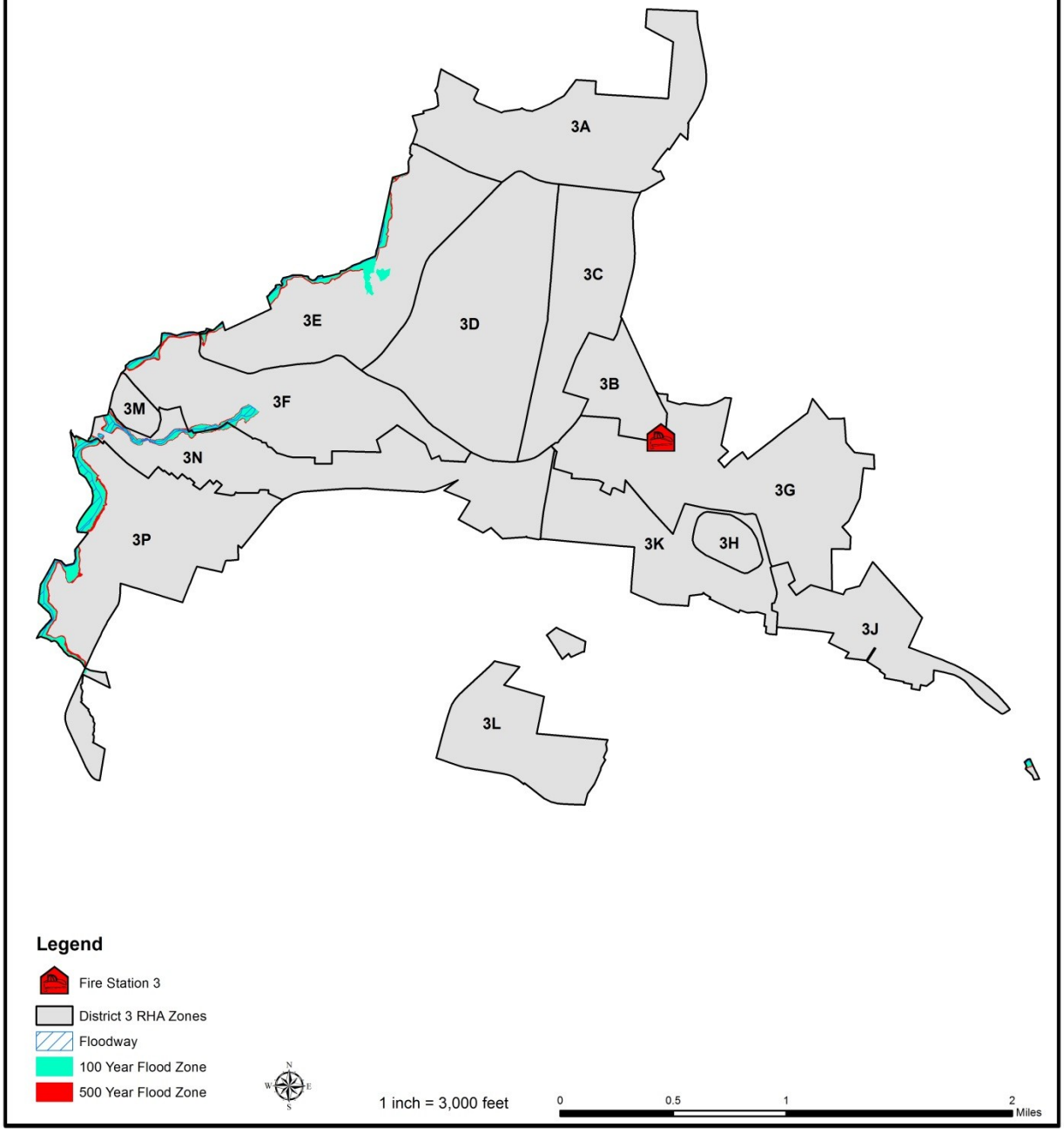
S

Appendix B; Shelby Flood Hazard Zones




Flood Hazard Risk
Fire District 2 RHA Zones
2C
2B
2A
2K
2M
2L
2J
2E
2F
2H
2G
2N
2Q
2R
2S
2T
2P
2U
2X
2D
2BB
2V
2W
2Z
2Y
2CC
2DD
2AA
2EE
2FF
2GG
2HH
Legend
Fire Station 2
District 2 RHA Zones
Floodway
100 Year Flood Zone
500 Year Flood Zone
1 inch = 4,000 feet
0
0.5
1
2
Miles

Flood Hazard Risk
Fire District 3 RHA Zones



Appendix C; Analysis of Community Risk from Disaster

Table 71 Disaster Vulnerability Assessment

Hazards	Aircraft Crash	Nuclear Accident	Invasion/ Unrest	Drought	Flooding	Haz-mat Release	Severe Storm	Winter Storm	Natural Gas
Impact Rating									
Danger, Destruction Harm	1	3	2/3	2	2	2	2	1	2
Economic	1	3	2	2	2	2	1	1	2
Environmental	1	3	2	3	2	3	2	1	2
Social	1	3	3	2	2	2	1	1	2
Planning	1	3	2/3	2	1/2	1	1	1	1
Total Score	5	15	11/13	11	9/10	10	7	5	9
Ranking	Low	High	High	Moderate	Moderate	Moderate	Low	Low	Moderate

Summary

Danger/Destruction/Personal Harm	High=3	Moderate=2	Low=1
Economic	Permanent=3	Temporary=2	Short term=1
Environmental	High=3	Moderate=2	Low=1
Planning Level	Federal=3	Regional=2	Local=1
Ranking			
	High= 12-15pts	Moderate= 9-11pts	Low= 5-8pts

Table 72 Disaster Probability Assessment

Hazards	Aircraft Crash	Nuclear Accident	Invasion/ Unrest	Drought	Flooding	Haz-mat Release	Severe Storm	Winter Storm	Natural Gas
Probability of Occurrence									
Likely (3)							X	X	
Probable (2)	X			X	X	X			X
Unlikely (1)		X	X						
Total Score	2	1	1	2	2	2	3	3	2

Table 73 Community Risk from Disaster Profile-

Hazards	Aircraft Crash	Nuclear Accident	Invasion/ Unrest	Drought	Flooding	Haz-mat Release	Severe Storm	Winter Storm	Natural Gas
Summary									
Vulnerability	Low (1)	High (3)	High (3)	Moderate (2)	Moderate (2)	Moderate (2)	Low (1)	Low (1)	Moderate (2)
Probability	2	1	1	2	2	2	3	3	2
V(P)=Risk	2	3	3	4	4	4	3	3	4
Profile	Low	Med	Med	Med	Med	Med	Med	Med	Med

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i The 6th edition FESSAM defines an urban area as containing 2,500 persons, of which 1,500 must reside outside of institutional group quarters (p. 12). For the purpose of this document, the agency elected to retain a lower threshold from the previous 5th edition FESSAM which defined a suburban area as containing 1,000-2,000 persons (p.71) so as to provide a clearer distinction of the urbanized portions of Shelby in the analysis of risk.

ii Excerpts of this paragraph and the correlation matrix are taken from the 6th Edition Community Risk Assessment: Standards of Cover manual pp. 67-79.